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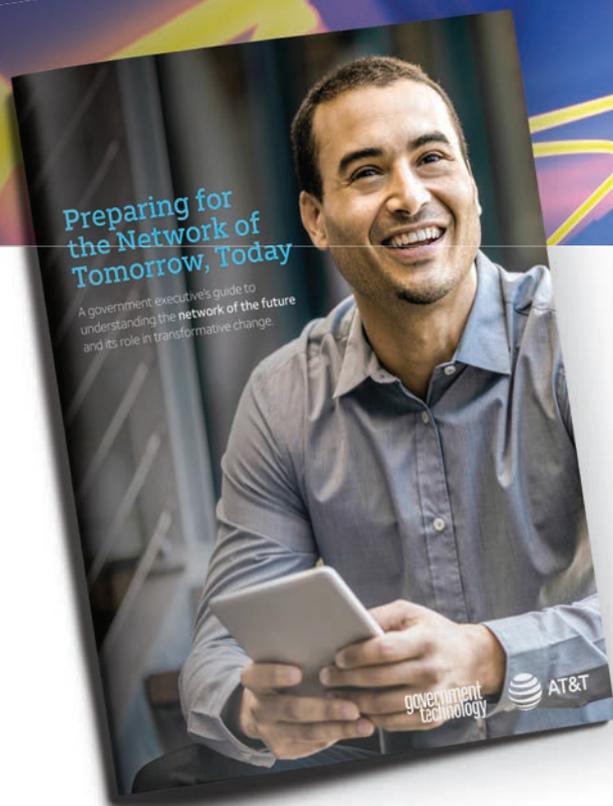
# LEARNING FORWARD

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## **Virus Shutdown**

COVID-19: Reckoning  
for digital government.

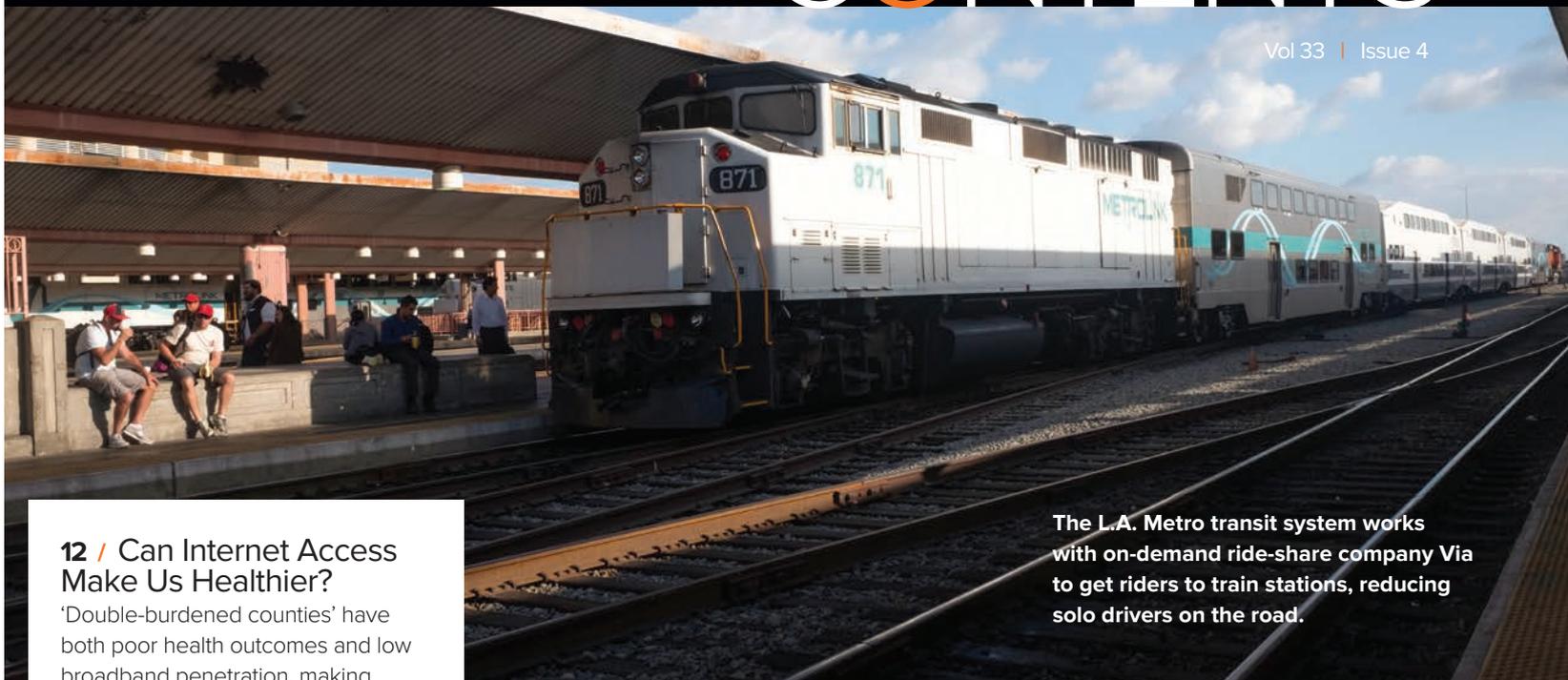
# Faster Smarter Safer



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# The Essential Nature of Government

I'm sitting down to write this column in late April from my home office, sheltering in place, like so many millions of people across the country while we do our part to contain the spread of the novel coronavirus. I do this with a houseful of nuclear family members, by now settled into a new routine of virtual work and school at the elementary, high school and college levels. Though there is competition for quiet workspaces, we realize our good fortune. We are healthy and able to adjust and continue our work and our studies online.

The pandemic and the widespread closures it has wrought have brought a few ideas into sharp focus. One of the biggest is the fact that government cannot close. While there has rightly been much deliberation over critical versus less-critical services, government for the most part has had to figure out how to adapt and quickly stand up new ways to do its work and deliver services to citizens.

It hasn't been easy. The most obvious example has been the enormous strain put on state unemployment systems, both by the massive spikes in pandemic-related claims and changes to eligibility rules that have been ushered in right alongside them.

CIOs in every city, county and state have had to quickly enable remote work for large segments of their workforce. And not all had pre-pandemic foundations to start from. Telecommuting, after all, is a relatively new concept for the public sector. Will people work as hard without bosses nearby? How can we measure productivity? Will we lose the spirit of teamwork that comes with regular in-office interaction?

But effective use of productivity and collaboration tools is proving to even the most skeptical among us that though

remote work is different, it can actually offer some advantages: better work-life balance (goodbye traffic-filled commute to the office) and increased productivity because of fewer in-office distractions.

This new normal has also prompted a notable wave of digital government services. The use of e-signature tools is on the rise to enable the routing of forms and contracts from distant locations. And the closing of in-person service counters has prompted the conversion of paper processes to digital forms that can be filed online. There are many other such examples.

Another takeaway from this time is first-hand experience for policymakers in the importance of modern, reliable tech tools. Though many were already coming around to this idea, there's nothing like first-hand exposure to a less-than-optimal remote work/meeting setup to reinforce the importance of well-funded IT infrastructure.

And though the funding picture going forward is anything but certain given the catastrophic economic losses brought about by widespread closures, the CIO will certainly be a key player in preparing government organizations for a more resilient next chapter.

Our story *Reckoning* (p. 50) looks in more depth at how prepared government was for a crisis at this scale and how well it has adapted. Los Angeles CIO Ted Ross noted that the city is benefiting from the tools it had in place to weather a massively disruptive event. It turns out there was good reason for all that disaster recovery/continuity-of-operations planning.

"Imagine it's an earthquake or a fire. Something could physically happen to my call center, my building, and I could still run the operation," Ross said. "That's exactly where we want to be as a city. That's the resilience we're looking for." 

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## TELEWORK GAINS GROUND AT CITY HALL

Before COVID-19, Kansas City, Mo., had no **telecommuting policies** in place for staff. That had to change quickly, and the city now has 600 remote employees across 19 departments. Bi-weekly surveys found that 97 percent of workers had encountered few or no issues with telework, and the city is now looking at how to keep the program going post-pandemic, while accounting for concerns around staff without sufficient Internet at home.



### Biz Beat

**Biobot Analytics**, which launched out of MIT in 2017 with its wastewater testing tech to track population-level opioid use, raised \$4.2 million in seed funding in April while rolling out a pro bono program for cities to monitor COVID-19 spread. Participating cities and wastewater facilities are shipped a water sampling kit at cost, which they send back to Biobot for analysis. The company has not yet released its findings.



## New York Cyberattack

A previously unreported **cyberattack on New York state's computer network** came to light in April, although officials became aware of it Jan. 28. Hackers exploited a vulnerability in Citrix netscalers, which help computers communicate more quickly. While Citrix reported the gap in December and issued a patch in early January, the state did not install it in time. New York officials report that no personal information was exposed.

### WHO SAYS?

*"If there's a bright spot to this pandemic, it's that necessity is the **mother of invention.**"*

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### MOST READ STORIES ONLINE:

As Unemployment Claims Spike, New Jersey Seeks COBOL Coders

Kansas Uses Cellphone Location Data Tool to Track COVID-19

Coronavirus: Obama Speaks at Zoom Meeting of U.S. Mayors

Interest in Thermal Imaging Is Growing as COVID-19 Rages On

IBM Offers COBOL Help for Government to Deal with Crisis

'Zoombombing' Grabbed Government's Attention — Now What?

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# 24,439

The number of public electric vehicle charging ports in California.

# 70%

The percentage of questions Nashville, Tenn.'s chatbot was fielding related to COVID-19 when it launched in late March. The remaining 30 percent were about the Census.

# 13K

The number of courses Texas A&M University made virtual in just two weeks in response to coronavirus-related shelter-in-place orders.

# 35%

The increase in government social media engagement and 311 as stay-at-home orders went into effect in the U.S., according to citizen engagement firm ZenCity.



# Benefits and Drawbacks

How to build digital government services that can withstand surges in a crisis.

**T**he coronavirus has had a devastating impact on the economy. Between late March and early April, 22 million Americans filed for unemployment. Unfortunately, many faced significant challenges and delays seeking benefits because many state government websites crashed, and call centers were overwhelmed, due to the surge in demand.

According to an analysis by the Information Technology and Innovation Foundation (ITIF), by mid-April over half of state unemployment websites had experienced significant outages. Florida's site went down for 16 hours at one point, while Michigan's went down for nearly six hours. And even when residents could access these sites, they often couldn't complete their applications or would receive erroneous messages saying they were ineligible.

Clearly, part of the problem was that many agencies had simply never contemplated a surge in volume of this magnitude. In Minnesota, for example, the state went from receiving 50 applicants per hour one day to 2,000 applicants

per day. The New York State Department of Labor reported a 1,600 percent increase in Web traffic compared to a typical week.

But not all states' unemployment websites crashed, even though unemployment numbers shot up nationwide. Agencies that had developed cloud-

based applications have been generally able to meet the demand. Others have been running outdated systems. Florida's unemployment website, for example, was running an old version of Internet Information Services, the Windows-based Web server, and designed its system using an older version of ASP.net. And one survey of state unemployment agencies found that at least 12 states used COBOL — a programming language popular in the 1970s for which there are few programmers now available — in some capacity in their systems.

Another problem was that unemployment websites couldn't keep up with policy changes. For example, many states normally require applicants to prove they are actively searching for work to qualify for unemployment benefits but waived those requirements during the pandemic. Unfortunately, these changes were not always made on the government's online forms, creating confusion among applicants.

These small mistakes can have a big impact. Typically, if people have questions about their applications, or if the website is down, they can call the agency. But call centers were also overwhelmed as they had no ability to quickly scale up to meet higher demand. The Texas Workforce Commission, for example, reported getting up to 3 million calls per day. In addition, many government agencies had not fully digitized the entire unemployment application process. For example, in New York, applicants are required to call

to verify their details before they can receive benefits. As a result, the state saw a 16,000 percent increase in call volume over typical weeks. The dependence on call centers exposed a secondary fault line in many agencies' planning.

States have scrambled to address these problems. Some turned to their citizens to solve the issue by advising them to submit their applications late at night or only on certain days depending on the first letter of their last name to avoid overwhelming the system again. Others have quickly launched IT initiatives. New York partnered with Google on a new unemployment website. Florida signed contracts worth over \$100 million to provide additional call centers and added 100 more servers to handle Internet traffic.

But even when these websites are online, many still fail to meet users' needs. For example, 41 states had unemployment sites that performed poorly on mobile devices, according to ITIF. Designing government websites for mobile is vital because this is the only form of home Internet access for around 20 percent of Americans. Also, 19 states had websites that didn't meet the World Wide Web Consortium's accessibility standards, which ensure that websites are accessible to people with disabilities, especially those who are blind or have low vision.

While states ultimately are responsible for ensuring their sites are fast, accessible, mobile-friendly and secure, moving to the cloud and adopting a mobile-first strategy are steps in the right direction. 

**Daniel Castro** is the vice president of the Information Technology and Innovation Foundation (ITIF) and director of the Center for Data Innovation. Before joining ITIF, he worked at the Government Accountability Office where he audited IT security and management controls.

## Ed Winfield

Chief Information Officer, Maricopa County, Ariz.

*Ed Winfield* took over as the CIO of the country's fourth most populous county in January 2017, guiding technology for a workforce of more than 13,000 employees ranging from the sheriff's department and public health to emergency management and the courts. A significant amount of technology refresh is underway — like an upgrade to the county's financial management system — but the curve ball that is COVID-19 forced a shakeup of the priority list.

**1 How did technology factor into the county's response to COVID-19?** Our first focus was ensuring we could support a large number of teleworkers. What we did was immediately upgrade our critical network circuits, ordered some additional VPN licenses, and increased our resources on the service desk and the desktop area. We put up simple instructions about how to use VPN, how to get to the HR system, how to set up simultaneous ring on your office phone and so on.

Second, we asked, how are we going to manage and monitor this in real time? We redirected our normal tools to these critical pinch points in our infrastructure — network and conference call utilization — so we could adjust as necessary. And of course we had to do that with all the appropriate security tools and protections.

We also had to react to many situational kinds of things as the crisis was unfolding. We stood up the Joint Operations Center between public health and emergency management. We have representatives from the city of Phoenix, the Red Cross is in there, and we had to stand this up within a few days. We also had to work with the clerk of the board to hold board meetings via webinar. We had to work with our public information office so they could do online press conferences. And now we're in the third phase, which is to maintain stability so that county departments can effectively conduct business and continue to serve citizens.

**2 Are there any lasting technology changes you foresee from the pandemic?** Could we lock in some of these digital or online or process changes

that have occurred due to teleworking and social distancing? We've seen a large demand for our e-signature platform. Could we get some forms up quickly and start to use that in a greater way? We found a few weak points in some of our online services, so we converted some service counter activities into online and digital forms. The other thing is now the workforce is more familiar with this kind of digital environment, and they can be productive in a telework situation. We've also been making a side list of things: When we're done, we're going to engage with all the county departments to understand what have they learned and if they have uncovered improvements that they want to lock in.

**3 What are some of your biggest priorities and have they shifted at all lately?** We were working on a number of strategic things to move the county forward, mainly around becoming more digital and providing some governance across the county for things like security. We were doing some ongoing refresh of some of our critical technologies and trying to get rid of some of the technical debt and eliminating obsolete platforms where possible. And then of course security goes through all of that. Most of these projects slowed down or were put on hold during phase one of the response. Now that we've moved into more of a steady state, some are moving again, particularly those that have more of a technology focus, while others that require more personal contact or high touch have slowed or stopped.

**4 What are some of your key takeaways from the pandemic?** Early on in the crisis, we thought some of the things that we had online, that you could access without logging onto the network, were going to be primary, like Office 365. But the speed with which it happened meant we had to default back to VPN. We were just not going to be able to stand up a complete remote environment without having access to our network. But I think the county has done very well in steering the ship a different way through a very difficult situation. There were no big gaps in people being able to work and having the tools to work. 

— Noelle Knell, Editor

DAVID KIDD

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## Calling CARL

As transit agencies work to efficiently and equitably bring electric vehicle charging access to public spaces like parks, highways and transit stations, one Shanghai-based company is trying to flip the script. ALWAYS, which produces all-electric vehicles as well as the tech to charge them, has been granted patents in Europe and China to develop an EV-charging robot. Named, charmingly, **CARL**, the bot can be summoned via a smartphone app, and the EV owner need not be present when CARL arrives to plug in and charge their car battery to 80 percent in less than 50 minutes. The idea is to simplify EV infrastructure for users. “Instead of trying to find a charger,” said Alex Klose, vice president for overseas operations at ALWAYS, “the charger will find them.”





