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SOLUTIONS FOR STATE AND LOCAL GOVERNMENT

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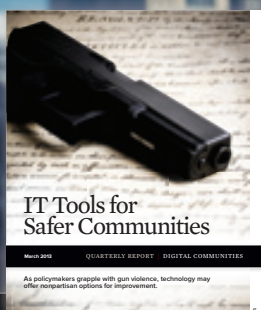
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By Government Technology staff

COVER PHOTO BY JESSICA MULHOLLAND



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Group Publisher: Don Pearson, dpearson@govtech.com

EDITORIAL

Editor: Steve Towns, stowns@govtech.com
 Associate Editor: Elaine Pittman, epittman@govtech.com
 Web Editor & Photographer: Jessica Mulholland, jmulholland@govtech.com
 Managing Editor: Karen Stewartson, kstewartson@govtech.com
 Chief Copy Editor: Miriam Jones, mjones@govtech.com
 Staff Writers: Hilton Collins, hcollins@govtech.com
 Sarah Rich, srich@govtech.com
 Senior Writer: Brian Heaton, bheaton@govtech.com
 Asst. Web Editor: Noelle Knell, nknell@govtech.com
 DC Editor: Wayne Hanson, whanson@govtech.com
 Editorial Assistant: Natalie August, naugust@govtech.com
 Contributing Writer: Colin Wood

DESIGN

Creative Director: Kelly Martinelli, kmartinelli@govtech.com
 Art Director: Michelle Hamm, mhamm@govtech.com
 Senior Designer: Crystal Hopson, chopson@govtech.com
 Illustrator: Tom McKeith, tmckeith@govtech.com
 Production Director: Stephan Widmaier, swidmaier@govtech.com
 Production Manager: production@govtech.com

PUBLISHING

VPS OF STRATEGIC ACCOUNTS:

Jon Fyffe, jfyffe@govtech.com
 Stacy Ward-Probst, ward@govtech.com
 Chul Yim, cyim@govtech.com
 Leilani Cauthen, lcauthen@govtech.com
 Arlene Boeger, aboeger@govtech.com
 Shelley Ballard, sballard@govtech.com

SALES DIRECTORS:

Leslie Hunter, lhunter@govtech.com
 Liza Mendoza, lmendoza@govtech.com
 Kenny Hanson, khanson@govtech.com
 Tracy Meisler, tmeisler@govtech.com
 Kim Frame, kframe@govtech.com
 Noel Hollis Hegwood, nhollis@govtech.com

ACCOUNT EXECUTIVES:

Gloria Leacox, gleacox@govtech.com
 Paul Dangberg, pauld@govtech.com
 Lara Roebelen, lroebelen@govtech.com

ACCOUNT MANAGERS:

Melissa Sellers, msellers@govtech.com
 Erin Gross, egross@govtech.com
 Stephanie George, sgeorge@govtech.com

BUS. DEV. MANAGERS:

Isaac Camero, icamero@govtech.com
 Maggie Ransier, mransier@govtech.com
 Carmen Mendoza, cmendoza@govtech.com

SR. SALES ADMINISTRATOR:

Christine Childs, cchilds@govtech.com

SALES ADMINISTRATOR:

Alexis Hart, ahart@govtech.com
 Vonna Torres, vtorres@govtech.com
 Kelly Campbell, kcampbell@govtech.com
 Amanda Leal, aleal@govtech.com
 Sara Sheller, ssheller@govtech.com

Sr. Dir. of Sales Operations: Andrea Kleinhardt, akleinhardt@govtech.com
 Sr. Dir. of Cust. Events: Whitney Sweet, wsweet@govtech.com
 Dir. Custom Media: Jeana Bruce, jbruce@govtech.com
 Dir. of Web Marketing: Zach Presnall, zpresnall@govtech.com
 Web Advertising Mgr: Adam Fowler, afowler@govtech.com
 Subscription Coord.: Eenie Yang, subscriptions@govtech.com

CORPORATE

CEO: Dennis McKenna, dmckenna@govtech.com
 Executive VP of Sales: Don Pearson, dpearson@govtech.com
 Executive VP: Cathilea Robinett, crobinett@govtech.com
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 VP of Events: Alan Cox, acox@govtech.com
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Saluting the Change Agents

Welcome to *Government Technology's* 2013 “Doers, Dreamers and Drivers” issue — our annual salute to the men and women who truly make government more efficient, more effective and friendlier to the citizens it serves. Since 2002, this issue has been our way to recognize the hardest working and most innovative individuals in the public sector.

Those qualities may be more in demand today than ever before. After years of grinding recession, budgets are bouncing back. But there's a backlog. Maintenance was deferred, upgrades were delayed and new projects were put on hold. Where new initiatives were launched, many centered on server consolidation and other cost-cutting measures. That's important work — and much of it still continues — but this year saw growing demand for game-changing innovation.

Our Top 25 for 2013 truly are changing the game. State CIOs like Colorado's Kristin Russell, California's Carlos Ramos and Minnesota's Carolyn Parnell are moving applications into the cloud and unveiling new mobile services. Elected leaders like Michigan Gov. Rick Snyder and Newark, N.J., Mayor Cory Booker are leading modernization plans and using technology to remake the relationship between government and constituents. And others are at the forefront of issues such as strengthen-

ing cybersecurity, building a smart electrical grid and creating a nationwide communications network for first responders.

Over the past year, we've seen a tremendous amount of energy and activity around innovation — and these are the people who are leading the charge. A few years ago, it would have been rare to hear state and local technology leaders say they want to give up their data centers. Now it's fairly common and growing more so every day. Similarly, more agencies are figuring out ways for employees to use their own sophisticated mobile devices at work — a move that makes employees both happier and perhaps more productive.

Forward-looking communities are nurturing technology businesses by partnering with software entrepreneurs. These arrangements are driving economic development and often delivering useful data-driven apps for citizens. And evolving sensor and analytics technologies are opening the door to smart infrastructure and sophisticated decision modeling.

In all, it's an exciting and important time to be in the technology field. These trends will impact the lives of constituents and the success of communities. And our Doers, Dreamers and Drivers are helping to shape their outcome. **GT**

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AN AWARD-WINNING PUBLICATION





Service Virtualization

+ Streamlining Development
of Complex Applications

Introduction

Software development projects, including those conducted by government organizations, are difficult and often pose risks. Many of the challenges stem from unmanageable constraints on the development environment that result in poor system performance, excessive system defects, an unpredictable system delivery schedule and total software development costs that can skyrocket.

Applications today are extremely complex. Created in multi-platform, distributed, service-oriented environments, they involve the exchange of information among many interdependent components. Often, those components have been developed using different technologies and are owned and managed by different organizations.

When members of an IT team create new software or update an existing application, they need to make sure each component of the new product will interact correctly with the full array of dependent systems. Those include other components of the same application as well as many external systems.

Unfortunately, developers often have trouble gaining access to dependent systems, or else their access is severely limited due to scheduling conflicts or costs. When this happens, the project team members must wait until all the pieces come together in a complete application before they can conduct meaningful tests. More often than not, such late-stage tests reveal huge numbers of flaws. Resolving those errors and retesting — and often repeating the cycle many times — can push projects far beyond their deadlines and costs far over budget. It can even make a project fail completely.

Developers today have a new strategy available to shorten the software development cycle and control development costs. Called service virtualization, this strategy involves capturing and simulating the behavior, data and performance characteristics of dependent systems in virtual services. Developers then use those services to conduct transactions just as though they were dependent systems, and without any constraints. Teams employing service virtualization can potentially shorten the development lifecycle by 25 to 50 percent, start debugging sooner and lower costs for their organizations.

Service virtualization is a promising tool for providing appropriate testing environments and improving software quality, says Chris Cruz, chief information officer (CIO) at the California Department of Health Care Services (DHCS). “It meets DHCS’s objectives with minimal investment, with a significant cost saving.”

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The Challenge: A Web of Dependencies

Government organizations at all levels come under continuous pressure to deliver new services and re-engineer old ones to make them more efficient and cost effective. Since nearly all government services these days rely on information technology (IT), software development teams in the public sector come under continuous pressure as well — to add new features, or create complete applications, as fast as possible.

The large, complex applications governments use to conduct all manner of business involve a great number of dependencies. Software components within an application exchange information constantly, and many of them exchange data with external systems as well. For example, within a human resources (HR) management system, a module for enrolling an employee in a health insurance program might ask a master employee database, housed

California DMV: Taking Total Control

CALIFORNIA'S DEPARTMENT OF MOTOR VEHICLES (DMV) employs approximately 250 IT professionals to develop applications that support core functions such as licensing and vehicle registration.

The DMV's processes rely on data from other organizations such as the Social Security Administration, the U.S. Commercial Driver License Information System and the National Crime Information Center. That creates serious challenges for software development and testing. "It's always a challenge to coordinate with or simulate these external systems," says Steve Westerman, chief information officer (CIO) at the DMV. "In some cases, we are only given a very small set of data to test against — too small for us to test from a business logic or performance perspective."



STEVE WESTERMAN

STEVE WESTERMAN,
CHIEF INFORMATION OFFICER,
CALIFORNIA DEPARTMENT
OF MOTOR VEHICLES

Gaining access to the DMV's testing environment, housed on a mainframe in the state data center, is a major challenge as well. Because the DMV shares that mainframe with other state organizations, developers can't

access all the resources they need for thorough testing, and they often must schedule their tests outside regular business hours. Using the mainframe is also expensive. "It costs \$700,000 to \$1 million a month, in some cases," Westerman says.

While in the midst of a five-year project to modernize the DMV's core applications, Westerman and his team had the chance to test the CA LISA Service Virtualization solution. They were so impressed, they started using the solution to build a



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"mainframe-in-a-box" to support their IT modernization effort.

Thanks to CA LISA, DMV's developers no longer have to rely on others for their testing resources. "We can build as many records as we feel are necessary to support our testing efforts and are no longer constrained by limited test data or timeframes," Westerman says.

To replace the testing environment on the data center's mainframe, the DMV has created a service virtualization server on a Windows platform. "We are now in the process of virtualizing about

"With service virtualization, you can take total control. It's going to enable us to improve the quality of our DMV systems and also expedite our time to go live."

— Steve Westerman, Chief Information Officer, California Department of Motor Vehicles

110 interfaces between the driver's license application and the back-end mainframe system," Westerman says. He expects his department's costs for mainframe usage to drop by 50 to 60 percent.

CA LISA also will eliminate the need to create mocks and stubs — simulating

external data stores for testing, and internal data stores for use in training employees.

"With this product, we have already created an interactive training system," Westerman says. New employees use it to run transactions just as though they were operating on a live system. If they have to repeat a module, there's no need to call a programmer to restore the simulated database to its original condition.

In addition, service virtualization will play a key role in the DMV's plans to create a Testing Center-of-Excellence program. Because they'll be using CA LISA, experts

in that program won't need to coordinate with outside entities in order to conduct tests, and they will command a truly robust testing environment.

"With service virtualization, you can take total control," Westerman says. "It's going to enable us to improve the quality of our products and also expedite our time to market."¹

in an external mainframe, to return an employee's name, address, social security number and other personal information. Once the enrollment system captures all the data it needs, it might transmit that information to the insurance provider's system, and then receive a confirmation.

When a developer designs a new piece of software, it's essential to validate that transactions with other assets behave exactly as expected. Consider, for example, a team that is developing a mobile application for Child Protection Services (CPS) caseworkers. This application needs to exchange data with the case management system at the Department of Health. The best way to know if these two systems will interact correctly is to use the case management system in the test. But for many reasons, that might be impossible. For example:

- + The case management system resides on a mainframe with one shared test partition. The department that owns that mainframe makes that partition available to the CPS team for only a few hours a week.
- + The test environment built into the case management system is only one percent of the size of the actual system in production, so it won't give the mobile application anything close to a sufficient workout.
- + Getting permission from the Department of Health to use its case management system in a test could take as long as three weeks.
- + The case management system itself is still under development.

+ Delaying tests until the end of the development cycle is a lot like building an aircraft in a world without flight simulators or wind tunnels. Imagine if a manufacturer built each component of a new airliner — fuselage, wing, rudder, tail and the rest — but never tested any of them until after workers assembled the craft and found someone to take it into the air.

Developers often try to get around such constraints by “mocking” or “stubbing” — writing code to create a software stand-in for one system that exchanges dummy data with another. The team working on the CPS application might build a stub to stand in for the Health Department's case management system. The stub would include a few responses of the sort that the case management system would return in live operation.

To create a useful test environment, the mock or stub must be able to return one type of reply for each scenario that the new software presents. Creating mocks and stubs that address all the logical paths in the new software is a time-consuming, costly process. Tests using mocks or stubs also set up developers for problems with integration, defects and scalability late in the development cycle.

Without a realistic stand in for dependent systems, there's no way to test software components before integrating them in a full application. But delaying tests until integration is a lot like building an aircraft in a world without flight simulators or wind tunnels. Imagine if a manufacturer built each component of a new airliner — fuselage, wing, rudder, tail and the rest — but never tested any of them until after workers assembled the craft and found someone to take it into the air. Giving an application its first rigorous validation only after final assembly almost guarantees a crash.

Traditional approaches to software development in a distributed environment can kill productivity in several ways. Teams may spend inordinate amounts of time waiting for external resources to become available. That's the case, for example, at the California Department of Motor Vehicles (DMV), where software developers rely on test environments housed on mainframes, in the state data center, that other state organizations use as well. “The amount of time it takes to prepare and coordinate with these external entities has become a key constraint for us,” says Steve Westerman, the DMV's CIO.

+ Traditional approaches to software development have killed productivity for the California Department of Motor Vehicles. CIO Steve Westerman says, “The amount of time it takes to prepare and coordinate with these external entities has become a key constraint for us.”

California Department of Health Care Services: Boosting Quality, Meeting Deadlines, Cutting Costs

AT THE CALIFORNIA DEPARTMENT OF HEALTH CARE SERVICES (DHCS), the IT department's project portfolio amounts to nearly \$1 billion. Among many other initiatives, software developers there are working to modernize the Medi-Cal Eligibility Data System (MEDS), rebuild the California Medicaid Management Information System and create systems to support California's new health benefits exchange.

These initiatives put tremendous pressure on IT resources. "The work keeps coming, the challenges keep coming, but the opportunities to get more money seem to be diminishing," says Chris Cruz, chief information officer (CIO) at DHCS.

To help meet the demand to accomplish more with less, DHCS will soon implement a pilot of CA LISA Service Virtualization. With the new technology, Cruz expects that his team will be able to streamline software testing, get new software into production faster, improve quality and cut development costs.

Today, developers at DHCS create mainframe-based testing environments for their own use, and for use by partner agencies within the California Health and Human Services Agency (HHS), whose own systems require data from DHCS. "Building multiple environments to support all these testing efforts is not something that the department can support long term," Cruz says. By employing service virtualization to build a

single testing environment for the enterprise, DHCS can save time and labor and better serve the state's software development needs. "We see service virtualization as a way to leverage these statewide systems so they can test against our system with reduced constraints," he says.

Service virtualization also will let DHCS expand its testing capabilities without breaking its budget. "I don't want to take 10 mainframe LPARs (logical partitions) to support testing," Cruz says. "I'm looking to service virtualization to allow

"I'm looking to service virtualization to allow me to do more with what I have, without setting up multiple environments across multiple servers."

— Chris Cruz, Chief Information Officer, California Department of Health Care Services

me to do more with what I have, without setting up multiple environments across multiple servers."

