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GOVERNMENT TECHNOLOGY®

VOL21 ISSUE03 SOLUTIONS FOR STATE AND LOCAL GOVERNMENT IN THE INFORMATION AGE MARCH 2008

inside:

Going Green:

California city revamps its infrastructure

TOP 25

PAGE 18

DOERS, DREAMERS AND DRIVERS

plus:

How to get project approval and funding

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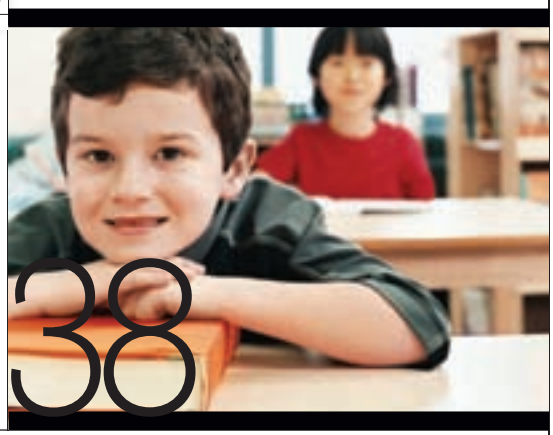

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Force Multiplier
Some 400 U.S. law enforcement agencies now use license plate recognition systems that automatically search for stolen vehicles while officers cruise the streets. Police officials say the results are spectacular; privacy advocates worry about the implications.

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point of view

Presenting This Year's Top 25

Raise Your Voice
Your opinions matter to us. Send comments about this issue to the editors editorial@govtech.com. Please list your telephone number for confirmation. Publication is solely at the discretion of the editors. *Government Technology* reserves the right to edit submissions for length.

Last year, I visited at least a dozen state capitals and met with hundreds of state and local government professionals.

Approximately 60,000 miles later, what — besides which airports have the best restaurants and cheapest Wi-Fi access — did I learn from the experience?

A few things come to mind immediately.

First, there are a lot of dedicated public employees and government officials around the country struggling with tough — and often similar — challenges. IT leaders have plenty on their plates — consolidation, security, citizen services, disaster communication and a looming work force shortage. And these requirements must be met within the context of a worsening fiscal environment.

Second, even with the deck seemingly stacked against them, members of the government IT community manage to do some awfully good work.

This month, we acknowledge those efforts and accomplishments with our seventh annual *Doers, Dreamers and Drivers* issue. As always, it's dedicated to 25 individuals who we believe help set the standard for using technology to improve government.

We launched our *Doers, Dreamers and Drivers* issue in 2002, basing it on the notion that GT's editorial team and our corporate colleagues at Government Technology Conferences and the Center for Digital Government collectively interact with a huge number of public-sector professionals each year — and many of these individuals are doing work that deserves and demands recognition.

Our rules for choosing the Top 25 are pretty simple: We look for people who cut through the public sector's infamous barriers to innovation — tight budgets, organizational inertia, politics as usual, etc. — to implement changes that reshaped government operations for the better. We also look for people who were not on our previous lists. For a look at past winners, browse any of our previous March issues — back to 2002 — on www.govtech.com.

> "Each member of our Top 25 found a way to **use technology** to further the mission of their organization, and ultimately **improve the lives** of citizens."

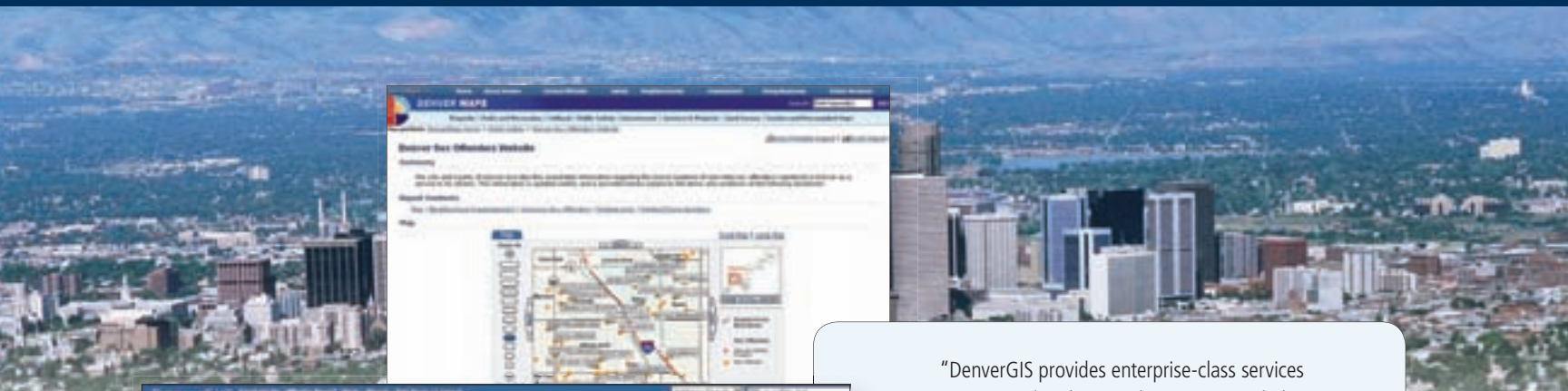
As in previous years, this year's list cuts across jurisdictions and specialties. It includes CIOs, elected officials, law enforcement officers, emergency managers and agency directors. Despite their diversity, each member of our Top 25 found a way to use technology to further the mission of their organization, and ultimately improve the lives of citizens.

