

The image features large, 3D-style numbers '3024' in a light beige color with a dark teal shadow. The numbers are filled with a pattern of small, white business and technology icons, including a lightbulb, a gear, a dollar sign, a globe, a mail envelope, a percentage sign, a shopping cart, a bar chart, a padlock, a magnifying glass, a plus sign, a minus sign, a document, a speech bubble, a network diagram, a target, a pie chart, a scale, a handshake, a clock, a calendar, a magnifying glass over a document, a gear with a dollar sign, a lightbulb with a dollar sign, a globe with a dollar sign, a mail envelope with a dollar sign, a percentage sign with a dollar sign, a shopping cart with a dollar sign, a bar chart with a dollar sign, a padlock with a dollar sign, a magnifying glass with a dollar sign, a plus sign with a dollar sign, a minus sign with a dollar sign, a document with a dollar sign, a speech bubble with a dollar sign, a network diagram with a dollar sign, a target with a dollar sign, a pie chart with a dollar sign, a scale with a dollar sign, a handshake with a dollar sign, a clock with a dollar sign, and a calendar with a dollar sign. A red ribbon with white text is draped across the numbers.

INNOVATIONS THAT MATTERED

IN TWO-THOUSAND FOURTEEN



Citizen satisfaction is driven by the experience your organization delivers. And great experiences start with proactive communications that reach the largest possible audience.

That's why **over 1,000 innovative government organizations** around the world use GovDelivery to reach **over 70 million people** around the world through today's top digital channels. These agencies are creating faster audience growth, stronger citizen engagement, and **better lives for more people**.

 Find out how at govdelivery.com

Executive Summary

New Year's resolutions — we can all agree that they can be difficult to maintain. But here's the thing: Small, incremental changes and improvements are totally attainable. Say you're determined to exercise more. Instead of joining a new workout fad — like CrossFit — you walk a mile a day. That's completely doable. And by walking that mile, you took the first step toward getting healthier — and keeping that resolution.

Small changes add up. The small stuff is what makes a revolution.

Don't believe it? Here's an example. In 1784, Benjamin Franklin wrote [An Economical Project](#), his discourse on saving money by optimizing natural daylight vs. artificial lighting, such as candles.

While he was Ambassador to France, Franklin observed that Parisians were sleeping during sunlight hours and then staying up late. As a result, he calculated, about 64 million pounds of candles were being wasted — a tidy sum in any day and age.

Franklin theorized that a fortune could be saved through "the economy of using sunshine instead of candles." The idea caught on. It would later develop into the daylight-saving time we follow today.

Our point? It's hard to make wide, sweeping changes, especially for government. But minor adaptations can make a lasting impact and transform governments and the lives of millions of Americans.

We wanted to highlight a few innovations that have the potential to revolutionize government. In this end-of-year issue, GovLoop analyzes the 30 best innovations in government in six categories:



Big Development Dynamamos

Every year a few governmentwide trends emerge. Whether they take the form of a new piece of legislation (such as the Digital Accountability and Transparency Act (DATA) of May 2014) or a workforce challenge (millennials), some challenges are universal. In this section we review five big initiatives from 2014 and how they are being implemented innovatively.



Internet of Things Trailblazers

The number of "things" connected to the Internet has outpaced the number of people connected to the Internet since 2008. These connected things — mobile devices, parking meters, medical devices and more — will grow to 50 billion by 2020. Read about five government organizations that are dabbling in this technology.



Citizen Engagement Mavericks

Citizens want information in real time and in the format they prefer. This communication revolution is forcing government to interact with constituents in new ways. We detail five of the most interesting new citizen engagement strategies.



Efficiency Implementers

Process improvement may sound boring, but the internal structures of government are what make it tick. You can't launch an app without a strong network to run it. In this section, we name five ways the government is running more efficiently.



Technology Trendsetters

Every day it seems like there's a new technology that is going to change the way government operates. But the government must balance being on the cutting edge with being careful not to invest too much money in buzzworthy projects that flop. We have five examples of technology innovations done right in 2014.



Trends to Watch

This year was filled with remarkable innovations. But what does the future hold? What kind of foundation has 2014 set for 2015 innovations? We look at five trends that started in 2014 and might explode in 2015!

The 30 innovations offer something for everyone. If you are worried about national transparency, fear not. The White House has created a robust open data plan that requires agencies to publish data publicly unless there are national security concerns. If open data isn't your thing, you might like learning about what the National Science Foundation is doing with robotics or what the Interior Department is doing with drones. And if open data, drones and robotics aren't for you — though, why wouldn't they be?! — you are going to be astonished by what the Environmental Protection Agency is accomplishing with environmental sensors.

Sometimes government is thought of as a big bureaucratic hole — a dark space where innovation goes to die. But in this guide, we show you that not only is government on the cusp of technology, it is also a place where innovative minds go to work. We'll introduce you to two of the very best government innovators: the White House's data superstar, Eriq Meyer, and on the local government side, Chesterfield County, Va.'s Barry Condrey. They are helping bring big data and analytics into government. By leaning on data over precedent, they are making decisions to better government every day.

Finally, because innovation doesn't end when the clock strikes 12, we are also going to look at what to expect next year, too. Although we don't have a crystal ball, we asked the GovLoop community what new trends will make a mark in 2015.

So if you are ready to see government innovation at work, our 30 innovations guide won't disappoint. We hope you enjoy it!

CONTENTS

7 **2014: The Year of Data**
An interview with Erie Meyer, Senior Adviser to the U.S. Chief Technology Officer, White House Office of Science and Technology Policy

9 **The New Wave of Targeted Cyber Attacks**
An interview with Ryan Sherstobitoff, Principal Security Researcher, Intel Security and Rees Johnson, SVP & General Manager of Content Security, Intel Security

11 **Breaches & Beyond**
An interview with Bruce Michelson, Distinguished Technologist, Hewlett Packard



**BIG
DEVELOPMENT
DYNAMOS**



12-15



**INTERNET
OF THINGS
TRAILBLAZERS**



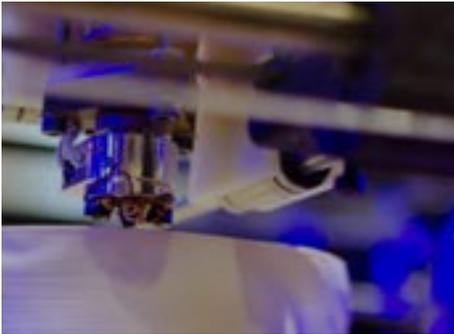
16-19



**CITIZEN
ENGAGEMENT
MAVERICKS**



20-23



**EFFICIENCY
IMPLEMENTERS**



24-27



**TECHNOLOGY
TRENDSETTERS**



28-31



**TRENDS
TO WATCH**



32-35

37 **Innovations on the Horizon: The Internet of Everything**
An interview with Larry Payne, Vice President U.S. Federal, Cisco

38 **County of Innovation**
An interview with Barry Condrey, CIO for Chesterfield County, Va.

41 **Data Center Consolidation Gets a Lift**
An interview with Chris Howard, Vice President of Federal, Nutanix and
Dave Gwyn, Vice President of Federal, Nutanix

42 **A Look Ahead to 2015**
A note from GovLoop President & Founder Steve Ressler and the GovLoop Community

44 **Acknowledgments**

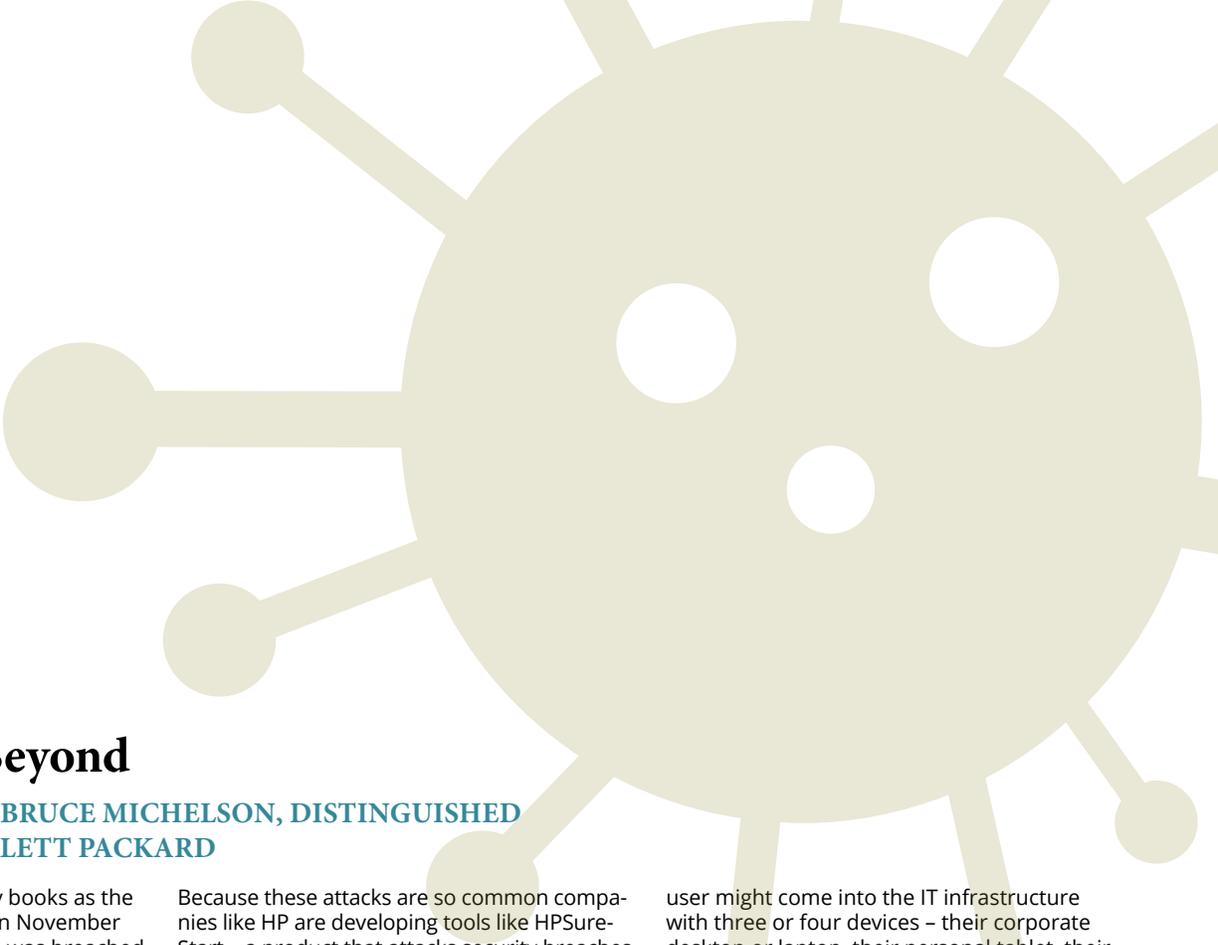
HP innovations that help achieve critical outcomes



HP PCs and printers are recognized as market leaders in price and performance and are widely regarded as the highest quality and most reliable products in the industry. In addition, HP offers comprehensive support and service programs. Trust HP to help you deliver superior public value by enabling your agency to successfully achieve critical outcomes.

hp.com/go/government





Breaches and Beyond

AN INTERVIEW WITH BRUCE MICHELSON, DISTINGUISHED TECHNOLOGIST, HEWLETT PACKARD

2014 will go down in the history books as the year of the mega data breach. In November the United States Postal Service was breached and more than 2.9 million potential customers were impacted. To put that number in context, in the same year Home Depot had 56 million customers impacted; Michael's had three million; Neiman Marcus had one million, Target 110 million, and JP Morgan Chase Bank had 76 million breaches.

In total, [USA Today discovered](#) 43 percent of U.S. companies have been breached. 80 percent of the breaches are caused by employee negligence. "At the end of the day, the least common denominator is the employee who might be turning off some of the encryption or some of the security or some of the asset management information, or going to websites that might not have the secure checkmark on it," noted Bruce Michelson, Distinguished Technologist at HP.

The [FBI found 35 percent](#) of the identity theft breaches came from websites. "When you look at the percentages you have to ask yourself whether or not we as consumers are doing everything that we possibly can to protect ourselves. The answer is no," said Michelson. "No matter how good we think our protection mechanism is, the bad guys attack for a living. It is their job to keep one step ahead of us."

Cyberattacks are increasing at the rate of around 20 percent per year. "You can't look at the USPS breach as a standalone incident. It is a part of a much bigger picture," said Michelson. "If you look back on 2014, one of the most telling stats is that half of the American adults have had their personal information exposed. As a citizen, you almost expect to have that happen now."

Because these attacks are so common companies like HP are developing tools like HPSureStart – a product that attacks security breaches before they can compromise your data. "If my Basic Input/Output System (BIOS) system has been compromised, HPSureStart will automatically senses that and resets the BIOS to its last non-compromised state," said Michelson.

One of the reasons a system like HPSureStart is necessary is because a password can no longer ensure a person's online security.

"Half of American adults were impacted by breaches and I'm not so sure we can even advise IT," warned Michelson. "If my identity was stolen and I worked for you, wouldn't you like to know my identity is stolen? Of course you would. Yet because of personal privacy laws, I'm not sure you can make that kind of request." But Michelson predicted 2015 would be the year to answer that question.

What else is in store for 2015? "Think about an organization today, and think about the various segments within the organization – executives, sales, corporate workers and so on. Each one probably has a unique security risk profile," answered Michelson. "I think what you're going to see in 2015 is companies taking a serious look at segmenting their end users to try to figure out which ones have more risk and exposure than others."

User segmentation doesn't mean that you don't manage everybody, but it does mean that you really need to take a look where you have the most risk and exposure, and make sure the security meter is set much higher.