In large integration projects, problems tend to multiply when testing occurs too late in the development process. "Right now, we do a lot of testing at the end of the lifecycle, and that's when a lot of defects come out," says Cruz. "Usually, those critical defects impact the timeframe for going live." As projects miss their deadlines, they also rack up greater costs and demand more resources than expected.

By letting developers "shift testing left," service virtualization reduces that risk.



"If I can allow my development teams to do mini-integration testing earlier in the system development lifecycle, so they don't have to wait until formal integration testing to identify and remediate defects, we'll do

better at producing quality products," Cruz says. "We'll have fewer issues and will be able to put systems into production much sooner, within our allocated timeframes."

As the largest Medicaid operation in the U.S., DHCS needs to become as efficient and as cost effective as possible. Service virtualization will help it meet that goal.

"I'm looking forward to seeing how the pilot goes and what efficiencies we can gain in the future to introduce this into our system development lifecycle," says Cruz, "not only at DHCS, but eventually across our entire HHS."²



CHRIS CRUZ, CHIEF INFORMATION OFFICER, CALIFORNIA DEPARTMENT OF HEALTH CARE SERVICES

CHRIS CRUZ

Teams may also spend more time than necessary creating and modifying mocks and stubs. Or they may spin their wheels while waiting for other teams to complete dependent components, losing the chance to enjoy the benefits of agile development. Without good options for early testing, teams will identify flaws much later in the development cycle, making corrections more difficult and costly.

Service Virtualization: A Wind Tunnel for Software

Service virtualization captures and simulates the behavior of constrained or unavailable systems realistically enough to create a fully effective testing environment. A low-cost virtual environment that is always available on demand permits development teams to “shift testing left,” so they can deliver high-quality software sooner, with less down time and less project risk.

Some people call service virtualization a wind tunnel for software. When they put a wing, tail or other component of an aircraft in a wind tunnel, engineers place the same stresses on that component as it would encounter in flight. The simulation is so true to life, it reveals flaws in the design of the part long before mechanics assemble the plane. Service virtualization simplifies software development in much the same way. By providing reliable stand ins for constrained assets, it allows IT teams to spend their time perfecting each component or application under development — not on cobbling together a facsimile of the entire web of underlying systems.

Since 2007, major companies such as Best Buy, DirectTV and Cox Wireless have used service virtualization to streamline projects and reduce costs. Government organizations are also starting to realize the benefits of this approach.

How it Works

A service virtualization solution such as CA's LISA operates through a three-step process:

- 1. Capture:** The solution deploys a “listener” to any spot where traffic or messages are flowing between any two systems. It records the data that passes between the current version of the application under development and a downstream system that the development team wants to simulate. If the service is not available, engineering specifications may be used to create new services.
- 2. Model:** The solution takes the captured data and, using sophisticated algorithms, correlates it into a virtual service. This is a “conversation” consisting of requests and responses so much like requests and responses in the real world, they provide a useful environment for development and testing.
- 3. Simulate:** Once the solution has created all the necessary virtual services, the development team uses them as needed to stand in for downstream systems. Each virtual service responds to requests with appropriate data just as the real component would do. But it provides those responses much more predictably than a real but constrained system could, and with lower setup and teardown costs.

The virtual service does not simply replay a recorded sequence of requests and responses. Rather, it simulates the behavior of the component it was built to represent, supporting the validation scenarios required to guarantee the functionality of the component under test. The virtual service must contain enough dynamic logic to support the full range of usage scenarios needed to conduct a valid test. It should

The Four Essential Service Virtualization Capabilities

Essential Capabilities:	Supporting These Critical Success Factors:
1. Provides development with a more “live-like” environment	Higher quality development and more effective regression/ system testing
2. Enables parallel development and testing	Reduced cycle times, earlier defect discovery, efficient use of resources
3. Virtualizes test data for out-of-scope dependencies	Faster setup/teardown, more stability for test automation
4. Supports heterogeneous technology and platforms	Better realism and quantity of performance testing at dramatically lower cost

+ Developers using service virtualization discover 60 to 90 percent more defects at least one step earlier in the development process.

resemble the live system closely enough to make upstream applications and test users think they are interacting with the real thing for most needed scenarios.

Service virtualization allows development teams to create and test software in an environment operating very much like a live, fully integrated IT system. This environment includes data for “out-of-scope” systems — systems not part of the

development effort but necessary to support the operations of the new software. It allows teams to “shift-left” much of the development process, conducting many steps in parallel instead of sequentially, and completing them earlier in the project lifecycle. In addition, service virtualization provides the benefits of a complete environment without the need to bring in a great deal of external hardware and software for use in the tests.

Faster, Better, Cheaper, Safer

Service virtualization can reduce the time required to create applications or application features by 25 to 50 percent. Many of the gains occur because developers can conduct valid tests and correct flaws while they are still developing components, rather than waiting for the user acceptance testing stage. Building quality into the product early reduces the need for data setups and resets by as much as 90 percent.

Teams using virtual services see lower project costs because they no longer have to bring expensive hardware and software into the development and testing lab. This new strategy also ensures better performance when a system goes live, as developers using service virtualization discover 60 to 90 percent more defects at least one step earlier in the development process. And these improvements reduce the risk that development projects will run past their deadlines or over their budget.

CA's LISA Service Virtualization solution provides many benefits of special interest to government organizations. One is the ability to develop a “government agency in a box” — a series of virtualized interfaces and services that other agencies or vendors can use to make

sure that the systems they develop are consistently interoperable.

Service virtualization also helps to enhance security for government IT resources. For example, it allows IT teams to develop and test their applications without exposing live systems or data to potential cyber threats. It permits development teams to work without disrupting the operation of essential information systems. And it helps developers to safeguard new applications, allowing them to test a full range of data transactions, including some that might create disastrous results if they did not operate correctly.

Conclusion

The future will bring ever-greater demands for government agencies to collaborate in their work and to share resources, including information systems. That trend will make the application development environment even more complex than it is today.

Development teams will have to meet more difficult software challenges than ever before, and do it fast and flexibly, all while holding down costs. Service virtualization will help to ensure their success.

Endnotes

1. Interview with Steve Westerman conducted on Jan. 17, 2013.
2. Interview with Chris Cruz conducted on Jan. 24, 2013.

For more information about service virtualization, visit www.ca.com/us/products/service-virtualization.aspx





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Let's Eat

A new partnership between **San Francisco and Yelp**, the popular restaurant review site, gives local diners one more thing to consider before they place an order. In late January, Yelp began adding city health inspection scores to the reviews of area restaurants. All San Francisco restaurants on the site were expected to have health scores listed within several weeks, said Jay Nath, the city's chief innovation officer. Similar efforts also are under way in New York City and Philadelphia.



64_k

The increase in the number of bus passengers from 2011 to 2012 in Concord, N.C., after the city added amenities like a real-time, bus-tracking app and onboard Wi-Fi.

Quick Thinking

When Hurricane Sandy hit the East Coast in October, local GIS guru Len Bundra quickly concocted an interactive map showing damaged areas in the region. Bundra — head of IT and GIS operations for the Toms River, N.J., Municipal Utilities Authority — integrated his agency's Esri-based mapping system with National Oceanic and Atmospheric Administration satellite data to visualize information from multiple organizations. The free online map gave emergency responders a common reference for targeting relief efforts.



WHO SAYS?

"I think it's really interesting to think about how access to information can change behavior and can produce better results."

www.govtech.com/health/San-Francisco-Posts-Restaurant-Health-Inspection-Data-on-Yelp.html

TOP-TWEETED STORIES

Using Social Media to Enhance Situational Awareness



Top 2013 Cyber-security Predictions



Catching Criminals on Pinterest?



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2,641 VIEWS

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2,183 VIEWS

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2,146 VIEWS

Least read stories online:

4G, 5G and the Future
362 VIEWS

Arlington National Cemetery Offers Mobile App
226 VIEWS

Vigilant Network Monitoring Recommended for Public-Sector Cybersecurity in 2013
225 VIEWS

“I believe at some point posting photos of wanted persons will backfire. The laws are not keeping up with the technology. A newspaper is available for a finite period of time to certain people of a certain area. Now we are posting pictures of people who have been charged but not convicted, and if they are found not guilty or were wrongly accused, that picture will forever be linked to that article about the arrest.

Joe in response to Catching Criminals on Pinterest?

“‘Shaming for dollars’ might help with the \$500 million-plus problem of property tax delinquency in my big city. It seems like it would be very easy and inexpensive to implement online, and even if it only helps a little then perhaps it would still be very much worth the effort. Add a dose of local publicity and news coverage to such a measure and it might yield a nice little chunk of additional compliance.

Philly Guy in response to Using Social Media to Enhance Situational Awareness

“Oh, a few of us can still clump the walker over and tap out a few lines. I just started yet another site — this one on creativity — <http://thwim.blogspot.com> — and read you and other government mags and sites for creative initiatives. How hip is *that*? Do you kids still say “hip”?

Star Lawrence in response to Baby Boomer Blogger Breaks Government Stereotypes

“There just is not a financially responsible way to open all the data at once. We have to start somewhere. And it is a better use of public funds to cherry-pick based upon potential value. It amazes me that so many people think we can just make it happen. Even the volunteer organizations that focus on open data will cherry-pick a few data sets to work on.

Diana in response to Transparency: What to Consider Before Releasing Data to the Public



Lydia Murray
CIO, Cook County, Ill.

COOK COUNTY OFFICE OF THE CIO

Lydia Murray became CIO of Cook County in July 2012. Murray previously worked at the Civic Consulting Alliance, a Chicago nonprofit that organizes pro bono teams of business experts and government leaders to tackle quality-of-life issues. At the alliance, Murray served as project manager of city-county collaboration efforts that saved \$34 million the first year. Government Technology asked Murray about collaborative projects between Cook County and the city of Chicago, as well as the changing role of the CIO.

1 What projects have you worked on since joining Cook County? It's everything from implementing a new ERP system at the county to coordinating with our homeland security office to have a robust disaster recovery plan. Another huge initiative is implementing broadband throughout the county. We're bringing in high-speed fiber by working with Chicago

and the Chicago Transit Authority, joining our fiber together to bring high-speed Internet to the hospital systems. Later in 2013, we're going to bring high-speed fiber to our court and jail facilities.

2 Have your experience and connections as deputy chief of staff to former Mayor Richard Daley been

useful now that you're county CIO? Yeah. Historically the city and Cook County haven't collaborated on much of anything, [although we] share a building. That is something that has certainly changed since [Cook County Board President] Toni Preckwinkle has come into office and Mayor Rahm Emanuel has taken over. I have a weekly meeting with the CIO of the city. We've committed to one another that we're not making technology investments without working together [or checking to see if it's] an opportunity we should do together. My predecessor started a number of initiatives with the city and we're trying to accelerate those.

3 Can you share some of the collaborative projects that Cook County is working on with Chicago? The city had moved its mainframe to a private-sector vendor and the county was still managing its own mainframe system and so the county used the city's contract with its mainframe provider to share those services. Right now, we're focused on doing a joint procurement for help-desk and desktop and network support services. We think we can get economies of scale by bidding out services jointly rather than having separate vendors or services for that. We are issuing a joint project for GPS tracking. The city has robust GPS tracking but it was a home-built system and they are bidding out their GPS. The county has never had GPS tracking and so we're bidding it with them, again for economies of scale. We're making our dollars go further and saving some money by working together.

4 How do you see the CIO role changing as we head into 2013? CIOs have moved more to getting vendors to provide things that are commodities where before they had to provide those services directly. That's going to accelerate. You need to figure out what you're good at and what is needed that is not a commodity and focus on that and then either buy the services or figure out where you can be the provider to other governments or other entities. **GT**

— Colin Wood, Contributing Writer

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2013 WINNERS

Alex Padilla
Senator, California

Bob Woolley
Chief Technical Architect, Utah

Carlos Ramos
CIO, California

Carolyn Parnell
CIO, Minnesota

Chuck Dowd
*Commanding Officer of the
Communications Division, New York
City Police Department*

Chuck Robinson
*Director of Shared Services,
Charlotte, N.C.*

Cory Booker
Mayor, Newark, N.J.

David Behen
CIO, Michigan

Joe Panora
*Director of the Division of Enterprise
Information Services, California
Department of Corrections and
Rehabilitation*

John Letchford
CIO, Massachusetts

Jonathan Reichental
CIO, Palo Alto, Calif.

Ken Ulman
Executive, Howard County, Md.

Kevin McGinnis
*CEO, North East Mobile
Health Services*

Kristin Russell
CIO, Colorado

Laura Fucci
CIO, Henderson, Nev.

Massoud Amin
*Director, Technological Leadership
Institute at the University of
Minnesota*

Mike Russo
*Director of Cybersecurity, Florida
Department of Highway Safety
and Motor Vehicles*

Pete Anderson
CIO, Fort Worth, Texas

Randy Cole
President, Ohio Controlling Board

Rick Snyder
Governor, Michigan

Scott McCallum
*President and CEO, Aidmatrix
Foundation*

Shane Hamlin
*Assistant Director of Elections,
Washington Secretary of State's
Office*

Stu Davis
CIO, Ohio

Ted Smith
*Director of the Department of
Economic Growth and Innovation,
Louisville, Ky.*

Tony Hsieh
CEO, Zappos

TOP 25 DOERS, DREAMERS & DRIVERS

It takes a special type of individual to cut through government's infamous red tape and entrenched bureaucracy to bring about real change. In this issue, we salute 25 of those individuals. Since 2002, we've dedicated our March issue to change agents who've made their agencies more effective and their communities more successful. We're proud to present our choices for this year. Congratulations to the 2013 GT Top 25.



CHUCK ROBINSON

*Director of Shared Services,
Charlotte, North Carolina*

It's rare for first responders to trust the general city IT department for critical public safety communications. But that's been the case for years in the Charlotte metro area, where the city's shared services agency runs one of the nation's top public safety radio networks.

"I feel like I'm helping to provide the most state-of-the-art public safety services in the country," said Chuck Robinson, director of Charlotte's Shared Services, which provides a suite of services to city agencies and others in the surrounding area. "We are really enabling our police and fire responders to cut their response times, providing police the most accurate information in the field that's available."

Now Robinson is at the forefront of efforts to build a nationwide public safety communications network.

In 2012, the National Telecommunications and Information Administration created FirstNet as the governing body to direct implementation of a national network dedicated to the needs of public safety agencies. Robinson leads FirstNet's deployment on Charlotte's 4G network. He's also chairman of the FCC's Technical Advisory Board for First Responder Interoperability.

Robinson expects Charlotte's deployment to influence how the rest of the country implements public safety broadband. "We have always thought about this as a component of the national network," he said. "We knew we couldn't be successful on our own, so we were really excited by the opportunity FirstNet represents."

Robinson, who entered public service in 1993 after retiring from the military, says projects like this are why he works in government.

"You're working for something bigger than yourself. You could work for Ford. Yeah, they're going to build great cars, but in the end, you're working for the stockholder," Robinson said. "I work for the citizens of Charlotte, and my whole thing is to give them the best possible value for their tax dollar."

BY HILTON COLLINS, STAFF WRITER

BOB LEVERONE

OT

KRISTIN RUSSELL

CIO, Colorado

Kristin Russell wants to leave a technology legacy in Colorado — and based on her work so far, she's well on her way. Appointed the state's CIO and technology secretary in 2011, Russell left the private sector for what she called a "tremendous opportunity to learn about government."

Within 90 days of taking the job, Russell wrote a framework for what she'd like to leave behind; it focused on establishing programs and initiatives to benefit future generations. "My experience in the private sector enabled me to help people in government see how things are possible through the lens of technology," she said.