We believe these individuals represent the best and brightest in public-sector IT, and we're honored to present them as this year's *Doers, Dreamers and Drivers.* GT

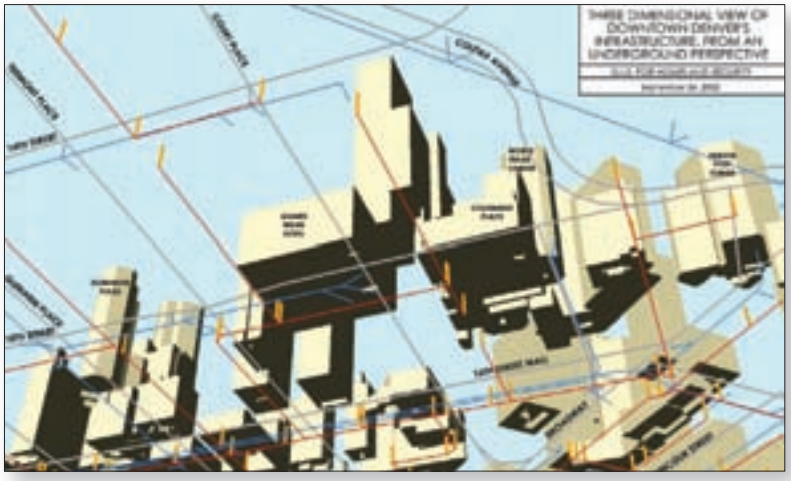
STEVE TOWNS
EDITOR

GIS Provides the Geographic Advantage

For Improved Service Delivery in Denver



DenverGIS serves criminal offense data over the Web as part of its service delivery goals to keep citizens better informed.



3D view of downtown Denver's infrastructure from an underground perspective

"DenverGIS provides enterprise-class services to our internal and external customers and plays a leadership role in Denver's technology strategy."

Michael Locatis,
Chief Information Officer, City and County of Denver

"GIS and related Web services are integral to daily business operations, strategic decision making, public communication and provide the foundation for the implementation of Denver's 311 service delivery."

David Luhan,
GIS Manager, DenverGIS

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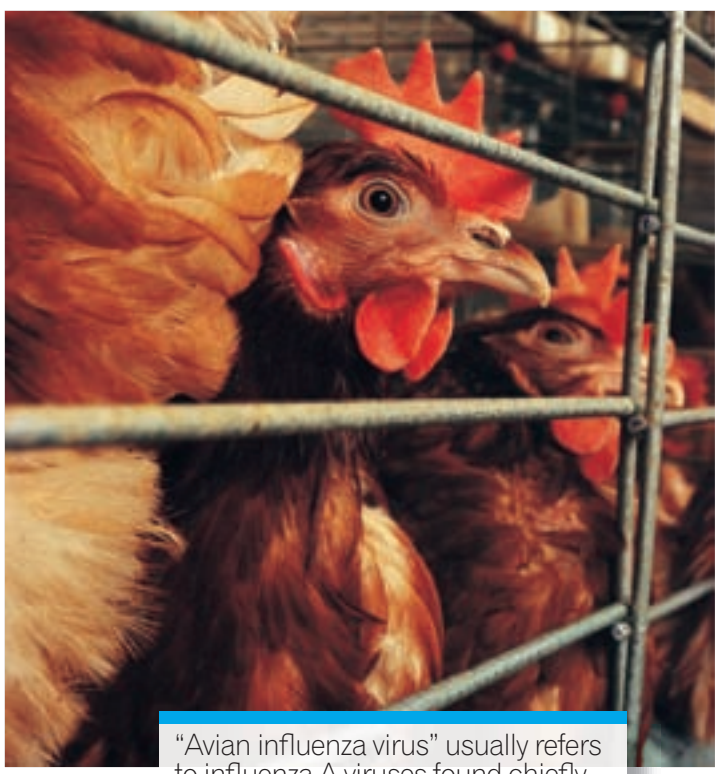
big picture



"Avian influenza virus" usually refers to influenza A viruses found chiefly in birds, but infections with these viruses can occur in humans. The risk from avian influenza is generally low to most people.

— CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

PHOTO COURTESY OF CYNTHIA GOLDSMITH, JACQUELINE KATZ AND SHERIF R. ZAKI

PHOTO COURTESY OF CDC/ CYNTHIA GOLDSMITH/ JACKIE KATZ

This magnification reveals the details of two avian influenza A (H5N1) virions, a type of bird flu virus. Although this virus does not typically infect humans, in 1997, the first instance of direct bird-to-human spread of influenza A (H5N1) virus was documented during an outbreak of avian influenza among poultry in Hong Kong.

— CDC

Shown here is a colorized transmission electron micrograph of avian influenza A (H5N1) viruses (seen in gold) grown in MDCK cells (seen in green).

Massachusetts Institute of Technology researchers uncovered a critical difference between the flu viruses that infect birds and humans. This discovery could help scientists monitor the evolution of avian flu strains and develop vaccines against a deadly flu pandemic.

The researchers found that a virus's ability to infect humans depends on whether it can bind to one specific shape of receptor on the surface of human respiratory cells.

In addition to helping researchers develop a better way to track the evolution of avian flu that leads to human adaptation, these findings will aid in developing more effective strategies for seasonal flu, which still is a leading cause of death.