One way to employ user segmentation is to manage all the devices an employee brings into an organization differently. The end

user might come into the IT infrastructure with three or four devices – their corporate desktop or laptop, their personal tablet, their personal or corporate smartphone, their home PC.

"I'll give you a classic example," said Michelson. "Today we manage desktop and laptops using one set of management tools. We have another group that manage smartphones. But what's a tablet? Is a tablet a traditional desktop to be managed by that set of tools and by that team? Or is it a mobile device that gets managed by that team? Or do tablets need their own team? Organizationally what 2015 is going to bring is a normalization and consolidation of asset management for hardware and software."

Being able to manage all those devices is going to be paramount for organizations because a [Marketing Stats study](#) showed more than 50 percent of people have their cellphone within their arm's reach 24/7. Another 30 percent say most of the time their smartphone is within arm's reach. That means 80 percent of people who own smartphones have it within their reach 24/7.

"One of the big reasons people have their smartphones with them 80 percent is because of social media," predicted Michelson. "Figuring out how to interact securely on mobile devices is going to be a big theme next year."

2014 will go down as the year of the data breach, but 2015 could be known as the year of standards and security.



2014

The Year of Data

An interview with **Erie Meyer**, Senior Adviser to the U.S. Chief Technology Officer, White House Office of Science and Technology Policy



Back in May, President Barack Obama enacted the nation's first open data law — the [DATA Act](#). The bipartisan legislation requires federal agencies to publish their spending data in a standardized, machine-readable format that the public can access through [USASpending.gov](#).

For data evangelists the move was liberating, but for those on the frontlines of the data movement it was also a harrowing challenge. "Our challenge is also our blessing," said Erie Meyer, an open data evangelist at the White House. "For the first time, really, we had an incredible number of agencies saying, 'How can I be the best on open data?'"

One way the White House and the General Services Administration have been able to handle the uptick in open data training and requests was to open create 18F. It's an incubator for new digital technology and services for government, such as application programming interfaces (APIs). "At 18F, a three-person team permanently teaches executives in government how to make APIs," Meyer said. "Every Tuesday anybody who attends will leave having made an API. 18F also instructs how to launch an API usability testing session."

For a lot of us, open data can be a little bit scary. That's why Meyer encourages agencies

to get people trained on the power and use of open data.

Another key in the open data revolution has been feedback from open data users themselves. It sounds obvious, but up until a few months ago, the government really had no idea what the general public was going to do with the open data.

"Organizations like GovLab, which hosts open data roundtables, are a great opportunity for agencies to sit down with 10 or 15 entrepreneurs to hear from people who depend on their open data," Meyer said. "I got to see the CTO of MapQuest tell the director of the Census Bureau why their data was so amazing, and [describe] some improvements that he would love."

Members of the public aren't the only ones who can take advantage of government open datasets. The government is now seeing a lot of data for the first time. Sharing that data among agencies is really the next step, Meyer said. "The next frontier is really being our own data user."

The benefits of open data are seemingly endless, but Meyer has uncovered the No. 1 driver of open data use. "Open data creates jobs — it's that simple. McKenzie discovered between \$3 [trillion] and \$5 trillion extra of economic potential as more data, both government and private sector, open up."

Already the economy is seeing some of the effects of data. In 2014, the Climate Corporation, which examines weather data to provide

insurance to farmers, was purchased for \$1 billion, and Trillium Software, a data quality provider was purchased for \$1 billion — and these are companies built on a foundation of open data.

One job open data is specifically necessitating is the role of the Chief Data Officer. "We had our first Chief Data Officer hired at the Department of Transportation — Dan Morgan," Meyer said. "Agency secretaries now realize data is not something to be sidelined. Data is central to how they work; it is mission-critical."

Along with the rise of open data came the popularity of hackathons and open data jams. However, Meyer cautions that they are useful only if they tie directly to the mission of the agency. "I think there's been a backlash in the technical community against hackathons because in some cases they are seen as a waste of time, because finished products don't always come out of them," Meyer said.

But when mission and a hackathon align, the results can be amazing. "The White House held a data jam centered around 21st-century jobs," Meyer said. "Not only was Department of Labor there, the Vice President was there, and 30 of the best designers and developers in the world were there. The data jam wasn't for marketing. It was focused on achieving mission work."

The real strength of open data is the power of collaboration. "When open data puts government employees directly next to outside innovators, magic happens," Meyer said.



We've Spent More
Than 25 Years
on the Front
Lines.

Since day one, we've fought tirelessly to keep organizations and individuals from becoming targets of malware and cybercrime. Fast-forward 27 years, stealthy targeted attacks are on the rise, and our defense experience has paid off. McAfee® solutions—now part of Intel® Security—deliver exactly the kind of must-have technology high-assurance networks and organizations need to thwart today's targeted attacks. Learn more at intelsecurity.com.



McAfee is now part of Intel Security.

Intel and the Intel logo are registered trademarks of the Intel Corporation in the US and/or other countries. McAfee and the McAfee logo are registered trademarks or trademarks of McAfee, Inc. or its subsidiaries in the US and other countries. Other marks and brands may be claimed as the property of others. The product plans, specifications, and descriptions herein are provided for information only and subject to change without notice, and are provided without warranty of any kind, express or implied. Copyright © 2014 McAfee, Inc.

The New Wave of Targeted Cyberattacks

AN INTERVIEW WITH RYAN SHERSTOBITOFF, PRINCIPAL SECURITY RESEARCHER, INTEL SECURITY AND REES JOHNSON, SVP & GENERAL MANAGER OF CONTENT SECURITY, INTEL SECURITY

Cybersecurity is an ever-evolving field. Attackers are constantly changing their strategies and methods of hacking, and it's a never-ending race for cybersecurity experts to keep up and keep data safe.

Intel Security, the cybersecurity division of Intel, is taking steps towards the future with innovative new solutions that are stopping hackers in their tracks. We sat down with Ryan Sherstobitoff, Principal Security Researcher, and Rees Johnson, SVP & General Manager of Content Security, both of Intel Security, to talk about preventing modern attacks with advanced defense and research methodologies.

For Intel Security, one of the company's latest moves to innovate in cybersecurity started when they began following a group of sophisticated actors who persistently and methodically attacked global political organizations for more than three years. Known as Operation Archangel, this cyber-espionage campaign executed spear phishing attacks against a number of targets across Asia and North America.

Intel Security, in order to learn from and stop these attackers, and to better understand Advanced Persistent Threats (APTs), launched the establishment of honeynets and honeypots to attract would-be attackers and study their techniques. In short, they began actively monitoring the attackers themselves by luring them into a trap.

"To track a hacker, you have to think like a hacker," quipped Johnson.

"The attackers were targeting organizations across the world, and we monitored their access process" explained Sherstobitoff. "So we had the insight into the tools, the techniques, and the procedures, because we were able to actually monitor firsthand their activities."

Using honeypots, honeynets, and malware analysis, the Operation Archangel Advanced Persistent Threat campaign was monitored and documented by Intel Security for over 12 months.

"One of the interesting things that the hackers utilized were destructive capabilities," said Sherstobitoff. "They were arming pieces of malware to destroy a victim's network. So imagine planting it [malware] on an emissary network, and they can actually trigger a remote wipe of the systems and essentially render them inoperable. That's really what was surprising to us – as well as finding out that a lot of these activities which were already documented in the media actually happened to be linked together by a common actor."

Added Sherstobitoff, "This approach was innovative in terms of arming and modifying existing code and using it to attack victims across Asia and North America."

Though criminals like the actors behind Operation Archangel are becoming more sophisticated by the day, Sherstobitoff and Johnson said that there are concrete steps agencies and government employees can take to prevent spear phishing campaigns and create a culture of cybersecurity awareness. It all starts with focusing on one of the technologies that governments use most: email.

"Many of these attacks are coming through email, so, just the act of filtering emails that have attachments, and properly scanning those to look into the email and look into the attachment to determine whether or not that's actually malicious or not would help," said Sherstobitoff. "The primary factor is an email bridge to the client."

In particular, if you look at espionage-based attacks, 78% come in through email, Johnson pointed out. What Intel Security is finding is that as an industry the email vector is a primary area of concern – and most organizations do not concentrate enough on stopping targeted phishing attacks.

"Technologies that are capable of inspecting that type of [email] content without a threat signature would have likely caught this attack," added Johnson.

Johnson and Sherstobitoff added that though hackers and their methods are, in many ways, becoming more and more sophisticated, one of the best ways that government agencies can stay safe is to focus on the basics.

"Guess what?" asked Johnson. "98% of these attacks are coming over web and email. Remember that. As you put in broad security solutions within your environment, you can be more surgical, and you can spend taxpayers' money more efficiently. So make sure you have exceptional focus on where 98% of the attacks are coming in."

"We want to make the point that not all of these attacks are that sophisticated, and not all that advanced, but yet, they're still being fairly effective at compromising and successfully stealing information from clients," said Sherstobitoff. "That's the one takeaway we'd love people to focus on and remember."

Added Sherstobitoff, "More education is needed around these kind of threats and better usage of technology. User education around basic things like email security can make all the difference."

To help organizations teach end-users how to spot phishing emails, Intel Security has created an online quiz at phishingquiz.mcafee.com, taken by over 50,000 individuals worldwide to date.

The DATA Act

ORGANIZATIONS: HOUSE COMMITTEE ON OVERSIGHT & GOVERNMENT REFORM AND
THE SENATE COMMITTEE ON HOMELAND SECURITY & GOVERNMENTAL AFFAIRS

ACHIEVEMENT:

On May 9, 2014, the [DATA Act](#) became the first federal law to mandate standardized data transparency. The act amends the [Federal Funding Accountability and Transparency Act](#) (FFATA) of 2006 to require the federal government to publish any data related to spending, including payments, budgetary actions, financial management and procurement.

Although the DATA Act does not specify a format in which this data will be released, it directs the Treasury Department and the White House Office of Management and Budget (OMB) to develop a standardized format that will be used at every government agency. This new data will then be made accessible to the public from one location in a single reporting system.

WHY IT MATTERS:

FFATA directed agencies to report on their spending. However, there was no designated entity to impose governmentwide data standards, nor was there a central place to house these divergent interests. As a result, agencies used separate reporting streams and provided data in a wide range of often incompatible formats.

What's more, these reports did not provide a complete view of government spending. Congressional appropriations, for instance, were not detailed beyond their initial legislative text and could not be traced to individual Treasury accounts once they were dispersed. Thus, a significant amount of financial transactions was omitted from public reports.

The DATA Act creates a more extensive and holistic reporting structure for government spending. It signifies a federal commitment to leverage data to increase transparency, streamline operating procedures and ultimately build public trust in government. The fact that the act was passed unanimously in

both the House and the Senate only amplifies this commitment.

From an operations perspective, this new mandate will improve government. The common data format of these financial reports will allow agencies to streamline their security processes and more efficiently execute quality checks and waste analyses. And because these reports will be housed in a central location — [USASpending.gov](#) — they can easily be compared across agencies to identify areas for potential improvement.

Open data advocates hope that in addition to allowing government to better assess its spending, this newly available information will solicit feedback from the public on ways to improve operations and financial decisions. By providing all financial data in a free and accessible manner, the DATA Act will expose government processes to increased public scrutiny. As a result, agencies will be more accountable not only to internal auditors, but also to the public.

At the same time, legislators believe that this level of transparency will increase public trust in government operations. Citizens will know how their tax dollars are being spent and what returns those investments yield. Successes will be obvious. Inefficiencies, poor accounting practices and even fraud will also be identifiable. Therefore, the public can trust that even when money is misspent citizens will know what is happening in government.

Finally, budgetary appropriations data will offer a better perspective on how government priorities are being financially supported. Rather than knowing only which federal grants and contracts are distributed, the public will now have a total view of what funds are spent on a specific agency or initiative. Thus, the productivity of services can be weighted against the total monetary contribution from government.





The Launch of 18F

ORGANIZATION: GENERAL SERVICES ADMINISTRATION (GSA)

ACHIEVEMENT:

In March 2014, GSA announced that it was launching a new program within the Office of Citizen Services and Innovative Technologies to accelerate innovation in government. 18F, comprising the Presidential Innovation Fellows (PIF) program and an in-house digital delivery team, is an incubator for new digital technology and services for government.

According to its [website](#), "18F builds effective, user-centric digital services focused on the interaction between government and the people and businesses it serves."

WHY IT MATTERS:

Government is infamous for being slow to adopt new technologies. GSA hopes that 18F can change its reputation by creating a startup-like environment that focuses specifically on creating and deploying new technologies rapidly. The agency also hopes that this new program will increase engagement with technology experts who might otherwise be deterred from public service by the slow and bureaucracy-ridden processes of government.

When the group launched, it outlined what it aimed to do on the [18F blog](#):

- Partner with agencies to deliver high-quality, in-house digital services using agile methodologies pioneered by top technology startups.
- Rapidly deploy working prototypes using [Lean Startup principles](#) to get

a desired product into a customer's hands faster.

- Offer digital tools and services that result in governmentwide reuse and savings, allowing agencies to reinvest in their core missions.
- Be transparent about its work, develop [in the open](#) and commit to continuous improvement.

Although it's been in operation less than a year, 18F has already begun fulfilling its mission. For instance, a pilot program called FBOpen was released in early 2014. The service, housed on [fbopen.gsa.gov](#), provides open source tools and a searchable database to help small businesses find federal contracting opportunities. This service improved on the Small Business Administration's request for proposals (RFP) search system, called [RFP-EZ](#).

The service is also easily deployable on separate sites because 18F has made the API for this service, and any other 18F-developed service, publicly available for download on [GitHub](#). Additionally, along with the API, 18F explains how the team developed the technology, how to get it started and what the limitations of its current functionality are. By doing so, 18F is hoping to engage other developers in the evolution of this tool.