Coming from tech giants Oracle and Sun Microsystems, Russell witnessed how enterprise IT not only works, but also how it's possible. In two years, Russell and her team have driven Colorado forward on major tech initiatives, including implementing a consolidated cloud-based email system for state employees (read more on p. 44). She also tackled Colorado's

long-troubled, state-controlled, county-administered benefits eligibility system. Implementing a governance structure was a "significant step in the right direction," and she observed issues first-hand by watching county workers use the system.

To give Colorado an IT strategic plan, which it previously lacked, each fiscal year now begins with development of a playbook, an outline of priorities to guide initiatives for the next 12 months. It lets Colorado be transparent about its goals, while providing a benchmark to measure successes. (In fiscal 2012, 47 of 66 initiatives were completed.)

Russell will continue to leverage her industry experience to make Colorado the "Silicon Mountain of the IT community," while following the philosophy of build once and use many times. Technology, she said, "can and should be really foundational to government being more effective, efficient and elegant."

ELAINE PITTMAN, ASSOCIATE EDITOR



ALEX PADILLA

California State Senator

As technology extends further into our everyday lives, lawmakers are scrambling to govern the impact of rapid industry advances. In California, Sen. Alex Padilla is at the forefront of those public policy issues.

Armed with a degree in mechanical engineering from the Massachusetts Institute of Technology, Padilla has been a driving force for technology legislation at the state level, as well as locally during a stint on the Los Angeles City Council. Padilla authored SB 1298 in 2012, for example, a bill that outlined safety standards and performance guidelines for driverless vehicles. He also chairs the California Senate Committee on Energy, Utilities and Communications.

Padilla's educational background lets him view policy issues through an engineering and technological lens. He said California is just scratching the surface on new technologies for health care and genetic research, and legislative protections are needed in those and other areas to avoid legal pitfalls.

Genome sequencing is one area in particular that needs legislation to help guard citizens' sensitive data, he said.

"We have laws on the books at the federal and state level that will help you protect your financial information or even your own identity, but those protections are not in place for genetic information," Padilla said. "I want to make sure people who participate and try to advance their own health care ... do so confidently that the information won't be used against them or used nefariously or unintentionally in the future."

BRIAN HEATON, SENIOR WRITER

JESSICA MULHOLLAND

Howard County, Md., boasts a long list of honors, including one for best educated adults, another for having one of the best school systems in the nation, and still more for No. 1 in public library systems.

County Executive Ken Ulman isn't resting on any laurels, however. He's about to complete the Inter-County Broadband Network, which will connect nearly 1,000 city halls, fire and police departments, courthouses, colleges, libraries and schools.

Ulman and county CIO Ira Levy reached out to Howard County's public-sector neighbors and applied for a grant. "We put together a consortium of 10 jurisdictions," said Ulman, "including Baltimore City and County, Prince George's County, Montgomery County — the largest counties in Maryland — and we brought in all of our CIOs." As a result, the consortium won a \$72 million grant for broadband rollout.

The network already allows schools to share IT solutions and connected 911 dispatch centers for mutual backup. As it developed, Ulman says the network formed a "public-sector cloud." But the rollout didn't stop there. "We are leasing out fiber to the private sector," said Ulman, "because we go so deep into neighborhoods, by the nature of where the anchor institutions are located like elementary schools, fire stations and libraries. We don't want lack of capacity to be a barrier to businesses growing and thriving in Maryland."

Ulman, who calls Levy phenomenal, added, "You've got to have your CIO integrated into every significant decision, and then bring all the department heads on board with a consolidated focus."

The broadband network will be finished before its scheduled August completion date, Ulman said. "We'll finish this spring and begin to light up sites."

WAYNE HANSON, DIGITAL COMMUNITIES EDITOR

KEN ULMAN

County Executive,
Howard County, Maryland



CORY BOOKER

Mayor, Newark, New Jersey

Multiple media outlets have branded Mayor Cory Booker as a modern version of a superhero. Elected in 2006, the 42-year-old "super mayor" has a reputation for rolling out the red carpet when it comes to government service — from shoveling snow for a senior citizen during a snowstorm to rescuing a dog from the freezing cold and inviting residents to his home in the wake of Hurricane Sandy — all of which is chronicled on Twitter.

Booker is a digital native who uses the social media platform to not merely push out information to his more than 1.3 million followers, but also to engage with them, giving the public a personal view of government officials. "Social media creates that intimate window and gives voters a chance to really see your humanity and the substance of your spirit," he told *Government Technology* last year.

The mayor also has used Twitter to take on social issues, like a high-profile challenge where Booker lived on food stamps for a week to point out the program's inadequacies. Given his sophisticated grasp of social media, it should come as no surprise that the mayor co-created #waywire, a video-sharing site that allows citizens

to democratize the news. The founders see #waywire as a platform to give a voice to the younger generation to share their views on politics, economics and other issues.

Booker says democracy isn't a spectator sport — and he's certainly upheld that standard, both in the virtual and real world, dreaming up ways to better serve residents and then following through on those ideas. In January, Booker ended speculation that he'd run for a U.S. Senate seat by taking the first steps toward a campaign in 2014. Perhaps the new headlines will read "Super Senator."

KAREN STEWARTSON, MANAGING EDITOR



FLICKR/DAVID SHANKONE

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BOB WOOLLEY

Chief Technical Architect, Utah

When four states decided to collaborate on a shared GIS storage platform, they turned to Bob Woolley to figure out the details. As a result, Montana, Oregon, Colorado and Utah united in what may be the first multi-state shared services platform.

The platform, awarded through a contract in partnership with the Western States Contracting Alliance and the National Association of State Procurement Officials, lets the states aggregate GIS data through public cloud-based storage. Woolley was instrumental to the collaboration — crafting the original RFP and helping guide the project's oversight committee toward agreements that help the states benefit from the platform.

Woolley says vision was the key to pulling off the \$15 million project. "If we can envision a thing, we probably can execute it," he said. Woolley, who serves as the resident futurist for Utah's Department of Technology Services, says cloud computing will have a great impact on government, and projects like the multi-state GIS platform help break down resistance to its broader use.

Woolley also has a strong hand in social media. In 2009, Utah was one of the first states to develop social media policy, and Woolley is a constant presence on multiple social networks.

"You build your own community with social media," he said. "So if you build a community that has the right players in it, you can get some amazing responses."

SARAH RICH, STAFF WRITER



Issue Brief

Government in the 21st Century:

The New Face of Meetings and Decision-Making

Government leaders today are squeezed between shrinking funds and an ever-growing to-do list. California's most recent budget gap is \$1.9 billion alone and other states are in similar situations¹ — a \$415 million deficit is predicted for Connecticut this year,² while Maine has a \$200 million deficit.³ At the same time, the job of government is getting larger. Food stamp use was up by 10 percent in 2011,⁴ and implementation of Medicaid expansion in 2014 is expected to increase total spending by 25 percent.⁵ While budget cuts have been instituted to remedy this fiscal dilemma, they have also resulted in public sector layoffs and furloughs at a time when government needs more workers the most. According to a recent article in *Governing*, local governments specifically have shed 88,000 positions since August 2011.⁶ In order to cope with this reduction in workforce and increase in workload, government agencies everywhere must find ways to work more efficiently.

Facing the Performance Gap

One easy area to target to boost efficiencies and employee productivity is government meetings. When it comes to meetings, most of us are not equipped with the right tools to be truly effective. This is compounded by poor and inefficient practices, including printing out paper agendas, meetings driven by only one speaker and follow-up meetings to discuss the outcomes of previous meetings. This has been the traditional approach.

The status quo just doesn't cut it. We all know the feeling of being in a dull, unproductive meeting — the focus drifts away from the speaker, side conversations ensue, and smartphones are pulled out as we check our email and text messages. Remote participants feel disconnected as they listen to disembodied voices on a conference call. But we don't have to accept this type of disengagement any longer.

These issues have created a *performance gap* that often leads to longer hours and more meetings that take up employee time that could be better spent dealing with constituent-facing services. But with new collaboration solutions, we can hold fewer and more effective meetings



What's the Best Way to Manage Today's Dangerous Political Risks?

In government, the old adage that "no good deed goes unpunished" seems to hold true. Political leaders don't want to be perceived as bad decision-makers. The impact of a questionable decision seems to be intangible, but it isn't really. It's as concrete as an agency's name in bold print on the front page of the daily newspaper.

The best way to manage political risk is to make good decisions. Since collaboration solutions help teams do just that, the most powerful advantages of their use may not be financial at all. The likely outcome of better decisions might just be higher constituent satisfaction and public trust.

Benefits of Collaboration Solutions for Meeting Effectiveness

- ✓ Team members can all interact with the same documents, even from remote locations.
- ✓ Sharing visual information in real time allows team members to get on the same page instantly.
- ✓ Decision-making processes are streamlined.
- ✓ Writing directly into documents helps people share ideas and reach consensus quickly.
- ✓ Finger-touch and pen interaction allow easy editing, annotation and organization of data.
- ✓ Notes and files can be easily saved and distributed so team members stay in sync.
- ✓ Ideas are easily captured, so meetings stay organized and outcomes can be clearly communicated.

and keep in-person and remote participants engaged like never before. Meetings should be the forums for collaboration and ultimately decision-making. Shorter, more productive meetings that are engaging help government keep pace with the critical decisions it needs to make — and will result in a greater legacy of progress.

A New Day for Meetings

Collaboration solutions include intuitive, interactive displays connected to computers, collaboration software and remote-connectivity products. These solutions enable agencies to have fewer and more engaging meetings. This is more than a change in tools; it allows us to inspire collaboration and help people take a greater degree of ownership in a meeting's outcome. We can help our teams stay focused and make better decisions. And these are important decisions; we aren't just doing today's work — we are building the future for our constituents. Consequently, it is imperative to give everyone in the meeting a voice.

Let's consider an example of how this could happen in practice. While this hypothetical example involves one type of program, the same principles could be applied to any area of government. Let's say that a new federal directive has changed the eligibility and benefit rules for unemployment insurance. In today's fast-paced policy environment, the deadline for implementation can be expected to be short. Constituents demand fast responses, and state and local government agencies' compliance with federal rules is essential.

In the old meeting environment, the emails would begin to fly immediately. Sub-teams would begin to caucus around their own portion of the program. Eligibility staff would talk to eligibility staff, IT would talk to IT, and service delivery would talk to service delivery. Since no one has a complete view of the problem, these fragmented meetings are not effective. Disjointed memos and policy documents quickly muddle the picture, as dispersed teams languish on the conference call line. Document updates are done offline, leading to errors and omissions. Multimedia content — such as video from a federal official describing the change — goes unwatched because no one has a projector in the meeting room. Finally, frustrated with the lack of progress, a top executive forces everyone to travel to a central location to make some real decisions.

In the new world of meetings, the contrast couldn't be sharper. With collaboration solutions in the buildings of each key sub-team, the whole group can get together at the *first step*. They can share engaging multimedia content or background documents using an interactive display to establish a common understanding of the problem. They might even connect with a neighboring state through remote connectivity solutions to help guide the discussion and expand the pool of ideas. As a common plan of action is discussed, a single set of digital notes can be taken in real time on an interactive display that is visible to all participants. As soon as the meeting ends, notes can be sent electronically from the interactive display to all meeting participants. Sub-teams now have a record of what they have aligned on in the meeting and are ready for action.

While the internal benefits are clear and important, the results ripple beyond the confines of our organization. Our constituents get their benefits faster and more effectively, and have increased trust in the ability of government to deliver solutions. Not only is the reduced staff time — from not having to travel to multiple meetings — a major improvement on its own, but the value of better decisions is truly priceless.

"Before we installed the meeting-room solution, we used to spend one full day writing up the notes of a meeting. Now, we can accurately record all of the meeting notes automatically on the interactive whiteboard — including all the annotations and notes made during the meeting — which wasn't possible using dry-wipe boards."

MARTYN DAVIS, MANAGER, MTC READING AT MICROSOFT

Intuitive Tools to Inspire Collaboration

This dramatic improvement is possible because of collaboration solutions. These collaboration solutions include touch-enabled interactive displays and distance collaboration software that are integrated with everyday applications. They bring people together in a much more

engaging way and make it easier for dispersed teams to connect with individuals from virtually any location. Collaboration solutions can transform teamwork and deliver a more productive and immersive visual experience. They can unlock the hidden potential of remote participants in new ways. Instead of pulling workers out of their locations and paying the high cost of travel, we can meet people where they are. Our teams can quickly connect, collaborate, make a decision and move forward in real time.

Today’s tech-savvy employees want meetings that are participatory; team-focused; collaborative, with group discussions; rich in multimedia content from a variety of sources; and integrated with today’s (and tomorrow’s) technologies. Gone are the days of sharing content on a flip chart, dry-erase board or a projector in a darkened room. No longer are we uncertain whether people on the phone are engaged. It’s a new day, and people are collaborating in real time everywhere.

These collaboration solutions are easy to use — even for remote employees — and allow for an interactive and informal conversation among participants where the next big idea won’t be left on the table. Collaboration solutions enable you to capture a teams’ productivity outside of a planned meeting, allowing sudden inspiration to be conceptualized, easily refined, saved and shared. Participants — whether dispersed or on site — can pick up a digital pen and write over existing content or documents and distribute digital notes by email to all participants immediately after a meeting. Participants can share documents and richer, more immersive multimedia content with each other that enables a deeper and engaging discussion. With remote connectivity products, we can connect remote employees effectively without pulling them out of the field, and still allow them to capture notes and edit documents together with the rest of the participants. Most importantly, improved engagement and collaboration will shrink the decision cycle and lead to better program outcomes.

Capturing the Benefits

In today’s fiscal environment, it isn’t enough that a new technology is “cool” and exciting. The benefits need to be quantifiable on the bottom line. Our organizations need to realize operational efficiencies and increase internal productivity. The following chart illustrates how collaboration solutions drive cost savings and improve efficiency. In short, you will have fewer, better meetings.

Collaboration Solutions Enable...	Which Helps the Bottom Line Because...
All key individuals to be at the meeting — and contributing in a collaborative environment — the first time	Less time is wasted in rework and repeat meetings
An improved, visual experience with tools such as touch-enabled interactive displays that promote increased interaction from participants	More engaged participants make better decisions with fewer meetings
Better decisions to be made faster	Improved and quicker decision-making from being able to get all participants together faster leads to fewer mistakes and less re-work, ultimately leading to a reduction in costs
Connecting remote participants, wherever they are	You have lower travel costs and increased productivity from less time out of office

Getting Your Team Started

Ask yourself: How can you move and transition your organization from the way it conducts meetings now to this new way of thinking? No topic is more important to a leader in an organization than the efficiency and effectiveness of employees. Top leaders need to make this a priority — defining the problem by answering the following questions:

- Who conducts meetings in my organization now?
- How are meetings administered/moderated today?
- How are meetings prepared for in advance?

- What follow-up actions are taken after a meeting has concluded?
- Where are meeting participants physically located?
- What are the costs and challenges of getting employees into the same physical meeting room?
- How many meetings are repeated in order to include all participants?
- Would the integration of video, Internet access and data files improve the meeting environment?
- What's the value of greater engagement and productivity?



Once you've assessed your situation, educate the organization about what's possible. Reach out to vendors of collaboration solutions for case studies and information. Study the success stories and contact other jurisdictions to understand what they've done in their own work. This will help you choose your own strategy for moving forward. You will find that after reviewing your current business process for meetings, and considering how to make those meetings more engaging, you will end up with a plan that benefits the bottom line. You'll reduce the number of meeting hours and be able to get your people back to their jobs more quickly and cost-effectively than ever before. To summarize:

1. Gather support within the organization for the proposed change in approach.
2. Assess your current collaboration capabilities and benchmark against your peers.
3. Pilot collaboration solutions and interactive displays in a limited setting to understand how they are different from the way your team meets today.
4. Assess the return on investment from the pilot tests. What were the results? Did you cut costs and conduct meetings more effectively?
5. Proceed to a full rollout of the transformed organizational model.

