

GOVERNMENT TECHNOLOGY

SOLUTIONS FOR STATE AND LOCAL GOVERNMENT

VOL.26 ISSUE5 | MAY 2013

INSIDE:

EXTREME NETWORKING:

How the Internet of everything is changing the world

NEW THINKING:

Developing an innovation mindset

CYBER-RESPONDERS:

A better way to fight attacks

PLUS:

Catching up with
Ted Gaebler

**KANSAS CITY'S GIGABIT
INTERNET EXPERIMENT
STARTS TO TAKE SHAPE.**

Welcome TO THE FIBERHOOD

WEB DEVELOPER
BEN BARRETH,
OPERATOR OF KANSAS
CITY'S HACKER HOME

Good

TM

Protect Your Agency's Mobile Data

Meet the strictest regulatory standards for sensitive data protection. We'll show you how to securely containerize proprietary agency information.

good.com

+1 866 7 BE GOOD





ALISTAIR TUTTON

COVER STORY

12 / Hacktopia

Kansas City's gigabit Internet experiment starts to take shape.

By Sarah Rich

COVER PHOTO BY ALISTAIR TUTTON

20 / Sparking Innovation

Failure to change will leave government shackled to the status quo. Here are some ideas for changing your cultural mindset.

By Adam Stone



JESSICA MULHOLLAND

22a / The New Net

The Internet of information is merging with the Internet of things — and the world will never be the same.

By Colin Wood

THE WICHTA EAGLE



28 / Cyber-Responders

A new breed of information security firms helps defeat targeted attacks.

By David Rath



Government Technology (ISSN# 1043-9668) is published monthly by Government Technology, 100 Blue Ravine Road, Folsom, CA 95630. Periodicals Postage Paid at Folsom, Calif., and additional offices. POSTMASTER: Send address changes to: Government Technology, 100 Blue Ravine Road, Folsom, CA 95630. Copyright 2013 by e.Republic, Inc. All Rights Reserved. SUBSCRIPTIONS: Subscription inquiries should be directed to Government Technology, Attn: Circulation Director, 100 Blue Ravine Road, Folsom, CA 95630, 916.832.1300.

8 Government Transformer

Author and local government expert Ted Gaebler talks about what it takes to unleash innovation.

By Steve Towns



JESSICA MULHOLLAND

DEPARTMENTS

36 / Klouting Your Kred
Metrics providers offer social media influence scores; here's what you need to know about them.

COLUMNS

6 Point of View
Attract good employees with a good work environment.

42 Gov2020
Seven ideas for the future of local government.

NEWS

7 govtech.com/extra
Updates from *Government Technology's* daily online news service.

10 Big Picture
A look at the Massachusetts Institute of Technology's Stata Center.

38 Product News
Adobe, BlueAnt, Samsung

40 Spectrum
More research, more science, more technology.



FOLLOW US ON



IN OUR NEXT ISSUE:

Unsung Tech Heroes
How technology is transforming some of government's "dirtiest" jobs.

Risk Modeling
A free tool is helping police agencies nationwide predict crime.

Practical Collaboration
Oklahoma cities share best practices for iPad and social media policies.

Group Publisher: **Don Pearson**, dpearson@govtech.com

EDITORIAL

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

DESIGN

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

PUBLISHING

VPS OF STRATEGIC ACCOUNTS:

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

SALES DIRECTORS:

Leslie Hunter, lhunter@govtech.com
Liza Mendoza, lmendoza@govtech.com
Jason Zenker, jzenker@govtech.com
Tracy Meisler, tmeisler@govtech.com
Kim Frame, kframe@govtech.com
Noel Hollis Hegwood, nhollis@govtech.com

ACCOUNT EXECUTIVES:

Gloria Leacox, gileacox@govtech.com
Paul Dangberg, pauld@govtech.com
Lara Roebbelen, lroebbelen@govtech.com
Melissa Sellers, msellers@govtech.com

ACCOUNT MANAGERS:

Erin Gross, egross@govtech.com
Stephanie George, sgeorge@govtech.com
BUS. DEV. MANAGERS:
Isaac Camero, icamero@govtech.com
Maggie Ransier, mransier@govtech.com
Carmen Mendoza, cmendoza@govtech.com

SR. SALES ADMINISTRATOR:

Christine Childs, cchilds@govtech.com

SALES ADMINISTRATOR:

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

Sr. Dir. of Sales Operations: **Andrea Kleinhardt**, akleinhardt@govtech.com

Sr. Dir. of Cust. Events: **Whitney Sweet**, wsweet@govtech.com

Dir. Custom Media: **Jeana Bruce**, jbruce@govtech.com

Dir. of Web Marketing: **Zach Presnall**, zpresnall@govtech.com

Web Advertising Mgr: **Adam Fowler**, afowler@govtech.com

Subscription Coord.: **Enie Yang**, subscriptions@govtech.com

CORPORATE

CEO: **Dennis McKenna**, dmckenna@govtech.com

Executive VP of Sales: **Don Pearson**, dpearson@govtech.com

Executive VP: **Cathilea Robinett**, crobinett@govtech.com

CAO: **Lisa Bernard**, lbernard@govtech.com

CFO: **Paul Harney**, pharney@govtech.com

VP of Events: **Alan Cox**, acox@govtech.com

Chief Marketing Officer: **Margaret Mohr**, mmohr@govtech.com

Chief Content Officer: **Paul Taylor**, ptaylor@govtech.com

Government Technology is published by e.Republic Inc. Copyright 2013 by e.Republic Inc. All rights reserved. *Government Technology* is a registered trademark of e.Republic Inc. Opinions expressed by writers are not necessarily those of the publisher or editors.

Article submissions should be sent to the attention of the Managing Editor. Reprints of all articles in this issue and past issues are available (500 minimum). Please direct inquiries for reprints and licensing to Wright's Media: (877) 652-5295, sales@wrightsmedia.com.

Subscription Information: Requests for subscriptions may be directed to Subscription Coordinator by phone or fax to the numbers below. You can also subscribe online at www.govtech.com.

100 Blue Ravine Rd. Folsom, CA 95630
 Phone: (916) 932-1300 Fax: (916) 932-1470

WWW.GOVTECH.COM

Printed in the USA
 e.Republic BPA
 WORLDWIDE



Data.
If you can collect it, you can unlock it.

With the explosion of mobile communications, data growth is unlimited, and government is seeking new ways to unlock its potential. No one knows how to better harness mobile technology to revolutionize citizen services than the experts at AT&T. Through any device, any OS, or any architecture, we can help you transform data to improve citizen outcomes.

Interested in a Mobile Enablement Strategy Guide for Government CIOs?
Visit att.com/govbigdata

Rethink Possible® 



Investing in Talent

BUILDING YOUR FUTURE

This issue is all about innovation and its importance to our future. It showcases investments in infrastructure, human capital and technology that lead to success. These are the ingredients for creating vibrant and sustainable communities now and for the future. But using them effectively demands a new way of thinking — one that views communities as large systems made of tightly interconnected smaller systems. We call this approach FutureStructure, which is also the name of a new joint initiative of e.Republic's Center for Digital Government and the Governing Institute. [See page 22c](#) for a look at what FutureStructure is and what it means to you.

Last year, the city of Rancho Cordova, Calif., made *Fortune* magazine's list of the best small workplaces in the nation. The city is the first local government to make the cut, which is great for Rancho Cordova, but not so good for government overall.

We've written extensively over the past few years about the need to attract and retain good employees in government service. Being a technology magazine, we've focused on the potential impact of progressive social media policies and bring-your-own-device initiatives, particularly as they relate to enticing young college graduates into the public sector. Ultimately, however, you attract good employees by being a good place to work.

If you poke around Rancho Cordova's gleaming City Hall east of Sacramento, you'll see touches that remind you of some of Silicon Valley's most desirable employers. There's a spacious workout area, stocked with equipment donated by a local gym. There's a rec room with a pingpong table and a set of drums. Four city employees recently formed a "house band" that practices at lunchtime a few days a week. City Manager Ted Gaebler adds that the city routinely provides meals and snacks for its staff, another move that keeps employees happy and productively onsite during lunchtime and after hours.

Like many cities — especially those in California — Rancho Cordova suffered during the recent recession, and it made tough decisions to furlough and lay off staff members. But the city provided decent severance pay to employees who were cut loose, and it maintained training and travel for those who remained.

Gaebler, co-author of the 1992 best-seller *Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector*, insists that governments need to invest in employee training and skill building — especially during times of crisis. He also actively cultivates employee creativity and involves them in decision-making. Just as important, he accepts the risk that some innovative ideas ultimately will fail.

In short, the city of Rancho Cordova is the kind of place where most of us might consider working. Yes, Gaebler has a few advantages. A non-union workforce gives him flexibility, and the young city lacks some of the entrenched bureaucracy found in older municipalities. On the other hand, Rancho Cordova employees reportedly have rejected union overtures because they're happy with their current employment situation.

As Gaebler says, "It's all a matter of choices." And the city is making choices that make it a desirable destination for bright, creative employees. Given the growing difficulty of attracting talent to the public sector, other governments should take note. **GT**

AN AWARD-WINNING PUBLICATION





Desktop Virtualization:

From the Massachusetts Legislature to Chester County, PA, secure remote access and mobility are transforming government.

For the Legislature of Massachusetts, desktop virtualization and the remote access it provides will transform the way business is conducted. It decreases the time it takes lawmakers to define and finalize legislation and state budgets, allows legislators to work from local district offices more efficiently and will potentially enable wireless access in the State House.

For Chester County in Pennsylvania, virtualization is not only a way to cut IT support costs, but a way to let county employees work more productively when they are delivering services outside of county facilities.

The Massachusetts Legislature and Chester County (learn more about their initiatives in the case studies following) are just two of the many government entities turning to desktop virtualization.

Desktop virtualization allows governments to replace costly desktop computers with a thin client — an inexpensive, slimmed-down personal computer that retains no data after a computing session ends. Instead, the data files

and computing power reside on servers in a remote data center. This dramatically cuts down on what many governments say is their largest IT headache: supporting and maintaining personal computers. Applications, operating systems and other upgrades can be centrally managed, so there is no need for IT staffers to travel to remote locations to support individual PCs. New users can be up and running within minutes, and applications can be rolled out to all users at the same time. In addition, backups can be handled centrally and automatically.

Desktop Virtualization's Added Benefits: Remote Access and Improved Mobility

Although the maintenance and cost benefits of desktop virtualization are significant, the remote access functionality and increased mobility it offers may be the most important advantages it brings to the public sector. Because workers can also connect to the virtualized desktop from any networked client device, it “frees” them from coming into an office, allowing workers to connect from their own mobile

device, work from a remote location or share an office workstation securely.

With secure access, this mobility has the power to transform government. Seventy-four percent of IT leaders believe BYOD programs can help employees improve their productivity.¹ In the public sector specifically, 58 percent of state and local CIOs said in 2012 that their agency's spending on smartphones and tablets would increase that year.² And state CIOs rank mobile workforce technology as their 2nd-highest priority, just behind cloud computing.³

In fact, mobility or remote access capabilities have already proven beneficial in a number of public sector jobs, including:

- Tax auditors in the field
- Legislators in their local district offices
- Case workers in child protective services
- Police officers on patrol
- State lottery machine inspectors
- Building and other types of inspectors
- Probation and parole officers
- Employees working from home

Allowing workers to use applications as if they were sitting at their office desks

reduces the time it takes them to process paperwork and shortens government's response time to constituents.

Security Issues and Lack of Resources Thwart Government Mobility

So why haven't more governments adopted mobility and provided remote access to employees? The main stumbling blocks include the fear of malware and security breaches over unsecured Wi-Fi networks, and the lack of IT resources to support multiple devices and data traveling over different types of networks.

Senior IT management personnel at Chester County, for example, worry about the difficulty of supporting and securing different devices. Many smaller governments also lack the budget needed to upgrade networks that have languished as IT budgets have been slashed.

With the expansion of remote work and different kinds of mobile devices, safeguarding data and the network has become more difficult because IT does not own and can't control the network all the way from the device to the data center. In addition, with the proliferation of smartphones, tablets and other devices, the data now travels over different types of public networks from different carriers and vendors — networks that IT may not be familiar with. These challenges have put a stop to some governments embracing mobility.

With desktop virtualization, however, security is centralized in the data center. Rather than maintaining security software for every endpoint in the organization, IT can focus solely on the virtualized desktops. Security updates are installed on the virtualized desktop within the data center, and then synced to the endpoint automatically. Desktop virtualization provides secure access to applications and data to remote users who are not within the company firewall.

Desktop virtualization solutions such as VMware Horizon View include SSL tunneling — which completely encrypts connections — and support for federal Personal Identity Verification (PIV) access cards, Department of Defense Common Access Cards and RSA SecurID®,

providing the added security of two-factor authentication.

In the following examples, CIOs at Pennsylvania's Chester County and the legislative branch of Massachusetts share their insights into how they have overcome these challenges. Both have leveraged the power of desktop virtualization to provide remote access to employees and improve mobility using innovative solutions from VMware.

and incompatible computer systems, one for the Senate and another for the House.

To fix these issues, Legislative Information Services "built an integrated network and built it so they [the Senate and House] couldn't see each other," says CIO Edward Bell, addressing the need for separation between the commonwealth's different branches of government. "The productivity savings are in months. Users can now spend more time evaluating the budget



"Desktop virtualization provides us with a nice platform for full accessibility, giving legislators access to applications and all forms, letters and documentation for their virtual offices."

—Edward Bell, CIO, Legislative Information Services for the Commonwealth of Massachusetts

Shaving Months off Budgeting in Massachusetts

Two years ago, the Massachusetts Legislature implemented a newly re-engineered integrated application that provides all capabilities for legislative processes. While transitioning onto this platform, another system was developed and implemented for budget processing.

Before these changes, editing, reconciling and aligning large documents, including budget details from hundreds of state agencies and departments, was a time-consuming nightmare fraught with errors, security problems and multiple versions. Every agency's budget, for example, was manually entered into two different

and looking for opportunities rather than entering and validating data."

Now, when the governor files his approximately \$32.3 billion budget, it is populated into one area electronically, and each branch has a copy of the same core to massage and change as it sees fit. After each side is done working with the data, the two sides come together in an integrated system that allows them to go forward smoothly with each budget item. "It's amazing, and the accuracy has gone up immensely," Bell says.

The Legislature was also grappling with connectivity issues. Previously, legislators were unable to access important government files from their local district

offices — where they spend upwards of 40 to 50 percent of their time — due to the antiquated mainframe application in use. Legislators had to email files, transfer them to thumb drives or CDs and then load them onto home computers, only to download those files again to physically transport them back to the State House. For a limited number of employees, their only remote access option was to try to log in over the state's very slow VPN solution.

Legislators and staffers also couldn't log into the files wirelessly from their handheld devices, as there is no wireless capability in the 215-year-old State House, which was built with walls that are several feet thick in some parts of the building. A few staffers tried to set up rogue wireless networks with their own routers, only to have IT shut them down due to potential security issues.

To address these concerns, Bell overhauled the entire network and IT operations, paving the way to implement desktop virtualization using VMware Horizon View.

"Desktop virtualization provides us with a nice platform for full accessibility, giving legislators access to applications and all forms, letters and documentation for their virtual offices," Bell says. "We've rolled it out to the entire Senate of 400 users and are now rolling out to the House, which is another 700 users. With VMware, we've also gained the transportability of the virtual office, which is very important."

An internal staff of 20, along with some 10 to 15 consultants, supports the roughly 1,100 legislators and staff. The 3-month initial implementation coincided with desktop lease expirations and is part of an applications upgrade to Windows 7, Internet Explorer 9 and Office 2010. The Senate, whose leases expired first, has been fully upgraded. The House will follow, with the VMware Horizon View implementation expected to be completed by November 2013.

Virtualization has allowed the IT team to bring all its outsourced services back in house, where the team has much more control and is able to provide support. Previously, IT was mostly a desktop support team that had to call in private firms to fix network, storage and other problems.

With virtualization now on the desktops, the next phase is to open the State House up to wireless access. Currently, no wireless devices are allowed with the exception of a few isolated events and a few devices logging in via a very slow VPN experience, due to security concerns and facilities issues.

That mandate is now being reconsidered, thanks to a successful State House event where wireless was required for visiting dignitaries and the secure connections that virtualization enables.

"The functionality we've gained is oh-so-far beyond what we would have expected," Bell says of the legislature's virtualization efforts. "Virtualization was never based on the cost, but rather on its capabilities. However, from an investment standpoint, we are very comfortable with the results."⁴

Paving the Way for BYOD at Chester County, PA

CIO Glenn Angstadt and Deputy Director Jim Ray at Chester County's Department of Computing and Information Services (DCIS) started thinking about desktop virtualization many years ago as part of a phased overhaul that included a network upgrade, a data center move and the consolidation of county facilities.

Although county officials have always supported funding for IT infrastructure, DCIS knew that serious budget constraints meant that it had to be increasingly aware of IT costs.

Angstadt and Ray knew they had to make incremental upgrades to their data center, storage facilities, servers and network over time before they could even begin to think about endpoint virtualization. They didn't have the luxury of being able to create a dedicated network.

"It was Glenn's vision along with the practical notion of being more efficient and doing more with less," Ray says.

Phase one of their VMware desktop virtualization plan was to replace traditional mini towers with zero clients as the desktop computer leases expired. During phase two, the plan was to use desktop virtualization to enable a mobile workforce.

According to Ray, "phase two has become more of a focus or game-changer than phase one." That's because IT has seen an uptick in requests from the government's 3,000-strong workforce to connect remotely. For example, the head of human resources recently upgraded to a Windows 8 personal device, and still needs remote access, which wasn't supported by the county's existing remote connectivity solution. Additionally, a director at one of the county's long-term care facilities recently switched over to Apple computers at home and, with employee evaluations



"The advantage we have is that any BYOD project request we get will be enabled by sound, proven technology through our backend infrastructure that we implemented and now have available to leverage."

—Glenn Angstadt, CIO, Department of Computing and Information Services, Chester County, PA

and budgeting coming up, asked how he could log in remotely to work from home.

"The HR manager was disturbed to learn that she couldn't log in the traditional way because we didn't support Windows 8," says Angstadt, explaining that remote access is currently provided through a multi-step process whereby workers log in through a VPN and an Internet browser.