BY DAVID RATHS

# CAN INTERNET ACCESS MAKE US HEALTHIER?

‘Double-burdened counties’ have both poor health outcomes and low broadband penetration, making connectivity a priority.

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**“SOCIAL DETERMINANTS OF HEALTH”** is a hot topic among government and health system executives. The phrase usually refers to basic food, housing and transportation disparities that can lead adjoining ZIP codes to have drastically different life expectancies. But could lack of broadband Internet access also be considered a social determinant of health? Many rural health advocates say yes, and they are trying to do something about it by pushing for the infrastructure to enable telehealth programs and remote patient monitoring.

Broadband is defined as high-speed, reliable Internet with actual download speeds of at least 25 megabits per second (Mbps) and upload speeds of at least 3 Mbps. It can be delivered via fiber, wireless, satellite, digital subscriber line (DSL) or cable. According to a 2019 Pew Trust report, 60 percent of health-care facilities outside of metro areas lack broadband access.

Researchers have a name for areas that have both low rates of home broadband and higher-than-national-average mortality rates for cancer and other diseases: “double-burdened counties.”

The Federal Communications Commission’s Connect2HealthFCC Task Force has created a mapping platform that allows for the overlay of cancer mortality and other disease conditions with broadband access coverage. This allows them to pinpoint hot spots. In



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The FCC has found that areas with high incidences of lung cancer-related mortality, like Appalachia, also have decreased access to rural broadband.

these areas, for example Appalachia, the task force found that more than 70 percent of counties with the highest lung cancer incidence and mortality have rural broadband access below 50 percent.

Telehealth efforts have made progress in connecting rural hospitals to academic medical centers to allow specialists to visit with patients and their care providers without arduous travel. But getting broadband access to smaller clinics and individual homes has proven more difficult, because telecom companies don’t find it financially viable to connect homes in rural areas at affordable rates. The FCC and U.S. Department of Agriculture have programs that subsidize the cost of broadband for some rural health providers,

but those programs have traditionally been oversubscribed. Therefore, in-home virtual visits and remote patient monitoring for patients with conditions such as cancer, diabetes and chronic heart failure are not as widespread as they could be.

One multi-stakeholder effort, the LAUNCH initiative (Linking and Amplifying User-Centered Networks through Connected Health), is targeting rural Kentucky with a novel approach to participatory design of a potential solution. Created in 2017, LAUNCH’s goal

## COVID-19: A BOON FOR TELEHEALTH?

The COVID-19 crisis has led to an explosion in telehealth use in all settings, and the Centers for Medicare and Medicaid Services (CMS) has temporarily lifted longstanding barriers involving reimbursement requirements, HIPAA rules and licensure.

Some of these regulatory changes to address COVID-19 could become permanent. “We are seeing a lot of emergency rule changes to broaden the scope of the use of telehealth and allow for continuity of care during this time, which is so important,” said Danielle Louder with the Northeast Telehealth Resource Center. “Our organization doesn’t advocate or lobby, but we provide data and information that helps policymakers make decisions. We are encouraging people to think upstream. This really is an oppor-



is to demonstrate broadband-enabled connected health and community-based co-design, said David Ahern, a behavioral scientist researcher at Brigham and Women's Hospital in Boston, who chairs the LAUNCH collaborative. The project brings together the FCC and the National Cancer Institute to coordinate improving broadband access and cancer outcomes in rural Appalachia. Other partners are a user-centered design team from the University of California, San Diego and the Markey Cancer Center in Lexington, Ky.

In some Appalachian counties, a trip to Markey might take two-and-a-half hours by car, but for many people with financial and transportation challenges, it might as well be on the other side of the moon, Ahern said. "People understand that if we could deliver some aspects of cancer care remotely, it would improve outcomes. Gaining connectivity into those counties is crucial."

"One of the rationales for the collaborative is that we could take an informatics approach to identify targeted communities and work with the National Cancer Institute to try to deploy a user-centered design approach to create tools to improve cancer care in that region,"

## "FUNDAMENTALLY, IT ISN'T JUST PUTTING IN THE BROADBAND AND WALKING AWAY. WE ARE LOOKING AT INFRASTRUCTURE AS A CORE ELEMENT TO BROADEN THE ECOSYSTEM."

Ahern said. The co-creation concept is key, he explained. Rather than having experts coming into a rural area and saying, "We have a solution for you," the idea is that to be successful, solutions that are meaningful and likely to be used in areas with particular cultures have to be built with lots of input from participants.

The first use case involves doing online distress screening for cancer patients. Research has shown that monitoring patient-reported outcomes through a Web portal actually lowers mortality rates among cancer patients, Ahern noted. Accrediting agencies of cancer centers require distress screenings, "but they have been done in a haphazard way in paper form," he explained. LAUNCH is making the process electronic and building the workflows around responding quickly if patients rate their stress levels very high.

Ahern emphasizes that the project is not just about connecting doctors and patients.

"We want to engage caregivers, family members, community health organizations and church leaders who can be part of a broader solution enabled by connectivity," he said. "Fundamentally, it isn't just putting in the broadband and walking away. We are looking at infrastructure as a core element to broaden the ecosystem."

In its contribution to the project, the FCC is talking to companies and associations in the telecom industry to step up and assist wherever they can. And there's been a lot of interest from companies wanting to be part of LAUNCH, according to Ahern. "Given the COVID-19 epidemic, there is a recognition that we need to have an all-hands-on-deck approach wherever there can be better connectivity that will save people's lives, so the industry is poised to do that more rapidly than they might have otherwise done. We are working on that

tunity. While some pieces of the expanded policies may make sense to walk back, there will be some that absolutely should stay in place and we hope that they do."

The sudden increase in telehealth use is straining broadband network capacity. If the telehealth surge persists, it may force government officials to consider prioritizing health care in the regulation and expansion of telecom networks.

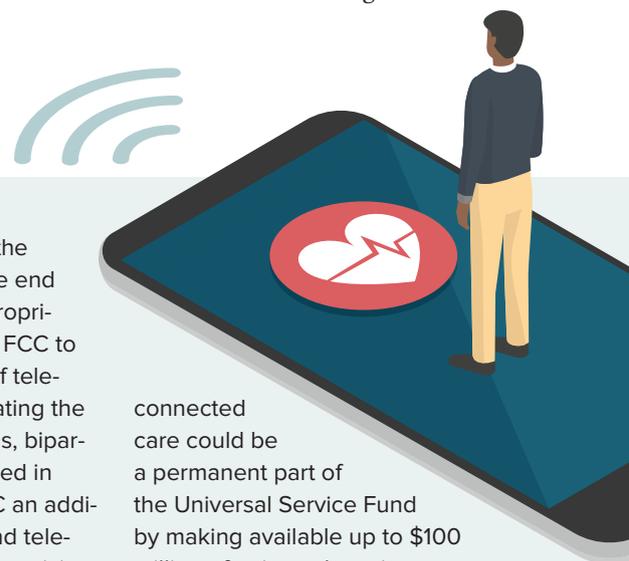
Abby Sears, CEO of OCHIN, said that during the crisis, rural clinics are noticing service quality problems. "We are seeing degradation of networks. Providers seeking to use broadband to access

services sometimes are not able to access them," she told a March 26 committee meeting of the federal Office of the National Coordinator for Health Information Technology. At the same meeting, Denise Webb, a health IT consultant and former CIO of Marshfield Clinic Health System in Wisconsin, said health system CIOs are telling her that the sudden increase in video visits is putting a strain on their networks. She suggested that CMS offering payment parity for telephone visits and video visits, when appropriate, could ease physician demand for video connections.

The FCC is getting more funding to address some of

these needs. As part of the CARES Act passed at the end of March, Congress appropriated \$200 million to the FCC to support providers' use of telehealth services in combating the COVID-19 pandemic. Plus, bipartisan legislation introduced in April would give the FCC an additional \$2 billion to expand telehealth services during the crisis. These funds are expected to help eligible providers purchase telecommunications, broadband connectivity and devices necessary for providing telehealth services. This is in addition to the longer-term Connected Care Pilot Program that would study how

connected care could be a permanent part of the Universal Service Fund by making available up to \$100 million of universal service support over three years to help defray eligible health-care providers' costs of providing telehealth services to patients at their homes or mobile locations, with an emphasis on providing those services to low-income Americans and veterans.



pretty diligently right now, particularly with satellite providers. We think there are some immediate opportunities there.”

During a summer 2019 LAUNCH project meeting, FCC Chairman Ajit Pai described a recent trip he had taken to Allen County, Ky., an economically challenged rural area near the Tennessee border. The school system there has more than 3,000 students — but not one pediatrician. The nearest one is a decent drive away in Bowling Green. “But now, thanks to broadband, local students can see a pediatrician simply by walking down to the school nurse’s office,” Pai said. “There, they can be seen virtually by a top-notch physician from Vanderbilt University’s Children’s Hospital, which has a partnership with the school district,” he said. “Think about what a difference all this makes: Students are healthier, parents worry less and don’t have to take time off work, and teachers can focus on teaching.”

### **BROADBAND UNDERPINS FRONTIER CLINICS**

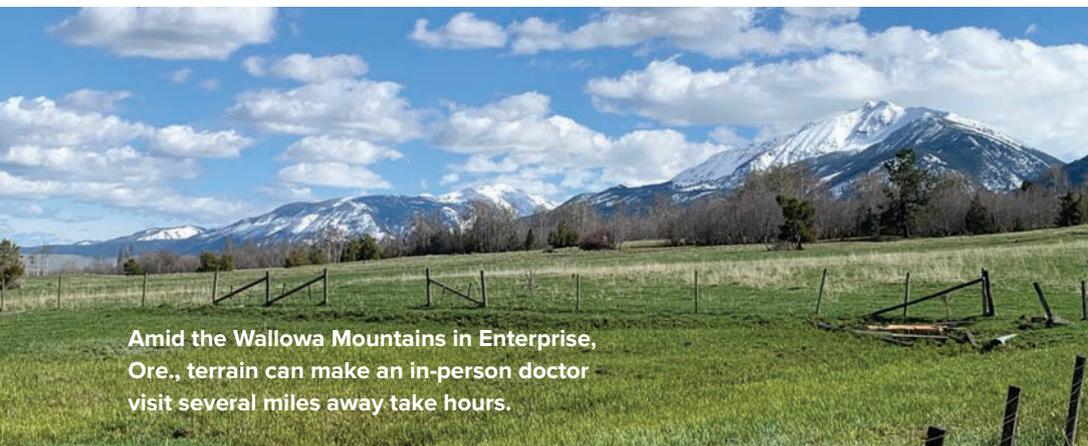
Nic Powers, CEO of Winding Waters Community Health Centers in Enterprise, Ore., spoke last June at a congressional briefing about the value of the FCC’s Rural Health Care program, which provides broadband subsidies. He explained how this program makes affordable, reliable

broadband to rural clinics possible. “This is an essential program for rural health-care providers, and it needs to work a lot better to continue making a positive impact,” he said. “Broadband connectivity underpins so much of the work we do every day and it’s so expensive in rural America.”

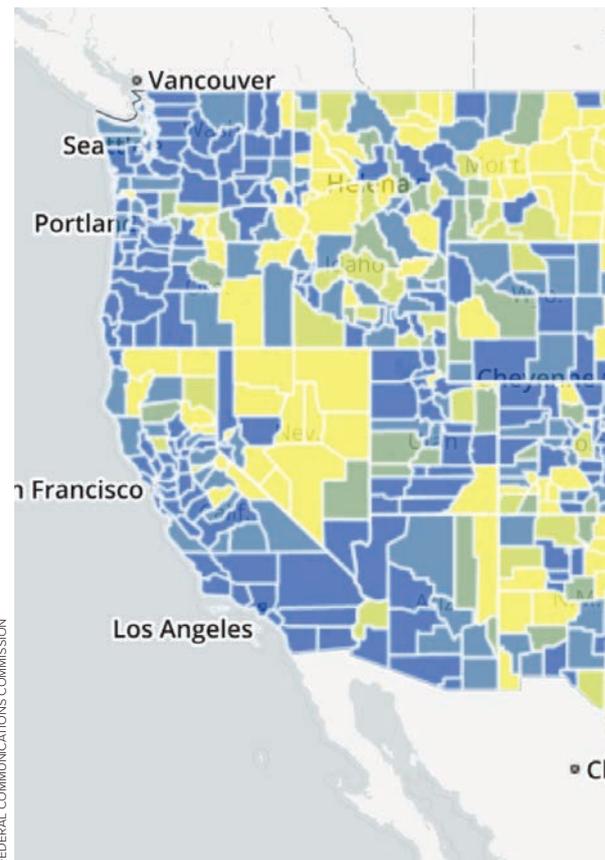
Winding Waters belongs to a collaborative operated by Portland-based nonprofit OCHIN, which provides hosted electronic health records as well as networking and telehealth support to 450 community health clinics with more than 10,000 clinicians across the nation.

Jennifer Stoll, OCHIN’s executive vice president of government relations and public affairs, describes Winding Waters as being in frontier country. “You leave Portland, drive east for five hours, bank a left and drive another hour north and you hit Enterprise,” she said. The town has very deep canyons surrounding it, so even though they have patients who are only seven miles away, it takes them hours to get to the clinic because they have to drive around the canyons to get there. “They have a health-care site that has a very difficult time with their broadband connectivity,” she added. When Powers told congressional leaders that the FCC program has to work better, he essentially meant it needs more funding. “The funds for the

**“PEOPLE UNDERSTAND THAT IF WE COULD DELIVER SOME ASPECTS OF CANCER CARE REMOTELY, IT WOULD IMPROVE OUTCOMES. GAINING CONNECTIVITY INTO THOSE COUNTIES IS CRUCIAL.”**



Amid the Wallowa Mountains in Enterprise, Ore., terrain can make an in-person doctor visit several miles away take hours.

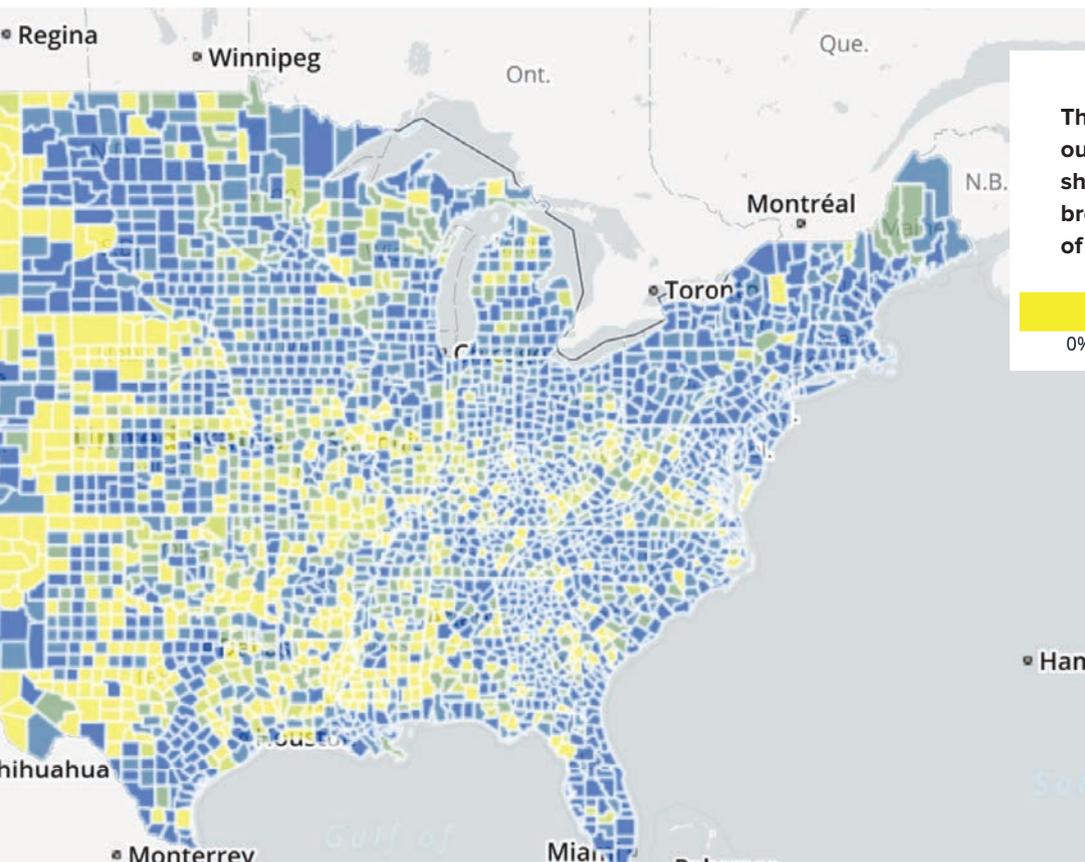


Rural Health Connect program need to be tripled,” Stoll said. “It is way oversubscribed right now. That slows down the applications and approval processes. We would like to see more consistency in how the program operates, because health centers need reliability in terms of broadband.”