FBOpen is just one example. Following the strategy of deploying solutions as quickly as possible, 18F has already released a number

of other test programs. These include [alpha.foia.gov](#), an open source application that revamps and consolidates the submission portal for Freedom of Information Act requests, and [notalone.gov](#), an information portal offering resources for students and schools on how to prevent sexual assault on college campuses.

Ultimately, innovations like these have two main objectives. First, they provide government agencies with enhanced tools to meet their missions and serve the public. Second, they provide a better user experience by creating digital services that are easier to use and on par with private-sector technologies.

However, the added benefit of 18F is its ambition to infuse government with a culture of innovation. In the past, government has been reticent to take risks. This has resulted in a policy of adopting only tested solutions. "The best way for government to mitigate [information technology] project risk is to lower barriers to entry and increase competition... 18F has an opportunity to convince federal agencies to move away from the glacial, monolithic enterprise approaches of yesterday," former PIF participant Clay Johnson [recently wrote](#).

The projects created through 18F's fail-fast methods will not only change government, but also show that government can keep pace with shifting technologies and teach other public workers to embrace risk for the sake of innovation.



“Shark Tank” at HHS

ORGANIZATION: DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS)

ACHIEVEMENT:

In the first iteration of [HHS Ignite](#), a project of the HHS Idea Lab, HHS awarded \$5,000 to each of 13 teams after calling for employee-developed, innovative ideas to improve the department. HHS also put these employees through a three-month boot camp that trained them to develop their ideas like they would at a Silicon Valley startup.

After training, the teams’ ideas were again scrutinized using the “[Shark Tank](#)” approach of pitch-for-funding. The winning team was granted \$50,000 from HHS’ IDEA Labs Venture Fund in addition to dedicated time to fully implement their idea.

WHY IT MATTERS:

HHS set two goals for the Ignite program. First it wanted to “give bold ideas an opportunity to prove themselves.” The program matches innovative ideas — such as gamification for the Centers for Disease

Control and Prevention, 3D printing at the National Institutes of Health, and a modernized ingredient system for the Food and Drug Administration — with the necessary funding, training and time to get them off the ground.

Second, HHS hoped to “infuse startup approaches to problem solving into department operations.” In other words, the department hopes that by providing an outlet for sometimes-risky innovations, employees will be more likely to develop and test new ideas.

This latter goal also has a secondary benefit for HHS. By allowing employees to have a voice in the evolution of the department, Ignite could increase engagement and retention among HHS’ 90,000 workers. As [The Washington Post put it](#), Ignite is “giving those toiling away along the hallways of government the sense that there is a creative path ahead of them — in short, that you can be an entrepreneur on the federal payroll.”

Better Customer Service Experiences in Government

ORGANIZATION: OFFICE OF MANAGEMENT AND BUDGET (OMB)

ACHIEVEMENT:

Last spring, OMB updated the list of cross-agency priority [\(CAP\) goals](#). Three remained from the previous set, while 12 were newly created for the remainder of the Obama administration. Goal No. 8 was one of these new initiatives, and it calls on agencies to “deliver world-class services to citizens by making it faster and easier to complete transactions and have a positive experience with government.”

WHY IT MATTERS:

Government services are no longer judged against other agencies. Instead, the user experience for public services is being compared to experiences with private-sector companies such as Amazon, Apple and Netflix. It’s becoming increasingly obvious that government cannot ignore these new expectations. The

public backlash from the [HealthCare.gov](#) malfunctions proved that failing to provide superior service could have a real, negative impact on how government operates.

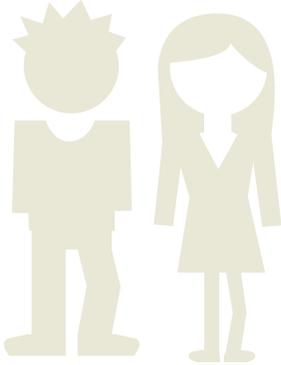
By making customer service a CAP goal, the administration is signaling its commitment to improving the way government engages with the public. This executive support is critical, especially because many new engagement initiatives will require dedicated funds and operational support.

The CAP goal also outlines three key components of new customer service initiatives. It mandates that agencies streamline transactions, develop standards for high-impact services and use technology to improve customer experience. These directives offer tangible next steps for organizations to meet new services standards.



Working to Retain Millennials

ORGANIZATION: OFFICE OF PERSONNEL MANAGEMENT (OPM)



ACHIEVEMENT:

Based on answers from the government's most recent Federal Employee Viewpoint Survey (FEVS), OPM issued its first report on millennials in the federal workforce.

WHY IT MATTERS:

[The report](#) offers some encouraging news. It shows that more than 60 percent of millennials are satisfied with their jobs and more than 85 percent say the work they do is important. However, it also points out that nearly 400,000 of the roughly 601,000 millennials hired in the past five years have since left government.

To put it simply, government has a millennial retention problem. And while millennials make up only 16 percent of the current feder-

al workforce, they are [projected to comprise](#) nearly half by 2020. This is a key demographic that must be captured if the government is going to be staffed for the future.

That being the case, OPM's report didn't focus only on the facts of today. It also studied ways to better attract and retain millennials. Encouraging innovation and creative thinking are two major initiatives that the report recommends.

In a recent interview, OPM Director Katherine Archuleta said, "We are looking forward to using the FEVS results to continuously improve and make the federal government a model employer for all, including this critical population of current and future federal employees."



EPA Tracks Air Pollutants

ORGANIZATION: THE ENVIRONMENTAL PROTECTION AGENCY (EPA)

ACHIEVEMENT:

[The Village Green Project](#) is an effort by EPA researchers to create next-generation air pollution sensor systems. They are designing the sensors to test low-cost and sustainable technologies to measure air quality. The program also aims to engage citizens on environmental issues by providing real-time data on air quality to a public website.

WHY IT MATTERS:

EPA has deployed this innovative, solar-powered air-monitoring system on — of all places — a park bench outside the Durham County Library South Regional Branch in Durham, N.C. Officials hope the study, which they've dubbed the Village Green Project, advances air quality measurement capabilities to local government.

Here's how it works, [according to EPA](#): Two solar panels charge a battery (on cloudy days, the system turns off to save power). The solar power then runs instruments that

provide minute-by-minute measurements of air and weather around the bench. The system's air pollution sensors measure the pollutants ozone and particle pollution, which cause health problems when elevated. Then, the sensors automatically send collected data to an online, open source website that citizens can interact with using smartphones to see current local air quality and meteorological conditions.

Thanks to the installation of these sensors, EPA scientists can monitor the operation of the system and its data remotely via the Internet, which saves them time and resources. Other pollution-monitoring systems that don't use this IoT sensor technology must be checked in person, sometimes as frequently as once a week.

"The Village Green Project is intended for research and educational use and to advance the next generation of air quality-monitoring tools," EPA said. "The system is designed with new technology and other state-of-the-

art features that make it lower cost and low maintenance for replication by states, tribes and communities to meet their air quality monitoring needs."

Additionally, EPA has worked to educate citizens on how to contribute to such sensor projects. "EPA has empowered the public with information to make sense of their sensors," said Dustin Renwick, who works in conjunction with EPA's [Innovation Team](#), in [a blog post on GovLoop](#). "Our scientists have developed a [sensor user guidebook](#), a [citizen science toolbox](#), and [instructions for building an air sensor](#) for educational purposes."

"Air is the universal medium for humans, and the quality — good and bad — affects everyone," Renwick added. EPA officials "know the importance of breathing clean air, and they know that next-gen sensors mean an opportunity to involve many people in maintaining the good quality of that air."





Sensing Office Buildings' Energy Use

ORGANIZATION: GENERAL SERVICES ADMINISTRATION (GSA)

ACHIEVEMENT:

GSA has been experimenting with a sophisticated sensor and data system that helps the agency monitor its building in downtown D.C. for energy savings, building efficiencies and much more. Officials hope to eventually expand this Internet of Things (IoT) technology into more of their buildings nationwide.

WHY IT MATTERS:

GSA's office in D.C. is in a stately building that was designed and constructed in the early 20th century. But on the inside, an innovative IoT experiment is taking place that's catapulted this agency that manages and supports the basic functioning of federal agencies well into the future.

Scattered throughout wings of the building are dozens of miniature sensors that monitor everything from energy use to how many people are regularly using a conference room or hallway. With that information, building managers can decide when and how much to, say, air condition a conference room (very little if no one is using it) or when to set lights to turn off automatically. Energy and utilities are no longer directed toward

underused areas of the building, resulting in saved money and expenditures.

GSA has deployed these IoT technologies and sensors throughout other federal buildings — nearly 80 of them — as part of its "Smart Buildings" policy. The policy intends to regulate energy use and operational costs in federal office space. And it seems to be working. According to [a recent article in The Washington Post](#), so far the initiative has saved \$24 million in rent costs, \$4 million in energy costs and \$12 million in operational costs annually.

Employees are part of this IoT phenomenon at the GSA also. The agency encourages workers to telework, and when they do come into the office, they must sign up online for a desk. Then, when the employee swipes into the building, a sensor sends a note to that desk and the power is turned on as the employee heads toward it. Additionally, motion sensors at desks keep the lights on. When nobody is sitting there, the lights automatically turn off.

GSA Administrator Dan Tangherlini spoke this year at an IoT event about GSA's efforts and successes in using the technology in building maintenance.

"In every building in the test, there is an average of 2,000 sensors on various points in the building," he said. "We then measure the performance data against the manufacturer's expectations for usage to determine if the buildings are consuming the right amount of energy, and to determine whether there's an opportunity for cost savings."

So why does this matter for other areas of the public sector? The massive cost savings that GSA is already seeing likely because of IoT are reason enough for government and public-sector workers to get excited. Further use and deployment of these "smart" buildings — those with connected, automated, continuously self-monitoring energy systems — could generate \$100 billion in savings by lowering operating costs by reducing energy consumption through IoT integration of HVAC and other systems, according to Cisco.

GSA has discovered a practical use of IoT technology, proving that the sensor-driven initiative is not just all bells and whistles. There's much more to it, including a reduced impact on the environment through better use of energy.



A FitBit for Chicago

ORGANIZATION: CITY OF CHICAGO AND ARGONNE NATIONAL LABORATORY

ACHIEVEMENT:

In July, Chicago began placing sensors on light poles — a network that officials have dubbed “The Array of Things” — throughout the downtown Loop neighborhood in an effort to gain more insights about everything from air quality to light to walkers’ movements. The sensors will also detect mobile devices, so smartphones can serve as a gauge of pedestrian density.

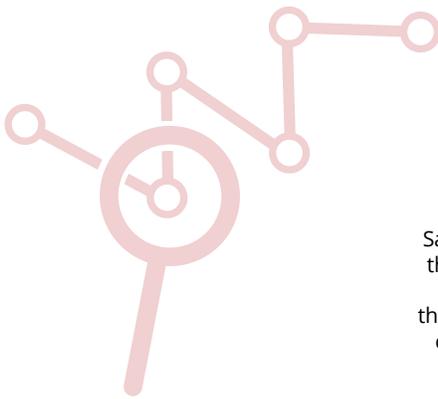
WHY IT MATTERS:

This collection of real-time data on the city’s environment, infrastructure and activity will provide a wealth of data that might help turn Chicago into the smartest of cities. The project could change the way people interact with the built environment to make everything safer and more efficient for all residents, ultimately creating a “smart” built environment.

The data collected will be made available online for both the public and government to use for free. [A recent article](#) called the project a FitBit of sorts for Chicago — essentially data that will inform the city on how to better handle operations.

“How can cities work more efficiently to save people time? More safely?” asked Charlie Catlett, senior computer scientist at Argonne and a senior fellow at the Computation Institute at the University of Chicago, who is working with the city on the project. “How can cities use less energy or more renewables? How can they adapt to long-term trends or short-term events?”

With this new public sensor platform and the data it gathers, Chicago may have the answers to those questions right at their fingertips — without having to lift a finger.



Monitoring a Growing Population

ORGANIZATION: CITY OF SAN JOSE, CALIF.

ACHIEVEMENT:

San Jose officials announced this summer that they are working with Intel on a pilot program designed to use technology to help improve the operations of the Silicon Valley via a “smart city” project that will leverage IoT technology.

WHY IT MATTERS:

For the first third of this decade, big-city population growth continued to outpace the rates of 2000 through 2010, according to Census data. As cities are figuring out how to continue to expand and better serve their residents, many are turning to technology — and San Jose is banking on IoT.

By 2040, the city expects to see a 40 percent increase in population. In anticipation of this growth, San Jose will install networks of

sensors to measure several types of information, including air quality, noise pollution and traffic flow. Data collected from the sensors will be analyzed and used to help policymakers improve urban planning and make economic decisions.

San Jose is kicking things off with air quality initiatives. Officials will install a network of 10 air quality sensor units that will provide real-time data on pollution levels.

In a [recent interview with GovTech](#), San Jose’s Chief Information Officer, Vijay Sammetsa, said, “As we begin to bring air quality with other datasets like real-time traffic, weather and things like that, we start shading in and focusing in on a picture of what’s going on, and [we’re] able to draw those insights.”

Standardizing IoT

ORGANIZATION: THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

ACHIEVEMENT:

A fully functioning IoT won't be of much use if standardization and a common framework for the billions of devices aren't put in place. NIST is working on such benchmarks with the help of two PIFs, Geoff Mulligan and Sokwoo Rhee.

WHY IT MATTERS:

Early in 2014, Mulligan and Rhee co-lead and convened the SmartAmerica Challenge in Washington, D.C. The challenge, which culminated in a live expo, brought together IoT programs and pilot tests to demonstrate how IoT and cyber-physical systems can save lives, improve the economy and create new business opportunities once they are connected and standardized.

"The SmartAmerica Challenge was conceived by Geoff and me when we first came into

the Presidential Innovation role last June," Rhee said. "What we realized is that there has been a lot of investment that has gone into developing new technologies and making specific applications more beneficial.

