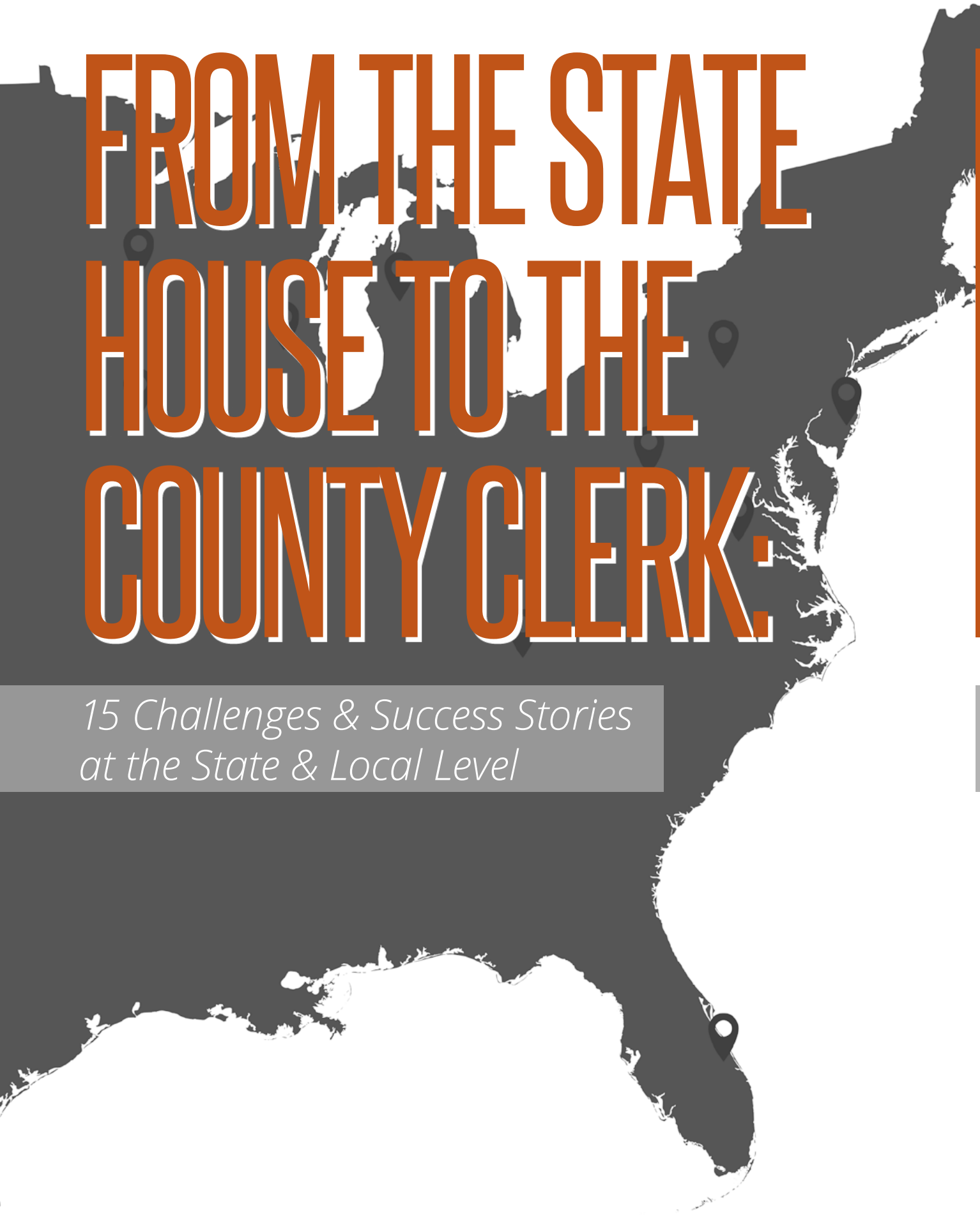
FROM THE STATE HOUSE TO THE COUNTY CLERK:

15 Challenges & Success Stories at the State & Local Level



EXECUTIVE SUMMARY

According to Census data, there are 6.9 million elementary and secondary school teachers in America. More than 2.4 million employees work in protective services. About 800,000 state and local government employees work in libraries, and a quarter of a million workers pick up trash. Yet the Center on Budget and Policy Priorities found that public workers are paid 4 percent to 11 percent less than private-sector workers with similar characteristics such as education and job tenure.

With those statistics in mind, it's amazing how dedicated and motivated state and local government employees continue to be. What's more, although two-thirds of Americans have considerably more confidence in how their local governments handle problems than the federal government's approach, and a solid majority feels the same way about their state governments, getting the public engaged in public policy is still difficult.

In GovLoop's latest guide, we've uncovered 15 success stories at the state and local levels. These examples showcase some big challenges to government — and how to overcome them.

We have broken the challenges into four categories:


Internal Best Practice


Tech Challenges


Health and Safety


Community Engagement and Outreach

In our case studies, we highlight how successful communities have seen big improvements. So settle in and read on. We hope these examples will inspire, inform and invigorate you, too.

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"WE REDUCE THEIR COSTS & IMPROVE THEIR PERFORMANCE"

*An interview with **Tom Ruff**, VP of Public Sector, Akamai Technologies*

At the end of the day, state and local budgets are shrinking – but demand and expectations for government services are going up. So what is a government to do? One solution is to look to the cloud to help save time and resources by making your IT department run more efficiently. One of the leaders in government cloud computing is Akamai Technologies. They have been able to save their clients more than 85% in IT network costs by moving them to the cloud. GovLoop sat down with Ruff to learn more.

How can state and local governments stay on the cutting edge of technology while sticking to their limited budgets?

Ruff: There are many states out there that are now starting to leverage the cloud with broader solutions such as AT&T or CGI, Rackspace and Microsoft. These cloud providers are able to provide new services to state and local governments, eliminating the need for expensive capital investment towards new infrastructure. We see in the federal government (where approximately 30% of the current IT initiatives are being driven to the cloud) a 33% savings on delivering applications to their constituents and at the same time radically improving the level of service to the citizens. Our typical customer sees an 85 to 90 percent offload on network cost, as well as infrastructure cost.

Can you give an example of where cloud services have transformed a city?

Ruff: The City of Orlando came to Akamai because tourism is their lifeblood. Orlando is not only one of the fastest growing communities because of the environment and the natural surrounding amenities, but also because of the business there that all surrounds the amusement parks. So they're very concerned about 100% operations and availability, given their amount of traffic and tourism. Recently, the city was warned that they were about to be attacked by cyber hackers. We knew we needed to get in front of the situation. We ended up protecting the site, the site got attacked, and the city of Orlando had no impact. We absorbed that attack and they kept on running.

Another example is the city of Chicago. A few years ago the city hosted a NATO meeting; the summit was destined for attack in light of the U.S. and the visiting nations that would be in attendance. Unisys came to us and said, "We need security because we need to have this site up at all times to promote the NATO activities." Once again we were able to ensure 100% availability of their site, improving performance even during the time of an attack.

Governments can use Akamai to not only improve their service to the citizen, but also protect it. In the private sector we are doing billions of dollars a day in secure credit card transactions. The same secure transactions are happening in the transformation of state and local governments where they are trying to use the Internet to have a better touch with the citizens. We reduce their costs and improve their performance.

What can state and local governments learn from the federal government?

Ruff: Part of the advantage for state and local governments is that they can truly leverage what's been done in the federal government. There was an inordinate amount of time, effort and capital spent by the federal government to put out standards for the top IT cloud providers to follow under a mandate. The Office of Management and Budget, the General Services Administration and the National Institute of Standards and Technology have created a high security standard for IT computing and devised a FedRAMP compliant solution for cloud security that state and locals are able to utilize.

