

# GOVERNMENT TECHNOLOGY®

SOLUTIONS FOR STATE AND LOCAL GOVERNMENT

VOL 23 ISSUE 12 » DECEMBER 2010



PLUS:

DIGITAL COMMUNITIES  
**Quarterly Report:**

Shared Services

PAGE  
**18**

# THE Year IN Review

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events that shaped **2010**

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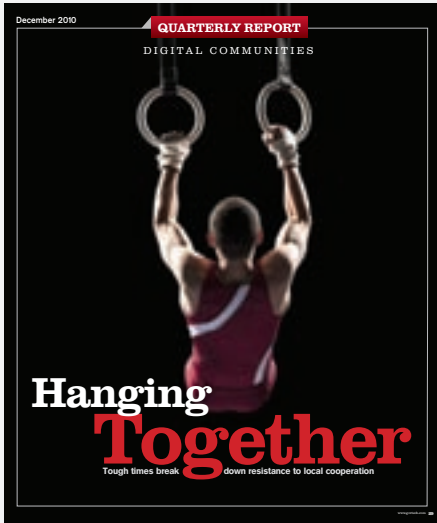
BY CINDY WAXER

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## A Season of Change

As 2010 draws to a close, many jurisdictions are heading into an uncertain future. Government revenue in many locations will stay flat for the next few years, and spending reduction is a top priority for a large portion of existing and newly elected political leaders across the nation.

What this means for government IT professionals is uncertain — but it's probably fair to say that it won't be business as usual.

The changing landscape is most apparent at the state level, where more than half the states chose new governors in the November mid-term elections. When combined with previously announced retirements and resignations, this means that some 30 states could be appointing new CIOs in early 2011.

Leadership changes will occur in states undertaking some of the nation's most significant public-sector IT initiatives. In California, Gov.-elect Jerry Brown, a Democrat, inherits a massive IT consolidation effort launched by Republican Gov. Arnold Schwarzenegger and led by state CIO Teri Takai, who left California in November to become CIO of the U.S. Department of Defense. And in Georgia, incoming Gov. Nathan Deal inherits a comprehensive IT outsourcing initiative launched under Gov. Sonny Perdue and led by current state CIO Patrick Moore.

These and other initiatives may very well continue under the next chief executive, but there's no guarantee they'll receive the same level of support or avoid significant changes.

A number of incoming governors also were elected on promises to shrink government and shun tax increases. How this will impact current IT initiatives is unclear — but it could lend more support to consolidation and shared service initiatives if incoming governors understand the importance of those efforts.

Ohio, which launched an aggressive shared services initiative in 2008, is a case in point. Incoming Republican Gov. John Kasich faces what could be an \$8 billion state budget deficit. He's vowed to cut taxes and "skinny down" state government bureaucracy. Ohio Shared Services — a partnership of 15 state agencies led by the Ohio Office of Budget and Management — looks like a step toward achieving those goals. The initiative — launched under Democratic Gov. Ted Strickland — offers a suite of shared financial applications to participating state agencies, cutting costs and resource duplication.

Change isn't confined to state government either. One local government standout, Chicago CIO Hardik Bhatt, left public service in October, after Mayor Richard Daley announced he wouldn't seek re-election in 2011. Under Daley, Bhatt was a consistent innovator, and he had assumed broad responsibility for tech-related education and work force development initiatives in the city. Meanwhile, the future of Washington, D.C., CTO Bryan Sivak turned uncertain in November when Mayor Adrian Fenty lost his bid for re-election.

At this point, it's hard to say what 2011 has in store, but it's clear things won't be the same. **GT**

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Here are the 10 most popular stories from Oct. 7, 2010 to Nov. 7, 2010.



## IBM TO LAUNCH CLOUD COMPUTING PLATFORM FOR LOCAL GOVERNMENTS

Cities in Michigan and New York state will participate in a pilot of IBM's new Municipal Shared Services Cloud, which aims to deliver software as a service and data analytics.

[www.govtech.com/IBMcloud](http://www.govtech.com/IBMcloud)

### Who Says?

"[These operations] may require abandoning common assumptions concerning time and space."

[www.govtech.com/whoamidember](http://www.govtech.com/whoamidember)



## Wyoming to Move State Employees to Google Apps

Wyoming will become the first state to adopt Google Apps enterprisewide. Google Apps for Government includes the tools available in the consumer version — e-mail, documents, sites, calendar and video — and also adds Federal Information Security Management Act certification, disaster recovery, while storing the customer's data in U.S.-based servers.

[www.govtech.com/WYOMING](http://www.govtech.com/WYOMING)

## 2 miles: The length of the new runway at the spaceport under construction in New Mexico.

[www.govtech.com/spaceport](http://www.govtech.com/spaceport)

### Web Comment of the Month

“Sure, spending \$7 billion to save \$24 million sounds like good value ... oh wait, \$7 billion is 7,000 millions. I guess they are thinking long term, like 300 years long term.”

By Chris on Oct. 25, 2010, in response to New York State Comptroller Plans Audit of Office for Technology Procurements  
[www.govtech.com/NewYorkAudit](http://www.govtech.com/NewYorkAudit)

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[www.govtech.com/solar](http://www.govtech.com/solar)

### Top-Tweeted Stories

CIOs From Seven Big Cities Work Together to Develop Open Source IT Solutions  
[www.govtech.com/G7](http://www.govtech.com/G7)

40 tweets

Half of the Public Sector Embracing Gov 2.0, Survey Finds  
[www.govtech.com/GOV20](http://www.govtech.com/GOV20)

29 tweets

Could Technology Save Government \$1 Trillion?  
[www.govtech.com/TRILLION](http://www.govtech.com/TRILLION)

29 tweets

## 1 The National Renewable Energy Laboratory Achieves Net Zero Energy Consumption

U.S. Department of Energy facility unveils the first federal building that produces as much energy as it consumes.

## 2 Seven Big-City CIOs Work to Develop Open Source IT Solutions

Informal group of like-minded city IT leaders works to create sharable solutions.

## 3 Wyoming to Move State Employees to Google Apps

Within a year, 10,000 state employees will be moved onto Google Apps for e-mail and productivity tools.

## 4 Site Reveals Salaries of New York State Employees

Conservative think tank launches website with comprehensive state financial data.

## 5 Virtual Alabama Facilitates Data Sharing

Alabama lets law enforcement, first responders share important data as incidents happen.

## 6 Biometric Devices Help Track Delivery of Homeless Services

Bergen County, N.J., uses fingerprint scanners to accurately deliver social services to the homeless.

## 7 Major Steps to Transform the Country Using Data Analytics

IBM CEO Sam Palmisano says using data starting at the state level can make the U.S. more competitive globally.

## 8 New York State Comptroller Plans Audit of Office for Technology Procurements

Planned audit comes after New York state comptroller Thomas P. DiNapoli rejected a \$7.5 billion contract.

## 9 Can Surveillance Cameras With 'Eyelids' Prevent Crime?

The Marshfield, Mass., Police Department has deployed more than a dozen video cameras in high-risk public buildings to secure town infrastructure.

## 10 Cash-Strapped Agencies Seek Lower IT Maintenance Fees

Some revenue-starved municipalities target ongoing maintenance fees paid to IT vendors as an area for cutting costs.





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## **LET THERE BE LIGHT**

In this image, researchers at the German chemical company BASF are producing an organic photovoltaic (OPV) cell. OPV technology is an emerging sustainable energy solution that uses organic semi-conductive materials to generate electricity from light. OPV solar cells are easily mass-produced and can be made into flexible paper-thin sheets. Drawbacks, however, include lower efficiency and reliability compared to current photovoltaic technology, which relies on silicon. Once these drawbacks are resolved, thin sheets of photovoltaic cells could be mounted where energy is needed at a substantially lower cost than traditional solar panels.



## Mary Shamouel

CIO, Santa Clara County, Calif.,  
Social Services Agency

When **MARY SHAMOUEL** became CIO of the Santa Clara County, Calif., Social Services Agency in 2007, she faced a barrage of skepticism regarding her goal to deploy business intelligence dashboards, which simplified the process of evaluating the agency's compliance with various regulations by systematically and comprehensively displaying certain tasks. By bringing employees on board, Shamouel ultimately deployed agencywide dashboards that help the county make systematic evaluations.

### 1 Describe the challenges you faced before deploying business intelligence.

We were spending weeks and weeks, and department managers and supervisors were dependent on report writers to generate reports. Those reports were not static, but they were not timely. The business wasn't able to make decisions or make sure they were complying with some of the mandates that were coming their way because they lacked the necessary means to get the information on demand. The goal for business intelligence, in a nutshell, is to do that — to allow the business to make solid, wise, meaningful decisions.

### 2 Did you face much pushback?

I think the stigma when I started bringing the data warehouse and business intelligence into the agency was other agencies had tried that and failed. [They said], "It's not going to be successful. It's going to be costly. It's going to take forever, and you will not succeed."

### 3 How did you help skeptical employees digest these changes?

We did it on a phased approach because I wanted to show chunks of successful deliverables that would get the business excited and get me buy-in to move forward. We have been very successful.

### 4 What final observations do you want to make now that the project is finished?

We are not done. Every milestone, every deliverable — the business was right there beside us, excited. They're using it; they're touting it. Even those who were against this from the get-go, they want to be honored for this. That is the biggest success — when you have people who were against this [and] now they want to be honored and take the credit for it, which is great. [GT](#)

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BY CINDY WAXER » CONTRIBUTING WRITER

# BETTER TOGETHER

As agencies adopt cloud computing and open source software, questions abound about how these hot technology trends are destined to intersect.

**THEY'RE CONSTANTLY COMPETING** for government dollars, scrambling for political appeal and battling it out for executive interest. But this isn't your typical no-holds-barred lobby war. Rather, the sparring partners in question are two of today's hottest technologies: cloud computing and open source software.

Saddled with an annual \$75 billion price tag for IT infrastructure and related resources, the U.S. federal government is eager to find new ways to slash its IT expenditures. With promises of cutting IT infrastructure costs, diminishing vendor dependence and reducing licensing fees, both cloud computing and open source software fit the bill.

But as the U.S. government readily embraces open source software and the feds increasingly adopt cloud computing, many are questioning how these two trends are destined to intersect in government IT. No wonder government agencies are starting to think long and hard about the policies, practices and preconceived notions surrounding these buzzworthy solutions.





**“ A lot of people have this conception that open source is free software, therefore it’s zero cost. But in reality, a lot of effort needs to go into any open source implementation.”**

**Bryan Sivak, CTO, Washington, D.C.**

PHOTO BY DAVID KIDD

## Technology Bedfellows

At first glance, cloud computing and open source software more closely resemble kissing cousins than warring factions. Both technologies serve as cost-effective alternatives to proprietary infrastructures: cloud computing as a flexible way to procure server capacity and computing power, often through remotely located, widely distributed data networks; and open source software as a flexible means for sharing, viewing and modifying computer code with the help of an ever-widening network of organizations.

In fact, cloud computing and open source software are often part and parcel of the same solution. Linux servers are at the heart of many cloud infrastructures, and many cloud-based applications contain open source components.

So too is the push for cloud computing and open source software adoption equally as strong among government agencies. In June, the National Institute of Standards and Technology was designated by Federal CIO Vivek Kundra to accelerate the federal government’s adoption of cloud computing by spearheading efforts to develop standards and guidelines.

And then there’s Apps.gov, a site that serves as a virtual one-stop shop for approved cloud computing applications. Launched in September 2009 by the federal government, the site peddles cloud-based software that’s housed centrally and available via various devices.

As for open source software, several agencies, including the U.S. Department of Defense, have long relied on open source

solutions like the Linux operating system and the Apache Web server. In June 2009, a coalition of about 70 open source companies, academic institutions, communities, groups and individuals joined forces to promote open source software to the public sector. The group, Open Source for America — which includes Google, the Linux Foundation and Oracle — acts as a central advocate for using open source and aims to raise awareness within government.

“Every agency in the D.C. government that wants to undertake a software implementation is required to look at open source alternatives before they make a commercial selection,” said Washington, D.C., CTO Bryan Sivak. Similarly, in January, San Francisco adopted a policy mandating that city agencies always consider open source options when buying new software.

## Where the Commonalities End

That’s not to suggest, however, that cloud computing and open source software are interchangeable technologies. For many, cloud computing is an innovative, cost-effective delivery model, whereas open source software is a revolutionary licensing framework. And despite their shared ability to drive down the cost of government IT operations and spur innovation, these two technologies lay claim to some opposing pros and cons — variables that underscore the delicate interplay between cloud computing and open source software.

Just ask Mark Weatherford, the vice president and chief security officer of North American Electric Reliability Corp., and Cal-

ifornia’s former chief information security officer. “The beauty of cloud computing is that you don’t have to own or buy anything,” he said. “You don’t have to manage anything. I just write a check every month and somebody else does everything for me.”

But while he says that “certain functions are well suited to cloud computing,” Weatherford believes that government agencies should think twice before placing sensitive data in the cloud.

For starters, unlike open source software, cloud computing raises serious questions about how to safeguard government data and protect citizens’ information. Vulnerability to cyber-attacks, compliance with privacy policies, access to information through audits and transparency into a vendor’s internal infrastructure are concerns facing government agencies — and are convincing some to stick with on-premises open source software.

“[With cloud computing] you’re always going to have somebody who’s not one of your employees looking at your data,” Sivak said. “On the other hand, because open source code is completely open and vetted by the community as a whole, any security concerns or holes in the software would be found and filled by people who are evaluating the product.”

Even the much-touted cost savings of cloud computing are being heavily scrutinized by government authorities. “The community that feels that moving to cloud computing is cheaper hasn’t fully explored what the costs of cloud computing are and what the challenges of cloud computing are,” warned former California CIO Teri Takai.

In fact, moving to or replacing legacy applications in the cloud, heavy bandwidth usage and unanticipated architectural changes are only a handful of hidden expenses that can offset a cloud computing arrangement’s favorable pricing.

## Push and Pull

So are cloud computing’s shortcomings enough to chase government agencies into the arms of open source software providers?

For many, the open source community’s collaborative spirit is a huge incentive to turn one’s back on anything proprietary, be it cloud-based or on-premises.

“[Using open source software], you can drop a question into a blog or user group and 10 minutes later, have a very detailed



answer,” Weatherford said, “which is considerably different than calling [a vendor’s] tech support department and waiting for somebody to get on the phone.”

But buyer beware. Sivak warned that the evils of commercial software can also lurk in open source solutions. “Open source is not necessarily the cost panacea that everybody thinks it is,” he said. “A lot of people have this conception that open source is free software, therefore it’s zero cost. But in reality, a lot of effort needs to go into any open source implementation, especially with an ERP-level type software.”

Often offsetting open source’s cost savings is the need to bring in outside expertise, such as a third-party consultant or an additional staff member, Sivak said.

Takai agrees. “Open source is a very important trend for government, because there are opportunities and will continue to be opportunities around open source solutions,” she said. “However, open source is not the answer to all our prayers. I need to have the technical expertise to ensure that I can keep open source running and maintained.”

That’s especially true for government agencies that don’t have much faith in the reliability of open source software. “We have a lot of requirements that demand a level of uptime that require us to have vendor support,” said Bob McDonough, lead enterprise architect for cloud computing at the Michigan Department of Technology, Management and Budget. “So even if we were to use an open source tool, we would still have

to purchase vendor support in case a critical system were to become disabled.”


### A Future Hybrid

But an increased need for IT expertise and application development isn’t likely to force government agencies to choose between cloud computing and open source software. In fact, selecting the right technology need not be an either/or proposition.

Sivak said the best of both worlds may come from open source software provided in the cloud. “You’re not actually paying a license fee,” he said. “You’re just paying an outsourced provider to host, maintain or implement that software for you.”

And most proprietary software contains open source components, McDonough said. “The idea of a monolithic, proprietary application is going to go away.” Instead, he envisions a future in which government agencies “will certainly have significant open source and proprietary software both running in the cloud.”

Skeptics need look no further than NASA. The space agency’s open source cloud computing platform, the federal government’s first, is dubbed Nebula and provides NASA with computing, storage and network services for its research community.

One small step for man; one giant leap for merging cloud computing and open source software. 

**Cindy Waxer** is a journalist whose articles have appeared in publications including *The Economist*, *Fortune Small Business*, *CNNMoney.com*, *CIO* and *Computerworld*.

## EXPERT ADVICE

As Oregon’s first state CIO, Curt Pederson knows about breaking new ground. Today he’s vice provost for information services, CIO of Oregon State University and the visionary behind the school’s Open Source Lab.

A renowned open source hub, the lab’s hosting services help the Linux operating system, Apache Web server, Drupal content management system and more than 50 other open source software projects collaborate with contributors and distribute software to millions of users worldwide.

For Pederson, open source technology has always represented a chance for government agencies and corporations to cut operating costs. “As Oregon’s CIO, I became interested in government finding more cost-effective ways to manage IT,” he said. “Open source as an alternative to expensive vendor solutions is an excellent one.”

While Pederson’s work is encouraging adoption, he and his colleagues agree there are some best practices government agencies should utilize to maximize this collaborative technology.

For starters, many government agencies are too eager to adopt open source without considering their IT assets, hidden costs and in-house expertise. “Not all software is created equally,” said Deb Bryant, the lab’s public-sector communities manager. “Just because you can download it freely doesn’t mean it’s necessarily ready for your organization.”

Bryant suggests that agencies assess their readiness via the Open Source Maturity Model, a formal methodology for analyzing an open source product’s maturity in relation to an agency’s requirements. The maturity score — based on scalability, manageability and support — can predict whether an IT department is ready to adopt open source software. Another practice is to calculate the total cost of ownership. Open source software may cost less than its commercial counterpart, but annual licenses, periodic upgrades, third-party consulting services, system administration costs and off-site storage add up fast. Bryant said, “Always look at open source’s total cost of ownership, [including] data migration, skill sets and training.”



**“[Using open source software], you can drop a question into a blog or user group and 10 minutes later, have a very detailed answer.”**

**Mark Weatherford, former chief information security officer, California**

PHOTO BY DAVID KIDD



# R



A look at the  
people and  
events that  
shaped **2010.**

THE  
**Year** IN  
**review**

BY GOVERNMENT TECHNOLOGY STAFF

**I**n your hands (or on your monitor, or even on your smartphone screen) is the 2010 edition of *Government Technology's Year in Review*. Putting together this feature is always daunting. How best to encapsulate an entire year in state and local technology and present it in a compelling fashion? There's also the challenge of deciding which stories warrant another go-round.