Most of the remote access comes from case workers, law enforcement and finance. Angstadt and Ray are looking forward to rolling out VMware Horizon View remote

access to the full roster of workers over the next 18 months. "Rather than figuring out the nuances of different operating systems, different browsers and different handheld devices, [we now just ask whether an employee] has a sufficient network connection that they can connect to, and we say they are good to go," says Ray.

Virtualization eliminates many support problems. "With the HR director, I don't have to worry about where she is connecting from, the state of her home network or the state of her laptop," says Ray. "If the VMware Horizon View client is installed and working, then she's connecting to a standard Windows desktop not unlike the other 2,000 others we support. I get my economies of scale, and from a support standpoint, it's like she's in the office."

Desktop virtualization has given the county a leg up on its peers when it comes to Bring Your Own Device (BYOD), Angstadt says. "Most in county government are just beginning to talk about BYOD. They are concerned about what to do with the varied amount of devices and are approaching it from the endpoint. The advantage we have is that any BYOD project request we get will be enabled by sound, proven technology through our backend infrastructure [desktop virtualization] that we implemented and now have available to leverage."

This advantage allows for flexibility regarding the type of device connecting to county records and data, without the worry or headaches that come when trying to be proficient in many different types of devices — a common concern for a smaller IT staff.⁵

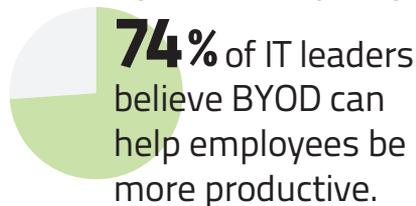
Benefits Beyond the Desktop

With the rapid pace of change in the technology world, desktop virtualization provides a cross-platform, multi-device solution that offers benefits beyond simply cutting IT costs. With a trusted partner like VMware, governments can cut travel costs, increase worker productivity and embrace the mobility movement securely.

Endnotes

- ¹ "BYOD By the Numbers." Infographic. <http://www.govtech.com/infographics/BYOD-By-the-Numbers-Infographic.html>.
- ² "Mobility Spending Will Grow in 2012." *Government Technology*, March 9, 2012. <http://www.govtech.com/wireless/Mobility-Spending-Will-Grow-in-2012.html>.
- ³ NASCIO State CIO Priorities for 2013. <http://www.nascio.org/publications/documents/NASCIO-CIO-Priorities-2013.pdf>
- ⁴ Interview with Edward Bell, February 25, 2013.
- ⁵ Interview with Jim Ray and Glenn Angstadt, March 12, 2013.

MOBILITY BY THE NUMBERS:



The **#2** priority technology for state CIOs is mobile workforce technology, right behind cloud computing.

vmware®

VMware is the global leader in virtualization and cloud infrastructure solutions. More than 480,000 customers rely on VMware to lower IT costs, increase the agility of their IT environments, and reduce time to market for new services.

carahsoft®

Carahsoft is the trusted government IT solutions provider, combining expertise in technology and public sector procurement processes to help agencies implement the best solutions. Carahsoft serves as the master government aggregator for many leading solution providers, including VMware.

Even the Cloud's Bigger in Texas

In one of the largest cloud deployments in state government, Texas is moving more than **100,000 state workers to Microsoft Office 365**. The contract will provide compliance with the Health Insurance Portability and Accountability Act and the FBI's Criminal Justice Information Services (CJIS) security standards — this is the first contract in which Microsoft has signed a CJIS security addendum. The ability to meet stringent security standards was one of the main reasons Texas chose Microsoft as a vendor over its competitors, said Todd Kimbriel, director of e-government for the Texas Department of Information Resources. "One element in the public sector here in Texas that everyone holds in the highest regard is that we have to protect the information of the citizens," Kimbriel said.



WHO SAYS?

"Everybody in Indianapolis knows I'm a tightwad. Unless we're able to save money on this, we wouldn't be going in this direction."

www.govtech.com/transportation/Indianapolis-Aims-to-Have-1st-All-Green-Fleet.html

“ This is not so much a question of why the big cities don't pursue broadband but more one of why smaller places do. The answer is that the smaller places (and many are very small) tend to be underserved by the cable and phone companies, and they're doing it because if they don't, their citizens and businesses will go without — or at least that was so when they got into the business originally. Another issue is that many of the big cities jumped into this years ago when the Wi-Fi technology was not mature. I don't believe any of those projects (e.g., Philadelphia) worked, and so these cities may be understandably nervous about trying again now that the technology is more mature.

Jerry Schulz in response to Do Big Cities Avoid Muni Broadband?

“ One of our chief concerns is succession planning, particularly in the IT section. Budget constraints and attrition are our primary hurdles. The only solution, in our view, is collaboration between agencies. We have formed collaborative committees to focus attention on common areas of concern. So far it has shown positive results. As the institutional knowledge and experience drains away, we pursue short-term solutions by appealing to other agencies. The long-term solutions are problematic.

Robert L. Kruse in response to California Puts MyCalPays Project on Hold

“ While the public has fun bashing public employees and doing everything they can to reduce our salaries and benefits, they will see the light when they aren't getting the services they want. It is only going to get worse. At our department, we haven't had a raise in 20 years and through attrition cannot support the workload because we can't hire good talent. No one good will work for such low wages. Some of us hang on as we are close to retirement but being able to hire talent isn't going to happen.

Ron in response to California Puts MyCalPays Project on Hold



342

The number of communities in the U.S. that offer publicly owned fiber-optic or cable networks, according to the Institute for Local Self-Reliance.

E-Voting in New Jersey

When Superstorm Sandy wiped out much of the New Jersey shore prior to the presidential election last November, Gov. Chris Christie's administration issued a directive allowing displaced citizens and first responders to vote electronically. Voting by email or fax may seem easy enough, but the process wasn't a walk in the park. Preparing to receive votes from the general populace took 24/7 efforts from county election staff already battered by Sandy. Federal election choices were already completed because of overseas voters, but counties had to add local races and qualify people to vote electronically. The biggest challenge was limiting electronic voting only to citizens who were displaced by Sandy, said Hudson County Clerk Barbara Netchert.



Flickr/BEE COLLINS

HOT OR NOT?

Most read stories online:

Government Technology's Top 25 Doers, Dreamers & Drivers **6,547 VIEWS**

Texas Moves More Than 100,000 State Workers to Microsoft Cloud **4,868 VIEWS**

California DMV Cancels IT Modernization Project Contract **2,129 VIEWS**

Least read stories online:

Supreme Court Considers Link between DNA and Privacy Rights **213 VIEWS**

Apple and NYPD Team Up to Thwart Phone Thieves **197 VIEWS**

Supercomputers Handle Massive Tasks in Government Agencies **195 VIEWS**

TOP-TWEETED STORIES

Government Technology's Top 25 Doers, Dreamers & Drivers **325** tweets

8 Tips for Getting Started with Big Data **87** tweets

What Does Your Lawyer Want You to Know About Social **72** tweets

WHEN IT COMES TO INNOVATION

in government, Ted Gaebler literally wrote the book. His 1992 best-seller, *Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector*, written with co-author David Osborne, influenced a generation of public policy experts and managers. Gaebler and Osborne argued that governments needed to rethink industrial-era bureaucracies and develop new techniques suited to the Information Age.

Today, Gaebler is city manager for Rancho Cordova, Calif., a young Sacramento-area city that was incorporated in 2003. The National Civic League named the town one of its All American Cities for 2010, an award that's based on innovation, civic engagement, inclusiveness and civic achievement. Last year, Rancho Cordova was picked as one of the best small workplaces in the nation by *Fortune* magazine and Great Place to Work, a research and consulting firm.

In this interview, Gaebler offers his thoughts on creating an environment for innovation in the public sector and tapping the talents of government employees.

Government Transformer

Author and local government expert Ted Gaebler talks about what it takes to unleash innovation.

By Steve Towns, Editor / Photos by Jessica Mulholland

You coined the term “entrepreneurial government.” What does that mean?

It connotes ownership and presumably owners are more careful with things than employees. They care about the bottom line, and they care about retaining the customer. If our employees think like owners, they will be more careful with resources; they will shut off the lights when they leave and, most important, they will think about ways to make money beyond just raising taxes.

When you go to work for government with your brand-new MBA degree, you usually are asked to leave half your brain at the door because all the government ever asks you to do is to focus on saving money. Entrepreneurial

government gets our employees thinking about how they can raise money — so reusing existing resources fits into that, also not doing nonsense that doesn't pay for itself.

How do you create an environment where it's OK for employees to take risks?

Public employees are very fearful of doing something out of the norm that might cost them or their colleague their job — or worse, cost an elected official their job. They're not paid to take risks and the system does not typically reward risk or failure, so what's the point?

Yet, the nation's 23 million public employees do creative things at their churches on weekends or at their yoga

class. They chair committees, they speak in front of people and they raise funds. But we never tap into this wonderful wholeness of who they are. I thought: Why don't I create an organization where people can bring those outside talents inside?

But if people are going to be creative, they can't come into an environment that penalizes mavericks. I need to lend them what I call my “cloak of protection” from the City Council or the press if they do something innovative and screw up. I try to find early examples of actually protecting somebody so that they know that I have the capability to do that and the mindset to do that. Somebody who has been around a long time like me has a very long cloak.

Matrix teams seem to be an important concept for the city. What are these teams and why are they significant?

A matrix team is a group of city employees that is brought together to work on a task. The members are cross departmental, cross function and cross job title. The teams work on issues that they care about. They might be choosing a new city logo, making a technology decision or choosing investments for our benefits package. They're usually chaired by someone who isn't a department head, but someone who has a passion to be a champion for that cause.

That has proven to be very successful. It usually results in a better decision — although not always — but it certainly results in a decision that's understood by the people who will be affected by it. And it's not imposed from the top.

Does the city have a formal way of surfacing talents of the staff?

I spend a lot of time personally investing in people — asking questions about their background and schooling. We also do a lot of work with DiSC Management style assessments. We have done 20 of them, and so we all sort of know what each other's personality or management style is.

Another thing we do is bring in people from the academic community or from the media and let them ask questions. We've had visitors from Australia, China and Japan. We do a lot of reading of outside things, and we send a lot of people to conferences.

Aren't travel and training some of the first things to be cut when budgets are tight?

The dumbest thing that governments do by far is cut back on investments in people and their training and skill building — these are the things that cause new ideas to seep in. You should invest in new ideas, new skills and new collaborative agreements during times of crisis.

We've had a budget surplus in every year since we started. We have \$28 million in the bank now. But we are \$10 million down from our high-peak year, so we had to have layoffs and cut backs. But we didn't have anything that destroyed morale. We gave the people we laid off [enough] severance pay that made them go away happy.

Now I have money that I can invest

in anything that comes along, and we haven't missed a beat on training. And we still get very high approval ratings in our biannual public opinion survey. It is all a matter of choices. We cut back the number of cops, and we changed our pension system. Some people think they can't change these costs, but governments have to evolve. I think that [our annual budget of] \$47 million — with the possible exemption of the rental on City Hall — is all up for grabs and it is all optional.

We also do a lot here with food. We provide snacks in every room, and we provide meals constantly. I've been questioned about the cost. I am spending two-tenths of 1

“If people are going to be creative, they can't come into an environment that penalizes mavericks. I need to lend them what I call my 'cloak of protection' if they do something innovative and screw up.



percent of the general fund on food on average. But otherwise people would be leaving the building and getting in their car and driving away and breaking their continuity. Now we have continuity and culture. People are meeting and talking to each other. So food has been an amazingly good addition.

What role does technology play in what you are doing here?

The quickest way to reinvent governments is through technology. It is the least resisted way, and it is among the fastest ways to break down patterns of doing things because people accept it. Technology is the fastest way for me to achieve my objective, which is helping governments get better. So we have tried to embrace it.

I am not sure we're at the leading edge of technology — I am pretty sure that we are not — but we are interested in where the leading edge is. We're using virtual desktops and most of us have iPads. There are only four people here

who get hard copies of the City Council agenda. We no longer have the big packets that go out and agenda deadlines and running to Kinko's. We are past all that stuff.

All the council members have VPN access if they choose. Many of us can work at home and do. Our code enforcement folks use wireless iPads to do their stuff. And the cops, of course, all have computers in their cars. So the meat-and-potatoes productivity tools are there. **CT**

Boldly Stated

You're looking at the **Stata Center** at the Massachusetts Institute of Technology — a whimsical-looking building reminiscent of homes in Dr. Seuss' fictional town of Whoville. The 720,000-square-foot edifice is the creation of renowned architect Frank Gehry, and its striking appearance is meant to express the creativity that occurs inside the Computer Science and Artificial Intelligence Laboratory. The innovative design was supposed to help with storm water retention, but MIT sued Gehry in 2007, claiming negligence. Microsoft's Bill Gates helped fund the center, and World Wide Web Consortium Founder Tim Berners-Lee and cryptographer Ron Rivest reportedly have offices there.

GOVERNMENT



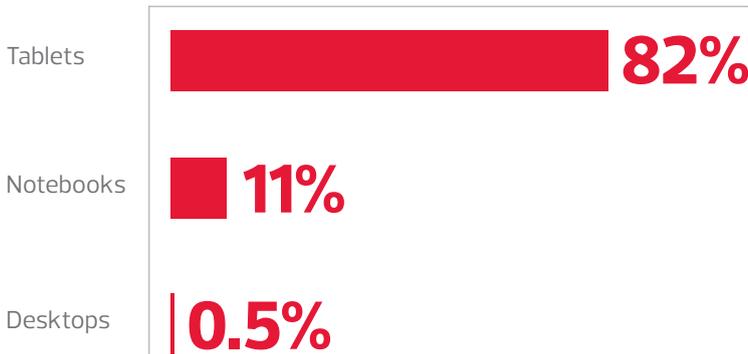
An ever-increasing amount of your staff is using mobile devices for work. But without a complete mobile solution in place, your infrastructure can be overtaxed and sensitive data may be at risk.

ON THE GO. ▶▶

THE PEOPLE DEMAND MOBILITY >>

AND IT'S CHANGING THE WAY YOUR AGENCY WORKS. >>

2012 INCREASE IN SALES¹



49% of state and local IT professionals use their personal devices for work.²



BUT WITHOUT A PLAN TO SUPPORT MOBILITY, YOUR NETWORK CAN BE LEFT EXPOSED.



WE GET IT.

WE DESIGN IT. WE CONFIGURE IT. WE IMPLEMENT IT. WE SUPPORT IT.

Whether you're looking to issue devices or to set up a policy for BYOD, we have years of experience implementing mobility solutions for agencies just like yours. We bring the experts and the expertise to make it all work seamlessly.



STRATEGY – We can help you design data and device policies, a network strategy and more.



CENTRALIZED MANAGEMENT – Our custom MDM and Expense Management solutions help put you in control of your organization's devices.



DEVICES – With a wide range of devices, we can help you select and deploy the right ones for your organization.



MORE – Plus, we can help with end-user support, application development and management, and networking.

For more information on mobility solutions for state and local governments, download our white paper at CDWG.com/mobilitywp



lenovo. FOR
THOSE
WHO DO.

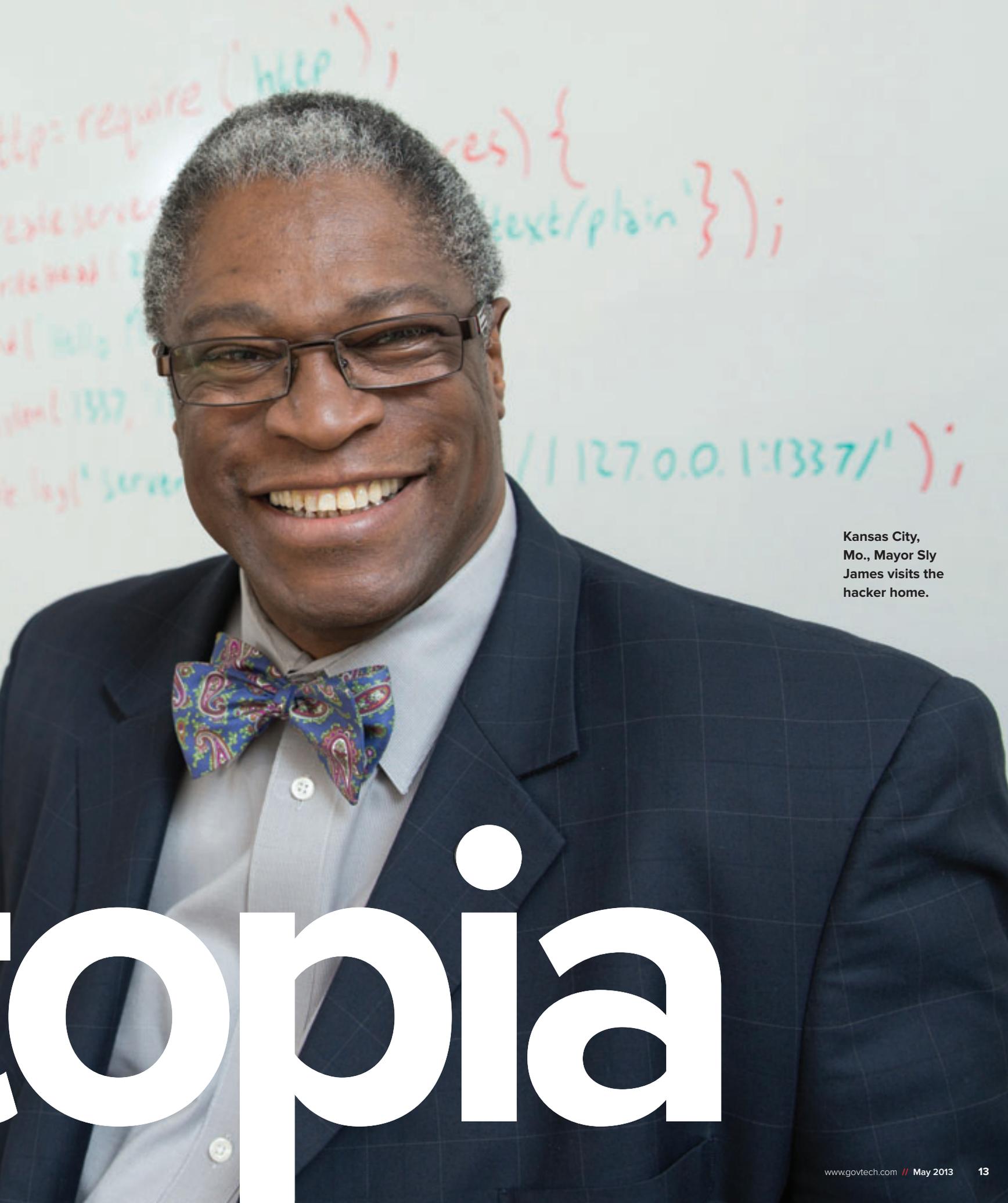
CDWG®
**PEOPLE
WHO
GET IT™**

Photos by Alistair Tutton

Kansas City's gigabit Internet experiment starts to take shape.

