Reimagining Community Continuity and Resilience

It has been said that the challenges of 2020 exposed fault lines in state and local government plans to ensure continuity of operations during times of crisis. For some, however, one crisis became many as unexpected events overlapped.

One example occurred in the state of Utah at 7:09 a.m. on March 18. State leaders were in the first days of orchestrating a massive shift to remote work for more than 22,000 state employees in response to the pandemic when a 5.7 magnitude earthquake struck Salt Lake City, damaging government buildings. Gov. Gary Herbert called the quake "extremely bad timing," as state technology officials had to respond to multiple challenges at once. "That really caused us to accelerate what we were doing," says Scott Peterson, Utah's chief operating officer at the time.[1]

Throughout the pandemic, many state and local governments faced similar challenges, adding

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even more stress to already overloaded systems. From earthquakes and wildfires to civil unrest, these combined stresses forced government leaders to become more agile in their responses. As a result, many developed a capability to pivot rapidly so they could ensure worker safety and service continuity. Now leaders must take lessons learned from the pandemic to refine strategies that will safeguard operation continuity and community resiliency in the face of future challenges. Based on interviews with state and local government leaders and experts, this paper describes the integral role IT modernization efforts can play in preparing for the unexpected.

The response

Few government leaders could have anticipated the abrupt shifts the pandemic would require.

"With no actual experience on how to respond to something like a global pandemic, it was a learn-as-you-go response, utilizing the technology solutions available to each agency, thus pitting modern technology against a debilitating pandemic," says Daniel Stewart, Cisco senior advisor for state and local government. "Government agencies always plan for emergencies and disaster recovery situations, but in this experience, they were left to quickly pivot and evolve their operations on an almost daily basis, using instinctual human responses and prioritizing the services most needed for assuring the safety and welfare of the people they serve."

Fortunately, state and local governments that had developed modernization plans found themselves better prepared for the rapid shifts sparked by COVID-19.
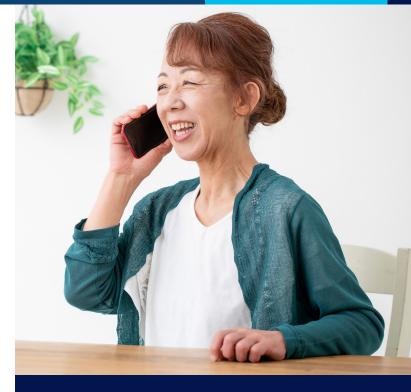
"We did not plan on consolidation and a roadmap for continuity preparing us for a pandemic, but it did," says Nebraska CIO Ed Toner.

In Pittsburgh, a 2019 strategic plan for improved operations, IT modernization and service delivery had prompted a comprehensive analysis of IT operations and management. According to William Peduto, the city's mayor, this provided city leaders with a general awareness and a desire to begin addressing existing vulnerabilities—and opportunities—before the pandemic hit.

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Scott Peterson, Former Chief Operating Officer, State of Utah

Like Pittsburgh, state and local governments across the country were able to support the move to remote work for many employees and deploy videoconferencing to continue city council and other government meetings—and in many places, even court hearings. Governments accelerated shifts to digital services, scaling remote call centers and chatbots,

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online service delivery, and self-service and socially distanced options for procedures like building permits and inspections.

However, these shifts also surfaced gaps in technology capabilities that required an immediate response.

"When all of the sudden everybody's at home and coming in by way of VPNs, our data flows changed," according to Utah's Peterson. "There were areas of the network that were constrained."

The availability of key applications for remote workers and constituents was also highly dependent on governments' network infrastructure, says Bob Woolley, senior fellow for the Center for Digital Government (CDG). Looking across more than 15 states, Woolley found that application environments and infrastructure leveraging cloud resources were usually faster and available more often, while on-premises applications with WAN-only access were usually less responsive and less scalable.

Another critical gap in capabilities involved communicating with the public, particularly as demand for unemployment assistance and other public services skyrocketed in 2020. In Buffalo, New York, city officials transitioned call center agents for their 311 operations center into a remote call

center model over a single weekend. They can now coordinate around 600 calls a day, fulfilling citizen information requests for all city departments.