Of course, the COVID-19 crisis has opened policymakers’ eyes to the value of telehealth (see sidebar, p. 14). “I think the COVID-19 crisis is elevating the conversation to a whole new level,” Stoll said. “We have to build capacity and there has to be redundancy. We support frontier areas in the West where there is one fiber line in, and on an almost regular basis, that line gets cut. It connects the one hospital in the county and they have to med-evac patients to the nearest local city. That is not the most efficient way to deliver health care. So where we have critical delivery systems of health care, we need redundancy.”

### **STATE-LEVEL ACTIVITY**

Because the federal grant money is disbursed from multiple agencies, some state governments have created broadband offices to manage state budgets and help coordinate how organizations in their state apply for federal funding.



The Connect2HealthFCC program maps health outcomes with broadband access. This map, showing the percentage of each U.S. county with broadband-level Internet, can be viewed with rates of physician access, diabetes and other factors.



leads efforts focused on implementing and growing telehealth programs in New England, New York and New Jersey. She says broadband issues continue to impact rural communities in her region, including islands off the Maine coast. “The Medicaid programs in several states in the Northeast allow for the home to be the telehealth originating site, rather than a clinic, and we see that there are lots of rural homes that have very poor or nonexistent Internet service.”

Some rural health-care provider organizations have decent broadband access, she adds, but there is often less competition, which can impact price. “Every time you add a new service line or consider different use cases like live video, that uses more bandwidth,” she said. Telehealth solution vendors are getting better, she added, at using less bandwidth for live videoconferencing applications, leading to fewer dropped calls. “Even a few years ago, dropped calls were a big issue. For both providers and patients, that is a good way to turn people off from telehealth – if the technology isn’t working.”

Louder said that the shift by the Centers for Medicare and Medicaid Services (CMS) and private insurers from fee-for-service payments to value-based care has meant that there is increasing interest in following patients discharged from the hospital more closely. “For accountable care organizations that want to stay in touch post-surgery, telehealth is how to do it.” Chronic heart failure is another use case for remote patient monitoring, she said. “Studies have shown a greater than 75 percent reduction in rehospitalization for those patients, so anytime we can keep folks out of the hospital or going back to the hospital, there are cost savings and patient satisfaction is much higher.” <sup>11</sup>

draths@mac.com

Among states with such offices are Oregon, Washington and Ohio. In March, the recently created Ohio Broadband Strategy announced a telehealth pilot project to connect K-12 students with mental health counselors in the rural Switzerland School District in Monroe County, located in southeast Ohio. The goal is to expand the project to other Ohio schools.

The Michigan affiliate of a national nonprofit organization called Connected Nation recently released a study that examines the use and perceptions of telehealth in five rural Michigan counties.

Eric Frederick, executive director of Connected Nation (CN) Michigan, said the study conducted random surveys of residents in the targeted counties to better understand whether they have Internet connections at home and how they interact with health-care providers. “Overall, we found about 60 percent had Internet connection at home, lower than state and national averages. So as we are considering telehealth virtual visits, 40 percent can’t participate right off the bat,” he said. “These are very rural places, so it is not surprising, but it sheds a light on the importance of getting everybody connected.”

In a survey of physicians, remote patient monitoring was the most commonly used online health service. “It is gaining in popularity,” Frederick said, “but again, if 40 percent don’t have an Internet connection to begin with, it is a nonstarter.”

CN Michigan is holding focus groups in the five counties to better understand the barriers to telehealth and to brainstorm some solutions. The organization is also recommending that the state follow through on the steps laid out in the 2018 Michigan Broadband Roadmap to improve broadband access, adoption and use. One of the road map’s key recommendations was to create a state broadband grant program. “That has now been done,” Frederick said. “A \$20 million program was created and now it is in the process of final review of grant applications. For those grants, it helps to have a large anchor institution like a hospital because that helps make the financial case for expanding infrastructure further into the community.”

## INCREASING DEMAND FOR TELEHEALTH SERVICES

Danielle Louder, program director for the Northeast Telehealth Resource Center,



# Elections Made Better

How officials can better manage elections with an enterprise approach to technology

When it comes to elections technology, the conversation tends to center around cybersecurity and protecting voting systems from hacks and other attacks. One important topic that doesn't get as much attention is the technology that officials use to plan and manage elections. How they train and communicate with poll workers, how they train and communicate with poll workers, how they decide how many voting machines to deploy at different sites, auditing all the necessary tasks needed to be completed for election preparation — all of those are key issues that elections officials must manage. And the technology used to manage those functions varies widely from county to county throughout the U.S.

The Covid-19 pandemic has upended every aspect of society, including state and local elections. The federal coronavirus stimulus package passed in March included some \$400 million for state elections, in addition to \$425 million in new Help America Vote Act (HAVA) funds that were approved at the end of 2019. In this *Government Technology* Q&A, we talk with Ron Davis and Jason Barnett, of the elections management software company EasyVote, to understand the management challenges that elections officials face.



**Ron Davis**  
CEO  
EasyVote Solutions



**Jason Barnett**  
Director of Business  
Development  
EasyVote Solutions

## **Q** What are the most lasting impacts that the Covid-19 pandemic will have on elections?

**Barnett:** Recently, we've seen a lot of states and counties moving their elections to later dates. But the biggest discussion right now is around by-mail balloting. We may see some places go to all-mail voting, but what I think is most likely is a Colorado-style hybrid solution, which features all by-mail ballots with vote centers and drop boxes, so the voter can choose which method they want to partake in.

One ongoing concern is finding poll workers. This has already been an issue for several years, and it's certainly

something we're seeing more with the pandemic. The average age of a poll worker in the U.S. is 72. We've already seen a decline in workers because of frustration in working the polls, or the political divisiveness that our nation's in right now. We could soon end up in a situation where we don't have enough poll workers to run polling sites. That could lead to a reduction in the number of polling places, longer lines and more pressure to come up with different ways to let voters cast a ballot.

Looking at the foreseeable future, there will be less in-person, face-to-face interactions. I don't just mean for voters. I mean online training tools for elections officials and poll workers,

online campaign finance filing, communicating electronically with poll workers and so on.

**Q How can technology help address challenges for elections officials?**

**Davis:** You're always going to have silos within an election office. Managing equipment is a silo; the absentee voting process is a silo. Campaign finance, voter registration, poll worker management — they're all silos. But they still all fall within the election office, and they need to be on a common technology platform, because there's information that needs to be shared among all those roles.

**Barnett:** With an enterprise approach to elections technology, you're able to narrow that down to the bare minimum of different systems. You can create your election calendar; you can manage your poll workers; you can manage your inventory and assets; you can manage your online campaign finance filings — all from the same system.

**Davis:** It's about decision-making. To make the proper decisions, you need as much data available as possible. That's what an enterprise system does; it makes all the data around an election available in a single place. When you've got to make decisions about consolidating polling places, deciding how many poll workers you need or

where to deploy your equipment, you can easily look at all the data right there at your fingertips.

**Q With the additional HAVA funds and the recent stimulus, states are getting a major infusion of money for elections. How do you expect to see that money spent — and where do you think it *should* be spent?**

**Barnett:** Obviously, a lot of the money is rightfully going to be put toward cleaning voting equipment and making sure the polling environments are as clean and safe as possible. And I think you'll see some money going toward high-speed scanners or other equipment that help accommodate more by-mail balloting.

But my biggest frustration with these big spending bills is they're so focused on buying new equipment without investing in technology to manage it. If you look back to HAVA in 2002, the kneejerk reaction with the federal government was to appropriate \$3.9 billion and essentially tell every county in the U.S. to buy new voting machines.

I would like to see these bills allow for counties to invest in technology that makes the management of elections easier, not just to buy new hardware. You end up with millions or billions of dollars in new elections equipment, but you still have counties using

spreadsheets and Post-It notes to track and manage it all. It boggles my mind.

**Davis:** They need to be putting more of this money toward technology to collect data and track the equipment they already have. We're not seeing enough of that right now. No matter what happens down the road with by-mail voting, this isn't going to change: You're still going to have to plan, manage and execute all these functions. You still need to have your data in one place to run analytics and look at previous election cycles, so you can start planning for the next one.

**Barnett:** There are hundreds if not thousands of puzzle pieces that it takes to pull off a successful election. And if you can house all that data and information in one place, it's an absolute advantage.

**To learn more about how you can modernize your election management process, visit [easyvotesolutions.com](http://easyvotesolutions.com)**

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BY TOD NEWCOMBE

# SMARTER, NOT HARDER

PUTTING MISHAPS BEHIND THEM, CITIES ARE BUILDING SMART CITY PLATFORMS THAT ARE MORE PRACTICAL, EFFICIENT AND EQUITABLE.



Like so many American cities these days, Pittsburgh finds itself suffering from significant growth in traffic and road congestion. By 2017, drivers were spending an extra 81 hours commuting to work each year. To ease the problem, the city worked with Carnegie Mellon University to build a traffic signal system that ran on artificial intelligence instead of relying on pre-programmed signal cycles.

The results were soon apparent. For the initial 50-intersection project, the system reduced travel time by 25 percent, braking by 30 percent and idling by more than 40 percent. The AI software detects traffic and creates a predictive model that generates a signal timing plan in real time.

While drivers were happy, pedestrians let the project team know that they felt left out of the picture. So, the

researchers responded by tweaking the system to minimize wait time for pedestrians at lights. Meanwhile, researchers and students at Carnegie Mellon set to work on a side project to make a mobile phone app to communicate with the lights for people with disabilities who need more time to cross the street.

The project in Pittsburgh is more than just a smart city initiative. It's an example of how the movement has evolved. It tackles an ordinary problem using the latest technology in an innovative way. There are multiple players involved, including a startup — Rapid Flow Technologies, which was spun out of Carnegie Mellon — and it was built to scale up. Eventually, more than 600 intersections throughout Pittsburgh could be using the technology. Finally, the solution aims to be equitable, affecting the entire community, including those who don't have cars but use the streets anyway.

“Smart city projects are becoming less fantastical, less sci-fi type and much more practical,” said Bob Bennett, founder and principal of B Squared Civic Solutions and former chief innovation officer of Kansas City, Mo.

## **START WITH PEOPLE**

The rapid urbanization of cities in America and around the globe coupled with the rise of technology in the past 20 years has presented technologists and policymakers with a unique opportunity to try to fix the problems with life in cities — traffic, pollution, crime — using hardware and software. Cities like Santander, Spain, and Rio de Janeiro became showcases for sensors, cameras and other devices linked to networks, servers and dashboards that would collect, measure and analyze reams of data. The goal was to find new ways to figure out a city's problems and deliver quick answers.

**Pittsburgh's work with Carnegie Mellon University has made traffic intersections not only smarter, but also more equitable for cars and pedestrians.**



The problem was that technology began to dominate the smart city conversation. The idea was that the municipal leaders needed tools in the form of the Internet of Things to resolve urban issues, because the problems were too complex for humans to track and make decisions about in a timely fashion. Despite a wave of marketing hype and numerous pilot projects involving just about every kind of technology available, few cities were becoming truly smart and connected.

The McKinsey Global Institute released a report in 2018, *Smart Cities: Digital Solutions for a More Livable Future*, that explained the existing problem with smart cities: “After a decade of trial and error, municipal leaders are realizing that smart city strategies start with people, not technology. ‘Smartness’ is not just installing digital interfaces in traditional infrastructure or streamlining city operations. It is about using technology and data purposefully to make better decisions and deliver a better quality of life.”

That’s not to say technology is taking a back seat to making cities smarter. Far from it. But the human equation has grown in importance. “Equity is an underlying requirement when it comes to saying which smart city use case will have the broadest impact during the evaluation process,” said Michele Pelino, a principal analyst with Forrester Research. “Cities want projects that give them the most value.”

On a more fundamental level, cities are accepting the fact that smart city projects often start within a silo and that will remain the case. “The siloing of projects remains consistent because that’s where the funding is,” said Bennett.

What has changed is that while a project with sensors on a lightpole might start within one city agency, the solution is embraced interdepartmentally. “There is a better appreciation of what the impact is going to be across the enterprise, instead of being a project where the benefits are also siloed,” Bennett explained.



**IN 2019:**



SOURCE: CENTER FOR DIGITAL GOVERNMENT

In other words, the business model for smart city projects is improving. Instead of sticking water sensors in the ground of city parks because technology can measure whether or not the sprinklers should be turned on, they are focusing on using sensors that improve how the city’s water treatment system operates, benefiting the entire community.

Cities have also begun to recognize that their infrastructure can become platforms. Streetlights, for example, are no longer performing one smart task, but several. While the more advanced cities note this opportunity up front, most municipalities realize the importance of building a platform later on, according to Pelino. “Oftentimes, it happens after the fact, when the city has a number of these individual elements in place and there is a complexity that needs to be simplified,” she said. “The insight captured becomes valuable when it can be shared in city agencies, which allows for the sharing of information and intelligence.”

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## SMART STARTS AT THE EDGE

In 2019, the Center for Digital Government\* conducted its annual Digital Cities survey and found several smart city tech trends underway. Cities had boosted the amount of technology they were using in key areas since the 2018 survey and expected to continue that expansion.

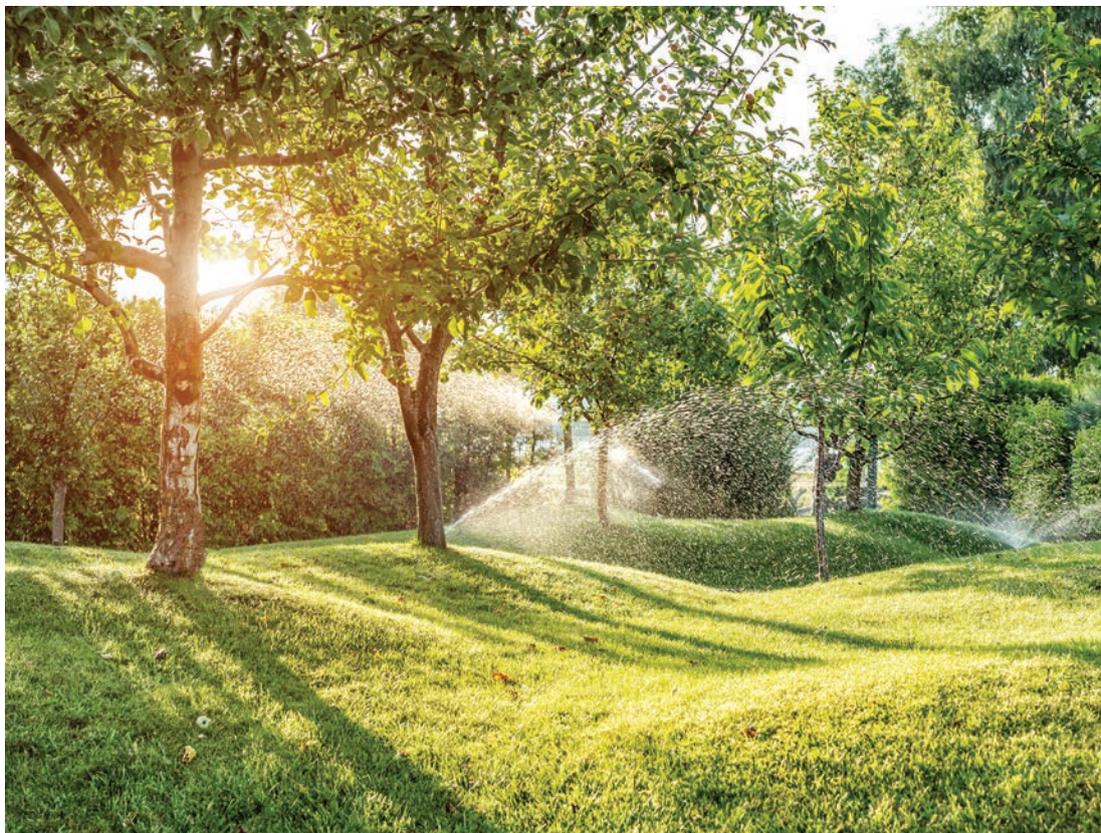
The first generation of smart city projects focused on figuring out how to put sensors in the community, network them together and feed the data they collected back into data centers where the information could be analyzed and intelligence extracted. But now cities have recognized there's more value in having the data processed and analyzed in the field. Edge computing has driven computing power out into the streets.