By Sarah Rich / Staff Writer

Hackt



Kansas City,
Mo., Mayor Sly
James visits the
hacker home.

topia

When Nick Budidharma wanted to launch a business based on his idea for an online gaming server, he didn't head to California's Silicon Valley or another traditional tech hot spot. Instead he set out for Kansas City, taking advantage of super-fast fiber connectivity being installed by Google and new local programs designed to build companies around those broadband resources.

Google Fiber Comes to KC:

Nine Kansas City neighborhoods are being connected to the fiber network now, with more on the way. Google says KC residents can select one of three Internet packages:

Gigabit Internet and TV

- 1 / up to 1 gigabit of upload/download high-speed Internet;
- 2 / TV channel lineup with two-year contract;
- 3 / 1 terabyte of data storage through Google Drive;
- 4 / Nexus 7 Android tablet that functions as a remote control; and
- 5 / TV box, storage box and network box.

COST: \$120 A MONTH PLUS TAXES AND FEES

Gigabit Internet

- 1 / up to 1 gigabit of upload/download high-speed Internet;
- 2 / 1 terabyte of data storage through Google Drive;
- 3 / network box; and
- 4 / one-year contract.

COST: \$70 A MONTH PLUS TAXES AND FEES

Free Internet

- 1 / up to 5 Mbps download speed and 1 Mbps upload speed;
- 2 / free service for at least seven years; and
- 3 / network box.

STARTUP COST: CONSTRUCTION FEE OF \$25 A MONTH FOR FIRST YEAR OR ONE-TIME PAYMENT OF \$300

Budidharma, an 18-year-old high school graduate from Hilton Head Island, S.C., moved into a five-bedroom "hacker home" last winter, sharing the space with several other aspiring entrepreneurs. After spending three months rent-free in the house, Budidharma launched his company, LeetNode. Now he plans to spend another year in the area — living in another entrepreneurial test tube environment called the KC Startup Community — while working on a second Internet-based startup.

Google Fiber Test Bed

Budidharma's experience may have been just what Kansas City leaders had in mind when they made a bid for Google Fiber several years ago. Kansas City, Kan., Mayor and CEO Joe Reardon led efforts to become a test bed for Google's gigabit fiber-to-the-home Internet service.

Kansas City, Mo., Mayor Sly James then partnered with Reardon to extend the network across the state line. The region was among more than 1,000 communities competing for a chance to become home to the super-fast network. Google chose Kansas City for the project in 2011 and began installing the fiber network last year.

Reardon says he quickly realized that the fiber project would achieve a "deeper level of success" as a regional initiative. Reardon added that he and James had been in talks about the fiber project before James was elected in 2011. The

partnership meant that the cities could work together to achieve the same goal.

"With ultra-high-speed fiber, if there's a real value to it, you don't just want it in one city," Reardon said. "You want it to be in a lot of cities."

As a result, the bordering cities have been introduced to Internet access with speed that is considered to be unprecedented anywhere in the U.S. Google says the new network offers connection speeds that are 100 times faster than what's currently available in most U.S. communities.

The new fiber access has spurred a modern-day Gold Rush for hackers and entrepreneurs to flock to the city with hopes of jump-starting new businesses that can use the fiber network. "When Google came, it was kind of like we got this fantastic puzzle, but it had no picture on the box to tell us what it should look like when it's done," said James. "So we get to decide what it looks like when it's done."

Since the rollout began, hacker communities have cropped up in neighborhoods already connected to the fiber network.

"There are a lot of creative thinkers out there who are really looking forward to leveraging this on a small scale and a large scale," said Ashley Z. Hand, the chief innovation officer of Kansas City, Mo. "I think we're going to see new business ideas and connections from Kansas City to the rest of the world as a result of this technology coming here."

“The whole point of the program is to lure businesses here that would never have otherwise considered Kansas City.”

As of late March, two Kansas City, Mo., neighborhoods were being linked to the network. Another six neighborhoods were slated to begin the process in April. On the Kansas side, seven neighborhoods are undergoing installation and connection work, and three more will start this summer.

Ultimately Google expects to hook up 180 neighborhoods — dubbed "fiberhoods" — to the network.

Although the project focuses on fiber to the home, Kansas City government facilities will receive a slice of the gigabit pie too. Mary J. Miller, CIO of Kansas City, Mo., said the Google partnership will link 300 city buildings to the network. Miller





From the outside, this house in Kansas City's Hanover Heights neighborhood looks like a typical family home. Inside, it's an incubator for business ideas.



F.LICKR/ARCDOG

Kansas City, Kan., Mayor Joe Reardon led efforts to bring Google Fiber to the Kansas City region in 2011.

says the new connectivity will improve city services in areas like medical emergency response and public works.

“When [medical emergency personnel] are out there working at an accident, hopefully with this gigabit of data, they can take a picture, send it back to an emergency room and get a response,” she said.

Homes for Hackers

Tech entrepreneur Budidharma moved to Kansas City to jump-start his online gaming business with the help of local Web developer Ben Barreth, organizer of the Homes for Hackers program. Hackers get to live in a Google Fiber hot spot for three months without paying rent. “The whole point of the program is to lure businesses here that would never have otherwise considered Kansas City,” Barreth said. “And it’s a way that I’m hoping to put

Kansas City on the map and really help people move here to exploit Google Fiber.”

Barreth’s hacker home is located in the Kansas City, Kan., neighborhood of Hanover Heights, one of the first areas that was connected to the ultra-high-speed network. From its façade, the house looks like a traditional family home; however, once inside, visitors get a sense that it’s an incubator for business ideas. Walls are covered with whiteboards — each with an assortment of notes, contact information and ideas written in a rainbow of dry-erase pens.

Barreth said residents spend time problem-solving and bouncing ideas off one another. But the small house offers little personal space, he added. “It can get a little hairy too, because all these guys are living under this one roof.”

Roughly 60 individuals have applied to stay in the hacker home since the program started last summer. But only one or two applicants out of every 10 are chosen. To offset expenses, one of the house’s five bedrooms is rented out to visitors on international accommodations marketplace website Airbnb for \$39 a night,

And Then There Were Two ...

As of early April, Kansas City has company. Google announced that it will begin installing a fiber network in Austin, Texas, starting in mid-2014. Besides offering city residents super-fast connectivity to their homes, the project will provide free gigabit connections to 100 public institutions, according to the company.



©2013 CenturyLink, Inc. All Rights Reserved.

YOUR AGENCY'S MISSION DOESN'T HAVE A PAUSE BUTTON.

The secret to being successful is never slowing down. With CenturyLink as your trusted technology partner, you don't have to. Our visionary cloud infrastructure and custom communications solutions are backed by dedicated, responsive support. Pause button not included. We know you'd never use it.

centurylink.com/gov

Data • Voice • Cloud • Managed Services


CenturyLink[®]
Government

while the other rooms are occupied by the hackers and entrepreneurs accepted for the program. In the future, Barreth also intends to pair other applicants accepted into the program with a Kansas City homeowner living in fiber-connected areas.

Another sign of rising interest is the popularity of KC Startup Village, an entrepreneur network that was established in 2012 to help individuals start businesses with the help of Google Fiber. Nearly 20 startups have set up shop in the village so far, with more on the horizon. Multiple organizations, including the Ewing Marion Kauffman Foundation and LightBridge, support the startup village with their efforts to foster entrepreneurship.

Welcoming Fiber Tourists

The high-profile project also is beginning to draw “fiber tourists” — visitors who are sampling the environment before deciding to relocate to the area. One such visitor is Chris Baran, an entrepreneur who rented the hacker home’s spare room for more than a week in early February.

Baran was drawn to Kansas City after hearing the Google Fiber announcement. During his stay, he attended networking events and met with members of the startup community and other small businesses. Baran says the city is extremely welcoming of visitors who want to get a feel for the place.

Who’s Ready for a Gig?

Getting a gigabit Internet connection is great, but how much can you do with it? Stacey Higginbotham, writing for GigaOM, points out that current-generation laptops, wireless networking gear and Web-based services often can’t handle the new, blazing-fast connection speeds. Installing the fiber, she says, is relatively easy. Putting it to work, on the other hand, could be the next big challenge for gig cities.

Future fiber tourists will be met by a supportive community that is ready to welcome people to the area and help point them in the right direction, Baran said. “If there’s anything you are looking to accomplish in Kansas City or if you are just coming to check out the Google Fiber, that is an excellent opportunity.”

Attracting business-driven individuals to the community aligns with the vision of both Kansas City mayors.



Kansas City Web developer Ben Barreth runs the Homes for Hackers program.

Reardon expects the fiber infrastructure to improve quality of life for city residents and become a magnet for pulling small-business owners into the region. “From a business economic development standpoint, I think it can’t be overstated that this is fuel for technology upstarts and entrepreneurs,” he said.

That appears to be the case, so far. One Million Cups, a local startup forum, regularly

Mike Burke, co-chair of the innovations team from the Missouri side of town, said the region has lacked a mature entrepreneurial community. But projects like the Kansas City Startup Village and University of Missouri’s Digital Sandbox — a proof-of-concept innovation center to generate new companies — are pumping new energy into the area. Burke says the Google Fiber and economic activity built around the network will encourage Kansas City natives to settle in their hometown after graduating from college.

Ray Daniels, who co-chairs the innovation team for the Kansas side, said the network will help close his city’s digital divide. “That gap is there now and we want to see that gap close,” Daniels said. “My dream of the future would be that every family and every student have access to high-speed fiber.”

On a larger scale, city leaders say the network and related activities could help retool the region’s workforce, making Kansas City more attractive to high-tech employers.

“What we need to do is start moving our workforce toward that,” James said. “And I think the fact that we have an engine pulling the technology issue in the city will cause the rest of the cars to follow.” 

srich@govtech.com
twitter@SarahRichforGT

Simple. Adaptable. Manageable.

1



Solution guides for quick and easy deployment!

Simple: We are committed to making our solutions the easiest to install, configure, and integrate into either existing IT systems or data centers — or new build-outs. We ship our solution as “ready to install” as possible (e.g., tool-less rack PDU installation and standard cable management features). With our easy-to-configure infrastructure, you can focus on more pressing IT concerns such as network threats.

Configurations for any IT space!

Adaptable: Our solutions can be adapted to fit any IT configuration at any time — from small IT to data centers! Vendor-neutral enclosures, for example, come in different depths, heights, and widths so you can deploy your IT in whatever space you have available — from small IT or non-dedicated spaces to even large data centers.



2

Monitor and manage your IT spaces from anywhere!

Manageable: Local and remote management are simplified with “out-of-the-box” UPS outlet control, integrated monitoring of the local environment, and energy usage reporting. Manageability over the network and robust reporting capabilities help you prevent IT problems and quickly resolve them when they do occur — from anywhere! What’s more, our life cycle services ensure optimal operations.

3



Easy-to-deploy IT physical infrastructure

Solution guides make it easy to determine what you need to solve today’s challenges. The core of our system, vendor-neutral enclosures and rack PDUs, makes deployment incredibly headache-free. Easily adjustable components, integrated baying brackets, pre-installed leveling feet, and cable management accessories with tool-less mounting facilitate simple and fast installation.

Business-wise, Future-driven.™



InfraStruxure

Integrated InfraStruxure™ solutions include everything for your IT physical infrastructure deployment: backup power and power distribution, cooling, enclosures, and management software. Adaptable solutions scale from the smallest IT spaces up to multi-megawatt data centers.



Make the most of your IT space!

Download our Top 3 solution design guides today and enter to **win a Google Nexus 10 tablet!**

Visit www.apc.com/promo Key Code **y911v** Call 888-289-2722 x**6529**

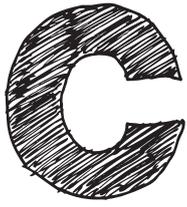
APC
by Schneider Electric



Sparkling Innovation

Failure to change will leave government shackled to the status quo. Here are some ideas for changing your cultural mindset.

**By Adam Stone
Contributing Writer**



Contrary to popular belief, there is no bolt of lightning when it comes to sparking innovation. “It’s

not a momentary flash of brilliance, the next bright and shiny object,” said Darin Atteberry, city manager of Fort Collins, Colo. Sometimes, innovation can be as humdrum as a utility meter. The city’s new “smart meters” may seem mundane, but they’re having a profound impact on the civic experience. “Now the consumers will have a portal where they can watch their consumption on a real-time basis,” Atteberry said. “We are building a two-way relationship with our customer.”

Innovation isn’t necessarily a dramatic change. Rather, it’s something transformative. It may be a new way of thinking, a new way of managing processes or a new use for technology that no one had foreseen.

“Innovation is essentially about breaking constraints,” said William Eggers, global director of Deloitte’s public-sector research. “Previously, if I wanted to have high-powered computing, I needed a desktop and a laptop, but it wasn’t nearly as convenient as a mobile phone. So I had to trade convenience for power. Today with tablets

and mobile apps, we have eliminated that tradeoff. And the cost is less. That is a true innovation, because it broke a constraint that was previously there.”

Easily said; perhaps less easily accomplished. How can government loosen its shackles, free its people to delve into their creative selves and emerge with something truly different?

Often it begins with pain, said William Horne, city manager of Clearwater, Fla. Frustrated customers have typically spurred innovation in his town. The community groused about the city’s website. Business leaders complained that permitting was too slow and the waits too long in City Hall. In each of these cases, “We said: There’s got to be a smarter way to do this.”

Creativity often requires a jump-start. Again: You can’t wait for that bolt of lightning. Sometimes it’s more like a kick in the pants, said Karen Thoreson, president and COO of the Alliance for Innovation, a Phoenix group working to encourage excellence in local government.

“You start by assessing how much innovation is going on in your organization right now,” she said. “What is the internal tolerance for risk and change? Do you want to go soaring off the cliff or take some baby steps?”

One doesn't discover new lands without consenting to lose sight of the shore for a very long time.

—*Andre Gide*

With a view of the landscape shaping up, change drivers then need to gather likely innovators and shake up their thinking. “So you ask them, ‘What’s the most surprising thing that has happened to you in the last 10 years and why?’” Thoreson said. “It makes people look inside, makes them see all the changes that have occurred that they would not have anticipated. That, in turn, puts them in a new mindset. It takes your mind through a whole set of different clicks.”

Ask local planners to work out the problems of a fishing industry executive in Thailand. Mental walls collapse, making room for change. “We want your brain to hurt a little bit,” Thoreson said.

It may take a hard push to roll that stone: Government is notoriously resistant to change.

It’s not just that bureaucracies by definition tend to get stuck in gear, though that’s part of it. Government can also stifle innovation simply by doing its job well.

Look at it this way: “Government is set up to cause the routine to occur in

a non-extraordinary way. If you do the same thing every day and you don’t do it negligently or stupidly, no one will notice in an adverse way,” said Stephen Goldsmith, director of the Innovations in American Government Program at Harvard’s Kennedy School of Government.

Change, on the other hand, involves risk to the public servant. Somewhere among the citizens, the unions, one’s fellow employees, middle managers or other constituents, there’s a chance that innovation will raise ire. “All those things are aligned to suffocate innovation in a bureaucracy,” Goldsmith said.

Living always under the microscope, government tries to be fair and not corrupt. But it isn’t built for speed.

That’s the bad news. The good news is that it is possible for government to steer a new course. All that’s required is a willingness to sail over the edge of the Earth.

In order to change you have to be willing to fail, said Doug Matthews, chief communications director of Austin, Texas, and a White House Champions of Change 2012 honoree.

“If your job is to get the streets paved and the potholes filled, there is no assumption that people will say, ‘Oh, you meant to fill that pothole but it didn’t work. That’s OK,’” Matthews said. Just the opposite:

At their first appearance, innovators have generally been persecuted, and always derided as fools and madmen.

—*Aldous Huxley*

One assumes failure will be punished, either by the public or by one’s higher-ups.

“The innovative office on the other hand accepts a space where there is an assumption of risk, where people understand that we are going to try a lot of things and not all of them are going to work,” he said. “Failure is part of the business model.”

This openness to error is one of the hallmarks of private-sector companies known for their creativity. In order to innovate, you must throw a lot of stuff at

The best way to have a good idea is to have a lot of ideas.

—*Linus Pauling*

the wall and see what sticks. “You want to encourage an environment where people fail frequently, where they do a lot of prototyping and take smart risks, because you can’t have innovation without failure,” Eggers said. “Fail fast, fail smart, fail often.”

It’s a view almost universally put forward by advocates of innovation. In order for an organization to break through

the bonds of old thinking, dramatic cultural changes must happen. Whether it’s the freedom to fail or the readiness to explore the unknown, innovation comes with the freeing of the mind.

When Matthews set his sights on encouraging

innovation, he polled Austin’s department leaders, looking for potential champions. He asked what they would need to really open up the avenue for change. “We kind of expected money to play a big factor,” he said. “In fact, the two biggest things people said they needed were time and support from management. That really

We cannot solve problems by using the same kind of thinking we used when we created them.

—Albert Einstein



WIKIPEDIA

hammered home the sense that we had a cultural thing we needed to manage here.”

His initial idea of micro-grants to fund new thinking never got off the ground. What people wanted most was a shift in thinking on the part of management.

Sometimes getting to a new place means standing an old problem on its head.

In the past, large IT problems have often missed the point, said Peter Coffee, vice president and head of platform research at Salesforce.com. “There are

these massive boil-the-ocean projects that have years of effort and millions of dollars spent, and the spending never catches up with the evolving problem. The problem changes more quickly than you are able to bring the solutions to bear.”

In practical terms: You don’t want an enterprise resource planning deployment; you just want the garbage picked up on time. People forget, but innovation reminds them. “In too many environments, the technology becomes the project, rather than the project being the project,” Coffee said. “In almost every case, IT should be the means to the end.”

