

THE GLOBAL CIO'S GUIDE TO COVID-19





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Part 1: Navigating the crisis

CIOs the world over have been promoting and driving digital transformation for a decade or more. The COVID-19 pandemic means that for some, years of planning and customer-focused strategy became a critical need overnight.

Few organizations will escape this global human disaster unchanged. Some will disappear, others will emerge stronger, with enhanced customer journeys and products, and leaner, more productive processes and workplaces.

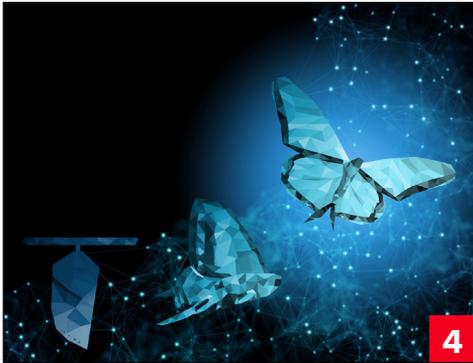
The pandemic and its economic shadow make the work of CIOs more

important than ever. Every IT dollar becomes critical, every technology decision a potential game changer.

IDG's CIO brand is uniquely positioned both to describe this reality for CIOs across the planet, and to provide useful advice for all. This magazine is our attempt to do that, reflecting the experiences of the thousands of CIOs with whom we interact in every major world market, and sharing their knowledge. We hope you enjoy the *Global CIO's Guide to COVID-19*.

**Matt Egan, Global Editorial Director,
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Doubling down on digital transformation during the coronavirus pandemic

By revving up their digital business strategies, CIOs can position themselves for growth when the pandemic subsides. **CLINT BOULTON** reports

As the coronavirus, or COVID-19, paralyzes businesses worldwide, it's tempting to back burner digital strategy amid the sharp uptake in business continuity and resiliency efforts. Don't do that: Rather, accelerate business transformation efforts now to put yourself in a better position after the pandemic passes, say experts and CIOs.

"You have to avoid the tendency to slash and burn your transformation and revert back to your traditional working model, which is human nature," Steve Bates, global leader of KPMG's CIO center of excellence, tells us.

From the dot-com bust to 9-11, to the 2008 financial crisis, disruptions have stymied digital strategies. CIOs

even have a cost-cutting playbook that starts with hardware haircutting and the elimination of new projects, according to Forrester Research. But organizations that contained costs during past disruptions felt pressure from companies that took a pro-investment approach when the global economy rebounded.

The case for digital innovation

Today, with 80 percent of revenue growth hinging on digital offerings and operations by 2022, IT leaders should continue transforming their operating models, according to KPMG research. Bates argues that companies that continue to invest in their digital strategy, while balancing short-term efforts with long-term measures, will emerge from this pandemic more competitive. Sound models that incorporate the best people, processes and technologies remain critical in good times and bad.

“All roads lead back to the IT operating model,” Bates says. “There is going to be pent-up demand, and when this period ends there is going to be a tidal wave of spending and you want to be in position to take advantage of it.” In short, now is not the time to turn the spigot off to significant tech initiatives.

To ensure that he could support 10,000 employees, Equinix CIO Milind Wagle set up a “virtual tech bar,” a

Zoom-enabled tech help desk that is available worldwide, 24-7. He also created productivity monitoring dashboards that track everything – from how many messages employees send, to how many meetings they set up, to the number of code check-ins they commit. Equinix also began using Zoom to host daily “gupshups,” virtual water coolers where employees can check-in for casual conversations.

COVID-19 facilitated the creation of these innovations, Wagle says. “I think the easiest thing – but the worst thing – would be to freeze in this time of uncertainty and not move anything forward,” he argues. “Stopping commitments would be the wrong thing for CIOs to do.”

The coronavirus crisis is nothing if not a selling point for a so-called “cloud-first” strategy, another linchpin of digital business. Cloud-first companies look to adopt SaaS and infrastructure as a service (IaaS) technologies before considering on-premises solutions. Instituting such a strategy has Autodesk well-positioned for the pandemic because it enables more virtual tasks.

“Autodesk is already set up to support a remote workforce and has built infrastructure on SaaS and cloud resources to support our anywhere, anytime model, allowing for built-in

business continuity through a variety of unique situations and events,” Autodesk CIO Prakash Kota reveals.

Boosting business resiliency

While digital innovation is important, boosting business resiliency should also be part of every business transformation. CIOs should speak with senior managers to improve resiliency in a way that aligns with corporate objectives, argues David Gregory, a Gartner analyst who focuses on risk and security management. It starts with enabling critical activities the organization requires to keep moving forward – bandwidth, VPN access, and so on – in the near term. Long-term resiliency includes optimizing service delivery while reducing threats and vulnerabilities – cyber, natural disasters, pandemics, and otherwise – to the business.

“You have to reduce the likelihood of failure and should you fail, you need IT people thinking more carefully on service delivery” as part of business continuity planning, Gregory says. Ideally, business continuity will evolve and be exercised more as a strategic rather than simply an operational discipline. In such a scenario, departments are communicating and working in concert rather than in silos. “This makes organizations more resilient,” he adds.

Here our participants offer a transformation punch list for CIOs trying to not only survive the pandemic but thrive on the other side of it.

Scale cloud and XaaS. The pandemic offers CIOs an opportunity to reframe funding around cloud and everything as a service (XaaS). Go to your CEO, CFO and board of directors who may have balked at switching from fixed capacity, much of which lays dormant, to variable cost models, Bates says. An organization that had migrated one-quarter of its IT assets to cloud and XaaS, may advocate to scale that to 50 percent or greater over the coming year. Autodesk consumes several SaaS tools, including Microsoft Office 365 and Teams, Zoom, Slack, and Salesforce, Kota says. At Equinix, Wagle reveals he is looking to move more of his contact center operations to the cloud to better ensure availability for customers.

Boost process automation. Whether you’re using robotic process automation, machine learning (ML), or the hybrid of both that comprises intelligent automation (IA), you have the “great opportunity to start scaling up investments in ML [and other advanced automation technologies] to augment a capacity constrained workforce,” Bates says. This means extending RPA, ML, and IA

Credit: Getty Images/Pontra



Companies should expand their data analytics strategies to take the pulse of their operations.

from their centers of excellence more broadly throughout the enterprise. And while pockets of consternation about automation consuming jobs remains, bots can't save productivity from a pandemic, as *Wired* notes – see tinyurl.com/u6ewcvt.

Scale DevOps. Expand automation of software development testing, as well as IT service management (ITSM). You might further streamline operations by implementing a self-service help desk. “It’s a perfect time to do that because it serves immediate needs,” Bates says.

Fortify data analytics. Companies will look to augment their data analytics strategies to take the pulse of their operations, says Bates. Wagle agrees, noting that Equinix has seen a spike in data analytics

requests, with business leaders seeking more real-time instrumentation of their business health, including information about customers. “Data and analytics more important than ever,” Wagle says. “You’re making decisions daily with changing information and reacting to factors outside your control.”

Self-service. For those who haven’t built self-service capabilities, there’s no better time to start. Self-service channels and platforms will help employees, customers and partners get what they need with less hands-on from IT and business, Wagle says. This could include improving contact center services, so that customers can more easily find support.

Such measures, most of which are linchpins of ongoing digital transformations, will leave companies well positioned for the new normal. “This will come to an end and a lot of companies will leave a massive amount of money parked on the sidelines,” Bates says. “Organizations who double down on the most important advancements to allow them to emerge more competitive are going to win. ■



Credit: Getty Images/Deagrez

Exclusive survey: What 400 IT leaders really think about the COVID-19 crisis

How did IT leaders respond to a world turned upside down? A fresh CIO survey offers illuminating answers. **ERIC KNORR** reports

A crisis on the scale of the one we're facing demands decisive action. Luckily for many IT leaders, the first move was easy: When COVID-19 work-from-home mandates hit, those with the right policies and

infrastructure in place endured the massive shift to remote work with minimal disruption. Add VPN capacity, videoconferencing, and a healthy dose of candid communication, and productivity can remain relatively unscathed.

For Some, Tech Budgets Hold Steady



Q. Will your overall IT budget increase, decrease or remain the same in the next 12 months compared to the past 12 months?

Credit: IDG Research

Among IT leaders surveyed in the *CIO COVID-19 Impact Study*, the percentage of those planning to spend more dropped sharply, but the slice of those staying the course actually increased.

The really tough part is planning ahead. When you're staring into the crater where the economy used to be, crossing your fingers that the U.S. Federal Reserve's trillions will fill it, how do you budget for the coming year? Which projects should go forward and which should be scrapped or delayed when so many unanswered business questions loom?

To determine how the pandemic is affecting the roles and priorities of IT leaders – and to discover what they think the long-term effects will be – IDG Research fielded the *CIO COVID-19 Impact Study* in mid-April – see tinyurl.com/ybp2tfxe. On a separate track, *CIO*, *Computerworld*, *CSO*, *InfoWorld*, and

Network World have produced dozens of articles about the challenges and solutions COVID-19 has prompted.

With social distancing restrictions still in force and the curve of new coronavirus cases just starting to bend, the results of our fact-finding efforts must be considered preliminary. But they provide real insight into IT leadership's current thinking – and hint at the new reality of IT from this point on.

Rethinking spending priorities

No one should be shocked that, according to the *COVID-19 Impact Study* – which surveyed 414 IT executives, managers, and business professionals

– the proportion of those who expect to increase their IT spending in the next year fell sharply from 59 percent in December 2019 to 25 percent in April. Likewise, those who think they will decrease their spending rose from 7 percent to 39 percent.

But surprisingly, the slice of respondents who expect their spending to remain the same actually grew from 34 percent to 40 percent – and the aforementioned anticipated spending drops were nowhere near as severe as those seen during the height of the financial crisis in 2009.

That said, a plurality (45 percent) of *Impact Study* respondents said their top priority in the coming year will be cost control and expense management. In the *CIO* article “7 tips for coping with a limited IT budget” (see tinyurl.com/y9rt3rbm), Ralph Labarta, CTO of business management consulting firm Engage PEO, reminds IT leaders to ensure their spending aligns with business priorities: If “a CIO is only able to deliver seven projects on a list of ten, those seven projects better be the most impactful projects to the business.”

So what should get funded? Among the *Impact Study*’s respondents, a plurality (37 percent) chose digital transformation as their first priority to help the business persevere through the current disruption.

Moreover, a full 61 percent of respondents agreed with the statement that the effects of the pandemic are actually accelerating digital transformation efforts.

That was the notion behind the *CIO* article “Doubling down on digital transformation during the coronavirus pandemic” – see page 4. The downturn won’t last forever. Steve Bates, global leader of KPMG’s CIO center of excellence, summed it up with this anchor quote: “Organizations who double down on the most important advancements to allow them to emerge more competitive are going to win.”

The work-from-home experience

Digital transformation actually tied with “improving remote work experiences” as the number one priority among those surveyed. No less than 71 percent of respondents agreed with the statement that “the current WFH shift has created a more positive view of remote workplace policies and will likely impact how we plan for office space, tech staffing, and overall staffing in the future.”

Computerworld addressed that issue head on in the article “Remote working, now and forevermore?” – see tinyurl.com/t6ndgbs. In that story, Angela Ashenden, principal analyst at CCS Insight, offers a blunt assessment: “There’s a good chance that lots of

businesses will see the opportunity to reduce their office space costs through broader support for remote working in the long term.”

The shift from office to home has gone better in some organizations than others, but roughly two-thirds have done well. In the survey, 68 percent of respondents said their infrastructure was adequately prepared and 65 percent said the same of their support systems. Anecdotally, the biggest infrastructure problem was the inability to accommodate sufficient VPN connections, as the *Network World* article “Coronavirus challenges remote networking” reveals – see tinyurl.com/ursejdr. In less than one

week in March, US VPN usage increased by 53 percent, according a vendor survey cited in that story.

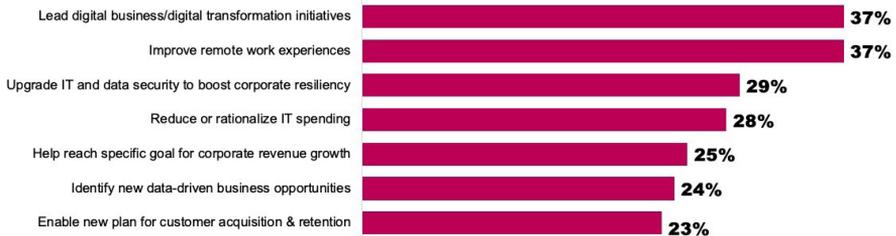
But there’s more to remote work than infrastructure and support. The *CIO* article “7 secrets of successful remote IT teams” (see tinyurl.com/rq5eu2m) outlines the roles and responsibilities for teams collaborating remotely. Strong, compassionate leadership in disruptive times is key – a point underlined in that story by Allison St. John, cofounder of The Remote Leader Project: “It’s most important that the team lead have people skills, so that the highly technical and most skilled people can continue to produce in their technical strength.”



Credit: Getty Images/Eva-Katalin

The shift from office to home has gone better in some organizations than others.

DX and WFH are Top Priorities...



Credit: IDG Research

Digital transformation tied with improving the remote work experience as the top priority among the IT leaders surveyed in the *CIO COVID-19 Impact Study*.

Cybersecurity anxieties

There's no way around it: Working from home increases endpoint vulnerability, especially when many employees may be unaccustomed to using their laptops on the home Wi-Fi setup. That's one reason why 33 percent of those surveyed cited security management as their primary focus over the next 12 months.

In mid-March, CSO posted "6 ways attackers are exploiting the COVID-19 crisis" (see tinyurl.com/yd3p3prw), in which the threat of phishing emails figured prominently. Sherrod DeGrippe, senior director of threat research and detection at Proofpoint, tells CSO that "our threat research team has observed numerous COVID-19 malicious email campaigns with many using fear to try and convince potential victims to click. Criminals have sent waves of emails that have ranged from a dozen to over 200,000 at a time."

Another survey question asked how IT leaders planned to spend whatever savings they might get from increasing operational efficiency. In response, 42 percent of respondents (and 52 percent of IT execs) said they were likely to invest in "new/upgraded technology to improve security," the second choice after the perennial "new technologies to improve customer engagement/satisfaction."

What new security tech might be procured? "COVID-19 offers a unique opportunity to pilot zero trust, rapidly and at scale" put one leading security trend front and center. Chase Cunningham, a principal analyst Forrester, offered a bullish take on the potential of zero trust, which mandates persistent authentication to prevent attackers from moving laterally when they penetrate an organization. "This is the future of the workspace and now they have an opportunity to test that

stuff out for free in lots of instances and continue to grow from there,” he said. “If it was me, I would be jumping on this as fast as I could.”

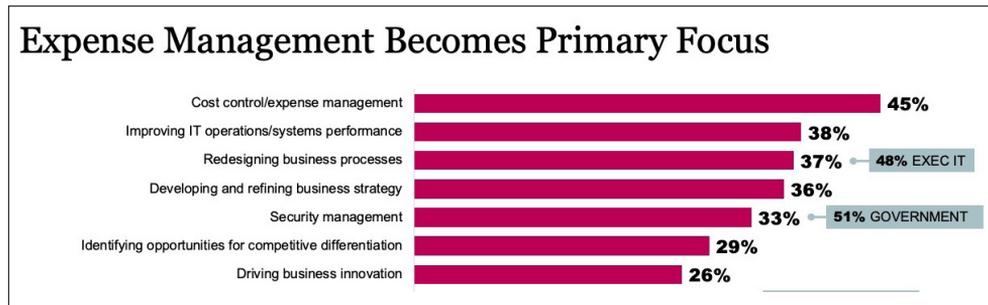
Coming to grips with the new reality

IT leaders and everyone else are still trying to grasp the magnitude of our current crisis – the lives lost, the treasure spent, the businesses that may never recover. Yet it’s part of any leader’s job to set clear priorities, so when the unforeseen strikes, that which sustains the business rolls on, that which promises new opportunity nets investment, and that which offers too little return melts away.

It’s encouraging to see that among our respondents, transformational initiatives remain on the front burner. Many of those endeavors, once implemented, promise to reduce costs. Yet 41 percent of the IT leaders surveyed (and 48 percent of IT

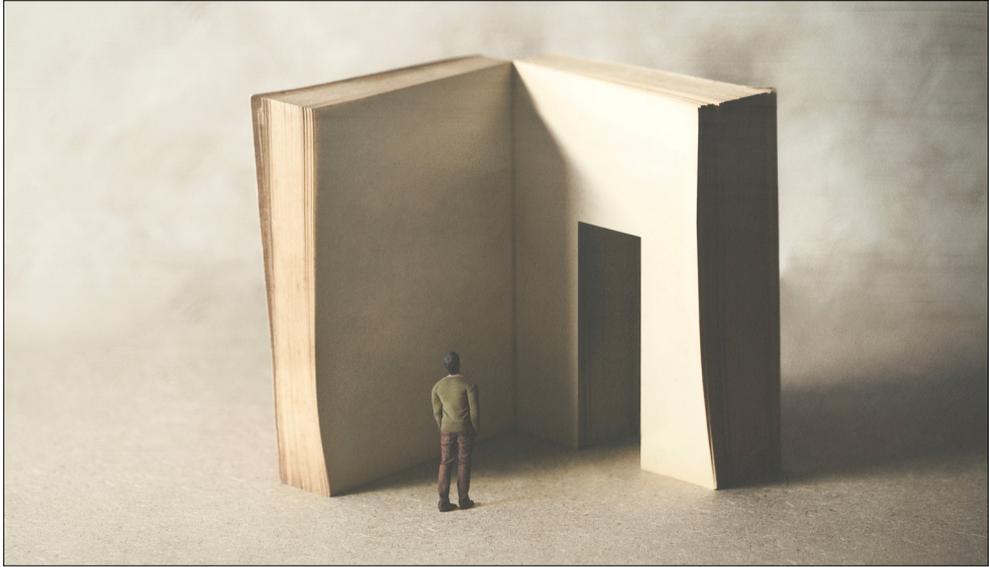
executives) said that redesigning business processes was their first priority, while 36 percent chose “developing and refining business strategy.” IT leaders are already thinking ahead and, in some cases, using the crisis as a pivot point to modernize operations and put an end to wasteful practices and projects.

At the same time, groups within organizations are recognizing their common interests, observes Jim Swanson, EVP and Group CIO at Johnson & Johnson, in the *CIO* article “How Johnson & Johnson IT is managing a global crisis” – see tinyurl.com/y7uk6fuk. He believes the pandemic has helped his company’s vast IT organization recognize the need to work together as one team. “We now see clearly that no one group is big enough, smart enough, or has all of the resources to be on their own. This pandemic is showing how powerful we can be when we work together on a single mission.” ■



Credit: IDG Research

Expense management came first, but security management was not far behind among the activities IT leaders planned to spend more time on, particularly those employed by government.



Credit: Getty Images/francescoch

The coronavirus playbook: 7 tips for surviving the crisis

Don't let the coronavirus crisis cripple your company. Follow this CIO survival guide to the pandemic. **CLINT BOULTON** reports

The coronavirus holds no quarter for humans, with its merciless march punishing businesses worldwide.

Desperate to flatten the COVID-19 curve, employees toil from home, straining remote work operations.

“Pandemic” may not have been on the CIO’s contingency list, but the playbook for resiliency and business continuity stands. CIOs must respond

to the challenge with both short- and long-term actions to increase resilience and prepare for future profitable growth, says Nicholas Colisto, vice president and CIO of Avery Dennison, a provider of adhesives, apparel tags, and other branding solutions.

“Unexpected disruptions can impede companies’ ability to deliver products and services to customers, and impact

revenue and customer satisfaction,” Colisto tells *CIO*.

Remarkably, the threat has galvanized IT teams, with many CIOs reporting more progress on their remote work efforts since the onset of the coronavirus than they’d made in months previously, according to Herb Schul, sectors and solutions leader for EY Americas Advisory Markets. IT teams are boosting bandwidth, provisioning servers and training staff to use remote technologies in weeks, rather than the months it may have taken previously. “Necessity and immediate need eliminate the typical barriers,” Schul says. “It’s been interesting to see the world adapt to working remotely so quickly.”

Most CIOs will know how to plan for contingencies, but comparing checklists to those of peers reaffirms that you’re on the right path. Here, CIOs and researchers offer steps IT leaders should take to support their organizations in a time of crisis.

1. Shift spending to support remote work

In the short term, CIOs should shift spending to technologies that support remote work, such as laptops, desktop virtualization, and VPNs and multi-factor authentication to ensure secure access. On that score, Autodesk CIO Prakash

Kota offers best practices for keep employees humming along. Of particular importance are cloud, virtual access, remote onboarding, and collaboration technologies. For example, Autodesk’s HelpBot, a virtual assistant housed in Slack, answers frequently asked work-from-home questions, Kota says.

“We saw a significant increase in the adoption of our productivity tools and we scaled in an agile fashion,” Kota tells *CIO*. “We knew based on utilization data that we both had the licenses in place and the ability to scale for this scenario.”

2. Put crisis management on the front burner

Form an IT crisis management team (ITCMT) and connect its members to global or even divisional business continuity teams.

“This team should identify and coordinate activities designed to ensure continuity of business operations, such as identifying sites that are going remote and equipping employees with the technology and services they need to be productive,” Colisto says. “The ITCMT should also create scenarios associated with the outbreak. Scenario planning with stakeholders is an important exercise as it can help offset unfavorable outcomes, and support the customers and communities that the company serves.”

Milind Wagle, CIO of Equinix, agrees, noting that his department has been actively involved in crisis management and discussing the “art of the possible” since the onset of the coronavirus in the US “No one expected a crisis as big as this, but I’m seeing natural leaders emerge in my entire organization,” he says.

3. Build an IT resiliency dashboard

Employees are depending on IT, so it’s incumbent on IT leaders to create an IT Resiliency Dashboard to monitor the IT services they provide. Monitoring key metrics for storage, compute, application availability, desktop virtualization, and VPN use can help IT know whether service level agreements are being met. The dashboard would also help IT identify and remediate any anomalies that may lead to a disruption in services.

4. Use the crisis to boost customer engagement

Companies should invest in customer engagement, self-service, digital workplace, and knowledge management tools, Colisto urges. Transparency about service and process changes are critical to maintaining customer satisfaction. “Collectively, these tactics will improve business resilience and create a path to future profitable growth,” he adds.

5. Communicate with your team

Employees’ anxiety runs high, as 59 percent of workers are “afraid of the spread of coronavirus,” according to Forrester Research. And while staffing decisions will vary from company to company, compassion in communicating with employees is critical, Colisto says.

“When it comes to employees, now is the time to alleviate anxiety by actively communicating, showing empathy and gratitude, sharing details on how you are keeping the workplace safe, and providing work-from-home arrangements, flexible time off and sick leave,” Colisto argues.

6. Be proactive about phishing scams

Scammers are initiating phishing attacks that lure users into clicking on malicious links and sharing confidential information. Snow Software’s Alastair Pooley reveals that his company is repelling several coronavirus-themed phishing scams. The concern is that employees preoccupied with switching between chat and email may get tripped up and click on an email with a message payload.

“It’s a sad indictment on the criminals ... but I suppose that’s why they’re criminals,” Pooley says.