What does the future of cloud computing look like for state and local governments?

Ruff: You are going to see different types of clouds out there. You already have very successful programs such as Microsoft Office 365 and you will see governments move towards those type of solutions, because it makes sense in terms of cost reduction and improved performance.

You will also see other type of cloud services, such as identity management in the cloud – the ability to be able to provide an additional level of security as people enter the cloud, by checking their identity against other sources out there.

Mobile will also be very big. Akamai is working on services to improve the speed as well as the end user experience. For example, we are working on the ability to detect if a citizen is on a device that is connected to a disadvantaged network - they're not getting strongest cell signal out there in the world. With these intelligent solutions we will be able to determine not only the device, but also the kind of web browser and the existing network condition and to automatically optimize the environment and provide a better end user experience.

15 CHALLENGES & SUCCESS STORIES AT THE STATE & LOCAL LEVEL

State and local governments are the single largest employer in the United States. Like any large corporation, they are saddled with some enormous and seemingly intractable challenges. But state and local governments are also home to some of the most innovative and mission driven employees. Learn how fifteen different communities overcame major challenges to change the way government operates.

Miami-Dade County, Fla.

"One man's trash is another man's treasure, and the by-product from one food can be perfect for making another."

– Yotam Ottolenghi, chef

THE CHALLENGE: Garbage trucks get as little as three miles of gas per gallon, according to a report by the University of Nebraska. (For comparison, the Environmental Protection Agency says a compact car gets an average 23.6 miles per gallon.) With gas prices hovering in the $4-per-gallon range, garbage trucks are costing cities a fortune — and taking a toll on the environment — a double whammy.

THE SUCCESS STORY: One reason these trucks get poor gas mileage is the start and stop nature of picking up trash. In Miami-Dade, officials decided to use that cycle to power their vehicles by using hydraulic hybrid trash trucks that store braked energy.

Have you ever been stuck behind a garbage truck as it makes its way around your neighborhood? If so, you know slowly it goes. A toddler could probably pass the garbage truck on foot. While crawling around your block, a truck is using gallons of gas and expelling hazardous pollutants into the air.

As a result, many cities have been looking for cost savings in the form of alternative vehicles. Daniel Vock wrote in "A Quiet Revolution in Trash Trucks" in Governing, "Cities have looked to natural gas trucks, which can save on fuel costs, but the up-front costs are significant — roughly $30,000 per truck. Garbage trucks can also run on the methane captured from the same landfills where they drop off their payloads. Bacteria breaks down organic waste to produce the methane, which is then filtered and compressed for use in the trucks, but that process can be time consuming."

Miami-Dade has found a great solution in hydraulic hybrids, which it has been using for the past four years. Thirty-five of the county's 200 side-loading garbage trucks are now hydraulic, 15 of which were purchased through an EPA grant.

"The trucks, which store energy using liquid tanks, use a diesel motor to charge the tanks when the truck is first turned on and also to travel at speeds faster than 45 mph," reports *Governing*. "Once the truck is moving, though, brake energy is stored in the tanks. What that means is that during the stop-and-start pickup cycle, the trucks run mainly on stored brake energy. The hybrid trucks reduce fuel consumption by 40 [percent] to 45 percent. "

The savings don't stop with gas, though: The hybrids also save money on brake replacements. The stop and start method meant historically the brakes had to be replaced multiple times a year. However, because the hybrid trucks use a separate braking system to recapture energy, the breaks don't wear down.

"Miami-Dade has seen fuel consumption drop by more than 50 percent, or about $35,000 a year per truck," reports the Orlando Sentinel. That success led other areas in the state, including Orlando, Hialeah and Panama City, to sign on for hybrid-hydraulic vehicles.

Boulder County, Colo.

> "The way a team plays as a whole determines its success."
>
> **– legendary baseball player Babe Ruth**

THE CHALLENGE: About 70 percent of Boulder County's Section 8 (housing choice voucher) clients also receive food assistance from the Supplemental Nutrition Assistance Program (SNAP), according to a report by Data-Smart City Solutions. Section 8 and SNAP benefits come from two different branches of government — branches that often fail to communicate regularly.

THE SUCCESS STORY: Boulder officials decided to get the departments talking by merging them. The county created the Department of Housing and Human Services so families can receive all their government-provided services in one place. As a bonus, Boulder was able to save resources and identify more families in need of assistance.

You often hear stories of people falling through the cracks of the justice or social service systems. Boulder County officials wanted to reduce oversight and make things easier for residents by merging its housing and social services departments.

That consolidation let the county streamline operations and leverage resources for families receiving services and benefits from the two service areas. For example, roughly three-fourths of families who receive housing vouchers also receive food assistance. For the city, it was difficult to track the resources being allocated to a resident from two departments, and for the resident, it was difficult to track down the right government employee to ask questions.

By merging the departments, Boulder County reported to Data-Smart Cities, it was able to "generate a more self-sufficient, sustainable and resilient community by focusing on removing barriers to services, and moving the system upstream towards an early intervention and prevention model."

In addition to the merger, the county also invested heavily in technology, creating an integrated service delivery and technology tool that provides a more comprehensive view of each client's situation.

"The team worked together to update the county's Efforts To Outcomes (ETO) case management software, a tool developed by Social Solutions," reports Data-Smart Cities. "The technology allowed caseworkers to input client information into a comprehensive data tracking and analysis system so they could follow their client's progress more closely and share it with other departments."

HHS is working to automate as many of these systems as possible to ensure data is being tracked consistently and efficiently.

With these tools, caseworkers are better able to identify opportunities to apply the early intervention and prevention approach to create holistic care. One administrator told the Ash Center, "There was a philosophy of wanting to know, rather than speculate, and be targeted on our outcomes and resources. That's woven into everything we do."

The new integrated service delivery system isn't making a difference only for those residents already enrolled in programs — it has also been a powerful tool to reach out to those who weren't being served. "Boulder County has been able to expand the number of residents receiving services by 140 percent, focusing on front-end and early intervention measures to prevent more costly services in the future," reports the Ash Center.

The integrated approach is also helping Boulder with the implementation of the Affordable Care Act – the new health care law. "By analyzing information shared across the agency, the staffs are able to identify clients in one program area who may be eligible for subsidized insurance or Medicaid coverage, and can then send out notifications to encourage enrollment," Data-Smart Cities reports.

The Commonwealth of Pennsylvania

> "We can lick gravity, but sometimes the paperwork is overwhelming."
>
> **–Wernher von Braun**, a former NASA rocket scientist

THE CHALLENGE: Pennsylvania's executive branch hires 600 employees each month on average, according to the commonwealth's Office of Administration: "Historically, state agencies managed new employee onboarding through local, manual procedures happening at more than 3,600 work site locations," reports NASCIO. "This decentralized process was time-intensive and required the distribution, management, collection and processing of nearly 15,000 paper forms each year."

THE SUCCESS STORY: The first step to fixing the decentralized onboarding issue was to bring all of the commonwealth's human resources functions into one building. The new HR hub handles all personnel issues from hiring to retiring and everything in between. But Pennsylvania didn't stop there; it also created a new digital onboarding program for all new-hires, which saved millions of dollars this year.

When you start a new job, the onboarding process can seem endless. You have your technology trainings, security trainings — even getting your e-mail set up can take a day or two. Pennsylvania is working to streamline that process by going digital.

Rather than maintaining an HR function in each department, Pennsylvania's single HR office completes all employee services, including benefits, payroll and health care. The consolidated office provides customer service to 80,000 employees and 13,000 supervisors, as well as 38 agency HR offices and executives.