This year, members of our editorial staff took a crack at analyzing individual technology subsets — from IT security and mobile technology to broadband and sustainability — and the important roles each played in 2010. You'll also find top 10 lists, a roundup of popular smartphone apps, a timeline highlighting career moves, technology milestones and more.

Without a doubt, 2010 will be remembered as the year the Web was truly liberated from the confines of the desktop. This year, more people accessed the Web from non-PC devices than ever before. Most would agree the era of the desktop as the preferred on-ramp to cyber-space is rapidly ending. More powerful smartphones, iPads and their competitors, and even our game consoles, are ushering in a new age of ubiquitous connectivity.

This fundamental societal shift will undoubtedly bring challenges and opportunities in every realm imaginable — health, work, love, environment, energy, governance and virtually every other aspect of our lives. This change will set the course for our shared future and will demand that public-sector technology leaders radically redefine their priorities. The time of the CIO as a glorified MIS administrator is officially behind us. Technology leadership will be in increasingly high demand and perhaps a revisit to 2010 will offer some glimmers of insight for how you should prepare.

January 7

FCC Seeks One-Month Extension for National Broadband Plan

January 28

High-Speed Rail Corridors Get \$8 Billion from Stimulus Funds

February 1

New York Begins Consolidating E-Mail Statewide

February 10

Municipalities to Compete for Google Broadband Networks

February 24

Microsoft Unveils Dedicated Cloud for Government

January

February

January 6

IBM, Texas Announce New Framework for Data Center Consolidation

January 22

Majority of States Sign up for Race to the Top Education Funds

February 8

California Crowdsources Ideas for Replacing Legacy Systems

February 18

School District Spied on Students via Laptop Webcams, Lawsuit Claims

## » Broadband

THROUGHOUT 2010 many government officials derided the National Telecommunications and Information Administration's (NTIA) disbursement of \$7.2 billion set aside in the American Recovery and Reinvestment Act for broadband projects. People lamented the extra time the NTIA needed to evaluate applications. Applicants typically found the requirements onerous and sometimes contradictory. Also, the first round of winners represented a small portion of the \$7.2 billion, prompting many to dismiss broadband's near-term relevance to stimulating the economy. While the complaints were valid, the agency didn't get enough credit for putting good stewardship of tax dollars ahead of shoveling stimulus money out the door.

In a move that was unpopular with governments, the NTIA gave most of its first-round broadband infrastructure grants to proposals driven by telecommunications companies, not state and local agencies. Many government CIOs were crushed after having run themselves

ragged meeting tight application deadlines, said Alan Shark, executive director of the Public Technology Institute. "Any idealistic hope that we may have had has been evaporated by what they funded," he said.

But Gartner analyst Alex Winogradoff, who helped the NTIA judge grant applications, said the agency had no choice but to reject many government-driven applications. Government submissions often lacked the expertise and preparedness of private-sector applications, he said. If the administration was going to spend billions in tax dollars on broadband, the money needed to go to proposals with the best expertise available. With a small staff, the NTIA made numerous efforts during 2010 to help government applicants revise their proposals. The agency allowed for resubmissions and held workshops across the country to give pointers on revisions. As more grants were announced in 2010, a reasonable amount of broadband money ultimately went to both vendor and government applications. — ANDY OPSAHL



Army Gen. Keith Alexander heads the new U.S. Cyber Command, which protects Department of Defense information networks.

WIKIPEDIA

## » Security

EVEN BEFORE 2010 began, research organizations and vendors forecast trouble on the cyber-security front. In December 2009, Kaspersky Lab predicted that 2010 would see more sophisticated malware attacks that would reach more places, like phones and social networking platforms. Fast-forward to July, and another research firm claimed that more complex cyber-attacks were occurring than before.

Mark Weatherford, California's then-chief information security officer (CISO), wrote in January that such reports highlighted how susceptible U.S. infrastructure is to cyber-crime and cyber-terrorism. And at a March symposium on protecting the global supply chain, government, academic, nonprofit and

corporate attendees agreed that cyber-dangers even threaten America's stream of goods. Since technology touches everything now — even how people get food — these supply chains are vulnerable.

The federal government moved to shore up protection of the nation's digital infrastructure, but those efforts took awhile to get moving. Months after the Obama administration completed a 90-day review of the nation's digital infrastructure in December 2009, the president appointed Howard Schmidt to be the first White House cyber-security coordinator. Then in May 2010, four-star Army Gen. Keith Alexander was named commander of the newly created U.S. Cyber Command, a subdivision of the U.S. Strategic Command.



**March 12**

Topeka, Kan., Renamed Google for the Month of March



**March 23**

Sacramento, Calif., City Council Switches from Paper to Kindles

**April 2**

Austin, Texas, Appoints Stephen Elkins CIO

**April 28**

Ex-San Francisco Network Engineer Convicted of Network Tampering

**March**

**April**

**March 11**

Veterans Affairs Plans to Automate 'Agent Orange' Claims

**March 16**

FCC Unveils National Broadband Plan



**April 5**

California's P.K. Agarwal, Director of the Office of Technology Services, Steps Down



**April 7**

Virginia Restructures IT Services Deal with Northrop Grumman



# Your Favorite Stories

The most popular stories on govtech.com for 2010

» Is Google Earth Eyeing Your Pool?

» Site Reveals Salaries of New York State Employees, Other State Financial Data

» Florida Adopts Forecasting Technology to Target High-Risk Youths

» Official: California IT Consolidation's Estimated Savings near \$3 Billion

» California Digital License Plates May Hit Roadblock

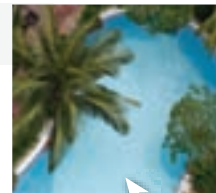
» Americans' Awareness of Smart Grid Lagging, Survey Finds

» Proposed Bill Would Give President Emergency Cyber-Superpowers

» Texas Warns IBM of Outsourcing Contract Failures

» Will Hawaii Get a Full-Time CIO?

» How to Make Municipal Wi-Fi Work



## » MOBILE DEVICES

This year — like the last several — governments struggled with strict budgets, and officials sought ways to work smarter or risked getting left behind. In 2010, mobile devices became the go-to gadgets to boost efficiency, and governments couldn't keep their hands off them.

With mobile technology, cash-strapped agencies had a way to save paper and time, interact with the public, and send and receive critical data in the field. This year, handheld tools — laptops, smartphones, PDAs — helped improve workflow management for agencies countrywide, from public safety to human services departments.

In law enforcement, mobile technology continued to drive the e-ticketing trend, streamline data delivery and enhance biometric operations. Building inspectors used the tools to remotely access information on permits, licenses and properties. In the spring, Florida's Department of Children and Families distributed smartphones and laptops equipped with built-in cameras and a software program, enabling foster care caseworkers to take digital images and immediately upload information to the state's child welfare data system.

Handheld devices have been on the market for years, but the game changed in April when Apple released its tablet computer: the iPad. To save time and reduce paper use, Williamsburg, Va., and Redwood City, Calif., used the tablet to eliminate printed materials for city council meetings and potentially save thousands of dollars.

But with mobile technology still new and spreading fast, cities and states are trying to keep up. Governments must determine where e-mail, text messages and chats on mobile devices fit in the transparency conversation so as not to undermine open records requirements.

In any case, as mobile devices evolve, the public sector will adapt to portable technologies to keep moving forward in the most efficient manner. — RUSSELL NICHOLS

This federal activity impacted state and local government efforts. Maryland officials, for example, recommended in January that the state align its cyber-security initiatives with those of the Obama administration. In a summer IBM-sponsored survey about state cyber-security management, CISOs viewed their relationships with the federal government differently. It was recommended that individual CISOs sit down with federal counterparts to work out unique cyber-security strategies.

Although the federal government took significant steps toward strengthening leadership and coordination on national cyber-security issues, more work remained as 2010 drew to a close. In August, the U.S. Government Accountability Office released a report calling for greater public-private cooperation on cyber-security matters. The authors noted the creation of the U.S. Department of Homeland Security's National Cybersecurity and Communications Integration Center, which is designed to coordinate information sharing

between government and corporate entities. But the report stressed that the public and private sectors must work closely together to fight cyber-crime.

— HILTON COLLINS

## » Sustainability

WHAT DOES it mean to "go green?" Not much anymore, as public and private organizations seemingly moved beyond that catchall phrase in 2010. In government, hardly anyone is going green — they're practicing sustainability instead. Usually such



buzzword bingo has little bearing on the issues being discussed. In this case, however, there really is a difference: Going green usually describes doing something simply because it's environmentally friendly. Being sustainable, on the other hand, is not only environmentally friendly, but also makes an organization better in terms of cost, productivity and efficiency.

This year, there was no shortage of sustainability efforts at the local, state and federal levels. In November, one of the federal government's premier examples of sustainability can be found at the National Renewable Energy Laboratory (NREL) in Golden, Colo.

# Your Favorite Videos

Most-watched videos on govtech.com for 2010

- » New Kind of Vending Machine
- » Fire Department Leverages Smartphones
- » Meet Colorado's Chief Data Officer
- » Warning to Vendors
- » The Next Push from Motorola
- » Virtual Beverly Hills
- » Cities Launch Open Source 311



- » How San Diego Makes Outsourcing Work
- » Inside Manor Labs

NREL's new Research Support Facility is a testament to how thoughtful construction, locally sourced materials and innovation can be combined to create

The NREL's Research Support Facility



a supremely energy-efficient structure, the cost of which rivals that of traditional buildings.

Meanwhile governors and state CIOs joined forces in 2010 to find ways to attract, invest in

**May 12**  
New York City 311 System Takes 100 Million Calls

**May 17**  
Indiana CIO **Gerry Weaver** Resigns

**May 21**  
Karen Robinson Confirmed as Permanent Texas CIO

**June 8**  
Texas.gov Launches as State's New Web Portal

**May 3**  
New York Launches Online Cancer Data Map

**May 13**  
IBM and Indiana Suing Each Other Over **Canceled Outsourcing Deal**

**May 19**  
California Creates Portal for State's 10,000 IT Workers

**May 25**  
Defense Secretary Robert Gates Announces Nation's First Cyber-Commander

**June 7**  
Colorado CIO **Mike Locatis** Named Chief Deputy CIO of California

**[CANCELED]**

and leverage sustainable technology that will drive down the cost of doing business. In Sacramento, Calif., the Sacramento Municipal Utility District (SMUD) is investing \$128 million in American Recovery and Reinvestment Act funds for smart meters, dynamic pricing, electric vehicle charging stations and home energy management systems.

But not all sustainability efforts need to be as large scale as NREL's or as expensive as SMUD's. Reno, Nev., is a perfect example. In June, two 1.5 kilowatt wind turbines were put into operation atop the



17-story City Hall. Sustainability solutions like these, together with big-ticket projects, helped define 2010 — and will continue to do so in the future.

— CHAD VANDER VEEN

## » Public Safety

2010 WAS another year of doing more with less — and public safety agencies took this to heart. Throughout the year, *Government Technology* covered law enforcement agencies using technology deployments to promote public safety and smarter ways to use equipment.

San Jose, Calif., took President Barack Obama's call for transparency to a level beyond tracking spending. The Police Department tested cameras that rest on an officer's ear to record video footage of his or her encounters. The cameras provide a way for police officers and their superiors to see incidents from the officer's point of view. The video data also can be used in court and allows police to turn the cameras on the public, which has been known to use technology to record officers' actions.

License-plate readers were another growing piece of technology in the field. While recording license plates near a crime scene, cameras attached to police cars automatically scan and track vehicles' license plates to see if they're associated with people on the FBI's most wanted list. License-plate readers also helped the Greenwich, Conn., Police Department recoup roughly \$5,000 in outstanding parking fines by connecting the



system to its parking violations database. When officers pass a vehicle that has outstanding tickets, the system alerts officers so they can contact parking violations personnel who then put a boot on the vehicle.

These are two examples of public safety departments using technology to aid officers in the field while implementing smarter uses that provide additional benefits to the government as a whole. One can only imagine how this trend will continue in 2011 and beyond.

— ELAINE PITTMAN

## » Chief Information Officers

IN EARLY 2009 when President Barack Obama created the federal CIO and CTO positions — and then filled the new posts with former Washington, D.C. CTO Vivek Kundra and former Virginia CTO Aneesh Chopra, respectively — states and localities had new hope that their opinions would be heard and their ideas

**June 10**

Maine CIO **Dick Thompson** Announces Retirement

**June 23**

Massachusetts Breaks Ground on "Green" Backup Data Center

**July 19**

Utah Finishes Data Center Consolidation

**August 1**

Reno, Nev., Puts **Wind Turbines** on City Hall Roof

**August 3**

Maryland Social Media Campaign Rules Take Effect

**August 20**

Texas Indicates It Will Rebid All Or Part of the \$863 Million Data Center Project

**August 27**

Massive Outage Affects Virginia Data Center

**July**

**August**

**June 14**

Alabama, Rhode Island and Tennessee Launch Redesigned Web Portals

**July 6**

Chicago Begins Work on Nation's First LEED Gold-Certified Parking Garage

**August 3**

Massachusetts CIO **Anne Margulies** Announces Resignation

**August 24**

California and Sprint Announce Nation's First Mass Mobile Alert System



Aneesh Chopra

shared by the federal government. The belief was that putting Kundra and Chopra in charge of the administration's technology agenda would spur collaboration across all levels of government.

Two years later, that initial optimism developed into real-world results, although much work remains to ensure that the cooperation doesn't fizzle. In some cases, the federal government has led by example, such as its push to make government data public by publishing it online — an approach many states and localities quickly expanded upon. Other times, the federal government cribbed ideas that started in local government, such as apps development contests for citizens.

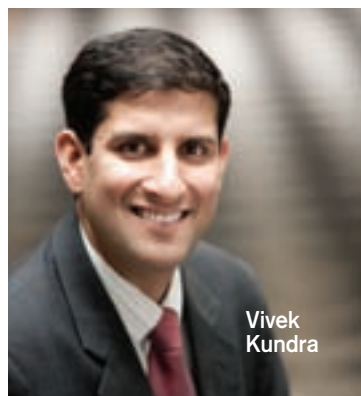
Sharing was one motivator for the Gang of Seven, an informal group of big-city CIOs who pool resources and ideas for application development, such as for 311

customer service systems. In July, a new consortium of CIOs at public transit agencies was started with the intent of sharing IT best practices. And a few states are in discussions to share Medicaid management information systems.

CIOs' prevailing thought in 2010 was why build alone when you can build together? For the first time in a while, state and local CIOs say the federal government wants to work with them. The challenge for 2011 will be pushing collaboration forward despite continued budget pressures and the large number of CIOs who'll leave after new governors take office.

There's no shortage of projects that must be addressed. Broadband infrastructure, public safety radio, smart grid and intelligent transportation are all ripe for cooperative approaches. The trick will be actually doing it.

— MATT WILLIAMS



Vivek Kundra

## » EMERGENCY MANAGEMENT

Since 9/11, billions of federal dollars have been spent to fix the public safety communications interoperability problem, most of it on hardware. Although there has been much progress, frustrations continue.

A common refrain years ago was that agency or jurisdiction A couldn't communicate with agency or jurisdiction B. For the most part, "couldn't" has been made obsolete, because technology upgrades allow for communication. But the willingness may still be lacking — or there may be a language (codes) barrier. It's now becoming common knowledge that the interoperability problem is a people problem. Only continued communication among agencies and jurisdictions in the form of exercises, roundtables, etc., that lead to collaboration will solve the problem in most places.

In 10 years, will we still write about interoperability as we do today — that it's something that's desired but still must be attained? Or will agencies and local governments move outside their comfort zones and take advantage of the technology that's readily available, opening the dialog with their neighbors and making interoperability yesterday's news? We hope it's the latter. — JIM McKAY



## » Education Technology

OVER THE PAST year, school districts and universities nationwide switched to hosted applications, beefed up their wireless infrastructure and experimented with digital content.

For e-mail and documents, institutions moved to Google Apps for Education. In April, Oregon was the first state to sign an agreement with Google that its school districts could take

advantage of, with Iowa and Colorado following suit in June. In the California State University system, more than half of the campuses switched to Google's hosted service, along with major research universities. While some campuses tested Microsoft Live@edu, they made up a small minority.

On the wireless front, more school districts provided wireless access and mobile devices to educators and students. A smaller but growing number of districts allow students to access

### September 3

Boston Launches a Mobile Version of City Website

### September 13

Chattanooga, Tenn., Gets Pricy 1 Gbps Broadband

### September 14

Washington State CIO **Tony Tortorice** to Resign Post

### October 15

Iowa Gov. Chet Culver Signs Executive Order Creating State's First CIO Office

### October 20

New York City, Microsoft Announce Cloud Computing Agreement

## September

## October

### September 8

Washington, D.C., Extends **Free Wi-Fi Coverage to the National Mall**

### September 15

Minnesota's First CIO, **Gopal Khanna**, to Resign in December

### October 20

Pennsylvania's CIO **Brenda Orth** Announces Resignation

the wireless network with their own technology.

In the classroom, educators increasingly gave students assignments to blog, talk with classes nationwide and search for learning resources via online applications. These tools let students get

excited about learning and use their book smarts in the real world.

As content moved online and became interactive, California led the way in affordable digital learning initiatives. On the K-12 level, Gov. Arnold Schwarzenegger continued his free digital textbook initiative, and a pilot project with iPad apps in four districts is testing the impact of interactive digital content on student learning. At the college level, the university systems provided open source content and other digital material. Texas also is working on a portal for educators and students that combines professional development, portfolios, digital content, e-books and online courses.

These tools allow students to communicate, interact and engage with the knowledge they're learning — and that's what education is all about. — *TANYA ROSCORLA*



Boston citizens can get text or e-mail alerts if their vehicles are towed.

## » Web 2.0

GOVERNMENTS HAVE come a long way since RSS feeds and internal wikis. Throughout the year, *Government Technology* featured jurisdictions that pioneered or expanded the scope of Web 2.0 technologies in the public sector. For example, Boston's revamped

website lets residents sign up for text or e-mail alerts in case their car gets towed, and Miami-Dade County, Fla., created an online foreclosure auction site.