Colisto adds that IT leaders should work with internal communications to



Credit: Getty Images/ffladendron

Regular communication can help reduce your employees' anxiety.

provide tips to employees on recognizing and avoiding phishing emails.

7. Review the succession plan

Everyone runs the risk of falling prey to the coronavirus. While this is not on par with an “if I get hit by a bus tomorrow” scenario, IT leaders should meet with their teams to review their succession plans and decide how they will handle scenarios in case IT members become ill, Colisto says.

“I do think there are lessons to be learned here across the industries around

creating more comprehensive business continuity plans and testing those plans more frequently,” Colisto argues.

It's also critical that CIOs not let COVID-19 stop them from pursuing their IT strategies in support of digital business growth, as *CIO* has reported. Despite the dark days, CIOs should bottle the speed with which they adapted to working remotely and use it to accelerate their transformation efforts, rather than seek to contain costs, says EY's Schul. “We believe you can't just hunker down in a time of crisis,” he adds. ■



Credit: Getty Images/AleksandarNakic

How developer teams went remote overnight

Here's how companies are keeping their developers happy and productive under the cloud of COVID-19. **SCOTT CAREY** reports

As the pandemic continues to shut down cities and offices around the globe, developers and software engineers are quickly adapting to operating in remote, distributed teams.

The good news is that programmers can quite easily work wherever they

have a laptop and a secure Internet connection, but the cultural impacts on teams can be significant. Of course tools help, and there are more and more live collaboration features in the leading coding software. But other issues around remote work can't be solved with tooling.

Finding flow when operating from your home office or living room, with all of the attendant distractions, can be challenging. Distributed work can also be a source of anxiety for managers who no longer get full visibility into their team's activities and want to maintain a high level of release velocity and resiliency.

Here's how organizations are adapting their teams and workflows to the new remote working world.

Zapier: Veterans of remote collaboration

Automation software specialist Zapier (tinyurl.com/yc8vft8p) has always been a fully distributed company, with more than 300 remote employees spread across 17 time zones and 28 countries. "When you work remotely, you have to measure contributions by output and outcomes," explained Doug Gaff, VP of engineering, in an email exchange with us.

Zapier provides its employees with an abundance of resources on remote work, from its favorite communication tools and tactics to remote management strategies. One of the more useful posts from Zapier in the current climate is "How to transition to remote work in a hurry" by CEO Wade Foster – see tinyurl.com/y94vlwm9.

Zapier organizes its developers into "EPD trios" – made up of an engineering manager, product manager, and designer

– that collectively own a distinct piece of the product. EPD trios own their relative output speed, and all outcomes align with a set of shared objectives and key results (OKRs). "They collectively own customer requests, design and UX goals, and technical architecture and debt reduction. And most importantly, they can advocate for each other's respective positions and interests," Gaff added.

A key value at Zapier is to "default to transparency," which means most communication occurs in public channels using tools such as Slack, Zoom, and the Salesforce-owned Quip, which acts as a knowledge base. This can lead to information overload, however – to the point that no one can find anything or get their work done, as the Zapier blog post "Five tips for communicating on a remote team" details – see tinyurl.com/ybfothlb. Being clear, specific, and targeted in your communications is a good way to reduce the cognitive load on your colleagues.

Gaff said that it can be harder to build meaningful professional relationships when working remotely. "One way we facilitate this relationship building is by recreating watercooler moments on Slack. We have hundreds of Slack channels dedicated to hobbies and interests so people can discuss topics outside of their work and get to know each other. Time spent on these channels is seen as team

building, and it's important for leaders to take part in them as well," he explained.

This has to come with boundaries though. "When you work remotely, there's always temptation to work 24/7," he added. "This can lead to unhealthy habits and burnout. Remote workers need the discipline to walk away from work at the end of each day. It's a manager's job to encourage these boundaries and power down as well."

As teams adapt to remote working, Gaff said, you need to cultivate a culture of trust. "People are experiencing a high cognitive load: managing family stresses, learning to work remotely, potentially managing illness. The best thing you can do is look for cultural

anti-patterns. For example, in some office cultures, showing up at a particular time is proof that you're working. That does not work in remote life."

Twilio: From slightly to totally remote

Remote work isn't new for communications API specialist Twilio, but the pandemic has caused a massive shift. Prior to the coronavirus outbreak, CEO Jeff Lawson told TechCrunch that around 10 percent of the company worked remotely. "For a company like us to go from partially virtual to fully virtual in a short period of time, it's not without its hiccups, but it has worked pretty well," he revealed.

Some of that 10 percent of remote workers included the team of Marcos Placona, manager for developer evangelism at Twilio. "My team has always worked on a distributed basis with direct reports in the U.S.,



Credit: Getty Images/Moyo Studio

Being clear, specific, and targeted in your communications is a good way to reduce the cognitive load on your colleagues.

U.K., and across Europe,” Placona told us.

The various time zones involved make it “tough to work this way,” he said, “but we have regular check-ins with the team and individuals with weekly one-to-ones.”

Developer evangelists at Twilio still contribute code and have to track contributions, alongside writing documentation and filtering through reams of customer feedback. During the pandemic this team has shifted to holding daily remote stand-ups. Broader team-wide meetups by region are held weekly, as well as a virtual happy hour on Fridays.

Zoom is the go-to tool for all video conferencing, Slack is ubiquitous for text communication, and Airtable is used for task management. Then there is the private code repository GitHub, which is used to track internal projects. GitHub also offers a way to see what people are working on.

“One thing that took me by surprise is, even though I work in a distributed team,



Zoom is Twilio’s go-to video conferencing tool.

especially in week one, I noticed a lot of people were struggling to concentrate,” Placona observed. “I stressed that it was the same kind of work we have done for years, but the reason was there is too much going on.

“One solution I find useful is written lists of what you need to do that day. I told people to just go and ship something, publish a blog post, write a piece of code, make a tick on that list and you will feel better.”

TravelTime: Remote by nature

Startup TravelTime offers an API that allows customers to measure distance in the time it takes to get from point A to B, used by the likes of property

Credit: Getty Images/svetikd

search platform Zoopla and the job site TotalJobs. TravelTime's staff has always been mostly remote due to its somewhat unusual founding story.

Cofounder Charlie Davies, a self-professed "terrible developer," was looking for some help with a KRuby library he was trying to work with. This is how he met his first employee, who was helping him from his living room in Lithuania.

Davies told us via video call that his current team of 30 remains distributed across the UK, Netherlands, and Lithuania, though he does want to limit the organization's exposure to working across too many time zones.

"Autonomy, trust, and inclusion are how we run the team," he revealed, adding he has been horrified by reports of employers remotely monitoring their employees' productivity levels.

"Working in a remote team requires trust," he said, "to me you have to trust the people working for you and that is a two-way thing. Every one of our developers have a stake in the company and we have a share option scheme that allows us to do that and we don't monitor the work of our developers."

Developers fill out their own time sheets and use software like Slack for day-to-day communication, GitHub for code management, and YouTrack to

manage tasks. "In a remote setting your work has to speak for itself," he argued.

Davies added one final piece of advice for anyone going through this shift now: "You can't micromanage it. That will drive you crazy and you won't get anything done and the team will hate you for it. That trust and autonomy creates a culture of self-governance," he said.

Smarmkets: Never remote – until now

London-based betting exchange Smarmkets had a pretty strict stance against remote working before the coronavirus pandemic hit. It has shifted quickly to operating remotely, though, establishing "normal" working practices via Google Hangouts and Slack to keep everyone engaged while working from home.

"We have been steadfast against [working from home] because we find that having everyone in the office and ensuring everyone sits down for lunch creates a natural flow of ideas, and a level of cross-pollination across tech teams that is hard to mimic remotely," Robin Harrison, Smarmkets CTO, told us.

The developer teams at Smarmkets work on the DevOps model, with all tech teams supporting everything they build 24/7, so they know how to do things remotely, just not all of the time. "In terms of what we have actually seen

Credit: Getty Images/skynesher



One thing Smarkets hasn't been able to replicate remotely is the whiteboard.

in terms of development on the ground, there hasn't been too much of a change in metrics for core development," Harrison said. "We track monthly codebase changes and commits, and both of those are relatively unchanged, which shows the development process is still ticking along and releases of mobile apps haven't changed."

One thing Harrison hasn't been able to replicate remotely is whiteboards. "There is a reason whiteboards exist, the speed at which you can express abstract ideas is very different to the written word, and the way you can collaborate with colleagues is something we are missing," he said, adding that none of the digital alternatives

have passed muster for his team.

The key tools for Smarkets are Slack and G Suite, especially Hangouts, but a private instance of GitLab as a code repository,

paired with Jenkins for CI/CD, is also a key part of the remote team puzzle.

"It is all glued together by GitLab," Harrison revealed, "so the notifications that drives are as important as any for developers to keep track of what is going on with the code base. Code reviews are formal and our development flow requires a different reviewer to approve the change, so that tool is good for that."

This means Smarkets is essentially running on a GitOps model, which extends developers' purview over the applications through production. Even when everyone is back in the office, this way of working is likely to prevail as developers get full visibility into their code. ■



Credit: Getty Images/Anchly

Why didn't coronavirus break the Internet?

The short answer is that the infrastructure that makes up its backbone was designed to survive just such an emergency. **MICHAEL COONEY** reports

Just a few months into its fifty-first year, the Internet has proven its flexibility and survivability.

In the face of a rapid worldwide traffic explosion from private, public, and government entities requiring employees to work from home to help curb the

spread of the coronavirus, some experts were concerned the bandwidth onslaught might bring the Internet to its knees. All indications are that while there have been hot spots, the Internet infrastructure has held its own so far – a silver lining of sorts in dreadful situation.

Evidence of the increase is manifold:

- Video on Verizon’s network is up 41 percent, VPN usage is up 65 percent, and there’s been a tenfold increase in collaboration tool usage, says Andrés Irlando, senior vice president and president at Verizon’s public sector division.
- Downstream traffic has increased up to 20 percent and upstream traffic has up to 40 percent during the last two months, according to Cox Communications CTO Kevin Hart. “To keep ahead of the traffic we have been executing on our long-term plan that stays 12-18 months ahead of demand curves. We’ve had to scramble to stay ahead but 99 percent of our nodes are healthy.”
- The DE-CIX (the Deutsche Commercial Internet Exchange) in Frankfurt set a new world record for data throughput on in early March hitting more than 9.1 Terabits per/second. Never before has so much data been exchanged at peak times at an Internet Exchange, the DE-CIX stated on March 11 – see tinyurl.com/y7q2tcc8.

How is the Internet handling this situation? First, what does the Internet look like? It consists of access links that

move traffic from individual connected devices to high-bandwidth routers that move traffic from its source over the best available path toward its destination using TCP/IP. The core that it travels through is made up of individual high-speed fiber-optic networks that peer with each other to create the Internet backbone.

The individual core networks are privately owned by Tier 1 Internet service providers (ISP), giant carriers whose networks are tied together. These providers include AT&T, CenturyLink, Cogent Communications, Deutsche Telekom, GTT Communications, NTT Communications, Sprint, Tata Communications, Telecom Italia Sparkle, Telia Carrier, and Verizon.

These backbone ISPs connect their networks at peering points, neutrally owned facilities with high-speed switches and routers that move traffic among the peers. These are often owned by third parties, sometimes non-profits, that help unifying the backbone.

The backbone infrastructure relies on the fastest routers, which can deliver 100Gb/s trunk speeds. Internet equipment is made by variety of vendors including Cisco, Extreme, Huawei, Juniper, and Nokia.

Cisco has been analyzing traffic statistics with major carriers across Asia, Europe, and the Americas, and

its data shows that typically, the most congested point in the network occurs at inter-provider peering points, Jonathan Davidson, senior vice president and general manager of Cisco’s Mass-Scale Infrastructure Group, revealed in a blog on March 26 – see tinyurl.com/ydxkh554.

“Our analysis at these locations shows an increase in traffic of 10 percent to [41 percent] over normal levels. In every country [with peering points in Hong Kong, Italy and France, and Russia seeing the biggest traffic jumps], traffic spiked with the decision to shut down nonessential businesses and keep people at home. Since then, traffic has remained stable or has experienced a slight uptick over the days that followed,” he stated.

While overall the story has been positive, the situation hasn’t been perfect. There have been a variety of outages, according to traffic watchers at ThousandEyes, which writes weekly reports on outages among ISPs, cloud providers and conferencing services. Globally,

the number of outages to ISPs hit a record high of 250 during the week of April 20-26, 124 of the in the U.S. The number of outages is the most since the end of March, but two issues – fiber cuts in CenturyLink’s network and a broad Tata Communications outage – helped push that number up. Typically though, these problems have not been caused by networks being overwhelmed with traffic.

Resilient by design

Network planning, traffic engineering, and cutting-edge equipment can take most of the credit for the Internet’s ability to adjust in times of need.

“IP was built to last through any sort of disaster, and the core was built to live through almost anything,” Davidson



Credit: Getty Images/monkeybusinessimages

ISPs began developing pandemic plans more than a decade ago.

tells us. “Over the years there has been a tremendous amount of infrastructure and CAPEX spending to build out this massive network. We are no longer in the days of the wild west of years ago; the Internet is a critical resource and the expectations are much higher.”

Indeed, the principle of over-building capacity is one of the key reasons the Internet has performed so well. “Network capacity is critical. Our network team and engineers have been able to keep the same amount of capacity or headroom on our networks during this crisis,” says Verizon’s Irlando. “We continue to augment capacity and connectivity.”

“There was some anxiety as traffic began to ramp up at the start. We’ve seen a 35 percent increase in Internet traffic – but ultimately the networks have handled it quite well,” says Andrew Dugan, CTO at CenturyLink.

Internet planning actually took into account the demands a pandemic would place on the network, Dugan reveals. “CenturyLink and other providers began developing pandemic plans more than a decade ago, and we knew that part of the response would rely significantly on our infrastructure,” he says.

People who build large IP networks engineer them for unexpected congestion, he explains. Dugan points to three factors that are helping the

Internet successfully support the increased volume of traffic:

1. Networks are built with redundancy to handle fiber cuts and equipment failures. This means creating capacity headroom to support sudden disasters.
2. Network monitoring helps operators anticipate where congestion is occurring, allowing them to move traffic to less congested paths.
3. ISPs have been building out networks for years to account for increasing demand, and planning specifications help prevent networks from reaching full capacity.

When building fiber backbones, ISPs often bury the cabling to protect it from storms and accidents that can take down above-ground power grids. Since much of the cost of deploying the cable is in the labor to dig the trenches, while they’re at it, most ISPs install more fiber strands than they have a current use for, according to ISP OTELCO. This so-called dark fiber can take the form of additional cables or cables with unused fiber strands within them that optical switches can light up quickly as the need arises.

“We had some infrastructure segments that ran hot,” Dugan says

about the COVID-19 spike in traffic on CenturyLink’s network, “but we are fiber-based, so we quickly were able to add capacity.” And ISPs are adding more fiber all the time, which “is key to ensuring networks can meet growing demands and provide support in times of crisis, like these,” he adds.

The shifting last mile

Fiber may be commonplace in the largest Internet backbones, but it is much less so in the last-mile connections that reach homes. While fiber is the fastest home Internet option by far, availability is still scattered in the U.S., according to Broadbandnow. Due to the high cost of installing fiber service directly to homes,

ISP connections are still predominantly served by coax cable TV services even major cities. Chicago, for example, only has 21 percent fiber availability as of 2020. Dallas has about 61 percent, and that’s actually high compared to other major metros in the country, the company said in a blog – see tinyurl.com/y8gg2yu2.

When work-at-home orders came down in March, the source of Internet traffic shifted dramatically. Rather than coming from business sites connected by high-bandwidth links, suddenly significant amounts of traffic was coming from private homes, dumping more traffic onto the access networks during what would otherwise be off-peak hours. It was a significant enough issue that

AT&T CEO Randall Stephenson noted it during the company’s first-quarter financial call with analysts. “What we are seeing is the volumes of network usage moving out of urban and into suburban areas ... and we are seeing heavy, heavy volume on the networks out of homes,” he said.



Credit: Getty Images/Ridofranz

When work-at-home orders came down in March, suddenly a significant amount of traffic was coming from private homes.



Credit: Getty Images/fampatra

AT&T has used artificial intelligence to remotely troubleshoot problems.

Work-at-home employees, students doing online classwork and online shopping added to the load.

But as CenturyLink's Dugan notes, the work from home activity is generally happening during the day while peak Internet usage continues to occur in the evening when people generally consume video and gaming. This has helped balance out the additional Internet use.

In addition, traffic engineering may be able to find less congested routes if the traffic load gets too great. When that's not possible, providers have to look elsewhere. For example, US Cellular boosted its mobile broadband capacity in

six states by borrowing wireless spectrum for 60 days from other carriers who owned the licenses for those spectrum bands.

Artificial intelligence and automation help dodge issues

Other attributes have helped the Internet's performance as well. For example, AT&T says its artificial intelligence is helping remotely troubleshoot problems with customer equipment and identify issues before they become problems. "We've expedited deployments of new AI capabilities in certain markets that will allow us to balance the traffic load within a sector and across sectors to help avoid

overloading specific cells and improve the experience,” AT&T states.

Increased use of automation has also had an impact by enabling network engineers to quickly manage traffic, Dugan says. “Service providers who invested in software-defined networking prior to the coronavirus crisis may have been more responsive to changing traffic patterns than ones that are still using legacy or hybrid networks.”

Verizon’s Irlando reveals he doesn’t think current Internet traffic levels are the new normal. “No one knows the future, but we will not have 90 percent of America working from home,” he says.

One indication of remote-worker impact comes from a March Gartner survey of 317 CFOs and finance leaders that said 74 percent of businesses will move at least 5 percent of their previously on-site workforce to permanently remote positions post-COVID-19.

Cox’s Hart says the situation underscores the need to continue investing in the backbone. He reveals that his company will spend \$10 billion over the next five years to build out network capacity, improve access, drive higher speeds, and improve latency and security.

Internet access isn’t universal

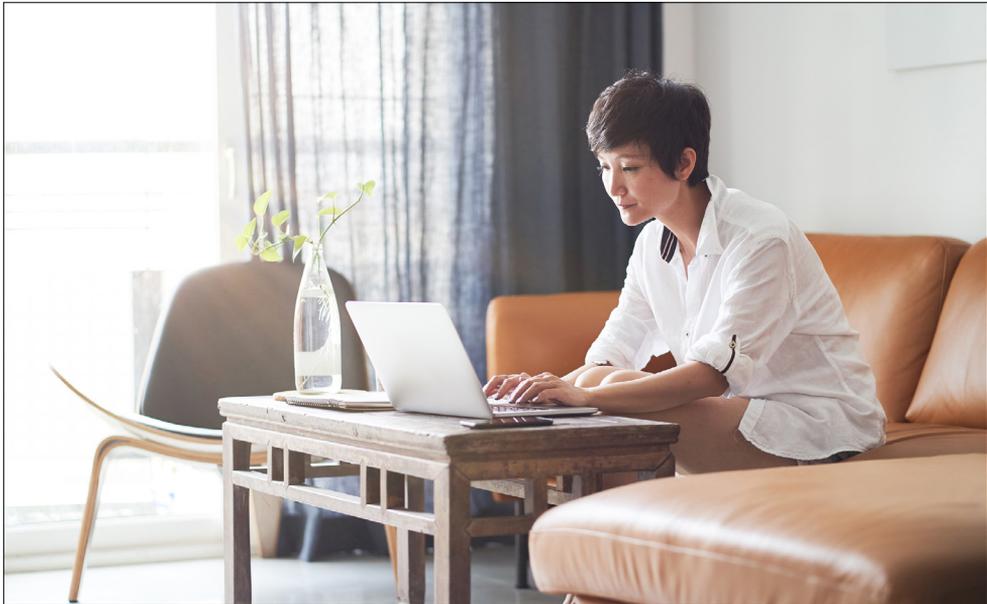
There is one overarching problem the COVID-19 crisis is shining a light on: the

digital divide. For an estimated 3.7 billion people worldwide, Internet access is either unavailable or too expensive, and that is palpable when connectivity to the outside world becomes essential.

“Internet access has become increasingly vital to our health, safety, and economic and societal survival. As cities and countries across the globe ask their citizens to stay at home, billions of us are fortunate enough to be able to heavily rely on the Internet to fill the gaps in our work and life,” wrote Tae Yoo, senior vice president of Cisco Corporate Affairs in a blog about the digital divide – see tinyurl.com/yaraazz3.

“There is no silver bullet on how to solve this problem,” argues Dan Rabinovitsj, vice president of connectivity with Facebook. “It’s going to take a lot in investment and innovation from network operators to drive costs out of the ecosystem so that they can pour more money back into the network,” he says. “Infrastructure is having its moment right now, everyone is depending on it.”

“The Internet is moving from huge to absolutely massive. It’s moving from being critical to being essential to economies, businesses and governments,” Cisco’s Davidson adds. “As a result of COVID-19, we’re getting a glimpse of what the Internet of the future is today.” ■



Credit: Getty Images/allensima

8 security considerations for protecting remote workers

Many security and IT teams suddenly have to support and protect employees who must work remotely. Make sure you cover these areas. **SUSAN BRADLEY** reports

Your boss just called and all your employees are mandated to work from home for the next few months due to the potential COVID-19 pandemic. What could go wrong? What risks are you now bringing to the firm? These are the actions should you take immediately to ensure you can allow your workforce to work remotely and securely.

1. Determine what endpoint protection you will require for home users

While you may have consoles and the ability to manage all the workstations at your physical office, you do not have the same level of control for home computers. Windows Defender included in Windows 10 is a more than acceptable antivirus

tool for a remote machine. Any remote worker that has a Macintosh should not be exempt from using endpoint protection software. One in ten Mac users have been attacked by the Shlayer Trojan.

Set a policy that all home employees must use an antivirus tool on the machines that access the firm's resources. Consider if you need to deploy alternative cloud-based means to monitor workstations. Review what support console tools you use now and the necessary licenses you may need to access computers that are not part of your domain. You can quickly set up tools such as Splashtop SOS or LogmelnRescue to allow your IT support team to remotely

access employees' home machines to assist in setting up remote access.

2. Review what software remote employees need

For Office 365 subscribers, some of the licenses allow you to install the Office suite on up to five PCs or Macs, five tablets and five smartphones. Those with Volume licenses can allow Office for home use purchases for your employees. You may need to review your options and licensing alternatives based on what platform and version of Office you are currently licensed for.

You may want to add the ability to manage and monitor the remote systems

of your users if they are not already under your control. Review what options you have with your current antivirus vendors to see if they have cloud consoles that can be easily used to manage these remote



Credit: Apple

Any remote worker that has a Macintosh should not be exempt from using endpoint protection software.

machines. Alternatively, if you have Office 365, you can use Intune with the proper licensing. Finally, reach out to consultants that you use; they may be able to provide temporary licenses with screen connection software that they already use to remotely manage your network.

Microsoft is also offering six months of Teams for free to allow users to better work remotely. In addition, Windows Virtual Desktop on Azure can be combined with Office 365 Pro Plus to provide extra resources to your users.