It takes a cultural shift — a new way of thinking — to break those old patterns.

How to give a push to get to that new place? Harvard’s Goldsmith lays down some key points:

- **Remove the obstacle.** Every bureaucracy will likely have a sticky wicket, someone who is set against change. “The guy who said no, you move him,” Goldsmith said. “There is a lawyer, there is a manager, there is someone who says no. Put them somewhere else.”
- **Cross the hall.** “The best innovations are cross-agency, so you have to have access to other people, you have to have access to other data, you have to have access to other resources.”

CONTINUED ON PAGE / 24

20 Tips on How to Start Innovating

1 / Create momentum for your innovation project. There must be urgency otherwise innovation is considered playtime and nobody will be prepared to go outside the box. If this is not the case, create urgency and wait until the organization is ready.

2 / Manage the expectations of your bosses and the line management before you start an innovation project.

3 / It is essential to start your innovation expedition with a clear and concrete assignment. This forces the top management, from the start, to be concrete about the market/

target group for which the innovations must be developed and which criteria these new concepts must meet. This forms the guidelines.

4 / Use a team approach to get both better results and internal supporters for the innovative outcomes. Invite people for whom the assignment is personally relevant. Invite people for content creation and development as well as decision-making. Also invite a couple of outsiders as outside-the-box thinkers. Get a good mix between men and women, young and old, etc.

5 / Let the internal top problem-owner participate in the innovation team.

6 / Use a structured approach. Thinking outside the box is a good start. But you have to come back with innovative concepts that fit the in-the-box reality of your organization, otherwise nothing will happen.

7 / Great ideas for innovative new products or services fit seven criteria. Use them actively in your project: 1.) Very appealing to customers. 2.) It stands out in the market. 3.) It has great potential for extra turnover. 4.) It has adequate profit potential. 5.)

It fits management’s goals. 6.) It is (somehow) considered quickly feasible. 7.) It creates its own internal support.

8 / When you brainstorm unprepared with the usual colleagues hardly anything new appears. That’s why it’s essential to get fresh insights before you start creating ideas. Let all team members visit customers and others that serve as a source of inspiration for innovation opportunities

9 / Successful new concepts give customers a concrete reason to change. If you want to create innovative products or services,



Committing to Safety

At DSH-Napa, dispatchers can view employees' exact location — anywhere on the campus — in real time.

California's Department of State Hospitals-Napa improves staff and patient security in the wake of tragedy

AN INTENSE SETTING

From the right perspective, the Napa branch of the California Department of State Hospitals could be mistaken for a northeastern Ivy League college campus. Old gothic-style buildings, green lawns and shady trees dot the expansive grounds situated in the wine country.

Beneath the surface, things are much more serious. DSH-Napa is a psychiatric hospital, charged with caring for some of California's most challenging patients, all of whom are mentally ill, for 137 years and counting. What's more, in 1998 the hospital was re-designated as a forensic facility — meaning the majority of its population now consists of patients with a documented history of violence.

"The majority of our patients have been committed by the courts, and in many cases, have committed at least one violent felony," says Jamie Mangrum, the hospital's IT director and deputy CIO. "Even more than in a prison, our staff has

to be very aware and cautious, ready for some attack — whether it's from a patient to a staff person or patient to patient."

A NEEDED CHANGE

In such a high-risk environment, having a state-of-the-art alarm and emergency response apparatus is not a luxury — it's a necessity. Unfortunately, DSH-Napa experienced this reality in the most tragic way possible, when one of its staff members was attacked and killed on campus by a patient. The campus had no universal monitoring system for tracking staff and patient movements at the time. "It was a very personal and tragic way to realize we had to provide coverage campus wide," says Dolly Matteucci, DSH-Napa's executive director.

Determined to try and prevent anything close to that tragedy from happening again, DSH-Napa engaged the services of several technology partners. The goal: swiftly implement a cutting-edge tracking,

alarm and response system to cover every square foot of the campus grounds.

After an initial period of research, DSH-Napa found its answer in a cutting-edge Personal Duress Alarm System leveraging the power of active radio-frequency identification (RFID) technology using the Wi-Fi network.

RFID is traditionally used as an asset-tagging solution: assets (boxes, equipment and so on) are marked with a "tag," and their movement can then be monitored continuously from a central location. DSH-Napa has taken this concept and stretched it to fit its own needs — instead of tagging material assets, it tags people. All staff members now carry a tag, and their movements are tracked virtually in real time.

"We have the ability to locate them anywhere on campus," says Matteucci. "For folks that don't sit in one spot all day, the application of this technology is tremendous."

A DIFFERENCE-MAKER

Beyond the tagging of people as opposed to material assets, what makes DSH-Napa's setup especially unique is its two-way functionality that allows tag-holders to track each other when an alarm is sent out, as opposed to just being tracked by a central location. Integrated into the tagging system is an innovative alarm function — any staff members in distress can pull their tag, which immediately sends out an alert to security personnel. More importantly, the alert is also sent to every other tag-holder currently in the area, identifying the distressed person's exact location. This drastically reduces emergency response times — instead of waiting several minutes for backup, tag-holders in crisis can receive aid from nearby colleagues within seconds.

"The system, through signal strength, knows exactly where you're located," says Mangrum. "The staff wanted it — they wanted a device that not only sent out an alarm, but also helped them find their way and respond to an alarm." Inside the facility's Security Treatment Area (STA) alone are roughly 1,500 wireless access points to help track staffers' locations more precisely.

The tags can also store information on past alerts. "They store it like an internal inbox," says Mangrum. "You can scroll through the alerts your tag receives."

"All staff carry a small computer on their neck," says Mangrum. "In the dispatch center, dispatchers view a large computer screen with floor plans and little icons representing staff walking around in real time. It is like watching one of those SIMS games, where you have little icons representing people."

A BRIGHT CONTRAST

DSH-Napa's previous security system was implemented in 1998.

It was solid, but simply lacked the kind of continuous monitoring and quick-response functionality necessary to better protect staff and patient safety in such high-stakes surroundings.

"We had older types of personal duress alarm technology that the staff would carry, but they were more basic — you pulled on something and it set off a

"Our staff is incredibly pleased with having the integrated wireless system. They believe that their need for increased safety in the workplace has been heard and answered. It has been a tremendous effort of collaboration."

Dolly Matteucci, Executive Director, DSH-Napa

really loud noise," says Mangrum. "There was no coverage outside. You have patients and staff moving between the buildings, so it's really important to have that coverage externally." Tellingly, the tragedy that took place occurred outside, in an area not covered by the legacy alarm system.

The new RFID-equipped system, in contrast, covers the entire campus. "It's like this huge electronic spider web," says Mangrum. "It knows at any given time what grid or location you're standing in."

System implementation was completed by late 2011; following a period of extensive testing, it officially went live in October 2012. AT&T served as a technology integrator, working with

colleagues from Cisco Systems and Ekahau's RFID-over-Wi-Fi software and tags. The smooth collaboration among DSH-Napa, AT&T and the other private sector partners was critical to providing a quick and successful launch of the system.

"This is a critical priority solution," says Samantha Thibault from AT&T. "We're talking about the safety and protection of people."

"It was a very high-profile project, and while it was an IT project, for those of us at Napa, it was a project for and about people," adds Matteucci.

Rather than simply cast aside the entirety of the legacy system, however, the team was able to smoothly integrate some of its best elements into the new system. The legacy system, for example, included a network of strobe lights, horns and electronic signage set up throughout the campus in order to better direct responders to the location of a reported situation. The new system incorporates these features, so in addition to receiving tag alerts detailing the name and location of a colleague in distress, DSH-Napa staffers can also race to provide assistance as quickly as possible.

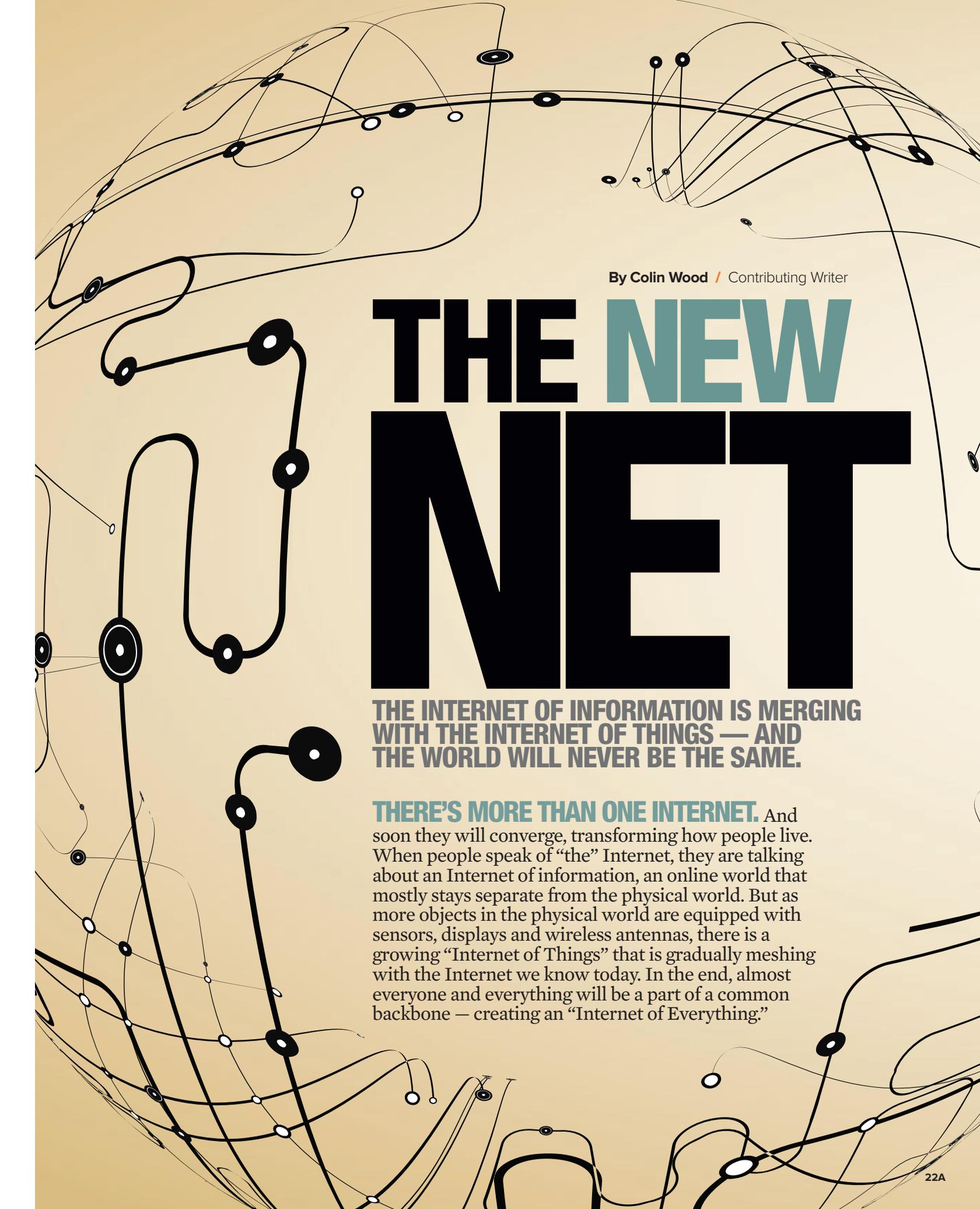
A BETTER FUTURE

Flush with the success at Napa, California's Department of State Hospitals is in the process of rolling out the same system in additional facilities throughout the state. That's good news for everyone who spends time in DSH facilities.

"Our staff is incredibly pleased with having the integrated wireless system," says Matteucci. "They believe that their need for increased safety in the workplace has been heard and answered. It has been a tremendous effort of collaboration."



➤ For more information, visit www.att.com/stateandlocal



By Colin Wood / Contributing Writer

THE NEW NET

THE INTERNET OF INFORMATION IS MERGING WITH THE INTERNET OF THINGS — AND THE WORLD WILL NEVER BE THE SAME.

THERE'S MORE THAN ONE INTERNET. And soon they will converge, transforming how people live. When people speak of “the” Internet, they are talking about an Internet of information, an online world that mostly stays separate from the physical world. But as more objects in the physical world are equipped with sensors, displays and wireless antennas, there is a growing “Internet of Things” that is gradually meshing with the Internet we know today. In the end, almost everyone and everything will be a part of a common backbone — creating an “Internet of Everything.”

New inventions that contribute to the Internet of Everything are manifesting themselves in different ways globally, blurring the distinction between the digital and physical worlds. These ideas have taken form in inventions like Google Glass — a head-mounted display that further diminishes the demarcation between physical and online worlds. In the U.K., smart trash cans — outfitted with sensors that let garbage workers prioritize their routes — have been around for a decade, but are now starting to really take off. China is spending billions to build smart cities with Internet of Everything technology — sensors and wireless connections that will transform technology's role from that of a curiosity to something that's woven into the fabric of daily life.

Over the past few years, a growing number of industry heavyweights have launched initiatives designed to capture a piece of this emerging market. Some of these projects hint at the sweeping changes that will be triggered as the Internet of Everything matures. Cisco, for instance, partnered with NASA in 2009 to build a sensor network to monitor the Earth's climate. That project, known as Planetary Skin, was designed to collect and process global data that government and business leaders could use to understand pollution concerns and resource demands. Cisco also launched the Connected Urban Development program, intended to use networking technologies to improve traffic flow, pioneer new real estate models and create new supply distribution systems.

IBM aims its Smarter Cities initiative squarely at local government leaders, promoting the idea that the blending of ubiquitous connectivity, large-scale data collection and powerful analytics will produce sustainable economic growth and better quality of life. The company launched its Smarter Cities Challenge in 2010 to kick-start these activities. The three-year initiative is sending teams of IBM experts to 100 cities to develop recommendations for making them smarter and more effective.

One reason government leaders should take note of the Internet of Everything is that some of the challenges they face may be too big to solve without it. Issues like coping with growing populations, managing limited



PROFESSOR **RAVI PENDSE** SAYS IT DOESN'T COST MUCH TO DEMONSTRATE THE INTERNET OF EVERYTHING'S POTENTIAL.

natural resources and regulating volatile financial markets are fantastically complex. So are improving educational outcomes, shoring up aging infrastructure and reducing crime rates. Mastering the Internet of Everything — the ultimate network of networks — will help nations and communities address these challenges more effectively.

On the other hand, failure to embrace the concept could multiply the difficulty of these issues as the world moves toward a hyper-connected new normal. “A core construct of [the Internet of Everything] in the context of a ‘connections economy’ is that value will accrue to those who best foster, embody, and exploit network effects,” says a recent Cisco whitepaper. The company argues that humans can't respond to the exponential changes touched off by a massively networked world without help from technology. “Business and government leaders must move from being buffeted by chaotic network effects to generating and directing them to constructive ends,” the paper contends.

While the big boys pump billions of dollars into “connected everything” initiatives, dropping prices for sensor technology are triggering community-level experiments. At

Wichita State University in Kansas, an engineering and computer science professor is launching a demonstration project to show what the Internet of Everything can do.

Ravi Pendse is attaching moisture sensors to trees and plants campuswide as part of a smart sprinkler project. Pendse says the university will reduce its water bill by automating sprinklers to run only when plants are thirsty. Savings produced by that project alone may not be too impressive, he said, but scaled to meet the needs of water-poor regions worldwide,

the concept could become life-saving.

Pendse's smart sprinkler system will employ the knowledge of the university's botany professors and a team of engineers. And with sensors now available for less than a dollar each, the project has minimal start-up costs.

Pendse says growth and development of the technology is inevitable, and he urges U.S. leaders to move quickly to exploit it. “As the most advanced country in the world, we have an opportunity to develop some key ideas around it,” he said. “Bringing all this together is as important as the development of the Internet itself.”

By many accounts, there are big bucks at stake. Speaking to the technology press at an event in March, Cisco President of Development and Sales Rob Lloyd said the market for Internet of Everything technology and services could top \$14 trillion. And a 2012 report from General Electric estimates that adding network connectivity and

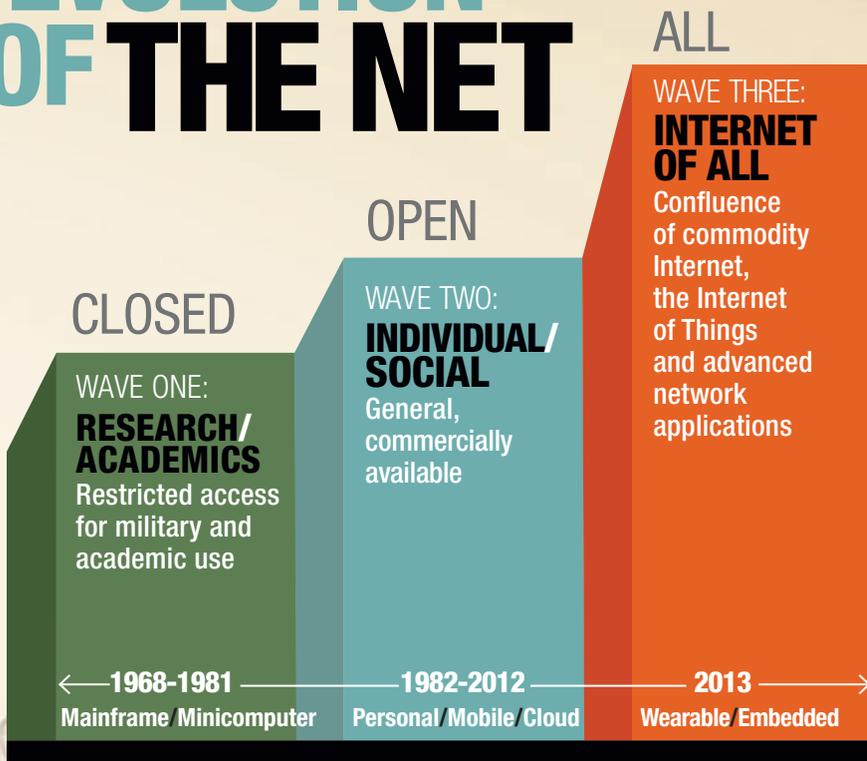
CONTINUED ON PAGE / **22D**

FUTURESTRUCTURE

Building successful communities for the future demands a new way of thinking. To find out more, [turn the page...](#)

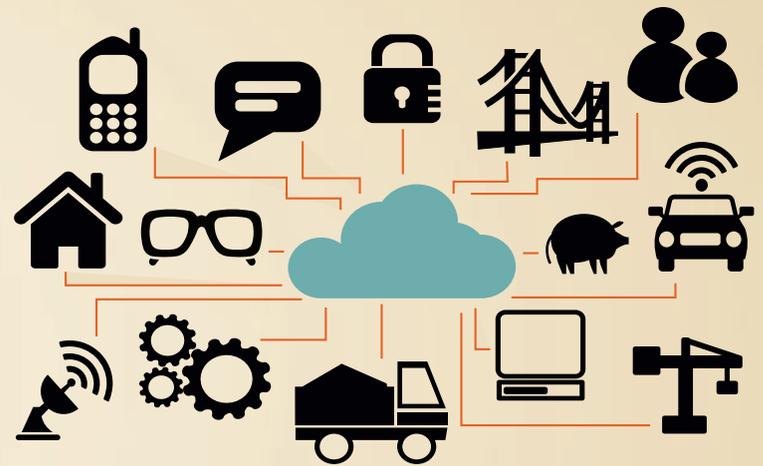


EVOLUTION OF THE NET



SMARTER STUFF INTERNET OF THINGS

It originally linked computers to computers, now billions of devices are connected to the Web: smartphones, automobiles, light bulbs, utility meters, remote sensors and more. In the coming decade, the quantity and types of devices linked to the Web and the apps that will run on this expanding "Internet of Things" will explode, driving a new Internet revolution.