"We can't forget the human element and how this affects people in the community," says Oswaldo Mestre, chief service officer for the Division of Citizen Services for the city of Buffalo.[2]

In Rochester Hills, Michigan, staff used a wide range of communication strategies, including video and social media, to communicate. The city also partnered with a digital signage advertiser to promote a "shop local" campaign and conducted more than 3,000 weekly check-in calls to senior citizens. These calls were well-received according to Mayor Bryan K. Barnett.

At the same time, governments struggled to coordinate efforts across departments and agencies. In Utah, daily standup meetings via videoconference helped. And while there was an initial challenge for some in learning proper videoconferencing etiquette for large groups, overall it came together quickly.

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According to Cisco Business Development Manager Craig Coale, most government agencies broke the mold in their efforts. "We saw agencies make some very rapid forward moves, and they are in a much better position now," he says.

Government leaders also quickly recognized the importance of technology and the organizations that coordinate it across departments, learning the value of having a resourceful and responsive IT team in place.

Building for resilience

The challenges governments face going forward are daunting. "We are facing deficits; unemployment; and economic insecurity for individuals, families and small businesses," Pittsburgh's Peduto says. "We

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will continue to address the immediate needs of our community while also thinking strategically to anticipate needs such as infrastructure improvements and quality of life operations. What seems clear from the current state of the world is that digital strategy is critical."

To that end, government leaders are leveraging the knowledge gained during the pandemic for future efforts. In Rochester Hills, Barnett charged department leaders with developing "after action" reports answering two questions: What would we do the same, and how would we respond better or differently in the future?

"This experience has brought planning for the continuity of operations to the forefront," says Mary Ann Borgeson, chairwoman of the Douglas County, Nebraska, Board of Commissioners. "It has given us opportunities to think outside of the box in how we can continue providing essential services."

From CDG Senior Fellow William Rials' perspective, surveys suggest that most government leaders see IT modernization as critical to meeting future needs, with two-thirds of employees expecting better support for remote work. However, he feels that evaluating specific technology solutions should be one of the final stages of the strategy process and not the first. He also adds that many organizations begin the process by selecting their disaster recovery technologies before developing the plans and policies around the technology chosen. This is the reverse of what they should be doing.

One policy change that is rapidly becoming clear is that hybrid workplaces and services are here to stay. Many government leaders are envisioning a future in which employees will continue working remotely in some fashion and take a mixed approach to

service delivery. For example, Buffalo's 311 service is looking to continue remote call center operations with some in-person staff to handle walk-in requests, according to Mestre. In Douglas County, a new training learning management system (TLMS) used to train election officers remotely ahead of the fall 2020 elections addressed both immediate public health concerns and the enduring need for transparency.

"It enabled a safe solution and good audit trail of training completed," Borgeson says.

Another lesson learned is the need to work across departments and agencies to develop effective contingency plans. "Pre-pandemic, most employees and departments incorrectly assumed that someone else handled the various pieces of the disaster recovery, business continuity and resiliency plans," says Rials. "Even in cases when there was a person or department assigned to the task, the underlying requirements resulted in a checkmark on a document representing that another area is responsible for that piece of the puzzle. A well-architected continuity and resiliency plan will have multiple layers of dependencies that should span multiple departments."

To ensure resilience, government leaders also must expand their thinking of the kinds of crises they must plan for. Acute shocks like manmade or natural disasters require the kinds of pivots and rapid scaling undertaken over the past year. However, governments must also develop plans to address chronic stressors—ongoing issues like pollution, climate change, traffic and public safety that are unlikely to be eliminated but must be managed to ensure that communities remain sustainable and attractive places to live and work. Cisco's Craig Coale feels it will take disciplined leadership to advocate for planning and budgeting that addresses these issues, especially due to their incremental nature. But it is a task that must be done. If not, the potential impact on communities could be as dramatic as the acute shocks.