Web 2.0 also continued to make its mark on politics. During the 2010 gubernatorial elections, citizens all over the U.S. could "like,"

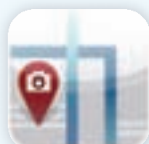
## New Government Smartphone Apps for 2010



California's Office of Traffic Safety's **Taxi Magic** (iPhone, Android, BlackBerry, Palm)



New York City's **NYCMate Transit App** (iPhone, Android)



CivicPlus' **Citizen Request Tracker** (iPhone)



King County, Wash.'s **OneBusAway** Real-Time Bus Tracking app (iPhone, Android)



San Ramon, Calif.'s 911 **dispatch app**, Firedepartment.org (iPhone)



Transportation Security Administration's **MyTSA** app (iPhone)



California Department of Motor Vehicles' **DMV NOW** app (iPhone)



## November 1

IBM Launches Cloud Computing Platform for Local Governments

## November 8

Mid-term Elections Expose Problems with Electronic Voting Machines

## November 10

IBM Announces It Will Offer Free Consulting Services to 100 Cities Worldwide

# November

## October 25

California's **Teri Takai** Named Defense Department CIO



## November 8

Minnesota Announces Plan to **Reduce** Number of State **Data Centers** from **36** to four

## November 15

Texas Launches New Web Portal Aimed at Helping **Veterans**



# Your Oddest Searches

The most unusual searches on govtech.com in 2010.

- » flying windmill generators
- » grass fed cattle
- » hericanes
- » moose photography
- » nude pizza dare
- » old people
- » scharzennagar
- » teachers viagra
- » who's in jail



“friend” and “follow” government hopefuls by using social media sites such as Twitter and Facebook.

In an effort to reach out to the voting public, electoral candidates posted updates, videos and links to campaign information on social media sites. Receiving snippets of the campaigns was a perfect solution for anyone wanting daily doses of election coverage or looking to kill time on a smartphone.

But Tweeters and Facebookers risked following fake accounts, especially if the account was supposedly for a high-profile political figure. Outgoing California Gov. Arnold Schwarzenegger had a slew of social media imposters making it difficult to determine which tweets and Facebook posts really belonged to him. Although some legal action is being taken to prevent social media fraud, most

states don't have a comprehensive social media policy.

This year, Maryland led the way on social media regulations. As of Aug. 3, the General Assembly's Joint Committee on Administrative, Executive and Legislative Review passed a law requiring political candidates in Maryland to provide an “authority line,” declaration of approval and the name of their campaign treasurer for their social media sites.

At the local level, mayors used social media to connect with their communities. For instance, Oklahoma City Mayor Mick Cornett used Twitter to update citizens on the city's weight loss total for This City is Going on a Diet, an effort to help Oklahoma City residents collectively lose 1 million pounds.

Meanwhile, Wichita, Kan., Mayor Carl Brewer used Facebook to encourage residents to give feedback to the City Council on specific issues. And in July, New York City sought to hire a chief digital officer — a job born from the Web's evolution — with social media and Web 2.0 expertise to communicate with citizens online.

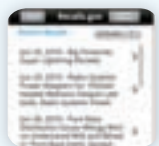
But while many social media activities increased, 2010 also saw the end of one of the Web 2.0 era's signature initiatives: Washington D.C.'s Apps for Democracy contest. District CTO Bryan Sivak

ended the contest — conceived by former district CTO Vivek Kundra — citing concerns over the sustainability and relevance of the resulting applications. Still, Apps for Democracy served as an inspiration for many jurisdictions, like San Francisco and Portland, Ore., hoping to engage citizen developers to use government data in innovative ways.

Web 2.0 technologies broadened two-way communication

between government and citizens, and improved transparency — another heavily discussed topic in 2010. The full benefits of Web 2.0 are yet to be realized, but already there's talk of Web 3.0. Much like Web 2.0 before it, many are uncertain what this new iteration will entail, but no doubt 2011 will be a year many endeavor to find out.

— KAREN STEWARTSON AND SARAH RICH



U.S. Consumer Products Safety Commission's **Recalls.gov** app (Android)



Montana's **MT.gov Driver Test app** (iPhone)



Oklahoma City Mayor Mick Cornett used Web 2.0 to help city residents shed pounds.

# What's Next?

Public- and private-sector experts predict top trends for 2011.



## CONTROLLING TECHNOLOGY COST

The rising cost of power and resources coupled with desire to consolidate data centers will accelerate interest in virtualization, cloud computing and a closer examination of the cost of operating IT equipment. The growth of cyber-security and social networking will be fueled by a combination of ever-increasing bandwidth and a desire to do more with mobile computing. The need for timely, accurate information to make informed decisions will fuel an increase in intelligence, surveillance and reconnaissance technologies to benefit all sectors of society — from national defense to disease control, to more accurate weather prediction.

**Greg Hanson**, *chief operating officer, Criterion Systems, and former CIO of the U.S. Senate*



PHOTO BY KELLY L. DUKE

## The Hybrid Cloud

A potential business model that could develop in 2011 is the creation of a hybrid cloud where the private sector operates a cloud within the government's infrastructure. This hybrid model would assist government in limiting concerns such as security. We believe this model to be sustainable and are preparing to provide cloud technologies to numerous governments in Michigan within the next 12 months. My prediction is that the private sector will partner with government in 2011 to create the necessary offerings to make the cloud a beneficial reality for us all.

**Phil Bertolini**, *CIO, Oakland County, Mich.*

## More Biometrics

The use of biometrics will increase in the public sector. Citizens are becoming more comfortable with allowing collection of private data, but they will demand better protection. Government must respond by offering multifactor authentication capabilities and encryption technologies.

**Patricia Titus**, *global chief information security officer, Unisys*



## Patient-Centric Care

We must implement new technologies that enable better prevention, improved self-care and quality chronic disease management. We have the opportunity to connect people and information in new ways that put patients' wellness at the center, while also scaling to the increasing population of people in need of health care. It's time to move beyond the hospital-centric model of health care and start using technology to create home- and community-based health-care environments.

**Louis Burns**, *vice president and general manager, Intel Digital Health Group*



## Next-Gen Communications

Public safety agencies countrywide are rallying toward early stage deployments of 4G long term evolution (LTE) mobile broadband networks. The alignment and timing coinciding with commercial LTE networks will offer a great step forward in the introduction and cooperation of public and private networks. The next generation of public safety communications systems will have the opportunity to supplement their critical voice and data services with enhanced multimedia applications.

**Paul Steinberg**, *CTO, Motorola Solutions*

Place-based  
management of  
assets, interior  
space, and the  
building life cycle

# GIS: Smarter Solutions for Facilities and Real Property Management

**Government organizations** contend with a variety of challenges when it comes to managing real property. Facilities and property managers must meet fiscal and budgetary mandates; comply with government regulations; and address public pressure to streamline operations, control costs, secure their facilities, and support environmentally friendly efforts. Meeting all these requirements has often been a daunting and complex task requiring managers to piece together information from a variety of systems and technologies. More and more agencies are beginning to take a geographic approach to managing these operations, with great success.

Geographic information systems (GIS) have been used for decades to make smarter decisions regarding the use and maintenance of land and infrastructure, and in the past five years, this use has grown to include building space. Most people think of GIS as a way to manage outdoor infrastructure, natural resources, and assets, but that offers just a glimpse into the capabilities of Esri's GIS technology. Buildings and campuses; grounds; cables and pipes; vehicles; and internal assets, such as fire extinguishers, security cameras, and first aid stations, can all be mapped. An array of visual maps and



## Compliance

- ▶ Asset conditions and priority assessment
- ▶ Space utilization
- ▶ Disaster and business continuity planning
- ▶ Energy and sustainability
- ▶ Americans with Disabilities Act (ADA)

## Value

- ▶ Save time and money
- ▶ Improve problem solving and decision support
- ▶ Enable data and system interoperability
- ▶ Increase collaboration among all stakeholders in your organization



charts in 2D, 3D, and 4D allow information to be easily understood and shared.

Because GIS supports federal enterprise infrastructure guidelines, data from traditionally disparate technologies—such as computer-aided design (CAD), accounting, and conventional facilities management systems—can be pulled together so governments have a clearer operational picture. By integrating these systems with GIS, governments can make strategic decisions about space and asset utilization, condition and rates of deterioration, maintenance patterns, safety and security controls, energy use, carbon footprint status, and more.

## A Holistic Approach

Integrating facility and asset management systems and data with GIS allows governments to spot areas where they can make operational improvements or solve problems in ways that may not have been apparent before. Existing facility flat files, CAD drawings, and building information modeling (BIM) can be integrated with GIS, transforming them into a holistic and

transparent system that supports various workflows and related systems.

With so many systems and datasets to manage, this holistic approach is helping government find areas where money can be saved and new efficiencies can be introduced. For example, mapping interior building spaces and their uses lets facilities managers easily find underutilized spaces, reducing maintenance and lease costs. These maps also enable efficient space planning, helping locate employees in the most appropriate place for their



jobs. With GIS, these types of assessments can be conducted in a matter of minutes or even seconds, and facilities managers can run models that show potential use scenarios or perform site suitability analyses.

Construction planning is another area in which a common operational picture can save time and money. Facilities and property managers can prevent costly construction delays by knowing the location of utility lines, where environmental clearances or special permits are required, and what other projects are going on in the area. Maintenance staff and groundskeepers can also work more efficiently with access to an informed operational picture.

Tying these facility-related processes together through geography enables better collaboration and decision making.

## Eye on Accountability

With the increased focus on budgets and efficiency, government organizations are being held more accountable than ever. Numerous new mandates and regulations have come about in recent years, requiring government agencies to prove responsibility in matters of finance, environmental sustainability, and security.

Esri GIS for asset and facility management aligns with the data characteristics federal agencies are required to report, making it easy to account for elements such as asset condition, utilization, and replacement value.

Other compliance objectives—such as the Americans with Disabilities Act, safety codes, and environmental guidelines and requirements—can be quickly assessed with visual data. Using GIS, facilities data can also easily be shared with others in the organization for more collaborative planning. For instance, operations executives and emergency planners can use data-rich maps to determine evacuation routes and plan for continued operations should disaster strike. This data can also be used to assess potential threats—from weather events to physical security vulnerabilities—to facilitate planning and mitigation.

With a complete picture of facilities and asset data, government institutions are solving problems, making more informed decisions, and realizing operational efficiencies throughout their organizations.

“We can come up with new approaches to do things that we couldn’t do previously because the data was not readily available.”

— Brad Ball, GIS team leader, NASA Langley Research Center

# NASA Langley Research Center

Massive research center uses GIS to optimize space utilization and cut costs.

The National Aeronautics and Space Administration (NASA) Langley Research Center (LaRC) in Hampton, Virginia, has a reputation for solving difficult problems. So when confronted in 2004 with the possibility of dramatically reduced future budgets, it was no surprise that LaRC came up with forward-thinking options to downsize the infrastructure on the 800-acre campus. Scenarios that addressed reductions of 25 percent and more meant that a widespread area of real property, including many aging and obsolete facilities, needed to be reassessed. To address these issues, LaRC became one of the first NASA centers to benefit from Esri’s GIS technology for real property management.

## Space Utilization Optimization

The Center Operations Directorate’s GIS team is responsible for spatial data and associated technical support at NASA LaRC. To facilitate reorganiza-

tion scenarios, the team extended Esri’s technology by developing space utilization optimization tools to map out and analyze the use of each area. By doing so, they were able to propose solutions to reduce the number of buildings in use and increase efficiency, with a goal of ultimately reducing operation and maintenance costs by \$1 million per year. Methodologies used in the 2004 effort can be extended to other NASA and government facilities to achieve additional savings and efficiencies.

More recently, the GIS team leader, Brad Ball, recalls the stringent requirements placed on his team to reorganize a building for a long-term satellite research project, which required extensive collaboration between researchers in order to be successful. The satellite project manager wanted his team to be located on one single floor. Using a GIS space optimization model, the GIS team was able to show how the satellite project team could work together on one floor of a single building.

This required two other organizations to relocate and compress within that building, but the GIS team identified new locations for them as well.

“Personally, I’m pushing space utilization optimization. I think that’s probably the most valuable tool we’ve developed in the time I have been driving the GIS efforts here,” said Ball. “I think it has value across the entire federal landscape and in industry and academia.”

## Cost-Cutting Benefits

In addition to the savings the agency will realize from more efficient property use, Ball believes the system is paying dividends in terms of effectiveness. He says the system’s ability to integrate data from various sources allows the agency to make better decisions, resulting in opportunities for further operational improvements and reduced costs.

“We can come up with new approaches to do things that we couldn’t do previously because the data was not readily available,” said Ball.

Ball cites janitorial and grounds maintenance contracts as an example of additional efficiencies and cost savings enabled by GIS.

“We were able to identify the square footage for grounds maintenance,” Ball said. “Previously, we were just telling the contractor to cut this area, and we would say we have 800 acres. Well, by the time you take out the parking lots, the roads, the buildings and wetlands, that tremendously reduces the area.”

## On a Path to Success

Like most federal agencies, NASA LaRC employs a GIS-based master plan, which it established approximately five years ago and recently updated. LaRC had to maintain similar functionality while complying with NASA’s requirement to reduce its size.

Ball said NASA LaRC’s downsizing efforts are succeeding, and the center is on a course to achieve current reduction goals. LaRC was so successful in using GIS for real property management that now other NASA centers, such as the Johnson Space Center, use it. Other government and private facilities and countries are showing interest as well.

“NASA Langley’s master plan is being very well received,” Ball said. “We’re going to demolish the old buildings. We’re not trying to keep everything up. We’re going to have a smaller carbon footprint. We’re going to compress, but we’re going to maintain similar functions. We’ll still support most of the areas of work that we have grown to over the last 40 or 50 years.”

**“GIS is rapidly becoming part of the future of green building. We hope that by providing a means for people to systematically search green building projects, they are inspired to build better and exceed the current level of prevailing practice.”**

—Chris Pyke, vice president of research, U.S. Green Building Council

# U.S. Green Building Council

GIS helps create best practices for green building.

The U.S. Green Building Council (USGBC), located in Washington, D.C., is a leader in the effort to facilitate the creation of green buildings. To maximize its effectiveness, the council uses GIS to help professionals and citizens look deeper into green building possibilities.

“GIS is rapidly becoming part of the future of green building,” said Chris Pyke, vice president of research at USGBC. “We hope that by providing a means for people to systematically search green building projects, they are inspired to build better and exceed the current level of prevailing practice.”

The spatial data and analysis provided by GIS can aid green building in numerous ways—from mobile applications that show nearby green projects and their attributes to regional overviews showing variance in conditions affecting green building.

The council's Green Building Information Gateway (GBIG) provides online users with an unprecedented ability to explore, navigate, and compare green buildings over both space and time. GBIG, built with Esri's ArcGIS Server and ArcGIS API for Flex, is being made available in phases for large metropolitan statistical areas (MSA) across the United States. The first is Chicago, Illinois, followed by Washington, D.C. Using tools within ArcGIS, projects can be animated to show growth over a specific time period. GBIG's mapcentric,

Web-based portal combines both a mobile application and an analytic environment.

USGBC's Leadership in Energy and Environmental Design (LEED™) rating system helps prioritize best practices related to location and planning, sustainable sites, energy and atmosphere, water efficiency, materials and resources, and innovation in design. LEED reaches across neighborhoods, commercial buildings, health care facilities, schools, homes and more—providing a national standard for green building practice linked to rigorous third-party review and certification.

## LEED and GIS

LEED has become more effective via GIS. The council is refining green benchmarks with a ZIP Code-based approach, which lets it customize LEED requirements for different regions. The council also is exploring GIS-based solutions that will help refine these priorities to create, identify, and prioritize green building strategies based on local conditions and regional priorities (e.g., water conservation or nonpoint source pollution management).

GIS will help refine ZIP Code-level analyses to facilitate consideration of geographic variation in population density, electricity generation, availability of public transportation, and water supply characteristics. Combinations of these factors

vary significantly between regions, neighborhoods, and even blocks. GIS provides visibility into these parameters, enabling better decision making. “Changes in the relative importance of these factors can be used to prioritize individual green building strategies,” said Pyke.

Via the Green Building Information Gateway, users can find LEED-certified buildings through text-based searches of project attributes and geographic searches by factors such as proximity or travel time. These allow green building practitioners to quickly identify practices and benchmark projects with respect to a set of performance metrics for similar projects in a specified area. This provides an unprecedented ability to understand and compare projects.

Spatial and attribute-based searches will be expanded in the future to include data related to LEED Accredited Professionals, USGBC member organizations, operational project performance metrics, products, services, and educational materials. Developing GBIG with ArcGIS Server technology provides the interoperability needed to connect to third-party data sources and understand green building attributes in the context of data such as occupancy rates, rents, or demographic forecasts.

With its ability to visually display key data—and aid in analysis of that data—GIS is making a bigger contribution to green building than ever. And the trend will continue. In fact, green building practitioners now use technologies like GIS earlier in the sustainable design process. “The result will be higher-performance, more sustainably built environments that are informed by place and context, engineered to maximize benefits for people and the environment, and operated to achieve continuous improvement,” Pyke said.



To find resources and learn more about federal real property management, visit [esri.com/GT1110](http://esri.com/GT1110).



PHOTO BY KELLY QUINN

## Digging Out of Recession

From a challenge perspective it will be a difficult year because we're not quite dug out of that recessionary period, though Arkansas has fared better than much of the nation. At the same time, we've got to be able to deliver more and more services while keeping our budgets tight. I think the challenge for everyone will be how do we move forward and still stay cost-effective? How do we make sure we're surviving with the economy the way it is? We need to get out there and help get our economy back in shape, keep America at work and try to bring jobs into Arkansas.

**Claire Bailey**, CTO, Arkansas

## An Open Future

Regardless of vendor, the future trend is away from proprietary hardware and software — and moving toward open-ended systems and data that allow government agencies to control their destinies. This future flexibility will allow for a deeper integration across departments (for example, emergency services) and will no longer be contingent upon types of equipment used or data retention policies.

**Michael J. Bostic**,

West Coast director of civil communications, Raytheon Network Centric Systems



PHOTO BY CLARK JAMES MISHLER

## Menu Planning

Our challenge is going to be to make sure people understand our service management philosophy. We want to be an online, shopping-cart-type of experience where people can come to a simple menu and see what services we provide, they can see what services they're consuming and how much they're paying for them.

**Anand Dubey**, director, Alaska Enterprise Technology Services



PHOTO BY DAVID KIDD

## BUILDING TOMORROW'S WORKPLACE

We have taken our fair share of budget cuts but are still expected to deliver on ever-increasing demands — truly doing more with less. To address this issue, we are putting into effect a radical set of cultural, process and organizational changes designed to create the work environment of the future. Once in place, we expect a significant increase in employee productivity, collaboration and morale that will lead directly to our ability to provide our customers — residents and government agencies alike — with more exciting and effective products and services.