The use of Teams by those not used to working remotely may mean that you'll need to review privacy policies and secure information handling with employees. Users may inadvertently expose information during video calls, for example. Review proper handling of documents and sensitive communication with personnel. Consider providing overall guidance on how to handle remote working that includes communication, well-being checks, and reviewing what equipment will be needed for the process.

3. Ensure remote access does not introduce more risk

You may have to suddenly set up and license remote access servers, Windows 10 virtual desktops or other remote technologies. Don't introduce more risk in terms of licensing and security risks based

on the decisions you make. For remote access that includes remote access services, remember that ransomware attackers look and scan for open RDP servers, targeting anything responding on port 3389. Don't move RDP to another port as TSgrinder scans for an RDP response on any port. Do not blindly open remote access ports without thinking of the risks and consequences accordingly. If you must open remote access, ensure that the firewall is configured to only respond to certain static IP addresses from which your IT administrators will be remotely accessing.

4. Implement two-factor authentication (2FA)

When adding more remote access solutions, consider adding 2FA to remote access solutions. You can easily add 2FA solutions such as DUO.com to existing on-premises remote access solutions. DUO.com can add 2FA to RDGateway and Remote Web Access solutions. While your firm may need to move quickly to allow your staff to work remotely, you can still ensure that only those administrators and users are allowed in and not any attackers as well.

5. Use a virtual private network

Recently there have been several high-profile vulnerabilities in VPN

software. Often on client workstations that have not been updated in years, an older version of VPN software has been left behind. Ensure your VPN solutions are up to date both on the server or firewall that is providing the VPN solutions, or on the desktops of the remote user.

6. Assess the impact to firewalls, conditional access policies and other logging

Your firm might have a security information and event management (SIEM) logging solution that looks at traffic coming from local desktops and laptops to server resources. If your entire workforce traffic suddenly comes in from various IP addresses, your logging platform data will no longer be “normal.”

Those who use geoblocking in the firewall to restrict access from different locations will need to review and revise those policies given that your firm’s employees will be coming in from various locations. You may also need to increase Internet bandwidth for inbound traffic to your organization. For those who rely on cloud services, you may need to diagnose and determine if home users have appropriate bandwidth to support Office work, and possibly video conferencing.

You also may find that the security settings of consumer firewalls and

Internet providers block some of your intended remote access. For example, Comcast’s advanced Internet security blocks the use of RDgateway over port 443. You may need to review connection logs, get security logs from your remote users, and add more resources to your help desk to help users connect remotely.

7. Educate employees on COVID-19 scams

The National Cyber Awareness system warned of COVID-19 scams that are circulating. Urge your users to not click on unsolicited emails and to use only official websites. Ensure that the firm has a central online bulletin board that they go to for official communication and notification, especially if anyone in your organization becomes infected.

8. Update acceptable use policies for employees

Finally, ensure your acceptable computer use policies cover employees’ home computer assets. If this wording is not already there, you’ll need to quickly get up to speed in allowing employee’s personal assets be used for remote access. You’ll need to work with the firm’s attorneys and tax advisors to see if the use of personal computers and personal phones of the employees mandate a need for reimbursement for use. ■



Credit: Getty Images/LeoPatrizi

5 top videoconferencing services put to the test

We compared five platforms in real-world tests to see which perform best for business users. **CHARLOTTE TRUEMAN** reports

As COVID-19 keeps office workers at home, businesses in every country are having to find new ways to help their employees stay in contact with one another. Videoconferencing apps, in particular, have seen an unprecedented surge in popularity since the pandemic hit. From

catchup calls with coworkers to virtual company meetings, sales presentations and training sessions, connecting over video is a must-have for workers locked down at home.

In just one week in March, enterprise-focused mobile app downloads reached 62 million, an increase of 90 percent

from the pre-COVID-19 weekly download average. Zoom, the most popular videoconferencing platform, saw U.S. downloads increase 14-fold. The company more recently announced that its platform has more than 300 million meeting participants every day, and its stock price has climbed nearly 140 percent this year.

But Zoom isn't the only game in town, and it has faced a host of privacy and security concerns in recent months that might leave you wondering whether another video meeting service would be better for your organization. Here at *CIO*, we've tried to take some of the headache out of your decision-making process by trialing and evaluating five leading videoconferencing platforms.

With help from colleagues across the U.S., U.K., Australia, and Sweden, we conducted a series of group video calls via Cisco Webex Meetings, Google Meet, LogMeIn GoToMeeting, Microsoft Teams, and Zoom to try to discover which system provides the best service

for the millions of people around the world now working from home as a result of the pandemic.

The main criteria we used to evaluate each platform can be boiled down to user experience; audio and video quality; and management considerations, including admin tools and security. We paid particular attention to each platform's user interface, its in-meeting features, and how easy it was to use without the need for prior training.

The good news is that all five platforms provided us with better-than-expected audio and video – no mean feat given the extraordinarily high demand being placed on these systems and the Internet infrastructure as a whole. The apps also provided a good range of extra



All five platforms provided us with better-than-expected audio and video.

Credit: Getty Images/Rido/franz

features across the board, which helped to enhance the experience of each video call we conducted. There's more good news: All of these video software providers offer a free tier or a free trial so you can try before you buy. And in response to the COVID-19 crisis, some are temporarily removing limitations from and adding features to their free plans.

Not all videoconferencing platforms are created equal, however, and as a team, we favored some products over others. While our opinions are subjective, we hope the following reviews and side-by-side feature comparison table help any organization struggling to find the right videoconferencing software make a more informed investment decision.

How we tested

We tested each platform with video calls involving coworkers in locations around the world during the weeks of March 16, March 23, and April 13. One of the two test meetings for each videoconferencing service included participants in the UK and Australia; in the other meeting, participants logged on from Sweden, the UK, and several US states including Florida, Massachusetts, North Carolina, and California. In each meeting, participants used a variety of methods to dial in, including Windows, Mac, Android, iOS (both iPhone and iPad), and web apps.

Initially, we tried to include participants located in India on the U.K.-Australia calls, but disruptions caused by the pandemic prevented us from being able to complete the tests with our India-based colleagues for most of the platforms. Audio-video quality relies heavily on local infrastructure, which was much poorer for the testers in India, so in the interests of fairness, we have disregarded their A/V experiences in our assessments.

Cisco Webex Meetings

A granddaddy of the web meeting space, Webex (formerly WebEx) has been around since 1995. WebEx Communications was acquired by Cisco in 2007 and its web- and videoconferencing software subsequently rebranded as Cisco Webex Meetings. Cisco now offers other Webex-branded collaboration products including Webex Teams, Webex Events and Webex Training, but when people say "Webex," they typically mean Webex Meetings.

Plans and pricing

Free: up to 100 participants per call

Starter: \$13.50/host/month, up to 50 participants per call

Plus: \$18/host/month, up to 100 participants per call

Business: \$27/host/month, up to 200 participants per call

User experience

Organizing a Cisco Webex meeting is extremely simple. On your user profile page, you select Schedule, then input the meeting title, date and time, plus the email addresses of your participants. Webex then auto-generates a meeting ID link and password and sends out a calendar invite that includes a dial-in number for participants joining by phone from the UK (where I am based), plus a link to international dial-in numbers for about 50 countries.

Joining a Webex meeting was not as easy for some of my colleagues. Participants who tried to join the meeting before the host got a message telling them the meeting hadn't started yet – and were promptly kicked out of the app, forcing them to restart the process and hope that the host had now dialed in. It didn't really matter for our informal video chat, but it would come across as unprofessional for a client presentation or other more formal meeting. I later discovered that there are host settings I could have used to enable a lobby area where participants who join the call early can wait – but the meeting configuration settings are not obvious when you're setting up a call for the first time.

The web, Windows, and Mac application interfaces are relatively standard. You can opt to view all the

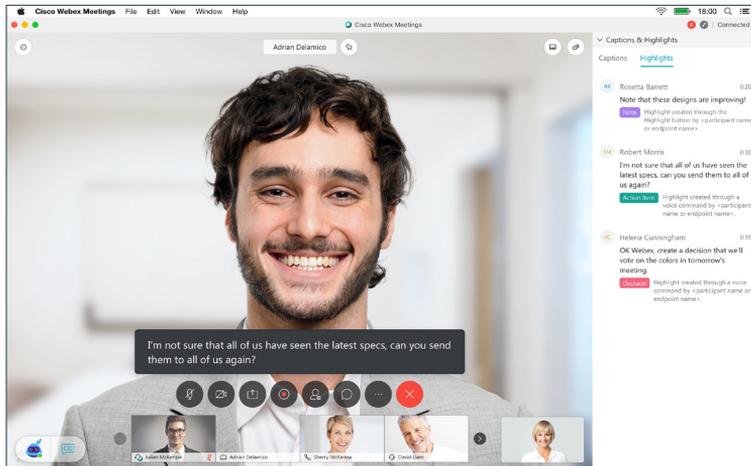
meeting participants at once or have the platform toggle between the most recent speakers to help you keep track of who's talking. Along the bottom of the screen are icons to enable and disable your microphone and camera, to share your screen, and to open the chat and participant list panes – the last two will appear on the right-hand side of your screen when selected.

As expected, the mobile interface is more limited; users who joined the call via smartphone rather than a computer said that they could see only up to four people on the screen at any one time – a criticism leveled at all the platforms we tested. One colleague who joined the Webex call via her iPhone complained that when her phone was in landscape mode, the icons were no longer labeled, making the call even more difficult to navigate.

The chat features we tested all worked as expected. The chat window allows you to send messages to the whole group or privately to an individual in the meeting, which is a nice touch, and the whiteboard capability is available to participants on both the Cisco Webex desktop and mobile app.

All participants in the meeting have the default ability to share their screens; however, the host has the option to override this capability and control who can and cannot share material while

Credit: Cisco Webex



resulting in everyone else on the call hearing a two-second clip of her audio repeated over and over again in quick succession, even though her camera was still working in real time. Muting that participant stopped us from hearing

Webex lets you choose between viewing the person who's currently speaking or seeing all participants at once.

the call is taking place. Recording the meeting provides a full audio and visual playback that can be downloaded and shared. A record of the chat log and a list of meeting attendees is also available when you watch the recording.

Audio and video quality

Both the video and the audio were clear and remained relatively consistent throughout the entirety of the call, with no one dropping out at any point. Some people noted that they experienced a minor lag when the call switched to a different speaker; however, this was not so bad that it impacted overall quality.

One unfortunate incident did occur: One participant's audio got stuck,

but unmuteing her did nothing to correct the issue, which persisted for several minutes. We had to message her via the chat option to let her know what the problem was, and the issue was only solved when she exited and reentered the chat. It's unclear whether the glitch was caused by a hardware or a software error, but that participant did not experience similar issues with any of the other products we tested.

While the audio glitch didn't make a reappearance when I used the platform to speak to colleagues in Australia, there were clear moments of lag in the audio, short periods of silence where the audio appeared to have dropped out for a second or two and times when the

image would become pixelated. Again, none of these problems was so bad that it affected our overall ability to conduct the meeting.

Management considerations

Cisco offers three different paid plans and a free plan for Webex Meetings. While the paid plans understandably offer more capabilities, in response to the current global pandemic, Cisco has expanded the features offered in its free plan so you can have up to 100 participants in a meeting and host an unlimited number of meetings with no time limits. Note, however, that the free plan does not offer the same encryption protections as the paid options.

With each paid tier, Webex adds more administrative capabilities: for example, user management and advanced meeting controls in the starter plan, usage analytics and an administrative portal in the Plus plan, and SSO support and Active Directory sync in the Business plan.

In terms of security, Cisco Webex automatically locks virtual meeting rooms when a meeting starts. It also provides hosts with the capability to screen users before they enter a meeting, stopping any unauthorized personnel from joining a call they shouldn't be a part of.

By default, the service uses an ISO-certified, multilayered security model, as

outlined in its 2019 Cisco Webex Meetings Security white paper – see tinyurl.com/y7s66abs. End-to-end encryption is available for videoconferences of up to 100 participants, but administrators with paid accounts must enable it. (Users of the free plan can file a help ticket with Webex to request that E2E encryption be enabled.) Note: When E2E encryption is enabled, features such as network recordings and the ability to join before the host are disabled, and the web app and video endpoints are not supported.

Bottom line

Pros: Offers end-to-end encryption; ample in-meeting tools for participants and hosts

Cons: Large array of meeting configuration options can be confusing for first-time users

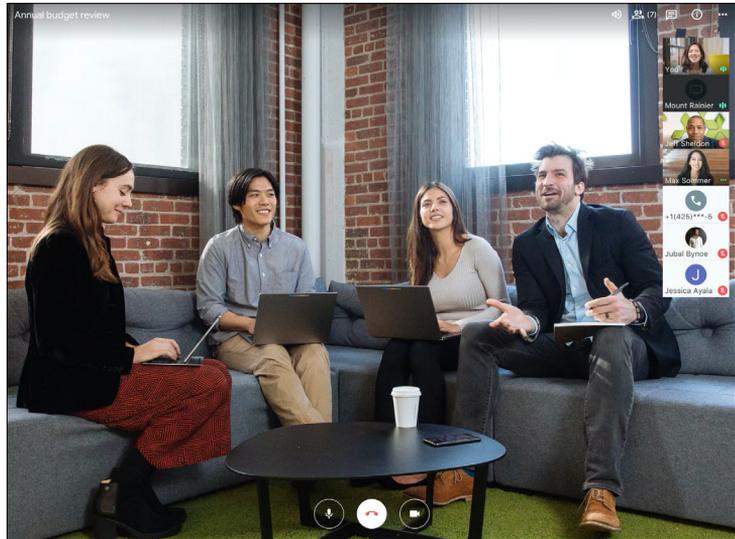
Of the products we tested, only Cisco Webex offers E2E encryption, so it's your best bet if your organization discusses or displays sensitive information in web or video meetings. Audio and video quality are generally good, and both the host and participants have access to a good range of in-meeting options.

It's not the most user-friendly platform, though. One attendee commented that this platform would work fine for internal calls if participants had first received

some training. Some of the things that frustrated us, such as not having access to a pre-call waiting room, are actually offered by the platform; our inability to find these features without first consulting Webex's help guide lessens the user experience. In short, it's not a platform every user could just hit the ground running with.

Google Meet

Google has just changed the name of its enterprise videoconferencing product from Google Hangouts Meet to Google Meet, continuing the product's evolution from its consumer-oriented beginnings to a business-focused video meeting platform. Meet is included with G Suite, Google's office suite. As such, it is tightly integrated with the other applications in G Suite, including Gmail and Google Calendar. Unlike Microsoft, which offers a free standalone version of Teams for organizations that don't have an Office 365 subscription, Google has not been



Credit: Google

Of all the platforms we tested, Google Meet is the most basic.

offering Meet as a standalone product. Until now, if you weren't a G Suite customer, you couldn't set up and host a Google Meet video call.

The same day we published this review, however, Google announced that it will be offering Meet for free to anybody with a Google account. Starting the week of May 4, the company said it would gradually make the service available to the public; you can sign up to be notified when it's available for you – see tinyurl.com/zbae4o6.

Plans and pricing

Google Meet only: Free; up to 100 participants per call; 60-minute call limit

G Suite Basic: \$6/user/month; up to 100 participants per Meet call

G Suite Business: \$12/user/month; up to 150 people per Meet call

G Suite Enterprise: \$25/user/month; up to 250 people per Meet call

14-day free trial available for all plans.

Enterprise features are available to all G Suite subscribers through Sept. 30, 2020

User experience

My office uses G Suite already; therefore, setting up a meeting on the platform was straightforward and easy. I simply opened up my Google Calendar, created a new event, selected “Add videoconferencing,” et voilà! The meeting was scheduled.

Meeting participants received an email that included a link to the online meeting, a dial-in phone number for the U.K., and a link to a list of dial-in numbers for about 45 countries around the world.

Of all the platforms we tested, Google Meet is the most basic, which is not necessarily

a bad thing. No app is needed to join a Google Meet call from a desktop computer or laptop; you can access the meeting directly through your browser. (And Android and iOS apps are available for mobile devices.) Once on the call, the in-meeting capabilities allow users to mute and unmute themselves, turn their webcam on and off, share their screen, turn on closed captions, and communicate via text chat with everyone. That’s it.

Guests have the same options; unlike Microsoft Teams, Meet doesn’t limit in-meeting capabilities for participants from a domain outside the host organization. The only extra capabilities offered to the host are the ability to



Although we could only see four people at a time in our Meet tests, Google is gradually rolling out an update that allows up to 16 participants to be viewable on-screen at once.

Credit: Google

record the meeting, mute participants and add or remove users.

On the downside, all participants on the call could see only four people on-screen at a time, no matter what device they used to connect to the call. With the exception of Microsoft Teams, all the other platforms allow desktop and laptop users to see many more participants at once in tile view. (After we had finished our testing, Google announced the gradual rollout of an update that allows Meet users to see up to 16 participants.)

That being said, my colleagues and I were impressed by the real-time closed captioning Meet offers. Individual users can choose whether or not to run the service, and can toggle it on and off throughout the meeting. During our test calls, we found the level of accuracy the AI-driven feature provided was outstanding.

On the first call I had with my U.S. colleagues, I was disappointed to discover that I was unable to record the meeting in any capacity. After some digging around on G Suite's online help guide, I found out that Google does offer recording as a feature; however, it has to be enabled by a G Suite system administrator, something I wasn't aware of prior to starting the meeting and was therefore unable to sort out in time.

On subsequent calls, with my ability to record the meetings enabled, I was

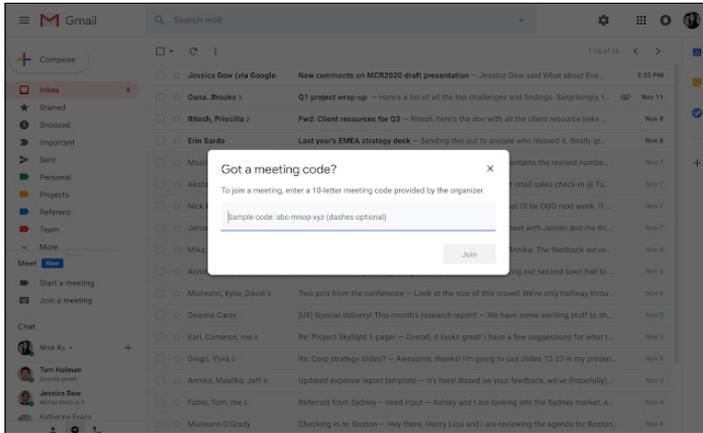
impressed with the overall quality. The audio and video were clear, and the recording was immediately uploaded and saved to my Google Drive, making it the easiest and quickest recording to access.

Audio and video quality

My first time using Google Meet, my audio and video settings hadn't been configured. I had no trouble getting my speaker and camera to work as expected, but I was unable to get my microphone to work when I joined the call. I had to consult several different G Suite help pages online and eventually managed to get it working 10 minutes into the call.

Thankfully, when I dialed into the test meeting with my American colleagues later, my camera, speakers and microphone all worked immediately. While a couple of U.S.-based participants said my image wasn't as clear as it had been on other platforms we tested, we experienced no major audio or video problems over the length of our meeting.

Similar comments were made when I had a Google Meet call with colleagues in Australia. While the audio quality remained consistent, both U.K. and Australian parties noted that the video quality of their counterparts dropped off as the meeting progressed. The more a participant moved on camera, the more pixelated their image would become.



Credit: Google

G Suite users can now join meetings in Meet from within Gmail.

Management considerations

Like several others in this roundup, Google is responding to the global pandemic by offering all tiers of G Suite users the advanced capabilities available with its Enterprise plans – up to 250 participants per call, live streaming for up to 100,000 users within a domain, and the ability to record meetings – through September 30. Plus, starting in May Meet became available as a free standalone product; it was on a gradual availability rollout, however, so not everyone had access to the service at first. Calls with the free service are limited to 60 minutes, although Google says it will not enforce this rule until after September 30.

As I've outlined, if the meeting host and all the participants are hardwired into G Suite, then Google Meet is the easiest

and most obvious videoconferencing choice to use. Plus, if you regularly conduct meetings with external partners, from May 4 Google let them download and host Google Meet calls for free, providing they have a registered Google account; this will make collaboration

with external partners easier.

Meet does not offer end-to-end encryption, but Google says that it adheres to Internet Engineering Task Force (IETF) security standards for Datagram Transport Layer Security (DTLS) and Secure Real-time Transport Protocol (SRTP) and that Meet recordings stored in Google Drive are encrypted at rest with “at least AES 128.” (Google has provided a blog post with information about Meet security – see tinyurl.com/ybr5e5ek.) G Suite offers the usual array of management features including an admin portal and analytics reports.

Bottom line

Pros: Simplicity of the platform makes it easy to use and doesn't over-complicate meetings; excellent real-time transcription

Cons: Doesn't offer as many in-meeting features as other platforms

If your organization is a G Suite customer, Google Meet is a solid videoconferencing option, especially if you regularly use the other communication and collaboration tools Google offers. Setting up meetings is straightforward, the call quality is decent, Google's security is enterprise-ready (but omits E2E encryption) – and you're already paying for it as part of your G Suite subscription. However, if you need advanced in-meeting tools, consider looking into a more sophisticated videoconferencing product.

LogMeIn GoToMeeting

GoToMeeting was first released back in 2004 as an online meeting, desktop sharing, and video conferencing software package. After LogMeIn and Citrix's GoTo unit merged in 2017, GoToMeeting officially became a LogMeIn product and now heads up the GoTo catalog of products, which also includes GoToWebinar, GoToTraining, and GoToRoom.

Plans and pricing

Free: up to 4 participants per call, 40-minute call limit

Professional: \$12/organizer/month, up to 150 participants per call

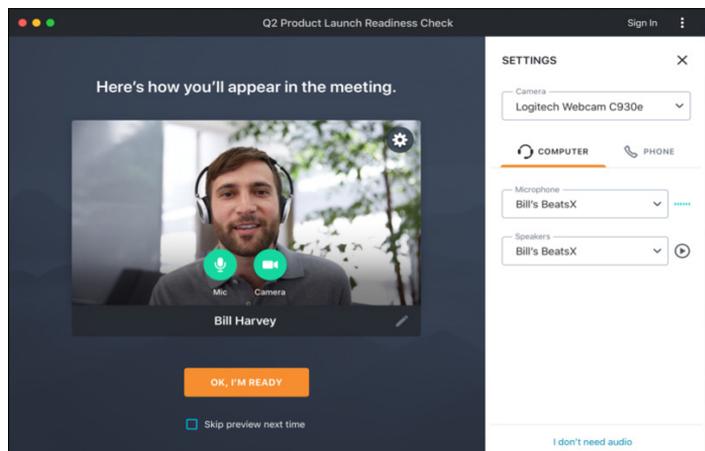
Business: \$16/organizer/month, up to 250 participants per call

Enterprise: Custom pricing, up to 3,000 participants per call

A 14-day free trial is available for all plans

User experience

Setting up a GoToMeeting video chat is a pain-free experience. You simply select the time and date you want the meeting to take place, and the platform generates an invitation that contains a meeting ID, an access code, a U.S. dial-in telephone number (by default; there is also an option to add other countries) and a download



GoToMeeting shows you a preview of what you'll look like in the call.

Credit: LogMeIn

link to the app for first-time users. None of the participants in our trial meeting had any problems dialing in.