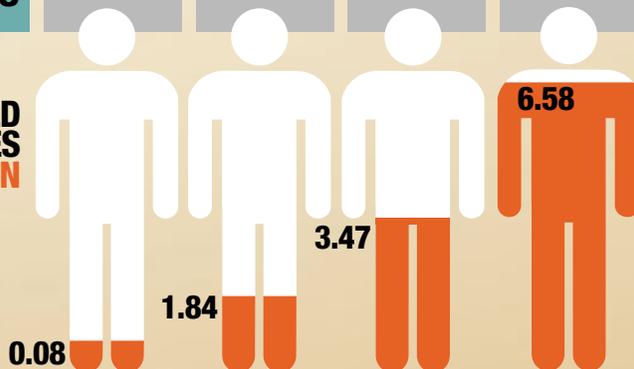


Smart grids ... could help the United States avoid \$2 billion to \$6 billion a year in power infrastructure costs. — McKinsey Global Institute

CONNECTED DEVICES

	2003	2010	2015	2020
WORLD POPULATION	6.3 BILLION	6.8 BILLION	7.2 BILLION	7.6 BILLION
CONNECTED DEVICES	500 MILLION	12.5 BILLION	25 BILLION	50 BILLION

CONNECTED DEVICES PER PERSON



Cisco Systems Inc.

99% of physical objects that may one day join the network are still unconnected. — Cisco Systems Inc.

OPPORTUNITY \$

Corporations see big opportunity in helping government and business navigate the convergence of the digital with the broader physical world. A few of their initiatives:

Smarter Planet IBM

Central Nervous System for the Earth HP

Industrial Internet General Electric

Powerful Answers Verizon

Planetary Skin Cisco

Smart Community Toshiba

FUTURESTRUCTURE

IT STARTS HERE

FUTURESTRUCTURE IS A NEW FRAMEWORK

for thinking through and solving the challenges faced in building economically and socially robust communities. The aim of FutureStructure is to overcome the constraints inherent in haphazard and siloed approaches that communities often take when conceiving, investing in and building their future.

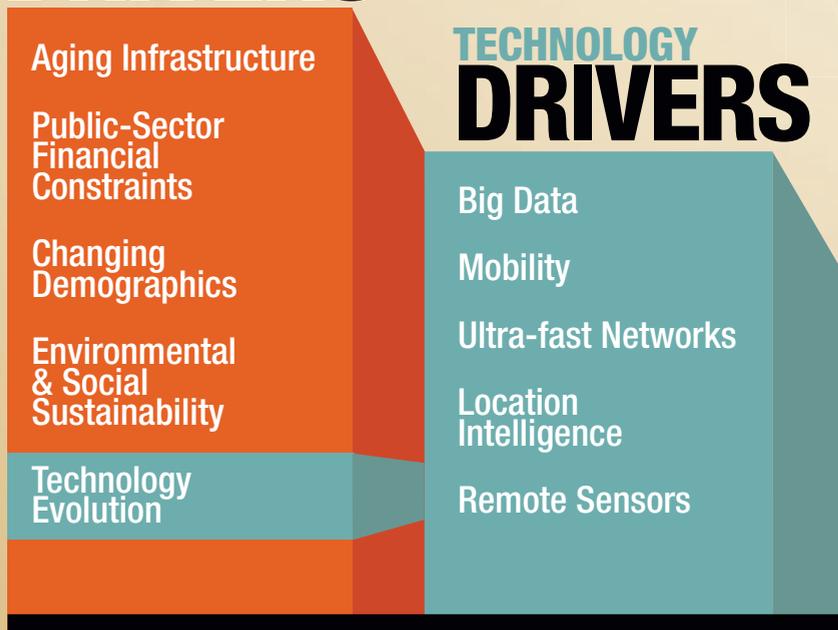
FutureStructure starts with the premise that a community or region is best envisioned as a large system consisting of deeply interdependent smaller systems. These systems include “hard infrastructure” for services like transportation and utilities and “soft infrastructure” that support human capital, such as education and economic development.

Harnessing developments in technology, like powerful analytics and the Internet of Things combined with designing communities as systems, FutureStructure is about *what* gets built, but more important, *how* it's built and how those *things connect* with everything else.

BY DENNIS MCKENNA, EDITOR IN CHIEF

DESIGN BY KELLY MARTINELLI / ILLUSTRATION BY TOM MCKEITH/SHUTTERSTOCK.COM

FUTURESTRUCTURE DRIVERS



SYSTEM DESIGN

A community is best envisioned as a large system made up of interdependent smaller systems. Everything is connected.

Important to plan and build with this in mind.

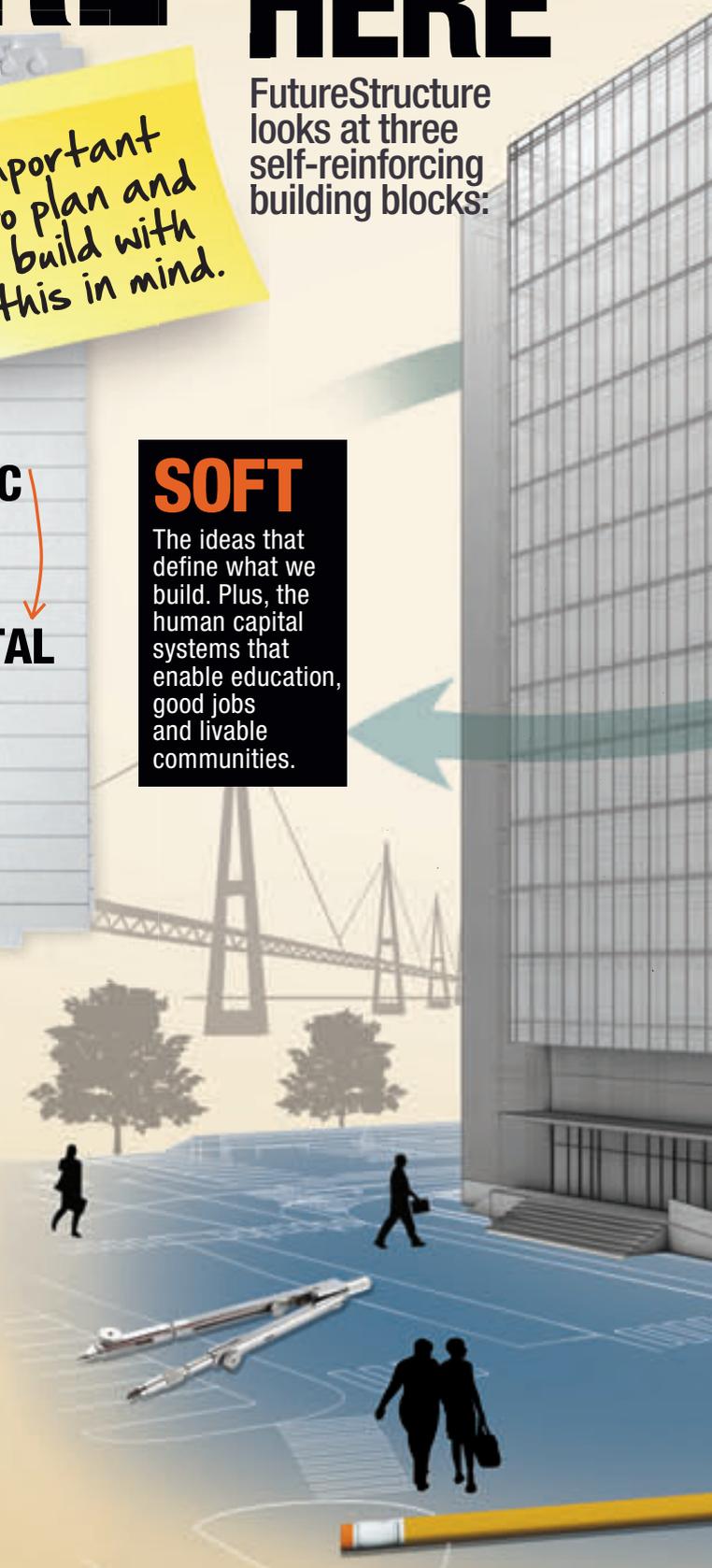


FutureStructure looks at three self-reinforcing building blocks:

SOFT
The ideas that define what we build. Plus, the human capital systems that enable education, good jobs and livable communities.

“Too few people in the public and private sectors regard infrastructure as a system at all, but rather think in terms of single projects.”

— McKinsey Global Institute



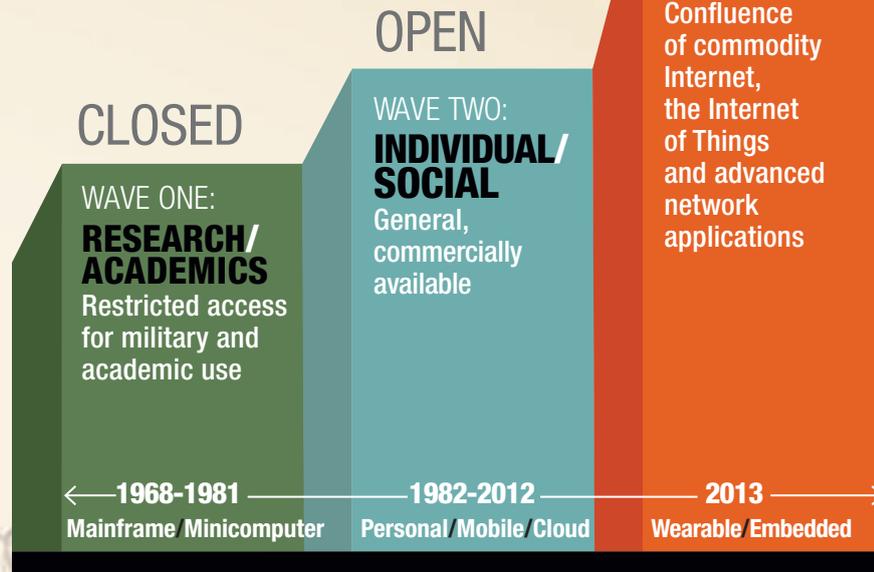
EVOLUTION OF THE NET

HARD

Infrastructure — roads, water and energy systems, schools.

TECH

The evolving set of tools to build the future. Today, technology is increasingly connected and smarter, allowing us to conceive and build in new and better ways.



SMARTER STUFF INTERNET OF THINGS

It originally linked computers to computers, now billions of devices are connected to the Web: smartphones, automobiles, light bulbs, utility meters, remote sensors and more. In the coming decade, the quantity and types of devices linked to the Web and the apps that will run on this expanding "Internet of Things" will explode, driving a new Internet revolution.

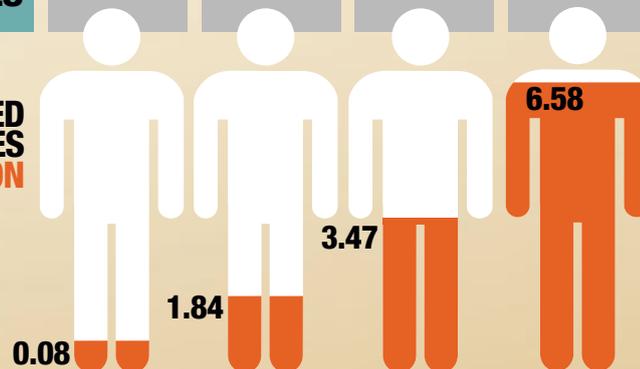


Smart grids ... could help the United States avoid \$2 billion to \$6 billion a year in power infrastructure costs. — McKinsey Global Institute

CONNECTED DEVICES

	2003	2010	2015	2020
WORLD POPULATION	6.3 BILLION	6.8 BILLION	7.2 BILLION	7.6 BILLION
CONNECTED DEVICES	500 MILLION	12.5 BILLION	25 BILLION	50 BILLION

CONNECTED DEVICES PER PERSON



Cisco Systems Inc.

99% of physical objects that may one day join the network are still unconnected. — Cisco Systems Inc.

OPPORTUNITY \$

Corporations see big opportunity in helping government and business navigate the convergence of the digital with the broader physical world. A few of their initiatives:

Smarter Planet IBM

Central Nervous System for the Earth HP

Industrial Internet General Electric

Powerful Answers Verizon

Planetary Skin Cisco

Smart Community Toshiba

CONTINUED FROM PAGE / 22B

big data analytics to industrial machinery could pump \$10 trillion to \$15 trillion into the global gross domestic product.

The U.S., of course, isn't the only nation eyeing the Internet of Everything's potential. Over the next two years, China will spend more than \$12 billion developing 90 pilot communities as part of a smart city initiative. The first phase of development, says Gartner Research Vice President Bettina Tratz-Ryan, will be to build out the cities' initial infrastructure on top of which the rest of the technology can be built. The initiative outlines a five-year plan that will eventually connect everything together — cloud computing, high-speed Internet, smart cars, mobile phones, GPS, video cameras and all other components of the Internet of Things.

Tratz-Ryan said smart cities are a part of China's grand urbanization strategy. Every five years, about 450 million rural Chinese migrate to urban areas, according to the United Nations. China and other Asian nations are driving development of smart cities technology, she said, because they have huge challenges with accommodating urban growth, mitigating pollution and stimulating economic development.

Given that infrastructure is fundamental to the development of a smart city, China's centralized approach may prove to be an efficient path to creating an Internet of Everything. But China's efforts tend to focus on technology, which may not yield the best results, Tratz-Ryan added.

"The inclusion of citizen behavior and citizen comfort into a smart city is actually the key of what a smart city is really about," she said. China is a good testing ground for the technologies, but for better examples of a citizen-centric approach, European and U.S. cities provide the template.

While China is building new smart cities from scratch, mature cities in the U.S. and Europe have, by necessity, taken a piecemeal approach.

In the U.K., trash bins outfitted with sensors allow garbage trucks to skip empty or half-full cans, cutting down on overhead and reducing pollution. In recent years, smart trash cans have caught on in major cities around the world, with Philadelphia report-

edly saving \$1 million annually through the use of self-reporting trash compactors.

Chattanooga, Tenn., is installing thousands of smart streetlights, which can be operated automatically to save electricity and manipulated individually to assist with police searches. Someday, the lights could be upgraded to offer additional functionality by creating sensor networks or equipping the light poles with Wi-Fi gear.

Smart parking structures and smart parking apps also are becoming more popular. Mobile apps, like the one deployed by Orlando, Fla., use city parking data to show drivers where parking is available. But

“BRINGING ALL THIS TOGETHER IS AS IMPORTANT AS THE DEVELOPMENT OF THE INTERNET ITSELF.”

even this is just an early stage of the technology's development. Just as the Internet was unwieldy before Google figured out how to deliver the information people wanted, today's Internet of Everything is likewise relatively inhospitable. Someday, all these disparate elements — the cars, the objects, the roads, the lights, the buildings, the people — will be highly connected. The glue that will hold everything together just hasn't been developed yet.

One place where you'll increasingly see and feel the Internet of Everything's presence is behind the wheel. Auto manufacturers already are building vehicles with Internet connectivity and loading them with apps. And that's just the beginning.

In February, AT&T and General Motors struck a deal to bring 4G LTE connectivity to GM vehicles through the automaker's OnStar service starting with the 2015 model year. The built-in 4G LTE technology is integrated into the vehicle's electrical system and includes an external antenna to maximize connectivity. GM says the move is part of a global strategy to build a new generation of connected vehicles.

"In addition to allowing consumers to bring in and connect to personal mobile devices, the vehicle will also act as its own

mobile device, enabling embedded vehicle capabilities," said Mary Chan, president of GM's Global Connected Consumer division. Besides enabling a plethora of new in-vehicle "infotainment" options, GM says the high-speed connections will support real-time traffic and navigation services.

Meanwhile, the federal government is investigating whether connected vehicle technology can reduce highway accidents and injuries. The U.S. Department of Transportation contracted with the University of Michigan Transportation Research Institute to launch the nation's largest connected vehicle pilot project

late last year. The yearlong experiment involves 3,000 vehicles that are equipped with transmitters and receivers, allowing them to communicate with one another and with roadside infrastructure.

A smaller number of vehicles also are equipped with multiple cameras and other equipment that allows them to actively warn drivers of impending danger.

The city of Ann Arbor, Mich., is overseeing the deployment of wireless communications gear that will cover 73 lane miles to exchange data with the smart vehicles. Analysis of that information will help the city better manage its transportation infrastructure. "I see us being able to understand traffic flow, and understand conditions of roads earlier maybe than we could normally so we could more effectively use our funds to maintain this infrastructure," Ann Arbor IT Director Dan Rainey told *Government Technology* in December.