**Bryan Sivak**, CTO, Washington, D.C.

## Consolidation Continues

IT infrastructure consolidation/optimization will be the biggest trend as governments seek to reduce costs by consolidating data centers and eliminating duplicative applications and services. Cloud computing will see substantial uptake as government organizations explore its potential business benefit and begin to migrate a wide range of applications and services to the cloud.

**Thom Rubel**, vice president, IDC Government Insights

## Right App + Right Worker

2011 will be the "year of the device," including notebook and tablet PCs, and smartphones. It's a myth that government workers won't be using these devices. What I see among our customers is a desire to focus less on which device a worker is using and more on providing a strong enterprise system behind each worker, allowing all staff to access what they need in a streamlined, manageable way. That means we'll see more tailoring of apps for specific roles. The immediate future will be about getting the right information via the right device into the hands of the right worker.

**Maury Blackman**, president and CEO, Accela Inc.





## CASH-FLOW IS KING

If I were still in the private sector, we would be spending on infrastructure and building the baselines for newer product and service offerings and delivery improvements — the cost of capital and buying conditions for those with the cash has never been better to swiftly move ahead of any competitors. But here, cash flow is king and there is very little of it. Efficiencies and maintaining a safe and constant course are major efforts. Our greatest challenge going forward is to change our baseline of data and information management to one that's consolidated, shared and standardized for those elements that would lend themselves to it. Without movement in this direction — reusable and modular — more rapid to market and less costly applications are not possible, and our service provision to the business and citizens who depend on us remains disconnected.

**Phil Baughn**, CIO, Kentucky

## Serving Struggling Citizens

I think it's really focused on opportunities. We've implemented an infrastructure that will enable us to deliver more cloud services, and I think that will enable us to give new productivity tools to our work force. We're going to have challenges in terms of social services to unemployed citizens. We're going to continue to focus on those issues that will impact the part of our citizenry that is struggling.

**David Fletcher**, CTO, Utah



PHOTO BY DAVID KIDD

## Cutting Red Tape

We're very excited about creating a business one-stop and automating the licensing system for all the boards and commissions in the state. When we look at our processes, and many times it's not so much automating a bad process but looking at a process and understanding if we could be doing this better. Some of that might be statutory, some that might be a culture change. But we're looking at this process for fees and registration as an opportunity to reduce the regulatory burden in Arizona.

**Chad Kirkpatrick**, CIO, Arizona

## Multistate Collaboration

We believe state and local agencies will invest in a statewide shared services model where agencies can implement virtualization to benefit from a centralized, hosted IT function — and in a few years, agencies will be able to share costs across multiple states. With more than 20 or 30 different agencies across any given state, the ability to dynamically allocate resources to support peak data demands that differ from agency to agency will keep costs down.

**Sean Rhody**, CTO, Capgemini Government Solutions

## Measuring Resiliency

2011 will be the year that government agencies and contractors begin to scientifically measure resiliency: recognized as the optimal performance, security and stability of a network or data center infrastructure. A mantra will erupt calling for continuous resiliency measurement because it's critical if government agencies and contractors are to harden their network and data center to withstand a high-stress application load and cyber-attacks.

**Des Wilson**, CEO, BreakingPoint Systems 







# Hangin' Together

Tough times break down resistance to local cooperation



Colorado's Poudre School District hosts e-mail for the city of Fort Collins.

## About This Report

*Government Technology's* Digital Communities program produces quarterly special reports based on the work of its four task forces. This report focuses on issues identified by the Digital Infrastructure Task Force, a group of public- and private-sector IT professionals that meets in-person and online to discuss improving digital infrastructure for regional and municipal governments.

## Introduction

**I**F THE GENERAL TREND IN NEWS HEADLINES is any indication, Americans are not feeling more confident about the government's economic plight. The scene remains bleak with national unemployment staying near 10 percent. Local governments face the same harsh realities as their constituents and may struggle with strained budgets for years to come. A survey jointly conducted in mid-2010 by the National League of Cities, the United States Conference of Mayors and the National Association of Counties found that from 2010 through 2012 local governments expect to lose nearly 500,000 jobs. For example, Central Falls, R.I., has a deficit of 42 percent of its budget and Denver is evaluating ways to resolve a \$100 million deficit.

One likely solution today might have seemed absurd a few years ago. A growing number of local government officials believe financial desperation will drive cities, counties and other jurisdictions to partner on shared application initiatives. Working together to purchase and host applications can help cities and counties reduce costs substantially and lighten their IT workloads. Given that local governments often struggle to persuade their own agencies to share technology, this may seem far-fetched. It's remarkable, however, the way such biases can change when few alternatives exist.

Where is city/county collaboration likeliest to occur? Ken Price, director of Information Services for Littleton, Colo., identified common local services like public safety, roads and bridges, parks, libraries and museums. These usually have technology components. For example, most police departments use computer-aided dispatch programs and record management systems.

"Every city that has a law enforcement agency will have to have the same technology infrastructure in place," Price said. "Some cities can afford to have their own systems, but some can't. If they can band together and go after technology solutions, then they can afford them."

**BY ANDY OPSAHL | FEATURES EDITOR**

## Also in This Section

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**SCHOOL DISTRICT HOSTS E-MAIL FOR FORT COLLINS, COLO., TO REDUCE COSTS FOR ALL INVOLVED.**

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**LOCAL GOVERNMENTS IN WASHINGTON STATE DELIVER E-GOVERNMENT SERVICES THROUGH JOINT PORTAL.**

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**MICHIGAN COUNTIES TRADE APPLICATIONS, RFPS AND IDEAS.**

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**VIEWPOINT TO THE WINNERS GO THE PROBLEMS.**

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Rethink Possible

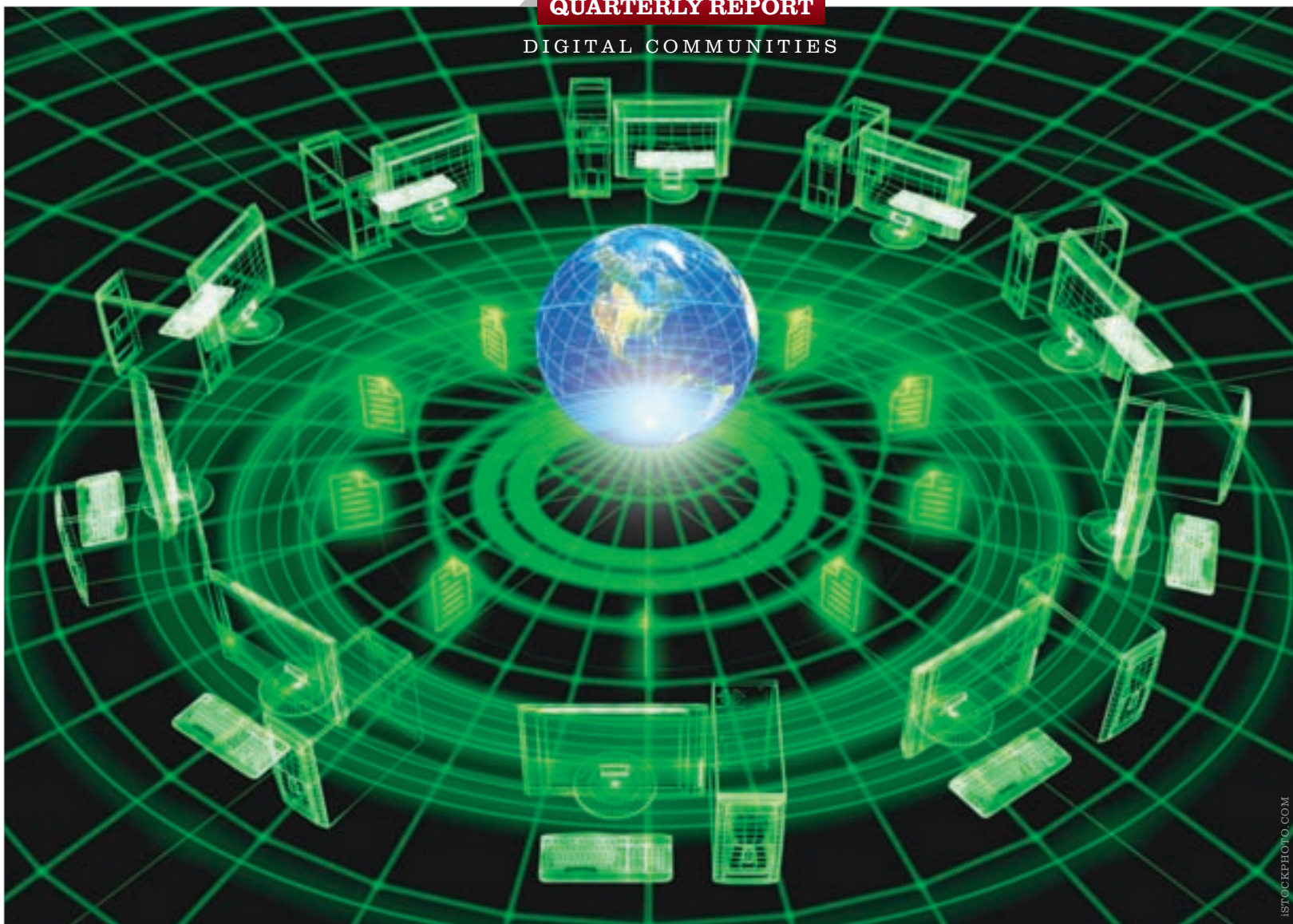


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# Survival Through Regionalization

Cities and counties find effective models for collaboration.

**G**overnments faced with the necessity of collaboration have several initiatives they could use as templates. In Fort Collins, Colo., the city's e-mail services will be housed in one place: the local Poudre School District. In an intergovernmental agreement, after a one-time transition fee of about \$170,000, the city will pay the district \$20 per seat each year to maintain e-mail and upgrade to a Microsoft Exchange system for more than 1,800 city employees, said Fort Collins CIO Tom Vosburg.



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Tom Vosburg

“We’re contracting with them to be our e-mail provider instead of doing it in-house,” Vosburg said. “And we’re going to save around \$55,000 a year doing that.”

The city is not the only one realizing cost savings. The increased number of end-users allows the Poudre School District to reduce its costs, offsetting employee hours spent maintaining the system and a secretary’s time spent answering related queries.

“For them, the benefits are that they have the same [e-mail] service as they did before

they were the host, and their costs have decreased by 14 percent. They think it will go down to a 25 percent reduction,” Vosburg said.

Ken Price, director of Information Services for Littleton, Colo., added that with the influx of funds, the hosting organization can invest back into the system for upgrades.

Members of the Digital Communities Digital Infrastructure Task Force identified e-mail as a likely starting point for shared

**“We’re contracting with them to be our e-mail provider instead of doing it in-house. And we’re going to save around \$55,000 a year doing that.”**

— Tom Vosburg, CIO, Fort Collins, Colo.

service initiatives. However, jurisdictions also can collaborate on services like payroll and administrative duties. In Kent County, Mich., the Intermediate School District launched a shared services venture where the five school districts in the northern part of the county share payroll and accounts payable services, among other programs. As many as 20 other districts are considering joining this group in 2011. Kent Swinson, superintendent of Minnesota’s Sparta Area School District — one of the five districts participating — said he expects Sparta to save at least \$75,000.



## CASE STUDY

BY ANDY OPSAHL, FEATURES EDITOR

### Offsite Hosting Before the Hype

*Minnesota municipalities offer a prototype for sharing applications offsite through a local consortium.*

With municipal budgets flat indefinitely and demand for services growing, the solution may be a combination of two things that have frequently seemed undoable to veterans of local government: hosting applications offsite and sharing them with multiple local governments. Accepting those approaches can be legitimately scary for local governments, said Mike Garris, executive director of the Local Government Information Systems Association (LOGIS), a consortium of local governments in Minnesota.

“They have political constraints,” Garris said. “All of these cities have citizens and their county boards of commissioners or their city councils to address, and they want to do a good job in their communities.”

LOGIS is an offsite hosting organization that has enabled a continually growing number of municipalities to share applications since 1972. In the early days, the organization delivered applications through T1 phone lines. Now it uses fiber optics and the Internet. LOGIS membership provides software applications for payroll, GIS, property assessments and numerous other functions, without requiring on-site staff and server hardware. Members have access to top-tier software at lower prices than most governments could normally negotiate.

“We get in some very large players — Motorola, JD Edwards and that kind of thing,” Garris said.

A recent study commissioned by the group found that even small cities are saving at least \$60,000 annually. Larger cities can save more than \$140,000 per year, he said. The difficulty for cities and counties when they first join is that they must sync their application replacement cycles with LOGIS’ replacement cycles.

**“All of these cities have citizens and their county boards of commissioners or their city councils to address, and they want to do a good job in their communities.”**

— Mike Garris, executive director, Local Government Information Systems Association

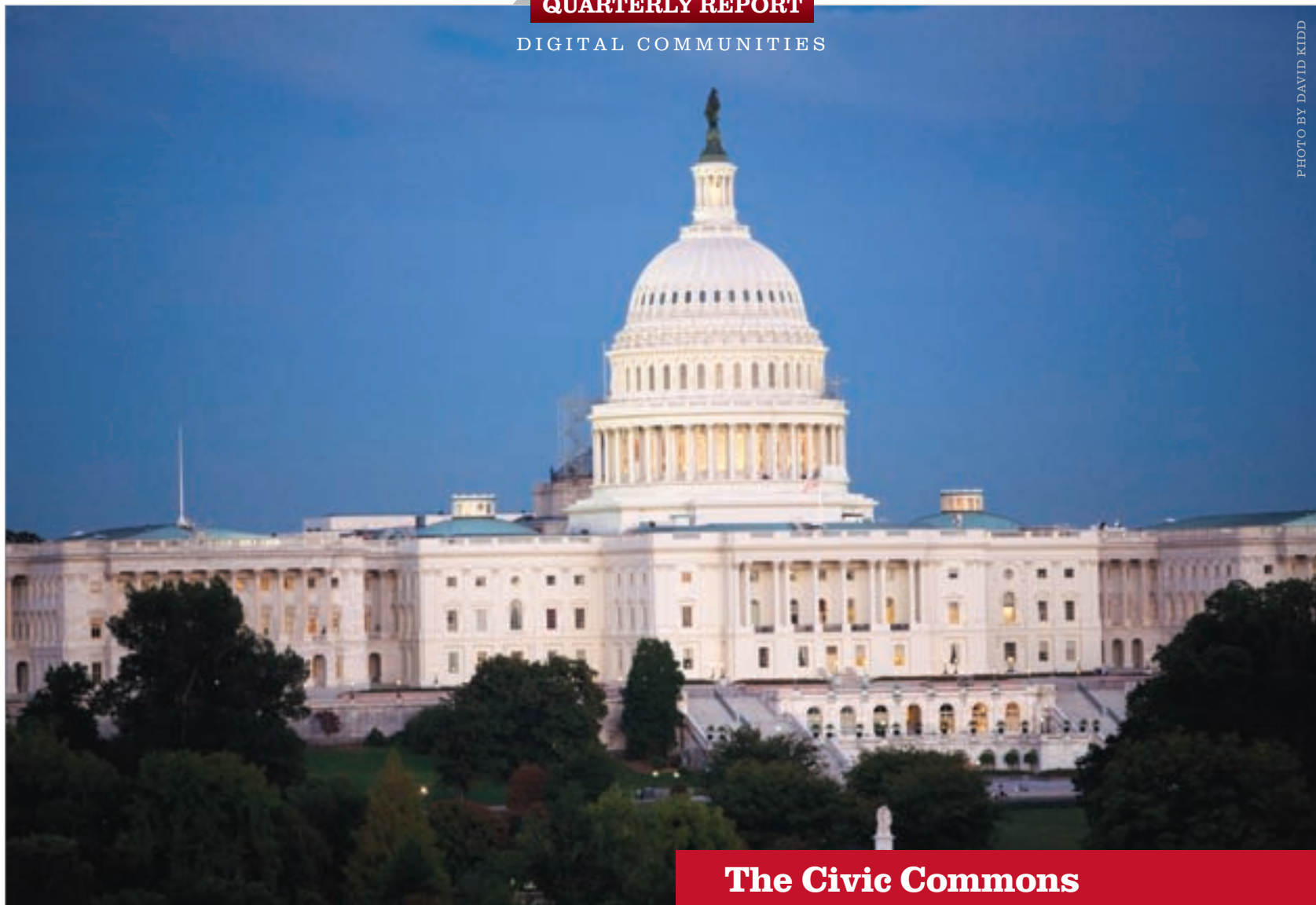
“For the benefit of the cost savings, you have to move with a consortium in terms of decisions and policies. That’s just not a cultural fit at some cities,” Garris said. “They want to have their own facilities, run their own show and have their own governance.”

However, budget crunches are changing those attitudes, rapidly, according to Garris. “It’s interesting,” he said. “We’re seeing entities that are joining the LOGIS that would have never done so in the past.”

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## The Civic Commons

Shared services are growing more popular with law enforcement agencies too. In Minnesota, the Local Government Information Systems (LOGIS) consortium is a quasi-government agency and nonprofit coalition that recently rolled out a Ticket Writer application in police cars and booking rooms. The application fills a ticket template with the driver's information based on his or her license or license plate number, guides manual data entry, prints the citation in the squad car and transmits the data to the courts. The consortium said the process helps save time and money, and reduces errors due to redundant data entry.

Other LOGIS applications are used for permits and inspection, equipment management, code enforcement, and payroll and human resources. The consortium is controlled by its members with a board of directors comprising one representative from each agency. All funding decisions are controlled by the members through an annual budget and work plan, and by action of an executive committee.

"They've been in business for several decades. They are the flagship example of what local government shared services could be," Vosburg said.

Local assessment agencies also have discovered that they can share several types of applications. A consortium of counties in Colorado's San Luis Valley created a sharing plan after news that

The newly formed Civic Commons organization aims to empower governments to share technology for public benefit. Civic Commons is the brainchild of the nonprofits Code for America, a Teach for America inspired program for the technology-minded, and OpenPlans, a group focused on civic engagement and open source government software.

The organizations teamed with Washington, D.C., CTO Bryan Sivak to create Civic Commons — a repository of open civic code for governments to access — where these shared projects can be viewed and discussed.

A main section of the commons is the "civic stack," a shared body of software and protocols for civic entities, built on open source standards. Currently included in the civic stack are iPhone applications, like Citizen Reports, for reporting and requesting service calls regarding city infrastructure, contributed by Portland, Ore. There's also an App Store from Washington, D.C., where people can download or submit applications that use government data, such as parking meter locations, emergency information and historic data. Federal CIO Vivek Kundra also is on board the Civic Commons, and has agreed to provide the Federal IT Dashboard to the stack.