"To understand the value happening in an individual element, whether it's a bus traveling down a street or a sensor on a street pole, the processing of the information has to happen at the location of the asset because that's where you need to make the decision," Pelino said.

Chicago has long been a testbed for practical uses of smart city technology. For years, the Array of Things (AoT), a joint research project between scientists, universities and government, has looked into ways to improve how IoT and artificial intelligence can help cities connect and solve problems, using the streets of the Windy City as its testing ground.

In the early days, AoT focused on how to make sensors work better in the field, in all kinds of weather conditions, as well as determine the best applications for a city's needs. Today, the focus is squarely on edge computing, according to Charlie Catlett, one of the founding researchers of AoT. "Our research is about what is possible using technology, while holding down costs and protecting the public's privacy," he said.

The way to do that is to build software-based sensors that can conduct a variety of tasks, using cameras, microphones and other devices that can collect vast amounts of data and analyze them at the location. AoT is now working on a new project called SAGE, which will explore techniques for applying



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machine learning algorithms to data from intelligent sensors and run reusable software programs within the embedded computer, and transmit the results over the network to central computer servers.

In other words, the sensor is the computer. "We're at the tipping point with edge computing," Catlett said. Imagine sensors that can decide on their own when they should turn on their cameras to analyze traffic, test the air for particulate matter or look for evidence of water pooling on the streets after a flash rainstorm. "We now have sensors that are smart enough to know what they should do and when they should do it, and then make decisions based on the information gathered at the location," he said. "We are going toward autonomous measurement."

Part of the problem with early smart city projects was that many were built by companies that were proprietary in design, limiting their flexibility and capability, according to Catlett, who is currently on sabbatical from AoT and is a senior research scientist at Discovery



"WE'RE AT THE TIPPING POINT WITH EDGE COMPUTING."

CHARLIE CATLETT, SENIOR COMPUTER SCIENTIST,  
ARGONNE NATIONAL LABORATORY



Partners Institute, a tech talent development organization in partnership with universities. “The hardware for these experiments was out ahead of the software,” he said. For smart city technology to succeed, you need to flip that equation.

That’s the thinking behind the SAGE project: intelligent sensor nodes that support machine learning algorithms that have been created using open source code, providing an open architecture, so that cities can build an array of projects on one platform.

### IT’S ABOUT PERFORMANCE, EFFICIENCY AND EQUITY

So what are cities looking for in 2020 when it comes to being smart and connected? Early applications included self-driving vehicles, drones, cameras (on bodies and in streetlights) and sensors to measure every conceivable function. But today, it’s about being pragmatic with smart technology. “Smart city applications are staying within their foundational elements, which have always been transportation-oriented systems, utilities, including water and power,” says Bennett.

Public safety is another active area, along with bringing connectivity to communities — think free Wi-Fi in parks and downtowns. “I’d also include waste management; this one comes up quite a lot today,” Pelino said. “Cities want to better manage their waste; they want connected trash cans that tell workers which bins need to be unloaded.”

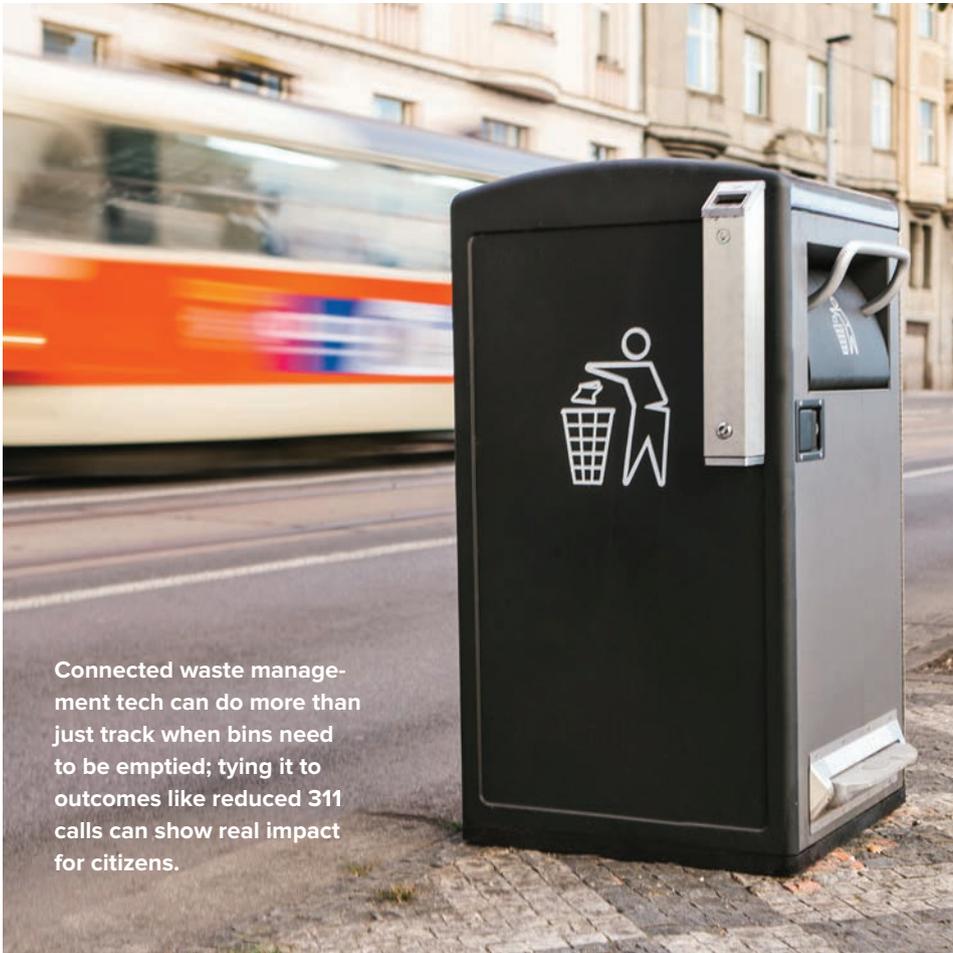
Along with a return to the basics, smart city projects are also becoming more focused on performance, efficiency and, perhaps most important, equity. The city of San Diego has installed roughly 3,000 smart streetlamps over the past few years, making it one of the largest smart platforms for an urban area in North America. The promise was that by tracking the movement of cars and people, the city would be able to ease its notorious traffic and parking problems.

However, what was envisioned by city officials as a highly beneficial use of technology was seen as something more sinister by the residents, especially after they found out the police would have access to the camera footage. When San

Smart streetlights installed across San Diego led to resident concerns about overconcentrations in certain neighborhoods.



CITY OF SAN DIEGO



Connected waste management tech can do more than just track when bins need to be emptied; tying it to outcomes like reduced 311 calls can show real impact for citizens.

Diego's newspaper analyzed data from the project, it found a slightly higher concentration of smart streetlights in white neighborhoods, leading to charges of tech elitism, while others read the data to indicate that too many cameras were near neighborhoods of color, leading to charges of racial bias in how decisions were made about sensor location.

The lesson learned in San Diego is that deploying smart city technology is not as simple as it seems. But cities are learning how to become more equitable. Projects still start in a stovepipe, said Bennett, but the evaluation and use by local departments is based on the broader equity it brings.

Smart city projects are also evolving into solutions that deliver outcomes. It's not enough to have technology that can tell a sanitation crew a certain bin is overflowing and needs to be emptied.

It has to show outcomes, such as fewer complaints to the city's 311 system about trash in the streets, Pelino said. "If you can get fewer citizens calling the city to empty an overflowing trash bin, that can be a metric that can show the value of the application," she explained. "This leads to more cost-efficiency measures on how workers are spending their time; it can even lead to fewer calls about rats in alleys, because cleaner streets can lead to reductions in the rat population."

### THE STAKEHOLDER, WORKER EQUATION

Collecting data from thousands of sensors, cameras and microphones, analyzing the input, and then figuring out the best ways to fix what ails a city isn't easy or simple, no matter how sophisticated the technology. Nor

"EQUITY IS AN UNDERLYING REQUIREMENT WHEN IT COMES TO SAYING WHICH SMART CITY USE CASE WILL HAVE THE BROADEST IMPACT DURING THE EVALUATION PROCESS. CITIES WANT PROJECTS THAT GIVE THEM THE MOST VALUE."

MICHELE PELINO, PRINCIPAL ANALYST, FORRESTER RESEARCH

is it cheap. It's not surprising, then, that while cities have embraced the concept of being smart and connected, they have stumbled in execution.

Part of the problem has been having the right stakeholders in place to say what the city needs and why. Sometimes the choice is forced by a regulatory requirement. But more often, it takes the right kind of leader to ask CIOs to think differently in how to apply technology and to tell workers they need to do their jobs differently because of sensors in the roads or their vehicles.

Indeed, city workers are key if smart cities are to succeed. They have to develop different skill sets, accept that data may require them to do their job differently, or fix something based on an algorithm rather than driving by and seeing for themselves whether something needs fixing.

Technology too can be a roadblock. Adding a new system to an existing platform without interrupting a service that citizens have come to rely on can be disruptive, warned Bennett. Ultimately, if smart cities are to evolve and grow, certain changes in behavior, management and organization will be needed. "It's about understanding the value of the data in the dashboard," said Forrester's Pelino, "and prioritizing what needs to be done." 

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## INNOVATION IN GOVERNMENT®

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*How state and local agencies are moving toward a more data-driven and automated future.*

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- 4** Visibility and automation are keys to managing complex hybrid environments
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- 8** Intelligent data management prepares agencies for a data-driven future
- 10** Automation enables governments to address growing digital risk
- 12** Building a data legacy: 3 tips to get the ball rolling





# Turning Data Into Insight

*Cloud-based tools and enterprise strategies help agencies get smarter faster.*

In late March, as cases of COVID-19 climbed steadily in the United States, the city of Boston's data team moved quickly to keep citizens informed.

Using cloud-based geospatial mapping software, the team launched two new online data dashboards in about a day that use continually updated information from the Centers for Disease Control and Prevention (CDC) and the Massachusetts Department of Public Health to track the spread of the virus. One resource shows total COVID-19 cases throughout the state by county. The other compares case numbers at the city, state and national level.

At about the same time Boston was launching its dashboards, Colorado's Eagle County was using cloud-based collaboration and analytics applications to quickly deploy an online symptom reporting and tracking service. Home to the Vail Ski Resort, Eagle County had become a virus hotspot. The new site lets citizens self-report symptoms, which are tracked and analyzed by public health officials to understand the spread of the illness and follow up with residents who may need care. Eagle County's effort already has been copied by a handful of other Colorado counties.

The COVID-19 crisis underscores the growing importance of data analytics to state and local governments as they tackle complex challenges. It also shows how technological improvements are making data-driven insights easier to achieve

and share. One lesson learned during the early days of the virus response is that cloud services and user-friendly data tools enable governments to roll out new data and analytic services fast and scale them quickly.

"Given the rapidly evolving situation with the COVID-19 pandemic, we took it upon ourselves to leverage publicly available tools and data to begin establishing a consolidated view of what was happening in Boston, the commonwealth of Massachusetts and the United States as a whole," Boston Chief Data Officer Stefanie Costa Leabo told *Government Technology*.

#### The Rise of the CDO

Although the COVID-19 response kicked public sector data analytics efforts into high gear, states and localities have been steadily working to become more data-driven over the past several years. Twenty-eight states now have a chief data officer (CDO), and similar positions have been established in

Boston, Denver, San Francisco, Philadelphia and other municipalities. The rise of the CDO is just one indication of the push among states and localities to use data to improve internal operations, strengthen citizen services, improve safety, and boost transparency and engagement.

One overarching goal for these CDOs is squeezing more value from public sector data resources. Governments collect mountains of data, but this information typically has been gathered and used for a specific purpose. Today's challenge is breaking data out of system-specific silos so it can be shared, analyzed, visualized and ultimately put to work to drive better efficiency and program outcomes, as well as provide more personalized citizen experiences.

Fortunately, technological advances are giving agencies tools to move forward.

"There's no question that technology is making it easier to gather, clean, analyze and visualize data," says Patrick Moore, a Center for Digital Government senior fellow who formerly served as Georgia's state CIO. "From data lakes to artificial intelligence, the end-to-end solutions absolutely exist."

But better technology is just part of the answer. As governments implement these tools, they also must confront the deeper challenge of aligning data and analytics activities to policy and business priorities.

"The technology is going to be as

*Today's challenge is breaking data out of system-specific silos.*

good as you let it be, so you need to ask the right questions to get the outputs you require," Moore says.

David Partsch, named Pennsylvania's first CDO in summer 2019, is tackling that issue in his state. Part of his mandate is to help establish a statewide data management and governance strategy that will drive better efficiency and customer experience. Among other things, the strategy will support development of a "single online location and login for Pennsylvanians to access all commonwealth services," Partsch recently told *Government Technology*.

Ultimately the state will use its enterprise data strategy to change mindsets about when and how data will be shared across agencies and departments.

"The most important part is making sure there is buy-in across the key stakeholders in the commonwealth to make sure all the business units are continually engaged in this data governance program," Partsch said.

#### Putting Analytics to Work

As data tools and strategies mature, governments across the nation are using analytics to address specific community concerns. For instance, Fairfax County, Va., and George Mason University are creating an analytics model to identify risk factors that impact the mental and physical health of children. And the Bay Area Air Quality Management District in San Francisco recently launched an effort to gather and map air pollution data from every corner of the 5,000-square-mile metro area using sensor-equipped vehicles.

It's also likely that artificial intelligence and other data-driven technologies will help public agencies handle what's expected to be overwhelming demand for safety net services in the wake of the COVID-19 crisis.

This trend already may be taking shape. The Texas Workforce Commission (TWC) recently launched an online virtual assistant to clear a growing backlog of unemployment claims. The TWC is experiencing record call volumes from Texans who have lost their jobs due to the virus. The TWC hopes its new AI-enabled chatbot can answer most questions claimants may be calling the hotline about, relieving pressure on call centers.

#### Understanding the Market

As agencies seek to strengthen their data and analytics capabilities, Moore expects cloud services to become an increasingly common way for governments to access sophisticated resources for data storage, management, security and analysis.

"The leap that governments will be able to make using the as-a-service model will far outpace their ability to modernize their legacy tools and applications," he says.

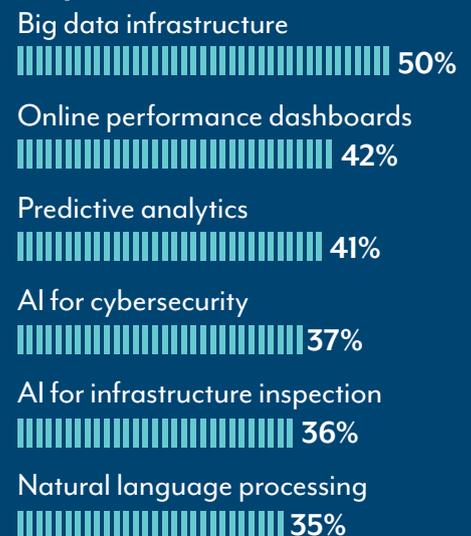
But agencies also must do their homework to understand both their own needs and the rapidly evolving landscape of data analytics technologies.

"It's important to become acquainted with the marketplace and recognize what these offerings can do and how they can help," Moore says. "If you are committed to using data to make decisions and you're willing to make the investment, the tools are there."

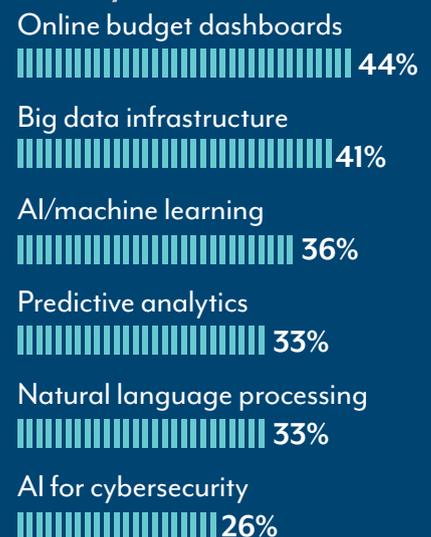
## DRIVING DATA IMPROVEMENT

*Here are the top data-driven technologies local government leaders plan to implement or upgrade in 2020.*

### City



### County



Source: 2019 Digital Cities and Counties Surveys

# Visibility and Automation Are Keys to Managing Complex Hybrid Environments



**Brandon Shopp**, vice president of product for SolarWinds, discusses how visibility is critical to understand and manage today's technology infrastructures.