Bringing all the HR functions into one building has been a huge cost savings for the state. "We have saved the commonwealth of Pennsylvania about $3.5 million a year," said James Honchar, Pennsylvania's deputy secretary for human resources, during an interview with GovLoop. "We were also able to reduce about 70 HR professional positions."

As in most places, new-hires in Pennsylvania have to complete an extensive orientation process. For example the commonwealth's employee handbook states that new employees must "acknowledge workplace policies; enroll in medical benefits; and complete other work-related tasks typically overseen by human resources." To streamline processes and move away from paper forms, Pennsylvania deployed online onboarding software last year, simplifying the orientation process and cutting costs.

The online onboarding system links to Pennsylvania's internal enterprise software for HR, payroll and budgeting. Once an agency has made an offer, and the person has accepted the job, HR will then reach out to that new employee via e-mail. The onboarding system will provide a link with a unique temporary user ID and password.

"Based on the position for which they're hired, they will go through our onboarding process online specific to the specific benefits and entitlements that they have that go along with that position," Honchar said.

The onboarding process can also help train employees before they start. "A new employee will travel through our online process — we call them tours," Honchar said. "Their tour will involve things like enrolling themselves and their dependents in a health care plan — medical, prescription, dental, vision plans — enroll in our pension plan, and then the other tour is more focused on what are our agency-specific policies that we have that go across the entire enterprise."

And if you aren't too tech-savvy, don't worry; you can still onboard the old-fashioned way. "We have employees that are hired that may not have access to technology throughout most of their workday — for example, our corrections officers. They can call our service center, and contact one of our live representatives that would enable them to literally walk them through the portal," Honchar said. "If they still feel uncomfortable with that, we also do have a manual process that helps with the offline process where they can fill out the paperwork in effect, and then either our HR service center or the agency can actually then make sure that is transmitted into our system."

While this process has been understandably revolutionary for new employees, it is also having a major effect on managers.

"Managers have been cleared from the ancillary type of work, and their new employee literally can hit the ground running because we have all of this proprietary information from the employee in advance," Honchar said.

The program has been so successful it is spreading to other states. During the summer of 2014, Michigan tested an onboarding implementation overhaul modeled after Pennsylvania's.

San Francisco, Calif.

> "Help, I need somebody, not just anybody!"
>
> **– the Beatles**

THE CHALLENGE: When you think of San Francisco you probably think Silicon Valley. But the real story was that the city faced a number of seemingly intractable technology challenges and didn't have the resources or personnel to make the necessary changes.

THE SUCCESS STORY: San Francisco officials decided to ask their tech-savvy residents for help. They created a four-month Entrepreneurship-in-Residence program. The program paired city departments with tech all-stars to create new tools and improve government services.

Government is home to some of the most outdated and seemingly intractable technology problems. It also has some of the tightest resources. So what can it do? San Francisco did the unthinkable: Officials asked for help.

Under the leadership of Mayor Edwin Lee, the city selected six startup companies to participate in a new Entrepreneurship-in-Residence (EIR) program.

"The voluntary 16-week collaboration paired private-sector teams and city departments to explore innovative solutions to civic challenges that can lower costs, increase revenue and enhance productivity," Lee said in a press release.

"In San Francisco, we work to build key partnerships between government and the private sector," said Jay Nath, the city's chief innovation officer, during a GovLoop Online Training session. "We have modeled our mayor's Innovation Fellowship Program off of the Presidential Innovation Fellowship and Code for America. We are finding new ways to bring the more than $140 billion tech dollars that are around San Francisco and leverage them in the government."

When San Francisco officials asked for help, the response overwhelmed them. Nearly 200 startups from 25 cities and countries applied to the program.

San Francisco released details on the first six projects:

- MobilePD (gomobilepd.com) worked with the San Francisco Police Department on public safety and civic engagement. It's a mobile technology startup that enhances social engagement with the community to reduce crime.
- Birdi (getbirdi.com) worked with the San Francisco Department of Public Health on air quality and health issues. Birdi is a smart device startup that measures air quality and other public health concerns and provides recommendations on how to improve individual and neighborhood air quality.
- Indoo.rs (indoo.rs) worked with San Francisco International Airport on enhanced navigation and location-based services. Indoo.rs is an Internet of Things startup that provides location-based services, indoor navigation and advanced sensors.
- Synthicity (synthicity.com) worked with the San Francisco Planning Department on new simulation, planning, and urban development tools and technologies. Synthicity is a software startup that builds simulation tools and solutions for urban development and planning.
- BuildingEye (buildingeye.com) worked with the San Francisco Municipal Transportation Agency to engage residents and communities. BuildingEye is a software startup that makes permit and noticing information easier to discover through a mapping interface.
- ReGroup (regroup.com) will work with the San Francisco Department of Emergency Management on enhanced communication services so that the city is better prepared. ReGroup is a software startup that provides multi-channel emergency notifications.

"The entrepreneurial products and services developed through San Francisco's EIR program should drive significant impact such as increased revenue, enhanced productivity or meaningful cost savings," Nath said.

The first cohort of EIR projects ended in July 2014.

Awesome 5 City Websites

Austin, Texas

The site allows users to search by categories, resident, business, development, government and environment. It also has a feature to pay online for government services right on the homepage.

Riverside, Calif.

If you need help or the latest emergency information, the site features its 311 emergency services front and center. The site also has a scrolling bar of the latest government news and resources.

Raleigh, N.C.

The site includes its top five updates and resources on the home screen. It also makes it easy to pay utility and other bills by having a pay feature in the top corner of the site.

Tampa, Fla.

The site is sectioned into four distinct quadrants: Make a Payment, At Your Service, Check on My Permit and Follow City of Tampa. The site also features a large icon to get Tampa-area alerts sent directly to your phone.

Denver, Co

The site allows users to view video messages from community and government leaders right from the homepage. The site also makes it easy to search for events, departments and services with a large search box.

FINANCIAL TRANSPARENCY WILL BUILD TRUST

*An interview with **Ari Hoffnung**, Senior Advisor, Socrata*

Achieving transparency of any kind is a hefty task for governments to take on. Many are starting to move toward this goal by electronically publishing the most requested forms of data first. Financial data is not only at the top of this list, but it's also some of the most complex data to both filter and navigate. One of the best ways to mitigate these issues is to create a real-time financial dashboard.

Former Deputy Comptroller for New York City and founder of Checkbook NYC, Ari Hoffnung is an expert advisor on managing and publishing financial data. His brainchild, Checkbook NYC, is regarded as one of the best financial transparency applications in the country. It provides unprecedented access to track how the government of New York City spends its $70 billion+ annual budget. Hoffnung now works with Socrata to build a suite of financial transparency applications for governments of all sizes. GovLoop sat down with Hoffnung to learn more.

Why is financial transparency so critical for state and local governments?

Hoffnung: Taxpayers want to know exactly how their hard-earned money is being spent. A 2011 Gallup poll found that Americans believe that state governments waste 42 cents on the dollar and local governments waste 38 cents on the dollar. I understand the sentiment that government is wasteful and I don't think anybody that's worked in government would argue that there's absolutely no waste.

With that said, I also don't think that anybody who's worked in the private sector would claim to have seen no waste. But the fact that so many folks believe that nearly 50 percent of government spending is wasteful is very alarming and points to a deep mistrust between the public and government.

I attribute this mistrust to the fact that too few people understand how government spends their money. To me, financial transparency is a great way to address this disconnect and to restore the trust between government and the public. Governments ought to provide taxpayers with an easy way to see how their hard-earned money is being spent.

How would a city government ballpark the cost savings from investing in financial transparency?