Once you're on the call, GoToMeeting's interface is relatively simple. A row of icons along the bottom of the screen lets you easily toggle through different viewing options, mute yourself, turn your camera off, and access both the chat window and participant list from the main screen. By default, the screen-sharing feature is open to both the host and the invited participants and, when we tried it, was easy, glitch- and lag-free, even when different browser windows were maximized and minimized in real time via the screen share.

GoToMeeting offers Business and Enterprise plan users additional features such as drawing tools, note taking, and a smart assistant that detects action items. Also available to the Business and Enterprise plans is the ability to record a meeting either locally or to the cloud. However, before you set up your meeting for the first time, make sure to visit your online profile to specify where you want the recording to be saved. I did not do this and subsequently had to do an online search to find my recording.

When you start recording the meeting, it is announced out loud to the group. However, one colleague joined the meeting from her iPad after the recording

had started, and there was no on-screen notification to let her know she was being recorded. The audio on the final recording itself was extremely clear. Oddly, only the audio of the meeting I had with my Australian colleagues was recorded, whereas both the audio and video were captured for the meeting with my colleagues in America and Sweden. I'm unsure why this discrepancy occurred, as both times I was using a 14-day free trial account.

Audio and video quality

GoToMeeting offers users the option to have their camera either in 4:3 or widescreen mode, depending on their preference. Unfortunately, on the call with colleagues in the U.S. and Sweden, the quality of my video was very poor, with others on the call commenting that I was both pixelated and lagging for large portions of the call. While I couldn't see this myself, the recording of the meeting clearly showed crisp visuals of my colleagues and poor video quality of me. At several points during the meeting, different users reported seeing an on-screen message warning them about their slow Internet connection and advising that closing browser windows could help to improve the meeting quality.

On the call with my Australian colleagues, the audio quality was

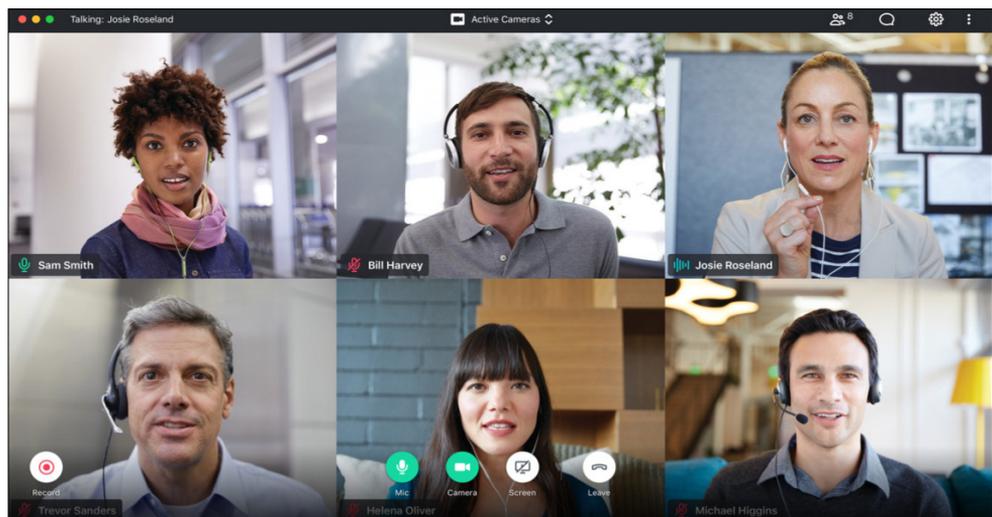
relatively clear and crisp, and the video quality was decent, with a few periods of pixilation and lag; however, at no point did the video reach the same quality as some of the other platforms we tested.

Management considerations

My Australian colleagues have been using GoToMeeting regularly, in part because of the large range of toll-free dial-in phone numbers offered by the platform, with toll-free numbers available for more than 50 countries (for an additional fee). They frequently conduct meetings with people in various Southeast Asian countries, which are often poorly served when it comes to dial-in codes. While this isn't necessarily a problem if people

are able to access a meeting via the Internet, giving users with a poor Internet connection a way to access meetings is important. (Zoom also supports the region well with dial-in options.)

When it comes to GoToMeeting's security credentials, the platform does not offer end-to-end encryption. However, all three paid plans provide users with TLS 1.2, government-grade AES 256-bit encryption, and a new risk-based authentication system that automatically determines if suspicious behavior is taking place, such as a login from an unauthorized device from a remote location. And meeting organizers can lock meeting rooms to stop participants from starting a call before the host has joined.



Credit: LogMeIn

GoToMeeting offers a standard tile view of participants with easy-to-use in-meeting tools.

Bottom line

Pros: Uncomplicated and unfussy, large range of dial-in numbers available

Cons: Poorest video quality of the bunch

Although GoToMeeting isn't the shiniest product we tested, it does more or less everything you need in an uncomplicated and unfussy way. Setting up a meeting and dialing in is easy for both established and first-time users. The audio and video quality, however, was not as good as the others we tested, and unless you're using the very limited free plan, you only have two weeks to use GoToMeeting for free before you need to make a financial investment in the platform.

Microsoft Teams

Unlike the other platforms in this roundup, Microsoft Teams is meant to be an always-on collaboration tool that centers around group messaging and shared workspaces, with video meetings as an added component. Launched in 2017, Teams has now largely replaced Skype for Business as the communications hub for its Office 365 and Microsoft 365 suites, although legacy customers may still use Skype for Business.

Plans and pricing

Free: Teams only (with limitations)

Office 365 Business Essentials: \$5/user/month

Office 365 Business Premium: \$12.50/user/month

Office 365 E1: \$8/user/month

Office 365 E3: \$20/user/month

Office 365 E5: \$35/user/month

All Teams plans allow up to 250 participants per Teams call or up to 10,000 attendees for a live-stream event

User experience

As previously mentioned, my office uses G Suite, so for our Microsoft Teams meeting to take place, I had to ask one of my American colleagues to set up the test call. (Our U.S. employees use Office 365.) My colleague had no trouble scheduling the call and sending out invites, but oddly, when he tried to join the meeting, it didn't appear in either Outlook or Teams – though he did eventually find it in Apple Calendar.

He thinks the glitch may have occurred because he scheduled the meeting from Outlook prior to installing the Teams software, or perhaps because he wasn't signed into Teams when he tried to join the meeting and may have overlooked a sign-in prompt. Whatever the cause, the problem didn't recur; later he scheduled another Teams call, which appeared for him in both Outlook and Teams as expected.

Credit: Microsoft



Teams currently shows only four participants at a time; a promised update will up that number to nine.

Aside from that initial glitch, organizing and joining the call was relatively issue free. As with the other products covered here, participants received a meeting invite that included a link to the online meeting, a dial-in phone number for the host's country, and a link to a list of dial-in numbers for about 60 other countries.

Once we'd all joined the call, the issues started. One of our biggest annoyances with Microsoft Teams was the layout. Meeting participants had dialed in via a range of devices, including a Windows laptop, MacBooks, an iPad, and a Samsung Galaxy Note 5 phone; however, none of us was able to see more than four people on video at any one time. Originally, I accessed the meeting via a web browser rather than the Teams

desktop application, and in doing so, I could only see one person at a time. Leaving the meeting and dialing back in via the Windows app enabled me to switch to a four-person view of my colleagues,

but being on a six-person video call and only ever being able to see four of them at any one time was frustrating.

Microsoft has since announced that by the end of April it will start rolling out a Teams update that will allow users to view nine participants simultaneously – still a far cry from the tile views offered by Webex, GoToMeeting, and Zoom, which can show 25 or more participants. Microsoft said it hopes to increase the viewable participant limit further in the future.

Similar to the other apps we tested, Teams provides a toolbar along the bottom of the screen for actions such as turning the microphone and camera on and off, sharing your screen, and accessing the chat pane and participants

list. The screen-sharing feature lets you share your whole desktop, a specific app window, or a PowerPoint presentation. You can also browse to a file or open up an interactive whiteboard.

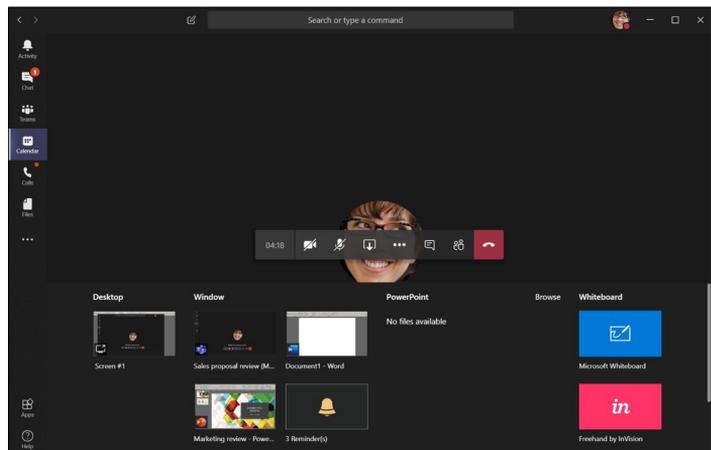
A “More actions” button allows access to extras such as taking meeting notes and using a background image or the background blur effect. Participants are notified when the meeting is being recorded, and the recording is saved to Microsoft Stream. And like Google Meet, Teams provides an impressive live closed-captioning feature that my colleagues could turn on and off as they liked; they all praised it highly for its accuracy.

I had joined the call from a non-Office 365 email address and was assigned guest status, which limited the in-meeting features available to me. I could share my screen but was unable to record the meeting or turn on the captions. I can understand why hosts might not want guests to record meetings, but closed captions would be very helpful for any participants who have trouble hearing, including guests.

Another permissions quirk we found odd was that the other meeting participants could start and stop the meeting recording, with no way for the host to stop this from happening during the meeting. According to Microsoft’s support documentation (tinyurl.com/ycpgp7wb), this is as intended: when an organization has an Office 365 Enterprise E1, E3 or E5 license and when approved by IT administrators, internal users have start/stop recording permissions. (Meeting policies are applied to meeting organizers and to users, rather than controlled on a meeting-by-meeting basis.)

Audio and video quality

On the whole, we didn’t experience any serious issues with the audio or video



Screen sharing options in Teams include desktop, app window, PowerPoint presentation, file, and whiteboard.

Credit: Microsoft

quality on our Microsoft Teams call. Interestingly, my colleagues did note that when I dialed back into the call via the desktop app, my audio and video was slightly more synced up than when I had been using the browser.

However, one colleague who was using a Mac was unable to get his camera to work until the last minute of our call. While he eventually resolved the issue by changing his security settings and restarting his computer, the fact it took almost half an hour for a fairly tech-savvy user to resolve doesn't speak highly to the platform's ease of use.

After some tweaking by the company admins to include me in the U.S. Office 365 subscription, I was able to schedule and act as host for the second test meeting. Of all the meetings I conducted with my colleagues in Australia, Microsoft Teams provided the most consistent audio and video quality throughout the duration of the call. If there was any audio or visual lag, it wasn't noticeable, and because we had all used Teams for video calls before, there were no technical issues.

Management considerations

If you're planning to use Microsoft Teams to conduct video calls with external participants who aren't team members, you need to consider how much their lack of access to some in-meeting features

will affect their overall experience of the call. Microsoft Teams is also not currently supported by recent versions of Apple's Safari browser – again, this might not be a deal breaker, but is something to keep in mind depending on who's going to take part in your meetings.

In response to the COVID-19 pandemic, Microsoft has upgraded its free version of Teams to allow online video meetings with up to 250 participants. There is no end date for this offer. Only the premium version of Teams that comes with Office 365 and Microsoft 365 subscriptions allows users to schedule or record meetings. The free version of Teams currently allows only impromptu meetings (for example, Meet Now); however, Microsoft has said the ability to schedule meetings is coming to the free version of Teams in the future.

The free version does provide data encryption at rest and in transit but not the enterprise security, compliance and administration features that come with Office 365/Microsoft 365, such as enforced multifactor authentication, advanced auditing and reporting services, and configurable user settings and policies. For details, see Microsoft's security and compliance documentation for Teams (tinyurl.com/y8tg937j).

It should be noted that shortly before we went to press with this review,

CyberArk researchers disclosed a vulnerability in Teams that could have let hackers take over all of an organization's Teams accounts. Microsoft quickly fixed the bug and issued a patch.

Bottom line

Pros: Excellent real-time transcription; plentiful in-meeting options for participants in the host organization

Cons: Poor UI; guest users' in-meeting capabilities limited by default, which could impact collaboration efforts

Although I know a lot of people who love Microsoft Teams, my colleagues and I were underwhelmed by our test experience and found the UI to be one of the worst that we tested. However, being able to see up to nine people at a time, a feature coming very soon, will improve matters greatly.

As with Google Meet for G Suite users, Office 365/Microsoft 365 users who already make use of the other products Microsoft offers may find Teams to be a perfectly adequate go-to platform for internal video calls. However, if you're looking for a platform to enable better collaboration with both internal and external partners who aren't already invested in the Microsoft universe, there are better platforms than this available.

Zoom

Zoom Video Communications was founded in 2011 by Eric Yuan, a former Webex executive, with the goal of making videoconferencing easy and accessible. Now the 800-pound gorilla of the videoconferencing software market, Zoom has seen a spike in usage since the onset of the COVID-19 pandemic, adding 2.22 million active monthly users in the first two months of 2020, according to Bernstein Research analysts.

Plans and pricing

Basic: Free, 100 users per call, 40-minute call limit

Pro: \$15/host/month, up to 100 users per call

Business: \$20/host/month (minimum 10 hosts), up to 300 users per call

Enterprise: \$20/host/month (minimum 100 hosts), up to 500 users per call or up to 1,000 with Enterprise Plus

User experience

Setting up a meeting in Zoom is easy. If you want to initiate a meeting there and then, you log on to the website, select "Host a Meeting" – you're given the choice to have video on or off – and away you go.

If you want to schedule a future meeting, it's the same deal, only you're taken to a form where you fill in the basic

meeting details – cameras on or off, enable meeting recording, set up a waiting room, and so on. Once you've scheduled the meeting, you can share it via your Google, Outlook or Yahoo calendar and input the participants' email addresses. The invite is emailed to them, complete with dial-in number for the host's country as well as a link to a list of dial-in numbers for more than 50 countries.

Joining a meeting is similarly easy. You click the link in the invite you received, and if the host hasn't joined yet, you sit in a waiting room. If the host is already on the call, they accept you into the meeting and you're in.

Personally, the thing I like best about Zoom is the fact I could see

everyone's faces all at once. We had eight participants on one of our test calls, and I was able to see every single person on the call for the duration of the meeting, a feature that seems obvious but was lacking from Microsoft Teams. Two of my colleagues who dialed in via an Android phone and an iPhone could only see four people at once, but a third colleague who was using an iPad could see all eight of us.

As for the other in-meeting features, they were all easy to find, easy to use, and worked how you would expect. As the host I could mute and unmute participants, turn off screen sharing for attendees, make other people joint-hosts and rename people once they had dialed into the call. Zoom also gives users the

options to share individual desktop windows rather than an all-encompassing screen share, which is definitely preferable for privacy.

Zoom automatically gives users who record the session a version with both audio and video, an audio-only version, plus a transcription



Credit: Zoom

Zoom lets you see all meeting participants (well, up to 49, which is more than enough for most meetings) on-screen at once.

of the chat log. (The host must grant permission for other users to record the call.) Meetings can be recorded either locally or in the cloud, and both the audio and the video in our recording were of high quality. When we tested Zoom, it didn't offer in-meeting closed captioning à la Google Meet and Microsoft Teams, but the company has since announced a partnership with Otter.ai that brings real-time transcripts and interactive meeting notes to users of Zoom's paid plans.

Zoom also offers a lot of great in-meeting participation tools, including a whiteboard, a chat window where you can send messages to the group or individual attendees, a "raise hand" option that lets the host know if one of the muted participants has a question or a comment, and reactions so meeting attendees can silently express their agreement via one of two basic emojis.

Audio and video quality

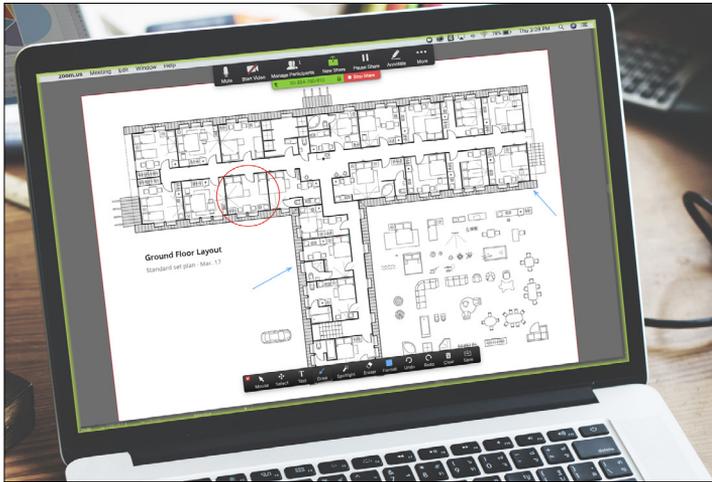
Zoom was the only platform we tried that did not involve fiddling around with permissions and not being able to get your microphone or camera to work for 10 minutes because you hadn't changed an obscure system setting before starting the meeting. When entering a Zoom meeting, you're asked if you want to use your computer's audio, microphone and camera, and if you select yes, it works as

you'd expect. This made joining meetings much more stress free.

It should be noted, however, that this approach brings security risks, as Zoom has been shown to bypass application hardening features put in place by OS developers, potentially exposing computers to attackers.

Although the video quality in my test call with colleagues in the U.S. and Sweden wasn't as sharp as with some of the other platforms, Zoom appears to soften the video of every participant to the same degree. For the self-conscious, there is also a "Touch Up My Appearance" option, which, according to the company, helps to "smooth out the skin tone on your face, to present a more polished looking appearance." And if your device has the right hardware specifications, you can set yourself up against a custom background.

My test call with Australia yielded similar results, with my two colleagues in the Southern hemisphere appearing to be conducting the meeting from the deck of a yacht and Sydney Harbour Bridge. Unfortunately, an unstable Internet connection meant that at one point, the video did freeze and the audio dropped out for about 30 seconds; however, we were able to get the meeting back on track after this minor technical glitch without any further issues.



Credit: Zoom

When screen sharing, you can choose to share just an application window or your whole desktop, and the host can turn screen sharing on and off for attendees.

Management considerations

Zoom ticks off the standard boxes for administrative tools, including user management, feature control, reporting and more. But you can't write a review about Zoom without talking about the myriad privacy and security concerns that have been levelled against the company: A 2019 bug in the Zoom Mac app that allowed malicious websites to silently activate users' webcams and left a localhost web server behind even when the app had been uninstalled. A recently discovered bug that let hackers steal Windows passwords. Misleading company documentation claiming calls are secured with end-to-end encryption.

Widespread reports of "Zoom-bombing." The lawsuit the company is currently fighting in California for sharing data with Facebook. The list goes on.

It should be noted that some of the security issues arose from users not understanding how to configure the Zoom software to protect their

meetings, but industry watchers have argued that security settings should be enabled by default, especially for a platform that has made its name on ease of use.

The company has acknowledged and addressed these problems, and on April 1, Yuan published a blog post apologizing for the missteps, providing security training for users, and stating that over the next 90 days Zoom will put new feature development on hold and instead direct necessary resources to "better identify, address, and fix issues proactively." The company has also issued a series of software updates that better lock down meetings by default.

But Yuan has apologized before, and Zoom has been slow to fix vulnerabilities in the past. Until the company proves its security mettle, some organizations including SpaceX, the New York City Department of Education, and the U.S. Senate have chosen to ban the use of the platform. And security experts continue to voice doubts over Zoom's underlying security and privacy practices. Whether your organization chooses to use Zoom is not a decision to be made lightly.

Bottom line

Pros: Easy to use; lots of in-meeting features and participation tools; can view up to 49 people at one time

Cons: Concerns around privacy and security cannot be ignored

Of all the platforms we tested, Zoom was the easiest and most self-explanatory to use. Unlike other calls where a lot of time was taken up collectively trying to work out how to find a specific feature or solve a technical issue, on this call we were able to test everything easily and have fun with features such as the whiteboard and screen sharing. Obviously, security concerns are legitimate and should be taken seriously; however, it's hard to argue against the platform's ease of use and ability to do

all the things you'd expect a video call to do – and do them well.

Choosing a platform

Across the board, we were pleased with the audio and video quality, in-meeting features and management tools for these platforms. Local infrastructure plays a big role in A/V quality, as we found when we tried to include India-based colleagues in some tests, and typically there was more lag between participants located far away from one another. Having all the participants use headphones often improves the audio, as does the practice of having participants mute themselves when they're not talking.

Of all the platforms we tested, Zoom is arguably the easiest and most intuitive to set up and use, and it offers the largest range of in-meeting features. However, the company's security and privacy practices have left much to be desired. As the recently disclosed (and patched) vulnerability in Teams shows, no software is bulletproof, and you could argue that Zoom has been an especially big target for hackers because of its popularity. But security experts have said Zoom's underlying architecture appears to be less secure than those of its major rivals. According to a *New York Times* report, file-sharing giant Dropbox has even been quietly working with security researchers

over the past few years to uncover vulnerabilities in the Zoom software to protect its own company data.

Since we first tested the platform, Zoom has apologized for past mistakes and promised to do better, putting in place a 90-day plan that prioritizes improving the security of the platform above developing new features. So far, the company has, among other things, removed the Meeting ID from the title bar, added an icon to the host's toolbar that provides quick access to security settings, strengthened password complexity requirements, enabled meeting hosts to report users and allowed account administrators to choose which data center region their account is routed

through. Zoom also announced a new software update on April 22: Zoom 5.0 added support for AES 256-bit GCM encryption on the platform.

While these changes are encouraging, it's too soon to say all of Zoom's security woes are behind it. Zoom is great for informal chats, but we can't yet recommend it for meetings where sensitive topics are discussed or private data is exchanged.

If protecting sensitive data is your primary concern, Cisco Webex is your best bet. It's the only one in our roundup to offer end-to-end encryption as an option. If enabled, it means Webex can't decrypt your data or share it with the government. Webex also provides a solid

array of admin and host tools for protecting meetings. We found that those tools are not very intuitive, however, so if you opt for this platform, ask IT to provide training for all users, especially meeting hosts.

If E2E encryption isn't a necessity, then



Credit: Zoom

Of all the platforms we tested, Zoom is arguably the easiest and most intuitive to set up and use.

the other platforms in our roundup do offer enterprise-grade security and management options including Single Sign-On, Active Directory support, diagnostic reports and admin portals.