Back in Wichita, Pendse says a focus on the citizen is a core component of successful technology projects — especially those as expansive as building smart cities. "This gives us another inexpensive way to perhaps look at our resources and leverage the infrastructure. The backbone for an Internet of Everything is already there, people just need to put in the work," Pendse said, adding that city managers should be asking, "How can we use this new technology to bring value to our citizens?" **GT**

Colin Wood is a regular contributor to *Government Technology*. He can be reached at colinwood0@gmail.com

A New Initiative from GOVERNING

FutureStructure

A NEW FRAME- WORK

FutureStructure is about what we build, how we build it and how everything we build connects with everything else.

SPONSORS:

CH2MHILL®

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

BE IN THE FAST LANE OF THE FUTURE.

Contact Marina Leight, Associate Publisher | 916.932.1374

- **Find the beneficiaries.** New ideas will need support, so look for likely allies. “Identify that person, see who represents them, give them a voice and find an avenue for them to help you,” Goldsmith said. “It could be the citizen whose trash has been poorly picked up or the trash picker-upper whose equipment and routes make it impossible to pick up the trash well. Include them.”
- **Tap leadership.** Innovators, for instance in the IT shop, will need support from those higher up the food chain, be it friends in the state house or the executive suite, a mayor or governor who sees the big vision. “You have to find leaders who care about change.”
It’s one thing to set the wheels in motion, but institutions, just like individuals, tend to fall back to center. Every move toward innovation will be challenged by the natural return to equilibrium. It takes formal structure to sustain the effort.

In Livermore, Calif., that structure has come through the creation of deep ties across local institutions, the kind of cooperative play that some say is key to sparking new ideas.

Director of Economic Development Rob White has nurtured ties between

the city, Lawrence Livermore National Laboratory and Sandia National Laboratories/CA. His efforts created the i-GATE Innovation Hub, a regional change driver, and won him White House recognition as a 2012 innovator.

“Innovation comes from things that are known being put together and reassembled in new ways,” White said. “You do that by taking people who would otherwise not be exposed to one another and bringing them together at an organizational level.”

So far the new cooperative structure is driving a plan to retrofit a wastewater treatment installation, creating a plant that will generate hydrogen, which in turn may be used to fuel vehicles. It took the formal interconnection of local institutions to make it happen. “That conversation would never have taken place in the norm we had created before,” White said.

Cooperation among institutions is one key element in sustaining a culture of innovation. Another involves changing policies. “It’s all about incentives. People do what they are rewarded for

doing,” Coffee said. “There is no point in trying to devise a system in which you urge people to do one thing, but the rewards all flow the other way.”

Reward creativity and minimize the penalties. If managers say it’s OK to try something, but then it doesn’t work out, there cannot be reprisals for failed efforts. A structural change also might involve new work patterns. To shake up people’s thinking, change the environment — get them out of city hall or the conference room. “When you put them in a new place, that can change the interactions,” Thoreson said.

For many, the biggest structural change will be the implementation of a formal innovation office, whether it’s a team or an individual — a place to go with new ideas.

“Most of the time, nobody knows where the front door is,” Matthews said. “If I’ve got an idea, where do I go? Having that pathway is a very powerful thing.” **GT**

The best way to predict the future is to invent it.

—Alan Kay

Adam Stone is a regular contributor to *Government Technology*, *Public CIO* and *Emergency Management* magazines. adamstone@newsroom42.com

20 Tips on How to Start Innovating (continued)

start with discovering relevant customer problems to solve. There are several ways to discover them, like personal visits, focus groups, Web searching and crowd sourcing.

10 / Be aware of the fact that a new product idea is not only a “creative product,” but also must comply with the regular business criteria of the organization.

11 / In ideation workshops, apply creative think techniques in the most effective way, and monitor all participants and involve them in the process at the same time.

12 / Time box. Work with strict deadlines. They help you to get people outside the box and to make choices.

13 / Be open to ideas or suggestions from your ideation team to adapt the process.

14 / In brainstorming sessions, spend twice as much time on the convergence process as on the divergence process.

15 / Allow people to choose which innovation opportunity, idea, concept board or mini new business case they want to work on. This way they can choose not only the project they have a passion

for but also the one they have knowledge of, which will lead to good results.

16 / Hire visualizers, cartoonists or make a movie to visualize your ideation process and the results.

17 / Keep the pace of your innovation process going; otherwise it becomes long-winded and boring.

18 / How attractive are the new product or service concepts really? That’s a legitimate question. Therefore you should reflect on the concepts immediately. And you should check the strength of the ideated

new concepts among potential customers. Use the voice of the customer internally.

19 / Return with mini new business cases instead of Post-its or mood boards. And substantiate, in a businesslike and convincing manner, to what degree and for what reason the new concept can meet decision-makers’ criteria.

20 / Make use of the specific expertise of others from within the organization as much as you can in an early phase.



**MEET
THE
NEWEST
MEMBER
OF YOUR
SALES
TEAM.**



NAVIGATOR

Get a free trial at governmentnavigator.com

TRANSFORM

STATE AND LOCAL BUDGETS INTO **OPERATIONAL EFFICIENCY.**

Increasingly, technology is the answer to today's budget right-sizing. That's why many states and municipalities are adopting secure wireless solutions to help boost efficiency, reduce costs and support green initiatives.

By investing in 4GLTE-powered smartphones and tablets—along with Mobile Device, Field Force and Asset Management solutions—agencies can automate processes, eliminate paper forms and optimize worker and asset utilization, all while curbing costs and keeping data secure. And when tax dollars are used smarter and go farther, everybody benefits.

TECHNOLOGY ON THE RISE

STATE AND LOCAL GOVERNMENT I.T. SPENDING IS EXPECTED TO REACH **\$56.6 BILLION IN 2013**, A MODEST INCREASE OF ABOUT 2% COMPARED TO \$55.4B IN 2012.¹

FIELD FORCE AND REMOTE MONITORING SOLUTIONS: MANAGE RESOURCES.

With the right technology, small governments can do more with less.

Field Force Management solutions empower dispatchers to route more efficiently, curb idle times and overtime and reduce fuel usage and emissions.

Remote Monitoring solutions deliver real-time visibility and control over remote systems, assets and equipment, so issues can be addressed before they escalate and truck rolls are radically reduced.

SOLUTIONS FOR STATE AND LOCAL GOVERNMENT

Verizon understands the needs of state and local government. We provide innovative solutions, including:

- + **Mobile Devices and Applications**
- + **Field Force Management**
- + **Remote Monitoring**
- + **Asset Management**

LEARN MORE ABOUT SOLUTIONS FOR STATE AND LOCAL GOVERNMENT AT VERIZON.COM/STATELOCALGOV.

WHY VERIZON?

Mobility is in our DNA.

We can help you increase efficiency and productivity while managing and securing your mobile world.

- + World leader in managed security services and security consulting
- + Robust mobile device management and managed mobility offerings
- + Manage millions of identities worldwide for enterprises and governments
- + America's largest 4G LTE network

Verizon was the **number-one-ranked telecom company in Fortune magazine's 2012 list of the world's most admired companies**—including first-place rankings for both innovation and quality of products and services.

¹ Jennifer Hagendorf Follett, "As Federal Budgets Shrink, State, Local IT Spending on the Rise," CRN, June 2012.





MORE PRODUCTIVE CREWS MAKE TAX DOLLARS *WORK HARDER.*

{POWERFUL ANSWERS}



Technology that can help workforces operate smarter. With rising costs and reduced budgets, government organizations need a way to operate more efficiently. The innovative minds at Verizon have teamed up with some of the smartest companies around to create solutions that help maximize the productivity of mobile workforces. It starts with our Field Force Management solution. Dispatchers use a Web-based application over the Verizon 4G LTE network to directly route remote workers to the closest jobs. The result is a more efficient workflow and a smarter use of tax dollars.

Because the world's biggest challenges deserve even bigger solutions.



CYBER RESPONDERS

A NEW BREED OF
INFORMATION SECURITY
FIRMS HELPS DEFEAT
TARGETED ATTACKS.

BY DAVID RATHS / CONTRIBUTING WRITER





TAL KLEIN IS SENIOR DIRECTOR OF PRODUCT MANAGEMENT AT BROMIUM, A TWO-YEAR-OLD CYBER-SECURITY FIRM BACKED BY SILICON VALLEY VENTURE CAPITALISTS.

Last year the South Carolina Department of Revenue found that a hacker had used a “spear-phishing” attack to install at least 33 unique pieces of malicious software and utilities on the department’s servers to steal financial data. A spear-phishing attack typically poses as an email from a known entity or person and asks users to click on a link, which deploys malware that steals data. More than 3 million Social Security numbers and 387,000 credit and debit card numbers were exposed. Of the credit card numbers, approximately 16,000 were unencrypted.

In another headline-grabbing security breach a year ago, hackers from Eastern Europe stole the Social Security numbers of as many as 280,000 people from Utah Department of Health databases, an incident that quickly forced state CIO Steve Fletcher’s resignation.

Historically personal health information in state and local government databases hasn’t been as big a target for hackers as other sectors. But the South Carolina and Utah breaches could represent a shift in thinking. Cybercriminals may increasingly exploit personal health records for identity theft and insurance fraud, warned Daniel Berger, president of security consulting

firm Redspin. The Utah attack, he noted, “may be the canary in the coal mine.”

To respond to its breach, South Carolina hired Mandiant, a fast-growing intrusion detection and response company founded in 2004. A November 2012 public incident response report from the state summarized the contractor’s actions: “Mandiant developed an immediate containment plan to deny the attacker access to the environment using the known methods of access. ... Mandiant then developed a plan to implement intermediate and longer-term recommendations to enhance the Department of Revenue’s security against future compromise.”



Mandiant is a new network threat detection company.



KLEIN SAYS BROMIUM'S APPROACH PROTECTS AGAINST QUICKLY EVOLVING MALWARE.

Mandiant booked more than \$100 million in revenue during 2012, up 76 percent from 2011, according to a February Bloomberg Businessweek profile. The Alexandria, Va.-based company is one of a new generation of network threat detection and response companies that have sprung up over the last few years to complement traditional anti-virus and data loss prevention approaches that — although still necessary — are inadequate to cope with new types of targeted attacks. Indeed, a post-breach investigation of Chinese hackers’ cyberattack last year on *The New York Times’* computer systems uncovered that anti-virus software found only one of the 45 different pieces of malware planted on *The Times’* systems during a three-month period.

Over the last decade, intrusion threats have evolved to encompass everything from teenagers in their basements trying to breach networks for fun, to professional criminals stealing credit card information. But today’s threats have escalated to theft of corporate and government intellectual capital, said Christopher Ling, senior vice president of Booz Allen Hamilton. “Advanced, persis-

tent threats created by nation states have leaked out onto the black market, and bad actors can buy them,” Ling added. “It is a great concern, because traditional cybersecurity weapons are being outgunned.”

The conventional approach of perimeter defense involves making lists of suspicious signatures and then telling systems: “When you see this signature, stop it.” But that approach is failing in an era of zero-day attacks (a term that means anti-virus developers have had zero days to address and patch the vulnerability). The Stuxnet worm that damaged Iran’s nuclear complex is an example of an attack that wasn’t discovered until the damage was already done.

Local and state government offices that may not see themselves as prime targets for theft of intellectual property or financial information can be used as the weak link to get at financial institutions, Ling said. “Banks use government websites all the time for things like title searches. Attackers can spot a weakness in a county government website and attack the bank from there.”

The business models of large anti-virus vendors such as Symantec and McAfee

FireEye incorporates a virtualization approach into security protection.

incorporate everyone who has a computer, because perimeter defense is an important aspect of protection and is mandated by many federal regulations, including the Health Insurance Portability and Accountability Act (HIPAA). “But that approach is not geared toward someone who is a specific target of an attack,” Ling said. “When that happens, you need specialized help. The vendors who are going after thousands of customers may not be the company you ask to help eradicate a particular piece of malware and do incident response. That is where these newer niche players are coming in.”

So who are these new players? Many are network security and Silicon Valley veterans who are exploring new ways to tackle malware. *Government Technology* asked executives from a few of these emerging companies to describe their approaches.

Cupertino, Calif.-based Bromium, which was founded in 2011 by former Citrix executives, has venture capital backing from Silicon Valley heavy hitters.

Bromium takes a virtualization approach to protecting users from malware, explained Tal Klein, senior director of product management. “In the past, we just accepted that the amount of time it would take for malware to propagate would allow us to develop a vaccine in time — before it became massively destructive and became an epidemic,” he said.

But Stuxnet was in the wild for two years before it was detected. “No security solution stopped it, because they were looking for things they already knew about,” Klein said.

Klein described what he calls the “Security Insanity Cycle:” You are attacked, you try to recover and patch, then you try to figure out how to stop it in the future. Each of these protection efforts creates friction in users’ lives because sensitivities are turned up too high, which makes protections — whether anti-virus or data loss prevention and whitelisting agents — a drag on

productivity, Klein said. Employees end up circumventing IT to get their work done. “Our philosophy has a starting point,” Klein said, “that the solution must be user-centric so they are not trying to circumvent it.”

Bromium’s solution takes a different approach. It doesn’t try to identify and block the malware. Instead it uses virtualization technology to take a narrow bit of hardware and isolate each user task and apply a set of rules to it. So the “task” of visiting Facebook doesn’t have access to the company intranet. Everything is restricted into a virtual container. If a PDF file is loaded, it doesn’t have access to the network.

“If a customer is attacked by malware, [the task] is allowed to run. Once that session is gone, everything it did is gone,” Klein said. The session leaves behind a record of what it was attempting to do, such as trying to change registry settings. You can see the IP address it was launched from, so the detection becomes part of the forensics.

One of the fastest-growing companies in the sector is Milpitas, Calif.-based FireEye Inc., which reported more than \$100 million in bookings last year. Founded in 2004 by Ashar Aziz, a former Sun Microsystems engineer, FireEye’s partner and customer base has grown to more than 1,000 organizations, with more than 25 percent of the Fortune 100 deploying its solutions. The company recently announced an additional \$50 million in venture funding. In 2009, the investment arm of the U.S. intelligence services invested in FireEye, and the U.S. government is a lead user.

PHILLIP LIN,
DIRECTOR OF
PRODUCT
MARKETING,
FIREEYE

As with other vendors, FireEye’s starting point is that malware threats evolve so quickly that the traditional protection model is antiquated, explained Phillip Lin, director of product marketing. Signature-based techniques make it difficult to protect from zero-day attacks, he said.

“That is why every three or four years, the anti-virus community sort of collapses in on itself and tries to take a new approach. And now with all the mobile devices in use, the endpoint clients are inherently vulnerable,” Lin said.

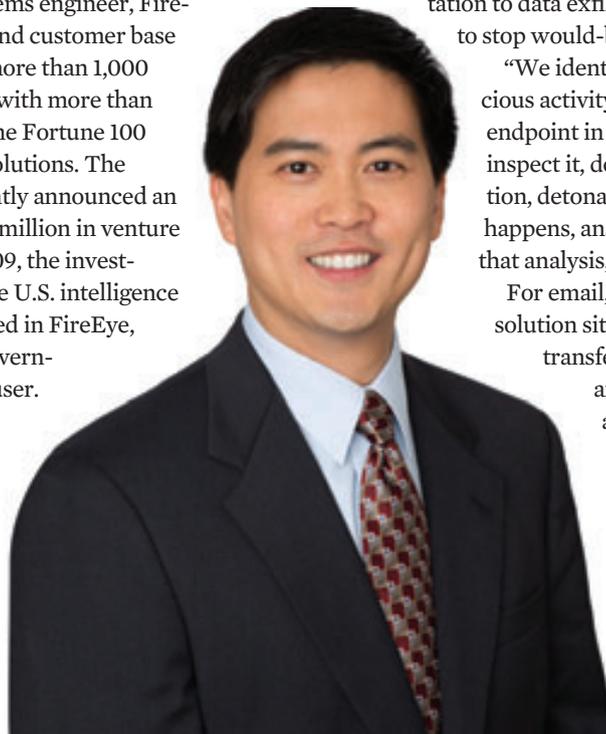
Before 2009, most companies and government agencies weren’t being attacked in a targeted manner, Lin said. “After what became known as ‘Google Aurora’ — a cyberattack originating from China that sought the source code of several high-profile corporations — the focus on targeted threats really picked up,” Lin said.

FireEye’s solution starts from a premise similar to Bromium’s. The FireEye model also uses virtualization to supplement signature-based firewalls and anti-virus software. Its Malware Protection System builds a 360-degree, stage-by-stage analysis of an advanced attack, from system exploitation to data exfiltration, in order to stop would-be attackers.

“We identify suspicious activity, re-create the endpoint in a virtual way, inspect it, do a virtual execution, detonate it to see what happens, analyze it and apply that analysis,” Lin said.

For email, the FireEye solution sits as one message transfer agent and

analyzes the message and any attachment before it gets to the user. “The virtual execution engine provides for a real-time



analysis so you don't have to wait for days or weeks to do an off-premise analysis."

The idea for CrowdStrike grew from efforts by former McAfee employees to do more than breach remediation. "When we were working for McAfee, we investigated large breaches such as Aurora," recalled Dmitri Alperovitch, a CrowdStrike co-founder and former vice president of threat research at McAfee. "These companies said to us, 'It's great that you can help us recover; how about trying to stop it?' So what we are doing is an alternative to anti-virus," Alperovitch said. "Rather than spending



millions on perimeter defense and still failing, there is a real hunger for a new approach."

Based in Orange County, Calif., CrowdStrike was founded in 2011 by George Kurtz, the former worldwide CTO of McAfee; Alperovitch; and Gregg Marston, who worked as chief financial officer of Foundstone Inc., a cybersecurity forensics firm that Kurtz sold to McAfee. CrowdStrike received initial funding of \$26 million from Warburg Pincus.

The CrowdStrike brain trust believes the prevailing mentality about cybersecurity is ultimately counterproductive. As IT security has evolved, conventional wisdom has focused heavily on vulnerability mitigation: firewalls and intrusion detection. The thinking has been that hackers won't bother cracking a "hard nut," how Alperovitch refers to a computer system with hardened security. But that mindset is outdated, he says, especially when it comes to targeted attacks. In these instances, intruders might be most interested in proprietary data about

a new jumbo jet or a revolutionary consumer product — information only available on the servers of one particular company. An adversary might spend hundreds of millions on a way to get at something that is worth billions to them if they can avoid that research and development cost.