— ANNE TRAFTON, MIT

the last mile

BY CHAD VANDER VEEN
TECHNOLOGY AND POLITICS EDITOR

Criminal Masterminds

If you read this column regularly, first of all, thank you. You can take pride in the fact that doing so assures your position in the upper echelon of society. Second, you are aware that I've written before about my fear the Internet may permanently retard our collective intelligence.

Following up that notion is a happy and hilarious side effect that can be witnessed today: The Internet, and especially Web videos, has become a showcase for criminals who helpfully make their impending arrest much easier for law enforcement.

An incident involving Rudy Villanueva and Tony Logan, residents of Miami-Dade County, Fla., is a perfect example. Villanueva heads up a rambunctious men's organization — or "gang," if you insist — known as the Bird Road Boys. His associate, Logan, also is allegedly a member. One evening in early January, the two men struck upon an idea, no doubt fueled by various smokeables and beverages served in 40-ounce containers.

"The **Internet** may permanently retard our collective **intelligence**."

The plan was to have Villanueva's girlfriend videotape the men taunting the Metro Dade Gang Unit, daring police to come catch them.

"Metro Dade Gang Unit, here I am, baby," Villanueva advised. Logan followed his pal's comments with a string of expletives, an invitation for cops to "come get it," and closed his commentary with a second helping of obscenities.

To add dramatic effect to the scene, Villanueva held aloft a shotgun in one hand and an AK47 in the other. Meanwhile, Logan waved two handguns, menacingly pointing the weapons at the cameraperson and Villanueva while repeatedly pulling the trigger. The guns evidently were not loaded.

Phase 2 of this cunning stunt involved posting the video to, where else, YouTube. Now even if you've already made up your mind about our main characters, they are due some credit for actually knowing how to post a video to the popular site. It's not as easy as you might think.

Once online, the video quickly drew the interest of — you guessed it — the Metro Dade Gang Unit. After watching the video, officers accepted Logan's offer to "come get it," and the ATF and Miami-Dade Police Department arrested both men. Villanueva, a thrice-convicted felon, was arrested on possession of a firearm by a felon, and Logan was charged with knowingly providing a firearm to a felon.

This incident is but one of a slew of examples of the societal dregs using the Internet to show us just how stupid they are. Of course, people of such caliber would never admit they posted the video out of stupidity — probably because an imbecile rarely realizes he is an imbecile. Crime videos are usually made to earn "street cred," or as Villanueva said, to instill fear in his enemies. (For you geeks, that's like experience points in *World of Warcraft*, but this is a violent street gang.)

Ironically the result was not fear, but laughter from the online community and a job for police made a lot easier. GT

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It's the Network for Government

on the Scene

CES Showcases HD

LAS VEGAS — In early January, Las Vegas again hosted the annual International Consumer Electronics Show. CES has built its reputation as an enormous showcase for the latest and greatest electronics. And while this year didn't disappoint, there was a palpable sense of apathy on the Las Vegas Convention Center floor and other venues, as many of the gadgets seemed more like rehashes of past technologies than anything truly innovative.

The star of the show was Panasonic's 150-inch, high-definition plasma TV. Tipping the scale at an estimated 1,500 pounds, the massive television made its 108-inch cousins — all the rage three years ago — seem tiny in comparison.

High-def ruled the day at CES; whether it was high-definition Blu-ray discs, HDTV, waterproof HD screens, HD monitors, HD video cameras — almost every booth featured at least one HD device.

Some products, such as Microsoft's Surface, managed to make a splash without touting HD capability (although Surface is HD-ready too). Surface is a tabletop PC that users control with their hands. Simply place a digital camera on Surface, and using one finger, drag images to and from the camera and the hard drive. A finger-painting tool, an interactive wine guide and a travel planner were also shown. All the applications can be used without a mouse or keyboard, though an onscreen, virtual keyboard is available.

There was also buzz about a potential 3-D revival. Manufacturers showed off the latest 3-D monitors, which don't require 3-D programming. Instead, new imagery technology allows any film, game or TV show to be viewable in 3-D — but 3-D glasses are still required.

— CHAD VANDER VEEN, TECHNOLOGY & POLITICS EDITOR

California Gets Greener

SACRAMENTO, CALIF. — IT workers gathered in late January at *Government Technology's* Green Government event to discuss how to embrace inevitable economic changes as California's economy goes green.

State Assemblyman Lloyd Levine, D-Van Nuys, kicked off the event by inciting Californians to stop lamenting jobs lost due to globalization. Instead he said the state should focus on building an economy that serves the nation's growing demand for green technology.

Will Semmes, chief deputy director for the California Department of General Services (DGS), discussed the agency's green purchasing strategies. The DGS plans to analyze government fieldworkers' credit card records to determine where state employees buy gas most often. The DGS would then contract with the most-visited fuel stations to buy alternative fuel for government vehicles.

Semmes also discussed the state's effort to keep more accurate inventories, which would save money and reduce unnecessary consumption.

A Sacramento Municipal Utility District (SMUD) representative talked about the utility's energy conservation strategy. Ed Sanchez, program manager for energy efficiency, customer research and development at SMUD, said it might sound strange for a power company to urge customers to buy less of its product. But he said SMUD views energy-efficiency mechanisms as a way to avoid the expense of building new power plants. SMUD plans to offer future incentives for the deployment of products that reduce consumption by computer servers, he said.

— ANDY OPSAHL, FEATURES EDITOR

Govtech.com Hot List

govtech.com

Here are the 10 most popular stories on Govtech.com from Dec. 27, 2007, to Jan. 27, 2008.