The government has invested hundreds of millions of dollars on basic research for cyber-physical systems, but what we realized is that they are very sector-specific."

Rhee and Mulligan aren't stopping at SmartAmerica challenges. The next step is a massive global expansion of their pilot program and expos known as "SmartAmerica: Global City Teams." As [their site](#) reads, "Because many smart community development efforts are isolated, customized projects, NIST is [launching](#) the Global City Teams Challenge to encourage collaboration and the development of standards so that communities can benefit from the experience of others to improve efficiency and lower costs."





Oakland Pioneers a New Website Redesign Process

ORGANIZATION: CITY OF OAKLAND, CALIF.

ACHIEVEMENT:

Most city websites are redesigned every year by an outside consultant, costing millions of dollars. Oakland is devising a new internal redesign path in which updates are smaller and more frequent.

WHY IT MATTERS:

Every month, the city's website gets more than 100,000 unique visitors. Can you imagine if 100,000 people showed up at City Hall every month? The staff would be overwhelmed, lines would be out the door and services would grind to a halt.

Despite that traffic to Oaklandnet.com every month, the city hadn't budgeted resources to update it since 2003, when the government allocated only \$90,000 to make changes.

In the past 11 years, the city has stretched the budget to accommodate digital services. "We needed to really rethink what we were going to do and how we were going to approach this issue," Karen Boyd, Communications Director for the city, said [during Code for America's annual summit](#). Enter Code for America's Digital Front Door project, a yearlong partnership to rethink government websites.

Digital Front Door set out to do something ambitious: change the government website redesign process. In essence, it would redesign the redesign.

Most government website redesigns are more like brochures than tools. Sites often highlight the mayor's news rather than city services. For example, the mayor dedicating a new park might make the homepage while the link to instructions on applying for a fishing license is buried in the recesses of the website.

"Another big issue for city websites is that they are designed with the internal structures of government rather than use drivers," Frances Berriman, Senior Designer at Code for America, said at the summit.

A resident doesn't care if fishing and boat licenses are technically curated by different departments. That person needs both licenses and wants to find them easily in one place.

City officials and Code for America decided that before they could create a site that grows with the community, they first needed to get to know their community. They needed to figure out who was using the site and when, what users were searching for, how long Oaklandites stayed on the site, and how many web pages they clicked before logging off. In short, they needed data.

To help answer those questions, the Digital Front Door team created digital dashboards that display current activity on Oakland's city website. This brings city workers closer to their online constituents in the "virtual city hall" and creates an opportunity for direct feedback on the work they do online.

It might seem like a lot to get 100,000 unique users per month, but the population of Oakland is 400,000 — more than four times the number of visitors to the website. To reach more people, the city conducted a public survey to find out more about interactions with city services. And because Oakland's population is very diverse, the Digital Front Door team sent out surveys in English, Chinese, Spanish and Vietnamese.

Because it knows that a resident looking for boat and fishing licenses doesn't want to go to different web pages, the team also created an MVP of a new way to architect city services, putting the emphasis on the way users outside City Hall approach finding services, rather than a digital representation of internal city organizational charts. A "web analytics club" emerged to help the restructuring. Comprised of a group of content leads for the various sections of the website, club members come together to learn from the analytics about how to couple content and make their messaging stronger.

Oakland is trying something many of us wish we could do: eschew the idea of "this is how we do business" and try something new. Oakland's budget will probably never provide millions of dollars to focus on the website, but a few small fixes have made it more actionable and immediately relevant to users.





Hawaii Gamifies its Website

ORGANIZATION: STATE OF HAWAII

ACHIEVEMENT:

Hawaii added gamification features to Hawaii.gov. By adding fun, the state has seen online engagements increase by more than 20 percent.

WHY IT MATTERS:

Move over, Scrabble. Stand down, Monopoly. Take a seat, chess. There is a new game in town and it's coming to you from the state of Hawaii.

Let's be totally honest. Filling out your Department of Motor Vehicles forms is more akin to a root canal than a fun night playing Parcheesi. But what if it wasn't? What if filling out your DMV forms was a game?

By making such tasks more enjoyable, Hawaii drove up adoption of online services by 20 percent — that equates to about [400,000 registrants](#) — in five months.

The state did that by zeroing in on a fundamental part of human nature: the desire to win. Officials added game elements such as badges, a point system and a leader board. In the end, you can win at government services.

State officials, like any good game developer, knew they needed help to make the most functional, personalized and alluring site. So they enlisted the help of the Hawaii Information Consortium (HIC), a subsidiary of NIC, an e-government provider.

HIC created the personalized portal of Hawaii's online effort, My.Hawaii.Gov, with tablets in mind. Lots of images, graphics and a basic interface make the site good for Hawaiians on the go.

"The portal also features a page called mySavings, where users can see an accumulation of how much time they haven't spent in traffic or standing in line, and how much paper they've spared by using online services," states an article in [Government Technology](#).

My.Hawaii.Gov integrates with seven of the state's 17 departments and includes a detailed, personalized history of all business conducted online with the state.

Other attractive features include:

- Access to your transaction history with most state and county agencies in one place.
- Real-time information on filings, licenses and more.
- A functionality that shows savings of using online services vs. traditional methods.
- Gamification elements that provide tips on what users can do with their newfound time.
- Responsive design and a touch-first interface.

And if you thought the game ended when you had renewed your driver's license, you would be wrong. You can earn points for online procurement, licensing, camping reservations, and a history of personal and business transactions.

"When the state first began the project, officials were surprised by the jump in online adoption," said Russell Castagnaro, general manager of HIC in an interview with [Government Technology](#). "They had added a barrier, requiring users to create an account to use the portal, yet adoption in some cases

jumped from an already high 75 percent to around 85 percent."

HIC also paired services with a lower rate of adoption with more popular programs. For example, when people apply online for a professional or vocational license, they can also see what other services are related to their business.

Additional upgrades will be made to the award-winning website in 2015, including:

- Language translation.
- The addition of a geolocation mapping service that allows visitors to find government offices, electric vehicle charging stations, farmers markets and more.
- 273 social media pages, 1,200-plus Twitter followers, a Flickr photo pool and 20 YouTube videos.

To many, gamifying a state website might seem like a waste of time or resources at first blush, but when you consider the increased level of engagement and online interaction, the site pays for itself. Overall, the government is struggling with staggeringly low approval ratings, and many Americans simply don't think that governments are good stewards of their tax dollars.

Hawaii has shown with a little innovation and a little fun, it can improve the services it delivers and make people want to come to the DMV. OK, wanting to come to the DMV might always be a stretch, but they at least users know they can have a little fun while filling out the dreaded registration renewal forms.

My.Hawaii.Gov has already won at its own game. This past June the site earned the title of best-in-class at the Interactive Media Awards.



HUD Tracks Hurricane Sandy Relief Funds

ORGANIZATION: DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

ACHIEVEMENT:

After Hurricane Sandy ravaged the East Coast in 2012, the U.S. government gave almost \$50 billion in a disaster relief fund. HUD created a robust tracking system so every penny of the \$50 billion would be accounted for.

WHY IT MATTERS:

Hurricane Sandy was one of the deadliest storms on record, taking the lives of 117 people in the United States and 69 more in Canada and the Caribbean. [New York's Metropolitan Transportation Authority \(MTA\)](#) estimates that Sandy caused \$5 billion in losses: \$4.75 billion in infrastructure damage and \$246 million in lost revenue and increased operating costs.

To jumpstart the recovery process, the government created a [\\$49 billion Hurricane](#)

[Sandy disaster relief fund](#), and to ensure the money was being used correctly and effectively, it passed the Disaster Relief Appropriations Act of 2013, which called for a robust dashboard to follow the money. To that end, HUD led a taskforce that worked across 19 agencies to track the progress of their funds and how they assist families and small businesses on the ground.

Since February, in partnership with the Recovery Accountability and Transparency Board, the taskforce has made even more detailed information available on the board's existing website, [Recovery.gov](#). This collaboration provides a more visually accessible and granular view of the data, displaying aggregated funding totals by state via an interactive map, text and machine-readable tables for download.



Canada Reports Potholes Automatically

ORGANIZATION: CITY OF SASKATOON, CANADA

ACHIEVEMENT:

Saskatoon officials created an app that allows citizens to report potholes. Although similar apps have been around for years, this one is unique because it literally puts the pothole on the map for city officials. The exact location is geolocated.

WHY IT MATTERS:

This is going to sound crazy, but Canada gets a lot of snow — to the tune of 28 inches a year in Saskatoon. And snow wreaks havoc on the roads.

Every spring, the city of Saskatoon conducts a pothole blitz to repair the road degradation from the harsh freeze/thaw cycle it experiences every year. But finding the potholes can be a challenge. That's where the Report a Pothole application comes in.

Since the launch of the app in March 2014, more than 3,800 potholes have been reported online while the

number of pothole-related calls has significantly fallen. It's a win-win for the city.

"The application allows citizens to pinpoint a spot on the map and fill out a simple pop-up form, and also have the option to add a picture. This automation has increased the efficiency with which city crews locate and repair potholes, and has allowed them to prioritize areas and address the most serious issues first," said Alex Miller, President of Esri Canada, the geographic information systems [company that powers the app](#).

The city has also recently deployed additional interactive web-mapping applications. The Utility Cuts and Repair Schedules map shows schedules for road, concrete and landscape repairs. So not only can residents ride smoothly over Saskatoon roads, they can also avoid traffic slowdowns due to construction.



An App to Better Pay Your Bills

ORGANIZATION: STATE OF IDAHO

ACHIEVEMENT:

Paying bills used to mean going to a government building or at the very least sitting down at a computer. Not anymore for Idahoans. Idaho has created an app for city officials to make and receive payments without a Wi-Fi connection.

WHY IT MATTERS:

The [OntheGo](#) (OtG) Android app gives Idaho's state agencies, counties and cities the ability to pay bills remotely without a Wi-Fi network.

"Developed by Idaho's portal manager, Access Idaho, under the Office of the Chief Information Officer, the free application meets Payment Card Industry standards and ties into the state's payment engine, which is designed exclusively for government use and

securely processes more than \$150 million in payments annually," said Idaho CIO Bill Farnsworth in a [National State CIOs report](#). "A swipe card reader that plugs into the audio jack of the device is optional. OtG's uniqueness lies in its capability to take payments securely whether or not the Android device is within cell or Wi-Fi coverage. Upon connecting to a service area or a secure Wi-Fi network, its payments will automatically process."

And to make sure it is secure, an encryption-enabled swipe card reader gives OtG its industry-first "store and go" distinction. If outside cell or Wi-Fi coverage, the reader stores transaction data securely. When it connects to a service area or Wi-Fi network, the application automatically processes the pending payments.



Smithsonian Archives Go 3D

ORGANIZATION: THE SMITHSONIAN INSTITUTION DIGITIZATION PROGRAM OFFICE

ACHIEVEMENT:

The Smithsonian is 3D scanning its most treasured artifacts and making them available to the general public. This improves research for Smithsonian employees while also increasing public access.

WHY IT MATTERS:

In recent years, there's been a lot of hype surrounding 3D printing and scanning, but 3D printing has actually been around for a quarter of a century. What has changed is that it is now significantly "more accessible and democratized," said [Vincent Rossi](#), 3D Program Officer at the Smithsonian Institution.

But what is 3D scanning?

Rossi said that "3D scanning is nothing but measurement. We're collecting millions of data points on the surface of an object." The Digitization Program Office has created 3D models of artifacts such as South American Eulaema bees, a "life mask" of Abraham Lincoln and the Wright brothers' flyer.

By digitizing its cache of history, the Smithsonian can approach work in new and innovative ways. It has even scanned entire archeological sites. In one case, 3D scanning helped measure eight fossilized whales in Chile, salvaging the site and fossil bed digitally before a construction crew destroyed the site.

Furthermore, if researchers can capture all the data they need in 3D renderings, "the full excavation and potentially damaging removal and relocation of precious artifacts may no longer be necessary," said [Eric Mack](#), Science and Innovation Contributor at Forbes Magazine. This was demonstrated by the Smithsonian's successful on-site digitization of Indonesia's Liang Bua cave, a research site for the National Museum of Natural History where the fossil species *Homo floresiensis* — the "hobbit" of evolution — was discovered in 2003.

Such measurement takes time and effort, however. The Smithsonian has about 137 million items, so even if it were able to digitize an object every minute, it would still take 270 years of working around the clock every day to capture the entire archives in 3D, said [Günter Waibel](#), Director of the Digitization Program Office.

Consequently, the institution is looking for partners to help it better take advantage of 3D scanning and rendering technology.

Rossi believes the rate of 3D printing will grow exponentially, helping to speed up this process.

The benefits of 3D scanning don't stop with Smithsonian researchers. Digitizing artifacts also makes the beauty and splendor of these objects widely available to the public.

"With only 1 percent of collections on display in Smithsonian museum galleries, digitization affords the opportunity to bring the remaining 99 percent of the collection into the virtual light," said Waibel in the [Forbes](#) article.

Furthermore, an educational gap exists between students who have access to the Smithsonian and those who do not. With digital archives, however, students don't have to be inside Smithsonian facilities to view the museum's contents, thereby closing the gap. Additionally, Rossi said the Smithsonian team is linking science, technology, engineering and math curriculum to the 3D models. He stressed the personal connection gained from seeing such an accurate representation.

"We're engaging today's youth with the technology hook," Rossi said. "They're learning about engineering technology at the same time they're learning about history. So we can wrap our lesson plan around these 3D printable models. If you don't have a 3D printer at home, you're still able to interact with the objects; you can spin them around on the screen. And we also built in a storytelling feature, so you can investigate the history of these objects."

The potential of 3D scanning is great, but it has some shortfalls. "No technology is ever going to replace the feeling of seeing an original artifact in person," Waibel told Mashable. "But this technology gives us more ways to learn about our collection and tell our stories in new ways to more than just museum visitors."