## **What's driving the need for state and local governments to better manage and monitor IT systems and performance?**

The rise in digital services requires states and localities to expand the amount of infrastructure and applications they operate. Citizens and employees expect immediate access to these services, so the pressure to handle things in a timely manner is high. Also, the IT environment has changed. Services and apps run in multiple locations — some of which you have no control over and are more exposed to the internet. New software-defined technologies require different considerations than a pure hardware-based approach, and you still have to support legacy technology and a lot of homegrown solutions. Another challenge is the astronomical amount of data coming from a growing number of disparate endpoints that you have to make sense of and protect from a privacy standpoint. So overall, there's a lot more to consider regarding performance, usability, availability and security. You've got to support it all. And of course, you need the appropriate talent to do so.

## **What capabilities should today's infrastructure management and monitoring solutions provide?**

You need a solution that supports your infrastructure whether it's on-prem, in the cloud or hybrid. Next, the solution needs to be "multi-lingual," so it can talk to all the disparate

pieces of the infrastructure regardless of their different protocols. Then, it needs to give you comprehensive visibility across the entire IT stack, instead of forcing you to manage multiple tools and piece together the data. Finally, it should help you leverage newer capabilities and technologies like machine learning and AI to make sense of the massive volumes of data in your infrastructure.

## **What types of IT automation use cases are you seeing at the state and local level?**

There are no bounds to the potential use cases for automation. Today, we have more data and maturing technologies that can automatically classify and understand things like anomalous behavior. We can build a set of intelligent workflows that perform various actions based on what the system is seeing and learning. With the growth in software-defined technologies, we're also seeing more network automation. And within DevOps and DevSecOps, developers are writing scripts to automate tasks that before they only felt comfortable doing manually. Another popular use case is provisioning and deprovisioning users who join or leave an organization.

## **What should organizations consider as they incorporate automation, artificial intelligence and other advanced tools?**

With AI, you have to be sure programmers don't introduce bias into the models they build. You also need appropriate processes and controls to protect the privacy of personally identifiable information (PII). With automation, it's important to think through processes so you fully capture all scenarios or workflows. Next you have to test and iterate to ensure you have built in the right logic. Then you have to revisit the automation periodically. You also need

a process and monitoring technology that give you visibility. Finally, you need fallback plans in case something doesn't go as expected.

## **What role does infrastructure visibility play in supporting a mobile workforce?**

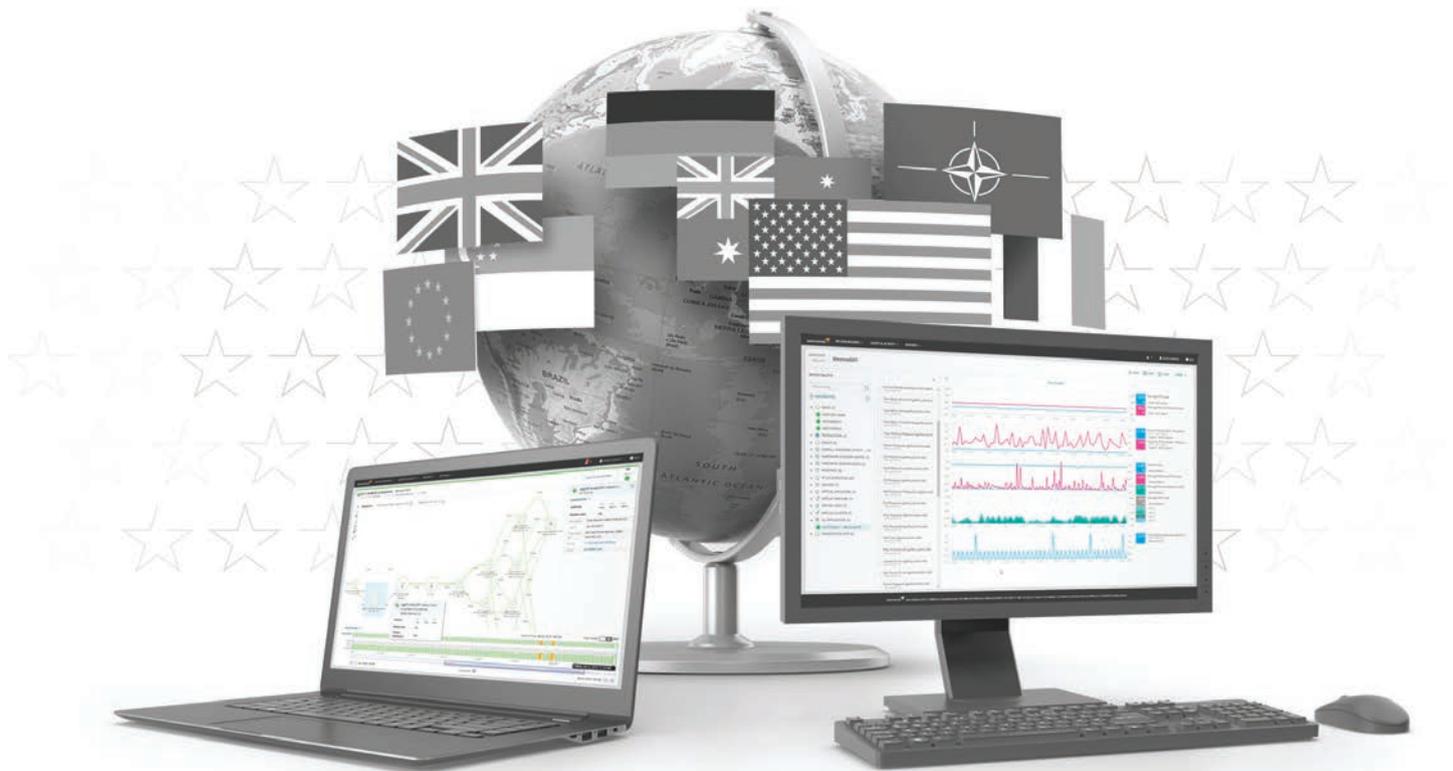
Today's workforce depends upon disparate services that aren't always owned, maintained or controlled by the organization. Infrastructure visibility helps you quickly locate problems and determine who you need to call to resolve them. Is it a remote worker's internet service provider? Is it the SaaS provider's infrastructure? Is it your infrastructure? There are multiple internal and external potential points of failure. Visibility and timely data let you resolve issues quickly so employees — in and out of the office — have the services they need.

## **How can organizations prepare for new tools and ensure their infrastructure data is as useful as possible?**

- 1) Identify goals based on where you want to be in three to five years. Determine what metrics indicate success. From there, develop strategies and plans to meet them.
- 2) Assess whether — or how — the organization can truly provide the level of service you need.
- 3) Identify technologies that can help you deliver services more efficiently and determine how to measure, monitor and manage them.
- 4) Plan and budget for legacy modernization.
- 5) Ensure appropriate visibility into your infrastructure and applications so you can automate where possible and resolve issues quickly.
- 6) Learn how to tie infrastructure and application availability to financial costs.

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# Enterprise Data Clouds Help Governments Get Smarter and More Predictive



**Joe Perrino**, regional vice president of civilian and SLED for Cloudera, explains how an enterprise data cloud can help governments move toward a data-driven, automated future.

**Please discuss the role of data analytics, AI and other advanced tools in improving decision-making and service delivery. What trends are you seeing?**

There's a lot of great innovation in this space, with many states and municipalities pushing the envelope. The majority of adoption is around providing personalized services. Government agencies understand their constituents have an expectation of real-time connectivity and, therefore, demand a high level of service. To that end, many state and local governments are actively working to use technologies and approaches that let them effectively implement the data-driven services, policies, taxes and regulations that their customers are looking for. They're using enterprise data platforms to break out of data silos that have been a barrier to smart government projects, and they're implementing solutions that give them flexibility while maintaining the security necessary for sensitive data. We're seeing great traction within smart transportation management, smart water management, smart energy management and data-driven policy initiatives.

**What are the challenges of using these tools in state and local governments?**

Society today expects so much more out of IT systems. Citizens and employees, accustomed to a consumer experience, want systems that enable self-service, answer common requests and perform other activities.

This means governments have to respond nimbly, innovate frequently and remain connected to their users' requirements. Besides the technical challenges, state and local governments often lack skilled staff who can implement these strategies. Finding the right technology partner can be the key to success as governments look to meet constituents' needs.

**What is an enterprise data cloud?**

Being data-driven requires you to support the full life cycle of your data, from processing and streaming real-time data from multiple endpoints at the edge to predicting outcomes and applying machine learning on that same data set. It means being able to take advantage of public cloud infrastructure for its agility and elasticity — and increasingly, its data gravity — as well as doing all of this on an open platform where data security and governance are applied wherever the data lives and wherever analytics run.

A true enterprise data cloud enables organizations to do these things. It lets you handle a hybrid multi-cloud, operating from your data center to the cloud, wherever your data resides. It supports the full life cycle of data and data management, from initial collection to enrichment and reporting. It enables a unified and consistent approach to managing security, governance and metadata across the environment. Finally, it provides an open platform that allows you to avoid vendor lock in — so you own your data and the insights it unlocks.

**How does an enterprise data cloud enable governments to move to a more data-driven, automated future?**

I'll use a public health crisis as an example, reflecting real challenges many state and local governments are currently facing. With any public emergency or crisis, most

agencies have new data continuously streaming from the edge and multiple other sources. They have to collect and shape all that data and make it useful for the people who need it. They have to store the different types of data, so they can effectively report it back to the decision-makers who must determine how to respond to concerns and deploy resources. Then they have to make information accessible to the public, regardless of the communication medium a constituent uses. Furthermore, agencies must predict what will happen next based on the data and make decisions on how to act. And importantly, they have to safeguard all this information from the edge to AI with one security and governance approach. An enterprise data cloud company can do all that for you.

**What should organizations think about as they address security and governance within a data-driven organization?**

Many government environments use multiple, disparate approaches. For example, the set of tools and approaches used to implement governance and security on-premises is completely different from what's used in the cloud or for different cloud providers. This fractured approach creates a significant amount of risk. To meet regulatory constraints, it's critical to consider solutions that let organizations apply unified data security and governance across multiple platforms.

**What preliminary steps can IT and business leaders take to build data pipelines from edge and IoT devices to the cloud?**

Gartner recently wrote in the *Harvard Business Review* that data analytics leaders must prepare for the complexity of multi-cloud deployments. To avoid things like performance issues, cost overruns and integration challenges, it's absolutely critical to implement an effective data strategy. Achieving that core will be a huge factor in their success.

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# Intelligent Data Management Prepares Agencies for a Data-Driven Future



**Mike Anderson**, chief federal strategist for Informatica, discusses how intelligent data management helps organizations fully embrace the strategic use of data.

## **What trends are you seeing around state and local government use of advanced data tools?**

A plethora of data is being generated throughout the enterprise. Governments need to utilize that data strategically to improve internal efficiencies and citizen services, yet a lot of the data is siloed and organizations don't even know they have it. We're also seeing many governments move their data and workloads into the cloud. They're seeking help to understand what data they have, what data and applications need to stay on premises and what can be moved, what processes need to be completely shut down and run in a software-as-a-service (SaaS) environment, and so on. Then they need easy access and visibility into that data, wherever it lives. Fortunately, a lot of the processes around these trends can be automated to help organizations achieve their goals.

## **What are the challenges of using advanced data tools in state and local governments?**

In one word: talent. Being able to manage and understand data and turn it into business insights is very complex at the practitioner level. Data scientists, data engineers, statisticians, chief data officers and other talent to do that kind of work is in short supply. Companies are now creating advanced data tools that can be used by folks who are

not data science experts to get the data they want, when they want it, so they can run analytics on it and make decisions based on the results.

## **Please discuss cloud modernization as part of an overall move to a more data-driven future.**

To take full advantage of modern technologies, you need your data in the cloud, where you can run very large analytics programs; however, many organizations can't move all their data to the cloud. That means they still need an on-premises data management solution to ensure their data is high-quality, integrated, catalogued and so on. At the same time, SaaS is key to a modern architecture. It allows organizations to access data management capabilities through a web portal while offloading the burden of maintaining, updating and patching software. That's really the future of intelligent data management.

## **What other solutions can help governments better leverage advanced data technologies?**

Automation will be an important component of this. For example, it's essential to automate data-quality assurance. A dashboard may present attractive facts and figures, but if the quality of the underlying data is bad, you'll get an inaccurate picture that may lead to poor decisions. Automated cataloguing is another key function. You need to be able to leverage metatags — data about data — to find what you need quickly. Finally, you need to master the data. That means being able to see all the data about a single person, place or thing so that you have an immediate and complete view without having to search for it.

## **How should data-driven organizations address data protection?**

Data protection is extremely important to maintain public confidence as well as comply with the European Union's General Data Protection Regulation (GDPR) and other requirements. Nefarious actors want to steal government data, especially PII. Lots of perimeter defenses prevent access to government systems, but organizations also need to wrap protection around the data itself so that PII isn't released to the public or bad actors. One way to protect data is to consistently and persistently mask PII. Organizations should also use automated processes to identify abnormal patterns of user behavior and automatically issue alerts when certain thresholds are reached.

## **What steps can agencies take to promote a data-driven culture?**

Having a broad strategy is vital. We recommend organizations set specific three- to five-year goals, and then create an implementation plan that makes those goals achievable. The plan needs to identify some specific value for government leaders, where they see the benefit of using analytics to improve decision-making. It's important to start small. Identify something that's a high priority for the organization. Apply the implementation plan and your data capabilities and tools to that problem and show how doing so offers value. If you keep doing that again and again, you're going to start changing the culture because agency leaders will see the value in the outcome of those data-driven efforts.



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# Automation Enables Governments to Address Growing Digital Risk



**Dan Carayiannis, RSA**  
Archer public sector director, discusses how government organizations can use automation and best practices to manage digital risk.

## How is digital transformation magnifying the scope of risk?

Digital transformation introduces new risks as organizations transition from legacy environments to new digital platforms and capabilities. For one thing, organizations often bring in third-party technologies and outside vendors as part of these transformation projects, so their risk footprint broadens. While the benefits of digital transformation may be great, agencies must understand, account for and mitigate the potential new risk factors being introduced into the enterprise. In addition, as governments deploy new technologies and capabilities that give citizens and employees easier and more pervasive access to information and services, they need to put in place stronger control processes around data privacy and security.

## How can automation help governments better manage and protect data?

As agencies accelerate their use of digital technologies and collect more data, it's no longer viable for human beings to understand and manage this risk manually given the sheer volume of information. Automation lets governments manage and protect data more efficiently and with greater visibility. We're seeing agencies move aggressively to platforms and technologies where they can automate,

assess and continuously monitor security around the data they manage.

## Please discuss integrated risk management and the role of data analytics, AI and automation in improving decision-making across IT and business groups.

Improving decision-making processes is a big part of mitigating digital risk. Integrating a risk management framework into an agency's culture strengthens its ability to understand and manage risk. Advanced technologies like AI and machine learning can help agencies quickly diagnose a situation or risk and then adjust as needed. In many cases, their decisions can be more immediate, thoughtful and deliberate because they have more complete information to draw on.

## How can governments help their cybersecurity teams adjust to the use of AI, machine learning and other advanced tools?

AI and machine learning can and will offer a wide range of cybersecurity capabilities. Training and expertise development will be huge aspects of leveraging these technologies so cybersecurity teams can react to threats faster and reduce the overall agency risk. As an intermediate step, some government organizations are leveraging third-party contractors with expertise in these areas to work alongside employees with the ultimate goal of performing this work in house. Other organizations want to leverage these new technologies and capabilities through outsourcing. Both approaches let cybersecurity teams take advantage of these new technologies.

## What else should governments consider in terms of managing digital risk?

They need to automate, update and maintain their resiliency plans, processes and controls to account for changes brought about by digital transformation. Existing plans may be built around legacy IT and analog technologies and processes. But today these plans need to cover possible risk factors introduced by new technologies and capabilities like third-party cloud services and contractors, for instance, that agencies may have adopted for data storage. Resiliency plans also should be updated frequently as agencies continue to modernize.

## Where should agencies start on the road to a more data-driven, automated approach to cybersecurity?

We strongly encourage organizations to adopt a risk management framework, such as the National Institute of Standards and Technology (NIST) cybersecurity framework. A risk management framework helps establish a common vernacular across the enterprise, so government leaders, IT personnel, application users and others talk about and understand risk in a similar way. These frameworks also include processes and procedures to assess, detect and mitigate risk. By leveraging these best practices, organizations can ensure their controls and security measures are followed in a consistent way.