1. **ESRI Founder Jack Dangermond Predicts the Future of GIS** As interest in GIS grows, ESRI and its professional GIS tools may be approaching a crossroad. www.govtech.com/gt/247185

2. **Top 10 Wireless Predictions for 2008** InCode forecasts the events that will shape the wireless industry this year. www.govtech.com/dc/articles/238754

3. **When Our Systems Make Us Stupid** Edited from a speech given by Gopal Kapur of the Center for Project Management, this story was resurrected from the 1997 issue of *Government Technology's Visions* magazine. www.govtech.com/gt/articles/251917

4. **Soft Skills Required** Gail Roper, CIO of Raleigh, N.C., writes about her experiences breaking into a male-dominated industry. www.govtech.com/pcio/219288

5. **Government Sites Post Social Security Numbers** According to a January report from the *Washington Post*, Social Security numbers of public citizens and government officials are available on government sites. www.govtech.com/gt/articles/241040

6. **Ready for Digital TV?** Full-power TV broadcasters must switch from analog broadcasting to digital by Feb. 17, 2009. www.govtech.com/gt/articles/242626

7. **Web-Based Mapping Tools Help Governments Transform GIS into New Services** Online 3-D mapping tools combine with GIS to deliver better location information. www.govtech.com/gt/241047

8. **Is Your Jurisdiction Prepared?** Take the *Emergency Management* magazine survey. www.govtech.com/em/243540

9. **DHS Extends Real ID Deadline, but Funding and Privacy Questions Remain** After nearly three years, the DHS released the final regulations for Real ID. www.govtech.com/gt/250777

10. **Wireless Meltdown** Muni Wi-Fi projects struggle with technology and economic challenges. www.govtech.com/pcio/224317

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Four Questions for Gopal Khanna

CIO, MINNESOTA

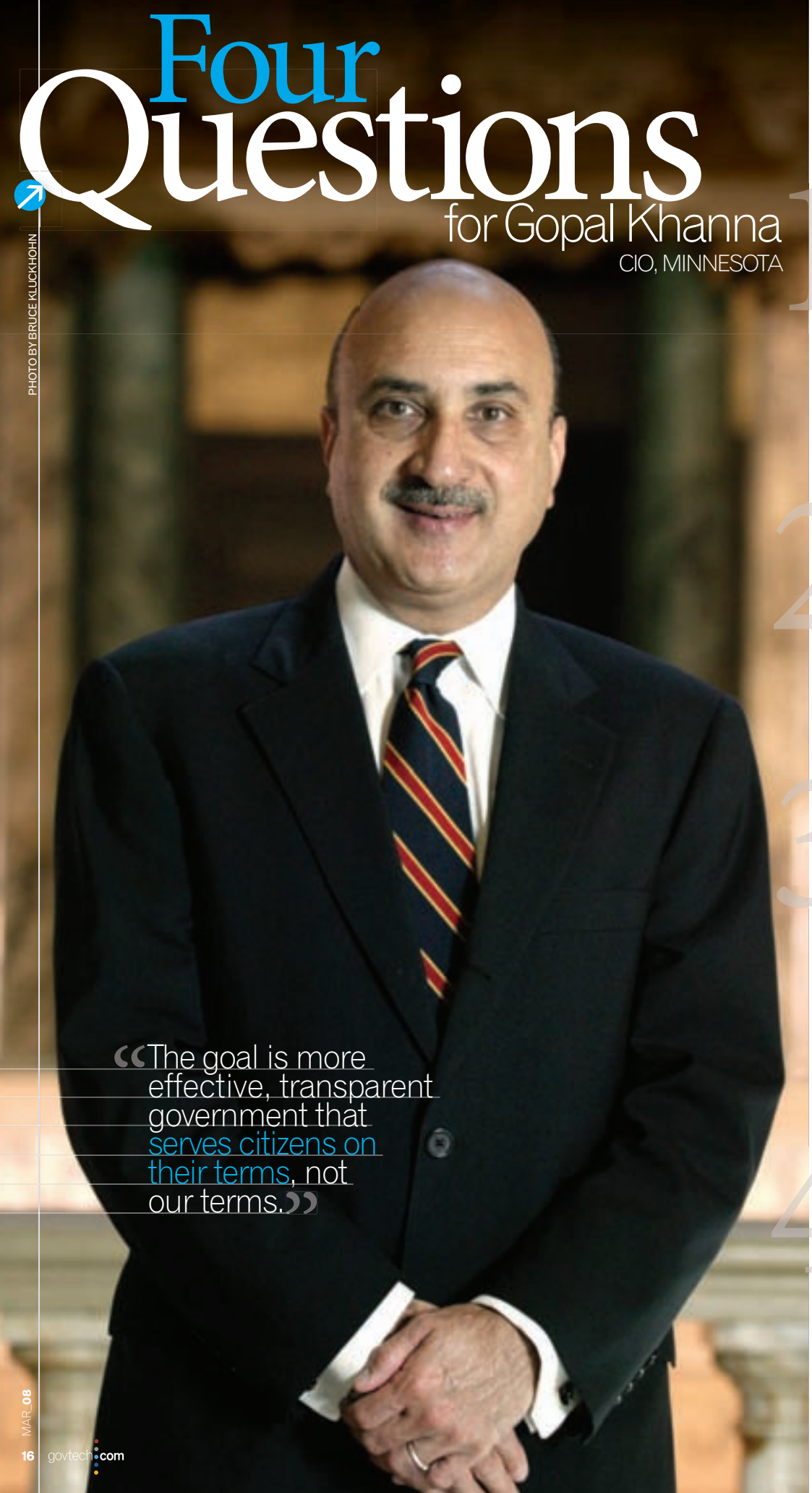

PHOTO BY BRUCE KLUCKHOHN

"The goal is more effective, transparent government that serves citizens on their terms, not our terms."