That is a very important point that typifies the work the Smithsonian is doing. While symphony audiences most likely have a better overall experience, people who cannot attend can still hear the wonderful sounds of Bach, Mozart and Tchaikovsky through other means. In this same fashion, the Smithsonian is bringing the wonders of history and science to the homes of American citizens.



Domestic Abuse Claims Get Fast-Tracked

ORGANIZATION: MANAGEMENT INFORMATION SYSTEMS AND ADMINISTRATIVE OFFICE OF THE COURTS, ALAMANCE COUNTY, N.C.

ACHIEVEMENT:

Alamance County set up an Electronic Protective Order System (EPOS) to help victims of domestic abuse. EPOS has drastically reduced the 12-hour wait it once took to get a protective order by automating the process and enabling victims to remain at one location. Not only is this process quicker and more efficient, it also makes victims safer.

WHY IT MATTERS:

Obtaining a protective order, also known as the “50B process,” was once a bureaucratic obstacle course for victims of domestic abuse in Alamance County. They had to travel to multiple locations and deal with various agencies in order to receive a protective order — a process that could easily take a full day to complete, [Government Computer News reported](#).

The [Times-News](#) in Burlington, N.C., described a typical day for a victim:

“[The 50B process] involved trips from the Family Justice Center (FJC) to the Clerk of Court’s Office in Graham, to a hearing before a District Court judge — squeezed in among all the other cases heard in courts that day — and then back to the Clerk of Court’s Office so the order could be served.”

This lengthy and convoluted process often led victims to give up midway or miss a step, rendering the protective order incomplete and unfiled. The involvement of multiple agencies led to delays in the service and enforcement of protective orders. Thus, victims were left vulnerable to their abusers without the legal protection they sought.

“If you had to get something done at the DMV, and you were going to have to go to five different government buildings to do it, it would be annoying,” [said Greg Paravis](#), PC systems manager at Alamance County Management Information Systems. “But if your safety was at risk at all of those points and in transit, that’s a different conversation. That’s where the victims were.”

Paravis’ concerns are not unfounded. Abusers would sometimes intercept victims while traveling through the process. Lynn Rousseau, Director of Family Abuse Services for Alamance County, [explained](#):

“Right before we switched over to the electronic system, there was a woman who came to us extremely fearful. Her abuser had a record of gun charges, kidnapping. I went with her to the clerk’s office. While we were walking to the courthouse, he was driving by. We had to get a deputy to escort us. I have no doubt, if she had been alone, he would have approached her.”

Clearly, something needed to change. After years of preparation, FJC initiated EPOS, which has reduced this 12-plus-hour process to as little as two or three hours. The process has been automated, enabling victims to remain at one location, FJC, rather than having to visit four separate offices. Moreover, it adds privacy by letting victims tell their stories to judges via webcams as opposed to in a public courtroom. Just facing the courtroom and having to broadcast the details of their abuse could be enough to discourage victims from the 50B process.

With EPOS, victim testimony and the protective order can be transmitted via a

web-based system to the Clerk of Court’s office. From there, documents are forwarded electronically to the District Court judge, where the webcams are used. If granted, with a click of a mouse, the order is filed with the Alamance County Clerk of Court and sent to the Alamance County Sheriff’s Office to serve.

Within six months of EPOS’ use, only 6 percent of victims failed to follow through with the protective order process, compared to 12 percent before the system existed. Referrals from the center to counseling and assistance services have doubled, and referrals to Legal Aid have tripled, GCN reported. In addition, FJC advocates are spending more time with victims now that they no longer have to leave the center to secure orders.

“We started out on this project based on the victim being able to stay here and get their protective order and that contributes to the mission of the Family Justice Center,” FJC Director Cindy Brady said.

Because a protective order doesn’t always keep an abuser away, all victims have an opportunity to create a safety plan with a Family Abuse Services advocate. Those plans can be as simple as knowing whom to call in an emergency, or as detailed as planning escape routes and giving children code words, the [Times-News reported](#).

Another perk of EPOS is its potential for replication. Other counties in North Carolina or in other states could easily adopt the same technology.

“[EPOS] has been a game changer for the Family Justice Center and for victims in Alamance County,” Brady said.



Protecting First Responders

ORGANIZATION: NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

ACHIEVEMENT:

James Green, a persuasive engineer at NIOSH collaborated with the ambulance manufacturing industry and multiple federal agencies to create ambulance crash standards to help reduce injuries and fatalities among emergency medical services workers and patients.

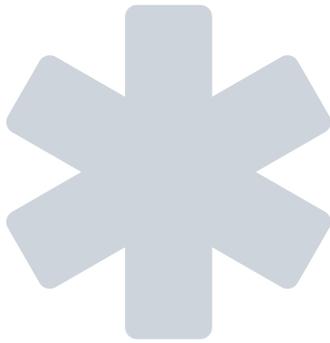
WHY IT MATTERS:

Tragedy struck in Texas in 2010, when a medic, patient and passenger died when the ambulance they were riding in rolled off an icy road. The driver survived, but those in the patient compartment did not. When Green heard about this incident, he set out to reduce the hazards.

Ambulances, like other larger vehicles, fall outside federal safety regulations, Green explained in a [Capital Insider interview](#), not even for the vulnerable patient compartment in the rear of an ambulance.

Initially, Green drew from his military experience, thinking about restraint systems that kept personnel safe in helicopters. "I had come from a Navy side where we had workers in the back of helicopters standing up. They used a restraint that allowed them to sit or stand," Green told [The Washington Post](#).

Green decided to figure out how to make the back compartment of an ambulance stronger. He spent years building partnerships with ambulance manufacturers to crash-test their products and learn what happened when equipment and crash dummies were subjected to rear, side, front and rollover accident forces. His work with the public/private team has led him to propose 10 crash safety standards or recommended practices for ambulances and their equipment. The proposals have already triggered some safety reforms within the ambulance manufacturing industry and are under consideration by the National Association of State EMS Officials.



The State Department Unveils Virtual Internships

ORGANIZATION: STATE DEPARTMENT

ACHIEVEMENT:

The State Department launched the Virtual Student Foreign Service (VSFS) program. By going virtual, internship opportunities at State are more accessible, flexible and affordable for a diverse array of students.

WHY IT MATTERS:

Internships are important for students as well as public agencies. They provide a valuable professional experience for students, whose work benefits agencies, while also promoting public service careers.

Internships at State or other Washington organizations are not feasible for all students, however. VSFS helps improve accessibility and affordability to students. "What we are seeing is that students don't have to spend money to come to Washington," Bridget Roddy, VSFS Manager, [told GovLoop](#).

Response to the VSFS program has been great; it currently has 505 U.S. student virtual interns working on 276 projects. "This year

we had 2,600 students apply, which is actually double the number of applicants from last year. So we are seeing a big jump in interest and the number of projects we have available," Roddy said.

Virtual interns can range from undergrad to Ph.D. students, and they have the opportunity to work on projects for domestic offices or embassies overseas. "Students can see what they are interested in, whether that is health care, translations, social media outreach, in-depth analysis or research, and then they pick what they want to work on," Roddy said.

Students have the flexibility to work around their class schedules or personal and family commitments and can use Google Docs or Skype to communicate with State employees.

Virtual internships also expedite onboarding because students in that program don't need to undergo lengthy security clearance processes. "It has been a very positive experience for both our students and our staff," Roddy said.



Oklahoma Improves Docket Searches

ORGANIZATION: OKLAHOMA'S PARDON AND PAROLE BOARD (PPB)

ACHIEVEMENT:

The Docket Search and Investigative Reporting Suite of Services has allowed PPB to implement an all-new workflow for the state parole process. The once burdensome and inaccessible process is now efficient and transparent, and provides instant access to information.

WHY IT MATTERS:

Oklahoma's PPB is a public entity that handles issues concerning public safety, victims' rights, reintegration of offenders and recidivism. PPB was having difficulties meeting its open government responsibilities under the state constitution. The board's public communication process was a convoluted mix of telephone calls, written correspondences and face-to-face interactions. This was time consuming and inefficient. Additionally, PPB's website was obsolete and non-functioning, providing inadequate public access and interaction.

Since the implementation of PPB's Docket Search and Investigative Reporting Suite of Services, however, public and interagency

communication levels have significantly improved. Call volume is down because the public has access to information, docket preparation time decreased from four weeks to three days, and results notification improved from a two-week to a two-day process. Furthermore, parole-processing time has decreased from 30 to 90 days to five to 10 days, resulting in [\\$13.4 million in cost savings](#) for fiscal 2014.

"Not only has the system saved the state of Oklahoma taxpayer dollars, but it has also provided a much needed revamp of an antiquated manual system," [said PPB Interim Executive Director Jari Askins](#). "Additionally, our staff is able to focus on the accuracy of reporting for the board, instead of tedious, paper intensive tasks."

With one of the first Docket Search and Investigative Reporting Suite of Services systems implemented in the public sector, Oklahoma can now leverage lessons learned and provide technological development information to assist other states in implementing similar systems.



Drones Make Waves in Government

ORGANIZATION: THE INTERIOR DEPARTMENT'S U.S. GEOLOGICAL SURVEY (USGS)

ACHIEVEMENT:

Under the guidance of the Federal Aviation Administration, USGS is teaming up with other Interior agencies in addition to state, local and academic entities to deploy unmanned aircraft systems (UAS) for research and operations purposes necessary to Interior. [According to USGS](#), despite being largely linked with military and intelligence agencies, UAS are answering scientific and natural resources questions by collecting remote sensing data for environmental conditions, monitoring climate change and documenting wildlife inventories.

WHY IT MATTERS:

Since its introduction, "drone" has been a term that has sparked controversy and fear. Often associated with military and intelligence activities, some individuals have resisted the idea of including UAS on battlefields. But USGS officials have discovered a positive, research-based use for these machines that is unrelated to their previous militaristic association, thus changing the way people view UAS.

"[Drones] can reach hard-to-fly areas and maneuver well at low altitudes. They give us data there's no way you could get with a manned aircraft," said Jeff Sloan, a UAS operator at USGS, in a [Federal Computer Week article](#).

Agencies are using UAS in a multitude of ways. The Border Patrol uses the vehicles for detecting lawbreakers from the air while the Forest Service intends to use them for better monitoring of wildfires. NASA operates drone technology to document changing landscapes through the collection of data from hurricane and volcanic plumes.

Drones may ultimately be used to deliver vital supplies in search-and-rescue and natural disaster situations. Not only can UAS protect people from harmful situations, but the technology can also provide superior data and ultimately save government money.

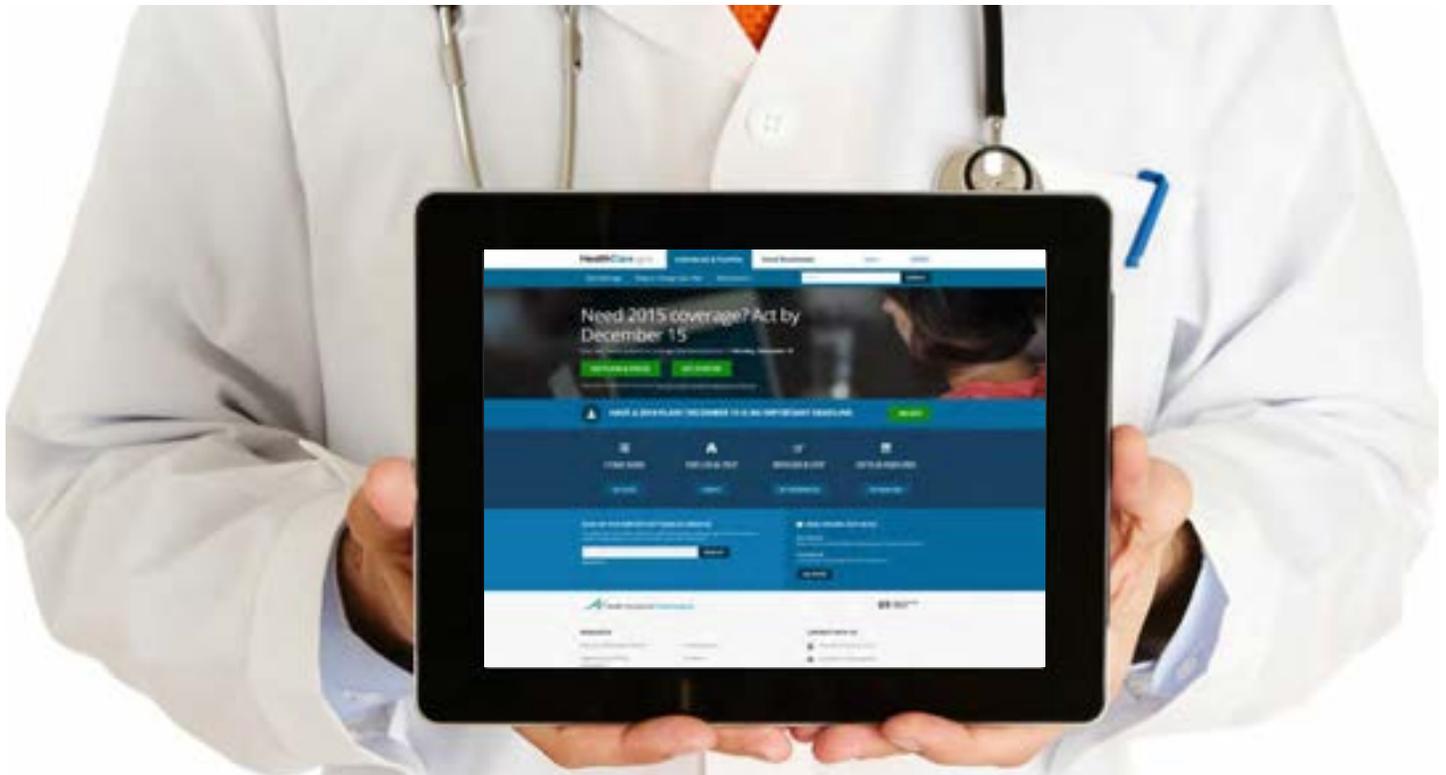
Still, civilian agencies face some hurdles in adopting it. [FCW](#) lists the Federal Aviation Administration, which is responsible for regulating U.S. airspace, as one of the largest obstructions to faster drone implementation. FCW noted the FAA has wide oversight power, with a "jurisdiction [that] starts at ground level, not 400 feet as commonly stated."