Accelerating IT modernization

Many government leaders were already moving to modernize systems before the pandemic, according to Coale. "A lot of the needs were on the radar as

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intended future projects. What was strategic was replaced with what was urgent," he says. "But now there's an opportunity to accelerate things to create a smarter way to operate."

Among the factors government leaders must consider:

Centralized services. Common solutions and regulations across agencies simplified the process of moving employees online in many places. In Nebraska, for example, centralization played the largest part in ensuring resilience and continuity. Having everyone on one team with one direction was invaluable from Toner's point of view. This was accomplished by having one way to connect to the state of Nebraska network, one videoconferencing tool, one mobile device management tool and one multifactor authentication method for users.

In similar fashion, some governments benefited from decisions to shift how their existing infrastructure is used. Utah's two data centers, which are located on different fault lines and use different network paths for redundancy, provided multiple ways to ensure access to the cloud. Nebraska's secondary disaster and recovery site was also transformed into an active data center with the capability to transfer operations from the state's mainframe to focus on availability and continuity.

Toner adds that "Critical applications such as those that are hosted on the state's mainframe must be accessible at all times for the state to successfully serve its citizens."

Networking. Networks must be able to support cloud capabilities at all points, including enabling secure, IP-based telephone and videoconferencing

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services, according to Woolley. To that end, Pittsburgh rewired its 103-year-old city hall in 2020 and issued an RFP to connect all its city facilities, including public safety buildings, recreation centers and senior centers, to a citywide fiber network, according to Peduto. Given governments' hybrid future, it is also important to understand limitations on bandwidth availability in remote settings and mitigate them wherever possible.

Scalability. Preparing for future disruptions requires government leaders to evaluate current technology purchases on their ability to scale in the future.

"There's a balance between how scalable it is and how much it will cost to expand in the future," Peterson says. "I need to make sure I understand that balance for everything I stand up."

Cloud services and networking help shift that balance, according to Coale. "When I consolidate and move in the cloud, I reduce costs while making my services

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more redundant and survivable—it's a win-win-win," he says.

Cybersecurity. The move to remote work shifted the endpoint far beyond government buildings, requiring new approaches to secure networks and the devices connected to them. Reducing network complexity is key to improving security monitoring and strengthening endpoint security, according to Woolley.

Utah's Department of Technology Services uses automation to check clients connected to the state VPN and shift machines without needed components into remediation, where they are retested and moved back to the network. Multifactor authentication provides more bang for the buck than any other solution based on Peterson's experience. But to make it effective in

a mass-scale remote environment, it's important to provide multiple verification options—cellphones, email, and even a dongle that plugs into PCs to verify identity.

Equity. Deep disparities in internet access must be addressed to ensure governments can serve all citizens during future crises. "The pandemic blew the lid off of the reality of digital equity," Peduto says.

The uneven access to broadband has demonstrated that "a good portion of our citizenry is on the wrong side of the digital divide," adds Otto Doll, former Minneapolis CIO and current CDG senior fellow. That's why governments need to redouble efforts to provide both devices and broadband access to those in need, plus improve digital literacy in order to increase uptake and communication during times of crisis. Doll also feels that continuity and resilience is greatly diminished if constituents lack the technology and skills to participate fully in the economy and civic life of their communities. Or, as Peduto puts it, "If an improvement is not for all, it's not for us."

Contingency planning. Rials says agencies should move away from testing specific solutions to assess their overall resilience. He says tests should include real-life exercises that are capable of simulating loss of buildings, equipment, data, critical infrastructure and even IT employees.

Coordination. Continuity planning also must address how agencies—and their underlying technology platforms—will work together in times of crisis. "A lot of agencies have ideas of what they're going to do, but they don't cross-coordinate their strategy, vision or technology architecture," says Coale. As a result, there is often a lot of dependence across these different branches — vertically and horizontally."

Woolley cautions that the increased reliance on digital service delivery has made cross-agency coordination even more important. "Bouncing clients around resources needs to be avoided," he says. "Results matter."