IN 2005, MINNESOTA GOV. TIM PAWLENTY LAUNCHED THE DRIVE TO EXCELLENCE, AN INITIATIVE TO AUTOMATE PROCESSES AND MAKE STATE GOVERNMENT FUNCTION AS AN ENTERPRISE. THAT SAME YEAR, GOPAL KHANNA WAS NAMED MINNESOTA'S CIO.

1 **The Drive to Excellence involves comprehensive changes to state government. How do you build buy-in among your public work force?** The public sector [is] driven by the desire to serve the citizens by doing good work. We've built on that motivation by creating teams where people are empowered to take action. We need to compress our time to action: Can we do in 90 days what took two years in the past? We have to move faster in government. The work force is happy to see this change because they want to and know how to do things better if given the chance.

2 **What results have you seen?** When I assumed this position, I challenged my colleagues to set up desktop and laptop standards [in] 90 days. We set up teams — it was cross-boundary collaboration — and they sat down together and said, "Let's focus on the 80 percent of our requirements that can be standardized. There will always be 'exception processing.'"

We now have standards for laptops, desktops, servers and storage. About $100 million over five years is the estimated savings.

3 **How important are procurement savings in building support for further organizational changes?** Those savings occur at the agency level, enabling more investment in mission-critical services. In general, when we talk about IT reform, I believe we focus too much on savings. You need to make an investment first. What I talk about in Minnesota is how much investment we're willing to make in our infrastructure to move away from 20th-century government operations and toward the 21st-century computing environment. Savings and ROI will happen if the right programs are put in place to make government more transparent, accountable and results-oriented.

4 **So the savings come from making government work better. But saving money isn't the only reason to do this?** Exactly. The goal is more effective, transparent government that serves citizens on their terms, not our terms. The citizens are saying, "We want 24/7 government on demand. We want government that is totally transparent." Our governor constantly reminds us that we need to be results- and outcomes-oriented. To do that, we need to make a serious investment in our infrastructure of government operations. GT

BY **STEVE TOWNS, EDITOR**

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TOP 25

DOERS DREAMERS & DRIVERS

For six years, the March issue of *Government Technology* magazine has been dedicated to 25 individuals who push the boundaries of everyday government.

This year's group, profiled in no particular order on the following pages, includes CIOs; governors and other elected officials; agency directors; and emergency management and public safety officials.

Though they come from different walks of the public sector, they do have certain things in common: a willingness to challenge convention, to confront entrenched bureaucracy and to promote innovation.

Welcome to *Government Technology's* tribute to the Doers, Dreamers and Drivers who are shaping the future of government.

JIM ARGIROPOULOS
GEORGE BAKOLIA
TIM BARBEE
BILL BOTT
GORDON BRUCE
JIM BURNS
ANEESH P. CHOPRA
STEVE FLETCHER
CRAIG FUGATE
ANDY HILL
RAY KELLY
GAYLE MANCHIN
JOSEPH MARCELLA
ROSARIO MARIN
ROB McKENNA
SCOTT McPHERSON
KAREN MILLER
CHRISTY QUINLAN
BOB RILEY
DAN ROSS
MARK RUTLEDGE
BILL SCHRIER
ARNOLD SCHWARZENEGGER
TONY TETHER
DAVID WENNERGREN

ARNOLD**SCHWARZENEGGER**

GOVERNOR, CALIFORNIA

California Gov. Arnold Schwarzenegger staged a political comeback in 2007, pushing the nation's most aggressive green agenda. Among other things, he signed legislation forcing public utilities to produce 25 percent of their energy from renewable sources by 2020, currently the strictest standard in the U.S. This will roll California's greenhouse gas emissions back to 1990 standards.

Since taking office in 2003, Schwarzenegger's broad green vision translated to new enthusiasm for green technology in California government, said Rosario Marin, secretary of the State and Consumer Services Agency.

"Now we see everything from hydrogen highways to solar panels that, before four years ago, not many people had," she said.

Schwarzenegger installed solar photovoltaic facilities at eight state sites, cumulatively producing 4.2 MW of electricity. During 2008, the state plans to produce cumulatively up to 24 MW of electricity at additional facilities.

Bucking Republican solidarity, Schwarzenegger locked horns with the Bush administration after the U.S. Environmental Protection Agency (EPA) quashed his attempts to regulate greenhouse gas emissions from vehicles.

"EPA's denial of our waiver request to enact the nation's cleanest standards for vehicle emissions is legally indefensible and another example of the failure to treat climate change with the seriousness it demands," Schwarzenegger said in a statement. California is now suing the EPA for denying a waiver needed to set stricter standards than those mandated by the federal Clean Air Act.

Schwarzenegger also implemented an incentive to have solar panels installed on 1 million roofs in the state. Homeowners and businesses using participating energy providers can install solar panels and sell the excess energy they produce back to those providers.

> Since taking office in 2003, Schwarzenegger's broad **green vision translated to new enthusiasm** for green technology in California government.

Marin jokes that she was the originator of a popular nickname now associated with Schwarzenegger. "I was the first person to call him the 'Green Giant,'" she said. "Other people have used it, but I was the first one."