According to [FCW](#), in 2012, Congress requested that FAA develop a plan to safely integrate UAS in the national airspace by Sept. 30, 2015. Until this plan is finished, any civilian agencies wanting to use drones must receive special FAA clearance to do so. Furthermore, agencies must follow regulations that neutralize the benefits of using UAS. For example, for many of the smaller drone models that USGS uses, the drones' utility is limited by a rule that requires operators to maintain line-of-sight contact with the UAS.

FAA is not the only obstacle hindering drone deployment for civilian agencies. As a newer technology, some attempts for usage have had poor planning and ultimately led to unnecessary monetary waste. An [FCW](#) piece mentioned a 2007 example in which the Forest Service spent \$100,000 on a pair of SkySeer drones intended to spot illegal marijuana-growing operations on federal land but had no FAA approval or trained operators. Poor planning and execution and little consideration about long-term benefits led to the pricey purchase.

Despite the few financial issues associated with drone pricing, the technology has a large overall benefit to governmental agencies. Some interested agencies can obtain drones for free from military and private industries. According to one [FCW article](#), "USGS owns a fleet, valued at \$15 million, of 20 T-Hawks (20-pound drones made by Honeywell) and 15 tiny hand-launched, remote-control Ravens made by AeroVironment. Although USGS has spent around \$1 million on UAS operator training and sensor systems, it paid nothing for the drones themselves."





HealthCare.gov gets a Lift from Agile Development

ORGANIZATION: CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

ACHIEVEMENT:

CMS is adapting agile software development methods for HealthCare.gov. Since the 2013 technical issues with the website, the Obama administration has been trying to gather the right balance of people to solve the site's operational problems. According to [FCW](#), CMS is searching for a contractor to handle the IT infrastructure created in response to the 2010 health care law.

WHY IT MATTERS:

HealthCare.gov was launched in 2013 after the passing of the Patient Protection and Affordable Care Act in March 2010, more commonly known as the Affordable Care Act. From the start, site users encountered multiple technical issues. [An FCW article](#) described the code and architecture problems as difficult to overcome, and CTO Todd Park and Jeffrey Zients, who helped fix HealthCare.gov, led a team working with contractors to keep the website afloat. Finally, the HealthCare.gov IT contract opened for potential bidders.

Accenture won a contract to add some new features to the website and improve overall functionality. In January 2014, the company won the contract to manage the

[Federally Facilitated Marketplace](#), the health care exchange that insurance carriers and consumers interested in plan registration and eligibility can use. Accenture's bid lasted for one year, and it won the contract on a limited-source basis. In April 2014, contracting documents published on the Federal Business Opportunities website insinuated the possible rebid of the work.

On July 16, a new RFP regarding the marketplace was released, and the plans include multiple additions to HealthCare.gov, including new plan templates and summaries of benefits in addition to an out-of-pocket payment calculator for users wanting to compare different health plans. The RFP also asks for improvements in terms of financial management for the marketplace site, which has fallen short on development due to the major focus on the front end aspect of users signing up for insurance. According to one [FCW article](#), it is currently unknown how much of the financial reconciliation is being conducted with carriers outside the system, but the new contractual agreements request greater advanced calculation and reconciliation functions in order to precisely process these payments to insurers.

Agile software development methodology is a key requirement to solving the initial HealthCare.gov issues. A Govfresh article describes agile development as an approach that produces "useable software in small increments, sometimes referred to as sprints, rather than producing a complete product in longer sequential phases." Despite agile's positive implications, effectively implementing it comes with some bureaucratic challenges.

According to one [FCW article](#), the HealthCare.gov statement of work specifies that the hired contractor "shall use an iterative methodology to system development that provides the best opportunity to incrementally build and test software functionality." It also states that the contractor must use a "modular, agile, flexible service-based approach to systems enhancement, including use of open interfaces, open source software, and exposed application programming interfaces supported as web services; the separation of business rules from core programming; and the availability of business rules in both human and machine readable formats."

LA Reduces Crime with Predictive Policing

ORGANIZATION: LOS ANGELES POLICE DEPARTMENT (LAPD)

ACHIEVEMENT:

For the 10th year in a row, crime in Los Angeles has decreased, and a major contributing factor to this trend is predictive policing — yes, the kind we saw in the movie *Minority Report*. But predictive policing is more than a fictional story for cinema. It is yielding some amazing results in crime reduction in cities nationwide, including Los Angeles.

WHY IT MATTERS:

LAPD is using predictive policing to reduce crimes by preventing them from occurring in the first place. In predictive policing, crime data, such as from automobile theft or shoplifting, will be used in computer

algorithms. Areas with higher instances of certain crimes will receive more attention from patrolling officers.

The purpose is to stop crime before it starts. “We’re trying to prevent that crime or deny the criminal the opportunity to commit the crime in the first place,” LAPD Commander Sean Malinowski said.

In an article on the [Huffington Post](#), police officials said the improvement is due to multiple factors, such as an increase in data that aids in pinpointing where and when crimes are likely to occur and increasing patrolling. According to data collected by LAPD for Jan. 1 through Dec. 21, violent crimes are down 12 percent when compared to the same time period in 2012.



Energy Creates a Cyber Language

ORGANIZATION: DEPARTMENT OF ENERGY

ACHIEVEMENT:

Technology tools are powerful and transformative, but if you can't secure a technology, it's worthless. To make matters worse, cybersecurity protocols are so confusing they can be cumbersome to implement. Energy has created a cyber language to help streamline the process and clear up any confusion.

WHY IT MATTERS:

You can't turn on the lights in your house without the help of Energy's power grid. Through energy delivery systems, the grid controls the production, transfer and distribution of energy throughout our country. Energy delivery systems literally power the United States. However, because these vast systems are connected to the power grid, they are vulnerable to cyberattacks.

Whether malicious or accidental, these threats pose a serious and ongoing challenge for the department. Embedding cybersecurity protocols in the procurement process from the beginning is important. But how do you make sure everyone in your organization knows exactly what to include in the right terms?

In April 2014, Energy created its own cybersecurity language, [Cybersecurity Procurement Language for Energy Delivery Systems](#). According to the [department](#), the “guidance document provides baseline cybersecurity procurement language for use by asset owners, operators, integrators, and suppliers during the procurement process.” By creating a common cyber language, Energy has been able to streamline the process and better protect power in this country.



Colorado Learns to Share with Data

ORGANIZATION: STATE OF COLORADO

ACHIEVEMENT:

Colorado created what's called the [iData platform](#) to overcome past issues of limited data sharing capabilities. The massive amounts of data agencies collect required a platform that could analyze, catalog and store data for varied uses, which would save money and time for citizens and the state. The Office of IT (OIT) created the Data Insights Platform (iData Platform) in answer to the call for a new platform.

WHY IT MATTERS:

According to an [OIT report](#), the iData Platform is designed for state data analytics and support for business operations. It allows for the processing of data from multiple sources and in different formats

using an agile approach that is responsive to the operational needs of the state.

The project is already reducing Colorado's operational costs by creating a reusable analytics framework around information standards. The [OIT report](#) states that the implementation of iData coincided with the Affordable Care Act through the Department of Health Care Policy and Financing. When enrollment began, the state witnessed a significant rise in the number of applicants to its medical assistance programs, and it needed to report and monitor the response to the passing of the Affordable Care Act. The department's Executive Analytics Dashboard was a second project related to the act that came from the iData Platform.





Supporting Robotics Technology

ORGANIZATION: THE NATIONAL SCIENCE FOUNDATION (NSF)

ACHIEVEMENT:

With the National Robotics Initiative (NRI), NSF has awarded more than 100 grants supporting the development of robotic technology in various fields.

WHY IT MATTERS:

From health to consumer goods to telepresence solutions, robotics technology is quickly changing the way we work and live. Take for instance IBM's Watson, the supercomputer known for being on Jeopardy! Today, Watson is poised to completely disrupt the medical industry. It can already store thousands of medical documents to make a diagnosis based on evidence, communicate with patients and learn from its experiences. Ultimately, Watson may be able to make a more accurate diagnosis and prescribe more effective treatments than doctors.

Even though Watson is changing the medical field, the computer still lacks the dexterity and mobility to physically examine patients. It also can't emote or show expressions to connect with humans in a more natural way. But what if Watson could? What if Watson was able to make patients feel just as comfortable as being with a trained medical professional? Those questions might sound like science fiction, but they are exactly the kinds of research NRI has been funding.

NRI is helping accelerate research in the field of robotics. "The purpose of [NRI] is the development of this next generation

of robotics, to advance the capability and usability of such systems and artifacts, and to encourage existing and new communities to focus on innovative application areas. It will address the entire life cycle from fundamental research and development to manufacturing and deployment," the NSF website states.

NRI has funded hundreds of robotics programs. And this August, it awarded researchers at the University of Denver a \$1.3 million grant to work on a project to develop the SocioBot – Spoken Dialog System (SocioBot-SDS) through 2017. SocioBot-SDS will help create a robot that is able to more effectively communicate with humans. The robot will work to understand spoken language, which will accelerate research and development of other social robots.

"The [SocioBot-SDS] builds on advances in computer vision, spoken dialogue systems, character animation and effective computing to conduct dialogues that establish rapport with users producing rich, emotive facial gestures synchronized with prosodic speech generations in response to users' speech and emotions," the NSF grant states.

As robotics continue to mature, a new question looms: Is government ready to regulate robotics?

A white paper published by the Brookings Institution, "The Case for a Federal Robotics Commission," by Ryan Calo, an assistant professor at the University of Washington

School of Law and a former research director at the Center for Internet and Society, explores whether a federal agency should be created to regulate robotics.

"The institution I have in mind would not 'regulate' robotics in the sense of fashioning rules regarding their use, at least not in any initial incarnation," Calo said. "Rather, the agency would advise on issues at all levels — state and federal, domestic and foreign, civil and criminal — that touch upon the unique aspects of robotics and artificial intelligence and the novel human experiences these technologies generate."

Without government getting out front of robotics, Calo fears that regulation and answers to policy questions will be done piecemeal and lead to poor decisions and inadvertently slow down the industry. The risk is that other countries will make the proper adjustments, and the United States will be at a disadvantage.

With technologies like Watson and SocioBot-SDS and NSF funding to create more human/robot integration, government agencies must look at how to regulate the emerging robotics market in 2015.

Next year, we anticipate increased funding for robotics, case studies and examples of how robotics is impacting government. It's a complex field, so don't be surprised to see the robotics conversation arise in many areas, such as health care, transportation and social services.

The Rise of Innovative & Data-Driven Marketing Tactics

ORGANIZATION: GOVERNMENTWIDE

ACHIEVEMENT:

Government agencies are looking to create data-driven marketing tactics. That's why a Chief Marketing Officer (CMO) is needed to solidify an integrated communications strategy.

WHY IT MATTERS:

By providing customized digital experiences for citizens, agencies can improve their reach and effectiveness.

But to improve the effectiveness of marketing programs, government agencies are considering CMOs. A CMO is needed to solidify an integrated strategy and maximize the utility of data as well as emerging communications channels.

At a recent GovLoop event, "The Citizen and the Government: How They Connect," we discussed the emerging role of the CMO. Industry experts Brian Paget, Technical Director for Content and Analytics at Adobe, and David Yang, Vice President of ICF Interactive, spoke about the evolution of digital communications and the rise of CMOs. They also shared data from a recent Adobe poll.

The poll found that when senior executives were asked how important digital communications is for success, 89 percent of government and 66 percent of commercial respondents said "somewhat" or "very important." When asked if they have the right tools for success, only 34 percent of government respondents felt they had

adequate tools, compared to 58 percent of commercial respondents.

Although government marketers push dozens of tools, a recent McKinsey report finds that one communication strategy reigns supreme: e-mail. E-mail remains a significantly more effective way to acquire customers than social media, the report found. McKinsey finds that e-mail provides 40 times the combined power of Facebook and Twitter to obtain new clients. Why? The answer lies in the simple data point that 91 percent of all U.S. consumers still use e-mail daily.

Additionally, the rate at which consumers make purchases from e-mail, as opposed to social media, is three times higher, and the average value of an order is 17 percent higher.

The McKinsey report does not mean that agencies should ignore other social tools. Rather it indicates that for successful initiatives, social tools need to be integrated, and drive users to subscribe to e-mail notifications.

So it comes as no surprise that the Nottinghamshire County Council in the United Kingdom developed an innovative way to drive e-mail sign-ups. Using Twitter cards, a free service that allows you to gain e-mail sign-ups without ever leaving Twitter, the council has been able to grow its e-mail subscriptions.

Currently, Nottinghamshire officials said, with each tweet, it gets four to five new subscribers.

The Nottinghamshire example points to another interesting trend occurring in government: the reminder nudge. "We see this trend at the state and local level especially," said GovLoop President and Founder Steve Ressler. "Have you ever gone to Amazon or Zappos or Delta — and ALMOST purchased something? But you forgot. But suddenly you get an e-mail a week later that the book is on sale, magically. It's mildly creepy but incredibly effective."

Ressler pointed out that state and local departments can use this tactic to increase revenue from interrupted transactions. "If you're trying to buy a fishing license online in Wyoming but then you get called away from your desk and never complete the purchase, government agencies are starting to think, 'We could do remarketing and send a message reminder.'"