The Civic Commons is a way to help governments share software they have developed to reduce IT costs, foster collaboration and spur innovation, said Jennifer Pahlka, executive director of Code for America.



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**“What’s been key to getting us to this point has been open and honest communication on both sides.”**

— Teresa Cole, IT director, Poudre School District

their individual vendor-supported property assessment management software was becoming more expensive. Pueblo County now hosts the group’s property assessment management for assessor offices, property taxation management for treasurer offices as well as GIS warehousing. Funds that would have been paid in fees to the vendor go to the county to offset the costs required to run the expanded service. Pueblo County was able to implement the program within its existing budget, so no new funding for hardware was needed.

Colorado is becoming a hotbed of government shared services collaboration. One group fueling that activity is the Government Shared Services Council, a standing subcommittee of the Colorado Government Association of Information Technology (CGAIT).

Vosburg said numerous shared service initiatives have been inspired by CGAIT, including a regional consortium of cities in the Boulder region that formed around a wide area network initiative. The cities partnered on acquisition of technology and the management of a Wi-Fi network.

In Washtenaw County, Mich., home to Ann Arbor and surrounding areas, County Commissioner Kristin Judge organized the seven member counties of the Southeast Michigan Council of Governments to discuss a shared services model.

“I wanted to get a commissioner or two from each county and the IT director from each county in a room,” Judge said. “We all do similar things. Everyone has tax roll. We all do assessing. We all do dog licensing. We all run a jail and a court system.

“Everybody came to the table willingly, ready to work and find ways to save money,” she said. “We’re creating this database of what we all have, so that when someone is doing something new and needs software, they can just go to this local database and say, ‘Oakland [County] already has that. Why don’t we just lease it from them?’ Then we don’t have to go pay this open market price and we can share.”

CASE STUDY

**Smart Partners**

*School district hosts e-mail for Fort Collins, Colo., to reduce costs for all involved.*

An e-mail hosting partnership between Fort Collins, Colo., and the area’s Poudre School District offers a template for budget-starved agencies to study. In 2010, Fort Collins wanted off its restrictive e-mail system, but balked at the price tag of deploying a new application. Facing budget cuts of its own, the Poudre School District needed a way to reduce the fees paid for its Microsoft Exchange Server e-mail software. The two entities decided to pool resources to reduce per-mailbox fees for all involved. The school district agreed to do the hosting because it had a larger server infrastructure than Fort Collins already in place.

“We were fresh off a migration from Exchange 2003 to 2007, so we had recently built out our infrastructure to allow for growth within the district alone. That really ended up positioning us well,” said Teresa Cole, IT director of the Poudre School District.

As part of the upgrade, the district deployed virtual servers, which enabled it to accommodate Fort Collins’ e-mail without adding more hardware. The district’s e-mail technician manages the added load, and Fort Collins contributes to that technician’s salary. Cole charges Fort Collins a per mailbox fee of \$20 annually for 1,800 users, which includes the city’s contribution to the district technician’s paycheck.

By adding the city’s e-mail to its server farm, the district cut about \$40,000 from its annual costs. After a one-time startup fee of \$170,000, Fort Collins will save roughly \$55,000 annually. The deal

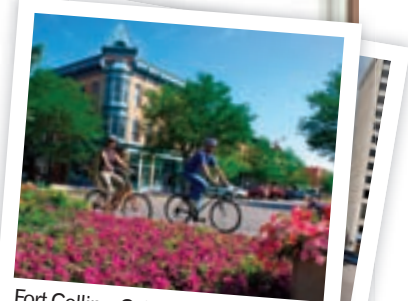
let the city control its replacement cycle more than it could with its previous vendor, which dictated the schedule, said Cole.

Jim Sarchet, chief financial officer of the Poudre School District, said he believes this type of collaboration is destined to be a common solution to local government budget cuts. He and Cole cautioned, however, that the IT leaders in the different governments should have frank discussions before starting. They’ll have a very consequential judgment call on their hands: discerning whether the other leaders are likely to communicate their needs and expectations well during planning. Needless to say, that openness needs to remain during deployment because unanticipated difficulties inevitably happen.

“I wouldn’t say we haven’t had a few hiccups here and there,” Cole said. “What’s been key to getting us to this point has been open and honest communication on both sides.”

Cole said she thought maintaining a hosting arrangement with another government made it easier for the two sides to feel like partners than with a hosting vendor.

BY ANDY OPSAHL, FEATURES EDITOR



Fort Collins, Colo.

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The eCityGov Alliance helps cities in Washington state's Puget Sound area deliver electronic services.



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## Community Portal

Local governments in Washington state deliver e-government services through joint website.

Several examples can be found across the country of local governments sharing hosting facilities for applications. A bit less common is multiple municipalities sharing a portal for offering e-government services. In the Puget Sound area of Washington state, the eCityGov Alliance runs multimunicipality portals through which many cities offer building permits, parks and recreation services, GIS data and property information. Examples of the organization's portals are MyBuildingPermit.com, MyParksandRecreation.com and NWProperty.net. Unlike many of the sharing arrangements discussed in this special section, however, each of the systems generating the permits, parks and recreation services and so forth reside at the individual local governments.

Portals like MyParksandRecreation.com give citizens a uniform way to apply for permits, regardless of the city processing the permits on the back end. The portal connects to each local government's permit system, which can process them however the government wants, as long as that process generates the data the portal needs to deliver the permit.

Membership in the eCityGov Alliance enables small local governments that couldn't otherwise afford e-government services to offer them, said John Backman, executive director of the eCityGov Alliance.

— *By Andy Opsahl*





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# One Forest, Many Gains

Phoenix migrates seven Active Directory forests into one for enhanced efficiency, better security and cost-savings

**P**hoenix has a reputation for efficiency. The nation's fifth-largest city has won numerous awards, including "Best Run City in the World," conferred by the Carl Bertelsmann Foundation. It's also one of the fastest-growing cities. Its 26 departments serve a population of 1.6 million, a number that is expected to grow by nearly 60 percent over the next 20 years. Running a tight IT ship is an important part of Phoenix's success.

Information Technology Services (ITS) coordinates the use of technology across city departments, ultimately supporting more than 10,000 user accounts and workstations, as well as approximately 750 servers.

"The city has an extremely decentralized architecture, despite the number of departments and services we provide to citizens," said Phoenix CIO Charles Thompson, adding that over time, there's been a growth of Active Directory forests, or groups of domains and domain trees on the network. Each forest, in many ways, is like its own separate network, making it difficult to build network relationships between users and resources within separate forests, as well as make universal changes or updates across all forests.

To make IT operations more efficient, the department has been consolidating its seven Active Directory forests into one. As of July, the city has migrated 20 of its 26 departments. Once the migration is complete, ITS will spend less time and money on administration, maintenance and tech support. It will also be able to boost security and improve employees' ability to share information and resources.

## A Quick and Cost-Efficient Migration

To help make the transition, ITS chose Quest Migration Manager for Active Directory, which gives administrators the tools necessary to conduct preliminary analyses, automate many aspects of the migration,



and control each step of the process without inhibiting users' ability to access resources they need.

The city has had an aggressive migration schedule, which was one of the reasons it chose to use the migration software.

"The longer you have two directories synchronizing, the more there is a possibility of errors and complications with the department," said Ronda Buker, lead IT systems specialist with ITS and project manager for

the migration. "We wanted to get this migration done as quickly as possible, and the tool enabled us to accelerate tasks that would have been extremely time-consuming."

Using Migration Manager, the city can carry out most migration tasks from a central location, rather than having ITS specialists go out and visit each workstation.

"We sequestered the project team in a war room, where we did nearly all of our work," Thompson said. LAN administrators

“We wanted to get this migration done as quickly as possible, and the tool enabled us to accelerate tasks that would have been extremely time-consuming.”

**Ronda Buker**, lead IT systems specialist, Information Technology Services, Phoenix

from individual departments call if there are any issues, but the calls have been minimal, he said.

“There’s been no panic,” said Thompson, who has used the migration software several times throughout his career. “We can attribute that to the use of the tool.”

Phoenix also found Migration Manager’s ability to easily undo changes very helpful. “It has the option to roll back some of the migrations you’ve done,” said Tom Lusk, IT systems specialist for the city. “It makes you much more comfortable when you’re trying things and testing. You have the confidence that if you do something, and then want to try it differently, you can undo what you’ve done.”

The city engaged a Quest partner for a two-week consulting period to help its administrators get the most from Migration Manager. Thompson said this helped the project team quickly understand the capabilities offered by the software.

The project team also said that upfront planning and communication with the departments has been essential to the project’s success. The city set up a governance structure that ensured buy-in from stakeholders, said Thompson, adding that it was

important to involve potential naysayers at a high level so they could see the benefits of the migration as it proceeds.

### Major Operational Benefits

Once the migration is complete, the five-person project team — which includes Buker, Lusk, Vince Fauland, IT systems specialist and senior IT systems specialists Jeff Brookins and Lois Scarane — expects a number of benefits for ITS and the departments.

One of the main goals for the project is creating a standardized single user ID and password for all city employees. In the past, users have needed multiple user names and passwords for various applications and systems. With single user ID (sign-on will come in future phases), the city will greatly reduce the number of help desk calls from employees who have forgotten their passwords, increasing productivity for both end-users and administrators. It also improves security by reducing the number of passwords that employees must remember and by allowing the standardization of security policies.

“This is a building block for our security posture and being able to protect our employees’ identities as we move forward,” Thompson

said. “Imagine the administrative nightmare of the policies from a security perspective when you have seven separate forests.”

The Active Directory consolidation also will eliminate redundant administrative efforts spent on each forest and make it easier for departments to share resources. In addition, ITS will be better able to track seat licenses and user-account changes across the city.

“We’re decentralized so a lot of our processes for creating new accounts, adding e-mail accounts, etc., are not tied to a central location such as HR. The current process is manual, convoluted and time-consuming, and takes an enormous amount of time,” said Fauland. “And really, our departments appreciate the benefits of this consolidation; they spend a lot of time performing manual processes when they could be doing more productive things. Ultimately the goal is to eliminate a large share of those processes.”

### Keys to Success

Although the migration is complex, the benefits for the city will be great. Beyond operational efficiencies, the project team anticipates significant cost savings from reduced demand for hardware and its related maintenance.

None of these gains would be possible without the right tools and project execution.

“The migration tool allowed us to create security policies as well as more effectively, efficiently and operationally support our user base as we move forward,” Thompson said. “Without it, that bridge would never have gotten crossed.”

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**“We’re giving each other permission to cut and paste so you don’t have a staff member re-creating something that someone else has already put time into.”** — Kristin Judge, Commissioner, Washtenaw County, Mich.

Washington state’s Puget Sound region is a sterling example of the benefits to sharing Web services across jurisdictions. In 2001, nine area cities formed the eCityGov Alliance, which created central, multigovernment portals for offering citizen services. For example, the average citizen looking to obtain a building permit or buy or lease commercial property often encounters obstacles due to the wide range of zoning laws. The eCityGov Alliance helps constituents avoid sifting through a mess of bureaucratic confusion by providing a unified source for various service-specific portals. The site, MyBuildingPermit.com, is a central location for obtaining and monitoring permits, and providing checklists to enable safe and proper construction. The easier this process is made, the more citizens follow rules and regulations, and avoid fines and other pitfalls.

Other alliance portals include MyParksAndRecreation.com, which allows visitors to search the parks, trails and facilities provided by the member cities. Another portal displays interactive GIS

mapping, which includes extensive information on property data, zoning and demographics of the region.

This has eliminated duplicate services in several local governments while allowing each to control the policies by which they generate those services. The cost of participating in the alliance depends on the member city’s population.

“This permit, building and land development system presents a consistent look and feel for Puget Sound,” Vosburg said. “It is a one-stop shop for the region. You don’t have to know what city you’re building in.”

These services go beyond the nine partner cities that founded the alliance, 28 cities and agencies have been added as member subscribers. Thirty-nine participating municipalities covering 1.3 million citizens across four counties are now represented and able to access these portal services. 🗑️

CASE STUDY

**Collaboration and Convenience**

*Michigan counties trade applications, RFPs and ideas.*

Some municipal IT organizations require compromising when the majority in the group wants something the minority doesn’t. That’s less of a concern, however, for the seven counties that collaborate on IT through the Southeast Michigan Council of Governments (SEMCOG). Counties in that group only partner when their needs or preferences align. In May, Washtenaw County Commissioner Kristin Judge gathered commissioners and IT directors from all seven counties that make up SEMCOG. All were struggling with budget cuts, so the leaders compared project goals they had in common.

“We brainstormed about 60 items, and then everybody got three Post-its,” Judge said. “We went around and put the Post-its next to our top three [goals], and then came up with a list of where we wanted to start.”

The group’s central project is creating a private website for all seven counties to catalog their hardware and software. In some cases, one county might be able to purchase off an existing contract, enabling it to avoid the labor-intensive open bid process. In other cases, a county might have created software that could be used by another county.

“If one of the counties has already created something we could use, we could maybe purchase it from them,” Judge said. “They

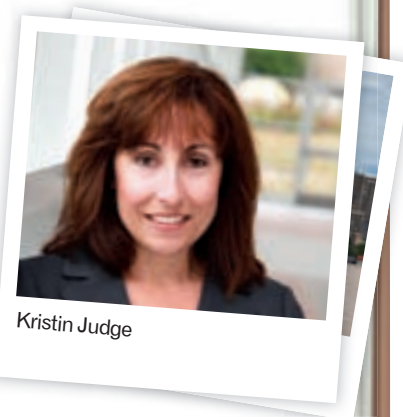
BY ANDY OPSAHL, FEATURES EDITOR

get the revenue, and we get something that’s effective at a lower cost than going out to the market,” The private website will include a troubleshooting message forum through which the members can help one another adjust to items they share. The website also will feature RFPs already written by member counties.

“We’re giving each other permission to cut and paste so you don’t have a staff member sitting and re-creating something that someone else has already put time into,” Judge said.

The members hope to purchase software as a group whenever multiple counties want the same products.

As SEMCOG members, they’re able to get staffers from the organization to set up the group’s meetings. Judge said she expects the collaborative website to go live in May 2011.



Kristin Judge



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BY MATT WILLIAMS ASSOCIATE EDITOR

## 2010 Digital Cities Survey Winners Announced

Colorado municipalities sit atop Digital Cities Survey as rankings put emphasis on quantifiable results.



250,000 OR MORE POPULATION

### 1. BOSTON

### The 2010 Digital Cities Survey Rankings

(by population classification):

250,000 OR MORE POPULATION

1. **Boston**
2. Louisville, Ky.
3. Aurora, Colo.
4. Charlotte, N.C.
5. Chicago
5. Corpus Christi, Texas (tie)
6. New York City
7. Plano, Texas
7. Riverside, Calif. (tie)
8. San Antonio
9. Tucson, Ariz.
10. Fort Worth, Texas



Not so long ago, governments could justify spending on e-government if it made lives easier and more convenient, or if it allowed a new service that was previously impossible. Now it's not so simple, thanks to the struggling economy.

Today, showing that a project delivers “hard-dollar” returns has become more important.

Consequently the 10th annual Digital Cities Survey — which assesses the accomplishments and plans of local governments in using information and communica-

tion technology — focused on measurable achievements.

The cities that did it best, making the top of their population categories in this year's survey, were: Boston; Richmond, Va.; and Pueblo and Castle Rock, Colo.

Many of the jurisdictions that scored well could quantify their improvements, and some took advantage of data analytics for those calculations. “I think we'll see more of that going forward, because the economy is going to remain tight,” said Todd Sander, the director of the Digital Communities



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program, which conducted the survey with the Center for Digital Government and *Government Technology*.

Flat or decreasing budgets are the norm now, and there's little feeling that the bottom line will improve anytime soon. "Cities will have to continue to find ways to drive improvement with the money that they have today — or even less," Sander said.

“Cities will have to continue to find ways to drive improvement with the money that they have today — or even less.”

— **Todd Sander**, director, Digital Communities program

Cities are turning more frequently to collaborative projects as one way to stretch their dollars. Shared networks have become commoner in the past few years, and Sander believes that 2011 will become the year of shared applications. It's a natural progression, he said, because networks are the backbone that supports financial management systems, enterprise resource planning, timekeeping and 311.

With more shared networks and the beginnings of shared applications, cities are closer than ever to sharing a platform.

What cities are farthest along on that path? "I think the best area has been and continues to be Colorado," Sander said. "The local governments in Colorado have been working together for quite a while, and it's starting to pay off in a variety of areas —

including on their public safety network and broadband network. They're probably out ahead of the rest of the country, even in developing an application sharing process." **GT**

## 85%

of cities are reducing staffing levels or operating hours to cope with the economic recession, but only **56 percent** are cutting service delivery, according to the **2010 Digital Cities Survey**.

### 125,000-249,999 POPULATION

#### 1. RICHMOND, VA.



### 125,000-249,999 POPULATION

1. **Richmond, Va.**
2. Salt Lake City
3. Norfolk, Va.
4. Irving, Texas
5. Hampton, Va.
5. Winston-Salem, N.C. (tie)
6. Alexandria, Va.
7. Augusta, Ga.
8. Lakewood, Colo.
8. Modesto, Calif. (tie)
9. Hollywood, Fla.
10. Des Moines, Iowa
10. Santa Clarita, Calif. (tie)

### 75,000-124,999 POPULATION

#### 1. PUEBLO, COLO.



### 75,000-124,999 POPULATION

1. **Pueblo, Colo.**
2. Olathe, Kan.
3. Lee's Summit, Mo.
4. Roseville, Calif.
5. High Point, N.C.
5. Independence, Mo.
5. Simi Valley, Calif. (tie)
6. Ann Arbor, Mich.
6. West Palm Beach, Fla. (tie)
7. Arvada, Colo.
8. Roanoke, Va.
9. Schaumburg, Ill.
10. Berkeley, Calif.

### 30,000-74,999 POPULATION

#### 1. CASTLE ROCK, COLO.



### 30,000-74,999 POPULATION

1. **Castle Rock, Colo.**
2. Lynchburg, Va.
3. Danville, Va.
4. Annapolis, Md.
5. Dublin, Ohio
6. Manchester, Conn.
7. Carson City, Nev.
8. Medford, Ore.
9. North Port, Fla.
10. Flower Mound, Texas

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Viewpoint

# To the Winners Go the Problems

*Will new leaders turn campaign promises into actionable agendas?*

BY TODD SANDER | DIRECTOR OF DIGITAL COMMUNITIES

**WE MADE IT!** The 2010 elections have passed into history — and now the real work begins. But based on the past campaign season, I'm a bit worried about the future. I'm afraid that many of our elected officials spent so much effort telling citizens what they're for and against that it may be hard for them to present a positive, actionable agenda when they take office.