At the end of the day, an organization's productivity is not just an internal concern. Government is providing essential services, infrastructure, education and support to keep our communities moving. This change doesn't just benefit us — it indirectly improves the lives of our constituents.

Endnotes

1. "California faces modest \$1.9 billion budget gap: report," *Reuters*, Nov. 14, 2012.
2. "Conn. comptroller says state budget deficit is at least \$415 million, governor disagrees," *Associated Press*, Dec. 3, 2012.
3. "State budget gap could reach \$200 million," *Morning Sentinel*, Dec. 2, 2012.
4. Danielle Kurtzleben, "Food stamp use up nearly 10 percent in 2011," *US News and World Report*, Nov. 28, 2012.
5. Dylan Scott, "Obamacare v. Romneycare: which states would be most affected?," *Governing*, Oct. 2, 2012. The article states that Medicaid spending is "expected to increase from \$283.4 billion in 2013 to \$356.3 billion in 2014." This has been restated as a percentage.
6. "Local Government Employment Declines for 12th Month," *Governing*, Sept. 7, 2012

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SCOTT McCALLUM

President and CEO, Aidmatrix Foundation

JASON JANIK

Aidmatrix is showcased in the media after disasters, but the organization's daily work is what really makes a difference. Applying sophisticated tools to support humanitarian relief is at the heart of the Texas nonprofit, which helps mobilize \$1.5 billion in aid annually using supply chain management technology.

"Our mission is to help people become more efficient," said Scott McCallum, the foundation's president and CEO, and former Wisconsin governor. Aidmatrix technology matches donations to needs, facilitating global delivery of food and supplies.

Originally applied to support refugee camps in Croatia, the system's use has grown in the last decade. The National Donations Management Network (NDMN), for example, is funded by FEMA and industry partners and uses Aidmatrix's Web-based tool to help manage disaster donations and volunteers. McCallum said Hurricane Katrina was the first major disaster

the foundation was asked to help with, and it was highlighted as something that went right during the troubled response. Today the NDMN covers 92 percent of the U.S. population and connects states with relief organizations.

The technology pulls together multiple parties during emergencies. For instance, following Midwest flooding, a California manufacturer offered to donate carpet remnants on Iowa's NDMN portal. Habitat for Humanity indicated in the system that it needed the carpet, and transportation companies could see where services or monetary donations were wanted. McCallum said UPS donated the transportation from California to Iowa.

But McCallum stressed, "Disaster is only part of what we do." More than 47,500 organizations use the technology, including 200-plus food banks. "Almost all of the charitable food in the U.S. goes through our technology," he said.

ELAINE PITTMAN, ASSOCIATE EDITOR

LAURA FUCCI

CIO, Henderson, Nevada

An IT veteran of the private and public sectors, Laura Fucci began 2012 as CIO of Clark County, Nev., before transitioning to the same position in her hometown of Henderson, Nev. During her tenure at Clark County, she was at the forefront of multiple initiatives to streamline county business and technology.

In 2011, for instance, Fucci helped launch a pilot that simplified the business license process for the area's contractors and enabled data sharing between the county and some of its cities. She also implemented a VoIP system that saves the county approximately \$2.5 million per year.

One of her first tasks in Henderson is overseeing the city website redesign. She said it's too early to reveal what her recommendations will be, but her methods will remain the same — using metrics to determine the level of customer service being delivered.

Fucci's six years as Clark County CIO and 11 years as CTO of the MGM Mirage give her much experience to draw from, but she credits teamwork for her Clark County accomplishments. "When you talk about an organization that has up to 10,000 users and 40 different departments, what makes things work is to successfully collaborate with all the different department heads and elected officials."

BRIAN HEATON, SENIOR WRITER



When Carolyn Parnell became Minnesota CIO in early 2011, she didn't know what she was in for: A few months later, a budget dispute between Republican lawmakers and Democratic Gov. Mark Dayton led to a 20-day government shutdown — during which 75 percent of the state's staff was temporarily laid off.

Then, in June 2011, the Legislature passed a bill to consolidate all IT functionality in the state under Parnell's office — a consolidation that she says is about one-fifth complete because it's a massive, multiyear undertaking. "We started with a mandate to pull under one roof all aspects of IT — people, projects, infrastructure, applications — which was scattered among 70-plus organizations," she said. "This had not been done in the state before."

Within about six weeks, Parnell's organization grew from 350 employees to 2,100.

The reorganization is the largest in Minnesota state government in decades, said Tarek Tomez, assistant commissioner for customer and service management at MN.IT, the state's new IT agency. "Carolyn's leadership has

been the instrument that brought this together," he said. "Her style is employee-focused, innovative and very reform-oriented."

For Parnell, defining standards for delivering technology services was an important part of the undertaking. She and her team created the Agency Centralized IT Reference Model after realizing that existing models didn't meet their needs.

"We looked high and low to find an IT reference model that already existed, but we had to develop our own," she said. "And we did, after some research in both the public and private sectors, so we're comfortable with where we ended up."

Where MN.IT ended up, Parnell said, was with a standard IT language and set of IT functions — versus having more than 70 ways to deliver IT prior to the consolidation. Parnell and her team also have met their mandated consolidation timelines thus far. "There was legislative language around when we had to have certain things completed," she said. "The fact that we were able to meet that timeline was quite the accomplishment and a great team effort."

JESSICA MULHOLLAND, WEB EDITOR

TED SMITH

Director of the Department of Economic Growth and Innovation, Louisville, Kentucky

On the leading edge of the growing government innovation officer movement, Ted Smith was hired to fill that role in Louisville in July 2011. Then in January 2012, Mayor Greg Fischer established a Department of

Economic Growth and Innovation, naming Smith as its director. With academic credentials in neuroscience, successful online health ventures and a track record of public-private partnerships, he works to ensure that innovation in Louisville also contributes to the local economy.

Partnering with Wisconsin-based Asthmapolis, Smith leads an effort in Louisville to provide asthma sufferers with sensors that track when and where patients access their medication. The goal? To ease the suffering of patients, reduce costs from emergency treatment by encouraging better control of the disease and gather information to layer atop other data sets to inform remediation options.

"There's a big difference between governments that tinker and governments that are truly evolving, and I'd like to believe we're in the latter category," Smith said.

Look for more from Louisville on a digital urban planning effort that seeks to marry physical urban planning with virtual urban planning. According to Smith, officials should focus more attention on the digital presence of their physical assets. "Imagine you were blind other than what you could see through your smartphone. How much of my city could you see?" Smith asked. At this point, his answer is "not enough."

NOELLE KNELL, ASSISTANT WEB EDITOR



CAROLYN PARNELL

CIO, Minnesota



A portrait of Pete Anderson, a middle-aged man with grey hair, wearing a dark suit, a purple shirt, and a patterned tie. He is looking directly at the camera with a neutral expression.

PETE ANDERSON

CIO, Fort Worth, Texas

Pete Anderson got heavily involved in technology during his 25 years as a U.S. Navy officer, including four years as commander of the Defense Logistics Agency Systems Design Center, an organization with an annual budget of more than \$130 million and a staff of 1,200 that develops, implements and maintains IT systems for the U.S. Department of Defense.

That was a great warm-up for Anderson's current job in Fort Worth, Texas, where he leads a handful of major initiatives, including installation of a \$52 million digital radio system for public safety. "We have 22 or 23 agencies using our radio system — including city departments, the local transit agency, county sheriffs and a number of other cities and towns around us," said Anderson, who became city CIO in 2004.

Fort Worth also is overhauling key business applications. A PeopleSoft ERP system replaced legacy payroll software,

and next up is an effort to modernize the city's financial system. Anderson says the changes will let city departments meet demands despite shrinking revenue.

In addition, the city is boosting transparency and citizen engagement by breaking its budget into 20 categories covering topics like public safety and transportation, and asking citizens to help prioritize spending. Anderson said the city created an online tool that outlines the budget requests and how much the budget needs to be reduced to meet expected revenue. Citizens can use the tool to vote on the changes they would make.

The choices, he said, can include questions like, "Do you want to maintain or upgrade the swimming pool, or close it and build a new library?" As residents answer the questions, they get a running balance, and at the end they can say, "I balanced the budget, and here's what I propose to do."

WAYNE HANSON, DIGITAL COMMUNITIES EDITOR

A close-up of Chuck Dowd in a New York City Police Department uniform. The focus is on the shoulder patch which reads "POLICE DEPARTMENT CITY OF NEW YORK".

CHUCK DOWD

Commanding Officer,
New York City Police
Department Commu-
nications Division

During Hurricane Sandy cleanup efforts last year in New York, out-of-state responders who showed up to lend a hand couldn't use their radios to communicate with local officials. More than 10 years after 9/11 there is still an interoperability problem and a need for a national public safety broadband network.

That's what Chuck Dowd has been saying for years, and now his efforts toward that goal are closer to reality. Dowd was named to the First Responder Network Authority board following tireless advocacy for the network. The board was set up to design and build a national public safety system.

After Sandy, Dowd said it's clear that relying on private companies will have its limits when it comes to developing a national system. "These networks failed when we would have needed them most," he told *The New York Times* after Sandy. "The idea of using commercial networks is a real concern for public safety."

That's why Dowd — who oversees New York City's 911 system and police radio network, which dispatches more than 4 million radio runs annually — is an important voice in the effort to build a national communications network for first responders.

JIM MCKAY, CONTRIBUTING EDITOR

FLICKR/DAVE HOSFORD

DAVID KIDD

Technology may not be the first thing that comes to mind when thinking about corrections, but Joe Panora is working to change that mentality. As director of the Enterprise Information Services Division for California's Department of Corrections and Rehabilitation (CDCR), he views technology as a tool for improving business operations. Public safety is at the heart of corrections, he says, but its business covers nearly all functions of government, including people management, budget, public access, health care and education.

Panora uses technology to improve California's largest department from all angles, whether that's finding cost avoidance through green IT or streamlining the visitor appointment scheduling process.

Recent wins include launching a state-of-the-art financial management system that automates back-office processes and virtualizing the CDCR's computer equipment in the state's tier-three data center, a move that prevented the department

from spending millions of dollars to upgrade its own data center facility. Currently Panora is replacing multiple 30-year-old legacy systems with a single integrated Strategic Offender Management System. "This will give us the true enterprise data offender management standpoint from when an offender comes in to when they're released," he said.

While working to elevate and increase the efficiency of the CDCR's technology operations, Panora leans on decades of public-sector experience. He joined California government in 1980, launching a career that has spanned five departments. "I think anytime that you have exposure to different organizations and they have a different type of business that they're delivering to California, you're able to take those best practices forward," Panora said.

And implementing those best practices in California's corrections system ultimately benefits everyone in the state.

ELAINE PITTMAN, ASSOCIATE EDITOR

JOE PANORA

*Director, Division of Enterprise Information Services,
California Department of Corrections and Rehabilitation*

SHANE HAMLIN

Assistant Director of Elections, Washington

Shane Hamlin is part of a team in Washington state working to make sure that voters can access as many services as possible online. Washington was the second state to provide online voter registration via its MyVote portal, and it broke new ground by becoming the first to let candidates file for election electronically. A mobile app also offers up-to-date election results from the Secretary of State's office.

In August 2012, the state added a new way for eligible voters to register or make changes to their registration information through Facebook. In a partnership with Washington-based Microsoft, the social media giant approached state officials about creating an app that allows Facebook users direct access to MyVote.

"We thought it would be a great way to leverage the power of social media to improve and grow the use of online registration," Hamlin explained.

Facebook now acts as a direct portal to Washington's system — MyVote users connect with the state's servers, without sharing voting-related data with Facebook.

And the state's online registration efforts are paying off. According to Hamlin, every voter that registers online saves counties between 50 cents and \$2, depending on the type of registration system they use. Since online registration debuted in 2008, more than 525,000 registrations and changes of address have been processed this way. The state has long since recovered the cost of building the \$280,000 system, and is now just enjoying the savings.

NOELLE KNELL, ASSISTANT WEB EDITOR



DAVID KIDD

LAURA MOTT

JESSICA MULHOLLAND

A large portrait of Jonathan Reichental, a man with dark hair, smiling, wearing a white shirt and a dark suit jacket. The background is slightly blurred, showing some outdoor structures.

JONATHAN REICHENTAL

CIO, Palo Alto, California

When Jonathan Reichental became CIO of Palo Alto, Calif., he was warned repeatedly that government moves slowly.

But the former CIO of O'Reilly Media was used to moving fast. In all, Reichental had spent 15 years in various private-sector tech positions, and he was ready to cut past some of the bureaucracy and get projects under way.

Since joining the city in December 2011, Reichental and his team have delivered more than 100 projects — revamping the city's website, launching an open data platform and a city finance tracking website, and overhauling a 25-year-old legacy analog phone system.

"My personality is to take an idea, move it through and get it

out so it's valuable," he said.

But launching projects quickly can mean not getting them perfect in their initial phase. Reichental is a vocal proponent of a "lean startup approach" for some government IT projects. The approach involves releasing beta versions of technology projects to users and incorporating their suggestions.

Reichental also is a leader in public-sector use of social media. In February 2012, he coordinated the city's first Twitter Q and A, which let citizens ask officials about city issues. The tweets were captured and stored on social media archiving platform Storify.

What's next for Reichental? "The best stuff is coming," he said.

SARAH RICH, STAFF WRITER

MASSOUD AMIN

Director, Technological Leadership Institute, University of Minnesota

Massoud Amin is a self-described geek on a mission. The multilingual brainiac is supercharged about transforming the electric grid into a self-healing, sustainable and resilient smart grid. The new grid would consist of a network of sensors that communicate with one another to intelligently and proactively detect outages and perform repairs automatically. Amin's mastery of the subject has led to groundbreaking research in the electrical engineering sphere, earning him the moniker "father of the smart grid."

Amin is a senior member of the Institute of Electrical and Electronics Engineers (IEEE), a professional organization dedicated to tech innovation, and chairman of the IEEE Smart Grid Newsletter. Amin, along with IEEE, has been instrumental

in devising national smart grid standards.

Amin says he came by his passion for power while growing up in the Middle East, where he saw "electricity as a linchpin of life." This was further compounded when he visited New York City and observed how a 24-hour blackout created

vulnerabilities in the city. These experiences reinforced his drive to improve an aging electrical grid.

Late last year, following Hurricane Sandy, Amin spoke with NPR about the necessity and benefits of creating a smart grid. In that interview, he said the multimillion-dollar power outages that occurred could've been avoided. In February, Americans received another reminder during the Super Bowl blackout — the latest in a long line of arguments for a smarter power grid.

KAREN STEWARTSON, MANAGING EDITOR



CARLOS RAMOS

CIO, California

Carlos Ramos has been a power player in California IT for more than 20 years. Gov. Jerry Brown appointed him as the state's secretary of technology in 2011, capping a run that's seen Ramos hold numerous public and private high-level offices, including director of the state's Office of Systems Integration — overseeing a \$4.5 billion portfolio of technology projects — and senior technology executive of California's massive

ment. Technology itself isn't the key, it's being able to support government's role of service to citizens."

That mindset guides many of Ramos' technological priorities today. He's proud of California's robust collection of mobile apps for citizens, for instance. Ramos says state agencies have deployed roughly 70 Web apps that Californians can access on their mobile devices, simplifying the availability of services and information. He points to a Department of Veterans Affairs' app that gives users information about benefits and local facilities.