For government, digital communications is no longer just a matter of how, it's a matter of when. And unlike in the past, government now has the ability to facilitate communications on a massive scale and connect with citizens in meaningful ways, delivering them tailored information at the times when they need it most.





Funding Civic Startups

ORGANIZATION: THE GOVTECH FUND

ACHIEVEMENT:

Civic startups traditionally struggle to find funding from investors. Govtech has changed the funding model for civic startups and is now helping companies build solutions to improve government operations.

WHY IT MATTERS:

Traditionally, government-oriented startups struggle to raise venture capital because they are typically a harder sell to government CTOs who are stuck with legacy systems and outdated procurement policies. But now, armed with a \$23 million fund dedicated solely to government startups, the Govtech Fund is changing the game.

Ron Bouganim founded the Govtech Fund, and brings extensive knowledge about the startup community. He's previously worked

closely with more than 20 startups and he's been a board member for companies such as Kiva, Full Circle Fund, Endeavor, Presidio Knolls School and Code for America.

"I'm thrilled to announce the launch of the Govtech Fund," Bouganim said in a press release. "We're proud to support a new generation of venture-backable technology startups that have emerged in the past few years — helping governments become more efficient, more responsive and better able to serve society. This is just the beginning of a decades' long wave of innovation in government."

Govtech's support of government startups comes at an important time. As all levels of government look to cut costs, they have also been releasing more data and looking to the startup community to help build solutions

to meet citizen demand. But even though the government is looking to partner with the private sector, civic startups still must compete with thousands of organizations looking for funding.

The company will help startups build hardware and software tools to improve service delivery and government operations in areas such as procurement, infrastructure, regulations, taxes, permitting — whatever can help government work more efficiently and effectively.

In 2015, the Govtech Fund will play an important role in providing funding to civic startups, and as a result, it will help provide critical services to citizens and create effective partnerships with government agencies.



New Procurement Models

ORGANIZATION: DEPARTMENT OF HEALTH AND HUMAN SERVICES

ACHIEVEMENT:

Government agencies face obstacles with the procurement of new IT solutions. Now, the HHS Buyers Club is connecting acquisition officials departmentwide to change the way they buy IT.

WHY IT MATTERS:

This year, HHS laid the groundwork to change the way the agency buys IT. Launched in April, the HHS Buyers Club is looking to transform the procurement process at the department. Recognizing that the current system is slow and laborious, HHS officials decided they needed a new way to procure IT and keep pace with new technology.

The HHS Buyers Club is creating a playbook that pulls together templates for contract officers. Agencies can use these templates to quickly procure IT tools. The club will help acquisition professionals by testing new procurement methodologies, sharing processes and improving engagement with education and outreach efforts.

HHS CTO Bryan Sivak has led the charge and the buyers club has already seen success. On the last day of fiscal 2014, HHS selected Akira Technologies to work with the department's Office of the Assistant Secretary for Planning and Evaluation, helping to redesign public and internal websites.

This initiative comes at a critical time for government, as a "2013 CHAOS Manifesto" report explains: "IT projects in excess of \$10 million are likely to fail." The study reports that 52 percent of IT projects surveyed were found to be challenges, and 38 percent failed. With such a high rate of failure, the HHS Buyers Club is helping to produce stronger outcomes and replicate success across HHS.

HHS is changing the way that government buys IT. In 2015, we expect to see this program grow, and help HHS become more agile in its procurement of IT.

Rise of Chief Data Officers

ORGANIZATION: DEPARTMENT OF COMMERCE

ACHIEVEMENT:

In June, Commerce announced it would hire its first Chief Data Officer (CDO). The role is an important step for the department to help unlock insights from the volumes of data it collects, stores and manages — and more agencies are sure to follow.

WHY IT MATTERS:

The 2014 IDG Enterprise Big Data research study shows that organizations are experiencing rapid growth in the volume of data they manage. The report expects that organizational information will increase by 76 percent in the next 12 to 18 months.

Because of this growth, many government agencies are looking to hire a CDO who can help an agency balance business and technology risks to capitalize on the promise of big data.

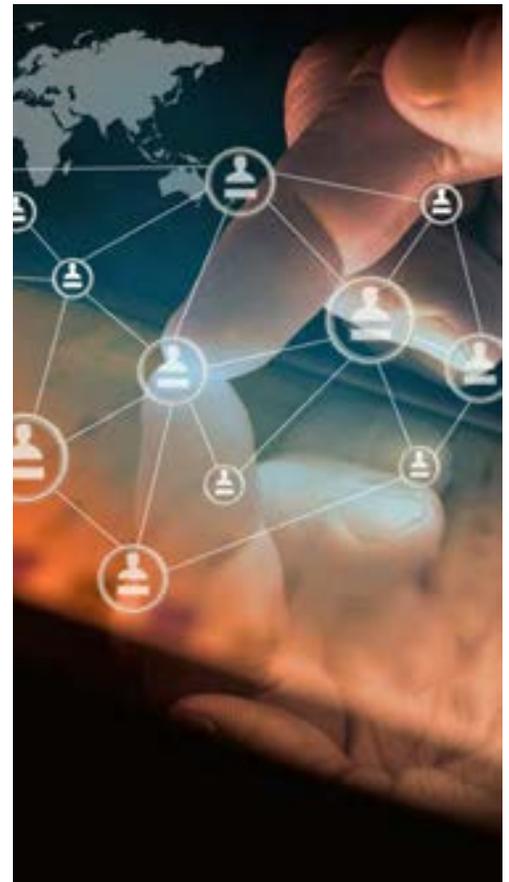
One agency leading the way is Commerce. "Our Chief Data Officer will be responsible for developing and implementing a vision for the future of our diverse data resources," Commerce Secretary Penny Pritzker said. "Our Chief Data Officer will pull

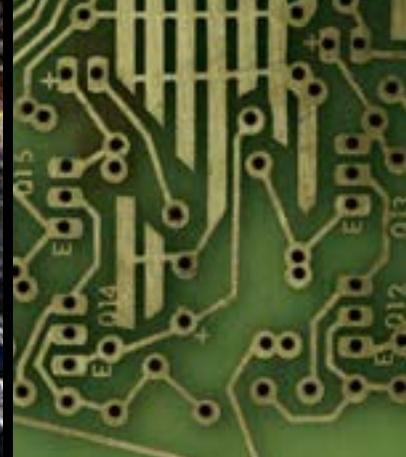
together a platform for all of our data sets; oversee improvements in data collection and dissemination; and ensure our data programs are coordinated, comprehensive, and strategic. Put simply, our Chief Data Officer will hold the key to unlocking more of our government data."

From the very beginning of our nation, Commerce has been focused on data. With responsibilities such as managing the Census and the Patent and Trademark Office, the department has volumes of data on America.

The CDO will certainly have his or her hands full. The National Oceanic and Atmospheric Agency creates more than 20 terabytes of data per day — twice the amount of the entire printed collected of the Library of Commerce.

As government continues to manage, store and create more data than ever before, 2015 will be the year when many agencies, at all levels of government, look to a CDO to formalize their data-driven strategies. Los Angeles just named Abhi Nemani as its first CDO. We expect to see more CDOs coming onboard in 2015.





TOMORROW starts here.



©2014 Cisco Systems, Inc. All Rights Reserved

Today, it's easy to marvel at how far we've come.

Our phones talk to our TVs to record our favorite shows. Doctors in Estonia diagnose patients in Denmark. Social networks help companies improve customer service.

And yet, up to now, more than 99% of our world is not connected to the Internet.

But we're working on it.

And tomorrow, we'll wake up pretty much everything else you can imagine.

Trees will talk to networks will talk to scientists about climate change.

Stoplights will talk to cars will talk to road sensors about increasing traffic efficiency.

Ambulances will talk to patient records will talk to doctors about saving lives.

It's a phenomenon we call the Internet of Everything—an unprecedented opportunity for today's businesses.

Tomorrow?

We're going to wake the world up. And watch, with eyes wide, as it gets to work.

View Top 10 Insights from Cisco's IoE Value at Stake Analysis>>



Innovations on the Horizon:

THE INTERNET OF EVERYTHING

AN INTERVIEW WITH LARRY PAYNE, VICE PRESIDENT U.S. FEDERAL, CISCO

2014 was a year where the Internet of Things (IoT) and interconnected devices exploded on to the government scene. Though the term and the technology have actually been around for decades, this year many government agencies started to pilot IoT programs and to see what efficiencies and outcomes they could receive from sensors that collect data, connect devices, and more.

To get a handle on this technology and see what exactly it might mean for government in the coming years, we sat down with Larry Payne, Vice President U.S. Federal, Cisco, to talk about the Internet of Everything.

Payne said that before discussing possible uses cases, it's important to define and understand the terms of what this game-changing technology involves. "The Internet of Things is connecting machines to machines, so sensors into computers," Payne explained. "When we look at the Internet of Everything, it's certainly encompasses machine to machine connection, but also the human aspect. So it connects machine to machine, but also machine to people, and it incorporates the process in order to leverage those connections appropriately."

Payne predicted that the Internet of Everything is set to truly start making a difference in government in 2015.

"We'll see the adoption of this Internet of Everything technology move rapidly next year within the federal government," predicted Payne. "Many use cases now are starting to come to life. Certainly some of the things you're seeing like iWatch or Fitbits, are starting to gain acceptance in the market. So we really feel like it's gone from being something that is interesting, that captures people's imagination, and now it's starting to become a reality in a lot a different areas."

The Department of Defense is one Federal Department that is truly starting to experiment with the advantages of connected technology. Payne explained that net-centric warfare and connecting the tactical edge to the enterprise are becoming a real opportunity for the DoD. For example, think about wearable sensors for the dismounted soldier. With the Internet of Everything, you could potentially connect video from a soldier back to a command station so that there's real time intelligence going on.

"The other thing that we're seeing is improvements in the logistics area and transportation," Payne added. "It's starting to become more common to have sensors on these intelligent vehicles and in the aircraft that gives status in real time so that if there are alarms, if there's warnings, if there's low fuel, all this information is already captured so that the turnaround time is quicker, and that's a huge cost savings for customers."

Cost savings as well as potential in value are truly one of the biggest benefits the Internet of Everything can provide the public sector, Payne added. Cisco has done studies that show the Internet of Everything is a \$19 trillion global opportunity over the next decade. Private-sector firms can create as much as \$14.4 trillion of value while cities, governments and other public-sector organizations can create \$4.6 trillion

Payne cited a practical example of this sort of savings and increases in efficiency that reveals itself in something very basic: the act of parking cars.

"Local governments really could increase their revenue from parking, because they could place a sensor in a parking space that tells that it's open, that is then made avail-

able to the public through an application. So when they're driving they can check their cell phone and find an available parking space," explained Payne. "This adds to citizen satisfaction, and also the government can now receive the revenue from that parking spot that would have otherwise been left open for a longer period of time."

This, Payne added, leads to several things: a direct increase in revenue opportunity; improved efficiencies; and a citizenry more satisfied with the services it's government provides.

Government agencies that haven't yet started to explore the Internet of Everything should get started by looking outside of government to the private sector to learn what some companies are doing. "I think that the federal government has the opportunity to really leverage some of the solutions that are occurring outside of the federal government," said Payne. "They should be encouraged to do that."

The barriers to entry aren't as high as many would think they are, Payne added. "A lot of the critical infrastructure to enable this is already in place, especially in agencies that have already developed capabilities for mobile workers and teleworkers," he explained. "The same core technologies, the same network infrastructures can be leveraged to extend to machines or sensors as well. So it's not a whole new infrastructure that has to be built. The Internet of Everything can be built on the existing infrastructure that many government agencies have already put in place."



COUNTY OF INNOVATION

A County Puts Customers First — Even Internally

An interview with Barry Condrey, CIO for Chesterfield County, Va.



To have effective engagement in a county, you must first have a robust and efficient internal system. A new pothole alert app doesn't do the county any good if there is no one back at the Transportation Department to staff it.

Chesterfield County, a community of 324,000

just south of Richmond, implemented a customer relationship management (CRM) model to help streamline internal processes. CRM is a system for managing a company's interactions with current and future customers both internally and externally. It often involves using technology to organize, automate and synchronize sales, marketing, customer service and technical support.

"In 2014, the county spent a lot of time perfecting the way IT handles our internal customers, Chesterfield County's 50 departments and 5,000 users," said Barry Condrey, the county's CIO.

The model allowed Chesterfield to create an advocacy position for each department's business needs and strategic goals.

"The program has been around for a few

years, but in 2014 the program really saw some traction when Deputy CIO Joe Pugh was given operational responsibility for its staffing and activities," Condrey said. "We added resources to this group. We appointed a manager who oversees seven customer relationship managers who work across our enterprise. The clearest example of how the program is working is in the quality of project requests that come in. We can roll out new functions much quicker because the requests are so much more thought out."

The CRM was specifically designed for Chesterfield's consolidated and centralized IT department. Each of the seven CRM managers is assigned to a certain number of departments. "It is a CRM's job is to understand a department's technology needs," Condrey said. "The CRMs can then turn needs into requests for technology."

The new process sounds simple, but Condrey said the process has revolutionized the IT infrastructure of the county. "Before the CRMs were on staff, the departments would have to approach us on their own with their technology needs. IT is famous for having mysterious processes. Sometimes it can be difficult to get new tools out of IT. Departments were guessing, 'What's the magic combination of words I need to use to get IT to do things?' The purpose of the CRM is to demystify the

IT function for the customers and to make it more customer-centric."