The good news is that this may be a chance to help your elected officials quickly establish an agenda to address the structural deficits and complex realities of governance that many will only discover and fully understand once they take office.

I recommend looking at the Technology CEO Council (TCC) report that focuses on how government can use private-sector lessons to improve public service. *One Trillion Reasons: How Commercial Best Practices to Maximize Productivity Can Save Taxpayer Money and Enhance Government Services* puts a private-sector stamp of approval on years of best practices in state and local government. Most of the recommendations should not surprise you.

1. Consolidate IT infrastructure.
2. Streamline government supply chains.
3. Reduce energy use.
4. Move to shared services for mission-support activities.
5. Apply advanced business analytics to reduce improper payments.
6. Reduce field operations footprint and move to electronic self-service.

I was pleased to see how closely the TCC's recommendations align with priorities and activities reported to the Center for Digital Government — the research division of *Government Technology* parent company e.Republic Inc. — through this year's Digital States, Digital Counties and Digital Cities submissions.

The CDG's surveys confirm that consolidation and virtualization continue to be a top priority for state and local governments. Simplifying procurement has long been desired by government and encouraged by private-sector partners, and current economic conditions are making positive change possible. Reducing energy use is becoming a popular way to operationalize the "green government" rhetoric. Some promising cooperative shared-services activities are under way nationwide, uniting many jurisdictions in cost-saving partnerships. Better analytics and decision-support tools enable fewer improper payments and better decision-making of program outcomes. Electronic self-service and greater work force mobility continue to be central strategies in the most successful jurisdictions.

Being a prophet in your own land can be difficult. For more information on CDG survey trends or how to help your elected officials set the agenda in 2011, visit [www.digitalcommunities.com](http://www.digitalcommunities.com) or e-mail me at [tsander@centerdigitalgov.com](mailto:tsander@centerdigitalgov.com). 📧

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Lot Area: 108950 sq  
Lot Frontage: 453.00' Lot Depth: 234.00'  
Year Built: 1929 (estimated)  
Number of Buildings: 1  
Number of Floors: 24  
Gross Floor Area: 1,106,962 sq (estimated)  
Residential Units: 0 Total # of Units: 1  
Land Use: Public Facilities and Institutions  
Zoning: C3-4  
Commercial Overlay:  
Zoning Map #: 12C  
Landmark Building: No  
Historic District: No

Dept. of City Planning, PL/STD 20v1, © 2010 & other city agency sources

Links to More Information

Address Translator

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- Contact Official Information

Show Additional Data on Map

# Interactive NYC

With New York's digital map application, in-depth data is just a few clicks away.

NYCityMap provides detailed property information for buildings throughout the city.

## SYNOPSIS

NYCityMap takes user input and generates maps that show nearby services and locations.

## JURISDICTION

New York City.

## TECHNOLOGIES

GeoServer open source Java server and Dojo Toolkit JavaScript tools.

## CONTACT

Nicholas Sbordone, director of external affairs, NYC Department of Information Technology and Telecommunications, 212/788-6602, nsbordone@doitt.nyc.gov.

With more than 8 million residents and a plethora of things to see and do, New York City can be an overwhelming place to call home.

To help residents navigate this terrain, staff members in the city's

Department of Information Technology and Telecommunications (DoITT) developed NYCityMap, a Web-based interactive mapping application that offers a one-stop information shop for those on the prowl. And the cost to utilize this tool? Nada, zip, zilch — it's free.

## NYCityMap Technicalities

This new map portal has input fields and drop-down menus that allow people to search for locations by various criteria, such as address, intersection, council district or

ZIP code. Once a location pops up on the map, the application generates more options. Users can view information about specific properties, or view neighborhood and elected official data. Users also can locate nearby services like colleges or day-care centers.

"You can click anywhere in the city — click on a building or whatever the case may be — and you can bring up all the information about a particular building, which is integrated with existing city systems but with a common front end," said Nicholas Sbordone, the DoITT's director of external affairs.

When users maneuver around the map, their pointer turns into an arrow with a black circular identifying tool icon next to it. The circle has a white lowercase "i" symbol inside, which indicates that more information is just a click away.

"You can bring up the year the building was built, the square footage and any violations the facility may have had — elevator inspection violations or whatever the case is — and then you would have restaurants

you can access from there [or] restaurant inspection information," Sbordone said. "There's a whole host of things you can do just by looking at particular locations on the map."

Among the extra information that pops up are links to other city Web pages about services offered in specific locations. In addition, users can draw from point to point on the map to see distance between locations.

And consequently, the map can change based on what users are searching for. If someone wanted to know where the closest art gallery is within a mile of their location,

## 1924

The earliest year of aerial photos featured on NYCityMap.



the gallery will be marked by an easel and paintbrush icon. Then that person can draw a line from the gallery to another location to see how far it is. Queries for more types of nearby places, like universities or hospitals, will generate more icons and changes to the map.

NYCityMap lets users save their custom maps with a hyperlink feature: Clicking the chain link icon allows users to copy and paste a hyperlink elsewhere, like on a document, that will take them back to that unique map — a nifty way to share or store directions.

### Collaboration and History

NYCityMap integrates data from multiple city agencies to generate the maps. Sbordone likens the application to 311 on a map because a user doesn't necessarily need to navigate numerous department websites within the NYC.gov portal for facts — the user could likely find it on NYCityMap.

"A lot of the data we have out there is not even owned by DoITT, but we act as a forum for city agencies to publish that data," said DoITT GIS Director Colin Reilly. "So that was really the basis behind developing CityMap — to develop a mapping application that was extendable."

But today's NYCityMap isn't the first — it's the latest in a line of citywide map portal tools. In 2000, DoITT created base maps that other departments could layer data onto or build other applications with. Over the years, DoITT's GIS Unit has developed applications from the base map, which has undergone changes since its inception. The first iteration, My Neighborhood, came out in 2001, and Reilly said the technology behind it became outdated, so modernization was in order. In 2004, the NYC Map Portal debuted, followed by the original NYCityMap in 2006. In 2009, New York announced this current version. According to Reilly, the first NYCityMap delivered the goods as far as users were concerned, but it wasn't as functional as it could be.

"It was very well received, but from the back end, it very much locked us into a corner," he said. "It wasn't very easy to extend, adding additional data sets required a lot of additional probing and work, so that's when we conceived the plan of building this next version of CityMap."

But the mapping application isn't just a convenient way for New Yorkers to locate

things, it provides cultural enrichment as they learn about their surroundings.

With one click, New Yorkers can satisfy their cultural curiosity and see aerial views of the city from 1924, 1951, 1996, 2006 and 2008. DoITT mined the city archives

**“Having gone the open source route, we were actually able to save some monies because we were able to reduce some licensing costs that we had for other stuff that ended up not being necessary.”**

— **Tim Keane**, software development manager, Citywide GIS, Department of Information Technology and Telecommunications

for the photos, Reilly said, adding that the agency is looking to upload photos from other years, like those taken before the 1964 World's Fair.

The city implemented a procedure in 2004 to "refly" the city every two years, and DoITT is working to get the 2010 aerial images ready. The images' presentations differ by time period mainly due to technology differences. Some of the 1924 images, for example, have seams running through them.

"Nowadays, there's onboard, immersive GPS where they have land-based systems that are continually communicating with the plane and sky. The plane knows where it is in relation to the ground," Reilly said. "You can, through triangulation, determine where the imagery falls on the ground."

### More Tooling to Come

New York uses GeoServer, an open source Java server, to share and edit geospatial data from multiple sources in the city government. Dojo Toolkit provides JavaScript tools for creating Web applications. Using open source software helped cut the cost of the project, said Tim Keane, software development manager for DoITT's GIS team.

"Having gone the open source route, we actually saved some monies," he said, "because we were able to reduce some licensing costs that we had for other stuff that ended up not being necessary."

NYCityMap also contributed to the development of Web applications by other

city agencies, including one for the Street Conditions Observation Unit, dubbed NYC\*SCOUT, which comprises inspectors in the Mayor's Office of Operations. Citizens can click on locations in NYC\*SCOUT and view reports on problems like graffiti or

potholes, when the complaints were filed, which city departments will handle them, and whether the problem has been fixed.

The underlying base map also contributes to the Citywide Performance Reporting application tool, also from the mayor's office.

The website presents information about various city complaint reports like asbestos, robbery or civilian fire fatalities. Concerned civilians can click on a globe icon to generate a map showing the problem's location.

The base map also supports NYCStat Stimulus Tracker, which allows the public to view maps of where in the city federal stimulus dollars are allocated.

Keane added that more applications are on the way.

"For other agencies, we're going to build domain-specific city map implementations," Keane said. "There'll be an application coming by the end of the year for digital tax maps, and there'll be one coming for land use and zoning and things like that. So it won't be right in the CityMap app, but there'll probably be a way to get at them from the CityMap app."

Until those are created, though, Sbordone said he thinks there's enough information to see and read to keep users interested and satisfied — especially with the historical aerials.

"For someone who's fascinated just by that stuff, you can easily lose hours playing with this thing," he said [GT](#)

## TWO YEARS

How frequently New York plans to take citywide aerial photos.



# Clash of the Clouds

Government customers of Microsoft and Google cloud computing services explain their preferences.

## SYNOPSIS

Customers say Microsoft's hosted e-mail offered an easy transition for users, while Google's cloud service had more features.

## JURISDICTIONS

Orlando, Fla., and Klamath County, Ore.

## CONTACT

Randy Paul, IT director, Klamath County, Ore., [rong@co.klamath.or.us](mailto:rong@co.klamath.or.us), 541/883-5142.

**B**udget cuts are driving governments to be increasingly open to cloud computing, so many are watching for which vendor establishes the best track record. Cloud computing typically involves paying a third-party provider to host software on servers not owned or maintained by the software purchaser. Numerous cloud computing providers are competing in the market, but Google versus Microsoft is the cloud clash most are watching.

*Government Technology* sought perspective from a Microsoft and Google cloud customer, both of whom transitioned their e-mail service to cloud computing.

## Path of Least Resistance

Randy Paul, IT director for Klamath County, Ore., chose Microsoft's cloud as the path of least resistance — something he views as a point of pride. He considered Microsoft's cloud to be comparable to Google's in most ways, except with Microsoft, he didn't need to train users on a new application. The user experience on Microsoft's cloud applications feels virtually the same, he said, as the company's traditional in-house hosted applications.

"When I come to my desktop at work and go into e-mail, I'm going into Outlook 2010,"

Paul said. "It's going to have the ribbon across the top. It's going to have the file menu and all of the things I'm used to right there. With the Outlook Web App 2010, I still have the ribbon and everything. I just step right into it because it's the same application."

**"We have gone through enterprise implementations in the past, and we applied lessons learned to this implementation. I believe it went well."**

— **Rosa Akhtarkhavari**, client support manager, Orlando, Fla.

Needing to protect such comforts may seem silly to tech-savvy users, but the time lost by responding to end-user complaints about new applications is very real to Paul. He said he recently battled a barrage of complaints over an every-90-day password change policy — something employees in most other industries accept as a standard.

Running an eight-person IT organization, Paul said he didn't have time or staff to spare for additional training. He considered avoiding needless training a good stewardship of tax dollars.

"Using these applications is secondary to [our users]," Paul said. "They're just trying to get something done. The smoother we can make that for them, the more productive they're going to be."

With each new tool he introduced to the cloud, it likely would have required a new cycle of training. The Microsoft option eliminated that extra work, Paul said.

He cautioned that using Microsoft's cloud would require some governments to revise their password policies, because the company requires customers to use its password policy. "It's basically an industry standard policy — eight characters, upper[case] and lowercase — the sort of thing that most people are using anyway."

Changing policies wasn't a nuisance because Paul said he was planning to change the county's policy. "I didn't have a particular issue with it because it was a decent password policy, and it was something we needed to be doing anyway."

For Microsoft's cloud e-mail services, Klamath County pays an annual fee of \$66 per user for its 467 users.

## More Goodies With Google

When Orlando, Fla., solicited cloud computing services for e-mail, city staff knew they would be retraining 3,000 end-users regardless of whether they went with Google or Microsoft. Previously Orlando used IBM's Lotus Notes for e-mail, not Microsoft's Outlook, so Microsoft lacked the advantage of user continuity it had with Klamath County.

Orlando chose Google, which charges \$45.50 per user annually, because city officials believe it offered more functions on its browser-access version than Microsoft's, according to Rosa Akhtarkhavari, client support manager for Orlando. Microsoft's cloud solution comes with a "fat client" version, which is downloaded to the desktop, saves e-mails to the hard drive and is viewable offline. Employees use the browser access or "thin client" version remotely. With Google, employees use the browser-access version in every setting. An application called Gears saves the e-mails to the computer's hard drive for offline viewing.

Akhtarkhavari said Google's more expansive browser functionality was more attractive because the majority of Orlando's police and fire employees — 50 percent of the city's work force — work in a mobile capacity. Fewer functions on Microsoft's browser-access version wasn't a major issue for Klamath County because roughly 10 percent of its employees routinely used the browser access. Paul said that in his experience, using fat-client applications enabled more responsive commands than browser-access applications. "Thin clients seem to have a bit of a delay," Paul said.


He said this was probably because the fat clients' software is installed directly on the user's desktop, while commands on a browser-access version is processed in the cloud. He said many of his end-users likely wouldn't tolerate the delayed functionality of many browser-access applications, whether they're using e-mail, spreadsheets or word processing.

"Putting me on a hosted spreadsheet — that would be fine," Paul said. "Putting my

people who do our financial payroll system on it, they would kill me in a heartbeat."

The fact that Google houses servers overseas creates a problem for Orlando's criminal justice e-mails because city regulations prohibit them from residing on servers in other countries. To eliminate this problem, Google is creating a government cloud facility in the United States. In the meantime, Orlando criminal justice e-mails are handled by separate e-mail services provided by the Florida Department of Law Enforcement.

Akhtarkhavari said acclimating employees to Google e-mail wasn't a problem, but it did require a multifaceted "change-management" campaign. Preparation involved training sessions for administrative employees, public relations messaging and a how-to manual targeted at end-users called the Google Guide.

"We have gone through enterprise implementations in the past, and we applied lessons learned to this implementation," Akhtarkhavari said. I believe it went well." 



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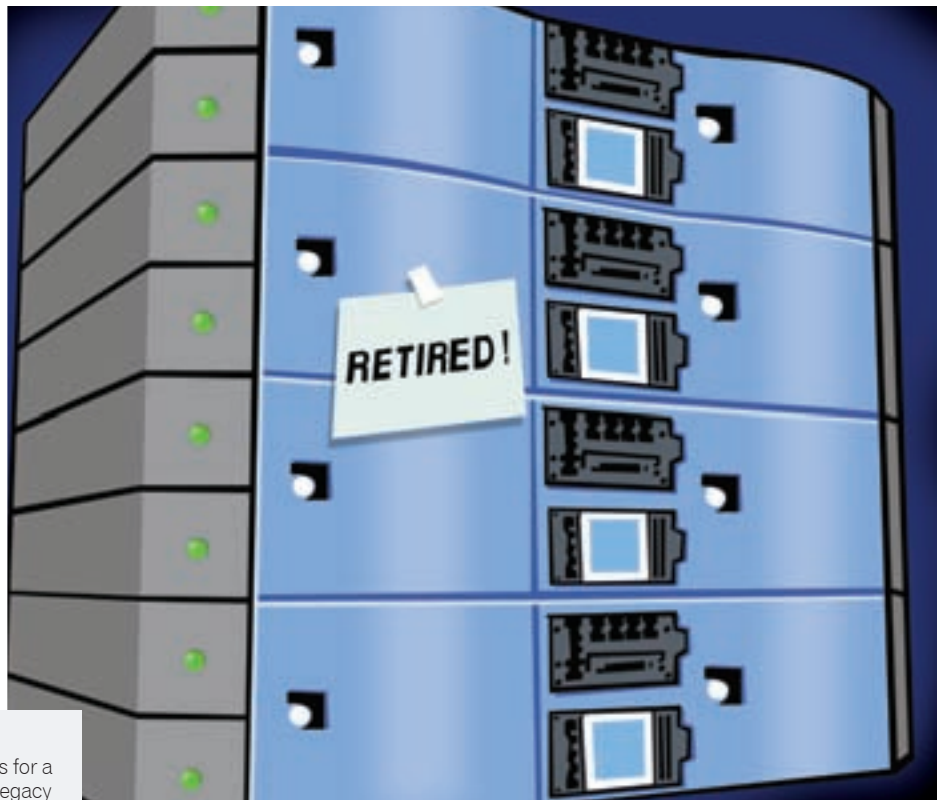
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## Support Systems

Legacy systems in the New Jersey Treasury Department have the state hankering for a major technology renovation.

ILLUSTRATION BY TOM MCKEITH



### SYNOPSIS

New Jersey looks for a way to bring its legacy systems into the 21st century.

**AGENCY:** New Jersey Treasury Department.

**CONTACT:** Andrew Pratt, communications director, New Jersey Treasury Department, Andrew.Pratt@treas.state.nj.us.

It's not easy getting old, especially for computer systems. People call them ancient, outdated and obsolete, and say they hold organizations back. They're too slow, don't integrate well or at all with other systems, and can't scale easily to handle larger workloads

— so how can a department function in top form with these complications?

There's a good chance that New Jersey government officials have asked themselves this question more than once. The state's issues with legacy systems were highlighted in a June 2010 article by *The Press of Atlantic City*. The story listed the 10 oldest systems — the oldest being a payroll system in the Office of Management and Budget from 1969, and

the newest, the Pensions and Benefits Division's pensions system from 1995.

The publication learned of these legacy systems after requesting electronic records from two state agencies, and were told the requests couldn't be honored because of technical limitations. There was even the possibility that system operations could halt completely if employees tried to copy the

records. In one case, when *Press* staff wanted to look at recorded complaints against cable TV providers, the technology was too outdated to make an analysis possible.

When state staff spoke to *Government Technology*, they summarized why these problems exist.

"Let me give you just one quick example. Somebody wants to know all the teachers that retired this year. That's easy," said Andrew Pratt, communications director for the Treasury Department. "But if somebody wants to know all the teachers who retired in Morris County or Hudson County, who had more than 20 years of service and filed [for retirement] in July and August. The first request, all the teachers that filed for retirement, is easy. The second request is hard because we do not normally run forms that have, as a report, that particular search field in them."