Hoffnung: Let's take a city like Boston that recently deployed Socrata's Open Budget application. Boston's budget is approximately $3 billion. Imagine if they were able to save one percent of their budget by making better decisions. One percent of $3 billion would be $30 million; that's a lot of money. If somehow that sounds too high, let's say they were able to save 0.1 percent by making better decisions. That's still $3 million. I think that most people would agree that government could save 0.1 percent of their budget by investing in financial transparency.

What is the best way for state and local governments to reveal financial information to the public?

Hoffnung: Dashboards are one of the most effective ways. I was privileged to spearhead the Big Apple's Checkbook NYC project. We took over $70 billion of annual spending, and put it online so that every day taxpayers can now see how their hard earned money is being spent.

When you can log into to a user-friendly website to see how government spends money, you are less likely to think your tax dollars are being thrown down a big black hole.

What would you like to see governments do next with financial transparency?

Hoffnung: One of the reasons I joined Socrata is because I wanted to see other state and local governments adopt financial transparency, dashboards, and applications. It's really important that governments across this country have the tools to share their information online. It cost NYC $3 million to build Checkbook NYC. Now, at a fraction of that cost, you can have something very similar with Socrata's suite of financial transparency applications. Governments of every size can now leverage best practices and offer their taxpayers full financial transparency at an affordable cost.

Besides building trust with the public, why is financial transparency important?

Hoffnung: In addition to strengthening democracy, financial transparency saves taxpayer money. For example, the state of Massachusetts reported that by posting state contracts online, bids for transportation projects came in 15 [percent] to 20 percent below the state's initial bid. There are many other examples like this. Having been actively involved in financial transparency initiatives for nearly five years I am convinced that it is one of the best possible investments for a government to make.

Interestingly, the biggest cost savings in my mind is the one that's the most difficult to quantify —the cost savings from human psychology. When people like government officials or contractors know that their financial decisions will be placed in the public domain to review, they make better decisions.

By making government more transparent, the taxpayer will be able to see how their money is being spent and hopefully that will help to rebuild trust.

Fort Worth, Texas

"I think the currency of leadership is transparency."

– Howard Schultz, former chief executive officer of Starbucks

THE CHALLENGE: The open data movement has the potential to effect governing and civic engagement at the state and local government levels. But today very few agencies are actively providing open data. It is often confusing and expensive for them, and there are few implemented standards — datasets are described in very different ways.

Still, officials at many local governments understand the importance of open data, and are more frequently offering open data policies. But only 46 U.S. cities and counties have open data sites. That leads to the question of how to open your state- or local-level data, display it, build a good portal and get citizens to interact with it.

THE SUCCESS STORY: The city of Fort Worth is taking steps in the right direction toward an open data display site. It recently launched its first open data portal.

"When I came into office, that was one of my campaign promises, that we would get Fort Worth into this century on technology and that we would take a hard look at open records requests and requests for data," Mayor Betsy Price said in an interview with the Star-Telegram. "It goes a lot further to being transparent and letting people participate in their government and see what we are doing. It is the people's data, and it should be easy to access."

The website, data.fortworthtexas.gov, offers data and documents such as certificates of occupancy, development permits and residential permits for download in several formats, including Excel and PDF. Not all datasets are available yet — the city said its priority was to put the most-requested data on the portal first. Next up? Crime data, code violations, restaurant ratings and capital projects progress.

City officials' ultimate goal is to create and adopt a full open data policy. As part of the launch, they are also looking for local software developers and designers who want to help guide the open data initiative. Those interested in participating can sign up online to receive more information.

Fort Worth is getting kudos from those outside the city for its efforts. Crime mapping company SpotCrime noted that it had been listing Fort Worth crime stats on its site, but had to use FOIA requests to get crime data from the department for the past five years.

"We often complain about cities who don't share crime data openly or move away from transparency and don't give enough kudos to cities who move in the right direction," SpotCrime officials recently wrote on the company blog. "Well, we'd like to say: Way To Go Fort Worth, TX!"

Dubuque, Iowa, & Rochester, Minn.

> "Data really powers everything that we do."
>
> **–Jeff Weiner**, chief executive officer of LinkedIn

THE CHALLENGE: Everybody knows that big data is big news. And you have plenty of bigger cities that are taking advantage of it. Chicago, Seattle, Boston and San Francisco have been pioneers in using big data and predictive analysis to create more efficient processes and better constituent services. But many midsize and smaller cities aren't taking advantage of big data possibilities for a variety of reasons. For one, smaller cities and municipalities rarely have the resources, money or know-how to take advantage of the potential that big data could offer them.

THE SUCCESS STORY: Dubuque, Iowa is challenging the notion that only big cities can take advantage of big data with an energy data collection effort. It launched a public/private partnership pilot program that helped the city collect data and information on water usage levels.

Everybody is buzzing about big data and its potential applications for government, and cities like Seattle and Chicago have made it a mainstay of their governing efforts. But it's not so easy for smaller cities and local governments. Limited resources or untrained staff can make it difficult to take advantage of big data. Other challenges include cultural and organizational attitudes toward implementing new technology or data collection, and siloing of information and standardization of datasets and types.

But Dubuque is actively trying to change that. The city deployed a smart meter solution that offered real-time monitoring and analytics on citizens' water consumption. "Pilot study participants had access to new technology that provided data and insights into how water can be utilized more efficiently in their home," states a release on Dubuque's website. "The data will also help the City make better decisions about water production and distribution, ultimately lowering costs."

Dubuque also launched a smart phone application with radio-frequency identification technology to collect data on how, when and where citizens traveled within the community. The city analyzed and used the data to implement practices and policies that incorporate lower-cost and lower-impact travel options within Dubuque.

Another place that's proven small cities can make effective use of big data is Rochester. In 2013, the city's police department built a data-scanning, identity-researching smart phone app to use on the ground. How it works is relatively simple, according to a recent article in *Fast Company*: "Officers punch a license plate number into the app, which runs queries in a system called InfoSphere Identity Insight which the department leverages. The app then does a very quick analytical deep dive look into anyone who has been associated in any way, shape, or form with this vehicle; (that information) goes through a filter to find pre-identified prolific and serious offenders, anyone with a warrant, and anyone on probation. All of that information is then delivered back to officer on the street within five to 15 seconds."

How can your department start thinking about using big data to create efficiencies and other solutions? Creating a public/private partnership as Dubuque did is one way; making sure you bolster your human capital with analytics and big data skills is another. First and foremost, though, you must think of a pressing problem and see how big data might address it.

Oakland County, Mich.

> "Alone we can do so little; together we can do so much."
>
> **–Helen Keller**

THE CHALLENGE: How can a city or state stay up-to-date with the latest technology? How can you be on the cutting edge without going broke? Does your city even have the resources to create a cloud solution?

THE SUCCESS STORY: The key is to share the wealth. In February, Oakland County and the National Association of Counties (NACo) teamed up to create an Application Store to share the knowledge and technology tools developed in some of the most forward-thinking cities.

Government employees have a tendency to go it alone, a tendency to think that their challenges and requirements are so unique they need their own solution. This is especially true when it comes to procuring new technology such as the cloud. But as budgets squeeze, going it alone is no longer possible.

Enter Oakland County and NACo. These two groups teamed up to create G2G Cloud Solutions, a service that provides cloud solutions to other government entities. Through G2G, they look to improve government services by sharing technology with other government agencies at little or no cost.

Over the years, Oakland County has provided shared computing services to 62 local jurisdictions. Now that initiative is going national. According to a NACo press release, "NACo will provide funding and governance to leverage this shared services model into a national system available to America's more than 3,000 counties, boroughs and parishes, and they'll call it NACo's Application Store."