To that end, the state of Nebraska charges each agency with developing its own continuity of operations plan, along with developing its own enterprise continuity program which promotes interagency collaboration for disaster recovery and continuity of operations strategies, planning, training and exercises. Nebraska has also developed a continuity criteria scorecard which tracks agency progress. Eighty percent of state agencies were rated as having a mature continuity

capability, with the remaining 20 percent having made "substantial progress," according to Toner.

Looking ahead

While ensuring community resilience remains a daunting challenge, the experiences of the past year provide unprecedented opportunities to ensure that IT modernization keeps pace with change.

"The importance of IT has shone brightly during the pandemic because of its ability to react, respond, pivot and find solutions," according to Cisco's Daniel Stewart.

Based on his experiences, he feels that leaders will no longer look at the IT budget the same way. "The experience through this pandemic has made one thing very clear: An entity must ask themselves if their IT needs will be held secondary to their budget, or will their budget be led with assurances of a strong IT plan. We believe this experience will show it to take the dominant lead in budgeting, and some CIOs have reported their departments are now seeing budget increases even in the face of projected shortfalls."

For cities like Detroit, this has provided an opportunity to show that a lot of the investments they've made over the years have been the correct ones, enabling them to continue operating without faltering. Taking the lead will allow IT leaders to go beyond contingency planning and truly support the sustainability of their communities in new ways, including:

Predictive analytics. Above and beyond responding to acute shocks, governments will have to focus on collecting and aggregating data on the chronic stressors that impact community sustainability over longer periods, including air and water quality, transportation, public safety and other ongoing issues. The growing number of sensors and other Internet of Things (IoT) devices, combined with analytics from different departments, provide new opportunities to monitor and respond to these chronic issues.

In Boston, for example, where Mayor Martin J. Walsh was named chair of the nearly 470-member Climate Mayors coalition, the city's head of information and

innovation, David Elges, reports they are now able to talk about rising sea levels, smart city technology, and how to keep people and property safe.

While AI and machine learning will be critical in scaling predictive analytics, they raise another important equity angle. That's why Doll feels governments must take steps to ensure bias-free decision-making by their officials. This might include ensuring algorithms used are free of bias, for example.

Community engagement. Doll says governments' ability to engage constituents on the digital pathways they use is just as important as contingency planning because an engaged citizenry can become more involved in developing solutions to challenges. In Pittsburgh, for example, city officials accelerated the development of the Engage PGH portal, which provides opportunities for the community to submit provide feedback and ideas, ask questions and be part of projects.

Breaking down silos beyond government. While breaking down silos within governments remains a critical need, leaders will also have to partner with outside organizations to meet growing needs. The vaccine distribution efforts have provided a glimpse of the challenges of coordinating information and efforts among federal, state, local and private sector providers. Over time, shared services agreements, technology consolidation and private-public partnerships will become increasingly important in the face of limited resources, and government leaders can begin building relationships now.

In Rochester Hills, for example, the mayor assembled a team of local leaders, including representatives from universities, school districts, the local hospital, chamber and business leaders, and the city manager of a nearby municipality, to discuss the impact of the pandemic in the community. The group also reviewed data, listened to and supported one another, and tried to better understand how people were adjusting amid constant change. Barnett says they're still meeting on these issues.

To achieve these goals, government IT organizations also have to change, breaking down internal silos. As with technology adoption, the challenges of the past year may also have accelerated that process. In Utah, the scope of the pandemic's challenges required the entire IT staff to adopt an agile mindset, borrowing from practices software developers commonly use to better understand the needs of the enterprise and respond in more nimble ways, according to Peterson. And as the Utah Department of Technology Services moves to a new office building, cubes and dedicated workstations are being replaced with "neighborhoods" that will facilitate a hybrid, better integrated workforce.

"We realized we had to break down these walls," says Peterson. "We're all in this together."

This piece was written and produced by the Governing Content Studio, with information and input from Cisco.

Endnotes:
1. Peterson retired in early 2021.

2. https://www.cisco.com/c/en/us/about/case-studies-customer-success-stories/city-buffalo.html

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