ANDY OPSAHL, FEATURES EDITOR

SECRETARY OF TECHNOLOGY, VIRGINIA

ANEESH**CHOPRA**

Aneesh Chopra has a unique job. As Virginia's secretary of technology, he focuses on operational policy for government and promoting economic development relative to the tech industry. While the state has a CIO — Lem Stewart, who was named to *Government Technology's* Top 25 in 2006 — Chopra functions more as an adviser to Gov. Tim Kaine.

The position gives Chopra an interesting view of both government and new tech business. "It comes together a lot more than you may think," Chopra said. "Often there are innovative companies that are entrepreneurial by definition, whose products and services trigger in my mind ideas that can make government more efficient."

The state's IT efforts have resulted in several awards in recent years. But Chopra says he's most proud of two public-private partnerships that benefit the state's citizens.

The first is a partnership with Google. Virginia is one of the first states to work with the company on its sitemap protocol. This dramatically expanded people's access to state government information, increased traffic to the state's Web site by 22 percent since the partnership began, and made information on the site much easier to find.

> "Often there are **innovative companies** that are entrepreneurial by definition, whose products and services trigger in my mind ideas that can **make government more efficient**."

Virginia also partnered with two cable TV companies — Cox Communications and Comcast Corp. — to bring free, televised general equivalency diploma (GED) classes to Virginians, at no cost to the state or taxpayers. Chopra says the pilot, which took only four months from idea to go-live, was the result of people exploiting a good opportunity. "It's exciting, because you raise an idea, you connect the dots with the right folks, and off you can move."

Both the sitemap protocol and GED projects have been especially gratifying, Chopra said, adding that he gives much credit to the people he works with, including the state's CIO. He said other key factors are the governor's commitment to technology, and Virginia's willingness to try new ideas.

Chopra also co-chairs the state's Healthcare IT Council. He and his colleagues are working on a new model for value-based health care that would change the way technology and health care intersect. It's all in a day's work for a guy with a unique job.

JIM MEYERS, STAFF WRITER

ATTORNEY GENERAL, WASHINGTON STATE

ROB McKENNA

More than 5,000 Washington state residents fall victim to identity theft each year, according to the Federal Trade Commission, and Washington Attorney General Rob McKenna resolved to do something about it.

McKenna has been a leader in protecting Washington residents from identity theft, fraud, consumer protection violations and high-tech crimes, such as cyber-fraud, phishing and spyware. In mid-2007, for example, he launched "GUARD IT! Washington," a multi-agency campaign to educate citizens and businesses about preventing identity theft.

"Identity theft is on the rise, but there are things you can do to protect yourself," McKenna said in July 2007, inviting residents and business owners to join him and experts from the AARP and the Federal Trade Commission at a GUARD IT! Washington forum. "We'll show you how to protect yourself and what to do if you're already a victim."

McKenna led GUARD IT! Washington sessions in 15 cities from July to October 2007. Each session included public forums, events for business leaders and a free community shred event.

"Bring along your old bills and bank statements, and have them shredded for free," McKenna said when promoting the tour. "You don't want an ID thief to find this personal information in your trash. So gather your sensitive papers, bring your questions and join in the fight against identity theft!"

JESSICA JONES, ASSOCIATE EDITOR

CIO, NORTH CAROLINA

GEORGE BAKOLIA

When George Bakolia became CIO of North Carolina in 2002, his first task was building trust in the state's IT department.

"If you cannot show success and you don't build that trust, you cannot achieve anything," he said. "And it's an ongoing process; it never ends. You have to show success, credibility and trust throughout."

That attitude has served Bakolia well as he's led the way on numerous IT projects for North Carolina. One of his favorites is a new data center — a 53,000-square-foot structure about 225 miles from Raleigh, the state capital, that will back up all core services by June 30. At a cost of $24.5 million for property and construction, and $8 million for equipment, the project was completed on schedule and within budget.

"I see this as a major plum for North Carolina, because a lot of states are looking at similar needs," Bakolia said.

Oklahoma officials have visited the site, South Carolina and Georgia have expressed interest, and Tennessee recently announced a similar effort.

Bakolia is proud to say that North Carolina is finishing a project many others are just starting. "We're ahead of the curve," he said. "It's a major success and an achievement for us, and for our state government."

An earlier success was deploying a new asset management system for IT. Bakolia also instituted bulk purchases of IT equipment, saving the state $27 million since November 2004. And he's proud of the 2004 IT reform bill that gave the CIO more power to get things done. "It was all about how we improve planning, budgeting and management of IT in state government," he said.

That legislation changed IT governance for North Carolina, paving the way for many improvements that followed. The expansion of the CIO's role worked out so well for North Carolina, Bakolia suggests other states do the same. **JIM MEYERS, STAFF WRITER**

CIO, MISSOURI

DAN ROSS

Missouri CIO Dan Ross is proud of his state's unique IT job "recruitment island" in Second Life, the popular 3-D virtual world built and maintained by users. But he's just as excited about another, decidedly low-tech innovation from his office: pocket-sized cheat sheets for lawmakers.