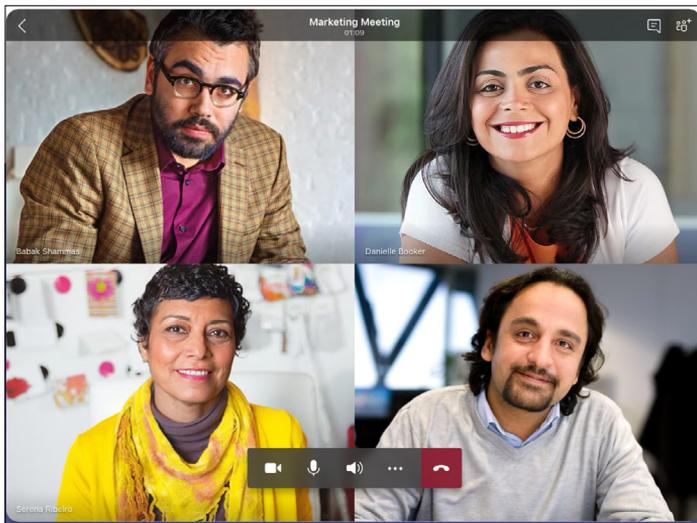
GoToMeeting might not be the fanciest videoconferencing platform currently on offer, but if you're not bothered about bells and whistles, this could be a good option for your organization. It provides a solid set of in-meeting tools for hosts and offers a good range of toll-free numbers, particularly in Southeast Asia. However, while the software functions as expected, it had the poorest video quality of all the platforms we tested.

For quick internal catch-ups with your team, Google Meet and Microsoft Teams

are logical go-to options for G Suite and Office 365/Microsoft 365 customers, respectively. Before it rebranded to Google Meet, Google Hangouts was very aptly named, as the simplicity of the platform gave it an informal feel, like you were hanging out with friends. Because Microsoft Teams integrates chat and a shared workspace, its interface is more complex but still informal. A friend of mine says she has a Microsoft Teams video call with her team running throughout her work day because it allows her to recreate the sensation of being back in the office.

However, the limitations both platforms have around the number of people you can see on-screen make

them less than ideal for larger meetings, although both companies are rolling out upgrades that will show more people simultaneously. If you opt for either of these platforms, you should also consider how external participants might experience the call and the impact these limitations might have on your collaboration efforts. ■



Credit: Microsoft

Microsoft Teams is a great option for Microsoft 365 customers.



Credit: Getty Images/Eomeren

Innovating through a crisis

Whether innovating for survival or planning for a post-pandemic comeback, CIOs may find conditions ripe to make changes. **STACY COLLETT** reports

For the past five years, Marquette University's faculty and administrators have had many serious conversations about how to take the classroom online. Marquette has been offering some online learning opportunities for several years, but progress was incremental at best. They lamented that such a major undertaking would take years to implement on a large

scale. It took one swift-moving pandemic to overcome any reluctance. In one week, the decision was made to take the entire university from providing predominantly in-person, lecture-based education to virtual education overnight.

"The technology was already there, but no one was willing to overcome the hurdles there would be," says Chuck Swoboda, innovator-in-residence at

Marquette University and a board trustee until 2017. It might not be perfect at first, he says, but “because the only alternative is canceling classes altogether – and temporarily going out of business – the university will figure it out. In the end, they’ll make more progress in the next two months than they have made in 10 years.”

A crisis creates enormous problems, not to mention a lot of fear and uncertainty, but a crisis can also remove boundaries normally part of business and allow for innovation, Swoboda says.

History provides many examples. During the Great Depression, GM and Chrysler survived thanks to their understanding of how to adjust to their new realities and their ability to look for advantage. For instance, GM expanded aggressively into the low-priced car market by shifting production from its high-end brands to its high-volume discount brand Chevrolet. The company also used the same engine and parts across different brands to further reduce inventories and create flexible capacity.

Telemedicine is another example. The coronavirus pandemic is pushing telemedicine into the mainstream, testing its ability to keep up with soaring demand and forcing innovation on the fly.

Before the outbreak, telemedicine struggled to take hold in part because

of government regulations and a lack of interest from patients and companies. Now hospitals, clinics and medical groups are scrambling to connect with telemedicine companies and tech providers to get online medical consultations up and running on a large scale.

Not all organizations are innovating for survival at the moment, but many CIOs can take advantage of a break in the status quo to shift the organization to a mindset of innovation.

A the start of the global lockdown, most organizations were in Phase One of the crisis, just learning to lead as the situation rapidly evolved, says Niamh O’Keeffe, a leadership advisor and author of *Future Shaper: How Leaders Can Take Charge in an Uncertain World*. Phase Two involved learning what mistakes leaders were making and trying to fix them. Now we are entering Phase Three, she says, “where there is an opportunity to maybe rewrite some of the rules. When this is all finished, what is going to be the ‘next normal?’”

At its most useful, “a crisis provides a license to ignore the status quo and do something better,” Swoboda argues. CIOs may be able to find a silver lining with these innovation accelerators that a crisis creates.

Credit: Getty Images/FG Trade



Many CIOs have been faced with the challenge of enabling large numbers of employees to work from home.

1. Make the most of the new risk-reward dynamic

Traditionally, CIOs are hesitant to try anything that hasn't been fully vetted. But in a crisis the old way doesn't work, Swoboda says. When the alternative is shutting down the business, the organization has nothing to lose. "So when you change that risk-reward dynamic they're not afraid of failure anymore because the system is already failing," he says.

In Marquette's case, there were real and valid concerns about moving lecture's online and creating a virtual classroom. "The shift to all online courses is a significant undertaking filled with

risk, but this crisis has demonstrated the incredible amount of change that people can process in a short time when they don't have any other options," says Swoboda, who is now president of Cape Point Advisors. "It

has taken incredible effort from everyone involved across the university."

At mortgage servicing firm NorthMarq in Minneapolis, CIO Dan Ritch suddenly had to enable 500 employees to work from home on infrastructure that was set up for only 165 remote users. In three weeks, the firm put \$150,000 of core infrastructure in place, extended its Citrix environment, added a new Citrix VPN environment, and acquired 50-plus laptops for remote users, a capital investment that was planned to take place over 18 months.

"From a CIO perspective, it's easier to sell the COO on a major business system that is impacting the customer

than infrastructure in the back office that nobody sees,” Ritch explains, “but we’ve been able to put a sense of urgency into the infrastructure investment to enable our work-from-home” directive.

CIOs should also accept that fast-track projects won’t work exactly right in the beginning, Swoboda says. But in a crisis situation, “people are not expecting it to” be perfect, he adds.

2. Innovate one week or one month at a time

With so much pandemic uncertainty, the business outlook is changing rapidly. So it’s important to iterate in small cycles, perhaps weekly, to see what can be improved today, says Melanie Parish, author of *The Experimental Leader: Be a New Kind of Boss to Cultivate an Organization of Innovators*, and a leadership coach who works with Fortune 500 companies. “Take an agile approach with a team – little prototypes, not big-budget spends right now, but what can they do for free today to improve things for tomorrow. Then figure out how we can have that short cycle happen over and over again.”

Small-cycle innovation also serves a dual role of giving nervous employees meaningful work in uncertain times. “It’s the best things you can provide your team right now,” she says.

3. Focus on one goal without distractions

CIOs face a constant battle between conflicting priorities on a normal day, but in this moment, they have an opportunity to reprioritize without apology. “[A crisis] gives you an incredible ability to refocus resources,” Swoboda says. “If you can focus more of your IT organization on one thing, there’s greater chance of getting it done.”

4. Decentralize the decision-making to local teams or regional IT leaders

Leaders often make the mistake of thinking that there is a rulebook for crises and that they can control the situation, O’Keeffe says, but in reality, a crisis requires “leadership in the moment” skills.

“Appoint someone as key response coordinator, and then decentralize the innovating and decision-making to local teams or regional leaders,” O’Keeffe urges. “They understand their communities better. The CIO and CEO can set up refreshed objectives” as situations change, “but delegate decision-making to those who can react faster.”

5. Think strategic intent rather than strategic plan

Strategic plans for innovation are too long-term in a crisis. Strategic intent works

Credit: Getty Images/LeoPatrizi



It's a good idea to communicate about innovation progress more often than average during a crisis.

best under pressure, Parish says. “Pick a timeline and help people see where you’re headed rather than try to plan it out.” Otherwise, the plan could fall apart when something changes on the ground. “Give people room to pivot as they do they work.”

6. Over-communicate

Communicate about innovation progress more often than average during a crisis, O’Keeffe says. “Daily briefings are very good, even if you don’t feel that anything is new. If you cancel a scheduled briefing, that can be quite panicky for people. Have your briefing even if there’s nothing new to report.” At NorthMarq, the CEO gives weekly

updates to set the tone for the organization, and IT dovetails onto that message with weekly updates, with smaller groups meeting to commiserate if needed. The week ends with a Social-Distancing Social videoconference where employees bring their own beverage and

unwind. “I think our collaboration ... speaks to our culture and respect for our teammates,” Ritch explains.

Months or years from now, when the ‘next normal’ has been established, Swoboda expects the innovations achieved during this crisis will have long-lasting effects on organizations. “We’re going to see the adoption of new tech practices at a much faster rate than we would’ve seen otherwise,” he says.

“CIOs, this is your moment to go for it,” Swoboda says. “Try and take tech or a new process approach to where there were organizational barriers. This is a moment to change organizational and people dynamics to get them to embrace something new.” ■



Credit: Getty Images/PeopleImages

Part 2: CIO communities around the world

The CIO community is exactly that – a group of peers solving previously insoluble problems. The best CIOs are always willing to share in order to learn. And since the dawn of time sharing stories has been humankind’s quickest route to knowledge.

After all, when you are at the cutting edge, where do you go for advice? For many of the readers of CIO.com the answer is to other CIOs. It is our privilege

to facilitate those relationships, and to tell those inspirational stories.

In this special section, we hear from CIOs in some of the dozens of countries and regions in which we engage communities. We hear stories from Africa, ASEAN, Australia, Germany, India, Middle East, New Zealand, Spain, and the U.K. Stories that showcase the best in technology and in business, but also the best in people.

Credit: Getty Images/THEGIFT777



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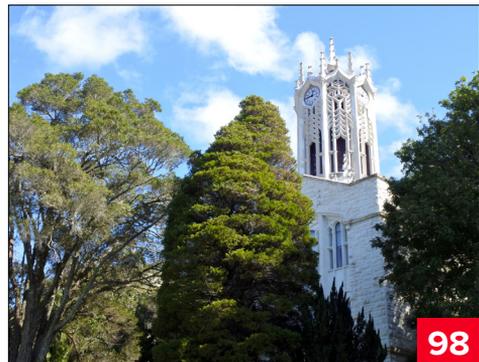


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Credit: Getty Images/PeopleImages

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Credit: Getty Images/THEGIFT777

Africa: How South Africa is using tech to fight COVID-19

Businesses, government, and vendors have stepped up to fight the coronavirus with a variety of apps and IT initiatives. **JEREMY DANIEL** reports

As the COVID-19 pandemic sweeps across the world and South Africans get used to life in lockdown, the Internet and mobile communications have assumed even more of a central role in the lives of citizens forced to communicate online, work remotely and desperately search

for information and updates through their devices. New uses of technology, new services and a surge in e-commerce, will permanently alter the tech landscape in ways that IT leaders in enterprises will need to be aware of.

Government and private enterprises have been offering innovative uses of

technology to combat the spread of the virus. Here are 10 instances where technology is playing a part in combating the spread of the coronavirus and providing new ways for South Africans to work and connect.

1. Tapping WhatsApp for communications

WhatsApp is by far the most popular digital application in the country, used by almost everyone with a mobile device. The Department of Health was quick in creating a WhatsApp help line, which served over 15 million messages, available in five languages, to 1.5 million citizens within the first week. It was created by Praekelt, an organization that works with the government and NGOs to leverage digital technology. Once users save the help line number into their phones, they can then send questions or queries and receive automated messages in response. It makes use of the latest information from the World Health Organization, as well as local news and updates in order to serve real-time information and combat much of the fake news which has spread almost as fast as the virus itself

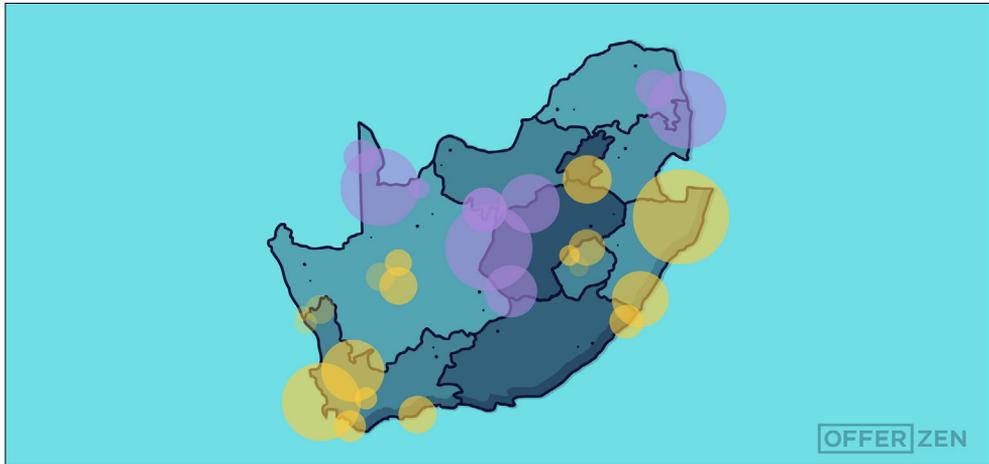
2. ICASA releases emergency spectrum

Recognizing that there would be a massive demand for broadband

services during the 21-day lockdown, the Independent Communications Authority of South Africa (ICASA) released emergency spectrum to meet the spike in demand, and to assist mobile operators in lowering the costs of its services. Published in the Government Gazette, ICASA reported that its initiative was “aimed at easing the burden of regulatory compliance for the sector during the national state of disaster declared by SA President Cyril Ramaphosa” and included the release of high-demand spectrum for the duration of the national emergency.

3. Government partners with tech

Government also reached out to the technology recruitment company OfferZen, saying that “it is critical that the government works collaboratively with South African tech companies and individuals to leverage our tech capabilities in the fight against COVID-19 and its effects.” This has led to a number of useful initiatives, including a Vulnerable Communities Map, which uses publicly available data to identify vulnerable communities. The map, which was created in only a couple of days, showcases demographics, health vulnerabilities of a particular community, social mobility with other communities, vulnerability according to the South African Multi-Dimensional Poverty Index, and access to health care.



Credit: OfferZen

The Vulnerable Communities Map uses publicly available data to identify vulnerable communities.

4. Pandemic sparks e-commerce

South Africa has been waiting a long time for an expected surge in e-commerce and home delivery, but perhaps the pandemic is the thing that is finally making it a reality. Food supplier Daily Dish was granted essential supplier status during the lockdown, and as a result it has seen new customers numbers up by 150 percent week on week.

Writing on LinkedIn, the CEO noted that “Orders are exploding on our online food businesses” and “the phone doesn’t stop ringing.” Other home delivery food retailers, such as OneCart, reported a similar surge in business, and there are hopes that this behavior will become entrenched among the South African middle classes, beyond

the reliance on Uber Eats and into local e-commerce businesses.

5. Health technology helps symptom screening

Pressure is building on the country’s medical resources, and one of the prime motivations for “flattening the curve” is to stagger the numbers of people who are forced to seek medical treatment. One tool for doing that is the pre-screening symptom checker that has just been released by Epione.net. The health technology company has built a pre-screening symptom checker into its platform that connects all stakeholders in the healthcare value chain, enabling a seamless patient journey. Using the system, people can monitor the

progression of their symptoms, and receive options for screening doctors that they can book. The platform crates a case flow including electronic referrals for testing, advice on the outcomes. The tool has recently been extended to Zimbabwe as well.

6. Western Cape launches education portal

Education and home schooling is one area that has come most into focus during lockdown. e-Learning is an invaluable tool for keeping children in lockdown stimulated and focused on the curriculum they are supposed to be studying. The Western Cape Education Department launched its ePortal on March 31, which features over 14,400 resources, of which 8,200 are free resources, consisting of video clips, audio clips, digital documents, lessons, and lesson plans. According to the MEC of Education, Debbie Schaefer, it's "very important that educational content is zero-rated so that [disadvantaged students] get free and fair access to e-learning opportunities, in order to ensure that no learner is prejudiced because they are poor."

7. Utility dashboard tracks spread of disease

One of the most popular apps in the country is called Eskom Se Push, which

tracks electricity outages and publishes the schedule of when load shedding will take place. Its developers were quick to set up a dashboard on their app which tracks the number of infections, deaths and recoveries in South Africa, and it's proved to be a very popular feature.

8. Telkom and contact tracing

Contact tracing – detecting who infected people have come into contact with – is one of the most important elements in the fight against the pandemic. South Africa's largest telecommunications company, Telkom, is working with the National Institute for Communicable Diseases (NICD), to develop a track and trace solution that aids in identifying people who may have contracted the disease. In a press statement, the company states that "system collates multiple data sources such as GIS to track an infected person's exposure and who they may have unknowingly exposed to the virus. This reduces the current reliance on the patient's own recollections of who they may have exposed unknowingly and enables the CSIR to contact people who were in the same proximity as the patient."

9. New app aims to help spark rebound business

As the economy looks to rebound, there's never been a bigger need for



Credit: Getty Images/Moyo Studio

The Jump app has been created to help people start and grow new businesses.

entrepreneurs to pick up the pieces and start new businesses. The whole landscape is going to be different. With that in mind, a new application called Jump was launched to help people start, grow and connect new businesses. It has a host of features that allow you to connect, to attract resources, find new business, and learn through podcasts and other content.

10. Xperien ramps up production of refurbished PCs

Of course, it's not all about software. In South Africa, many people who need to be online simply don't have the

equipment to make that happen. Now that working from home has become the norm, a huge demand has sprung up for refurbished PCs. Xperien has ramped up its production line and has been able to prepare at least 800 refurbished laptops for sale or rent. It procures used computer equipment, tests it thoroughly and refurbishes it. This equipment is then leased to businesses looking for a low-cost option and one that enhances their environmental credentials. "This crisis has made refurbished computers hot property because it's a cheap option and stock is available immediately," explains CEO Wale Arewa. ■



Credit: Getty Images/AJ_OP

ASEAN: How CIOs in SE Asia are combating coronavirus through business continuity

As the coronavirus outbreak continues to spread, CIOs across ASEAN are building out enhanced business continuity plans. **JAMES HENDERSON** reports

With the number of cases of the coronavirus accelerating into the tens of thousands, and the number of countries affected continuing to rise, the outbreak is bringing global business to a standstill.

Declared a global health emergency by the World Health Organization (WHO), ASEAN cases have so far been confirmed in Singapore, Malaysia and Thailand, alongside the Philippines, Vietnam and Cambodia among others.

The virus has forced organizations to close offices, mandate remote working for employees, and review corporate travel policies.

Such an approach is placing pressure on IT infrastructure and systems as staff turn to remote working en masse, adding strain to video, voice, collaboration and productivity technologies in the process.

Here, CIOs in ASEAN outline the technology practices in place to ensure business as usual procedures are followed. In a nutshell:

- Establish an appropriate work-from-home policy so staff feel empowered to do the right thing.
- Consider cloud-based unified communication systems that can scale to facilitate remote working.
- Adopt two-factor authentication, VPNs and other security measures to protect remote workers' connections.
- Ensure IT help desk procedures can scale to handle sudden increases in requests for remote working and credential renewals.
- Automate repetitive tasks that don't require the presence of an employee.

Tactics in Thailand

Speaking as group CIO of RMA Group, an automotive organization based in Bangkok, Alex Konnaris says the

business has so far instructed staff to work from home if symptoms of the virus are suspected.

"We are seeing an increase in demand of around 20 percent in our remote working systems," he reveals. "Over the years we have experienced a number of situations where staff have needed to work from remote locations and, combined with our long-term strategy for digital transformation, we have migrated a number of critical systems to the cloud and adapted our Internet connectivity.

"We have reduced the number of on-premises services and put additional emphasis on increasing our Internet bandwidth to cope with the additional demand on those external services."

As Internet connectivity becomes more critical, Konnaris says that RMA Group has also provided redundant Internet links to ensure users remain online "at all times."

"Whether it is due to environmental disruption or the migration to cloud services, there is more demand on the size, quality, and redundancy of Internet links," he says. "We might think that the size of Internet links is the most critical aspect, but being able to prioritize traffic, load balance or failover to redundant links, all bring important performance benefits. We are also gaining benefits from cloud services which provide

Credit: Bank of Ayudhya (Krungsri)



Voranuch Dejakaisaya, CIOO, Krungsri.

additional security and monitoring features that boosts confidence to an operating mobile workforce. The use of two-factor authentication is possibly the most important improvement we have seen in securing our mobile and remote users.”

Staying within Thailand, Voranuch Dejakaisaya, CIO of Bank of Ayudhya (Krungsri), emphasizes the importance of reevaluating business continuity planning during a pandemic crisis, learning lessons following the SARS outbreak of 2002.

“Now, channel communications are more connected and immediate actions to handle the situation, whether good news or bad news, can be taken,” says Dejakaisaya, recently recognized in the CIO50 in ASEAN. “The key stakeholders in this crisis are not only our external

customers but also our internal users, regulators and the public. We are working on each scenario from a worst-case perspective to assess how long we can manage our banking operation.”

In heading up both IT and operations, Dejakaisaya has also assumed the role of crisis management leader, tasked with developing business continuity processes within the organization.

“We are communicating with all business functions to understand and follow process and procedures,” she adds. “We require up-to-date data outlining employee absences, number of staff with flu injections and how to stop the virus spreading to a bigger group.

“Data collection from phone numbers, email, WhatsApp and Facebook addresses is also important to communicate to all our staff, ensuring they receive information that is consistent and on time. Our work-from-home policy has also been revised but this is not new for an IT leader because we should have plans to use both in-house facilities and multiple service providers with agreements already in place, not just in-country but overseas and cloud provider options also.”

High alert in Hong Kong

At Hong Kong based Hunghing Printing, select company offices and factories

are still closed, with no date set for employees to return to work.

“The timing couldn’t be any worse for companies with operations in China,” says Yee Y. Yu, CIO of Hungging Printing. “With thousands of staff home for holiday and spreading across Hong Kong and Mainland China, having a crisis communication plan and business continuity plan [BCP] is essential.”

In addition to leveraging social media platforms such as WhatsApp and WeChat to communicate with staff, Yu is also placing increased priority on ensuring email communications remain up and running to ensure “business as usual” operations remain for overseas customers.

“Email becomes an essential tool,” he reveals. “A few years ago, we migrated our on-premises email server to the cloud and one of the clear advantages is the ability to provide email access via mobile phone on-the-go. The effort really pays off as our staff can now access their email while on the road as they return home from Chinese New Year.”

Final resiliency efforts at Hungging Printing center around “home office enablement” through ensuring staff are set up to access work computers from home over VPN connection.

“But this places great demands on bandwidth,” Yu cautions. “Users might notice poor response time or lag if this

is done over a slow connection.” By establishing guidelines on quality of service beforehand however, Yu says companies can test out various disaster recovery scenarios to determine the number of users it can support and upgrade as needed.

“Luckily for us, last year, we upgraded our Internet connection bandwidth to anticipate a spike of 10 times our normal traffic, and it turns out our foresight has paid off,” Yu adds. “Whether it’s a natural disaster or another unforeseen threat, this will not be the last time. The coronavirus outbreak is a huge wake-up call for companies and an opportunity to rethink their crisis emergency plan to minimize business disruption.”

Priorities in the Philippines

As CIO of Concepcion Industrial, Manila-based Richard Parcia is quick to stress that a rise in remote working is not “out of the ordinary” in a country regularly plagued by natural disasters.