Ramos brings considerable expertise to his current position. He helped architect the consolidation of the state's largest data centers and create California's Office of Technology Services. It's a background that gives Ramos the right mix of skills for applying technology to the state's formidable bureaucracy.

"With a state this large and a government this complex, nothing we take on in California is easy," he said. "We have challenges in managing some of those big, complex technology initiatives, but I think we're moving in the right direction."

HILTON COLLINS, STAFF WRITER

Health and Human Services Agency.

In his current role, Ramos leads a drive to use technology to facilitate services and citizen engagement.

"In people's day-to-day lives, they rely on technology for a whole host of things, whether it's banking [or] entertainment, but the key isn't technology itself, it's the ability to take care of your financial transactions or to access music," he said. "It's the same thing in govern-

JOHN LETCHFORD

CIO, Massachusetts

The two most influential initiatives in Massachusetts IT don't necessarily involve deliverables. Instead, they involve attitude and agility under CIO John Letchford.

"One of the most ambitious things we've tried to do here is change the mindset," he said.

While state governments are notoriously risk-averse, Letchford leads an open dialog about topics such as cloud computing. As mobile, social and bring-your-own-device movements grow, government needs to think in 3-D and keep pace, Letchford said. It also has to think strategically across state and local levels — an approach that Gov. Deval Patrick emphasizes.

As a deputy and later as CIO, Letchford led an infrastructure consolidation, started helping local communities deliver IT services, and chairs a CIO cabinet. The cabinet recommends executive branch priorities and manages projects including the new Springfield Data Center. Letchford also has joined with Manu Tandon, the state's CIO of health and human services, to establish relationships with federal, state and private leaders. They've worked on health-care cost containment and worked on one answer: the Health Connector.

"It's really just trying to move very aggressively," Letchford said, "but very openly and collaboratively with people."

TANYA ROSCORLA, STAFF WRITER



DAVID KIDD

TECHNOLOGY ITSELF ISN'T THE KEY, IT'S BEING ABLE TO SUPPORT GOVERNMENT'S ROLE OF SERVICE TO CITIZENS.

One of the biggest challenges facing state CIOs these days isn't deploying the right technology — it's getting consensus among multiple agencies on a plan that will benefit both productivity and the bottom line. Ohio CIO Stu Davis took that challenge head-on and succeeded.

Ohio rolled out a hosted VoIP solution in 2012, eliminating the need to run its own telephone system. Davis considers the project a "big win," as state agencies, local governments, higher education facilities and Ohio's K-12 schools all have the ability to use that contract to save money on voice communication services.

"We've got our heads down trying to do good things here for the state," Davis said. "I've got great alignment between the governor's office and the Office of Budget and Manage-

ment, the Board of Regents and [the Department of Administrative Services], and having those four components in concert, you can get a lot done."

But Ohio isn't finished. Davis released an IT transformation plan last December and created a team consisting of CIOs from multiple state agencies spanning nine core functional areas. The team's goal for 2013 is to create a plan for getting all state personnel on a single network. Right now, the state operates on 14 separate networks.

According to Davis, the key to success will be clearly communicating what the state is trying to accomplish and continuing to change the mindset of employees.

"This is more about what we can provide and how we can support them, as opposed to what we're doing to them," said Davis, "and getting that message across."

BRIAN HEATON, SENIOR WRITER

STU DAVIS

CIO, Ohio

RANDY COLE

President, Ohio Controlling Board

Randy Cole is a tireless advocate for shared services. Not only does he get much of the credit for driving Ohio's groundbreaking efforts in shared services, but he's also adept at bringing all parties to the table.

"First you have to take the time to reach out and invite them," he said. "That doesn't always happen in this business. Second, you have to ask them for their ideas, concerns and challenges. I learned a long time ago not to present solutions before I knew what the problem was."

Cole says shared services' value goes beyond cost savings. "When two or more government agencies or schools begin to earnestly work together, there is almost a snowball effect of opportunities to become more efficient."

Cole engages all parties, and he conducts outreach on shared services topics using local news articles. "It's clear that our schools and local governments must find new and more creative ways to reduce their costs and improve efficiency," he

wrote in a December 2012 issue of *The Repository*. "Knowing that shared services can help resolve this dilemma, Gov. John Kasich's administration released a comprehensive plan of action, Beyond Boundaries: A Shared Services Action Plan for Ohio Schools and Governments."

Completion of this plan, Cole says — combined with getting almost immediate legislative approval of four of its key recommendations — is one of his proudest accomplishments.

JESSICA MULHOLLAND, WEB EDITOR



Kevin McGinnis has spent 28 years in the emergency medical services field. He knows the problems of the day and what a national public safety broadband network could do for them. And now he finally sees a light at the end of the tunnel.

McGinnis serves as a First Responder Network Authority (FirstNet) board member and is the CEO of North East Mobile Health Services, an emergency transfer service that answers more than 30,000 calls a year in Maine.

McGinnis said the combination of public safety officials and commercial wireless industry executives on the FirstNet board makes him optimistic that the national

network will be completed before its estimated 10- to 15-year finish date.

"When they talk about making decisions on spending \$10 million in the next couple of months to build a component of the system and hiring dozens or hundreds of people, it's breathtaking from a public safety background, but it's what you have to do," he said.

McGinnis looks at state and local projects well under way as further evidence that the national network will be completed. Local jurisdictions already developing public safety systems will have made mistakes and corrected them, he said. "When people see the systems in operation, other systems are going to be quicker to build."

JIM MCKAY, CONTRIBUTING EDITOR

KEVIN MCGINNIS

CEO, North East Mobile Health Services

MIKE RUSSO

Cybersecurity Director
Florida Department of Highway Safety and Motor Vehicles

Mike Russo has led a remarkably productive career despite Florida's spotty history with IT centralization. In 2012, the government defunded the state CIO's office for the second time in seven years. The previous occurrence happened in 2005.

But the lack of consistent support hasn't crippled Russo's effectiveness. He's been a tireless advocate for stronger cybersecurity. Russo currently leads information security efforts for a 4,500-person agency that includes the state's Highway Patrol and Department of Motor Vehicles. His business unit also partners with Florida's Department of Law Enforcement to ensure that local agencies share cyberintelligence with federal agencies via the state's fusion centers to understand current threats.

Russo says lack of a central IT organization complicates his task, but he collaborates with decision-makers in other state departments regardless. Over the past decade, department security managers have voluntarily met regularly to discuss cybersecurity issues and priorities. "We've been able to adapt to the threat landscape," Russo said.

Russo speaks from experience. He was Florida's chief information security officer (CISO) for 10 years before he took his current job in 2012. He developed the state's cybersecurity policy when he was CISO, and he's worked vigilantly ever since to secure state networks and data despite internal political battles. Collaboration with other IT leaders has been crucial to progress.

"That collaborative approach has allowed us to move cybersecurity a lot further along than many other states, despite some of the drawbacks we've had," he said.

HILTON COLLINS, STAFF WRITER





TONY HSIEH

CEO, Zappos

If you've removed your shoes in an airport security line, you've likely seen an ad in the bin promoting Zappos.com — an online clothing and shoe retailer with annual sales of more than \$1 billion. The man who wears the shoes as CEO is Tony Hsieh (pronounced Shay), a Harvard grad and serial investor.

The shy yet vivacious entrepreneur is leaving his mark on the Las Vegas tech scene. Hsieh moved Zappos to the city in 2004, but the company recently signed a 15-year lease on a new home base in Las Vegas' old city hall. This multimillion-dollar move is hoped to be a catalyst for economic development in downtown Vegas.

But perhaps Hsieh's biggest gamble is his investment in the city's Downtown Project, a five-year \$350 million revitalization initiative — \$50 million of which is allocated to tech startups through the VegasTechFund. The aim of the Downtown Project is to create the co-working capital of the world, which proponents say will spark innovative partnerships and drive economic activity.

In his spare time, Hsieh kicked off a book tour for *Delivering Happiness*, which details his life as an entrepreneur, traveling cross country in a party bus. They say what happens in Vegas stays in Vegas, but some things just can't be contained.

KAREN STEWARTSON,
MANAGING EDITOR



RICK SNYDER

Governor, Michigan

What happens when voters elect a former tech executive to the statehouse? Something very much like what's going on in Michigan.

Gov. Rick Snyder, who spent six years in senior management for Gateway, took office in 2011 — and has since led a massive effort to modernize technology in Michigan government. Last year, he signed a state budget that established annual funding of nearly \$50 million for upgrades to IT systems. Earlier, he backed a new grant program to nurture small, innovative projects, and another that incents local shared service initiatives.

At the heart of this activity is a simple concept: Government should treat citizens better. “In a lot of ways, we haven’t done the best by our customers,” Snyder said, pointing out how fragmented programs and services make government miserable

to deal with. Modern technology, he says, is fundamental to improving the customer experience.

Ultimately the governor envisions a state portal and mobile apps that guide users through common government transactions — or better yet, performs them automatically. Snyder calls the concept MI Page — and perhaps more so than any of his statehouse peers, Snyder understands what it’ll take to get there. Thanks to his real-world IT project experience, Snyder knows the technology *and* grasps the importance of training and change management for the state workforce.

After two years in office, he’s left his stamp on how Michigan approaches technology. And by the time he’s done, citizens may look forward to their next digital interaction with state government.

STEVE TOWNS, EDITOR

DAVID BEHEN

CIO, Michigan

Michigan Gov. Rick Snyder believes technology can transform government — and it’s state CIO David Behen’s job to turn the governor’s vision into reality.

By the time Behen took the CIO post in 2011, a decade of economic turmoil had left Michigan with a long list of ancient systems in need of an upgrade. Over the past two years, Behen has shifted Michigan IT out of crisis mode and onto firmer footing.

He created a new strategic technology plan and, working with state agencies, Behen identified nearly 20 projects — most of them large, multiyear initiatives aimed at replacing legacy systems and enhancing automation. Those needs were matched to multi-year tech funding in the state budget.

“2011 was about creating the plan, 2012 was about getting funding and 2013 will be all about implementation,” Behen said.

Michigan already is moving email into the cloud, using Microsoft’s Office 365. The state recently released an RFP for data center modernization, and it’s beginning the process of choosing and deploying a new statewide ERP system. Also on tap are new identity management technology and an overhaul of the state Web portal.

“There’s a huge to-do list,” Behen said. “But we’re well positioned to move forward. We’re definitely headed in the right direction.” **GT STEVE TOWNS, EDITOR**



IT Tools for Safer Communities

March 2013

QUARTERLY REPORT | DIGITAL COMMUNITIES

As policymakers grapple with gun violence, technology may offer nonpartisan options for improvement.

Introduction

BY WAYNE E. HANSON | EDITOR, DIGITAL COMMUNITIES

WE HAVEN'T YET, AS A SOCIETY,

COME TO TERMS WITH GUNS.

The nation was born in a revolution fought with muskets, and the right to keep and bear arms is enshrined in the Bill of Rights. Even Thomas Jefferson, that most cerebral of men, once said that “The tree of liberty must be refreshed from time to time with the blood of patriots and tyrants.”

But what if a madman shoots children, as happened recently in Connecticut? While crime as a whole is down — New York City even had a full day with no shootings or stabbings last fall — the fact remains that anyone who hears about a mass shooting wants to do something to prevent it from happening again. But treading a path between confiscation of all guns and open carry everywhere is not easy, and of the many ideas that have been offered, there are few workable solutions and many frustrating complexities.

Following the Sandy Hook school shooting, Connecticut Gov. Dan Malloy exemplified the frustration and the impulse to do something — anything — to stop gun violence. “We don’t yet know the underlying cause behind this tragedy, and we probably never will,” he said. “But that can’t be an excuse for inaction.”

Many initiatives are circulating in Congress and numerous state legislatures, including proposals to restrict school visitors, increase taxes on gun sales, restrict clip sizes, outlaw semi-automatic weapons, and the latest twist: require gun owners to purchase liability insurance.

Most approaches to reducing gun violence — no one really expects to

eliminate it altogether — focus on reducing access to firearms, either by decreasing the number and types of weapons in circulation, or by restricting access for individuals most likely to abuse firearms, such as convicted criminals, drug abusers and the mentally ill. Both approaches face significant obstacles.

Americans already own more than 300 million firearms of which more than 100 million are handguns, so limits on new firearms, ammunition, etc., could impact the annual sale of some 10,000 firearms, but will not touch the weapons already sitting in half the nation’s households. While the gun control debate heats up, the search continues for measures that are truly effective and that can reduce gun violence, which claims some 10,000 lives each year in the United States.

The 12-step motto — “God grant me the serenity to accept the things I cannot change, the courage to change the things I can, and the wisdom to know the difference” — might provide a practical approach for dealing with gun violence and the legislative efforts under way.

Some things we must live with, most notably guns in homes. The vast majority of those are used responsibly for hunting, target shooting or self-protection. But as long as there are firearms in the hands of people, there will be the violent actions of a few disturbed individuals. The things that can be changed are the subject of this special section, especially IT tools that can help prevent, mitigate and recover from gun violence.



About This Report

This report is based on the activities of the Digital Communities program, a network of public- and private-sector IT professionals who are working to improve local governments’ delivery of public service through the use of digital technology. The program — a partnership between *Government Technology* and e.Republic’s Center for Digital Government — consists of task forces that meet online and in person to exchange information on important issues facing local government IT professionals.

More than 1,000 government and industry members participate in Digital Communities task forces focused on digital infrastructure, law enforcement and big city/county leadership. The Digital Communities program also conducts the annual Digital Cities and Digital Counties surveys, which track technology trends and identify and promote best practices in local government.

Digital Communities quarterly reports appear in *Government Technology* in March, June, September and December.

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Guns in Milwaukee

For a street-level look at gun violence in America's cities, *Government Technology* talked with Milwaukee Police Chief Edward A. Flynn who commands an agency of 2,000 sworn officers and 700 civilians, serving a city of some 600,000 residents. At one time, Flynn served as secretary of public safety under former Massachusetts Gov. Mitt Romney.

Wisconsin is an open carry state, where those not prohibited from possessing a firearm may carry a weapon visibly on their person without a license, or carry a concealed weapon with a license except in schools, government buildings and a few other places. According to Flynn, that does not make policing any easier.

"Our challenge is to keep firearms out of the hands of those who should not have them," said Flynn, "and that includes the criminal, the mentally ill and substance abusers. One of our problems is there are gaping loopholes in who's required to be subjected to a background check. That has to change. There is much talk of individual rights when it comes to firearms, but every individual right in the Constitution has to be balanced against the rights of the community. And communities have a right to be free from firearm violence, particularly if it could have been prevented through prudent regulation.

"Unfortunately for our country," he said, "all sanity and rationality seemed to go out the window as soon as one begins to confront a notion of rational regulation of firearms."

Flynn doesn't expect firearms to completely disappear, nor is he advocating that. "What we are saying is that when you have the levels of violence we have in this country, it's our obligation to make sure that a lawful right to possess a deadly weapon is appropriately



Milwaukee Police Chief Edward Flynn enlists technology to help secure his city and its residents.

regulated by making sure that there are serious sanctions for illegally possessing a weapon and that there are serious application processes in place that protect all of us from the remorseless and the criminal and the irrational."

Federal Initiatives

At a press conference late last year, President Barack Obama launched an initiative to "not only deter mass shootings in the future, but reduce the epidemic of gun violence that plagues this country every single day."

The president went on to say that even though no law or set of laws can prevent all gun violence, effective action must be taken to reduce it. "We're going to need to work on making access to mental health care at least as easy as access to a gun," Obama said. "We're going to need to look more closely at a culture that all too often glorifies guns and violence."