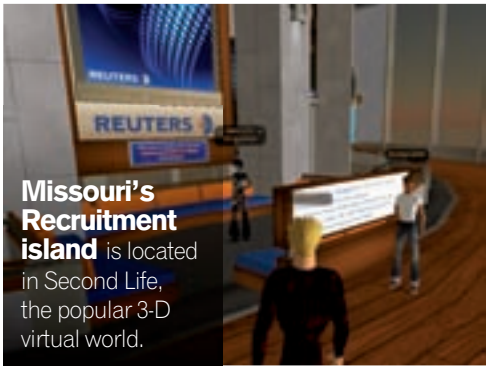
"We pull statistics together for legislators about what IT delivers to constituents in their specific districts," Ross said. "For every member of the Missouri House and Senate budget committees, we've got little laminated cards that tell them how many of their constituents were able to file their taxes online in fiscal 2007; how many people were able to access state jobs information via different state Web portals; how many folks received professional certification, like podiatrists or embalmers; how many teachers were licensed; even employment claims by their constituents."

It's those kind of low-cost, high-impact advances that Ross has strived for since Missouri Gov. Matt Blunt appointed him state CIO in 2005. For the past three years, Ross has spearheaded the governor's technology consolidation initiative that merged 1,200 employees across 14 Cabinet-level departments. In fiscal 2007, Missouri finished bringing the IT budgets of those agencies into a single entity, the Missouri Information Technology Services Division, which is within the state Office of Administration.

"That was a huge culture change, and brought fear and gnashing of teeth by those agencies that have been building their own budgets for the last 30 years," Ross said. "All of a sudden, at the governor's direction, they had to transfer all of those funds out of their agencies into a centralized IT function."

The consolidation streamlined the state's IT budget and staff — $6 million was trimmed and re-appropriated, and 50 jobs were slashed. At the same time, the state's IT processes, such as purchasing and software rollouts, are more efficient.

"It's not all about cost savings either. Now, we talk in terms of value," he said.



Missouri's Recruitment island is located in Second Life, the popular 3-D virtual world.

"We've signed a contract with AT&T for a next-generation network. They'll manage the state's network for us, which means we'll have access to all current and new technology, and then we also get the redundancy and backup of a utility-class carrier that the state couldn't afford to do on its own." Missouri signed on with AT&T in 2007, and the state is currently negotiating with the vendor about how and where those services will be used.

MATT WILLIAMS, STAFF WRITER

DEPUTY CIO, MISSOURI

BILL BOTT

If Missouri CIO Dan Ross is the visionary, Deputy CIO of Operations Bill Bott is the architect that makes the vision a reality. But maybe that's a bit grandiose.

"We're pretty much joined at the hip," Bott said.

Bott is in charge of strategic planning and project management as the state continues and expands its IT consolidation initiative that merged operations for Missouri's 14 executive branch departments. Last year he was one of nine government leaders to win *Governing* magazine's Public Officials of the Year award. In 1996 he earned the Air Force Civilian of the Year Award for his efforts to improve systems and reduce operating expenses while working for the U.S. Department of Defense.

Bott said that in 2007, Missouri finished implementation of "business-type processes" for the state's IT operations. For the first time, Missouri has an enterprise measurement system that reports how well the state's IT systems are functioning.

> "We can look at **measures of our network**, applications, mainframe environment — an enterprise look at that for the whole state. **That was a big task to do**."

"We can look at measures of our network, applications, mainframe environment — an enterprise look at that for the whole state. That was a big task to do," he said. "The other part of that is we use those measurements for our service-level agreements with our department customers. We're in a consolidated environment so we provide the IT support for the executive branch departments, and it's all based on service levels that run through my office."

The state's IT consolidation initiative has been deemed a smashing success, although there were a few hiccups along the way. Measurements and personnel changes took much longer than Bott thought they would. This year the state's Information Technology Services Division is working on enterprise application development for the state's agencies. There's also ongoing haggling over money matters.

"One of the things that makes Missouri different is we consolidated all of the IT budgets in one giant pot," he said. "That becomes a giant [political] target for cuts. So there have been some challenges with that budget and how to overcome those challenges."

MATT WILLIAMS, STAFF WRITER

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BILL SCHRIER

CHIEF TECHNOLOGY OFFICER, SEATTLE

Seattle is laden with accolades — from its awarding-winning Web site and TV channel, to its new emergency operations center — all under the leadership of Bill Schrier, CTO and director of the city's Department of Information Technology.

In 2006, Seattle.gov was named the top city government portal by the Center for Digital Government because of its rich content, design and operability. Schrier is quick to credit the collaboration between the mayor and a team of content providers.

"The biggest thing I would credit is the personal involvement of Mayor Greg Nickels," Schrier said. "He knows the Web is the official portal for Seattle, and is the future way that the city will interact with its constituents or residents and visitors on a whole variety of things."

Schrier said he's also proud of Seattle's Cable Channel 21, which was named the top U.S. TV channel by the National Association of Telecommunications Officers and Advisors in 2007. "We were one of the first municipal governments to videotape virtually every city council meeting, which can be downloaded and viewed by anyone who has Internet access," he said. "We also indexed those council meetings so you don't have to view the whole thing to see a particular topic."

Schrier said 22 years of military service left him well equipped for his role as Seattle's CTO.

"Ninety-nine percent of the military in a peacetime situation is much more collaborative effort than people commonly think," he said. "In other words, soldiers or officers working together and making decisions together — certainly the commander's got the final decision-making authority. I think that's probably true here in city government too." **KAREN STEWARTSON, MANAGING EDITOR**

GOVERNOR, ALABAMA

BOB RILEY

Alabama Gov. Bob Riley is the force driving the state to the forefront of technology leadership. Widely regarded as a governor committed to government efficiency and openness, Riley has lent his clout to initiatives that showcase his state's technology prowess.