In addition, we recommend leveraging tools such as RSA Archer to support the documentation and automation of compliance, risk assessment and continuous monitoring processes. As organizations continue their digital risk transformation journey, they need a tool that can help them visualize and understand risk. By implementing and standardizing on a risk framework across the agency and having a tool that provides the metrics and analytic elements that come through automation and continuous monitoring, government leaders can make better risk-based decisions.



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## ISSUES TO WATCH

**W**hen it comes to using data to enhance policy development and decision-making, few states can rival Indiana.

In 2014, then-Gov. Mike Pence released a ground-breaking executive order creating Indiana's Management and Performance Hub, a coordinated effort to provide centralized data sharing, correlation and analysis for the state in areas where multiple agencies must work together. When **Deward Neely** joined the state as CIO shortly after, he jumped at the opportunity to leverage data and analytics to tackle tough problems. The state's inaugural project — an effort to reduce the infant mortality rate (which had increased dramatically in recent years) — used data to better understand the problem and explore potential solutions. Next, Neely and team took a similar approach to better understand Indiana's opioid crisis. Under Neely's leadership, Indiana became a trailblazer in the use of data and analytics to address important issues. Though he's now moved on to a position with a nonprofit, Neely recently shared some of the lessons he learned while building a data-driven legacy in Indiana.

### **1 Find creative ways to generate leadership buy-in.**

Neely was fortunate that Indiana leaders supported a new, collaborative, data-driven approach to problem solving early on and made compliance mandatory. Unfortunately, getting buy-in for data projects is not always that easy.

"People generally support the idea of getting more out of data, but it can be hard to make it happen," he says. "We were lucky that the governor's executive order pushed his executive team, the Office of Management and Budget and our office to form a powerful alliance."

Resistance sometimes stems from fear that data will expose flaws or short-comings, so it's important to employ change management strategies and people skills to reassure state leaders and employees that the goal of data initiatives is to improve performance. Neely suggests starting with quick projects that demonstrate the power of data to change outcomes. Preferably, that project should



## Building a Data Legacy: 3 Tips to Get the Ball Rolling

also be high impact and meaningful. Indiana focused on infant mortality and the opioid epidemic — two significant problems that state leaders urgently wanted to address.

"Using data to focus on those types of problems was something everyone could get behind, and that helped justify the investment," says Neely. "Showing the success we had propelled us forward and made it easier to get support for later projects."

### **2 Trust in the technology.**

When Pence issued his executive order in 2014, analytics technology was much less mature than it is today. Now there are more solutions, including an abundance of niche technologies available to address specific pain points and growing reliance on flexible, cloud-based infrastructure.

"The success of data analytics over the years and the existence of more players in the market brought costs down and made the tools easier to use," says Neely. "You don't need a highly technical person anymore. That makes data-based projects much more palatable."

As technology tools become more user-friendly, people are more empowered to envision how data can be used to drive better outcomes. That in turn begins to change the culture. In addition, emerging technologies promise to make such projects even easier in the future.

"Technologies like artificial intelligence hold great potential for taking painstaking hours of work out of managing data sets and looking for trends," says Neely.

### **3 Understand the importance of clean, well-governed data.**

Perhaps the most important thing to remember is the outcomes of data initiatives are only as good as the data itself. That means it's critical to have strong data standards and data governance policies in place.

"As you start to pull data sets together you have to make sure the integrity is there and that you have experts available to clean up your data so you can get the most accurate results," says Neely. "Ultimately, if you can't trust the data, you can't trust the results."



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# Can You Get (All the Way) There from Here?

Transit agencies race to pioneer new trip-building modes using public transportation. **BY SKIP DESCANT**



One of the most persistent issues transit and transportation planners face is how to move their populations a mile or two. A few miles are often all that separates a rider's front door from a transit stop; or the distance from a transit stop to an office. It's the dreaded "first-mile/last-mile" conundrum. And it often means the difference between taking the train or bus into work, or driving the car, often unaccompanied, and contributing to increasingly congested highways and growing greenhouse gas emissions.

According to the American Public Transportation Association, every dollar invested in public transportation brings four times that in economic impact. So while it's true that transit agencies tend to require investments that aren't repaid in fares, an effective transit system does contribute to the economic vitality of a community.

Transit agencies large and small have launched many efforts to attract riders by making those first- and last-mile trips easier. It has often meant partnering with a private-sector transportation

provider like Via or a transportation network company like Lyft or, increasingly, a bike- or scooter-share operator.

Just over a year ago, transit agencies in Los Angeles and Seattle launched partnerships with Via, a provider of on-demand, shared transit. Riders engage with the service much like they would a ride-hailing app, while folks without access to a smartphone can dial a call center for service. The pilot programs were funded by the Federal Transit Administration.

In Los Angeles, the pilot covered service to three distinct zones, with each ride starting or ending at transit stations within the service zones. One of the larger overarching missions for officials at L.A. Metro, the region's transit agency, was reducing single-occupancy trips.

"If we're doing that — and this certainly can contribute to that — we're getting more people who used to travel alone to use alternative means," said Joshua Schank, chief innovation officer for L.A. Metro. "And our initial data indicates that we are.

"A lot of people who were driving alone and parking at stations are saying

they're using this," Schank added. "A lot of people who used to have a more cumbersome and long, challenging ride to stations are using this. Those are the types of metrics that we are looking at.

"Now, the question is, at some point, is it worth the amount of money we're spending to get those outcomes? And, from our perspective, this has been a real win on that front," Schank continued. "Because we've been coming in under budget. We have a partner that's been very flexible, that has tried to accommodate what we're trying to accomplish and really wants to work with us to meet those goals."

Ridership has grown from week to week, with only 100 to 200 rides per week in the initial few weeks. As word of the service spread, however, ridership picked up to 3,500 rides a week prior to the slow-down brought on by the novel coronavirus, which took ridership down to 1,300 rides a week. Riders don't pay when boarding, but instead pay their fare when transferring onto a connecting bus or train.

"It's taken a while for word-of-mouth to get around, for people to know about

the service. It definitely took time to grow that ridership. But it has been going up and up,” said Marie Sullivan, project manager for the mobility-on-demand pilot project. The program has expanded to now serve 10 Metro stations.

In Seattle, transit officials organized a similar year-long pilot with Via, connecting riders to five light rail stations. The pilot concluded near the end of March.

“The idea was to test the use of a transportation network company to provide first- and last-mile service, to make it easier for people to access our transit system, and to expand the access of those transportation network companies to populations who historically have been left out of being able to use on-demand services,” explained Casey Gifford, Innovative Mobility project manager for King County Metro.

The city of Seattle expressed interest in the project and contributed funding to expand its scope. Four of the five transit stops served by the on-demand service were located in Seattle, offering seven-day service at those four stations, 5 a.m. to 1 a.m., correlating with the service hours of the light rail system.

Ridership mostly followed the peak service seen during morning and afternoon commutes on the light rail system, and totaled about 1,000 rides per weekday.

“We also have a lot of youth who take advantage of the service. They’re using it to get to school, and get to jobs, and get to recreational opportunities.”

School-age riders also turned out to be frequent users of an on-demand shared transit program launched in Cupertino, Calif., in November 2019 as part of an 18-month pilot program, again using Via as the service provider.

“Generally, the community has been really supportive and happy with the program. The data we’re getting is really interesting. I think we went into this assuming it would be more something seniors would take advantage of, and maybe not the rest of the community as much. We’re seeing a really broad usage pattern,” said Chris Corrao, senior transportation planner in Cupertino, adding that a number of users of the program are



DAVID KIDD

turning out to be high-school-age riders who may use the service to get home from school or to afterschool events.

“Usually for these kinds of programs, you get the huge morning and afternoon peaks, and then sometimes quiet during the day,” said Corrao. “And we’re not seeing that at all. It’s just kind of busy all day, which is great. It’s expensive to run, so we want to make sure it’s as used as possible.”

The goal of the projects is to “leverage the transit infrastructure that these transit agencies have already built, and help bring more people to transit,” said Obinna Emenike, general manager of partners at Via, speaking during a panel discussion at the CoMotion LA conference last fall in downtown Los Angeles.

“Both of the services have been a success,” Emenike said of the projects in Los Angeles and Seattle. “I think we’ve hit every single one of the KPIs [key

performance indicators] that we laid out, and the service continues to grow.”

Capital Metropolitan Transportation Authority (CapMetro) in Austin, Texas, also partnered with Via to launch a new on-demand service now available in six zones, an expansion from one area back when the service was piloted two years ago. The expansion was due, in part, to the elimination of some of the fixed-route bus service following a system redesign, said Tony Lynch, supervisor of the Demand Response Planning department at CapMetro.

“Our Board of Directors requested that where we removed fixed-route, we have an alternative service,” said Lynch. “We determined Pickup was the best option for these locations. Each zone must have access to grocery stores and frequent fixed-route transit at a minimum.”

Ridership has grown since August last year, when it hovered around 80 to



L.A. Metro riders using the ride-sharing option don't pay a fare until they board a bus or train.

100 riders a day, to 400 to 500 a day — or sometimes slightly more — by February. It has slipped significantly since service was adjusted for the coronavirus response.

The service is designed to both connect riders with regular, fixed-route transit and offer transit within the service zone.

“We determined that the zones must have trip generators like grocery, retail, post office, parks and connections to frequent bus service,” said Lynch. “Initially it looks like the majority of trips are taken to grocery stores and connecting to other transit. Of course, some customers use the service to visit friends and family who live within a particular Pickup zone.”

Not all public-private transit partnerships are formed with traditional transit. The service created in Cupertino is an example seen in a growing collection of small communities — the Silicon Valley city, home to Apple headquarters, has about 60,000 residents — where on-demand transit is the only option.

Cupertino will contribute about \$1.2 million for its shuttle service.

“Which is no small amount,” said Corrao, “but it is significantly less than running a full community shuttle.”



The L.A. Metro pilot with Via has on-demand rides starting and ending at transit stations in three designated zones, reducing the number of people who drive alone to park at stations.



## Public Transit by the Numbers

**10B**

The number of trips that Americans took on public transportation in 2018.

**21%**

The percentage that public transportation ridership has increased since 1997. During the same period, the U.S. population has grown by 19 percent.

**430k**

The number of people employed by public transportation, a \$71 billion industry.

**6,800**

U.S. organizations provide public transportation services.

**45%**

of Americans lack access to public transportation.

SOURCE: AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

DAVID KIDD



CAPITAL METRO/BLOG

**Austin, Texas, offers on-demand Pickup service in six zones in the city, in conjunction with fixed-route buses throughout the area.**

In some cases, such as a proposal in Wilson, N.C. (pop. 50,000), communities are contemplating abandoning existing fixed-route transit service.

The city council in Wilson is considering a proposal to replace fixed-route transit service with an on-demand system operated by Via.

“It is very difficult to operate an efficient transit system without the economies of scale found in metropolitan areas, which is one reason most cities of our size do not provide public transportation,” said Grant Goings, city manager for Wilson, in a statement. “For years we have been looking for a technology-based solution that would increase our levels of service to the citizens while containing costs. We believe this public-private partnership provides such an opportunity.”

Other partnerships have formed between transit agencies and transportation network companies (TNCs) like Lyft or Uber. The Transportation Authority for Marin County, Calif., launched a program three years ago to provide up to a \$5 per ride credit for users of the Sonoma-Marina Area Rail Transit (SMART), a newly launched commuter rail service for the area north of San Francisco. The program was expanded this year to include two new SMART stations in an effort to grow ridership on the train as well as reduce congestion and air pollution.

Another pilot program that involved a partnership with both Lyft and Via to get riders to light rail stops in the Denver metro area in 2016 was ultimately discontinued due to the high cost of providing service that complied with the Americans with Disabilities Act.

Officials say measuring success for these programs — and continuing their operation — is based on a number of factors. And the coronavirus crisis represents the newest curve ball thrown at transit.

“We’re still working with our partners to determine what’s going to happen,” said Gifford at King County Metro, in an interview in early April. The future is less sure given “the new wave of uncertainty that’s come upon us pretty rapidly,” she added.

In Cupertino, ridership data from March and April showed that most users were no longer using the service to get to school or connecting to Caltrain stations like they had been.

“Now, all of our trips are, like, to Target and Whole Foods,” said Corrao.

“We almost considered pausing the program,” due to low ridership, he added. “But we decided, if people are using it, even if it’s a lot less, then we want to have the option for them.”

The city and Via have suspended shared rides in order to maintain physical distancing requirements.

In Los Angeles, Schank said Metro plans to explore other on-demand transit opportunities.

“Our partner remains the people who need it most,” he said plainly. “So that is always what we’re going to be looking for. Where are the places where first- and last-mile options are not great? And we’ve got economically disadvantaged communities we can serve.”

What the new era brought on by the coronavirus has demonstrated is the benefits of a system quick to respond to by-the-moment changes, said Sullivan.

“One thing that service has been able to show, in the midst of this crisis, is flexibility that is inherent in the service model,” she remarked.

In Seattle, ridership numbers are but one metric, said Gifford.

“We’re also looking at who is riding. And equity is one of our core components, or core goals, at King County Metro.”

One of the goals of the program was to serve disadvantaged communities as well as to ensure the service was accessible for riders of all abilities.

“We are also looking at sustainability and the safety of the service,” said Gifford, adding, “ultimately, we’re going to have to take into account the financial situation.”

And of course, all transit agencies are exploring any number of partnerships.

“We’re all about innovating and testing new ways to facilitate access to mobility for our customers,” said Gifford. “And we’re really excited to have more tools in our toolbox for us to leverage. We know that a 40-foot bus is not always going to meet the needs of all of our users, so we are all about testing a range of different mobility options for different populations, for different contexts, to see what works best for each community.” [gt](https://www.govtech.com)

# IN THE Arena



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# Websites in the Public Domain

As more and more services move online, a surprising number of governments don't encrypt their websites or use the .gov Web extension. Here's how it breaks down.

By Ben Miller / Associate Editor, Data & Business

If the Internet is going to bring government to the people, then online trust is crucial.

So a growing number of voices in recent years have been pushing the public sector at every level to take some simple measures to make their online presence more trustworthy. Two of those measures were the subject of a report that the cybersecurity firm McAfee produced in early 2020: website encryption and .gov URLs.

By all accounts, neither of those measures is close to full adoption among state and local governments.

Encryption, already the standard for websites, involves the security of data sent back and forth between a website and its users. Without encryption, it's possible for hackers to peer into that traffic, which could be an avenue for them to steal information. Since governments use the Internet to offer services to constituents, which can involve the transmission of Social Security numbers and credit card information, encryption is important. A Web

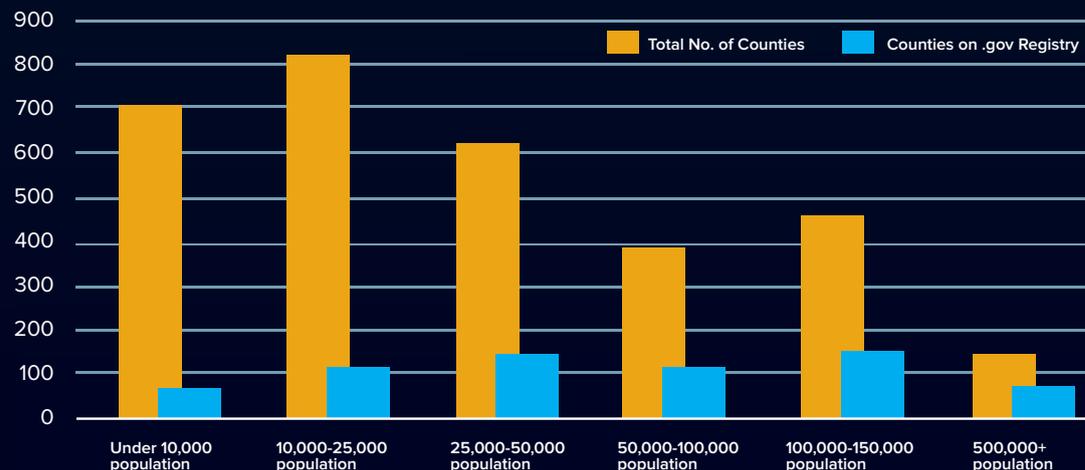
page that's encrypted will begin with HTTPS rather than HTTP.

The .gov top-level domain is the only one that's only open to government-validated users. The U.S. General Services Administration uses real-world processes to make sure that only government officials can register and maintain .gov websites. So a scammer could set up a fake website that mirrors a real government's content, but they couldn't do so with a .gov URL.