Then on Jan. 16, after receiving recommendations from Vice President Joe Biden's task force on gun violence, Obama announced 23 executive actions and called for Congress to take action

on those requiring congressional approval. Several of those actions address Flynn's concerns, including calling on Congress to institute background checks for all firearms sales.

Several of the president's actions were directed at encouraging development and implementation of new gun safety technologies, as well as higher standards for trigger locks and other methods of securing weapons in homes. Obama also directed the Centers for Disease Control and Prevention to research causes and prevention of gun violence, and is asking Congress for \$10 million to research the effects of video games and media violence on children.

Both the administration and gun-rights groups appear to be preparing for a showdown in Congress. Obama's tone was strident as he said the executive actions were not a substitute for action by Congress and appealed to the public to pressure elected officials. "What's more important," he said, "getting an A grade from the gun lobby that funds their campaign or giving parents some peace of mind when they drop their child off for first grade?"



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The National Rifle Association (NRA) said it was disappointed in its meeting with Biden's task force, suggested putting armed officers in schools and called for stronger requirements for the mentally ill to be put in a national background check database. In a statement on the NRA website, CEO Wayne LaPierre also advocated firearms training and other measures. "Proposing more gun control laws — while failing to enforce the thousands we already have — is not a serious solution to reducing crime," he said in a prepared statement, adding that "Law-abiding gun owners will not accept blame for the acts of violent or deranged criminals. Nor do we believe the government should dictate what we can lawfully own and use to protect our families."

A Better Database

Obama's first item on a list of 23 measures to reduce gun violence was: "Close background check loopholes to keep guns out of dangerous hands." He proposed requiring all gun sales to go through the background check system, removing obstacles such as the Health Insurance Portability and Accountability Act privacy restrictions to allow simpler reporting of mentally ill individuals, and reviewing the laws prohibiting gun ownership to ensure that dangerous people don't slip through the cracks. Of all proposals on gun control, improving background checks perhaps has the most bipartisan support and was also advocated at various times by the NRA.

After the Virginia Tech shootings, there was momentum to expand the database to include the identities of mentally unstable patients. President George W. Bush signed legislation in 2007 to strengthen the process.

"The problem has been the follow-through: getting all the states on board, in step and able to supply the informa-

tion to the database that it needs," said Josh Filler, a homeland security consultant. Filler — who provided oversight of the New York City Police and Fire departments, Office of Emergency Management and other agencies — served as the first director of the Office of State and Local Government Coordination for the U.S. Department of Homeland Security.

Currently the National Instant Criminal Background Check System (NICS) is run by the FBI. According to the FBI website, NICS provides full service to federally licensed firearms dealers in 30 states, five U.S. territories and the District of Columbia. Thirteen states, however, act as a point of contact, meaning NICS background checks in those states go through a state agency that can check against more restrictive state regulations as well as look for matches against the federal NICS standards and can assess a transaction fee. Several other states have a combination of some checks done directly through NICS and some through a state point of contact.

The checks can be done by telephone or via the Internet. But any database is only as good as the information it contains and under which circumstances it is applied. Both are subjects of contention. Today, federal requirements for background checks do not apply to private transactions or antique guns, and state standards vary considerably.

According to Mayors Against Illegal Guns, states also vary widely in their willingness or ability to provide data to the background check system, and as a result of "gaps in our broken background check system," criminals and others slip through the background checks and buy firearms.

There are encouraging signs, however. According to a January article in *The Salt Lake Tribune*, Utah — which was one of about two dozen states that

failed to share data on mentally ill residents with NICS — recently submitted some 10,000 such records. "Utah had kept its own list 'for Utah eyes only,'" said the article, "to screen individuals wishing to purchase guns, but there was nothing to prevent a Utah resident with a history of mental illness from buying a firearm in another state." About 4,000 of those records were rejected by NICS, however, because they lacked either a birth date or Social Security number.

Filler agrees with the necessity to provide names of mentally ill or unstable people to the NICS database. The Virginia Tech shooter had numerous complaints against him of threats and stalking, and he underwent mandated outpatient psychiatric treatment, Filler explained. Yet none of this information was added to the database, he said, because it was not required under Virginia law. Thus the shooter was allowed to purchase two firearms in



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The mass shooting at Virginia Tech in 2007 led to efforts to include the identities of the mentally ill in a national background check system.

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preparation for his mass shooting that killed 32 people and wounded 17.

But several challenges await the move to add more information about the mentally ill to background check databases, said Filler. First, many threats aren't reported to authorities. In addition, he said, definitions of mental illness are not coherent and many such records are on paper — sitting in courts and departments of mental health — and would require time and money to digitize, although some funding has been appropriated to do so.

"Basically what you are talking about," Filler said, "is if somebody has been subjected to inpatient or outpatient treatment, voluntary or involuntary, information about that person would be supplied to the database and they'd be prohibited from purchasing a firearm."

Privacy advocates, however, maintain that voluntary commitment should not be included in the background check information because that could deter mentally ill patients from seeking treatment.

The California Model

California has some of the strongest restrictions on firearm purchases and has been suggested as a model for the rest of the U.S. A January Web article by Bay Area News Group's Josh Richman outlined California's restrictions.

Buying a rifle or shotgun in California requires:

1. state identification (a driver's license, etc.);
2. being at least 18 years of age;
3. buying a trigger lock, cable lock, etc., for it;
4. a background check run by a licensed firearms dealer; and
5. a 10-day waiting period.

Handgun buyers must be 21 years old and in addition to the above five steps, must show:

1. proof of residency;
2. a California Handgun Safety Certificate; and
3. demonstrate to a certified instructor that the applicant can safely handle a handgun or firearm of the same model.

Under California law, private sales of firearms must be done through a licensed firearms dealer that may charge \$10 in addition to a \$25 state transfer fee.

The California Department of Justice lists 18 factors that prohibit a person from obtaining firearms. Many of those conditions — such as court-ordered restraining orders, conditions of parole or commitment

"Our challenge is to keep firearms out of the hands of those who should not have them."

to a mental institution — have a good chance of winding up in a background check database. But others, like the requirement that a therapist must report a patient or client who communicates a threat "against a reasonably identifiable victim," are subject to interpretation and require a breach of privileged information between therapist and client.

A Partial Solution?

Better databases and stronger background checks may have an impact, but there's evidence to suggest that those moves are just part of the answer. As currently implemented, background checks for firearms are an imperfect safeguard.

Even with California's tougher restrictions, for instance, few background checks result in a cancellation of the sale. According to the Bay Area News Group article, only 1 percent of

California's background checks lead to denials. "So the system barely reduces the number of guns out there," Richman wrote. "But the national denial rate is 0.6 percent, so California's checks are obviously much better at preventing people who can't legally own guns from buying them."

There also appear to be few consequences for failing a check. *The New York Times* reported that nearly 80,000 Americans attempted to buy a firearm in 2010 but failed the background check. It is a felony for a person who is legally prohibited from buying a firearm to attempt a purchase, but of those 80,000 attempts, only 44 individuals were prosecuted.

And some people avoid background checks by paying someone else to purchase guns for them. The convicted felon who shot five first responders in Webster, N.Y., on Christmas Eve 2012 had a neighbor buy his weapons. The neighbor was arrested afterward, but by then it was too late. In addition, people who are refused permission to buy a firearm are 28 percent likelier to commit gun violence after being refused than before, according to a study funded by the U.S. Department of Justice. Clearly they continue to shop and obtain weapons where background checks are not required.

Another challenge for expanded background checks is the fact that mental health professionals often struggle to accurately spot which patients may act violently. In a 2012 report, called *Predicting Violent Behavior*, the Department of Defense concluded, in part, that "there is no

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effective formula for predicting violent behavior with any degree of accuracy.”

University of California, Davis professor of psychiatry Dr. Peter Yellowlees agrees. “Unfortunately the report is correct,” he said. “The only substantive predictor of future violence is a past history of violence — which of course doesn’t help at all in someone who has not previously been violent, which is where most of the concerns are.”

Promising Technologies and Strategies

So beyond better databases, where can technology help reduce gun violence? There are perhaps four initiatives now being explored that have potential, yet some have significant challenges and barriers.

Social Media Monitoring

According to Filler, about 120 planned mass school shootings were thwarted between 2000 and 2010. “Columbine showed that if you are the parents, the school or the police, you

have to intervene when the information is presented to you. And students have to come forward. A lot of times, the students know what’s going on, and they know there’s a problem but nobody wants to rat on their fellow student, and don’t want to be seen as a tattletale, so you have to break down those cultural barriers.”

Since the Sandy Hook school shooting, parents, students and law enforcement have become much more alert to potential threats, and several individuals who threatened others have been arrested. In one situation, a student tried to recruit friends to help him trap and shoot other students. In another, a woman reported that her husband threatened to burn her and then kill students at the nearby school where she worked. Such reports are being treated more seriously now.

More law enforcement agencies are monitoring social media posts for warnings that violence may be imminent. In Tennessee, a Columbia teen was arrested for a Facebook post that said:

“feel like goin on a rampage, kinda like the school shooting were [sic] that one guy killed some teachers and a bunch of students:D”. Officers searched his room and found guns, ammunition, a machete and drug paraphernalia. And in New York, gang members bragged about their illegal activities on Facebook and Instagram, resulting in the arrest of 10 suspects for conspiracy to commit murder, plus weapons and narcotics violations.

Gunshot Detection Systems

In the current discussions about reducing gun violence, the question arises: How can we keep guns out of the hands of felons and the mentally ill without infringing on the rights of law-abiding citizens? One answer revolves around better background checks for gun purchasers. But with millions of guns already in American closets and gun cabinets, another part of the answer may be in gunshot detection systems, which provide an exact location when a weapon is discharged.

SST Inc. makes gunshot detection systems that are used in many cities around the nation. The company monitors gunshot detection data for 29 cities from a control facility in Northern California. On a recent visit by *Digital Communities* to the facility — known as the Incident Review Center — an alert sounded, a screen popped up showing the city, a street view with the location of a potential gunshot and a sound graphic. The computer determined that the sound was an automobile backfire. The dispatcher watching the screen agreed and tagged it as such.

While the 29 U.S. cities monitored by the Incident Review Center were quiet at noon on a recent Tuesday, that is unfortunately not the case at night and on weekends. The facility has tracked thousands of incidents of gunfire,



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providing specific data on gunshot location, suspected type of weapon and other intelligence for first responders, investigators and crime analysts.

In one incident, 22 gunshots from three different weapons were fired from the center of a city intersection. In another incident, the system located a sniper on a rooftop who was apprehended while smoking a cigarette and waiting for the police to leave. His hiding place was revealed by a big red dot on the SST computer screens.

One California city's shooting report shows a cluster of gunshots recorded on a high school athletic field. When alerted by the company, police discovered that the field was where thieves

it's a gunshot or someone setting off a firecracker. In any case, the data shows that only 20 percent of gunshots are reported by the public.

Gunshot detection technology also provides more accurate location information than people can provide. Gunshots may be heard up to a half mile or more away, and 911 calls reporting those shots may come from different locations. Where is the shooter or shooters? Are they moving or stationary? Are the firearms semi-automatic? The gunshot detection system can answer all those questions, while 911 callers usually have no idea. And in those cases, officers must canvas the reported locations

gunshot deaths per year, there are an estimated 10 times more shots fired — and following up on those instances may help police officers stop a problem before it starts.

Data-Driven and Predictive Policing

In Santa Cruz, Calif., crime data is pumped into a database and a complex computer algorithm predicts hot spots around the city where officers can expect illegal activity to occur. The Santa Cruz Police Department's predictive policing program went into full operation in July 2012 after a pilot was credited with a 19 percent reduction in property theft. In addition to property theft, the system is now used to predict gang activity and street crimes for specialty units in the department.

When officers access the system, they can run predictive analyses in their specific area, which helps focus law enforcement efforts. Supervisors also log on to the system prior to briefings and print out a one-page sheet that lists the predicted crime locations for the day.

Milwaukee Police Chief Flynn uses Compstat — a similar system of analyzing data on crime types, locations, time of day, etc. — in conjunction with a gunshot detection system to drill down into the locations and causes of violence. "One of the challenges for policing," he said, "is identifying where gun violence is most likely to occur, and then another challenge for us is to deconstruct the dynamics of the cycle of violence. It's up to the police to try to ascertain what specific types of criminality are driving firearms violence and to develop appropriate tactics to prevent it."

Flynn said the city's ShotSpotter system is integrated with the Compstat data. "It's an important component

"The only substantive predictor of future violence is a past history of violence."

and gang members tested stolen firearms at night. Police officers used the system's location and time of day information to catch the shooters and confiscate the weapons.

These systems also can be used when a police officer is involved. The location of each shooter and who shot first can be determined. According to SST's James G. Beldock, such information has been used in court, and each incident thus far has corroborated the police officer's version of the shooting.

In addition, gunshot detection systems tend to reveal much more firearm activity than is reported by citizens to 911. In areas with ShotSpotter installations, the system identifies and locates 80 percent more gunshots than are reported by residents, according to the company. Residents may be afraid to have a police officer come to their door, they may be accustomed to gunfire, or they may be uncertain if

looking for trouble or a body. With a detection system, even the direction of the gunshot can be determined by the strength of the sound as detected by various sensors, as the blast is loudest in the direction the muzzle is pointing.

Sgt. Kevin Bern, of the Rocky Mount, N.C., Police Department, told *Government Technology* last year that the city's gunshot detection system not only directs police to the location of a gunshot and aids the collection of evidence, but it also can prevent violence by locating "confidence shots" by gang members planning an attack on another gang, or someone testing out a stolen weapon, as well as "celebratory shots" into the air on holidays.

According to the National Institute of Justice, homicides committed with firearms peaked in 1993 at 17,075, after which the figure steadily fell, leveling off in 1999 at 10,117. So even though in the United States there are 10,000



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Analyzing crime data in conjunction with a gunshot detection system can increase public safety.

of it,” he said. “We purchased two [square] miles worth of gunshot location system hardware, with a 2009 COPS technology grant, and got it implemented in December of 2010. It cost us about a half million dollars. And we ... located this in the area that had generated the highest number of shooting complaints.

“In September of 2011, we got a grant from the FBI’s Save the Streets violence reduction grant program, and they gave us enough money to lease an additional square mile. So we own the technology for two square miles, and we’ve leased technology for a third square mile.

“What we found is that we identified 1,644 gunshots in 2011, and 2,424 gunshots in 2012, because we added that additional mile. It’s given us a much clearer sense of the level of firearms usage in the neighborhoods, which helps our officers respond more effectively but also allows us to have better predictive policing in that area and to

get a better sense of what percentage of these incidents are in fact called in to the police.”

Flynn said numerous arrests have been made using the system, because gunshot reports go directly to patrol cars, rather than through a 911 dispatcher. “GPS tells them where it was fired. Several times en route to the location, we have caught offenders coming the other direction who haven’t yet disposed of their weapon. We’ve made numerous arrests because of it. We’ve also because of the GPS, been able to locate physical evidence more rapidly, that’s also helped us make cases.”

Emergency Alert Systems at Schools and Colleges

One suggestion to help school security — advocated by the NRA and Filler among others — is to provide armed security. About one-third of U.S. schools already have armed security officers, so it is not unprecedented.

That said, schools and colleges have instituted a number of security measures and systems for alerting students or the police in the event of an active shooter or other emergency.

One wrinkle on a well established security technology is providing video surveillance cameras with eyelids that open during an emergency or at night, but stay closed during the day to provide privacy during normal activities. New York’s Port Washington Union Free School District on Long Island installed such a system in 2010. When the camera is in privacy mode, the eyelid is closed. But if a staff member with a key fob presses the button to open the camera’s eyelid, the local police station is alerted and officers can see the video feed.