One solution in the store is G2G. "G2G is a 'government-to-government cloud' that, with the help of private-sector partners, provides computing services to other counties and municipalities using an upgraded cloud platform," according to the description of the service on the G2G website.

The Application Store works by leveraging the power of the collective: If one community finds a simple solution, it can share it with the rest of the country. "NACo's Application Store aims to draw counties into mutually beneficial relationships around [information technology] systems," NACo said. Think of it like collecting money for a group gift instead of individually purchasing a present. You save time and the hassle of having to go it alone.

Essentially, the store works like iTunes. "Access Oakland includes 50 products and services and generated $17 million in gross revenue as of last year, with $750,000 in net revenue reinvested into the technology," according to *Government Technology*. "The application has been updated for the cloud and rolled out to six different communities, including Auburn Hills, Mich. City residents can now use the payment system to pay local taxes, parking tickets, special assessments and utilities."

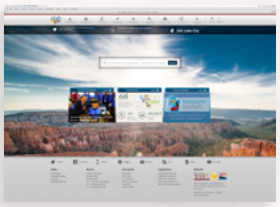
Other Oakland County applications that will be available are services registration applications for things like flu shots, restaurant inspections and animal licensing.

But Oakland isn't the only county adding to NACo's Application Store. Another contributor is Orange County, Calif. Officials there added a resource that helps standardize records, centralize management and reduce costs. It's called the Standard Data Project. So far, it has reduced the cost by $60,000 for each of the 40 counties currently enrolled.

And if you aren't ready to buy any of the services from the Application Store, don't worry. You can still find best practices, requests for proposals, inter-local agreements and other legal documents that have successfully created and maintained long-term relationships.

The website asks, "Why spend months developing an agreement when another county may have one that would work?" The answer is you shouldn't.

Awesome 5 State Websites



Utah

The Beehive State uses a clean interface with a search bar in the middle of the screen for ultimate navigation. The site also features a real-time dashboard of available jobs, upcoming public notices and the closest offices, schools, libraries and parks.

Alabama

The Yellowhammer State asks you to connect with the government upon landing on the homepage. The site also has a design feature that helps you navigate as a resident, professional or businessperson.

Colorado

The Centennial State site helps users navigate by asking if you are searching for work, play or how you live. The site also features an app to help you search for new state legislation.

Georgia

The Peach State site features a sidebar with the most popular search topics, including how to apply for food stamps or a business license. It also has a feature on the most-viewed agencies and departments within the site.

Indiana

The Hoosier State site allows you to search for either an agency or a person. It also keeps track of today's headlines, so users can get the latest news at a glance.

Los Angeles, Calif.

"The way humans hunt for parking and the way animals hunt for food are not as different as you might think."

–Tom Vanderbilt, Traffic: Why We Drive the Way We Do.

THE CHALLENGE: **Los Angeles is well known for its traffic congestion. The 20.7-mile stretch on the Riverside Freeway between Costa Mesa Freeway and McKinley Street is the most congested piece of road in the country, according to the National Highway Traffic Safety Administration (NHTSA). All of those cars on the road also make parking a nightmare.**

THE SUCCESS STORY: **Los Angeles officials decided to flip the script on parking. They created LA Express Park, a pilot program that uses smart meters and sensors to match on-street parking prices with demand. "Based on demand information, a pricing algorithm recommends parking rates for various times of day that are designed to ensure that meters are used but that no area is overly congested," the Ash Center reports.**

Have you ever circled a small area for what seems like hours looking for a parking spot, only to end up down some dark alley because you just got frustrated and gave up? If you live in Chicago, Boston, Washington, D.C., or San Francisco, you have probably had these experiences on a daily basis. The Washington Business Journal estimates that parking in Boston will set you back $33.50 a day and $405 a month.

There has to be a better way. Enter LA Express Park. It fuses technology and demand-based pricing into an innovative parking management strategy.

"Created as one component of the Los Angeles Congestion Reduction Demonstration with $15 million in grants from the U.S. Department of Transportation and $3.5 million in city funds, the program uses technology to help the city realize its goals of increasing the availability of limited parking spaces, reducing traffic congestion and air pollution, and encouraging use of alternative modes of transportation," according to the city's website.

Basically LA Express Park gives drivers several ways to find where parking is available with a click of a button. Currently, the Parker and Parkme applications provide information to guide users to available parking spaces, and the Parkmobile pay by phone application allows customers to pay for parking at selected spaces in the program area using a cell phone.

The free app uses a demand-based pricing concept. When demand for parking is low, rates are low. When demand is high, rates increase. "The concept helps motorists decide when to make trips and whether to use alternative modes of transportation based on where there is available parking and how much it will cost," Governing reports. Because parking patterns change continuously, adjustments to LA Express Park rates take effect on the first Monday of each month and are made public in advance.

The city is already seeing impressive results. Los Angeles reports that revenue is up by 2 percent, thanks to better use of parking spaces and the increased rates in high-demand areas.

Frederick County, Md.

> "Technology made large populations possible; large populations now make technology indispensable."
>
> **–Joseph Wood Krutch**, writer

THE CHALLENGE: In January 2013 a house fire killed two small girls in Maryland when a fire engine went the wrong way and got stuck turning around, delaying its response by as much as an hour, according to a post-incident analysis in the *Frederick News-Post*. Emergency personnel need the most up-to-date information, but that isn't always possible without laptop computers in the vehicles.

THE SUCCESS STORY: Emergency personnel are connected to one another by police scanners and two-way radios, but they don't give you the capabilities of a laptop, so you can't see the whole map. In Frederick County, officials solved the problem by installing more than 170 laptops in ambulances, fire engines and trucks. The computers, part of the Mobile for Public Safety effort, are fully equipped mobile data terminals.

Smart phones have revolutionized the way we live and work, but at the end of the day a smart phone can only do so much. You often still need a laptop to coordinate data and see a clear picture of an entire scene.

That's why Frederick County officials implemented Mobile for Public Safety. The idea was simple: Get all emergency personnel to see the same picture.

The laptops also help the department centralize under one IT system. The county is using the program to "link all major apparatus directly to the county's computer-aided dispatch system. The County is hoping the use of terminals could reduce radio traffic, which can cut down on confusion among crews," reports Governing.

Basically, an emergency medical technician will see the same clear picture as a firefighter and a police officer. "For example, a firefighter can pull up a map of a neighborhood and see where the closest fire hydrant is to the incident. The goal is to improve safety and efficiency, county fire and rescue services," fire and rescue Chief Denise Pouget told the *Frederick News-Post.*

"In addition to displaying maps, the software shows first responders who have been dispatched to a scene and which tasks have been assigned to whom," *reported Government Technology.* "The software, from Intergraph, will provide such information as the hospital a patient has been taken to and will allow crews to maintain contact with county communications on their operational status. Problems and updates to the map and with radio coverage can also be reported via the terminal."

The laptops also help emergency personnel keep track of patients being rushed to the emergency room and who is currently assigned the patient. For example, if an ambulance responds to the scene of a crash, the system will tag not only the EMTs, but the police officers on scene too. As an added benefit, the system can be updated by radio coverage, too.

Just like the Global Positioning System in your car, this system will need to be constantly updated to have the most relevant information, but the county is prepared. "County information technology and geographic information systems employees have helped configure the software to the department's needs. The software will continue to be updated with information including new roads and neighborhoods, and the operational status of hydrants, 'pretty regularly,'" Stephani Stockman, a county software integrator told the News-Post.

The rollout cost the county about $450,000.

Other counties are turning to technology for public safety efforts. New York City's Fire Department used a tablet approach during the weeks leading up to Super Bowl XLVIII. Nearly 300 events spanning 200 square miles, two states, 15 counties and 22 cities required public safety attention.