The state's oldest systems simply struggle to produce new types of reports with new combinations of data.

"If somebody has already written a program because of a past records request, that can take a short period of time to do," Pratt said. "But if somebody is looking for certain types of fields that compare one thing to another, and we don't have a program already written for that, then a program has to be written to generate that information. That's the kind of problem that we face."

Pratt added that complicated requests could force the state to redirect resources and charge the requester a fee that many people

**"We are not experiencing malfunctions due to age, per se. Old systems, however, severely limit our ability to modernize core business functions, such as payroll, procurement and accounting."**

— Andrew Sidamon-Eristoff, treasurer, New Jersey

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would balk at paying. The fees collected would have to pay for new programs written to handle the new types of requests. Other technology problems have even hindered the Treasury Department's ability to process the state payroll in the past.

New Jersey State Treasurer Andrew Sidamon-Eristoff, wrote in an e-mail to *Government Technology* that the old systems continue to run reliably, for the most part, but they often hinder the state's ability to innovate.

"We are not experiencing malfunctions due to age, per se. Old systems, however, severely limit our ability to modernize core business functions, such as payroll, procurement and accounting," he wrote.

## Sorting Out the Situation

State officials want to change and update these systems, but that's a tall order. New Jersey's Department of Treasury is a mega-department, comprising 22 agencies and divisions that often act independently. It's time-consuming to scrutinize each agency's technology for inadequacies.

But New Jersey CTO Adel Ebeid is taking on the challenge with a brave face. "This is a great opportunity for our current governor and treasurer to tell their stories frankly," he said. "This is an administration that has recognized how old our systems are and has started to take great strides to address the issue."

So with the support of both Sidamon-Eristoff and Gov. Chris Christie, New Jersey is examining systems to see what needs to be done and how to do it.

"The purpose of the systems review we are currently engaged in is to answer just these questions: What's stable and working? What core business needs are not being met or supported? To meet current and projected business needs, which systems are amenable to upgrading and which will require wholesale replacement?" Sidamon-Eristoff said.

Answering those questions might take awhile, since New Jersey's legacy systems are big, numerous and spread out. In the meantime, the state is developing a series of new reports designed to answer the most common information requests.

"We are trying to identify the top 10 requests that we're constantly getting, and before the end of the calendar year we want

## Lasting Legacy

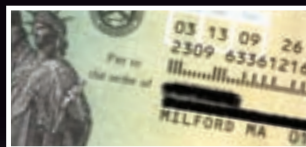
**SYSTEM NAME:** Taxpayer Registration (TAXREG)



**OPERATIONAL DATE:** 1988

TAXREG captures and maintains profile information for more than 1 million business taxpayers and 6 million individual taxpayers in New Jersey. In addition to basic tax registration, the system maintains eligibility, status and banking information for Electronic Funds Transfer filers.

**SYSTEM NAME:** Generic Tax System (GENTS)



**OPERATIONAL DATE:** 1988

GENTS tracks tax returns and payments for more than 50 types of New Jersey state taxes. The system produces statements, refunds and rebates as needed. It also provides a standard framework under which taxes can be processed.

**SYSTEM NAME:** Personnel Management Information System (PMIS)



**OPERATIONAL DATE:** 1987

PMIS is an online system that facilitates the creation and maintenance of personnel and position transactions or communications. All New Jersey agencies use the system, which interfaces with the state's centralized payroll system and maintains a complete record of an employee's history.

**SYSTEM NAME:** Set-Off Individual Liability System (SOIL)



**OPERATIONAL DATE:** 1982

SOIL tracks unpaid liabilities that individuals owe to New Jersey for various tax and non-tax debt.

**SYSTEM NAME:** Cash Receipts Accounting System (CRAS)



**OPERATIONAL DATE:** 1980

CRAS provides control over cash-receipt information. It properly posts and controls tax-return transactions, and mechanizes incoming revenue's deposit preparation. The system helps the New Jersey Division of Taxation process tax returns in an efficient, accurate and timely manner, and provides daily updated revenue figures for each tax and can compare the data to prior years' data.

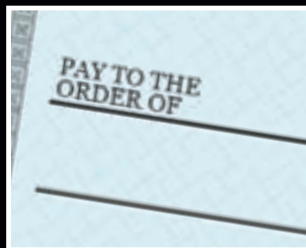
**SYSTEM NAME:** Position Control/ Personnel Management Information System (PMIS) Interface



**OPERATIONAL DATE:** 1973

This system processes and controls daily personnel transactions, and it creates, fills and abolishes salary accounts. It's updated weekly and includes actual expenditures from the payroll system, allowing for projections on a fiscal-year basis. The system also tracks and reports agency expenditures to the New Jersey Office of Management and Budget, which can determine how well the agencies are meeting their goals and objectives.

**SYSTEM NAME:** Centralized Payroll System



**OPERATIONAL DATE:** 1969

New Jersey's payroll system makes salary and compensatory payments to all New Jersey state employees. The system prints payroll checks, transmits direct deposit data, takes mandatory and voluntary payroll deductions, implements federal- and state-mandated changes throughout the year, and creates W-2 forms.

**86.2%**

Of 29 states surveyed by NASCIO, this percentage said that the desire to change or re-engineer business process is what drove them to want to modernize.

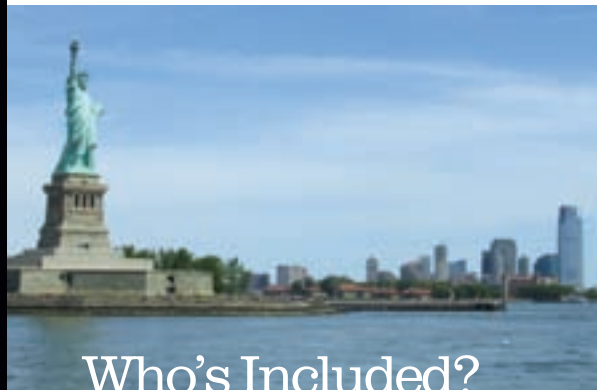
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## Who's Included?

The New Jersey Department of Treasury is a mega-agency consisting of 22 agencies and divisions, which includes the following:

- Office of Information Technology
- Office of Management and Budget
- Workforce Initiatives and Development
- Administrative Law Public Finance
- Division of Pensions and Benefits
- Board of Public Utilities

to be in position to post those reports and weed out those reports from the request process,” Ebeid said. “That will allow the folks who are already shorthanded to just focus on some of the bigger report requests.”

New Jersey isn't the only state struggling with legacy systems. In 2008, the National Association of State Chief Information Officers (NASCIO) published the report *Digital States at Risk! Modernizing Legacy Systems*, which divulged 29 states' experiences with wiping the dust off their technology. The challenges go beyond age. According to Doug Robinson, the organization's executive director, the big problem with legacy systems is that they're often inflexible. So when transaction volume increases or the tasks themselves change, these systems have trouble meeting the new demands.

“States have all been struggling, even those with relatively modernized systems, [to] handle the load,” he said. “They weren't designed to handle that tremendous increase in volume, so that's always been a tough one.”

### It's Business, Not Technology

Sixty-nine percent of states surveyed by NASCIO cited the graying of IT staff and application-design limitations as a driver toward modernization. But aging workers in a bad economy don't seem immediately troubling for New Jersey.

“We are seeing some of the folks who may have the skill sets and may have been involved in developing systems like this in the '70s and early '80s are really finding out their 401(k)s

are not what they hoped for, so they are entering the employment marketplace again and we are picking up some of those individuals,” Ebeid said.

He's confident that New Jersey will have sufficient and appropriate manpower to keep the legacy systems running until the state government can complete modernization efforts. When doing an overhaul, Ebeid said that instead of looking at the systems, people should look the types of business processes these systems are supposed to handle. What if the business operation needs to be modified and not the technology?

“One thing that people don't really think about is that the legacy systems are mainly there to support legacy processes, legacy business practices — and that's probably one area that we would like to focus on here,” he said.

Eighty-six percent of the states surveyed by NASCIO cited that changing or re-engineering business processes was the No. 1 driver for system modernization. The second most cited driver, the inability to adequately support “line-of-business” requirements, came in at 83 percent.

Ebeid said modernizing comes in two options: Either buy an off-the-shelf product and customize it, or change the business processes themselves so they'll fit into an off-the-shelf product, which would reduce the cost of

renovating the system and thus reduce the burden to taxpayers. In any case, focusing on system updating might begin with focusing on the processes the systems were originally designed to support and handle.

“Systems didn't just spring out and come up on the machine one day and dictate a process,” Ebeid said. “In many ways, they were really designed in the '70s and early '80s to support whatever business process was in place. So if we're going to embark on a modernization effort, we are not going to do it unless we rethink the business process.”

New Jersey has a lot to rethink, since the examination and assessment process is in its infancy. Although Ebeid was quoted by *The Press of Atlantic City* saying that modernization efforts might cost a state of New Jersey's size about \$300 million to \$400 million to complete, he told *Government Technology* that it's too early to determine the cost. New Jersey doesn't yet know what or how to modernize and which vendors or integrators to partner with. The state was scheduled to hold a one-day summit in September inviting numerous companies to attend.

“We really want to challenge them to think of different funding scenarios that would help us renovate at the least cost possible for taxpayers,” Ebeid said. [GT](#)



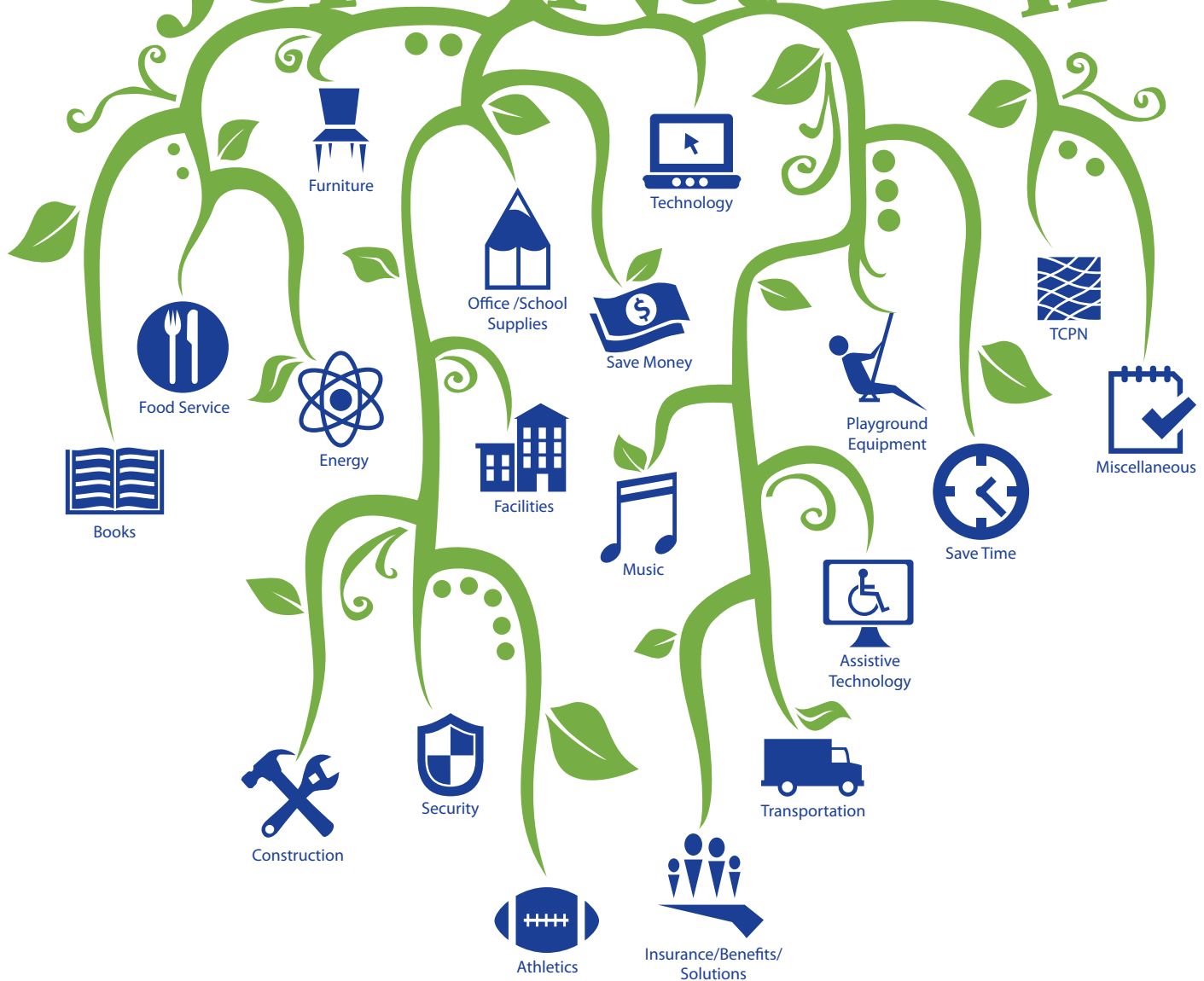
## Drivers Toward Modernization

Change or re-engineering of business process	86%
Inability to adequately support “line-of-business” requirements	83%
Application design limitations	69%
“Graying” of IT staff	69%

Source: NASCIO's 2008 National Survey on Legacy Systems and Modernization in the States



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**From the courtroom to the classroom, Tyler's products serve as the backbone for core business functions in the public sector.**

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BY RUSSELL NICHOLS STAFF WRITER

# Wheel of Fortune

Montana cools down its new data center with a heat wheel.

**T**he coolest thing about Montana's new data center, located in Helena, isn't the extra security doors or the staff that works 24/7, but a special wheel designed to keep the state's computer servers from overheating.

This "heat wheel" is at the heart of an innovative cooling system that uses cold air outside the building to control the climate inside the data center. Developed by KyotoCooling International, the patented air handling technology has made the rounds in European countries for the past few years — but Montana officials say it's the first state in the U.S. to use the heat wheel in an IT facility.

And state officials are ready to show off the clean technology, touting its ability to cut air conditioning and ventilation costs at a time when governments must grapple with strict budgets.

"If people want to come to Montana to look at it, we're open for it," said state CIO Dick Clark.

Authorized by the 2007 Legislature, the \$7.2 million data center was completed in winter 2009. Prior to the new data center, Clark said the state's IT services

resided in a crummy building's basement with uneven floors, structural problems and water hazards.

A few years ago, a staff member learned about KyotoCooling's wheel technology at a conference, and the state moved forward with plans to construct a new energy-efficient data center — and Montana officials claim it's the first in the world built from the ground up using this cooling technology.

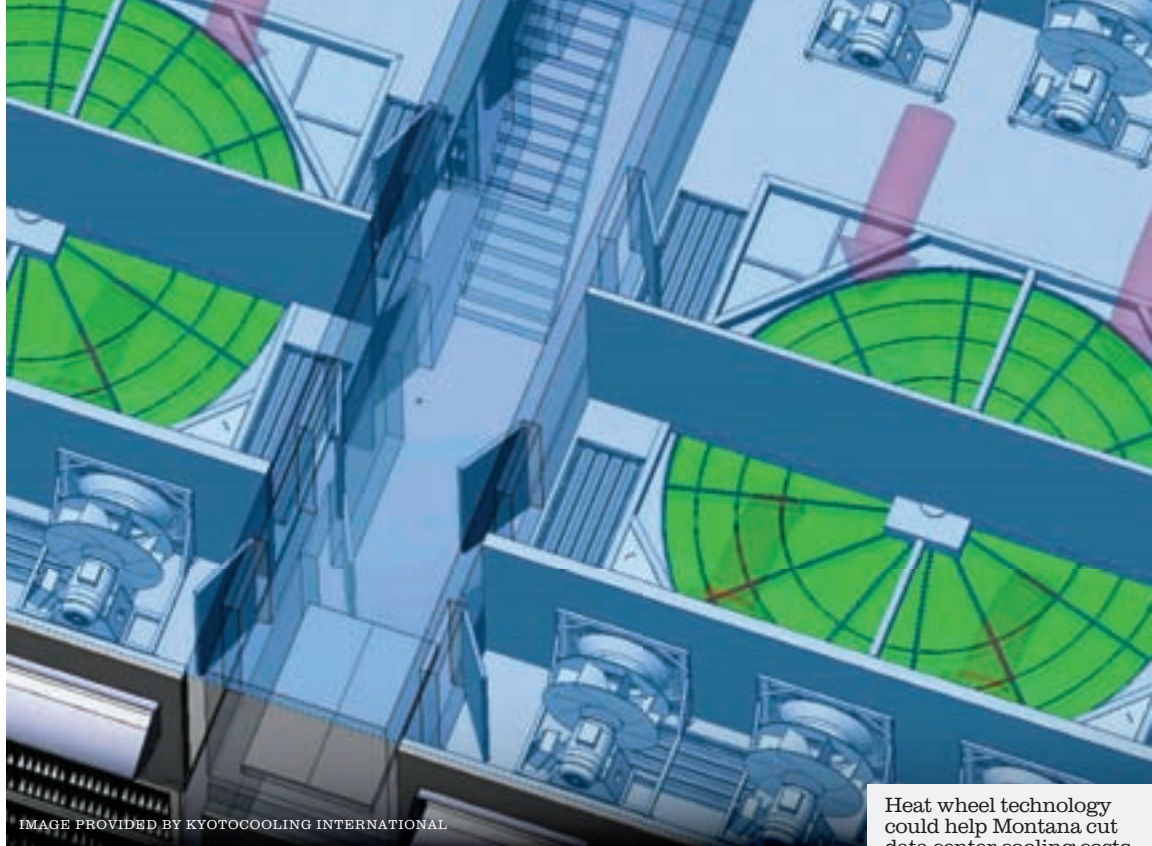


IMAGE PROVIDED BY KYOTOCOOLING INTERNATIONAL

Heat wheel technology could help Montana cut data center cooling costs.

In data centers, servers generate great amounts of heat. As temperatures increase, so do the costs to keep them cool. Typical data centers can rack up cooling costs that account for a large fraction of total electricity use, according to Ed Sivils, Montana's data center manager. In contrast, he added, the Kyoto wheel cuts cooling expenses down to 11 cents for every dollar spent on power.

With this system, Sivils said the state only pays for the fans to move the air and electricity to turn the wheel, which fluctuates as temperatures shift.

## How It Works

Heat wheels, also known as rotary heat exchangers, have been around for a while as part of industrial air conditioning systems, but not as a ventilation solution for data centers.