University and college campuses, with many buildings spread out over a large area, are a more difficult security problem. Loyola University Chicago’s alert system — which was installed in 2008 after the mass shooting at Virginia Tech — provides emergency alerts through email, text messages and voicemail, as well as an outdoor public address system. According to the Loyola website, students and staff can opt in to the alert program and chose their preferred form of notification.

As elected officials struggle to come to terms with gun violence — and face intense pressure from gun-control and gun-rights activists — some of these technologies may offer a nonpartisan approach for improvement.

Well considered and practical policies must be at the heart of any attempt to reduce gun violence, and for a nation that’s divided on firearms issues, consensus won’t be easy to achieve. Still, these technologies may offer some tools to implement those policies once we figure them out. 📱

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Enhanced Security

Colorado uses additional layers to encrypt and authenticate cloud email data.

By **Brian Heaton** / Senior Writer

In what could serve as a model for other state and local governments, Colorado officials say they have found a way to secure cloud-based email in a manner that meets even the most stringent digital security standards.

Colorado partnered with an email security vendor to develop a tool that gives additional layers of email encryption and authentication for state law enforcement personnel and other highly sensitive data users. Officials said the enhanced technology meets the FBI's Criminal Justice Information Services (CJIS) data requirements and the privacy standard set forth by the Health Insurance Portability and Accountability Act for protected health information.

Online since last October when Colorado moved 26,000 state employees to Gmail, the tool operates fairly seamlessly for users. When employees start up their systems, they access their Gmail through the Google Chrome browser. But when workers who need extra encryption log in, a separate tab opens automatically in Chrome to a secure portal from Dallas-based ZixCorp. That portal requires an additional login and password as another authentication step to send and receive email with sensitive data.

The only time email content on the secure portal is readable is when the user is composing or reading a message. The

portal fully encrypts the data and makes email contents completely unreadable in any of the user's account folders.

Employees get a notification in their regular Gmail account when they receive an encrypted message. Employees who already have a secure account can toggle over to the portal and log in to read their mail, while users without the additional mailbox must create an account to access the information.

Even without encryption, Jonathan Trull, Colorado's chief information security officer, says he's confident with the security built into Google Apps for Government. The service was the first cloud productivity suite to earn FISMA — Federal Information Security Management Act — certification from the U.S. government.

But Trull says the extra layer of protection and authentication helped address CJIS-specific security needs.

"Zix has the capacity to meet some of the more process-oriented requirements," Trull explained. "For example, their people were willing to undergo a separate background check, and their fingerprints are submitted on file with our local law enforcement agency. It just allows us to have a little more control."

Nigel Johnson, vice president of business development and product management for ZixCorp., said the company doesn't have a name for the new tool yet, but based it on ZixCorp's Google Message Encryption solution. That application takes mail with sensitive information and encrypts it from the edge of the Google network to the end user. The tool developed for Colorado encrypts the message while it resides inside the email account folder.

Johnson added that this was the first time ZixCorp. has gone to this extreme level of encryption control for a customer. But now that it has been done, the company can reproduce it for future projects.

Security Questions

Google Apps for Government has been successfully rolled out in cities, states and federal agencies since its debut in 2010. In addition to Colorado, Utah and Wyoming both use Google's cloud productivity suite, as do the cities of Pittsburgh, Orlando, Los Angeles, Des Moines and St. Louis. A number of federal government agencies, including the General Services Administration, also are customers.



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But not every user has been satisfied with Google's email security.

In late 2011, the Los Angeles City Council axed plans to add police and other criminal justice employees to the city's Gmail system, believing the FBI's CJIS requirements for data storage and security were not fully met by Google's cloud technology.

The Los Angeles Police Department and others in the city who need heightened security instead were left on the city's in-house Novell GroupWise email system. The *Los Angeles Times* reported in December 2011 that Google will pay the city \$350,000 per year to continue operating GroupWise for those employees.

When contacted by *Government Technology*, a Google spokesman said the company is committed to keeping its customers' information secure.

Colorado's new email system hasn't been audited by the FBI yet, but the state believes its deployment of Gmail has met all of the Bureau's CJIS security standards. A Colorado spokesperson told *Government Technology* in a recent interview that the state feels "very confident" in the solution's ability to meet those requirements, and Colorado has had conversations with the FBI to ensure the project followed the CJIS standards "step-by-step" to avoid any problems.

Quick Turnaround

Colorado's transition cloud-based email was accomplished in roughly three months. Colorado CIO Kristin Russell said the state employed a "light switch" approach, moving everyone to the new system at once, instead of a phased deployment.

"One of the reasons why we chose to take that course of action was the fact that we knew it really wasn't as much about the technology as it was about the change management of the users," Russell said.

The state opted for cloud-based email after its old system was deemed unreliable and too costly to maintain. Russell added that moving to Google Apps would improve both information security and employee productivity.

Trull, Colorado's CISO, signed a nondisclosure agreement with Google early in the process to learn how security was inte-



JONATHAN TRULL,
COLORADO CHIEF
INFORMATION SECURITY
OFFICER.

grated into Google Apps for Government, according to Russell. Trull's findings helped convince Colorado of the general security abilities of the company's productivity suite. For instance, Google's database sharding — which is a partitioning scheme for large databases where none of the nodes in the system share memory or data storage — spreads data in hundreds of 64-bit randomly generated chunks across thousands of servers in three or four data centers within the U.S., Russell said.

"A single email or document doesn't exist as a whole anywhere, nor is it associated with the person that sent it," she said. "And then once it's put on disk, those disks are also encrypted. So even if somebody ... broke into Google's data center and stole a disk, they'd only see one chunk of that data and even that chunk is encrypted."

Ongoing Evaluation

Although Colorado employees have only been on the cloud-based email system for a few months, both Trull and Russell said most users have transitioned to Gmail well. More than 2,000 help desk tickets were opened during the first week of the Gmail deployment, but that number decreased significantly by the end of 2012.

Russell added that most of the help desk tickets dealt with issues related to user training and general comfort with using a new system.

Trull said he hasn't heard any complaints or issues concerning security compli-


ance. He added that Colorado just went through a Social Security Administration audit and passed it with flying colors.

Moving forward, Russell said the state plans to hire a service delivery manager specifically for the Google system. The person will evaluate Gmail's overall performance and will also be charged with identifying other ways Colorado can partner with the company in the future.

When Colorado announced last March that it was moving to cloud-based email and calendar services, state officials estimated that the switch would save approximately \$2 million per year.

Russell said in a recent interview that while the original figure was established from a forecasting standpoint, there were fluctuations in cost that weren't accounted for initially — specifically, higher-than-expected demand for encrypted email.

For example, one Colorado agency initially planned to encrypt 900 users, but bumped that number to 4,000 during the project. As a result, the state is no longer sticking to that initial savings projection.

"We feel very confident that there will be future cost savings and cost avoidance opportunities," Russell said. "A lot of our original projections ... just had to do with email. It didn't account for a lot of the other costs we'll be avoiding down the road, should the state move to, for example, Google Docs, or Google Apps in general." 

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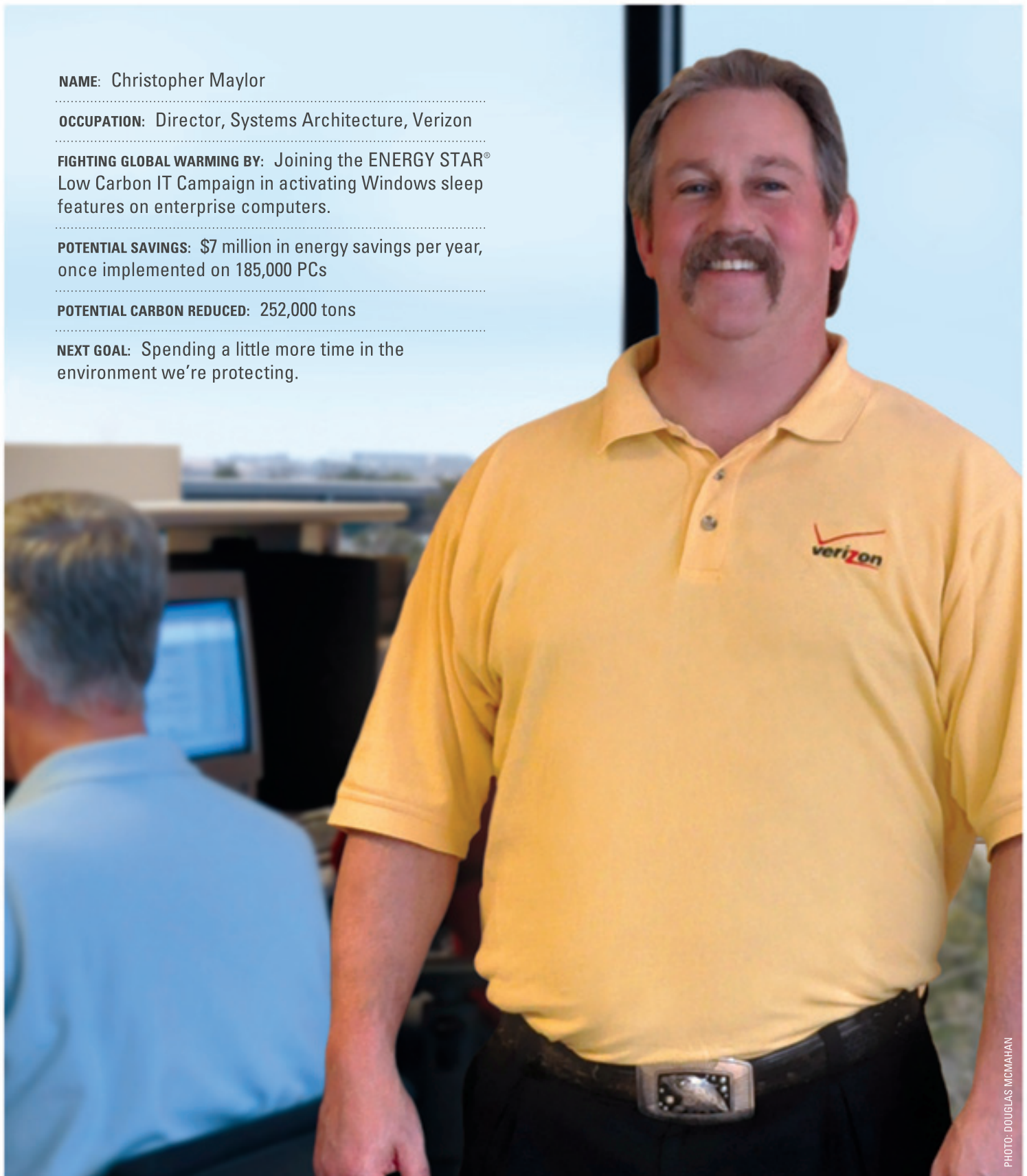


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Talking Points

What your lawyer wants you to know about running a social media site.

By **Brian Heaton** / Senior Writer

The benefits of social media have been well documented in the public sector. From soliciting new ideas and opinions on Facebook to sending out key announcements through Twitter, social networks have become vital communication mediums for government agencies.

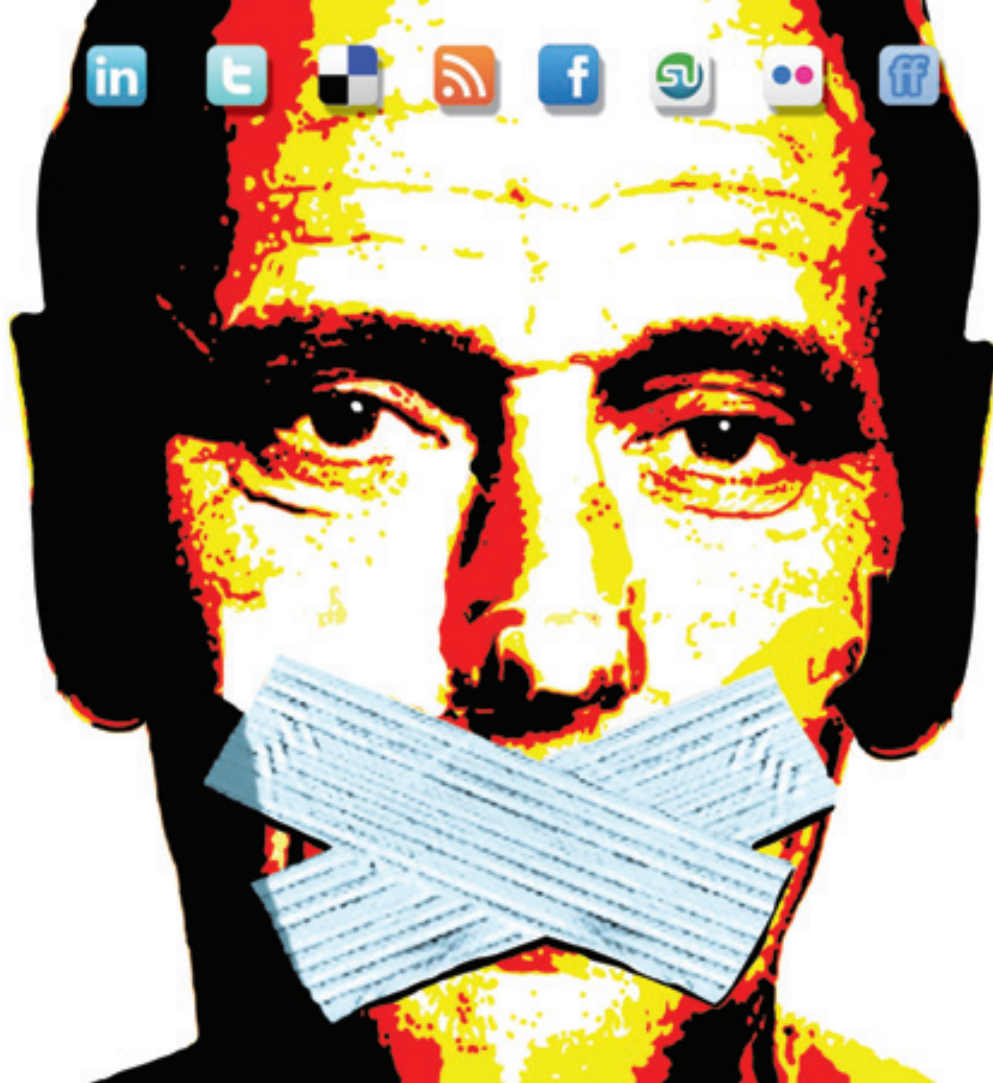
But while online tools have made interacting with the public more convenient, the legal pitfalls associated with social media have also been exposed. Chief among those concerns are the free speech rights of users, particularly if a government

entity deletes comments off its social pages.

Municipal attorneys recommend that agencies refrain from deleting user commentary on official government Facebook walls or Twitter if those pages are open to public posting, which could be construed

as a public forum in the eyes of the law. A public forum is a venue open to all types of expression allowed under the First Amendment like parks and streets. However, there is an exception if the speech incites violence or is threatening. In those cases, removing the comments won't subject an agency to liability on the basis of a First Amendment challenge, according to Christina Checel, senior deputy city attorney of Long Beach, Calif.

But if someone posts a statement damning city services or making a political



TOM McKEITH

statement that's critical of elected officials, it must remain up. That advice may seem cut and dry, but it can get murky when the commentator is an employee of or affiliated with the government agency.

Checel said one of the most important rules of thumb is to decide quickly — preferably before a government social media account is created — who from the agency is allowed to post on the page in an official capacity and draft a policy that explains the vetting process for online communication.