FDNY used an online application to deliver approved pre-plans and intelligence data via maps and mobile apps that could be shared anywhere, anytime. FDNY was able to deploy a mobile solution to help inform field users, making information readily available, whether accessed on a tablet, desktop, browser or smart phone, saving time and money. You can learn more in GovLoop's report, How GIS Helped Secure Super Bowl XLVIII.

Houston, Texas; Louisville, Ky.; Newark, N.J.; Savannah, Ga.; & St. Petersburg, Fla.

> "Today we have access to highly advanced technologies. But our social and economic system has not kept up with our technological capabilities that could easily create a world of abundance, free of servitude and debt."
>
> **–Jacque Fresco**, futurist

THE CHALLENGE: The Houston Chronicle reported that Houston was owed nearly $80 million in collectible overdue water and sewer bills. And Houston isn't alone. Many urban and rural cities are shutting off water to thousands of homes every year.

THE SUCCESS STORY: Five cities — Houston, Texas; Louisville, Ky.; Newark, N.J.; Savannah, Ga.; and St. Petersburg, Fla. — are using an innovative program to help residents pay their utility bills on time. It's called Local Interventions for Financial Empowerment through Utility Payments (LIFT-UP) and it allows participants to make smaller down payments on their utility bills in exchange for taking classes on how to improve their economic situation. It's a win-win for the city and the residents.

When you think of how a city collects money, you usually think taxes. But that isn't the only source of revenue — water bills are also a major contributor. However, when personal budgets get tight, water bills are often one of the first things residents choose to skip.

Case in point: "City finance officials reported to the city…that there is $80 million in 'potentially collectible' overdue water and sewer bills," the *Houston Chronicle* reported." The $11 million the city will more aggressively pursue is from customers who actually can have their water shut off because they are delinquent enough and still have an active account."

So how can a city help its residents get back on their feet and collect on past-due bills? The answer is LIFT-UP.

The National League of Cities says the program will help low-income families pay their utility bills and achieve financial stability.

Here's how it works:

- Requirements — Participants must be utility customers who have had their water cut off at least once in the past two years and now owe $150 to $500.
- Smaller Payments — Participants can make a smaller (25 percent) down payment to keep the water running. They can also extend the timeframe for repaying the rest of the debt from the usual 10 days to four months.
- Attend Class — In exchange for participation, utility customers must do a one-on-one financial counseling session with a nonprofit provider.

The five cities testing the program report that about a third of utility customers have late payments. Although all five cities will use the LIFT-UP model, each will incorporate its own requirements.

The economic education element of the program is a big draw for many participants. "During the session, residents get help strategizing ways to keep up with future bills," Governing reported. "The nonprofit also helps them see if they are eligible for public assistance programs, such as food stamps, Medicaid, childcare assistance and subsidies to pay energy bills."

Tennessee Highway Patrol (THP)

> "Since you cannot do good to all, you are to pay special attention to those who, by the accidents of time, or place or circumstances, are brought into closer connection with you."
>
> **–St. Augustine**

THE CHALLENGE: In 2012, Tennessee had a population of just less than 6.5 million, yet it had more than 70,000 traffic accidents and more than 900 fatal car crashes — some of the highest rates in the country, according to NHTSA.

THE SUCCESS STORY: To help reduce accidents THP has begun to use a predictive model to find where the worst crashes occur during certain times of day. "THP uses a software model that predicts where crashes and other safety problems will occur by looking at four-hour segments in 30 square miles," State Smart Transportation Initiative (SSTI) reports. "This allows police officers and resources to be efficiently dispatched to specific areas to either prevent or respond to anticipated high-risk situations."

Almost daily the nightly news is filled with stories of major car crashes. NHTSA's Fatality Analysis Reporting System found there were 30,800 fatal motor vehicle crashes in the United States in 2012, 33,561 of which were deadly.

The Insurance Institute for Highway Safety found national motor vehicle crash death rates of 10.7 deaths per 100,000 people and 1.14 deaths per 100 million vehicle miles traveled. The fatality rate per 100,000 people ranged from a low of 2.4 in Washington, D.C., to a high of 24.3 in North Dakota. The death rates per 100 million vehicle miles traveled ranged from 0.42 in D.C. to 1.86 in North Dakota.

THP officials wanted to do something about the startling statistics, so they created Crash Reduction Analyzing Statistical History (CRASH). SSTI states that CRASH works by imputing multiple data inputs, including special events — sporting events, festivals, holiday events — weather and historical data. Instead of simply identifying problem locations in the long term, the model looks at four-hour segments and 30 square mile areas. This allows police officers and resources to be efficiently dispatched to specific areas to either prevent or respond to high-risk situations.

In two years, the program has reduced traffic accidents. "In its first six months, CRASH has had a crash prediction accuracy rate of approximately 72 percent," the International Association of Chiefs of Police found. "Traffic fatalities are also down about 5.5 percent from last year."

In essence, the predictive tool allows police to be a stronger force in high-crash areas depending on the time of day and traffic patterns.

"In addition to the crash-focused model, the THP is also deploying a model aimed at predicting where and when drivers who are under the influence of drugs or alcohol will be on the road," SSTI reports. "One of the factors that program considers is the location of places that sell alcohol under an Alcoholic Beverage Commission license."

The entire CRASH program cost $243,000 and was funded by federal grants through the state Governor's Highway Safety Office, according to THP.

Both CRASH and the new predictive model came from a similar modeling of crime in Memphis called Blue CRUSH. The Memphis Police Department describes Blue CRUSH as a tool that helped them target hot spots for forcible rape, gun violence and other crimes by analyzing data and finding patterns. From 2008 to 2009, offenses decreased by more than 7 percent.

"EYES IN THE SKY, VIDEO SURVEILLANCE MADE SIMPLER"

*An interview with **Ted Hayduk**, Global Solution Architect for Video Surveillance Solutions, NetApp*

Protecting your people, places and data is of paramount importance for governments. One way to increase security is to add more video surveillance, but storing all of that data can overwhelm your system. Network video is changing how state and local governments view the traditional security environment. Network video systems are part of the evolution starting with guards at the door to fire alarms to advanced security systems. Now video surveillance is allowing law enforcement agencies to be in more places while still saving time and money. One of the leaders in video surveillance is NetApp. GovLoop sat down with Hayduk to learn more.

How is video surveillance helping government run more effectively?

Hayduk: In the law enforcement or public safety arenas, video surveillance is used as a force multiplier. It's used to help the officer be able to identify suspects, document environments and be able to put cameras in different environments. For law enforcement it is all about the quality of the image.

In the legacy environment, you are limited on what you can do for resolution based upon the type of technology that was available for surveillance work. Now you have digital video, or IP based video and network-based video. You also have the growth from the cellphone world and smartphones with very high quality images, which brings the price down from the industry perspective. So now you look at this as more of an information technology opportunity rather than just a pure physical security infrastructure -- and that allows change and growth to take place.

In law enforcement, accurate data is incredibly important in terms of compliance and safety issues. The better the image, the better you can accomplish the mission objective [keeping communities safe]. As the images get better and more affordable, we can accomplish different types of use cases.

Can you give an example of how the surveillance works in government?

Hayduk: NetApp's lineage goes back to the defense world. The Defense Department put a spec together for a modular system that uses standard power – it goes in a standard EI 19 inch rack and uses state of the art processing capabilities.

There were also disk storage requirements. The system had to use the best data integrity environments available, because the data that you're capturing isn't going to be backed up, it's going to be on aircraft carrier, in a control aircraft or submarine.

The system had to be very high performing, very high density, with robust data integrity, and also had to be maintained by a 19-year-old enlisted technician with limited IT servicing skills.