The McAfee research, as well as the work *Government Technology* did to expand on it, focused solely on counties, because of their importance in administering the 2020 elections. The McAfee research, in particular, examined all counties in 13 states that are likely to be electoral battlegrounds in the presidential race.

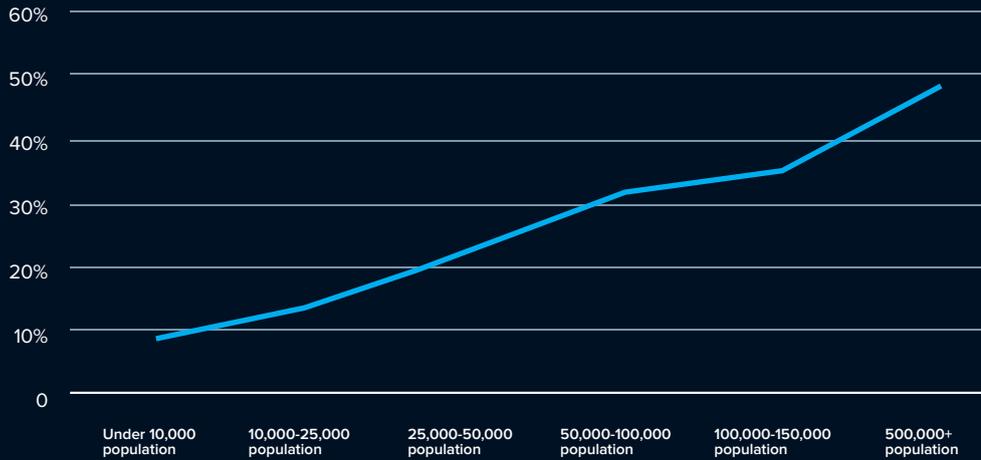
The data showed that population plays a big role in which jurisdictions take advantage of both encryption and the .gov program. Nearly half

## Which Counties Have .gov Websites? (all counties in U.S.)





## Percentage of Counties on .gov Registry



And the U.S. Senate is considering a bill, sponsored by Sen. Gary Peters, D-Mich., that would create grants and an outreach program to push more state and local governments to use the .gov program.

“What we see is when the federal government puts some money behind a grant for national purposes ... even if the amounts aren’t that large, it catches attention,” said Tom Gann, McAfee’s chief public policy officer. “It signals to states and local governments: You know, you really should think about this program and step up.” [Gt](#)

[bmiller@govtech.com](mailto:bmiller@govtech.com)

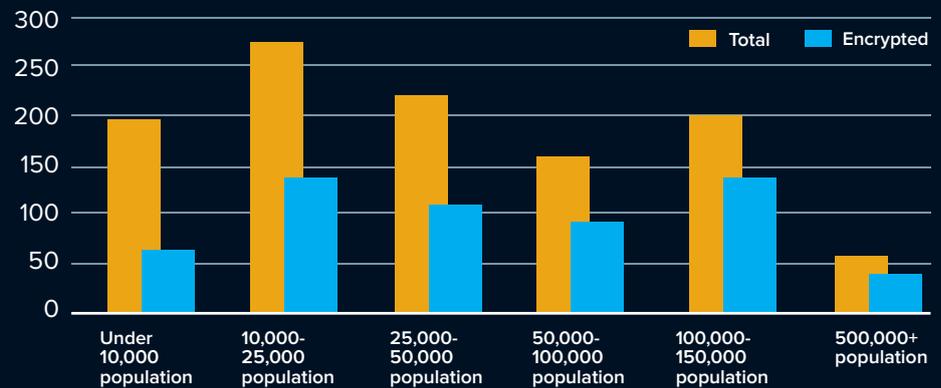
of counties with a population of 500,000 or greater have a .gov website, while only 10 percent of those with 10,000 or fewer residents do. About three-quarters of the largest counties in those battleground states have encrypted websites, while about one-third of the smallest ones do.

These results are a strikingly clear example of a long-understood truth about government technology: that larger jurisdictions tend to have more money, staff and resources to adopt best practices and new technology, while smaller ones often struggle to catch up.

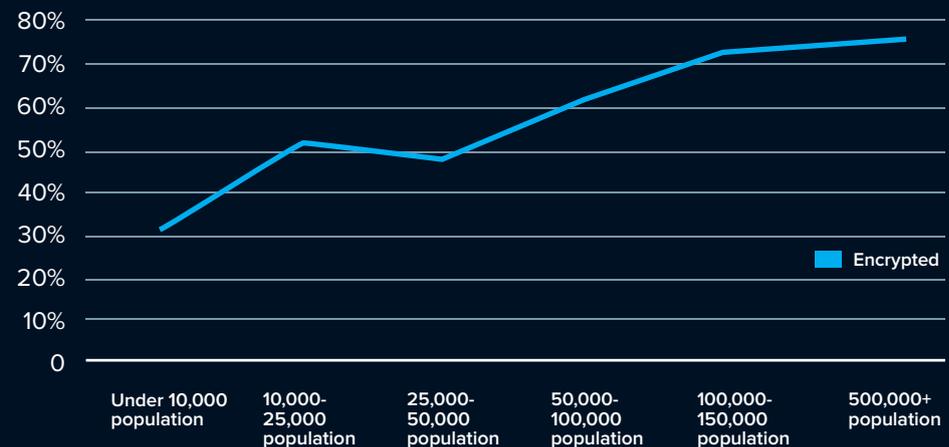
The data also found geographic discrepancies in HTTPS and .gov adoption. Only one South Dakota county out of the state’s 66 used a .gov website at the time of the research, for example, while 49 of Tennessee’s 95 counties did. In Iowa, 70 of the 99 counties had encrypted websites, while only 58 of Texas’ 254 counties did.

It’s likely these numbers would have been lower just a few years ago. In 2018, Google Chrome — the most popular Internet browser — started warning users that unencrypted sites were “not secure.” At the time, *Government Technology* noted that more state and local governments encrypted as Google made the change.

## Which Counties Have Encrypted Websites? (13-state sample)



## Percent of Encrypted Websites



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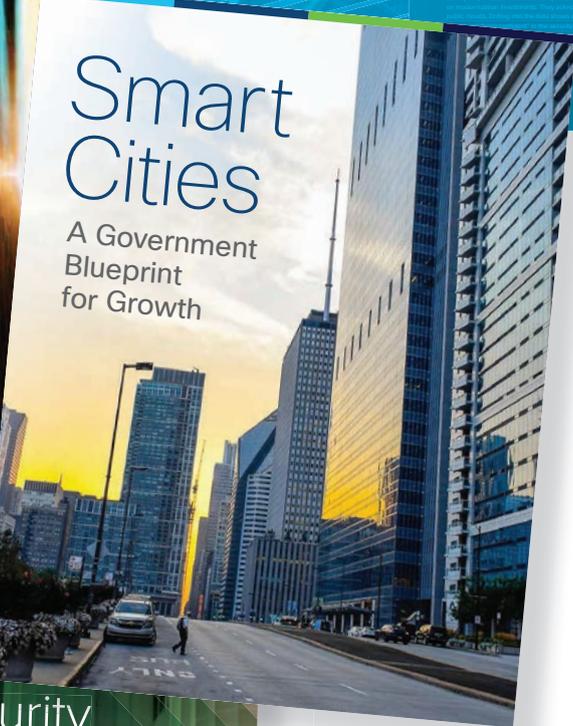
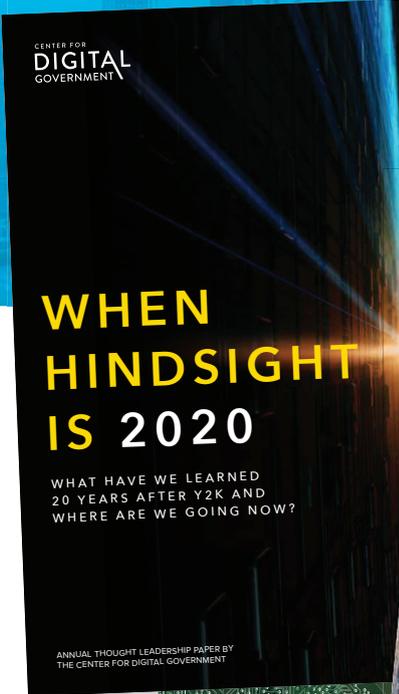
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# Reckoning

The coronavirus has exposed the vast potential of digital government, but were governments ready to deploy it when the pandemic struck?

By **Andrew Westrope** / Staff Writer

**W**herever government offices are shuttered during the pandemic, citizens who need to interact with them, for the most part, are doing so by phone, online or not at all.

For some communities, it's a moment that years of investment in digital services have been building toward. From business licensing and permitting to relief program applications and 311 service requests, the ability of government to operate online is suddenly more essential than ever, and at least a few of those governments — as well as companies that serve them — are seeing investments pay off in a historic time of need.

## What's Online and What's on Hold

Data on how different U.S. cities and counties weathered this storm may not be available for months or years, but anecdotally, some of the largest local governments are seeing a predictable wave of online traffic. For the city of Denver, spokeswoman Chelsea Warren said in an email to *Government Technology* that website page views from March 23 to March 30 increased 39 percent from the same interval in 2019. The city's new coronavirus subsite accounted for 12 percent of the total across various articles and resource pages, and the online services page, specifically, saw a 43 percent hike in traffic in March compared to this time last year.

As of the end of April, 80 percent of Denver's staff was working remotely,

excepting some involved with building plan approval, Community Planning and Development transactions, new employee onboarding and Denver County Court. Warren pointed out that some services had to be put on hold — adoptions at the Denver Animal Shelter, issuing new marriage licenses, vehicle renewals at the DMV, public libraries and event venues — but prior initiatives to make city services remotely accessible are helping.

"We launched our e-permits system almost three years ago, so our staff and most of our permit customers are already comfortable with online permitting," she wrote in late March. "We haven't seen any

# 100%

Web traffic to government websites increased by about **100 percent** between January and March.

SOURCE: CLOUDFLARE

significant delays yet due to COVID-19, and as of right now, we are still aiming for our standard two- to four-week review times.”

Warren said the city has been “extremely versatile and creative” to maintain services for residents, but its continuity of operations plan already included ways to make digital services as effective and available as possible.

At the state level, Colorado also announced new features recently to its citizen-facing myColorado mobile app, including access to COVID-19 information, additional DMV services, a state-wide job search, and driver’s license and ID renewal enhancements.

In Clark County, Nev., CIO Nadia Hansen said her office is focusing on digital engagement and social collaboration tools to maintain services, which is proving less difficult than it might have been had the city not already started preparing for telework.

“Clark County IT made a rapid transition to telework to ensure employees’ health and safety. We have been preparing for months, and the current situation forced us to move quicker than we had planned,” she wrote in an email. “We are promoting our digital services (electronic plans, online business license renewals, e-payment of property taxes and others) as the primary way for our constituents and residents to continue with their operations from the comfort of their home or office.”

Likewise in the city of Los Angeles, CIO Ted Ross said present circumstances have accelerated improvements the city was already making such as work-from-



# 85

According to NIC, more than **85** state and local government agencies in Maine were adding online capabilities to support additional transactions due to the pandemic at the end of March.

home capabilities, online plan checks and business permitting. He said very few of the city’s services are totally shut down, not least of all because his office has been working for years to make more apps accessible online, and because the city’s 311 call center already had a program in place that let employees take phones home with them. In a city with about 50,000 employees, Ross said he’s up to about 18,200 registered users on the “Connect to LA City” remote-desktop protocol platform his office set up for staff as of the end of April.

In terms of Web traffic, Ross said he noticed a “substantial” increase in Los Angeles residents using digital services in April, roughly 44 percent, and it seems every week has brought a new issue that drove people to the city’s websites and online services.

“We have been building and digitizing our operation, and then we had to put it on steroids when it came to dealing with the pandemic, but you can really support many thousands of users all accessing at the same time from home,” he said. “We’re glad to see that many of the investments we’ve been making are coming to fruition during a very difficult time of the pandemic and having to keep city operations going.”

In an email to *Government Technology*, NIC CEO Harry Herington, leading one of

**“We have been preparing for months, and the current situation forced us to move quicker than we had planned.”**

Clark County, Nev., CIO **Nadia Hansen**

the largest companies that helps governments build online services, noted the unprecedented load the past few weeks have put on these capacities. He said it’s not unusual to see an 800 percent spike in online traffic, and named two specific demands that have grown rapidly.

“First, online services themselves are supporting higher traffic to offset traffic that otherwise would have been supported by government offices that are now closed,” he wrote. “Second, government leaders are moving aggressively to further expand their digital services to carry an even larger transactional load. In Maine, for example, more than 85 state and local government agencies are adding digital functionality to support expanded transaction types and secure payments.”

Herington added that there’s been a dramatic increase in demand across every type of interactive service, especially business documents such as renewals, filings and payments. He said “smart” technology such as chatbots have come in handy too, pointing to Maryland as an example: The state added COVID-19 content to its chatbot in March and sessions went up more than 500 percent, including more than 7,500 conversations the day Gov. Larry Hogan ordered the closure of non-essential businesses. Herington said more than 40 percent of Maryland’s chatbot sessions occurred outside of business hours, and the service has a 95 percent user satisfaction rating.

New research on nationwide Web traffic between early January and late March, conducted by the Internet security company Cloudflare, also found a roughly 100 percent increase in use of websites it categorized as “U.S. government resources.”

## Resilience and Sustainability

Exactly what role digital services have played in each community’s resilience will be difficult to define, but the digital government company CityGrows released data at the beginning of April on the landscape of digital services prior to the pandemic. In the process of doing market research from December 2019 to February 2020, the company looked at the websites of 822 mid-sized U.S. cities, each between 40,000 and

175,000 people, and made a record of which online services were and weren't available to the public. The company decided to release the data recently in the public interest, "as a snapshot of the pre-coronavirus state of government digital services."

Granted, they were focusing on mid-sized cities, as opposed to larger ones that usually have more resources for online services. But CityGrows researchers found the only service offered online across more than half the communities they studied was 311. About 49 percent had board and commission applications online, 44 percent had dog licensing, 33 percent had building permits, 22 percent had business licensing and 17 percent had special event permits available online.

The study found geographic disparities as well: The West Coast showed a higher frequency of online service offerings, while the middle and southern states, and some upper New England areas, offered fewer online services at the municipal level.

So what should America's cities be learning from this moment in history? What kinds of online services are holding up under pressure, and which ones need investment? The CityGrows study stopped short of giving advice, but it laid out the stakes. In its conclusion, the study said the more that citizens and public staff alike can conduct business online in a transparent and accessible way, the more adaptable their communities will be.

"The coronavirus has given everyone a chance to experience what for many Americans is their everyday life. Whether due to mobility issues, disabilities or other circumstances, it's not easy for constituents to complete government services. For some, the requirement to print out and mail in a PDF is difficult simply because they don't have access to a printer. Through digitization, we have the ability to improve government accountability, efficiency and accessibility, and in doing so we'll also be positioning our communities to be better prepared for the unexpected," the study reads. "We anticipate that the coronavirus outbreak will accelerate the transition to digital services, largely to support the need for teams working from home and to increase resilience and flexibility for both constituents and government employees."

The prospect of acceleration was a common refrain among sources for this story. NIC's Herington applauded governments for launching hundreds of crucial services on short notice, but he said he was certain that a "new normal" lies on the other side of this pandemic, where daily functions continue whether offices are open or closed.

**"There's a lot to be said about being social and interacting with people and having embedded teams, but technology has become very progressive. You can accomplish a lot with a distributed workforce, and we're starting to see that in cities, counties and states."**

"The concept that government should be accessible 24/7, regardless of a citizen's ability to visit a government's office, is more of a reality than ever before," he wrote in an email. "Examples that we have seen very quickly embraced by citizens include the ability to process payments remotely, secure and renew licenses online, and even to secure donations and set up apps for unique and temporary needs in the matter of minutes. Rapid response tools, and the ability to build and provide needed services outside of normal office hours, are no longer a nice-to-have but a must-have for all government agencies."

Overseeing the digital transformation of one of the most advanced cities on Earth, Los Angeles CIO Ross embraced digital services long ago, but he's pondering a world in which everyone else has, too. He said governments everywhere are coming to the game-changing realization that most of their services, and staff for that matter, don't have to be tied to a physical

space. And given the potential effects of mass commuting on people's lives and the environment, maybe they shouldn't be.

"If there could be a silver lining to this very difficult time, it's that it's challenging our preconceived notions of how work has to get done. Only until you direct many thousands of people to telecommute do you realize just how much you can get done through Google Meet, how much you can accomplish when teams come together and separate off, and how little you require face-to-face interactions to get the job done," he said. "There's a lot to be said about being social and interacting with people and having embedded teams, but technology has become very progressive. You can accomplish a lot with a distributed workforce, and we're starting to see that in cities, counties and states."