For most government agencies, public information officers (PIOs) tend to be the most popular choice to post on social media accounts, according to Checel. Done in this manner, individual departments can send a PIO news items to post. For larger entities, departments might choose to send items to department-specific communications personnel.

In a smaller city or county without a PIO, Checel said it'd be wise to appoint a staff member who has a clear channel

of communication through a city manager or county administrator.

Once the appropriate individuals are appointed, then the social media policy should be expanded to define what's expected of government agency employees regarding personal commentary on the site.

"It is appropriate to have restrictions such as employees are not allowed to post discriminatory or harassing comments on the site," Checel said. "That's perfectly acceptable and definitely suggested that an employer does have some boundaries in which to work."

Patrick Whitnell, general counsel for the League of California Cities, an association that lobbies on behalf of city interests, agreed.

He said if a city or governmental body is going to have an interactive social interface, it's paramount to first establish a policy to prevent abusive users from posting inappropriate, offensive and defamatory comments. Then make that policy prominent on Facebook, Twitter and other online mediums.



CHRISTINA CHECEL,
SENIOR DEPUTY CITY
ATTORNEY, LONG
BEACH, CALIF.

“As long as you are letting the users know what the ground rules are for being allowed to post comments and you’re making sure when you are enforcing them, that you are staying within the boundaries you’ve created, that’s probably your best way of avoiding a free speech claim,” Whitnell said.

Checel concurred about the need for guidelines, but said they would be tough to enforce on the public. She explained that if government officials were concerned about overzealous community members “trolling” on an official social media page, they may want to set up a limited public forum that prohibits commentary from nonappointed people.

Lack of National Guidance

The issue of government agency employees using their personal social media accounts to post to their public employer’s official social media pages, or even tweeting about something that happens in a public agency, is a growing problem.

Unfortunately for municipal attorneys, there isn’t much case law dealing with social media to rely upon for precedent when addressing some of the privacy and First Amendment claims that may arise from that type of social media use.

Sheila Gladstone, principal attorney with the Lloyd Gosselink law firm in Austin, Texas, said there have been some developments in social media law during the last few years, but mostly in the private sector. For example, she said the National Labor Relations Board (NLRB) has “harsh restrictions” on the type of policies an employer can have regarding infringing on employee rights.

The problem for governments is that the National Labor Relations Act doesn’t apply to the public sector.

In a fictitious example, Gladstone explained that if a city manager’s administrative assistant sent a tweet to her personal followers — including co-workers — that said “My boss is such an idiot, he walked into a wall at work and bumped his head and blamed someone else for it,” there might be cause for disciplinary action. It would depend on if the city manager felt that tweet was disrespectful, caused embarrassment and breached confidentiality.

Is that an issue worth firing someone over? Gladstone said deciding that isn’t a

7 SOCIAL MEDIA ENGAGEMENT TIPS

- **Make your social media page social.** Let people post to your Facebook wall, foster two-way dialog and interact.
- **Monitor and post fresh content daily.** Whether posting manually or taking advantage of automated feeds, keep your social media pages active.
- **Take negativity in stride.** People will post negative comments. Be patient and use the comments as an opportunity to present facts and improve services.
- **Pilot first, create policy later.** Once you have permission to start a social media page, use it on a trial basis. Develop policies after you see what works best.
- **Assemble key players.** When developing policies, involve the city or county’s attorney along with key decision-makers.
- **Revisit security settings.** Security settings can change often; make it a point to regularly check them.
- **Multimedia is a must.** Use photos and videos to ensure that the social media content is dynamic.

SOURCES: LEA DEESING, IT DIRECTOR, SAN BERNARDINO, CALIF.; CHERYL GOLDEN, COMMUNICATIONS COORDINATOR, FREMONT, CALIF.; SUSAN GUTHRIE, MANAGING DIRECTOR OF EXTERNAL RELATIONS, TYLER, TEXAS

legal issue, but if action was taken against that employee and she brought a lawsuit claiming a violation of her First Amendment right to free speech, the employee’s argument likely wouldn’t hold water.

In that specific situation, Gladstone explained that the speech is not protected by the Constitution because cities have more rights to tell someone to be respectful and not disparage online.

Had the situation happened in the private sector, however, Gladstone said the NLRB could claim the city was interfering with employee rights — in particular an employee’s right under the National Labor Relations Act to engage in a concerted activity, which in this case was discussing a work-related issue other than pay with a colleague.

What Now?

Without clear direction on the legal front for social media commentary, public-sector employees, particularly city and county government agencies could find drafting their own social media usage poli-

cies challenging. Although there are some resources available, Checel said municipal attorneys and those in charge of social media pages should closely watch cases that deal with First Amendment law.

Whitnell agreed and added that while it’s not exactly analogous to social media, public agencies should review the U.S. Supreme Court ruling in *City of Ontario v. Quon*, a case concerning the extent that the right to privacy applies to electronic communications in a government workplace.

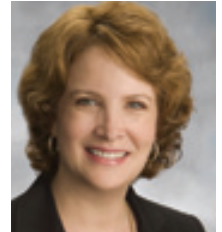
In *Quon*, the U.S. Supreme Court held that a city’s discipline of officers following an audit of text messages that found that many were personal and of a sexual nature was work related and didn’t violate the officers’ Fourth Amendment right against unreasonable search and seizure.

Another case that Whitnell said could be germane to the issue of social media is *Vargas v. City of Salinas*. Though it’s strictly a California case, Whitnell said it has value because the California Supreme Court held that the city’s website was not a public forum, further illustrating the importance of clearly delineating what type of forum a public agency is creating with social media.

Still, the jury is still out when it comes to the legal implications surrounding government social media pages. Gladstone said there aren’t many answers yet because the issue is still fairly new. But she said while it’ll likely not be consistent from state to state, case law should soon start coming in that may provide further guidance to attorneys and public agencies.

Whitnell added that he thought most municipal attorneys are now past the point where they’d recommend against an agency or government creating a social media page and realize its importance for clients.

“They need to understand how it works, the potential legal risks and how those risks can and cannot be managed,” Whitnell said. **GT**



SHEILA GLADSTONE,
PRINCIPAL ATTORNEY,
LLOYD GOSSELINK LAW
FIRM, AUSTIN, TEXAS

bheaton@govtech.com
twitter@govtechbrian

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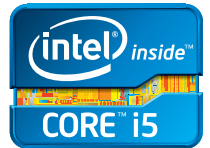
Dell's **Latitude 10 tablet** has a 10.1-inch display framed in magnesium alloy. It contains an Intel Atom processor and is available in 64 GB and 32 GB hard drives, with battery life of up to 10 hours. The tablet gives Bluetooth, Wi-Fi and optional mobile broadband connectivity. The convenient full-size USB port and SD memory card offer

users multiple storage options. The Latitude 10 has a 2 megapixel front-facing video (720p) webcam and an 8 megapixel rear-facing camera. An optional docking station allows users to add an external monitor, keyboard and mouse, as well as have additional battery life. www.dell.com 



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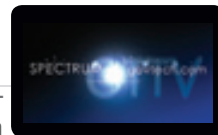
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** GCN Lab Review, July 2012

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YOU'RE HOT:

Swim, bike, run? 26.2? If you get this, you're likely a body constantly in motion — and soon the heat that you produce might power your personal electronics. Perpetua Power, an Oregon startup, is developing a chip that converts body heat into electric energy. The thermoelectric generator chip absorbs body heat directly from the user's skin and could produce enough power to run cellphones and other gadgets, according to the company.



Heard it Through Vine

In January, microblogging site Twitter launched Vine, a free mobile app that lets users capture six-second looped videos. The video-sharing service is a potential source that governments can tap to crowdsource ideas or solve e-gov problems like 311 complaints.



Breathing kerosene fumes is equivalent to smoking two packs of cigarettes in one day.

SOURCE: THE WORLD HEALTH ORGANIZATION

Low-Cost Light:

Two British designers created a low-cost, gravity-powered LED light for use in developing nations. Users would simply hang a 20-pound weight from the device — a small bag of rocks or soil, for instance — for up to 30 minutes of illumination. The designers say their idea requires no batteries and would minimize the burning of kerosene in rural areas. They hope to sell mass-produced versions for around \$5. Development of the device, dubbed GravityLight, was financed via crowdfunding site Indiegogo. SOURCE: INDIEGOGO

Print a Pal

Want to print a new companion? French artist Gael Langevin is posting 3-D printer files and instructions on inmoov.blogspot.com for

a robot he is building. Interested DIYers can download the open source files and create their own. In a video demo, however, the artist's robot has

difficulty understanding a voice command, so it might be a while before homemade robots rival dogs as man's best friend.

SOURCE: TECH CRUNCH & INMOOV.BLOGSPOT.COM



INMOOV.BLOGSPOT.COM



Send Spectrum ideas to Managing Editor Karen Stewartson, kstewartson@govtech.com, [twitter@karenstewartson](https://twitter.com/karenstewartson)



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Training: No Budget, No Cry

Bob Marley reassures government agencies that everything's gonna be all right.

Let me guess — your training/education budget doubled this year? All right, I can hear you laughing from afar.

Yes, I know training budgets are cut, but that doesn't stop the need for a well trained and educated staff. Especially with rapidly evolving technology and the start of baby boomer retirements, the need is even more.

So how do you stay educated on the latest knowledge in your discipline? Lucky for you, there is a plethora of ways outside of standard in-person training. As Bob Marley essentially referenced in song: No budget, no cry.

Here are six solutions to solve training needs without singing the reggae budget blues.

1 / Technical Chops. Are you looking to advance your technical skills? Luckily there are lots of great free tools to improve your chops. Perhaps you want to learn a new programming language. Check out free lessons at Codecademy. Want to improve your foreign language skills to keep up with your rapidly diverse population? Learn with peers on the cool Duolingo app.

2 / Book Time with Experts. I'm kind of obsessed with the new site clarity.fm. Basically you can book time to talk with technology leaders on whatever topic you desire from product design to marketing. For example, I spent 30 minutes with a leader at babycenter.com on how that company optimizes its audience and email strategies. Yes, you pay a small

charge per minute, but that 30 minutes was more useful than weeks of training on email marketing. Find ways you can book time with experts in your field, whether outside consultants or mentors.

3 / Big Picture. Want to think big? Massive open enrollment courses are all the rage. Simply stated, there are four- to eight-week online college courses where you have 50,000-150,000 peers in the same class. Take free courses from great college professors on topics like gamification, microeconomics for managers or leading strategic innovation in an organization with professors from places like the University of Virginia and University of Michigan at Coursera.

4 / Take a Field Trip. My favorite learning experiences in government have involved field trips. Take a half-dozen key officials to visit another agency or company and share best practices. Maybe it's a walk-through of an operation or simply two hours of executives asking questions. You'll learn a lot, plus it gets the whole team on the same page. Extra credit: have some assigned readings on the company before the field trip.

5 / Wonk Time. As a government employee, sometimes you just want focused training on your job and mission. Government is a unique beast, and you want government-focused training. You want tactical tips from other government

agencies or case studies from other cities and states. Fortunately there are many public-sector-focused free trainings available from monthly online trainings at GovLoop to great webcasts by *Government Technology*, the International City/County Management Association and others.

6 / Do It Yourself. How about a little DIY? Organize your own training — set up a regular lunch and learning session at your agency. Have leaders from your agency speak, or bring in local experts from a university or other department. And technology makes it easy — line up some good speakers and have them call in via Skype. Pick a county across the country or invite an author (call me maybe?).

It is often stated that “your employees are your No. 1 asset.” Well, start acting like it — invest in training and educating your team. Regardless of budget constraints, there are myriad opportunities to increase your learning rate, and the return is enormous. It just takes a little time and effort. **GT**

Steve Ressler is the founder and president of GovLoop, a social networking site for government officials to connect and exchange information.

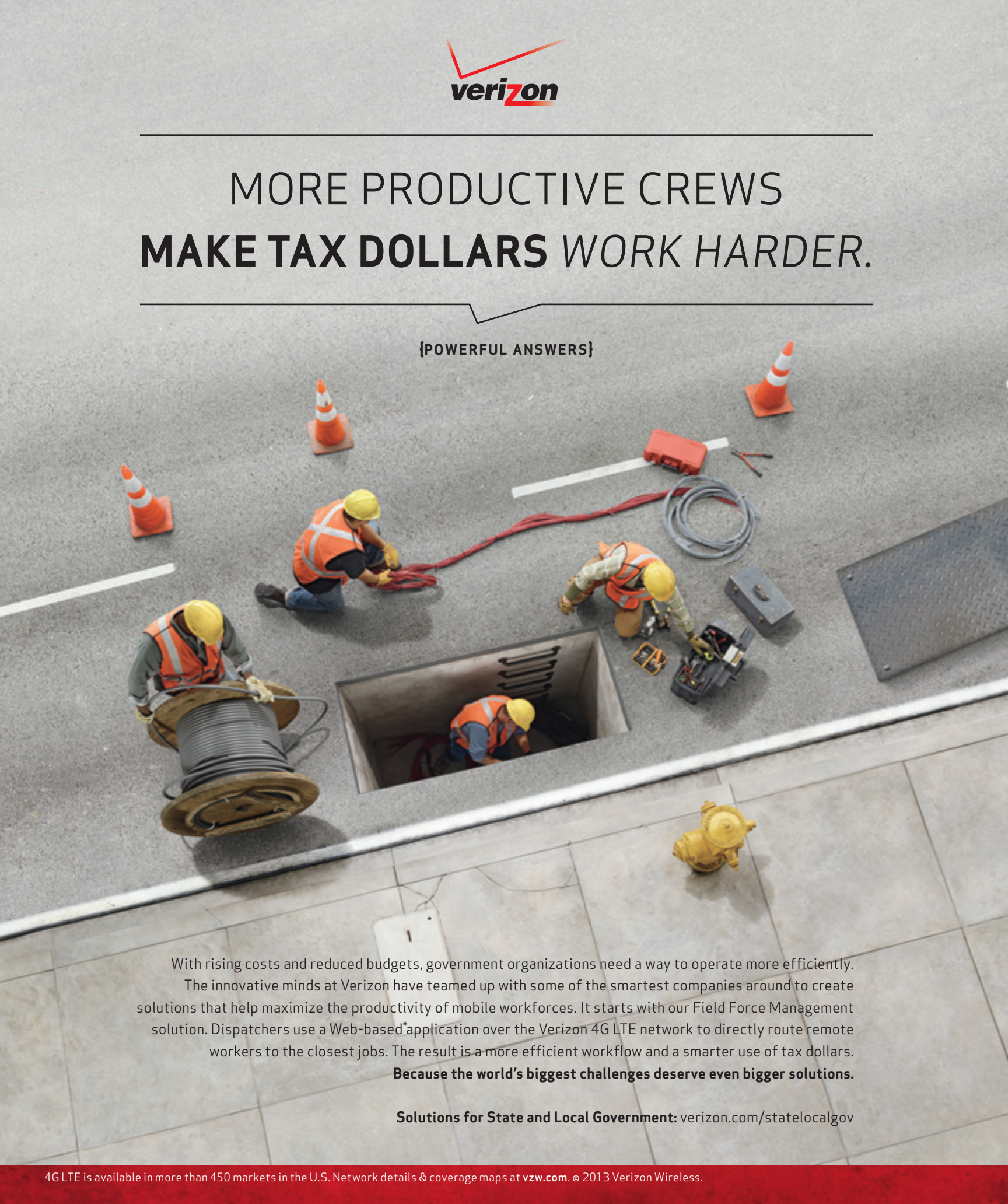


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