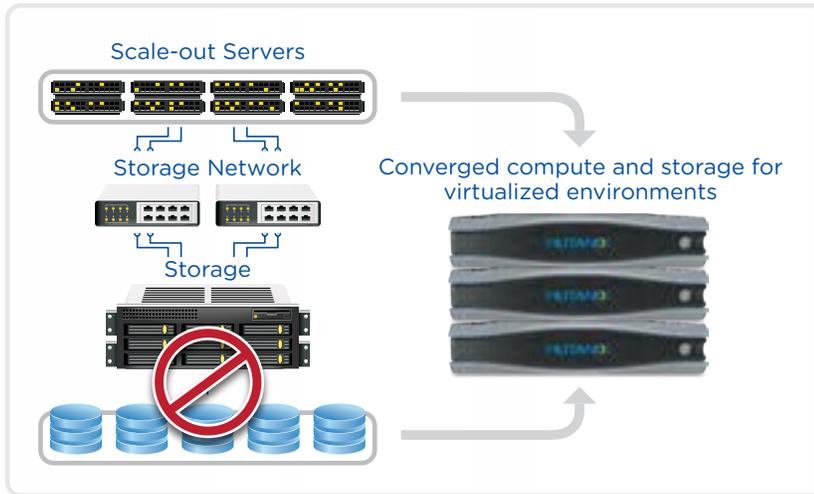
In Chesterfield, the CRMs meet with their departments regularly — in fact they are strongly encouraged to spend much more time with their customers than at their desks.

The program has opened the lines of communication between business and IT, but the program has also helped to bring down silos between departments. "All of our CRMs talk to each other constantly," Condrey said. "We often find what one department needs, another department could also use. We are able to identify intra-agency collaboration projects by the CRMs' openly communicating with each other."

The CRM system represents a streamlined approach to IT. Condrey has used the success of the CRM program to simplify other entities in Chesterfield. "Previously, our IT functions we were very siloed. We had a public safety group, we had a human services group, we had a finance group, and people in those groups only did work for those customers," he said. "To put the CRMs in place, we had to break all the silos down. Now we've got one development team, we've got one CRM team, we've got one information management team, and we've got one GIS team. Those teams work across the enterprise."

What does Nutanix do?

- Nutanix delivers **converged infrastructure** that replaces traditional datacenter architectures built with separate servers, storage and networking devices.

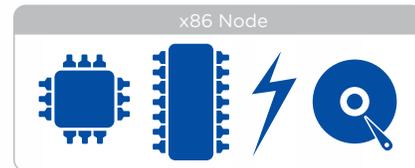


Convergence simplifies infrastructure purchase, deployment, management and support

What type of Converged Infrastructure?

- Nutanix is **hyper-converged**: server and storage integrated into a single x86 server.

Hyper-convergence reduces power and space, and eliminates storage network complexity



What makes Nutanix better?

- Nutanix is uniquely built using **web-scale** technologies and architectures that originated in large Internet and cloud companies, such as Google, Facebook and Amazon.



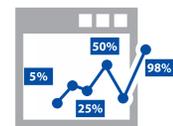
100% Software-defined



Distributed Everything



Self-healing System



API-based Automation and Rich Analytics

Web-scale delivers predictable scalability, easy deployment, simple management and lower TCO

Data Center Consolidation Gets a Lift

AN INTERVIEW WITH CHRIS HOWARD, VICE PRESIDENT OF FEDERAL, NUTANIX AND DAVE GWYN, VICE PRESIDENT OF FEDERAL, NUTANIX

Back in 2009, the Federal Chief Information Officer sent out a memo to all agencies that required a reduction in the overall energy and real estate footprint of their data centers. The goal was simple: reduce costs, increase security and improve efficiency.

But despite this call for change, many agencies struggled to implement the [Federal Data Center Consolidation Initiative \(FDCCI\)](#). In fact, a [MeriTalk survey](#) produced in 2010 found 72% of respondents reported the number of data centers in their agency either stayed the same or increased.

But now that budgets are getting even tighter, the move to data center consolidation is becoming more necessary than ever. One of the companies on the leading edge of the data center consolidation movement is Nutanix.

"Agencies need a new way of doing things. Technologies like ours allow people to scale incrementally, where you can start small and just add a little bit at a time as needed. The ability to scale has really blended well with these initiatives, because now agencies have an alternative," said Chris Howard, Vice President for Federal at Nutanix. "You don't need to buy everything up front and roll the dice. You can now buy things a little bit at a time and buy exactly what you need in order to run your workload."

Howard predicts in 2015 there will be a trend for more large-scale consolidations in government. "At Nutanix we are looking at new disruptive types of technology, because they have to spend less money," he explained. "Government employees and especially contractors are being laid off. So our customers continue to have to provide services, but they have to do it with fewer people. In order to accomplish

the mission, technologies need to be simpler, easier to manage and easier to scale."

The need for increased efficiency is creating a new mindset for government. "We're starting to see huge cultural shifts, not just in end customers and datacenter management, but in the resellers and the federal systems integrators," added Dave Gwyn, Vice President for Federal at Nutanix. "Those that have huge influence themselves on the government are also starting to realize that they need a hyper converged strategy, and that they need to look at new ways of doing things."

Despite the awareness that cloud computing is the future for government, a public cloud continues to present challenges. The security risks are too great for agencies. Right now a public cloud in government is more of an exception than the rule.

"But people are starting to ask, 'If I can't have all of the characteristics of the public cloud thereby getting rid of all my datacenter complexity and cost because I'm outsourcing it to the public cloud - if I can't have that, what's the next best thing?'" asked Gwyn. "The next best thing is to look at how the cloud providers do it. Look at how Google runs their datacenters. Amazon, Twitter and Facebook all run massive datacenters that are the most efficient datacenters in the world. They are all running architectures exactly like Nutanix. They're using commodity box servers. They don't have hundreds of different types of equipment - switches, servers, firewalls and all these different hardware-specific components."

"Instead Google and Facebook run everything on the same horsepower," added Howard. "They greatly simplify operations of their data-center by using just one type of software-de-

fined device. By having the software define the hardware they eliminate huge amounts of complexity in terms of maintaining all kinds of different devices."

These private companies are also able to save on training their employees. "At Twitter you don't have to train an employee on all those different devices," said Howard. "Governments need to build and buy datacenters as simply and at as low a cap and operation expense as they can. If they can do that, then it is the closest to being in the public cloud without actually going to the public cloud."

The main reason most government agencies can't move to the public cloud is because of security concerns. Howard stressed that is why Nutanix's public cloud approach works. "We have a strong focus on security and compliance and certification within the federal government. That's one thing we take very seriously, and we're constantly looking at ways to give ourselves advantages, whether it's an authority to operate within the government's common criteria or fix the validation. I don't think there are many companies out there from an infrastructure perspective that truly focus on security as much as we do."

Gwyn added, "The very reason these people can't move to the public cloud is because of their concerns over security. And so when they say okay, we can't move to the public cloud, but we need to build an efficient data-center that is as much like the public cloud as possible, Nutanix can handle that request."

Their technique is working. Nutanix now has more than a hundred federal partners who are all saving money by consolidating data centers and moving to the cloud.

A LOOK AHEAD TO 2015

A note from GovLoop President & Founder Steve Ressler
and the GovLoop Community

WOW.



This was a great year for government innovation. As you can tell from reading this guide, innovation is happening governmentwide on a range of topics from USGS' drone program to GSA's smart buildings to the state of Hawaii's gamification approach. And those are just the ones that made the cut for this guide. We studied hundreds of other great examples of innovative government agency projects that deliver better services to citizens.

I expect 2015 to be no different. Agencies will continue to be pushed to look at new ways to solve problems as Baby Boomers continue to retire and citizens' demands continue to increase. Luckily, the pace of technology is growing even faster and the ability to provide solutions in a cost-effective way is improving by the day.

We see this push for innovation every day in our GovLoop community of 150,000-plus members, who come from federal, state and local governments. The stereotypes of the stagnant bureaucrat are not true. There's a spirit of innovation and desire for improvement from public servants that I see every day through GovLoop, and I'm optimistic about what we as public servants can accomplish.

I wanted to poll our members on their forecasts for 2015. Here's what they said:

- "Pockets of startup mentalities are beginning to bud across the government. I hope 2015 will be another year of nurturing that type of action-driven, forward thinking." Daniel Stowell, Presidential Management Fellow, Centers of Disease Control.
- "One way government will innovate in 2015 is the adoption of digital or electronic laboratory notebooks in more scientific agencies. I believe that electronic laboratory notebooks would be a huge leap forward in terms of data indexing as well as collaboration." Erica Bakota, Research Chemist, USDA.
- "For the Postal Service 2015 will be bright. Megan Brennan has been named the first female Postmaster General. It will be exciting to see the direction our organization will now take." Meiko Patton, United States Postal Service.
- "Data-driven policy, programs and performance will improve customer experience." Jennifer Belissent, Forrester Research.

Here to help you do your job better,

Steve Ressler and the GovLoop Team

About Govloop

GovLoop's mission is to "connect government to improve government." We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 150,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government. For more information about this report, please reach out to info@govloop.com.

GovLoop
1101 15th St NW, Suite 900
Washington, DC 20005
Phone: (202) 407-7421
Fax: (202) 407-7501
www.govloop.com
Twitter: [@GovLoop](https://twitter.com/GovLoop)

Acknowledgments

Thank you to Carahsoft, Cisco, Intel, GovDelivery, HP, and Nutanix for their support of this valuable resource for public-sector professionals.

Authors:

Emily Jarvis, GovLoop's online and events editor
Pat Fiorenza, GovLoop's senior research analyst
Hannah Moss, GovLoop's research analyst
Corinne Stubbs, GovLoop's community fellow
Matt Garlipp, GovLoop's research fellow

Designers:

Jeff Ribeira, GovLoop's senior interactive designer
Tommy Bowen, GovLoop's junior designer
Jake Brennan, GovLoop's design fellow

Editor:

Catherine Andrews, GovLoop's director of content

Photo Credits

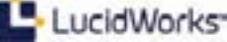
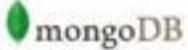
[hilary h](#), [HHS Idea Lab](#), [USEPA](#), [The Array of Things](#), [Jimmy Emerson](#), [DVM](#), [Lachlan Hardy](#), [HackNY.org](#), [Gabriel White](#), [GSA Blog](#), [Wikipedia](#), [Peace Corps](#), [Dakota Brinkert](#).

Turn Your Big Data Into Operational Intelligence

The Big Data portfolio at Carahsoft includes industry-leading and emerging technology solutions to enable government agencies to derive more value from the increasingly massive and complex amounts of data they collect, store, and analyze. As data, and the sources from which it comes, continues to grow at exponential rates, these solutions address the government's most pressing Big Data challenges from analytics, visualization, storage, and retrieval to data consolidation, management, and compliance.

solution sets:

- BIG DATA**
- MOBILITY
- CYBERSECURITY
- VIRTUALIZATION
- CITIZEN ENGAGEMENT
- OPEN SOURCE
- CLOUD COMPUTING
- GEOSPATIAL INTELLIGENCE

 <p>Adobe Digital Analytics, Measurement & Optimization Technologies</p>	 <p>ATTIVIO Active Intelligence Engine</p>	 <p>CHILIAD Interactive Discovery & Search</p>	 <p>cloudera Apache Hadoop-Based Software, Service, Training</p>	 <p>DATAWATCH Information Optimization Solutions for Enterprise</p>
 <p>Datameer Big Data Analytics for Hadoop</p>	 <p>Digital Reasoning Automated Understanding for Big Data</p>	 <p>hp Unstructured Data Analysis & Real-Time Analytics</p>	 <p>GREENPLUM Big Data Analytics</p>	 <p>Intelligence Analysis Solutions</p>
 <p>IKANOW Open Source Analytics</p>	 <p>LucidWorks Enterprise Search and Big Data</p>	 <p>LUMINOSO Text Analytics Systems</p>	 <p>MarkLogic No SQL Enterprise Database-Powered Analytics</p>	 <p>Optensity Big Data Across Multiple Clouds</p>
 <p>pentaho Open Source Business Intelligence</p>	 <p>synthos TECHNOLOGIES Geographic Search & Referencing Platform</p>	 <p>RECOMMIND eDiscovery & Information Management Software</p>	 <p>SAP Turn Big Data into Big Progress</p>	 <p>splunk Platform for Machine Data</p>
 <p>Qlik Data Discovery & Visualization</p>	 <p>THETUS corporation Knowledge Modeling & Discovery Solutions</p>	 <p>Zoomdata Next Generation Data Analytics Platform</p>	 <p>TERADATA ASTER Big Data Management</p>	 <p>Cleversafe Slice-and-Disperse Limitless, Scalable Storage</p>
 <p>DataDirect NETWORKS Massively Scalable Storage</p>	 <p>EMC Highly Automated, Scale-Out Architecture</p>	 <p>nimblestorage Flash Optimized Hybrid Storage</p>	 <p>NUTANIX Virtual Computing Platform</p>	 <p>redhat Enterprise Open Source Storage</p>
 <p>ARISTA Data Center Networking for Cloud & Virtualization</p>	 <p>ciena Performance-On-Demand Solutions for Multi-Datcenter Environments</p>	 <p>COMPOSITE SOFTWARE Data Virtualization & Federation Solutions</p>	 <p>DELPHIX Agile Data Management</p>	 <p>FUSION-IO Flash Based Enterprise Storage Drives</p>
 <p>mongoDB Source NoSQL Database</p>	 <p>OBLONG Simultaneous, Multi-Device Use</p>	 <p>SARATOGA DATA SYSTEMS Cloud Platform for Social & Mobile Apps</p>	 <p>vmware Software-Defined Data Centers</p>	 <p>platfora Clarity from Big Data</p>

Your journey starts today to learn how to leverage Big Data. For more information, visit www.GovernmentITPlaybook.com
Complete solutions for Big Data, Mobility, Cybersecurity, Virtualization & more.

Solutions available through Carahsoft and its partners on GSA Schedule GS-35F-0119Y.
bigdata@carahsoft.com • 888.662.2724