CrowdStrike wants to shift the focus to threat deterrence and raise costs to the adversaries. "Our current approach is bankrupting ourselves and failing to deter," Alperovitch said. Even focusing solely on malware is missing the larger point, he argues. "What we should focus on is who attacked us, what vulnerability they leveraged, what they are doing with that data and what we can do to mitigate it."

The company's approach is to attribute attacks to specific actors and go on the offensive. "There are not that many of them," Alperovitch said. "For the last year and a half, we have been following about two dozen groups behind most targeted attacks on all our customers. They are targeting groups in financial, government, defense and energy sectors."

"Knowing who the enemy is and why they are attacking is the first step in forming a defense and figuring out what you can do to them," he added. For instance, deflection activities such as exposing misinformation raise attackers' costs.

CrowdStrike's Enterprise Adversary Assessment service reveals compromised systems and provides counterintelligence and recommendations to help prevent future targeted attacks. The company also gives stra-

“ADVANCED PERSISTENT THREATS CREATED BY NATION STATES HAVE LEAKED OUT ONTO THE BLACK MARKET, AND BAD ACTORS CAN BUY THEM.”

tegic and tactical measures for combating an adversary on the client's network.

Another strategy is to publicize cybercrimes. "We should name and shame them," Alperovitch said. "In the West, people don't do this, in part because their business would be crushed if it were publicized — if Pepsi did this to Coke, for instance. We need to detect and attribute attacks and share information."

Mike Maxwell, director of Symantec's state and local government organization, said anti-virus continues to be an important tool for containing and blocking malware, but other approaches are necessary to complement it. "In contrast to the past, today's cyber bad guys are not distributing massive virus payloads of different malware types, but are simply creating variants of existing malware. This makes it difficult for traditional 'signature-only' anti-virus approaches to keep up with these evolving threats," he explained in an email response to questions from *Government Technology*.

To counter this threat, the company's anti-malware solutions couple traditional signature-based approaches with reputation- and behavioral-based detection, Maxwell said.

"To assess a file's 'reputation,' we collect data from millions of protected endpoints across the globe to support a reputation engine we call 'Symantec Insight.' From over 2.4 billion files from this community, we can categorize a file's reputation before a user downloads it," he noted. For instance, if a file is only a couple of days old, that may show it to be unproven or malicious. Symantec also looks at the prevalence in terms of how many people have the file.

In addition, Symantec uses "behavior-based" detection in its endpoint anti-malware solutions. Behavioral-based detection analyzes installed programs for malicious behavior once installed and has the ability to block a suspicious process and notify the end user, Maxwell said. Behavioral-based technology builds a database of the good stuff it has learned from the application, such as

it has a help file as most legitimate applications should. But it also builds a list of bad stuff such as the application is communicating with a known bad IP address or it is attempting to insert files in other common load points, such as the registry, removable storage or file system, so this may be suspicious activity that would be blocked, logged or alerted based on configured policy.

Experiencing analysis paralysis when it comes to big data?



Big data can be overwhelming, but it doesn't have to be. By leveraging data, governments can yield insights that create dramatic cost efficiencies, improve employee productivity and constituent services, and even save lives.

How can your agency or jurisdiction take advantage of the big data explosion?

Read our latest Special Report — we'll help you sift through all the big data hype, evaluate your options and develop a practical approach for participating in the big data revolution.

To download a free copy, visit www.govtech.com/2013Q1report

Produced by:

CENTER FOR
DIGITAL
GOVERNMENT

GOVERNMENT TECHNOLOGY'S
public cio

Sponsored by:



THE BEST
DECISION
POSSIBLE

Mandiant, Bromium, FireEye and CrowdStrike are just a few of the players in this burgeoning niche dealing with advanced, persistent threats. Other new names in the field include Bit9, Imperva and TaaSERA.

University researchers are also trying to solve the spear-phishing problem. A platform called Phalanx created at the Georgia Tech Research Institute (GTRI) looks at behavior patterns in the kinds of email users get and tries to give users warnings. “Rarely do these attacks target one person,” said Andrew Howard, a GTRI research scientist who heads up the malware unit. “Usually it is sent to several people. So we can give an email a ‘spam score’ on steroids.”

For instance, an email would get a suspicion score of 7 out of 10 based on an analysis of the URL and attachments, natural language processing, expert heuristics and several other factors. “Then we have an analysis engine on the back end that can put an attachment in a sandbox

and launch it to see what it does,” Howard said.

He said all new niche players in this emerging field of targeted threat detection face a challenge in convincing organizations that they are under attack. “It is a hard sell,” he said. It’s not easy to convince organizations that they are targets, although that is changing. But the question is, what is the return on investment for protecting against that type of attack? There are few metrics a CIO or chief information security officer can use to make a case for spending on these types of new services. Yet Howard said he has seen real change during the past few years: More organizations are moving away from denying that they are under attack; instead they are trying to figure out how they can limit the damage.

Bromium’s Klein said one of his company’s challenges is changing the mindset of IT departments. “Our solution requires a user-centric perspective from the IT department, and they are still

clinging to the idea of controlling what users do,” he said. “Plus, it is not cheap, so you have to be strategic about it.”

Booz Allen Hamilton’s Ling said that although these new companies may be good at what they do, it’s difficult to create a business model around any one aspect of protection, and a chief information security officer may not want to create a mix-and-match solution, because then the risk is assumed by the decision-maker, not the solution provider. In spite of the obstacles, Ling said this type of IT security service is worth exploring. “You need a security wrapper, something that can scale up to respond to a very significant incident,” Ling said. “And it has to be something that is economically viable, because this is a problem that is only going to get worse — and you can’t spend money asymmetrically.” **GT**

David Raths is a Philadelphia-based journalist whose articles have appeared in various publications including *Public CIO*, *Healthcare Informatics* and *Emergency Management*. draths@mac.com
twitter@DavidRaths



30%

of state and local IT officials think that tablets will eventually replace desktops and laptops.

What do you think?

Share Your Expertise on GOVTECH / EXCHANGE

JOIN HERE
govtechexchange.com

Tablet Tipping Point

Tablets might be small, but they make a big difference in government

True to the mobility they engender, tablets are taking flight. In academia, colleges and universities are turning to this technology at breakneck speed. Consumer sales have soared, too — Transparency Market Research predicts tablet sales are expected to reach nearly 250 million by 2015.¹ The private sector is also embracing tablets; organizations are not only adopting consumer smartphones and tablets, but they are also allowing employees to use their own devices. According to recent studies, 90 percent of all organizations will support business applications on personal devices by 2014,² and by 2013, 80 percent of businesses will support the use of tablets by employees.³

Considering this trend, it's high time that decision-makers in government opt for tablets. But still only 67 percent of states responding to the Center for Digital Government's 2010 Digital States Survey projected mobile computing would be high in importance for their governments in 2012. However, the Center for Digital Government's Special Report on Mobility stated, "[Now] may well be the turning point for the government adoption of all manner of consumer mobile devices — smartphones, tablets, netbooks, laptops and all the peripherals and accessories — that make it possible for anyone to work anywhere at any time."⁴

Turning to Tablets — and Reaping the Benefits

Tablets can help governments increase the amount and quality of work employees can do in the field, reduce government task process time from weeks to days or hours, shorten response time to customers, cut travel time, decrease equipment expenses and eliminate occupancy costs.

For instance:

- **Government branches and agencies** with workforces who spend significant amounts of time on the move, such as inspectors or case workers, can benefit from tablets that support the full Microsoft Office suite. These tablets enable mobile use and act as a desktop replacement. Government employees in the field save time by not having to transcribe notes in the field and reducing the amount of trips back and forth from the office.
- **Instead of using notebook computers** often stashed in the passenger seat, a dash-mounted tablet is a



more convenient, powerful solution for first responders that enable them to easily pull up records and access locational information.

- **Law enforcement agencies**, such as the Fort Worth Police Department in Texas and the Lake Havasu Police Department in Arizona, are using Android-powered tablets and compact media players to connect with TASER International's wearable video camera to monitor and review events in the field. Officers can manage and tag events immediately using GPS technology, which reduces paperwork and enables smarter police work. The live video also helps prevent and resolve incidents before they escalate into the use of force or civil litigation.⁵

Tablets also help governments appeal to a younger workforce. According to a study from the Rockefeller Institute of Government, two-fifths of state and local government employees will be eligible to retire by 2014, "raising the specter of the most significant talent and brain drain ever experienced by government."⁶ When government agencies incorporate leading-edge mobile devices, government jobs suddenly are more attractive than ever before to younger generations. Add to this the promise of telecommuting — the ability for government workers to dial in from home, access data via the cloud, and be just as productive outside the office as they usually are when they are working from their desks — and governments find themselves a new recruiting strategy.

Things to Consider Before Adopting Tablets

For the government niche, tablets are the perfect form-factor. They're sleek. They're fast. They connect wirelessly. And, perhaps most important, they don't sacrifice computing power. But governments can't embrace tablets overnight; first they must determine the right device for their needs and devise strategies to resolve challenges that the mobile environment presents. Some of these choices include:

- **Operating System (OS):** Knowing which OS best suits your agency's needs will help you select which device

is most appropriate. A Windows-based OS will be compatible with desktop programs and can run all of the familiar office software, whereas an Android-based OS would be more suited for purely mobile usage, but also has access to thousands of various apps.

- **Size:** The size of the device is also an important consideration. If employees will be toting tablets with them to various locations, a more compact size might be well suited, such as one with a 7-inch screen. If employees will be viewing video often, a larger screen may be more desirable such as an 11-inch to 12-inch screen. Even smaller form factors exist, such as media player devices that typically have screens that are 5 inches.
- **Input Method:** It is important to determine employee needs before moving to a tablet device and learning what types of job functions employees will use devices for. The input method will also be a determining factor in which device to choose. Do employees need a stylus

or pen to use, or will they need access to a wireless keyboard? Will they need to hook up their tablets to a docking station when back at the office?

- **Security:** Data leakage, hack-attacks, network incompatibilities and the rigors of excessive traffic all could potentially weaken the basics of a mobile computing network. Before governments dive headfirst into a tablet environment, they must invest (both time and money) in good security practices to avoid these problems. Partnering with a reliable vendor can help ease some security concerns.

Conclusion

It's clear that the time for mobility in government is now. Tablets are a smart approach, a perfect compromise between the functionality of the standard desktop and the benefit of the on-the-go capability. Tablets help position governments for a more mobile future and bring possibilities never before imagined with a stationary desktop.

Samsung and Mobility

Samsung helps government agencies make the transition away from the familiar desktop by offering a range of tablets, both those powered by Windows and on the Android platform.

Samsung ATIV Smart PCs:

Samsung ATIV Smart PCs combine the power of a notebook PC and the convenience of a tablet in a unique convertible design. Created for Windows® 8, ATIV Smart PCs feature a responsive touch screen, precision handwriting recognition with the S Pen and an easily connected physical keyboard when you need it. With an advanced security platform to keep your information safe, the Samsung ATIV Smart PCs help boost employee productivity and reduce the need for paper forms.

Samsung GALAXY Tablets:

Samsung's Android-powered GALAXY Note, Tab and Player devices offer effortless speed, easy connectivity via WiFi and all-day battery life. Available in a range of sizes, the GALAXY devices provide rear- and front-facing camera for video calls, and access to more than 450,000 apps on Google Play™. With the GALAXY Note's revolutionary S Pen, you can take handwritten notes and view, create and edit everything from text documents and spreadsheets to presentations and PDFs. GALAXY tablets are a powerful mobile solution for governmental agencies on the go to innovate and generate efficiencies.



Endnotes

1. www.transparencymarketresearch.com/tablet-and-smartphones-market.html
2. <http://82.165.192.89/initial/index.php?id=219>
3. www.gartner.com/it/page.jsp?id=1480514
4. www.govtech.com/pcio/special_reports/Government-Mobility-Guide.html
5. www.taser.com/images/products/on-officer-video/axon-flex-on-officer-video/images/downloads/SEA10402_CaseStudy_Taser_5c.pdf
6. www.governing.com/topics/public-workforce/Employee-Exodus.html

Learn More ► 1-866-SAM4BIZ | samsung.com/government | Government. Innovated.



GOVERNMENT TECHNOLOGY[®]

2013 EXECUTIVE EVENTS

40 SUMMITS &
40 OPPORTUNITIES
TO NETWORK

JOIN US
& INDUSTRY
LEADERS

TO DISCUSS
IT INNOVATIONS
& PRIORITIES IN
KEY REGIONS
ACROSS THE NATION!

GET INVOLVED
OR SPONSOR

WWW.GOVTECH.COM/EVENTS





SHUTTERSTOCK.COM

Klouting Your Kred

Metrics providers offer social media influence scores; here's what you need to know about them.

By **Kim Lachance Shandrow** /
Contributing Writer

Companies like Klout and Kred score how influential individuals, brands and organizations are within their social media networks. The more you post, the higher you score and the higher your influence. Skeptics say these scores are meaningless and don't really matter, while proponents claim that they are absolutely critical. Still, many people have never even heard of Klout or Kred, nevermind their own scores on either platform.

What are your Klout and Kred scores? What are your followers' scores? And why should you care about either? *Government Technology* set out to find out from top social media experts exactly what Klout and Kred scores are, what they mean, how they work and whether government social media managers should put stock into theirs and those of their followers.

What's Klout All About?

Klout is a San Francisco-based company that measures users' depth of social media engagement based on their social media

activity, as well as numbers of followers and connections across several social networks. Launched in 2008, Klout now boasts more than 1 million monthly users.

The free service assigns each user a score ranging between 0 and 100, based on more than 400 social media signals and 12 billion data points per day across 12 social networks, including Facebook, Foursquare, Google Plus, LinkedIn, Tumblr, Twitter, WordPress and YouTube.

An average Klout score is 20, while scores between 50 and 70 are above average. Users with a score of 50 are in the 95th percentile. A score in the 90 to 100 range is truly exceptional, that is unless you are Barack Obama, Lady Gaga or Justin Bieber. Each regularly scores in the mid- to high 90s. (In fact, Bieber once achieved the elusive perfect 100 Klout score.)

Klout scores take into account the number of people you influence via social media (how many people follow you) and how often you inspire them to retweet your tweets, share or comment on your Facebook and LinkedIn status updates, etc. Klout also keeps tabs on which trending topics you have the most influence on.

What is Kred and How Does it Work?

Kred is also a San Francisco-based free social media metrics provider, however, the company only measures users' influence on Facebook and Twitter. Founded in late 2011, Kred is widely considered to be Klout's top competitor and is often viewed as Klout's much more transparent younger brother. (Interestingly, according to technology-news site AllThingsD, Kred and Klout are headquartered in the same SoMa District warehouse office building.)

Unlike Klout, Kred issues each of its users with not one but two social media scores. The first is an Influence score that spans from one to 1,000. Kred Influence scores are based on how likely others are to retweet or share your social media posts within their networks. Users who connect their Facebook accounts to their Kred profile also earn Influence points when people share or like content on their Facebook wall and the walls of others who have registered their Facebook accounts with Kred. Anything above 700 is generally considered a good Kred Influence score.

The second half of a person's Kred score is the Outreach score, which ranges from one to 12, with seven or higher being an impressive score. Outreach scores rank how likely a user is to comment

22

Klout scores influence during 90-day windows.

90
03

Kred rates how likely posts will be shared and commented on.

on or share content on Facebook and retweet others' social media posts within his or her network.

Also unlike Klout, Kred's scoring algorithm is available to the public. Kred claims to be the only social media influence measure to show users exactly how their Twitter and Facebook activities contribute to their scores. The highest Outreach Level anyone has achieved is 12 (in June 2012), according to Kred. In addition, Kred updates users' scores in real time, not on a 24- to 48-hour delay, as Klout seems to. Kred claims to have 100,000-plus monthly users.

Kred founder and CEO Andrew Grill said Kred is "the only platform to have had full access to the Twitter firehose over the last four years, collecting and analyzing over 150 billion tweets and calculating a Kred score on 250 million Twitter users in real time."

He said that "platforms like Kred allow government agencies to understand more about their communities, and hence serve them in a more meaningful way." But do they really?

Do Social Scores Really Matter?

Unfortunately the answer is much more complicated than a simple yes or no. The majority of experts *Government Technology* spoke with said that, specifically in the public sector (versus the private sector), the social media influence scores of those who follow you tend to matter much more than your own scores. Why? Because others' Klout and Kred scores can help you better identify whom in your constituency to respond to, as well as how best and how soon to engage with them. Social media influence scores essentially offer a shortcut to identifying, evaluating and engaging key influencers in your specific sector.

For example, someone with high Klout and Kred scores has a wide scope of influence online. What they say, post, share or tweet about your federal, state or local agency within their own and others' social media networks has a higher potential to reach and impact others significantly more (and perhaps more meaningfully) than someone with low social media influence scores.

"If you are a government agency and you have someone yelling and screaming at you

on Twitter or Facebook, or if someone just created a social media account simply to harass an agency, a social media manager or communications director could pick up on a person like that very quickly if they have

both a low Klout score and low Kred scores," said David Gerzof Richard, a social media and marketing professor at Emerson College in Boston and president of public relations and social media firm BIGfish.

"Conversely if you find people who have high Klout and Kred scores, and they really understand where your

agency is going, and your agency's goals, and they're sharing your social media content, those people would especially be your super targets," Richard said. "They're the people you want to make sure are seeing your agency's social media messaging and content, because they're actively sharing it and they have a high rate of influence. What they share gets a lot of exposure and engagement, so it's important to engage them."

Examining your followers' social media influence scores also helps to quickly, easily separate the "wheat from the chaff," said Richard, enabling you to prioritize positive influencers and advocates over "noisy," negative trolls and other disruptive followers.

Be Aware, but not too Concerned

"I think it's a good practice for state and local governments to be aware of their social media metric scores, but I wouldn't say they should necessarily be concerned about them, particularly on a day-to-day basis," said Bill Greeves, CIO of Wake County, N.C., and co-author of *Social Media in the Public Sector Field Guide*.

"However, social media outreach in government is crucial because it's where the people are," said Greeves. "Social media offers a relatively inexpensive opportunity to connect with an audience using the tools they use for work, play and socialization. Social media influence scoring tools give us an opportunity to better expand our communication channels and to catch up with people who might not be engaging with government using more traditional methods."