NetApp created that system. Now we have over 720,000 of these systems installed in every kind of embedded application that you can imagine. And it's not just in the Defense Department; you cannot buy food, use the internet, consume electronic media, travel or make a phone call in North America without directly touching our storage.

What makes NetApp's storage unique?

Hayduk: We can put a lot of storage in a very small footprint. We make it extremely reliable, and do so at a cost point that is very affordable over the lifecycle.

For example, a state juvenile welfare agency has 26 centers for troubled kids. The data on the kids is under regulatory authority and Center administrators have to keep the records for one year. Traditionally, administrators would use a standard security integrator that does not have the capability to store 32 terabytes per installation and couldn't standardize the data across 26 different locations. So that was a good use of our product -- to be able to standardize a distributed application, provide them the levels of reliability and maintainability for a larger storage set, and then grow it.

What makes us unique is the relationship we have with IT organizations because we provide the storage for their other mission critical applications. So video surveillance is, in many cases, raising the bar in mission critical and true enterprise cause applications. And when we bring that skill and expertise to the table in the product sets that are designed and optimized to handle that capability, it makes life easier for the integrator because we've got a training program of how to support them.

What is on the horizon for NetApp?

Hayduk: We are going to continue to make storage more affordable and easy to use. Just think about if you had every police officer wearing a camera while they're performing their job? That's thousands of hours of video per jurisdiction per day. NetApp's Video Storage solution provides a complete line of external storage systems. Our true pay-as-you-grow solution addresses the new big video data storage requirements.

Philadelphia, Penn.

"A decent and manly examination of the acts of government should not only be tolerated, but encouraged."

– former President William Henry Harrison

THE CHALLENGE: A 2013 Pew Internet Survey found that only 19 percent of Americans have faith in government — an all-time low. One of the reasons for the lack of faith is a lack of understanding of what the government does and how it operates.

THE SUCCESS STORY: Philadelphia created the Citizens' Engagement Academy, a place where the government is actively working to educate the public about how it operates. Graduates of the school join the Neighborhood Liaison program and become the informal community leaders.

Have you ever thought to yourself, "Why does the government do that?" If not, you probably should have. Sometimes the way government operates doesn't seem to make much sense, but often there is a method behind the actions.

For example, a federal requirement prohibits federal employees from moving furniture in their office. That rule seems a bit odd, but when you consider that the federal government has paid millions of dollars in workers' compensation, it makes more sense.

Understanding the reasons behind the laws and the bureaucratic pace is critical for the government to create a strong bond with the citizens it represents. A stronger bond between the government and the citizen is what Rosetta Carrington Lue, deputy managing director and chief customer service officer for the city of Philadelphia, created with Philly's Citizens' Engagement Academy.

"When I went into community meetings, I saw a strong distrust of the government from the community members" Carrington Lue said. "There were people who are cynical, and said, 'I've called the city so many times and I get no response.' I saw that lack of trust as an opportunity to say, 'We need to better educate our community about how government works.'"

The academy is a free six-week course that provides community residents with an in-depth overview of the roles and functions of the various city departments with special emphasis on success and challenges that are key to their neighborhood.

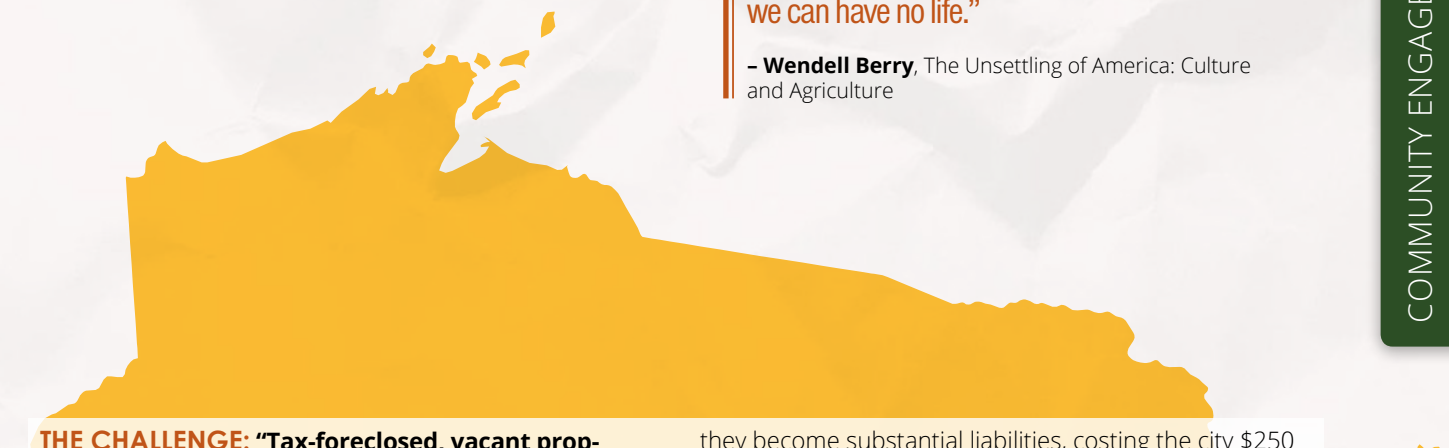
Throughout the program citizens engage in discussions led by city officials and participate in city government.

As a part of the academy, Carrington Lue created the Neighborhood Liaison Program to find informal community leaders, the people who have a vested interest, and teach them how government works. Now the city has more than 1,000 neighborhood liaisons.

"It's not a debate as to whether a program is right or wrong, but more of an education awareness: 'Here's how the water department works, here's how 311 works, or here's how the budget works,'" Carrington Lue said.

Milwaukee, Wisc.

> "The soil is the great connector of lives, the source and destination of all. It is the healer and restorer and resurrector, by which disease passes into health, age into youth, death into life. Without proper care for it we can have no community, because without proper care for it we can have no life."
>
> **– Wendell Berry**, The Unsettling of America: Culture and Agriculture



THE CHALLENGE: "Tax-foreclosed, vacant properties are huge liabilities, costing the city $250 to $1,000 annually in direct costs of upkeep," reports the Ash Center's Steven Goldsmith. Additionally, vacant lots attract crime, reduce property values and eat away at civic morale.

THE SUCCESS STORY: One way to get rid of vacant lots is to turn them into farms. That's what Milwaukee did by creating an urban agriculture initiative to help revitalize distressed neighborhoods.

The economic downturn has left cities nationwide with many vacant lots on their hands. So what do you do with all of these parcels of land? The city of Milwaukee is transforming them into urban farms and orchards. Officials hope the farms create new jobs and locally sourced, healthy food options.

The idea stems from Mayor Tom Barrett's HOME GR/OWN program, a Bloomberg Mayors Challenge finalist. "The mission, beyond increasing access to fruits and vegetables, is to turn the city's growing liability of vacant, foreclosed land into an asset: space for new economic activity that helps to stabilize distressed neighborhoods," reports *Governing*. "When vacant properties in Milwaukee are tax-foreclosed, ending up under city ownership, they become substantial liabilities, costing the city $250 to $1,000 annually in direct costs of upkeep. And there are serious indirect impacts: attracting crime, stymying neighborhood cohesion and development, eating away at civic morale, and keeping property values, wealth creation and supportive tax revenues low."

Converting vacant properties into urban farms is not a quick fix. To jump-start the conversion process, cities must change existing permits and create new city ordinances. They also have to create a guide to help interested parties get set up.

Chicago is also dealing with an onslaught of vacant lots. The city owns close to 5,000 vacant lots in the greater Englewood area alone. But instead of creating urban farms, Chicago is selling the homes for $1 to local residents. NPR reports: "Under the Large Lot Program, homeowners can buy lots on their block for $1, as long as they do not owe back taxes, parking tickets or other debts to the city. Officials say the initial response to the $1 lot program has been strong — it received more than 400 applications to purchase more than 500 vacant lots in Englewood, where the effort began as a pilot program."