In a way, this is getting at one of the oldest promises of digital technology. In a 1974 interview with ABC, Arthur C. Clarke predicted a moment in the 21st century when computers would make it possible for people to live in one place and do their business in another: "Any businessman, any executive, could live almost anywhere on Earth and still do his business through a device like this," he tells a reporter in an old recording, gesturing at a giant machine next to him. "It means we won't have to be stuck in cities. We'll be able to live out in the country or wherever we please and still carry on interactions with human beings, as well as with other computers."

Ross is now anticipating this status quo, with digital service delivery and telework at the crux of it — the intersection between a government that accommodates citizens and one that accommodates staff.

"I think people are going to realize ... 'Why do we have to do things the way we've been doing, and why have we tied work to a physical space when there are a lot of tools and capabilities that prevent that from having to happen?'" he said. "Imagine it's an earthquake or a fire. Something could physically happen to my call center, my building, and I could still run the operation. That's exactly where we want to be as a city. That's the resilience we're looking for." 



# Working Out the Kinks

There can often be more to virtual public meetings than meets the eye.

With social distancing being one of the keys to slowing the COVID-19 outbreak, local governments face the fundamental question of what to do about public meetings.

Some states, such as Tennessee and Nebraska, had to issue executive orders to allow virtual public meetings to occur. Assuming a government body is authorized to hold a virtual public meeting, how should it be done?

“There’s no one right answer to this, and the best solution for your municipality or governing body is something that you’re already familiar with, if possible,” said Brian Platt, business administrator for Jersey City, N.J. “Don’t try to copy a city that you think did it right.”

Platt contrasted the simplicity of his city’s approach with the “huge production” that was Miami’s virtual commission meeting on March 25. According to a tweet from CIO Mike Sarasti, Miami’s meeting involved tech from Zoom, Granicus, Qualtrics, Cisco and WeTransfer. Sarasti could not be reached for comment.

Louisville, Ky., had been using WebEx for virtual meetings before social distancing measures were put in place across the country. The city was in the middle of transitioning to a cloud version of the tool when COVID-19 struck, IT Director Chris Seidt said. The tech allows the city to continue holding its metro council, daily town hall and press briefing meetings.

Seidt said making sure people stay muted might be the single most important tip to keep in mind, which means that walking everyone through functionalities or sending tips and tricks beforehand is a must.

“When we tried to go off mute in the first press briefing meeting, we had about 20 people trying to go in at the same time and ask questions,” Seidt said. “It didn’t work very well.”

Seidt also suggests starting virtual public meetings a few minutes late. Meetings tend to be scheduled right on the hour, so allowing about five minutes to pass is a good way to avoid technical issues that may result from numerous organizations using a digital platform at the same time.

Testing is key to making sure things go off without hitches. Seidt said it’s unwise to hold a meeting where people will be logging into a system for the first time. This is especially true for officials who may have problems joining the meeting from home.

“We’re having them run some speed tests at their house and send us a screenshot just to make sure they have a good experience,” Seidt said.

Keeping the public connected is another challenge. Platt said Jersey City is changing how it handled citizen comments for its first virtual council meeting, where they asked individuals to sign up to speak via email or phone. During the actual meeting, Jersey City

would manually and individually call each person when it was their time to speak.

Unfortunately, not everyone answered their phone when they were supposed to.

“That was a little slower than we would have liked,” Platt said.

To remedy this limitation, Jersey City is experimenting with a method that would allow citizens to call in and be placed in a virtual waiting room.

Seidt said pumping content to residents through social media connectors is a great idea. Louisville has moderators collect questions on a Facebook Live feed and put them in the WebEx chat so that an official can address the concerns during the meeting.

“We’ve seen four or five hundred residents on real-time with Facebook,” Seidt said. He later added, “You want to put it on as many platforms as you can.”

Seidt added that Louisville worked with the metro TV channel to set up a picture-in-picture overlay so that citizens can see the meeting video with a sign language interpreter.

Security also cannot be overlooked. During a virtual public meeting in Kalamazoo, Mich., Internet trolls disrupted the proceedings with profanity and racial slurs.

“Making sure you have a secure platform with a password for the meeting is really critical,” Seidt said.

JED PRESSGROVE, STAFF WRITER



# 77%

The increase in website hits across the Internet in March as social distancing and/or shelter-in-place orders swept the globe, according to tech research firm Omidia.

SOURCE: FORBES



**6 FEET:** As shelter-in-place orders have become the norm and maintaining a 6-foot distance from others in public spaces the standard for combating the novel coronavirus, what has become clear is that social distancing in urban areas is no small task. In New York City, developer Meli Harvey designed a map using NYC Open Data that measures the width of sidewalks throughout the city and color-codes them based on how easily they allow for that 6-foot margin between pedestrians. The result confirms what New Yorkers anecdotally believed to be true: Keeping far enough apart to slow the spread of COVID-19 is easier said than done.

SOURCE: THE VERGE

**AI EDITING:** A new Web browser extension from Microsoft, called Editor, aims to ensure that what you're saying online is neither insensitive nor politically incorrect. Similar to an existing function in Microsoft Word, the AI-powered Editor will suggest an alternative to a gendered term: It may prompt you to type "police officer" instead of "policeman," for example, or "person with a disability" instead of "disabled person." The feature also flags potential plagiarism and works on popular websites like Facebook, Twitter and LinkedIn.

SOURCE: FAST COMPANY



## I Think I'm Paranoid

Smart assistants like Amazon's Echo and Google Home make it easy to do things like add to a shopping list or play music with a simple voice command, but what about all those things you don't

want your device listening in on as it scans for activation words? A tool called Paranoid hopes to make it a little more difficult for Alexa or Google to spy. It connects to a smart speaker and

prevents it from eavesdropping unless you tell it to. To disable the noise-blocking, say "Paranoid" before a device's regular activation command.

SOURCE: DIGITAL TRENDS

Send Spectrum ideas to Managing Editor Lauren Harrison, lharrison@govtech.com



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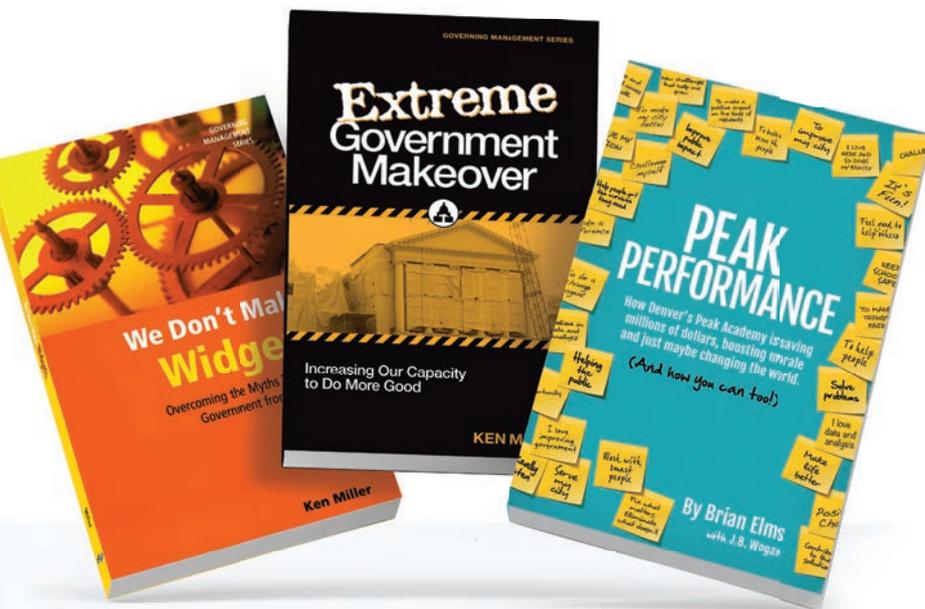
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# Looking Ahead

While the novel coronavirus shifted the nature of gov tech work virtually overnight, it will bring even more changes long-term.

**C** OVID-19 has permanently altered the course of government technology. Many projects deemed necessary in January have now been postponed or even canceled. Gov tech teams have moved mountains in the past few months to enable their co-workers to continue essential operations and work remotely in many cases — all while ensuring the public can continue to conduct business. 2020 has presented unprecedented challenges, but it's instructive to look ahead to how government teams will function differently going forward.

Suddenly, business continuity and emergency preparedness are front and center. In the past, continuity of operations plans often had to compete with more exciting and compelling initiatives for attention and funding. Leadership, elected officials and even the public will now place a higher value on disaster planning. Look for this shift to directly align with cybersecurity initiatives, which have frequently suffered the same fate as disaster

preparedness, but will also have newfound respect as bad actors continue to exploit the COVID-19 chaos.

In a pre-COVID world, skepticism and trepidation often accompanied discussion about state and local government employees working remotely. Working from home has now had its

moment and will mainly be here to stay. Recent studies have shown employees are spending more time working as they are spending less time commuting. It turns out that relying on specific buildings to conduct business is very risky. Cloud-based applications, virtual desktops and smartphones have transformed technology operations and made us more resilient and flexible. We've often thought about prepping for fires, tornadoes, flooding and other natural disasters, but a global pandemic was generally not on the radar from an IT perspective.

We will see a new focus and deep dive into technology finances and spending. Software and platforms that are not offering evident and significant impact to operations will come under financial scrutiny. Best practices like Technology Business Management that are already embraced at the federal level will likely be adopted more robustly in state and local governments. Single sign-on, multi-factor authentication and application programming interfaces will help IT shops manage sprawl, contain costs, and facilitate a more efficient and secure remote work environment.

Contactless payments and kiosks are also poised to make their mark in more government agencies. Some agencies are offering incentives for customers to sign up for electronic billing to reduce in-person and mail transactions, and collectors' offices will look to kiosks to reduce close interaction and provide better access. Many kiosks already accept credit cards

and cash to serve all residents, including those who are underbanked. Apple Pay and Google Pay will move from nice-to-haves to essentials. Digital payments, including app-based and SMS options, will continue to proliferate in the coming months.

City councils and county boards had to migrate quickly to video conferences and virtual formats in March and April. Eventually, those meetings will return to council chambers and board rooms, but they'll look for hybrid forms over the longer term, incorporating both in-person and video options. Hybrid meeting formats accommodate a broader audience and will foster more inclusive participation from our vulnerable stakeholders. These groups may not be able to venture out in public for a long time. Besides, while weeknight meetings might not be convenient for many residents, offering an online option may open public deliberations to new (and likely more moderate) voices typically not represented in person.

A viral tweet that made the rounds in late March whimsically asked a multiple-choice question: "Who led the digital transformation at your company?" The options were CEO, CTO and COVID-19. Of course, COVID-19 was the "correct" answer. It's funny, but also not far from the truth. Government agencies will need to re-invent themselves going forward. The upcoming months will provide an opportunity for IT leaders to continue to shine and shape the future of their organizations for years to come. 

**Luke Stowe** is the CIO and interim director of administrative services for Evanston, Ill. One of *Government Technology's* Top 25 Doers, Dreamers and Drivers of 2018, he works to bridge the gap between technology and business practices.

Todd Kimbriel



DAVID KIDD

## Texas CIO Retires from State Service

**Todd Kimbriel** retired from his position as Texas CIO on May 8. He headed the Department of Information Resources (DIR) since March 2016, having previously filled the role in an interim capacity. Current DIR chief technology officer John Hoffman will serve as interim CIO.

## Wyoming Fills CISO Role

**Timothy Walsh**, a longtime employee of Wyoming Enterprise Technology Services, was appointed to the role of state chief security officer in April. While his initial work in the position focused on ensuring security during COVID-19 as staff moved to telework, he cited workforce development and retention as long-term priorities. Walsh replaces former CISO Arlen Fletcher.

## Data Officer Departs Louisville

**Michael Schnuerle**, the first chief data officer in Louisville, Ky., announced he would be taking a new position as director of open source operations for the Open Mobility Foundation (OMF) in late April. Schnuerle served as Louisville CDO beginning in 2016 and cites his open data work there as a chief accomplishment. The nonprofit OMF is a coalition of cities, transit agencies and private companies working to set standards for mobility regulations and data collection.

## Idaho Seeks CISO

After **Lance Wyatt** stepped back from the role of Idaho chief information security officer to work for the state as an information security engineer, he was replaced by **Keith Tresh**. Tresh brings experience in the military and at the state and local levels, having previously served as CISO of California and Orange County, Calif., among other positions.

## New Innovation Officer for Boulder, Colo.

**Jennifer Douglas** was named Boulder's innovation and technology officer at the end of April. She joins the city from the Colorado Governor's Office of Information and Technology, where she was deputy chief customer officer. Douglas replaces Julia Richman, who left Boulder in February.



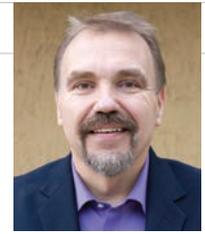
Jennifer Douglas

## California Governor Reappoints Tong

Having served as state CIO and director of the California Department of Technology since 2016, first in an acting capacity and then permanently, **Amy Tong** was confirmed to continue as state IT chief by Gov. Gavin Newsom in April. Tong was originally appointed by former Gov. Jerry Brown in June 2016.



Amy Tong



# Responding to a Crisis

Gov tech companies must adapt as we move forward through this and onto the next new normal.

**S**tartups serving government have come with a compelling value proposition almost every time: better, faster, cheaper ways to do the public's business. Their pitches were often buoyed by the momentum of early wins elsewhere, the boundless energy of charismatic founders dedicated to game-changing breakthroughs, and deep-pocketed funders that provided a sufficient runway to prove out the new business model and attendant technology (or vice versa), that ultimately turned skeptics into believers that a new kind of government was becoming possible.

The startup narrative was a source of hope and aspiration in government for years. That is, until March 2020, when the magnitude of the global change wrought by the novel coronavirus became clearer to a watching (but self-isolated) world. Beyond the human toll, job losses in the U.S. alone were counted in the tens of millions and the economic rescue plans fashioned in Congress began in the trillions of dollars. The world had changed in ways that made the future largely unfathomable. And startups, those nimble self-styled agents of change, were among the displaced.

Startup company responses to the conjoined health and economic crises in the face of COVID-19 took one of three forms.

**Pivot:** Established startups have been able to reposition themselves to help public agencies support remote work,

manage COVID-19 resources and spin up specialized service centers. Several companies in particular show promise in speeding delivery — including EVA, an infrastructure company that supports large-scale delivery drones that could have an important role in getting COVID-19 tests to the lab and blood plasma to where it's needed. On the ground, Coord has made some of its services available to cities for free in a frenetic scramble to adapt unused parking spots to handle surges in deliveries as needs change in public health and safety. Perhaps most strikingly, wastewater epidemiology startup Biobot Analytics has launched a program in collaboration with MIT, Harvard, and Brigham and Women's Hospital to solicit and analyze sewage samples from treatment facilities across the U.S. to test for the virus and measure the scope of the outbreak.

**Capitulate:** Bird and Lime, once two darlings among urban transit options, introduced fleets of sharable bikes and scooters to cities across the country until the funding ran dry. At the end of March, Bird laid off over 400 of its employees and a Lime investor said companies should expect to “survive on a budget of zero.” Even gov tech startups with multiyear government contracts acknowledge government agreements are a double-edged sword. On one hand, a contract provides stability. On the other, government is not universally known as a prompt payer. Incumbent players also concede that new customer

development and sales in the public sector are likely non-starters. Moreover, with 30 million startups in the country, it remains unclear whether the federal rescue packages will be sufficient to shore up gov tech or civic tech companies. Let's also not forget the distinct possibility that struggling startups are very likely to be targets of acquisition efforts — of the companies themselves, their intellectual property or their key talent.

**Reboot:** Government needs startups that treat the public's business as more than just another vertical. A shared commitment to a shared mission is a rare, valuable thing. Public agencies are ultimately the responsible parties in meeting fiduciary obligations for moving money and permissions under the law. But startups often bring creativity and flexibility to the execution of plans developed together with public authorities. These young, nimble and robust companies tend to wake the innovation within public service, helping it be better than it was while increasing competence, confidence and capacity.

In a post-coronavirus world — or in a world between the novel coronavirus and whatever the next global challenge is — neither government nor the private sector is equipped to go it alone. Nor is there a need for that. If we are deliberate and intentional, we have the chance to combine private-sector discipline and innovation with public-sector mission to create a world in which we can all live, thrive and figure out what the next new normal is. 

**Paul W. Taylor** is the chief content officer of e.Republic, Government Technology's parent company.



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