Don't get too hung up on a single score through a single tool, Greeves advised.



ALIZA SHERMAN,
INTERNET PIONEER

"Check your Kred and Klout scores occasionally. If they've gone up, figure out what you did and do some more of it. If they've gone down, try to figure out why and avoid doing it again. We've got to use social media to talk, listen and respond. Be positive. Be friendly. Be honest. Be responsive. If you do that, your metrics are going to go up and so will your overall reach and impact."

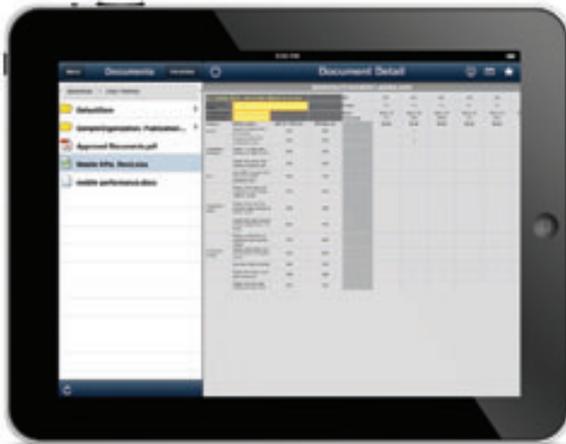
Take it With a Grain of Salt

Others say social media influence rankings are little more than digital status symbols that shouldn't be taken too seriously. "A high Klout score is like a Maserati or whatever the cool car of the day might be," said Aliza Sherman, Internet pioneer and co-author of *Social Media Engagement for Dummies*. "It's fun to flash around, but at the end of the day, it isn't practical."

Sherman cautioned public-sector social media managers and communication directors to take all of these rankings with a grain of salt and to spend more time being thoughtful about their use of social media tools than trying to make sense of the myriad numbers from competing ranking companies. "It's really anybody's guess which numbers are truly valuable or mean anything at all," Sherman said. "Some of these companies pay a great deal of money marketing the fact that they have the metrics that matter, but in reality, it is all a matter of perception and not the reality of any true accuracy or value."

Instead of worrying about Klout and Kred scores, Sherman suggests that social media managers focus more on improving their social media campaign outcomes. "Take courses from reputable sources," she said. "Gain more knowledge, skills and abilities that help you better integrate social media tools and tactics into your overall communications mix. Don't get duped by snake oil salesmen, but instead do your homework and work with trusted trainers and consultants who can help you more thoughtfully adapt new communications methods to better achieve your organizational goals." **CT**

Kim Lachance Shandrow is a Los Angeles-based tech journalist whose work has appeared on Entrepreneur.com, NBC's *The Today Show*, MSNBC.com, NBC.com, and in the *Los Angeles Times* and the *International Business Times*. klashandrow@gmail.com twitter@lshandrow

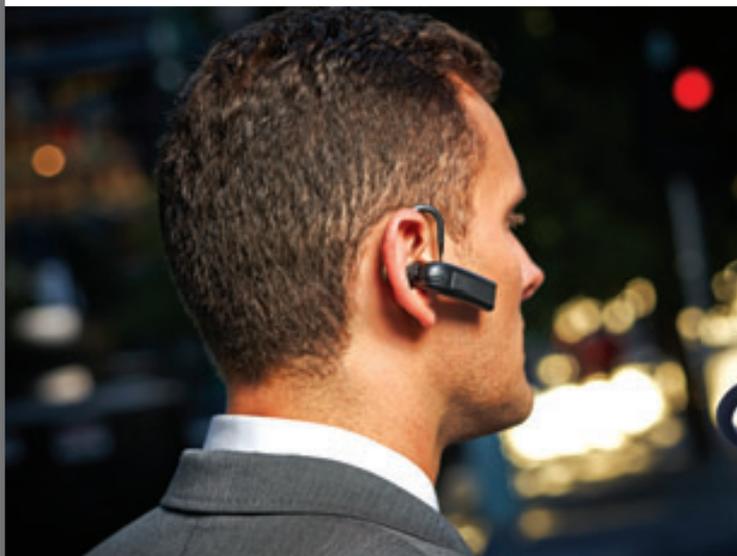


▲ Forms on the Go

Adobe LiveCycle Enterprise Suite 4 (LiveCycle ES4) is enterprise form and document software that enables state and local agencies to address citizens' need to access government services and forms via mobile devices — whether using a laptop, tablet or smartphone. LiveCycle ES4 lets citizens use their mobile devices to navigate through all available agency forms, download the right form, fill it out and send it back. LiveCycle ES4 also extends critical agency processes to mobile workers so they can easily and securely manage the forms process from creation to archival — while connecting mobile forms to an agency's key back-end processes. www.adobe.com/products/livecycle

Talk Time ▶

Samsung's Galaxy S 4 smartphone has a 5-inch screen and operates on the 4G LTE network using the Android 4.2.2 (Jelly Bean) operating system. It features a 13-megapixel rear camera with a “dual camera” function that allows simultaneous use of the front and rear cameras. “Samsung Smart Pause” lets you control the screen by where you look. When you are watching a video, the video pauses when you look away; then it starts up again when you are back. With “Air Gesture,” you can change a music track, scroll up and down a Web page or accept calls with a wave of your hand. www.samsung.com



◀ Listen Up

BlueAnt's Q3 smartphone earpiece features Bluetooth technology and wideband audio for rich call clarity. Multipoint connectivity allows for connecting two phones simultaneously and announces the names of incoming callers. For iPhone users, there's an onscreen battery meter and users can compose text messages via Siri by speaking. Android users can double-tap to access Google Voice Actions with options like turn-by-turn navigation and messaging. The earpiece offers talk time of up to seven hours and a standby time of up to 180 hours. The device has one-touch controls as well as “answer” and “ignore” commands to handle calls. It comes in black or platinum. myblueant.com



For more product news, log on to explore *Government Technology's* Product Source. govtech.com/products

2012 TECHNOLOGY CENTER SWEEPSTAKES WINNERS ANNOUNCED!

"The Win a Technology Center Sweepstakes is a great opportunity for the City of Burkburnett.

The new technology will help us increase citizen engagement, streamline information gathering and disseminating processes and improve overall productivity – we could not be more thrilled."

TIM JAMES, CITY MANAGER,
BURKBURNETT, TX

Grand Prize

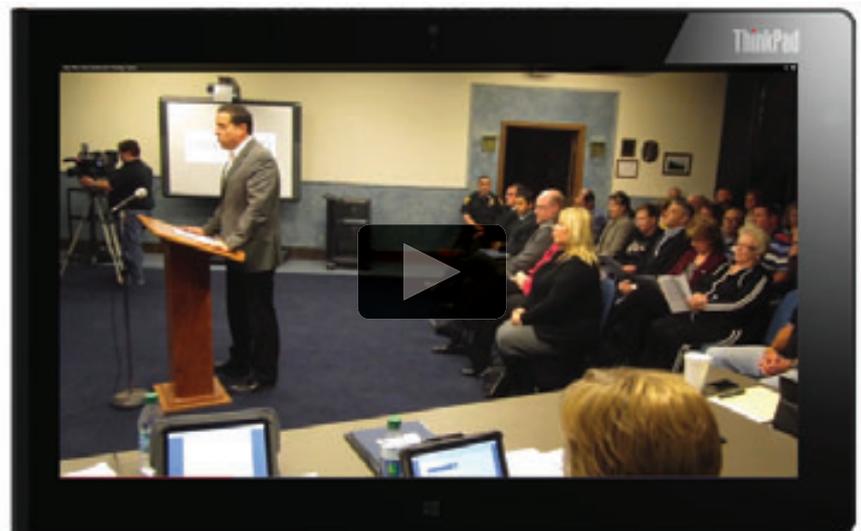
Valued at over \$20,000

Burkburnett, Texas – 25 tablet computers, three wireless access points, tablet cart, interactive whiteboard and stand, interactive vote set, laser printer, conference phone, document camera, and one large-format display with supporting accessories.

Runners-up

Combined value of \$11,000

- **First:** Adrian, Michigan and Prince George County, Virginia – Interactive whiteboard and stand
- **Second:** Crowley, Louisiana – 10 Lenovo tablet computers
- **Third:** Hayward, California – One large-format display with attachment



Watch the video

www.govtech.com/govgirl/City-Wins-Tech-Center-and-Trending-Topics.html



To get information about when the 2013 Sweepstakes registration opens, please visit www.centerdigitalgov.com/RegistrationAwards.

The 2012 "Win a Technology Center" Sweepstakes underwritten by [CDW Government LLC](http://www.cdw.com) (CDW-G), a leading provider of technology solutions to government, education and healthcare customers was open to all United States counties, cities and other municipal governments. The Center for Digital Government selected five local government winners at random.



◀ High-Tech Bat Tracker

Millions of bats in north Texas are dying, and it's posing a potential agricultural crisis as the number of crop-eating insects rises. Scientists are using high-speed cameras to track bat colonies in Texas to get a current population count.

SOURCE: SMITHSONIAN.COM



“POTENTIALLY WE COULD DETECT JUST ABOUT ANYTHING.”

— GIOVANNI DE MICHELI

Chip Detects <3 Attacks

Swiss scientists created a chip roughly two times the size of a rice grain that could help detect heart attacks before they happen. The tiny device, implanted below the skin, can detect up to five proteins and organic acids simultane-

ously and alert doctors of problems before symptoms emerge. The chip includes five sensors, a radio transmitter and a power delivery system. It emits radio waves over a safe frequency. The patch collects the data and transmits it via Bluetooth to

a mobile phone, which then sends the information to a doctor over the cellular network. The prototype is still being tested, but researchers hope the device will be commercially available in four years. SOURCE: EUREKA ALERT



SELF-HEALING ROADS:

State transportation departments spend millions of dollars each year patching potholes. But a new solution already being tested in the Netherlands might one day help roads fix themselves. Civil engineer Erik Schlangen has created self-healing asphalt using a low-tech ingredient: steel wool fibers.

The self-healing asphalt is twice as strong as porous solutions and hardens by induction heating.

SOURCE: MASHABLE

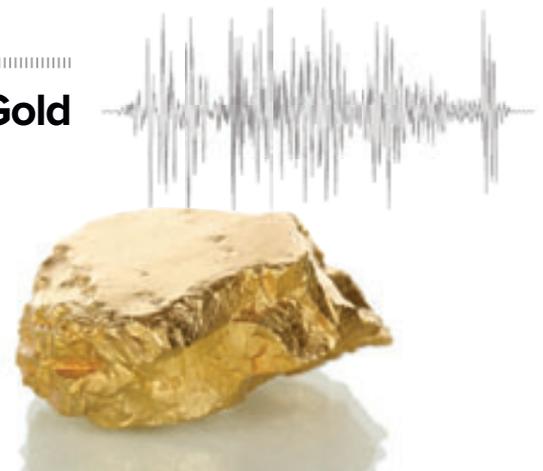
What is the most difficult skill set or position to fill today?

- 1 / Java developer
- 2 / Mobile developer
- 3 / .NET developer
- 4 / Software developer
- 5 / Security
- 6 / SAP
- 7 / SharePoint
- 8 / Web developer
- 9 / Active federal security clearance
- 10 / Network engineer

SOURCE: DICE.COM HIRING SURVEY, WITH 866 TECHNOLOGY-FOCUSED HIRING MANAGERS AND RECRUITERS RESPONDING.

Earthquakes Produce Gold

Scientists have determined that earthquakes create gold. How? Through a process called flash vaporization, where fluid-filled minerals near fault lines rapidly expand. A geological study shows that earthquakes produce 80 percent of the world's gold, but it takes roughly 100,000 years for it to happen. SOURCE: WIRED



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

Rittal – The System.

Faster – better – worldwide.

Make IT easy.

**The new TS IT rack with snap-in technology.
Quick and easy to install.**





The Cornerstone of Gov2020

Seven ideas for the future of local government.

The Bloomberg Philanthropies' Mayors Challenge and the Knight News Challenge are two great contests that have provided hundreds of ideas of what Gov2020 might look like.

Both struck a chord with innovators as the Mayors Challenge had more than 305 city participants competing for \$9 million in prize money distributed across five winners. The Knight challenge had 831 entries aiming to get a piece of more than \$5 million in prizes.

While looking through the applicants, seven key ideas stood out to me as what could be cornerstones of Gov2020.

1 / Procurement 2.0 The need to modernize the procurement process came up several times. Bloomberg winner Philadelphia wants to create a process to encourage new players to respond to RFPs as part of its Philadelphia Social Enterprise Partnership. Procure.io — a system created by Adam Becker and Clay Johnson — hopes to build on the open source work they did on RFP-EZ as White House Innovation Fellows by making it easier for government to craft well written statements of work, post them online, and collaboratively review and award bids.

2 / Improved permitting

Many cities offered new ways to improve the difficult permitting process for applicants and cities. St. Paul, Minn., (a Bloomberg finalist) focused on a user-friendly, Web-based permitting

model and Knight semi-finalist Santa Cruz, Calif., came up with an open-sourced, GIS-enabled front end to business permitting.

3 / Yelp for City Services Was your DMV experience 3.5 stars or 5 stars? Many entries in the Knight challenge revolved around citizens rating a specific individual or agency. One submission, Civicly, aims to bring the power of reviews to government where citizens can evaluate city services and agencies, public schools, elected and appointed officials, transit systems, subway and bus lines, public hospitals and clinics, utilities and more. Much like sites such as TripAdvisor, Yelp and Ratemyprofessors have used data to highlight great customer service and identify places for improvement, these sites have a similar mission in the public sector.

4 / Big Data and Analytics Many submissions found ways to use data and analytics to solve city problems. Bloomberg winner Chicago SmartData platform's goal is to build the first open source predictive analytics platform from scratch. Another winner, Santa Monica, Calif., plans to create a single metric of city well-being built on data around health, education, economics and more.

5 / Gamification Several projects added a gamification layer to engage citizens. San Francisco, a Bloomberg finalist, submitted Skillville, which matches job seekers to microvolunteering opportunities on city projects. Job seekers validate their skills with

badges, which can be redeemed for rewards like job interviews or mentorship. Bloomberg finalists Lafayette, La., and Lexington, Ky., used the ideas of challenges and games to involve local residents more in their city.

6 / FOIA One might not think there's much interest in reimagining the FOIA process. However, in the Knight Challenge, I saw many new projects rethinking how cities handle FOIA requests as well as new public websites that will aggregate requests. One example is the FOIA Machine, which automates the confusing process of filing and tracking public record requests worldwide.

7 / Bringing City Services to Citizens

Boston's City Hall to Go takes city services on the road to ease basic citizen transactions by offering a broad menu of services, from paying parking tickets to getting dog licenses — all of which can now be handled wherever the truck is that day. A Knight project in San Diego called A Show of Hands lets citizens vote from afar and then shows that data in public meetings, thus letting busy citizens take part.

These submissions demonstrated amazing opportunities to rethink public service using creative thinking, open data, new tools and new funding models. The diversity of ideas is endless whether it's augmenting 311 systems with data sourced from social media or launching a voluntary early intervention reading program based on a small listening device from Bloomberg winner Providence, R.I. I look forward to seeing these impressive ideas in action. 

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



TORQUE
by KYOCERA

OFFICIAL SMARTPHONE OF THE APOCALYPSE

Learn how tough phones can be at 855-878-4BIZ and see it in action at sprint.com/directconnect

\$99⁹⁹ BUY ONE FOR \$99.99
GET FOUR FREE
FOR YOUR BUSINESS

SMART SONIC RECEIVER
Groundbreaking tissue conduction technology for clearer sound in loud environments

BRAVE THE ELEMENTS
Stand up against dust, shock, rain, humidity, submersion and extreme temperatures

GET IT DONE
Only on Sprint Direct Connect[®] with 3X the coverage than Nextel

INSTANT PUSH-TO-TALK
Instant connection at the push of a button

ULTRA-RUGGED
Tough and durable military spec

4G LTE
4G LTE where available with Truly UnlimitedSM data while on the Sprint network

ANDROID APPS
Android productivity apps streamline the job

Offers avail. for corp-liable customers only. **Activ. Fee:** \$36/line. Credit approval req. **Early Termination Fee (sprint.com/etf):** After 14 days, up to \$350/line. **Phone Offer:** Offer ends 5/9/13. While supplies last. Taxes and svc charges excluded. No cash back. Req. activation of all phones on same account in one sales transaction. **Data:** Add'l charges apply for premium content/downloads. Includes select e-mail. **Usage Limitations:** Sprint may terminate service if off-network roaming usage in a month exceeds: (1) 800 min. or a majority of min.; or (2) 300 MB or a majority of KB. Prohibited network use rules apply. Engaging in such uses will not result in throttling but could result in adverse action. See sprint.com/termsandconditions. **Other Terms:** Offers and coverage not available everywhere or for all phones/networks. Restrictions apply. See store or sprint.com for details. Sprint 4G LTE available in limited markets, on select devices. Visit www.sprint.com/4GLTE for info. Unless noted, Sprint 4G LTE devices do not operate on the Sprint 4G (WiMAX) network. ©2013 Sprint. All rights reserved. Sprint and the logo are trademarks of Sprint. Other marks are the property of their respective owners.

INNOVATION #3,978
The New Printing Standard in California

Going green in the Golden State.



Samsung ML-5012ND

Upgrade to Samsung printers to take advantage of the latest cost-saving features.



Save on Toner and Paper.

Just one touch of the ECO button customizes your printer output for more efficiency.



Low Cost per Page.

Greater efficiency and toner yields help lower costs.*



Mobile Print App.

Scan from and print to any Samsung printer on a Wi-Fi® network.

National IT integrator Western Blue, an NWN Corporation, is now serving the California public sector by providing our award-winning printer solutions. Join the other key state agencies that are already taking advantage of our energy-efficient products that help lower costs, maximize productivity and deliver incredible value.

The full line of printers that are part of this program come with smart solutions, such as built-in enhanced security, managed print services and Samsung's Mobile Print App, which allows for quick printing from a mobile device.

Find out just how easy it is to be part of this new printer standard in California. We look forward to meeting your needs today — and tomorrow.

For pricing contact Rick Cervantes: [1.800.660.0430](tel:1.800.660.0430) or sales@westernblue.com

For ordering: www.westernblue.com/printers



Western Blue
an NWN Company