“The demand spikes often happen when business continuity planning related incidents happen,” Parcia outlines. “In the Philippines, there are not a lot of cases of the outbreak therefore there is no mad desire to just stay home.

“But we do have the regular typhoons in the rainy season and the occasional inconveniences due to us being in

Credit: Concepcion Industrial



Richard Parcia, CIO at Concepcion Industrial.

the ring of fire,” the seismically and volcanically active zone around the Pacific rim. “It pays for us to be ready all the time. After all, any disaster manager will tell you that the key to any disaster management plan is preparation.”

One of the Philippines’ most established providers of air conditioning and refrigerators, Concepcion Industrial operates principally through two subsidiaries, Concepcion-Carrier Air Conditioning and Concepcion Durables.

Founded in 1962, the business today is supported by over 170 accredited installer companies, over 130 accredited service centers and more than 2,000 technicians. This is in addition to manufacturing facilities capable of producing 500,000 units of air conditioning equipment and 300,000 refrigerators located at Light

Industry and Science Park, in Laguna.

With this in mind, Parcia says Concepcion Industrial is responding to coronavirus “just like any other situation” through the scaling up of BCP-related activities.

“Our infrastructure capacity can handle the demand and

is resilient against spikes,” he reveals.

“Unified communications are actually built perfectly for these scenarios – the value proposition is immeasurable.

“Unified communications doesn’t just simplify your communications infrastructure, it allows you to delimit the variables for you to manage. In this case, it’s just bandwidth for users, in or outside the premises.

“While it was intended that such technology would form the backbone of office productivity, its value can be felt tremendously in situations of crisis.”

Spikes in Singapore

In Singapore, the local office of Havas has experienced a “slight increase” in user demand since the outbreak, with the digital marketing agency actively

anticipating such a spike. “With having a majority of young population in our office, our management is familiar with remote office work,” says Brian Veau, CTO of Southeast Asia and India at Havas.

“For a few years we have ensured our employees are comfortable using SSL VPN systems on laptops, and in parallel allow some particular systems to be directly accessible from a demilitarized zone. The increase since the outbreak has been due to some users asking to refresh their strong authentication process.”

The company’s unified communications system is cloud-based, leveraging Microsoft technologies such as Office 365 and Teams.

“This is bringing an additional degree of freedom for our local IT while inviting our employees to work anywhere from their laptop or mobile (application based), or from a non-corporate device with strong authentication (web-based),” Veau explains. “Videos and audio meetings are managed by Microsoft Teams; this is our preferred solution as opposed to our on-premises IP PBX offering.”

To handle increased demand, Havas operates a cloud ITIL (IT infrastructure library) ticketing system to handle and prioritize all new requests.

“Our IT team is accountable to reply fast and efficiently because all tickets are

KPI monitored by the IT management,” he outlines. “Two types of requests can be distinguished: issues related to servers or related to laptops.

“With the latter, our support team is using Teams to access and control the shared desktop of the employee and help to solve the related issue.”

Similar to Havas, user demand has also spiked at Singapore-based Etiqa Insurance through an increase in video conferencing. “IT is working with users to be prepared for the outbreak in Singapore,” confirms Dennis Liu, executive vice president of business transformation at Etiqa Insurance.

“We are actively preparing for staff to work from home, through facilitating secure remote access, email access as well as instant communication systems. We have a video conference system in place already but in view of the travel restriction the usage may surge. We are working on increasing its capacity.”

According to Liu, scalability through the cloud is key when responding to such pressures on the network, in addition to heightened awareness around cybersecurity. “The outbreak of coronavirus is a threat, but it also brings opportunity for companies to leverage technology, from automating business processes with less dependency on humans to supporting the new model of

working and communicating remotely,” Liu states.

As regional IT director of Aimia, a Canada-based data-driven marketing and loyalty analytics specialist, Ben Kellas has seen usage of collaboration tools increase substantially in not just Singapore, but across the wider Asia market.

“We want to protect the health and well-being of our employees, and ensure that if they are concerned or unwell anyone with remote working capabilities can take that up,” he reveals.

Kellas says a BCP plan is already in place, which the company currently using the blueprint as a “reference point” during the outbreak.

“This isn’t exactly a scenario we would expect, but nonetheless the BCP and the framework should be able to handle the situation,” he says. “Specific to technology, increased demand for remote access is being worked through and in some cases, we are discovering some challenges in what can and can’t be done remotely and feeding that back to the BCP team. Patience and understanding are key. This is a challenging situation in terms of employee well-being and not something we would normally expect from BCP or disaster recovery events.



Quinny Lei, vice president of Group IT at Amos Group.

Credit: IDG

However, my experienced peers will recall SARS so we do have a reference point.”

Responding through tech

As CIO of Singapore-based City Developments Limited (CDL), Ivan Ng advises fellow technology leaders to adopt a “cloud-first” strategy to help boost internal resilience levels.

“While often over-hyped, cloud-based technologies certainly show value in these situations,” he explains. “In our experience, being cloud-first has not only helped alleviate infrastructure complexity but is inherently more agile and faster to scale up. This can be a real value in such scenarios.”

Specific to CDL, Ng says demand for collaborative solutions to enable remote, cross-border work has “certainly increased” since the outbreak.

“Employees are justifiably concerned about travel and are looking at ways to work remotely effectively,” he adds. “The key activities are around planning for the capacity and availability of unified communication systems and enabling the capability for staff to collaborate on documents remotely using collaborative platforms.”

The business has also “stepped up” the ability of employees to work remotely by equipping staff with mobile devices, laptops and increased training, backed by the digitizing of documents and processes.

“The robustness of IT platforms is usually only fully tested in these ‘black swan’ scenarios, and it is in these scenarios where we, as technology leaders, need to step up to help enable the continued success of the businesses we support,” Ng says.

Even though Amos Group has so far experienced “no significant increase” in demand for remote access connectivity and conferencing software, the Singapore-listed maritime organization has a tried and test approach to business continuity.

“We do not advocate response with demand, but readiness must be in place to prevent sudden paralysis to business continuity,” says Quinny Lei, vice president of Group IT at Amos Group.

Amos uses Skype for Business, with Lei also acknowledging the need for telephony connectivity to be “well connected with routing to the respective personnel” to ensure constant uptime in performance.

“Amos has long prepared for buffered bandwidth to ensure performance is not compromised,” Lei adds. “Most of Amos’s business critical services are managed via the cloud and accessibility will not be compromised. Although Amos has a network performance monitoring system, our infrastructure team is scheduled to perform rotation shifts to ensure connectivity and performance will not hit the threshold amid the outbreak.”

In a message of advice to fellow technology executives, Veau of Havas warns CIOs against neglecting security when creating a resilient communications system, especially as panic over coronavirus hits fever pitch.

“You cannot afford to open doors to threats,” he cautions. “Security is a precise and concise art that may have a strong impact on your systems if not completed correctly.

“Take time to identify and gather information on your systems and actual security requirements. Identify who the real people are that need to rely on core systems and think ahead to make it scalable as your business grows.” ■



Credit: Getty Images/elenabs

Australia: How Australian healthcare providers are navigating COVID-19

Healthcare providers have faced a range of challenges in the wake of the COVID-19 pandemic. **DAVID BINNING & BYRON CONNOLLY** report

Melbourne’s Austin Health was just weeks away from pressing go on a major digital transformation project before COVID-19 started getting serious in early March.

“We had to undertake a major refactoring of that project and change the plan,” reveals Alan Pritchard, director

of EMR and ICT services at a group that runs the Austin Public Teaching Hospital, Heidelberg Repatriation Hospital and the Royal Talbot Rehabilitation Centre.

Pritchard and his team quickly mobilized to enable some 8,500 doctors, nurses and support staff to connect remotely within a week. New licenses

were acquired overnight, including for Microsoft Teams, SharePoint, and Windows 10 upgrades. What followed was a series of intense training sessions across the group, as well as onboarding that included upgrading large numbers of mobile and other devices.

“The work that happened in mid-March was incredible,” Pritchard tells us. “The engagement and response from the organization was mind-boggling; staff are now able to work from home and join meetings.”

Austin’s COVID-response project has been especially helpful for doctors and nurses. “Clinicians can now do multi-disciplinary meetings from anywhere,” Pritchard adds.

This includes the ability to allow multiple doctors to see microscope images through Microsoft teams. Ordinarily, every doctor would need to be in the one room. “They’re [now] able to get together to talk through complex cases and discuss how they want to proceed,” Pritchard reveals.

Clinical rounds

Patients testing positive and suffering from COVID-19 are together in a separate isolation ward while another ward houses suspected cases.

Doctors, nurses, and support staff – all wearing protective gear – are now

using iPads on purpose-made mobile units, and are able to dial-in colleagues, including case specialists, via Microsoft Teams for consultations.

“Clinicians at the bedside can dial in say a respiratory specialist – or as many specialists as are needed – off-site to talk with and assess patients,” Pritchard tells *CIO Australia*. “This is a major step-change”.

In one example, a physio was needed to examine a deaf patient with the virus. An Auslan sign-language interpreter was able to join a Microsoft Teams meeting to aid the consultation.

Austin is also using the same technology allowing family members to communicate via video with loved-ones they would otherwise be completely isolated from. He has also deployed an AI-powered suite of diagnostic tools for assessing COVID-19 symptoms, developed in partnership with Microsoft and Melbourne-based analytics company Arden Street Labs. Dubbed “COVID-Care,” it includes an AI-based symptoms management solution that assesses COVID-19 patients’ respiratory and other targeted symptoms, and a digital platform helping emergency department staff gather data from hospital arrivals.

It also includes a self-assessment tool allowing people to input their symptoms remotely over the phone – typically by

being recorded counting to 30 – with the algorithm, then recommending whether or not they should go to hospital.

There’s also a secure portal allowing patients to access results and manage appointments and rescheduling.

Crisis communications

Brisbane’s Mater Group has faced similar challenges since March with its chief digital officer, Alastair Sharman and the tech team supporting around 7,500 staff in three ways.

First, it was vital to ensure that ICT infrastructure was in place to support services to move to different locations such as the establishment of a fever clinic

at its South

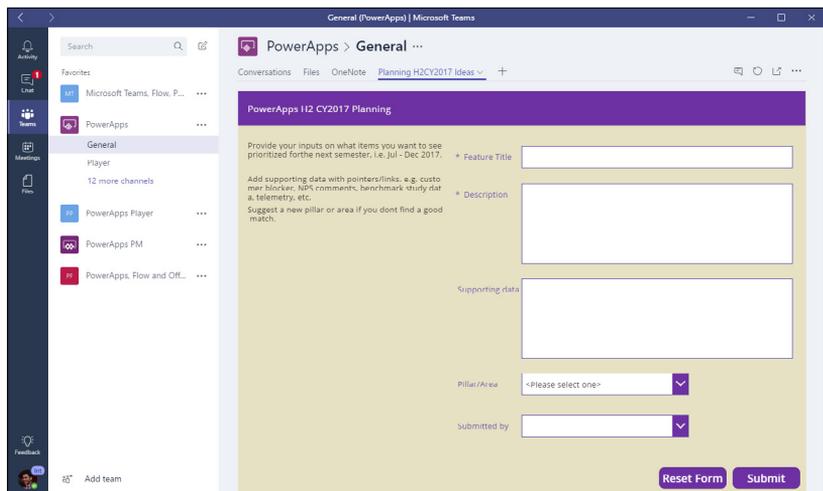
Brisbane campus to screen patients who are entering or planning to enter facilities for care.

“That was a big focus, particularly in the [COVID-19]

preparation and early response period,” Sharman tells us.

Microsoft Teams was rolled out to around 6,000 staff and the tech team used the PowerApp function in the collaboration platform to create a crisis communications app. This has made it easier for frontline clinicians to keep up to date with the latest information about the pandemic. “The adoption of that was pretty incredible over a short period of time,” Sharman says.

The third focus was providing data and analytics capabilities to give clinicians and administrative staff greater visibility into various medical scenarios around preparations to deal with the crisis.



Credit: Getty Images/elenabs

Microsoft Teams was rolled out to the Mater Group’s 6,000 staff and the tech team used the PowerApp function in the collaboration platform to create a crisis communications app.

“And then as we go to the response [it’s about] getting visibility of how we were tracking against each scenario, so we could continue to inform [staff] if we needed additional workforce changes as well,” Sharman reveals.

On average, around 900 people a day are using the Teams with almost all meetings now taking place over the collaboration platform – on site at hospitals and remotely.

“Being a healthcare provider and providing that front line clinical service, a large number of our staff need to come into work so it’s not a big percentage of our staff working remotely,” he adds.

Corporate services teams – including the tech department – have been split into “Team A and Team B” groups working remotely and on-site.

Key learnings

The first lesson learned from the pandemic has been to ensure that teams feel they are delivering value – on site and remotely – to the health service and the broader community. This could be their response when moving physical services, introducing collaboration tools or providing good data analytics among other things, Sharman says.

“The second one for me is ensuring that when these incidents do occur, that we don’t lose sight of what we are

trying to achieve strategically as well,” he explains. The pandemic forced his team to adopt collaboration tools faster than was previously expected.

“I think it has demonstrated that we can do things quickly as an organization if we’ve got the will and desire to get something rolled out.”

Meanwhile, the South Australian Department of Health had over 40,000 staff ready to connect via Microsoft Teams in just one week after declaring a “health emergency” in March.

A large number of general employees had already been urged to work from home early on to help curb transmission of the virus, therefore being able to have them reconnect and address the expanding workload was a key priority.

The move to Teams has also played a critical role in supporting the important work of doctors, nurses and other clinical staff. “Clinicians and staff recognized quickly [this and adopted] the technology, resulting in exponential growth in uptake; to 13,000 users in just two weeks,” SA Health chief digital officer, Bret Morris said in a statement.

He added that once COVID-19 is brought under control SA Health plans to explore how Teams could be leveraged in more clinical scenarios and be integrated with core applications such as the Sunrise EMR (electronic medical record). ■



Credit: Getty Images/PeopleImages

Germany: A look at how CIOs are working from home

We asked CIOs what their home setup looks like, what tools they use, and what tips they can give. **KAREN FUNK & MANFRED BREMMER** report

The spread of COVID-19 has meant millions of employees are now working from home. This poses a dual challenge for IT managers. First, they have to ensure that the workforce functions as smoothly and safely as

possible during remote work. Secondly, they also have to set themselves up accordingly at home, in order to be able to fulfill their tasks. We asked CIOs about their home setup, what equipment they use, and what tips they can share.

Thomas Siekmann, VP IT & Digitalization Servnion Deutschland GmbH

I have a “double” access to our resources, we utilize VPN entries in parallel with many user VDIs based on VMWare. The work is accompanied by Office 365 Landscape with Exchange/Outlook, Skype and Teams. We use Skype more intensively than traditional phone services and experience the limits of the system in light of the new global load. For my private online contacts, which are even more important in de facto isolation, I use an iPad, MacBook, and iPhones in addition to a classic Windows notebook.

WhatsApp, Threema, Telegram, Facebook, Xing, and LinkedIn all serve as private channels – if that’s so clearly separated – redundantly on the devices and utilized depending on the proper

occasion. Since a home office is not a new experience and the value of redundant access shows itself over and over again, all devices are also LTE-compatible in addition to having Wi-Fi access. Perhaps planned on the “safe side,” but it works. Oh yes: don’t forget power supplies and interchangeable headsets.

Dirk Altgassen, CIO at the Etex Group

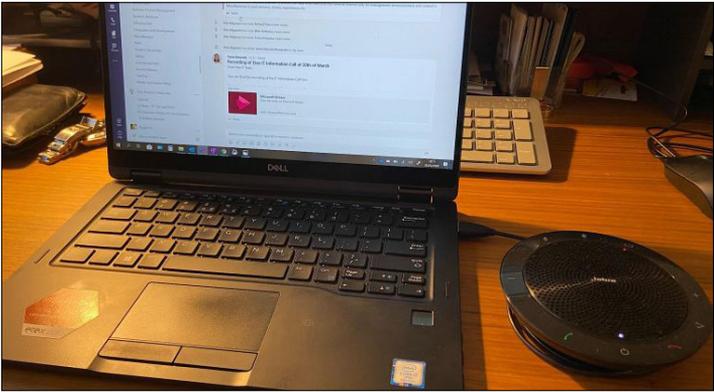
Etex is completely reliant on Microsoft Office 365 – we use Microsoft Teams in addition to Outlook and SharePoint Intranet Software. Microsoft Teams is used for chatting, voice and video calls, collaboration, and more. My favorite gadget in the home office is my “Jabra” (see photo). We now have 5,000 employees working from home. Our infrastructure with SDWAN, Microsoft



Thomas Siekmann’s home setup.

Credit: Thomas Siekmann

Credit: Dirk Altgassen



Dirk Altgassen's home setup.

Office 365 and Microsoft Teams in particular runs very well and reliably. In addition to IT tools, we are also supporting the business with a new “way of working,” such as setting up “virtual coffee kitchens,” where you can occasionally meet with others.

Thomas Zimmerer, Interim CIO/CDO, currently working for a group in the Middle East

Remote collaboration is very much possible with Office 365, and since we have been using it for several years now, we have all become familiar with the functions and the working methods.



Thomas Zimmerer's home setup.

Credit: Thomas Zimmerer

Microsoft Teams in particular is used all day for chat, video conferences, shared sessions on PC, notebook, iPad, and iPhone. Thanks to the Gigabit fiber optic connection at home, the connection works very well, even if the people are working from home in parallel.

Complex projects are also controlled remotely and from home, even if larger meetings in particular require more precise preparation in greater detail. We split planned day-workshops into several smaller video conferences lasting 1-2 hours. This is even more effective, .as



Credit: Christian Ammer

Christian Ammer's home setup.

the participants do not tire so much and the results can be built in between the appointments. That said, the biggest problem is change management, since it is supported by digital information, but the conviction to changes does not always work out best personally.

Christian Ammer, CIO & Head of Digital Transformation at Noerr law firm

Working with two computers has proven itself to work best for me. I can carry out Cloud tools and remote apps such as Office 365 (Microsoft Teams in particular), document processing and sharing (via Nextcloud) and most of

the communication (audio and video conferences) via my own home PC.

Mobile devices (iPad/iPhone) are of course permanent companions, but in addition to that I also utilize my business notebook (either connected via VPN or with a running virtual desktop), but only one part of the communication is carried out via email/Outlook.

My top tip (in addition to 2-device-strategy): audio if possible only hands free, of course only if there is a quiet workplace. That makes things faster, easier and not complicated than handling headsets and headphones. Of course, you should already know and use the mute button. ■



Credit: Getty Images/Tashatuvango

India: How COVID-19 is changing IT spending priorities for CIOs

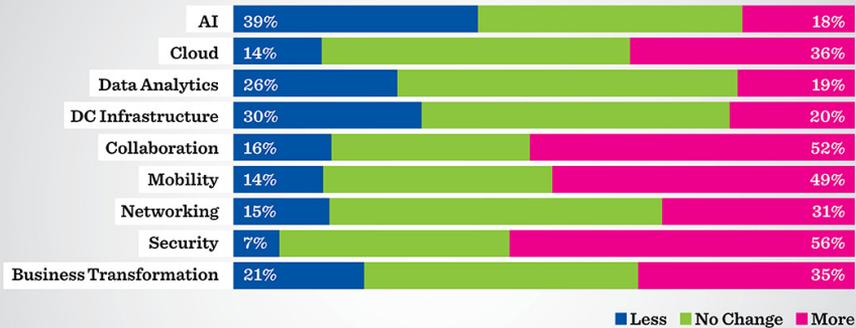
CIOs tell us how the coronavirus pandemic has resulted in a complete shift in IT priorities and impacted their tech investments. **SOUMIK GHOSH** reports

At the time of writing, the world's biggest coronavirus lockdown had just been extended. With no definite endpoint in sight, CIOs are focused on ensuring business continuity; remote working is the new norm and technologies associated with remote operations are taking center stage.

CIO India's survey on COVID-19's impact on IT jobs and investments conducted April 7-9 captures how it has changed IT spending priorities and tech investments across India Inc.

Our survey reveals that 56 percent of CIOs are increasing investments in security; close on its heels is

Tech Investments Amid Covid-19



How do you see funding in the following areas getting impacted by COVID-19?

Credit: IDG

COVID-19 Impact on IT jobs and Investments – A CIO India Survey (April 7-9, 2020).

collaboration with 52 percent, followed by mobility and cloud with 49 percent and 36 percent respectively.

The change in IT spending priorities is not typical to the Indian enterprise alone. An IDC survey shows that while the IT spending growth forecast has been pegged down from 5.1 percent to 2.7 percent in a span of less than three months, cloud and security have been identified as key areas for sustained crisis response.

CIOs are slashing investments in ‘moonshot’ technologies like AI, data

analytics, and business transformation. Also, 30 percent of CIOs will be reducing spending in data center infrastructure – a direct consequence of a heightened focus on the cloud. The money saved from investments in these areas can allow CIOs to carve a larger slice of the pie for technologies pertaining to remote working, which has now proven to be the new norm.

We talk to five CIOs from different industries to share their insights on the rationale behind increasing investments in security, collaboration, mobility, and cloud.

Top 4 areas CIOs will invest more in		Top 4 areas CIOs will slash investments in	
Security	56%	AI	39%
Collaboration	52%	DC Infrastructure	30%
Mobility	49%	Data Analytics	26%
Cloud	36%	Business Transformation	21%

Credit: IDG

COVID-19 Impact on IT jobs and Investments – A CIO India Survey (April 7-9, 2020).

Why security takes pole position

Jitendra Singh, CIO at JK Cement, explains that investments will be made bearing in mind virtual conferences, online meetings, and cloud security. “We’ll have to select tools which are highly secure and not vulnerable – like what we’ve seen with the Zoom exploit,” he says.

“Increased online presence makes for a good playground for hackers. Although we haven’t experienced an incident yet, one has to be prepared for unforeseen events,” he adds.

With respect to cloud security specifically, Singh says that there will be an increased focus on Casbin (an open-source access control library). “There is also a possibility of hackers misusing a company’s cloud space,” he explains.

Rajesh Chopra, Senior VP-Corporate IT at Oberoi Hotels and Resorts stresses on the importance of patch management

and the looming threat from Shadow IT. “The workspace has gone beyond the office, covering multiple networks which have varying degrees of precautions – some are open networks while others are partly covered,” he says.

Bringing to light the perils of shadow IT, Chopra says that people working out of their homes could be using unprotected devices that could be infected.

“To enable employees to work seamlessly from their homes, organizations will need to invest in tools and technologies to ensure that critical networks, critical servers, and infrastructure are not impacted,” he adds.

Chopra cautions that when the lockdown is lifted and people start returning to offices, their devices may not be patched. This may introduce unknown vulnerabilities in the office networks.

“At Oberoi, we’ll be investing more in perimeter security, endpoint

security, continual monitoring of devices – the whole gamut,” he says. As a workaround, Oberoi Hotels is evaluating a solution, among many others, to patch devices remotely.

Collaboration takes second spot

The sole objective of collaboration technologies is to empower your workforce to operate from anywhere. Muneer Hassan Wani, CISO at J&K Bank believes “triple play” will be a front runner for facilitating remote work. Simply put, “triple play” is voice and video with integrated data.