At Montana's data center, Sivils said the system uses three wheels, each 12 feet in diameter and 8 inches thick, and honeycombed with special aluminum. A barrier divides two chambers, and the vertical wheel spins in the middle, pumping air in two directions.

The hot inside air never touches outside air. It's pumped through the ceiling and into the chamber, cooled by the metal and then the wheel circulates the air back into the data center. For the system to work efficiently and maintain optimal temperatures between 68 and 76 degrees, Sivils said the outside air must be at least five degrees cooler than the air inside, which makes areas like Helena ideal.

"The system is self-tuning, [and] autonomous across load and environmental changes and component adaptations," according to the company. "The system is designed to act and react as necessary to achieve stable operating conditions."

If it gets too hot outside, the data center also has traditional air conditioning units for backup. But after studying data from 2007, which saw record temperatures in Helena, Sivils said the heat wheel system would be sufficient on its own 80 percent of the time, supplemented by air conditioning units 16 percent of the time and replaced by the standard units only 4 percent of the time.

With this process, the company claims that the system delivers energy savings up to 85 percent over other designs.

"It's about energy savings, cost savings, water savings and flexibility," said Chris Fulton, vice president of marketing for Cloudsite Development, the exclusive distributor of KyotoCooling in North America. "The system doesn't require operator intervention. It self-adapts to what's happening inside or outside."

According to Clark, numerous states have asked about the technology, and some officials have received a tour of the premises. Another proposal on the table, he added, involves transporting heat from the data center to another agency looking to supplement its heating in the winter. **GT**

## SYNOPSIS

A unique cooling system called the "heat wheel" cools down hot data centers.

## JURISDICTION

Montana.

## TECHNOLOGY

KyotoCooling air-cooling solution.

## CONTACT

Dick Clark, Montana CIO, 406/444-2700.

# Quick Communications

Fourth-generation wireless technology builds momentum and promises to be a boon to public safety agencies.

**F**or public safety agencies nationwide, an interoperable high-speed wireless network couldn't come fast enough.

First responders want to download and upload large data files from the field and communicate on a network without delays or patchy coverage. Fortunately ultra-fast fourth-generation (4G) wireless technology has been building momentum.

By the end of 2010, Verizon Wireless plans to launch a massive long term evolution (LTE) network, reaching 110 million Americans in 38 major markets nationwide, company officials announced on Oct. 6 at the CTIA Enterprise and Applications conference.

Deployed over Verizon's nationwide 700 MHz spectrum, the network will extend applications with data downlink rates of 5 to 12 Mbps and uplink rates of 2 to 5 Mbps. To start, Verizon's network

will be available in Seattle, Houston, Los Angeles, New York City and Washington, D.C. Sixty commercial airports also will have LTE coverage. Some public safety entities already are testing Sprint's 4G technology.

"It's not about just getting faster e-mail and making faster voice calls; we do that pretty quickly now," said Bernie McMonagle, Verizon's associate director of federal government data solutions. "It's about enabling applications that you couldn't run before through a wireless device."

Just as a network gives first responders access to advanced communications and massive data files, U.S. public safety agencies support LTE technology for a proposed nationwide public safety network.

From public safety and emergency management to law enforcement, education and health care, LTE technology will enhance video sharing, surveillance, conferencing and streaming, and provide greater coverage and better penetration of buildings.

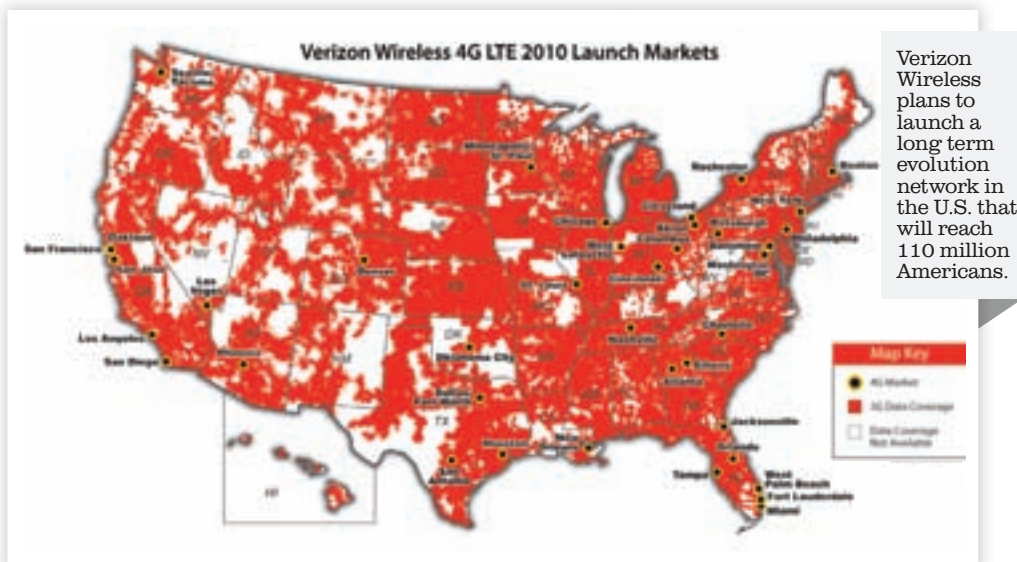


PHOTO COURTESY OF VERIZON WIRELESS

## SYNOPSIS

Public safety agencies strongly advocate having a nationwide long term evolution network.

## TECHNOLOGIES

Fourth-generation wireless networks.

"All those walls are coming down," McMonagle said. "The immediacy of that information is really where the power of these new network solutions will be."

## Private Versus Public

But for public safety officials, these solutions still present a dilemma: Should a public safety network be both public and private?

This question has been lingering since the FCC pushed its plans to auction off a 10 MHz slice of 700 MHz spectrum known as the "D Block." Under the FCC's proposal, proceeds from the auction would fund a public safety broadband network, connecting first responders nationwide on wireless devices during emergencies.

First responder groups objected. The D Block should be directly controlled by public safety agencies, not commercial providers, according to the Public Safety Alliance (PSA), a coalition of first responder associations.

To address concerns expressed by some public safety professionals, Senate Committee on Commerce, Science and Transportation Chairman Jay Rockefeller, D-W.Va., intro-

duced the Public Safety Spectrum and Wireless Innovation Act in September. Among other things, the bill — which won praise by the PSA, Verizon and AT&T — reverses the FCC's idea and aims to allocate the valuable chunk of spectrum to public safety.

"We strongly urge the Senate to quickly pass this critical legislation that will improve the way America's first responders protect and serve the public," read an announcement from the PSA in August.

Verizon's new network adds more momentum for 4G. In December 2009, a Swedish telecom operator deployed the first commercial LTE services in Stockholm and Oslo, Norway.

Verizon plans to have its network covering two-thirds of the population in 18 months and nearly the entire U.S. population by 2013, according to Verizon Communications President Lowell McAdam. The announcement coincides with the latest statistics that show an explosion in wireless data usage, smartphone adoption, capital expenditures, and SMS and MMS traffic. [GI](#)



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**Spectrum** takes a second look at highlights from 2010.

## Did You Know?

**78%** of employees said they're less productive if they're too hot or too cold.  
SOURCE: HARRIS INTERACTIVE

**25%** of police-reported car crashes are caused by someone using a cell phone.  
SOURCE: NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

**83%** of public- and private-sector CIOs surveyed by IBM cited business intelligence and analytics as a top priority in 2010.



**NAME:** Pac-Man  
**D.O.B.:** May 22, 1980  
**WEIGHT:** Consumed 4.8 million hours of Americans' time on May 22, 2010, thanks to a Google interactive homage, according to RescueTime.



## MEET THE BIO-BUG:

A car that runs on methane converted from human waste.

## ON SOCIAL MEDIA

**Q:** Who is Dimitar Kerin?

**A:** A Bulgarian councilman who was fired from the Plovdiv City Council for playing the popular Facebook game **FarmVille**.

## twitter

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Send spectrum ideas  
to managing editor  
Karen Stewartson  
[kstewartson@govtech.com](mailto:kstewartson@govtech.com)



# 2015

The year *The Mobile Internet Report* indicates that mobile Internet usage will surpass desktop usage.

## Fiscal Distress East to West:

The economic climate forced governments to make drastic cuts to offset expenses. Here's a quick look.



**FLORIDA:** cut its travel budget and advocated teleconferences.

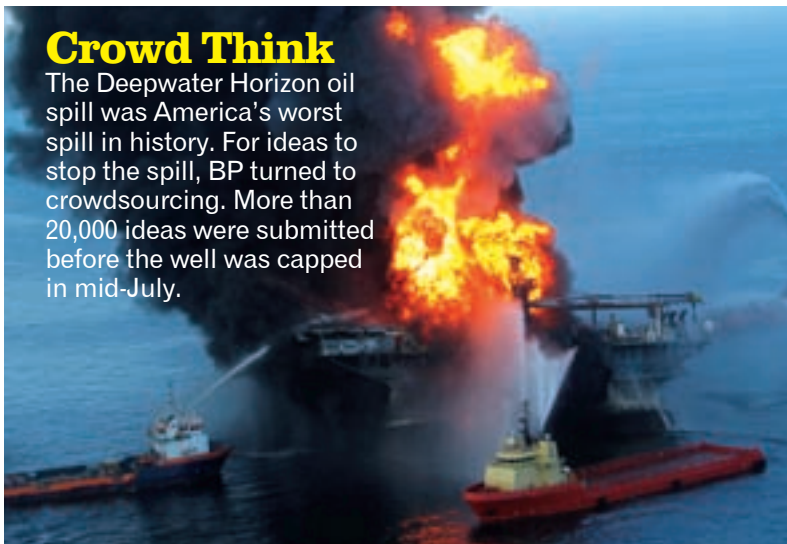


**CALIFORNIA:** closed DMV offices for the first three Fridays of each month.

SOURCE: PEW STATES' 2010 REPORT

## Crowd Think

The Deepwater Horizon oil spill was America's worst spill in history. For ideas to stop the spill, BP turned to crowdsourcing. More than 20,000 ideas were submitted before the well was capped in mid-July.



## Flower Power

Scientists believe that sunflower seeds could be a viable source for ethanol. Research is under way, funded by the National Science Foundation and the U.S. departments of Energy and Agriculture. Sunflower seeds also are used in furniture found at the National Renewable Energy Laboratory in Colorado.



# DRAMATIC CHANGES IN PUBLIC SAFETY TECHNOLOGY



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# 1

## TIGHT SEAL

The Seals VR7 rugged mobile phone from Seals Technologies is designed to withstand harsh conditions. It's waterproof to a depth of 1 meter for up to 30 minutes, and resistant to more than 800 pounds of pressure. The GSM phone has a 2-inch, TFT QVGA 262,000-color screen, and the 2-megapixel camera also works under water. The battery supplies 12 hours of talk time and up to 1,500 hours of standby time. The device resists dust, dirt, shocks and drops. The phone also offers Bluetooth 2.0 and Wi-Fi, and supports GSM 900/1800/1900 and EDGE/GPRS networks.

[www.sealstech.co.uk](http://www.sealstech.co.uk)

# 2

## CLEAN SLATE

The Hewlett-Packard Slate 500 is a Windows 7 touchscreen tablet with an Intel Atom processor Z540 (1.86 GHz, 512 KB L2 cache, 533 MHz FSB) and 8.9-inch WSVGA wide-viewing angle touchscreen (1024x600 or 1024x768 for some applications). The 1.5-pound tablet comes with a 64 GB solid state flash module and an integrated 802.11b/g/n + Bluetooth 3.0 + HS combo. The Slate 500 contains 2 GB 800 MHz DDR2 SDRAM memory and an external USB 2.0 CD/DVD R/RW drive is available on some models. The battery lasts up to five hours. [www.hp.com](http://www.hp.com)



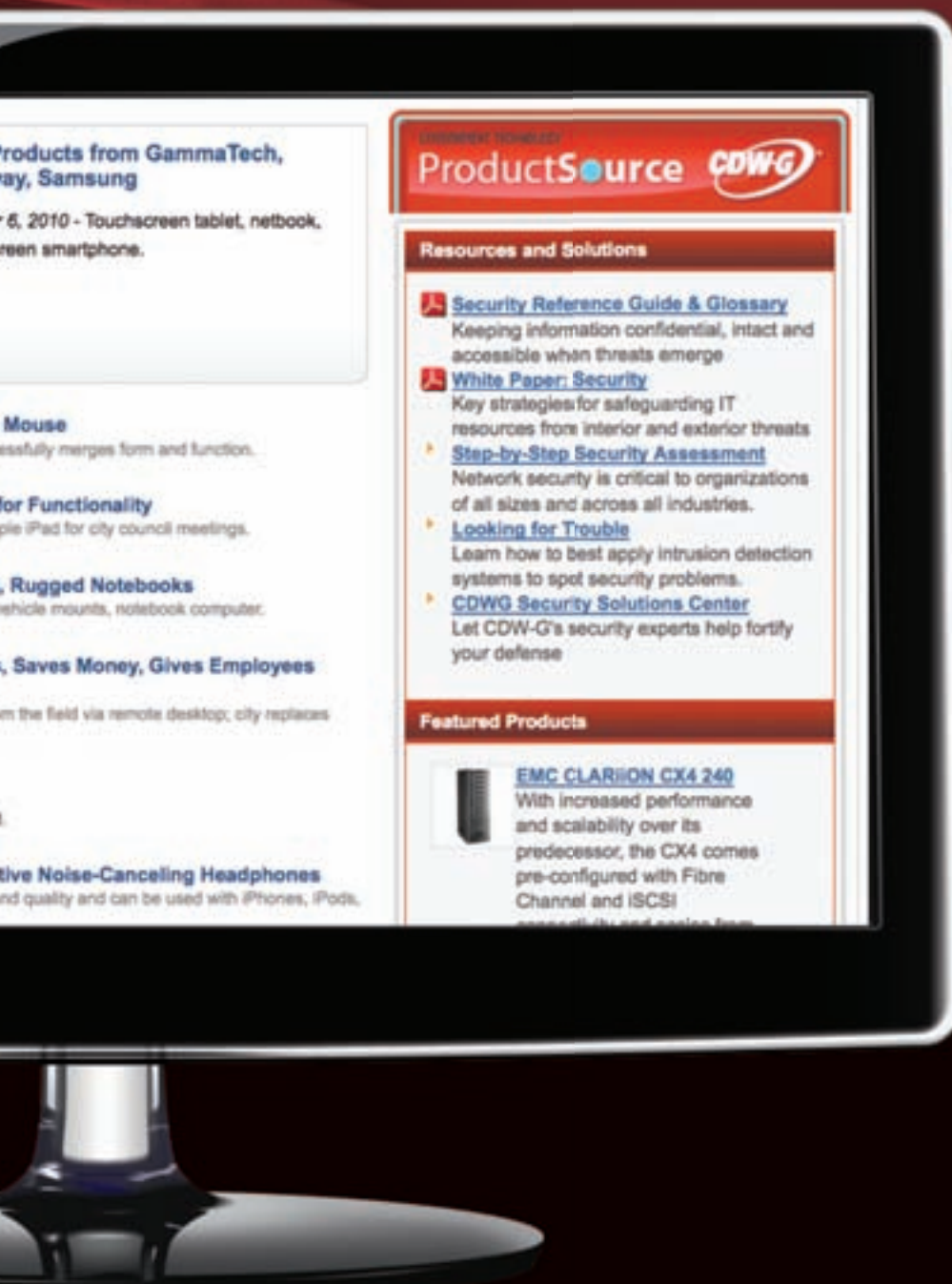
# 3

## AIR TRAVEL

The 1.4 GHz, 11-inch Apple MacBook Air has 2 GB of memory, 64 GB solid state flash storage and weighs 2.3 pounds. The notebook offers 802.11n Wi-Fi networking, an Intel Core 2 Duo processor and NVIDIA GeForce 320M graphics. The battery lasts up to seven hours, with up to 30 days of standby time. It includes Bluetooth 2.1+EDR for wireless peripherals and two USB ports. The notebook includes a built-in camera, microphone and stereo speakers. The MacBook Air is also available in a 13-inch model. [www.apple.com](http://www.apple.com)



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# What Have We Learned?

A 5-Minute U view of the year in review.

This was the year of the comeback for Father Guido Sarducci, the fake cleric played by comedian Don Novello made famous as a recurring character on both the *Smothers Brothers Comedy Hour* and *Saturday Night Live* in the '70s. He was in front of a huge congregation ... err, crowd ... at the civic temple that's the National Mall in Washington, D.C. Sadly his uneven benediction at the John Stewart-Stephen Colbert Rally to Restore Sanity and/or Fear on the eve of the November election will soon be forgotten. That's a little ironic because this is the same fake cleric who gave us Father Guido Sarducci's 5-Minute University, the genius of which was its promise to teach


- 2. The Citizen Can Be Just as Fickle as a Consumer.** Public agencies can design and deploy services that: (a) citizens need; (b) citizens say they want; or (c) citizens respond to. Pick one.
- 3. Transparency Succumbs to Malicious Compliance.** As the year ended, the tally of data sets on Data.gov was pegged at 305,692. Some states seemed engaged in a data arms race too. But apps competitions and communities of true believers are not a substitute for public agencies doing their jobs, which is more than surfacing the data they hold but also providing the context necessary to make it understandable, digestible and usable.

Talk of the cloud will likely dissipate, which is the typical pattern when people **stop speculating and start doing.**

only those very few things that will still matter five years after the fact.

For 10 years, this page has taken a 5-Minute U approach to what we've learned this year. Here are the five things we're likely to remember about 2010 five years from now.

**1. Third Screen Became the Primary Screen.** iPhone. Droid. Windows Phone 7. BlackBerry. Nielsen research projects there will be more smartphones than any other kind of mobile phones by the end half of 2011. The ubiquity of smartphones, and a continuing campaign to reclaim spectrum for wireless broadband, means that mobile is no longer an alternative delivery channel — it's where real people do real business, including using public services if there's an app for that.

- 4. The Rains Came.** After years of hit-and-miss forecasts, the skies opened this year with cloud becoming a permanent part of the environment in a growing number of states and localities. Talk of the cloud will likely dissipate, which is the typical pattern when people stop speculating and start doing.
- 5. IT Met the Budget Borg.** Consolidation rhymes with assimilation. The former was done for efficiency's sake; the latter is being done for survival. IT is in play (again), either reverting into the agencies from which they emerged or rolling forward into newly combined über agencies. The CIO's span of control will contract or expand accordingly. 

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