Rancho Cucamonga, Calif.

> "How much of human life is lost in waiting!"
>
> **–Ralph Waldo Emerson**, writer

THE CHALLENGE: Most jurisdictions require a permit for adding on to existing structures, and in some cases for major renovations, reports Line Shape Space, a construction firm. Failure to obtain a permit can result in significant fines and penalties, and even demolition of unauthorized construction if it's not built to code. But getting a building permit can be a nightmare.

THE SUCCESS STORY: One reason the permitting process is nightmarish is it requires you to file the permit in person. Rancho Cucamonga officials decided to make the process easier by going digital, creating the Online Land Planning Program.

Have you heard the horror stories about filing for a permit and the subsequent inspections? Did you hear about the inspector who made the electrician pull everything out and start over? Have you been warned not to file a permit because you might "open a can of worms"? What exactly is a rough-in? And why do people say "pull a permit" instead of file for a permit?

If you have ever tried to apply for a building permit, you know it can be a very time-consuming, confusing and frustrating process. You need approvals from one department to give to another. Often it seems like the process is endless. But now, in Rancho Cucamonga, with a few clicks, a developer can request a permit, track and review inspections and pay fees without ever having to step inside City Hall.

"It is all done through the newly launched web-based program Accelarate, which aims to do three things for the city's land planning: create a new and improved permit process system, enhance customer service and speed up the staff's processing of what can be a very tedious paper trail," reports the Inland Valley Daily Bulletin.

Users create a personalized account where they can input any necessary information related to their project. The program is not only for developers; residents who are seeking building permits can also create accounts.For those who are a little less tech-savvy, Rancho Cucamonga has set up a help booth in City Hall to answer questions.

Digital permitting is also making things easier for city employees. "Planning, building and engineering departments as well as the fire district are now all on the same land management system that talks to each other," Annette Feliciani, the city's manager of the project, told *Government Technology*. "A developer or resident can track the progress — and different levels of approval — through their personal account. Once their permit is approved, they can even pay for the fees online."

Wait times have dramatically decreased, too. Information is updated in real time, so the staff and contractors/employees are all on the same page.

Additionally the online system has freed up staff members who are able to focus on critical customer service assistance.

Finally, since going digital the city has been able to upload more than 2,000 existing records and plans to upload up to 50,000 more.

12 Cities Worldwide

> "I am the Lorax, I speak for the trees."
>
> **–Dr. Seuss**

THE CHALLENGE: The Agriculture Department reports that 1 acre of forest absorbs 6 tons of carbon dioxide and puts out 4 tons of oxygen. This is enough to meet the annual needs of 18 people. But maintaining an urban forest is difficult in tight budgetary times. Trees are low on the priority list.

THE SUCCESS STORY: The OpenTreeMap app and interactive platform is a program in 12 cities worldwide. The app helps cities track information about urban street trees by enabling both city staff and the general public to get involved in tracking and saving the urban forest.

It may sound a little strange, but trees play a crucial role in creating a healthy urban environment by improving air quality, reducing energy costs for homeowners and even enhancing property values. Arbor National Mortgage & American Forests reports that 83 percent of Realtors believe that mature trees have a "strong or moderate impact" on the salability of homes listed for less than $150,000; on homes over $250,000, this perception increases to 98 percent. But with tight budgets and resources, it's hard for cities to keep track of the thousands of trees within a community. Cities don't have a Lorax who is willing to speak for the trees.

But some enterprising entrepreneurs have created a digital Lorax, and it's called OpenTreeMap.

Founded five years ago on a grant from USDA's Small Business Innovation Research Grant Program, OpenTreeMap helps cities track information about urban street trees by enabling city staff and the general public to get involved. It essentially gives a city the ability to crowdsource tree information.

So far OpenTreeMap is in more than a dozen cities across the United States, Canada and Great Britain. But, Robert Cheetham, founder of OpenTreeMap, noted that although having a tree inventory is great, the real power comes from turning the tree data into more than just dots on a map.

"Putting dots on the map raises the 'so what?' question," Cheetham said. "We have taken that tree data and applied the iTree protocols developed by the U.S. Department of Agriculture Forest Service. ITree allows people to assess the ecosystem services value of a street tree. So provided we have a species and a diameter breast height for a tree, we are able to assess its value from a carbon sequestration perspective, from a storm water infiltration perspective, from an air quality and energy saving perspective."

The iTree protocol provides a mechanism so a user can get the ecosystem services value of not only that one tree, but also of all the trees in a neighborhood or city.

"We are currently working on adding more to the protocol, so people can prioritize and simulate the future growth of the urban forest," Cheetham said. "Imagine if you are a community planner and you want to plant additional trees, you want to make your case to the community, you can digitally plant several trees along one street and then you can simulate it five, 10, 15, 25 years down the road. You can see what the ecosystems services added will be to the neighborhood. This feature isn't rolled out yet, but will be soon."

Here's a bit more about OpenTreeMap:

- It's available both as a web application and as an Android or iOS application.
- The web application has the most complete functionality; the mobile versions are really designed for people doing editing and for people contributing to their community's tree map while out and about.
- OpenTreeMap is free but you have to create an account. Once you have an account, you're able to edit individual information about the trees and search and find information about trees that has already been entered.
- The online application also enables you to generate maps based on searches. You can say, for example, "Show me all of the red maples in my city."
- OpenTreeMap Version 2.0 is available as a cloud application. It's a subscription service that a city or a nonprofit organization can set up.
- OpenTreeMap was designed to be available as open source software on GitHub. Ashville, N.C., downloaded the code from there.

"The most surprising thing is the degree to which the public is interested, knowledgeable and able to do this kind of inventory work," Cheetham said. "They are committed to improving the data in their communities. We have seen everything from schoolteachers who want to get their students involved to people who are members of tree tender groups."

But just because the app is already successful doesn't mean OpenTreeMap is done. "We are working right now on making the tree data gathering process feel more like a game," he said. "We also want to get schools more involved and integrate the maps into their curriculum."

Awesome 5 State Apps

Explore Kentucky History

The Kentucky Historical Society explores the state's history through its historical sites, markers and landscapes.

Find it Virginia

Your local public library in your hands. Search the catalog for books, DVDs, CDs and more.

Iowa Secretary of State

The Iowa Secretary of State Election app is a single destination for Iowans to find voting information.

Wisconsin Revenue

The WI Revenue mobile app allows Wisconsin taxpayers to use a number of the popular tax-related online services on the Department of Revenue's website.

Delaware Crime Tips

Have a crime-stopper tip? Use this app to assist state law enforcement by providing anonymous tips about criminal activity.

Awesome 5 Local Gov Apps

Boston Citizens Connect

Citizens Connect is a tool for enabling Boston's residents to improve their neighborhoods by reporting issues such as potholes and graffiti.

Ventnor City, N.J.

From reporting potholes to receiving alerts, learn how SeeClickFix will help your neighborhood.

Tampa

Get emergency push notifications from the city during bad weather in addition to other news you need.

SNAP Fresh

The San Francisco-based app helps people find places nearby that accept food stamps, now known as SNAP (Supplemental Nutrition Assistance Program) benefits, through their phones.

Baltimore 311

Baltimore 311 helps residents make their neighborhoods more beautiful by easily reporting local issues including potholes, graffiti and streetlight outages. Residents can track the status of reports they or other community members have submitted.

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ABOUT GOVLOOP:

GovLoop's mission is to "connect government to improve government." We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 140,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

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