Furthermore, Wani says that extension mobility – a feature that enables users to roam between multiple devices – has to be provided to employees. This ensures that irrespective of the location, employees will be able to connect to their work desks and enjoy the same accessibility and features as if they had been working from the office.

In fact, in the wake of the COVID-19 outbreak, the Department of Telecom (DoT) passed a resolution that relaxes work-from-home norms for IT and BPO employees. On the same lines, Wani advocates that organizations will also have to liberalize their security policies to enable remote access. “The BFSI sector has historically been quite radical in its approach to remote working

and that has to change in the current scenario,” he opines.

(This is an interesting contrast to what Jitendra Singh of JK Cement stated earlier about stringent access management.)

J&K Bank has been using Webex cloud services but is now gunning for increased capacity to serve its end users. On being asked about his take on enterprise-grade services versus freeware (like Hangouts), Wani says: “Although the underlying technology may be the same, enterprise-grade solutions give us centralized control and policy management in addition to real-time reports from thousands of users. Moreover, the setup can integrate with my existing tech investments and IT infra.”

Mobility investments pay off

Umesh Parshetye, CTO at ASK Investment Managers shares that his organization



Umesh Parshetye, ASK Investment Managers.

Credit: Umesh Parshetye

had to rent laptops to provide mobility to its desktop users – primarily back-office workers at ASK.

This ensured that customer service personnel and those responsible for processing customers’ transactions were able to carry on with their duties. Owing to delayed lead times, the company has decided to provide all its new joiners with laptops to avoid a similar situation arising in the future.

“We already had mobility solutions in place, so I’d say we were saved because of investments in mobility we had made a year and a half back,” he says.

Although the Securities and Exchange Board of India (SEBI) declared that investment firms are exempt from the mandatory work-from-home norms, ASK Investment is following a 100 percent WFH policy to keep its employees safe.

Parshetye shares that with the Office 365 E3 Suite, the company is able to access almost everything it needs to work remotely and ensure business continuity. “We are able to conduct virtual meetings with our clients and colleagues and collaborate on the move. In fact, we will be conducting our next town hall virtually,” he says.



Credit: IDG

Venkateshwarlu Mangavelli, Larsen & Toubro.

Venkateshwarlu Mangavelli, Joint General Manager, Corporate-IT at Larsen & Toubro, says increasing cloud spending can avoid problems by reducing the need for capital investment in new hardware now – and in the future, once existing on-prem hardware reaches the end of its life.

“Management could say no capital investment is possible – you postpone the procurement. Now a wise CIO, instead of taking a risk with out-of-support hardware, will look to move to the cloud,” he explains.

In conclusion, the widespread lockdown has undoubtedly forced CIOs to improvise amidst numerous challenges. However, with new investments and technology deployments, organizations are better poised to take on unforeseen disruptions in the future. ■



Credit: Abu Dhabi Terminals

Middle East: How automation helps Abu Dhabi Terminals work remotely

Arturo García, chief automation officer at Abu Dhabi Terminals, shares best practices for enabling a remote workforce. **ANDREA BENITO** reports

The global COVID-19 pandemic and its consequent health and economic impact is forcing companies to face one of the greatest challenges in recent decades: how to continue key business operations

and ensure their survival. Many of the changes that are reconfiguring the enterprise in this moment of disruption depend on technology.

Working remotely is not something new for Abu Dhabi Terminals (ADT),

established in 2006 and located at Khalifa Port, halfway between Abu Dhabi and Dubai. ADT's core business is managing and operating the Khalifa Port Container Terminal (KPCT), which is the largest semi-automated port in the region.

Since commencing operations in 2012, ADT has used technology to remotely operate some of the day-to-day functions in the container yard. Remote Operating Stations (ROSeS) in the operations center allow operators to load and unload containers from trucks remotely, as opposed to having operators in the cranes. The company is in the process of automating this process in order to improve efficiency. ADT also uses remote operators located at its BPO (business processing outsourcing) center in the Philippines to handle exceptions and remotely operate the truck gates.

"Automation is key," according to Arturo García, chief automation officer at ADT. The terminal operator's vision, since its inception, is to bring and maintain consistency across its operations. This is why it's invested heavily in automation technology – the key, along with cloud, to its business continuity plan.

Automation helps maintain productivity

"The COVID-19 situation has shown that our investment has paid dividends by

allowing us to be better prepared to handle any situation without impacting service to our customers. There has been no reduction in productivity, proving that ADT was far better prepared than other terminals worldwide," García says. "We are taking the lessons learned from the COVID-19 situation and incorporating these into our five-year plan to assure that we can easily handle any future crisis," he adds.

Excluding operators, mechanics, and security personnel, ADT has nearly 100 percent of its employees working remotely. These remote workers include staff in Management, Information Technology, Finance, Commercial, Human Resources, and Operations Control Center personnel.

"We are able to achieve this because we have a high level of automation and our container yard is 100 percent automated," García says. To manage automation, ADT uses a terminal operating system (TOS), from California-based Navis.

The TOS controls real-time monitoring, equipment management and unmanned technology such as automated machinery. For robotics, ADT uses two vendors: Konecranes, from Finland, and TMEIC, based in Virginia, in the U.S. The companies supply a variety of cranes and automated shipyard equipment.

“This gives us a tremendous business advantage since we are able to operate with reduced manpower requirements and therefore minimal interruptions. Prior to the COVID-19 situation, we were in the process of further automation in order to assure consistency with our operation,” García says.

Changes in law paves way to use of cloud

Recent changes in UAE law – some of which were spurred by the pandemic – has given ADT more flexibility in how it uses technology to enhance business continuity practices and allow personnel to work remotely.

Historically, ADT was not allowed to use cloud technology, according to UAE law. A month or two prior to the COVID outbreak, though, the rules changed and permission was granted to use cloud technology (as long as data was kept within the U.A.E.).

Subsequently, due to the spread of the virus and the lockdown in the U.A.E., the country lifted its ban on VoIP apps, thus allowing companies to use apps such as Microsoft Teams, Skype for Business, and Zoom.

Investments made by ADT in cloud technology prior to the coronavirus outbreak have benefited the company. For example, its investment in cloud tech

put it in position to make full use of MS Teams. Once the government gave the go-ahead to use Teams, “we immediately employed this platform to hold meetings with our customers, contractors, vendors, and stakeholders in addition to internal meetings,” García says.

The pandemic has essentially sped up the rollout of ADT’s work from home (WH) program, he adds. “Our infrastructure and architecture were already in place for the cloud,” García says. “This is the reason we were ready when COVID emerged and were able to easily institute a remote work strategy without any impact on our productivity.”

ADT invests in AI

In addition to automation, ADT is investing heavily in artificial intelligence technology to complement its automation program. “Worldwide, the port industry lags behind other industries when it comes to using new technology,” García explains. “At ADT, we are committed to using the latest cutting-edge technology and are currently working with vendors to develop and deploy artificial intelligence at Khalifa Port. We will be the first terminal on earth to use this technology and this will cement our place as a world leader in the global ports industry.”

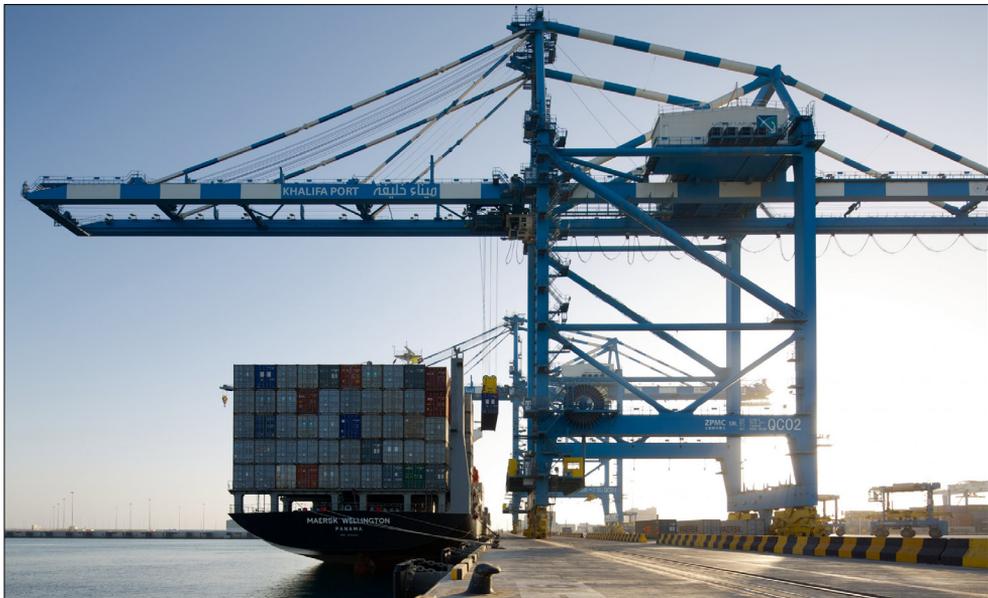
In turbulent times, organizations must ensure business continuity. ADT already

had a Business Continuity Plan (BCP) in place, centered on automation and the capability to work remotely. Although the specific situation that now confronts the company was not reflected in the plan, similar scenarios were considered, García explains.

“This has allowed us to respond to and tackle this aggressive scenario in record time. Because we were ahead of the curve, only necessary personnel such as operators, mechanics, technicians, and security need to physically be at the port and all others are working remotely – including our Operations Control Center.”

Within any company, though, the Business Continuity Plan (BCP) should be reviewed on a regular basis and incorporate any new issues that the company has experienced, García says. ADT will be reviewing its own plan.

“Because of COVID, not only will ADT’s BCP change, BCPs worldwide will change,” García says. “This COVID situation has provided a unique learning opportunity for ADT. We quickly responded to the rapidly changing circumstances and this experience has allowed us to learn and grow as an organization.” ■



Credit: Abu Dhabi Terminals

Khalifa Port will be the first terminal on earth to use artificial intelligence technology to complement its automation program.



Credit: Getty Images/da-kuk

Middle East: Saudi Arabia to push multicloud, security adoption in wake of COVID-19

The novel coronavirus is speeding up adoption of cloud and emerging technology in Saudi Arabia, IDC says. **MARC FERRANTI** reports

The outbreak of COVID-19, which has caused Gulf countries to enforce lockdowns and businesses to scramble to set up technology that allows staff to work at home, will lead Saudi Arabian enterprises to increase their use of multicloud computing environments and enhance security tech,

according to IDC. More than 25 percent of Saudi Arabian enterprises plan to use a combination of on-premises and dedicated private cloud systems, public clouds, and legacy platforms, according to IDC's annual Saudi Arabia CIO Survey.

"IDC expects to see more and more organizations across the Kingdom

embracing multicloud,” said Hamza Naqshbandi, IDC’s country manager for Saudi Arabia and Bahrain, in a press release – see tinyurl.com/ybn6vjeo. The COVID-19 pandemic has accelerated reliance on multiple workloads, Naqshbandi noted.

The outbreak has become a catalyst for increased demand for a number of technologies that Saudi Arabian government agencies and enterprises have been investing in for some time: mobile apps, government-service Internet portals and emerging technology, including drones that can monitor public spaces and thermal imaging to screen for infectious diseases. These different applications create different types of workloads suited for, and served, by different types of data center platforms.

There are, however, hurdles on the road to deployment of multicloud computing systems, IDC said. A key issue is the lack of capabilities needed to migrate data and applications among different types of systems. Managing multiple cloud systems calls for expertise, and the lack of related skills in the region is seen as a challenge. Investment and continued reliance on legacy systems as well as difficulty finding the right vendors and partners to help with the transition to a multicloud environment were also identified as key issues in the IDC poll.

One of the biggest issues looming over increasing use of emerging tech and multicloud systems, though, is security.

“Uncertain market realities caused by the pandemic situation are forcing organizations to reevaluate their cybersecurity exposure as they pivot from a ‘cloud-last’ to a ‘cloud-also’ mindset,” Naqshbandi said. “The most important aspect of this paradigm shift is going to be around how to stay responsive to customer needs, how to scale in a safe and secure manner, and how to facilitate the transition of work from an office desk to the home.”

The shift to cloud and emerging technology comes amid fears of a fresh wave of cyberattacks amid rising geopolitical tensions in the Middle East – not least due to turmoil in oil markets.

“IDC believes the fallout from the COVID-19 outbreak will expose new security loopholes that cyber miscreants will exploit,” Naqshbandi said. “As a result, data breaches are expected to become more widespread, exacerbated by the notoriously unsecure habits of remote workers. As such, enterprises need to be prepared to respond to any cyberattack, data breach, or privacy violation that may arise as they grapple with these new market realities, particularly as the criticality of ensuring digital trust continues to rise.” ■



Credit: Getty Images/chameleonseye

New Zealand: University of Auckland CTO on shifting to remote teaching and learning

Jason Mangan shares how the ICT team in NZ's largest university prepared for and responded to the national lockdown. **DIVINA PAREDES** reports

Early on in the year, the University of Auckland began preparing for various business continuity scenarios. Jason Mangan, the university's chief technology officer, used this time

to test the capability of his division for full remote working. Thus, his team of over 400 staff worked from home for one day in mid-February, without adjusting or rescheduling any of their meetings.

“Part of the quick preparation was to ensure that everyone’s identity and access management records were checked and updated, and to gather information around our staff’s mobility posture,” says Mangan.

Through this, they identified only 20 recorded issues, such as access to certain databases, and these were remediated.

“One thing we knew if we were going to be in a lockdown situation, we were going to be in a position where our staff would be able to work remotely,” he says. “We had confidence we were well-placed to support the university under this scenario, if it eventuated.”

The lockdown became a reality when New Zealand stepped up to Alert 4 due to the coronavirus pandemic.

In an exclusive interview with *CIO New Zealand*, Mangan discusses how the ICT and digital team supported the en masse transition to virtual learning and remote working.

It is a major undertaking, as the University of Auckland is the country’s largest university, with more than 33,000 equivalent full-time students.

He shares a key insight from the migration – the importance of digital equity – of ensuring staff, teachers, and students would not be technologically disadvantaged in the new digital environment.

Business continuity planning before the lockdown

Mangan says key to the success of all their activities is being able to pivot quickly across all teams and focus on new priorities. Just over a year ago, the university restructured its IT services and renamed it “Connect.” What used to be teams coming from different faculties and divisions are now working similarly to a shared services environment, with customer service teams assigned across the university. “How can we make sure that personal or social circumstances are not obstacles to achieving educational potential? Not all of our students have computing equipment or network connectivity at home”

He says their transition to Connect has made it easier for them to respond to the impact of COVID-19. “As we are all in one organization now, it probably provided a better platform to react holistically and in a much more organized way than it would have done previously.”

As the COVID-19 unfolded, Mangan says the university considered the initial impact to more than 2,000 students who may not be able to travel back to New Zealand, to the full execution of the business continuity plan.

“Within Connect, we set up a working group with 10 streams of activity early on to ensure we would be able to

quickly pivot to emerging needs and changing priorities.”

These streams are: people, health, and well-being (“focused on our people and teams”); teaching transition and support; research support; student and staff provisioning; student and staff channels support; service management (this includes transition to and return from remote working); cybersecurity; service capacity and assurance; collaboration; new capability build; and value stream support (this includes BCP resourcing to support rapid priority changes).

He says all ICT and digital staff are working remotely, but they have also identified a small number of team members who could be called on to go on-site for certain issues.

Why digital equity is a critical component of online learning

“A particular concern around the required move to remote teaching and learning was digital equity,” says Mangan. “How can we make sure that personal or social circumstances are not obstacles to achieving educational potential? Not all of our students have computing equipment or network connectivity at home.”

Under normal circumstances, these students would be able to use the university provided technologies, such as the Information Commons. These are



Credit: University of Auckland

Jason Mangan, CTO University of Auckland.

student-centered facilities that provide study spaces, computers and access to information resources.

“In order to ensure that we were able to provide a solution for this immediate digital equity gap, we worked quickly to enable a pool of 500-plus laptops that could be loaned to students along with mobile Wi-Fi routers to provide network connectivity,” he explains.

They also reached out to the students to see who would like to take up the offer of a loan laptop. The laptops were distributed prior to the lockdown, while some were sent via courier afterwards.

Agenda: Enable work from home, learn from home

In the transition to remote teaching, Mangan says a foremost concern is staff

mobility, as all university staff shifted to teleworking. “With the short time frames that we were all working with as a country, we had the challenge to rapidly enable the mobility of 5,500-plus staff from working on-site to working remotely. A key focus for us here was to ensure that our teaching and research community were as well equipped as possible, both from a hardware and software lens, but also from a capability lens.

To support this rapid shift, he says the team quickly set up Connect kiosks across the university campuses in 10 locations. “We had to ensure that staff have the hardware and software to work remotely, in whatever context that may take – teaching, research, and administration.” He says the kiosks were very popular and effective, and helped reduce demand in the staff service center. They also provided all university staff with cloud meeting and collaboration technologies, with a specific focus on the teaching community.

A new VPN capability was introduced to provide for 10-times lift in capacity and also integrate with their two-factor authentication capability. They also provided staff with desktop computing devices, loaning the equipment for some of them to use at home.

The university also announced a week of non-teaching to allow the teaching

staff to get ready for remote delivery of classes. Midway through that week, the lockdown was announced.

“We scrambled really to get everyone in a position where they can work remotely, productively, with a big focus on our teaching staff.”

He says the university is encouraging lecturers to record sessions so these would be accessible to students from home. Mangan says the lectures are posted within the hour of when these would normally be delivered. This provides structure in the students’ schedules and allows them to participate in polls and tests that some lecturers run.

Focus on the student experience

Mangan says the Connect team also considered how the shift would impact student experience. “Given the shift from on-site to remote learning, the key challenge we have tackled is how can we support a very rapid change from on-site to remote learning, and ensure the best possible experience for students?”

“During the early days of the COVID-19 event and when teaching was still on campus, we quickly equipped an additional 160 university teaching rooms with audio and visual recording capabilities,” he shares. This was done so students who would not be able to

return to camps could view recorded class sessions.

They then redesigned the lecture recording service, which supports recording and playback of all teaching content, regardless of room or location. The goal was to ensure students could also stream or download media with improved performance. “We were able to do this by moving to a hybrid design incorporating a new content delivery network within AWS to host international traffic,” explains Mangan.

They also redesigned the transcoding engine to improve file processing times, uploading and playback. “We also launched and rapidly augmented our FlexIT capability, which allows students and staff to access university applications anywhere, from any device at any time, and at scale,” he says. Typically, the students only had access to these applications through the computers in various labs across the campuses.

He says the team rapidly expanded their cloud contact center technology to allow key student and staff support channels to work remotely, and service the significant uplift in demand to these channels. They re-prioritized value stream delivery to support business continuity plan priorities within each portfolio, such as CRM, student management, learning and teaching, and research.

Mangan says the team also worked on capacity and assurance, given the rapid change in demand profiles for critical services across the university. “We have leveraged our cloud capabilities across multiple service lines to ensure we can ‘burst’ where needed,” he states. These range from large consumption services like FlexIT or lecture playback to ensuring they have increased Wi-Fi density in the student accommodation. The team expected greater demand from these areas given the lockdown scenario.

Mangan stresses that it is important to support the teams as they transition to remote working. Thus, twice a week, he holds 30-minute virtual meetings with the wider leadership group within ICT. Every fortnight, he holds a one-hour ‘virtual technology all hands’ for the whole staff. “We want to keep staff engaged in different activities and give them updates, because things are moving so fast. It is also a great forum for staff recognition.”

The ICT team imperative: Continuous upskilling

Part of the shift to Connect was the launch of the IT academy ConnectEd which uses the skills framework function for the information age (SFIA) .

“We have deployed new channels within ConnectEd,” he says. “We emphasized to all staff that time



Credit: Getty Images/fizkes

Students are able to stream or download lectures.

should still be set aside for learning and development during our long intermission from campus. We curate our own courses in cloud technology, and we have utilized that now for getting ready for remote working.”

“Keeping the fun going is key and we have some great ideas we are working on to connect our people more than ever,” he says. “It is a very dynamic environment we all find ourselves in. It is changing by the day.”

How education CIOs can help their institutions prepare for online learning

“By 2022, 75 percent of all higher education institutions will have an online learning strategy and strategic plan that will guide their actions in this arena. The online learning strategy will become as common as an overall IT strategy.” Gartner analyst Glenda Morgan predicted this in July 2019, when the sector had no inkling this possibility could

be happening two years earlier, with the rise of coronavirus.

Morgan says developing an online learning strategy before launching online programs in higher education is critical.

Without this strategic plan, she says institutions run the risk of excluding important stakeholders – including IT – in plans and discussions for these programs.

This can have serious repercussions, she reports. “By not thinking through and developing an online strategy, institutions may develop relatively low-quality online programs that are digital versions of online courses.”

Some questions educational institutions can ask as they develop

their online learning strategy are: What is the institution doing in the online learning space? What are the medium- to long-term trends for enrollment and recruitment of students?

Who is your target student audience? What are medium- to long-term trends for funding from both tuition and government? What are the current areas of demand for skills in the communities that you typically serve? What are emerging areas of demand for skills in the communities you serve? What are your institutional strengths in areas of study or expertise?

CIOs, she notes, can act as a catalyst to guide their institutions towards developing a coherent and enterprise-level online learning strategy that links to the broader institutional and IT strategy. “Do so even if you are not directly responsible for online learning.” ■



Credit: Getty Images/Pekic

Developing an online learning strategy before launching online programs in higher education is critical.



Credit: Getty Images/Maryna Andriichenko

Spain: Examining the cultural and process change involved in working from home

Tech experts revealed how they are coping with the changes at the virtual Workplace Transformation digital event. **ESTHER MACÍAS** reports

The evolution towards a digital job entails an important management of change in companies, which must also be accompanied by a redefinition of processes. The health crisis caused by the coronavirus

pandemic has accelerated the transit on this unprecedented path, forcing all organizations dedicated to activities that allows it to massively implement teleworking. Some of the participants of the virtual event “Workplace

Transformation,” organized by IDG Research, spoke recently about their proposals and experience in this regard.

“The technology for teleworking is there. What CEOs should ask themselves is the following question: Can my employees work the same at home as in the office? If the answer is no, they need help,” said Genaro Escudero, Head of Solutions for Workplace Transformation at Dell for EMEA. According to Escudero, fortunately, given the current complex situation, the managers of most companies have realized how necessary it is to promote teleworking and have set to work.

Of course, the expert recalled, the new digital job requires a change of processes and, above all, a mentality one. “IT managers and company

managers in general have realized that they have had to break with everything and act quickly to make it possible for employees to even work with their own equipment, if they did not have a corporate one already.” Because this is precisely what has happened in many companies. “Many of them are investing in the purchase of equipment, but others cannot, and manufacturers must also provide them with solutions so that their workers can connect from home with their personal devices in a secure way. What is happening is a factual and forced BYOD (Bring Your Own Device).”

Another technology company highly involved in projects on the future workplace is the consulting firm Capgemini. Jordi Cunill, responsible for the end-user projects in the company, is convinced that now, definitively, “the IT area is no longer seen as a cost generator, but a strategic enabling department instead.” For the expert, the transformation of workplace is a key element for the survival of companies, even more during the current crisis generated by COVID-19. “The pandemic has made the market see that companies need greater technological maturity, greater control of mobile devices (accompanied by tools and security), the implementation of new collaboration platforms and an effective support



Credit: IDG

Genaro Escudero, head of Dell workplace transformation solutions for EMEA.

that ensures the well-being of the employees.”

Like Escudero, Cunill believes that companies have reacted quickly to the demand for telework. “Our job is to support them throughout the process, from project configuration to operational implementation.” For a project of this scale to work, it is essential that users know how to use the technology that is implemented. “If not, it is impossible for them to come to fruition,” according to Cunill. Promoting digitization and coaching employees are also key aspects. To facilitate this task, at Capgemini they have gamification instruments that help them learn how to use the tools.

In teleworking and digital workplace projects it is especially important to guarantee safety. “It is obvious that in the current context it must be reinforced,” according to the consultant’s director.

Will the change be reversible?

Will the change brought about by the new teleworking situation be reversible? For Escudero, from Dell, companies will not return to the initial situation and many of the newly adopted processes will remain. It is important, according to him, that their managers get conscious about the digital divide that still exists. “Many people are digital illiterates. It is urgent to give



Credit: IDG

Jordi Cunill, head of end-user projects at Capgemini.

them adequate training. Looking to the future, we have to be more prepared and businesses must function in the best way in a telework situation,” he added.

Cunill also showed his conviction that it is necessary to take advantage of the work scenario that COVID-19 has fomented in order to “better understand the digital divide and advance in strategies for digital workplace and agile support for employees.”

Experiences of Ilunion, Aenor, and Prisa

How have each of three organizations as different as Ilunion, Aenor, and Prisa experienced this forced adoption of telework? People responsible for the three companies shared their experience.

At Ilunion, an ONCE Group company dedicated to creating jobs for persons

with disabilities, they were already working on a digital workplace project when the health crisis hit. “This project has different levels of maturity: the first one refers to increasing personal productivity, through remote access to tools such as mail, email and the use of videoconferencing. The second one focuses on promoting teamwork with collaboration platforms (in our case we have Office 365). The third one addresses the automation and digitization of data, with the use of RPA (robotic process automation), and so on. And the last one focuses on the generation of apps and the promotion of artificial intelligence. Currently, we are in the second level, although we hope to end the year in the third,” revealed Juan Manuel Caballero, CIO of Ilunion. In the company, since it could not be otherwise, they

are specially focusing on accessibility. “This implies adapting ourselves to the digital workplace in a different, more evolved way.”

A very different company is Aenor, centered on certification services. Its CIO for almost two years, Sergio García Cebolla, reported that although telework was already extended to 10-12 percent of the organization, the health crisis has spread it to its entirety. “Telework is currently a reality in Aenor. The debate is how the post-COVID era will be like.” The pandemic, he assured, “with all the negative that it has on the other hand, has, however, been a catalyst for the transformation of the way we work.”

Although there have been technological, personal and process challenges, Aenor’s experience with teleworking is being positive, according

to García. One of the transformations that has led to the current scenario is the paradigm shift. “We believe that an auditor will no longer always have to be mobilized to carry out their work; in fact, our goal is that 100 percent of audits can be done remotely if possible.” García is



Juan Manuel Caballero, CIO of Ilunion.

Credit: IDG

Credit: IDG



Sergio García Cebolla, CIO of Aenor.

clear: “In the future we are going to total telework. Fear has already been lost.”

“Teleworking in Prisa, contrary to what may be thought, had a rather low adoption in the group,” revealed César Rodríguez Alonso, responsible for workplace at the company. However, the fact that soon there were cases of employees with coronavirus helped the team to react quickly to the new situation and get prepared to make teleworking possible in a very diverse group, “since it is not the same to facilitate telework for the journalists of the newspaper that to those of radio.”

In February, Prisa changed the local support and service desk for employees. “But we saw that we didn’t have enough laptops to facilitate teleworking. In addition, the use of Teams was null, and that of Skype quite low. We were highly

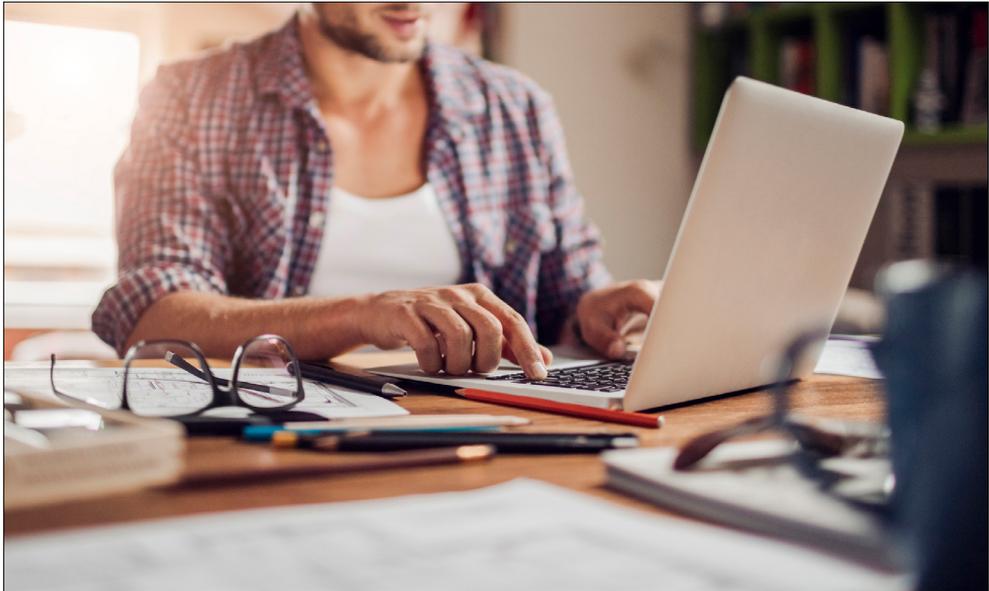


César Rodríguez Alonso, job manager at Prisa.

dependent on legacy and users in general had little cloud work culture.” However, according to the spokesperson, these aspects have been resolved. “There was financial flexibility to acquire equipment and at the infrastructure level we have enabled access to a new VPN solution and have launched a new virtual PC farm. We have also defined the type of access we give each user and reinforced the CAU in the teams.”

Rodríguez pointed that his team has placed special emphasis on two aspects: security and immediate response to users in justified cases. “What we have to do from this moment is to analyze how to take advantage of what we have achieved and make sure that the advances made in the digital workplace remain in the future and we are enabled to improve from there.” ■

Credit: IDG



Credit: Getty Images/Geber86

UK: How CIOs are navigating the pandemic

Tech executives from the logistics, sport, government, and education sectors cite their challenges in enabling a remote workforce. **CRISTINA LAGO** reports

One clear lesson from the COVID-19 pandemic so far is that the earlier a government recognizes and responds to the threat, the more effective mitigation will be. The same is true, in a less fatal way, of IT organizations. Did they see what was coming well before the impact? If so, how well and how quickly have they responded?

Take the University of Manchester as an example. CIO Malcolm Whitehouse and his team began planning contingency measures as early as February, so when the UK government imposed its lockdown on March 23, the university was ready. By the second week of March, Whitehouse and his team were testing remote work solutions and had prepared

IT support desk and field support teams to work remotely. As a result, Whitehouse says, the university is “still teaching to thousands of students and supporting over 10,000 staff working from home.”

The success of such measures depends on an organization’s innate agility, preparedness for disaster, and prior experience with relevant technology – much of it, of course, relating to remote work. Here’s how several UK CIOs have dealt with the extraordinary challenges now faced by businesses all over the world.

How Hermes keeps delivering parcels to your door

Amidst the lockdown, postal and delivery services are working harder than ever to help businesses run their operations and keep the country together. With most people staying indoors during the pandemic, demand for delivery firms to provide essential goods quickly and efficiently has spiked.

Chris Ashworth, CIO of logistic company Hermes, says that the secret to sustaining continuous delivery through these challenging times is ensuring the right IT infrastructure is in place. Ashworth’s IT department serves multiple Hermes sites across the country, including the head office and customer contact center, as well as hubs and depots. On



Credit: Hermes

Chris Ashworth, CIO of Hermes.

top of the 3,000 members of staff working on these sites, his team also supports a network of 15,000 self-employed couriers.

“Our IT team has a tested business continuity plan, which is being worked through and is always under constant review. This has been a critical component for us to continually reassess and ensure we are meeting the needs of the business,” he says.

Rolling out work-from-home solutions to the entire on-site workforce at the onset of the COVID-19 outbreak demanded plenty of time and resources from the IT team, as they collated the requirements of all business departments.

“The IT team carried out this large-scale work quickly and efficiently to ensure that our people had the right,

reliable systems to work effectively remotely,” explains Ashworth. “Before the crisis, we had in place a good working-from-home solution with remote access and a high proportion of our users using laptops.”

Prior to the COVID-19 outbreak, Hermes was already using collaborations tools such as Microsoft Teams to allow departments to continually communicate and collaborate, although not everyone was using them. For those new to relying on teleconferencing and collaboration software, this has been a shift – but Ashworth says people have genuinely embraced the new way of working.

“We have reinstated hundreds of laptops and mobile devices, which are usually available for peak uplift, when we employ more people due to the increase in our parcel volumes,” says Ashworth. “We are a flexible business able to support a mobile workforce across the country and these extra measures have allowed us to enhance this provision even further.”

Without a recent digital transformation initiative, Hermes could not have responded as successfully. That program enabled the company to “expand and flex numbers of people able to access our systems when working from home,” Ashworth says, and included appropriate remote security measures. In the face

of both workforce disruption and the demand to scale up fast, Hermes has found that much of what it needed was already in place.

How Williams F1 keeps the wheels turning

As the recent postponement of the Olympic Games highlights, sport is one of the industries most badly hit by the COVID-19 crisis.

Although motor racing firm Williams F1 has had strong remote work capabilities in place since the implementation of its digital transformation strategy in 2014, they never anticipated the whole workforce would work from home simultaneously, says Graeme Hackland, CIO at Williams F1.

To cope with this unprecedented situation, Hackland and his team added Internet bandwidth, changed the security model on some applications to use multi-factor authentication, increased the number of concurrent VPN connections, and upgraded the VDI environment to cope with the scale-up.

Despite the lack of “water cooler meetings,” Hackland sees little impact on collaboration or productivity as a result of staff working remotely. Partly, he says, that’s because “videoconferencing tools are now being used extensively throughout the

Credit: Williams F1



Graeme Hackland, CIO at Williams F1.

business in a way they weren't before." Even with the current shutdown on F1 imposed by FIA (the International Automobile Federation, known by its French acronym), Williams F1's Advanced Engineering operation is more than 70 percent operational and continues servicing customers in automotive, defence, healthcare, and more.

Regarding healthcare, Williams F1 and the Advanced Engineering staff have stepped up. They are now working on several ventilator projects to help health services deal with increasing numbers of patients with breathing difficulties as a result of coronavirus. As design and

manufacturing staff work on improvements and prototypes, the IT staff is integrating different computer-aided design solutions.

Regardless of the current impact of coronavirus on the sporting side of the business, Hackland is positive that Williams F1 can keep thriving. "The work on the ventilators may give us an opportunity to contribute more to healthcare projects

– a path already being explored with the Babypod," says Hackland. "We will continue to be a dynamic business taking on a multitude of projects from across a wide range of industries."

How the Scottish government puts staff welfare first

While the UK government was being lambasted for its lack of clarity about the new coronavirus restrictions, the Scottish government was already working from home. Andy McClintock, Chief Digital Officer for Social Security at the Scottish Government, says that the organization went into full remote work



Andy McClintock, Chief Digital Officer for Social Security at the Scottish Government.

mode on March 16, just ahead of the UK government strongly advising workers and business to do so.

The transition was a relatively fast one, but it wasn't without missteps. With over 3,000 staffers dispersed across the UK, the CDO admits that there was initially a false assumption that the entire workforce had suitable connectivity at home, overlooking technical and in some cases financial challenges.

The biggest issue, however, revolves around maintaining human interaction and remembering that remote working without face-to-face contact has hit staff living on their own hard. "We have tried to compensate for this by regular Skype video calls and just random calls to colleagues at various points of the

day to check on their well-being," says McClintock. "Finally, encouraging staff to keep to sensible working hours and having a degree of structure has been one of our focus areas."

Since the full work-from-home transition, McClintock says that maintaining the same delivery momentum felt slightly patchy in the first week. Things have improved significantly, though, and he now has over 150 digital specialists fully operational and engaged with the business every day.

Looking ahead, the Scottish technologist thinks that this reconfiguration is a useful exercise, one that will help him recognize the resilience of the staff and his organization's ability to adapt – and better prepare for the future.

How the London School of Economics keeps its lights on

In London, Laura Dawson, Director of IT at the London School of Economics (LSE), has been working long hours to ensure that the university remains 75 percent operational. Dawson's IT department serves around 2,500 staff and over 14,000 students, including those attending summer school and executive education classes.

"In early March we made the decision to take all the teaching 100 percent online by March 23: having that steer

allowed us to focus on getting there as quickly as possible,” says Dawson. “We are now working hard on bringing online assessments for students.”

Crisis management training, which Dawson received long before the pandemic, was a decisive factor in establishing a clear strategy and making swift decisions. In fact, the Director of IT says that it took only 30 minutes to decide which platform the school would be using for online teaching, which happened to be Zoom.

“The right people, the right questions, and the right approach to hearing viewpoints made it a simple method for making decisions,” declares Dawson.

Despite Dawson’s success hitting deadlines and choosing the right collaboration tool for online teaching, she struggled to discover and accommodate the different levels of technology literacy across the academic institution.

“The assumption that colleagues are able to cope with VPN and remote access – or even audio settings and headsets – is a big one,” explains Dawson. “That’s why we need to ensure that

our support doesn’t just make things work, but that we are enabling and empowering people to make the best use of the technology and to be a bit more confident with it.”

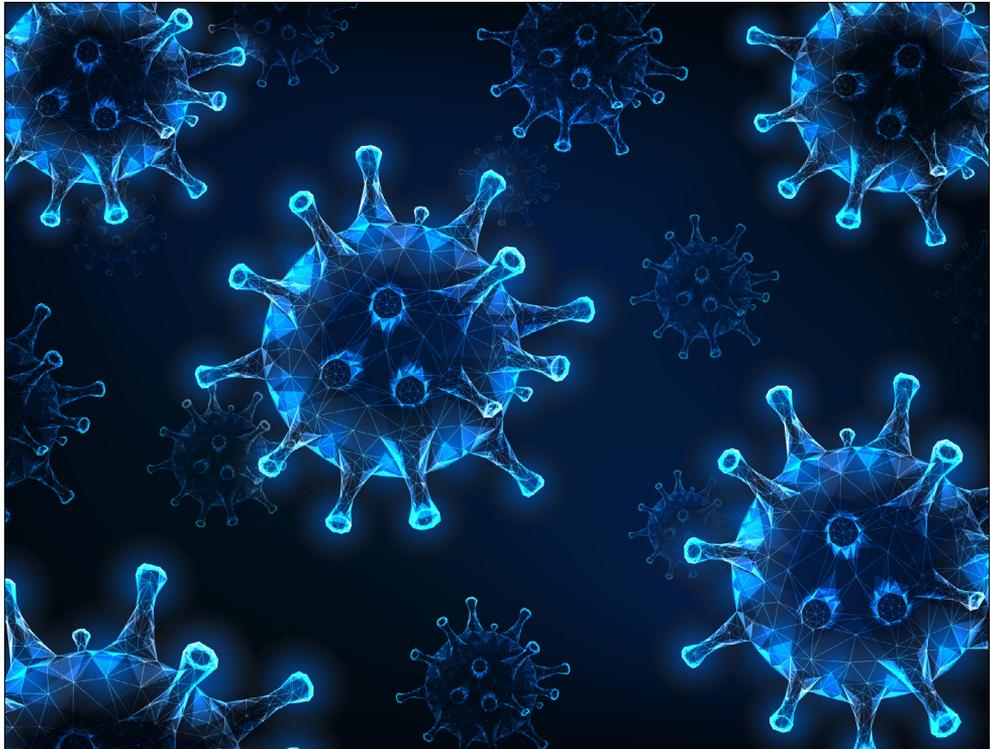
For Dawson, the COVID-19 crisis is a wake-up call for less savvy academic and administrative leaders, who are just now realising that in order to survive disruptive events, they must have an understanding of technology. As it turns out, LSE was prepared for that necessity.

“I was very lucky here at LSE in that our leadership is open and interested in technology, and that makes a big difference,” she adds. ■



Laura Dawson, Director of IT at LSE.

Credit: LSE



Credit: Getty Images/inkoly

UK: How NHS CIOs are confronting COVID-19

CIOs across the healthcare organization are supporting staff and patients to win the battle. Here they tell us how. **CRISTINA LAGO** reports

Despite years of underfunding and neglect of core services, the NHS is tirelessly weathering the impact of its worst crisis yet. Every day, medical staff and key workers are putting their

lives on the line to keep the country safe in the battle against COVID-19.

Supporting their vital work are dozens of CIOs who, against all odds, are delivering digital solutions to help

win the battle. We spoke with technology executives from four different NHS trusts across England and Scotland to explain the challenges they are facing – and how they are overcoming them in these extraordinary circumstances.

Responding to the challenge

Hampshire Hospitals NHS Foundation Trust (HHFT) has long had a history of strong clinical leadership, explains Tamara Everington, Chief Clinical Information Officer at the trust. Overnight, clinicians took ownership of solutions and rapid change became feasible as bureaucratic barriers were removed.

Everington’s team was able to accelerate a number of digital programs around COVID-19, including an electronic observations program (e-Obs) that recently moved from what normally would take six months to just a 10-day rollout.

These observations allow clinicians to take patient observations such as vital signs using electronic devices. An added benefit is that e-Obs also eliminate the need for paper charts – reducing time spent on routine tasks so staff can focus on their core responsibilities.

“We have taken a more ‘light touch’ approach to training for the rollout, supporting clinicians with basic skills only for equipment use and then letting them

work things out for themselves, and this has proved successful,” says Everington. “We have brought managers closely together with clinicians on the ground and data analysts, so we have real feeds of data from the bedside.”

Within two weeks, her team was able to move to a unified, triage-based electronic specialist referral system with 80 percent of all outpatient follow-up being delivered virtually through the e-Referral service.

However, there’s also the struggle with the direct effects of the pandemic on staff, their families and the community these hospitals serve.

“Beyond the pure horror at the impact of COVID-19 on people’s physical health, we face impacts on mental, emotional and financial health,” she adds. “Everyone is frightened and there is a constant need to reassure those around us as they are called into roles well out of their comfort zone.

“It is all the more impressive then that staff have embraced technological change at this time with open minds and hearts.”

Enabling remote work and data access

One of the many initiatives led by David Walliker, Chief Digital and Partnerships Officer at Oxford University Hospitals

NHS Foundation Trust (OUHFT), is the deployment of a virtual consultation system to allow for non-urgent out-patient appointments to take place where suitable.

Virtual consultation systems allow patients to contact their doctors without having to wait on the phone; instead they can directly report symptoms and

upload photos via a dedicated online platform, helping to remotely determine whether someone is sick enough to come into hospital.

NHS England wants full patient access to online and video consultations by April 2021. Digital products such as video consultations, triage assessments, email, web chat, and online forms can provide a quick, convenient, and secure alternative to visit GP practices, according to the healthcare organization.

OUHFT has also expanded its VPN infrastructure to support remote access to clinical systems, providing NHS network access to 650 GPs in other areas of south-east England. “We have deployed a full VDI Citrix infrastructure to allow any device access to our systems which is accessible on any device securely,” adds Walliker.

To enhance collaboration, Microsoft Teams has been rolled out to 14,000 staff in just three weeks – while, at the same time, both security



Credit: Oxford University Hospitals NHS Foundation Trust

David Walliker, Chief Digital and Partnerships Officer at Oxford University Hospitals NHS Foundation Trust.

and bandwidth have been ramped up to accommodate up to 4,000 remote workers.

“We have also implemented a health information exchange, so that our secondary care information in our electronic patient record is available in the primary care electronic patient record system, making it easier to share information across care settings,” adds Walliker.

This groundwork will enable further digital measures as part of patient recovery, so patients have access to their full records on their smartphones – and interact with the hospital to book, change, and schedule appointments.

This will “get rid of those paper letters once and for all,” says Walliker.

Innovating at speed

It goes without saying that all these operations, particularly when running against the clock of a situation of this gravity, are riddled with obstacles.

Lisa Emery, CIO at Royal Marsden NHS Foundation Trust (NHS FT), says that one of the biggest challenges for her team was to scale at speed the tools required to support staff working from home. These included videoconferencing for clinical teams to enable virtual meetings, telephone and video consultations with patients, the building and delivery of a



Lisa Emery, CIO at Royal Marsden NHS Foundation Trust.

‘virtual desktop’ environment, and more laptops to enable staff to work from home.

They also had to assist staff on how to use devices and apps for their patients to be able to be in contact with their friends and families and for staff to hold meetings effectively and safely.

“In addition, we have benefited from generous donations via our charity to assist us in delivering the digital capabilities needed to help to keep our staff and patients safe at this time,” adds Emery.

Deryck Mitchelson, Director of National Digital and Information Security at NHS National Services Scotland (NSS), also says that vendors have

Credit: Royal Marsden NHS Foundation Trust



Credit: NHS National Services Scotland

Deryck Mitchelson, Director of National Digital and Information Security at NHS National Services Scotland.

been particularly collaborative at this crucial hour, and highlights the critical role Microsoft played during the roll-out of Office 365 across NSS – where the priority was to implement suites like Office 365 across hospitals, and Attend Anywhere Video Conferencing for GPs.

Silver linings

None of the CIOs we spoke to minimized the terrible human cost of this cruel pandemic, or the dreadful impact on

NHS services. But all were quick to highlight the valuable lessons being learnt in the process.

Everington speaks of how she has witnessed enhanced and closer communication among colleagues. This has opened a way for the development of practicable solutions in real-time.

“As many of us have moved to less familiar daily

working we have developed new-found respect for the roles which others deliver and which we had previously been blind to,” explains Everington. “Many clinicians have gone out of their way to praise the work of the IT and transformation teams as a blessed resource in these times.”

Her colleague Tim Cropley, CIO at HHFT, says that COVID-19 has brought technology to the fore in the very human-centric business of healthcare. Just five weeks ago, Cropley’s team was

supporting 20-30 clinical staff at any one time. They'd be working from home or from remote sites, and accessing clinical systems from afar. Today, that has jumped to supporting 2,000 staff who are primarily working from home, or at remote locations like local private hospitals that were taken over to cope with the outbreak.

“Forced by need and unhindered by costs constraints this has happened at pace,” says Cropley. “It feels like we have made four years’ worth of change in four weeks. Hopefully these changes to how

we work in hospitals will be the positive legacy from this crisis.”

Walliker agrees. While acknowledging the tragic impact of the pandemic, he also says that it has presented an opportunity to transform the way the NHS delivers services in the future.

“The public sector has for too long not implemented rapid agile deployments. This crisis has provided an evidence base that we can,” he says. “Whilst we will never want to see this scenario again, we can’t allow a revert to paralysis by change in the future.” ■



Tamara Everington and Tim Cropley.

Credit: NHS