To help fulfill his vision, Riley's administration launched the Specific, Measurable, Accountable, Responsive and Transparent (SMART) budgeting process.

"In the past, there was little logic to the budgeting process," Riley said. "SMART budgeting requires each agency to set priorities and goals for improvement, along with specific outcomes that can be measured. The reports are posted on the Internet so anyone can see where every penny in every state program is going."

SMART allowed Riley to pursue more innovative efforts. The Alabama Connecting Classrooms, Educators and Students Statewide (ACCESS) project, for example, is a distance learning program that uses, interactive videoconferencing technology to connect teachers with students in different parts of the state.

"ACCESS levels the playing field for our students no matter where they come from," Riley said.

But perhaps more than any other program Riley is credited with, Virtual Alabama shows what can be achieved with the right combination of technology and leadership.

This project, led by Riley and Alabama Department of Homeland Security director Jim Walker in partnership with Google, is a first-of-its-kind undertaking: It incorporates imagery from all 67 Alabama counties, and lets local officials securely share access to statewide geographic data using Google Earth. Virtual Alabama represents the most comprehensive GIS data set in the country — something public safety officials have dreamed of for years.

"Virtual Alabama is taking government to a different level," Riley said. "We might not know the true value of this application until another major disaster occurs. Of course, we hope it never does, but when the next devastating hurricane or tornado comes through, emergency responders in Alabama will have the best tools available anywhere in the country to save lives and help people recover."

CHAD VANDER VEEN, TECHNOLOGY & POLITICS EDITOR

POLICE COMMISSIONER, NEW YORK CITY

RAY KELLY

Crime statistics from 2006 showed a nationwide increase in violent crime — a trend for the last several years. But things are different in New York, where 2006 FBI statistics show a 3.1 percent decline in violent crime and a 7.2 percent fall in crime overall.

Resources and innovation are part of the reason for success, but everything revolves around Commissioner Ray Kelly, a 31-year veteran of the NYPD. Kelly has continued New York's pioneering CompStat crime-mapping strategy, but he's also taken city law-enforcement efforts to another level, presiding over the development of New York's Real Time Crime Center (RTCC), and the concept of the Lower Manhattan Security Initiative.

The $11 million RTCC is staffed with about two dozen investigators, and it processes information from the field and billions of records. RTCC staff has access to 120 million criminal complaints, arrest records and 911 calls from New York City, as well as 5 million city parole and probation files. In addition, RTCC investigators can tap into 30 million national crime records.

The RTCC also monitors satellite images, maps, diagrams and surveillance camera photos from around the city. The visuals plus real-time information let investigators plot strategy moment-by-moment rather than after the fact.

The Lower Manhattan Security Initiative is a London-style surveillance system that deploys more than 3,000 private and public surveillance cameras, including 116 license plate readers in fixed and mobile locations, such as cars and helicopters.

JIM McKAY, JUSTICE & PUBLIC SAFETY EDITOR

PHOTO BY MICHAEL RICHARDS PHOTOGRAPHY & DESIGN

DISTRICT 1 COMMISSIONER, BOONE COUNTY, MO.

KAREN MILLER

Karen Miller's favorite part of working in government is helping citizens navigate the bureaucracy. As county commissioner of Boone County, Mo., she has an opportunity to do just that for nearly 150,000 residents.

Miller sees technology as a great way to give citizens what they need. As liaison to the county's IT department, she works on the county's praiseworthy Web site, which provides much information and services, including meeting minutes, real estate data and maps, polling place locator, and the ability to pay taxes.

"It's just a very transparent tool," Miller said. "I think that's the message we should always strive for, to find something that helps our citizens know there's nothing being hidden anywhere, and that they can have access to their information."

The Web site saves time for many people — realtors, engineers, surveyors, appraisers, title company employees, bankers — who appreciate the depth of real estate information. "Before they buy a piece of property, they should always know what's around them, how it's zoned and its potential," Miller said. "We've been using technology to help them understand that."

Miller feels lucky to work with like-minded colleagues. Although she was one of the first county employees to promote investment in technology, once other county leaders saw the cost savings, they quickly joined the cause.

The county's interest in technology goes beyond the Web site, which is one reason it won a 2007 *Digital Counties Survey* award from the Center for Digital Government. Miller helped the county deploy GIS, and now all departments are connected to the same elaborate mapping system.

Since Miller came on board in 1993, the county's yearly technology budget has more than doubled; and many technologies are less expensive now than they were 15 years ago, so the county is getting great value for its IT dollars. **JIM MEYERS, STAFF WRITER**

INFORMATION SERVICES DIRECTOR, WASHINGTON STATE ATTORNEY GENERAL'S OFFICE

ANDY HILL

Washington state has been a thought leader on managing and maintaining digital records; after four years of planning, the groundbreaking Washington Digital Archives opened in June 2004. And the state's current Digital Vault initiative is creating a standard process for handling the explosion in electronic information.

Andy Hill, information services director for the Attorney General's Office (AGO), continues the state's trend of tackling this evolving issue. Hill made electronic records issues a priority when he joined the AGO in 2005. "One of those things was e-mail archiving," he said. "It seemed like the lowest-hanging fruit."

First, the AGO implemented tools that let attorneys and paralegals search attachments in addition to e-mail text. Because there's no limit on mailbox sizes, some inboxes hold gigs of data, Hill said, adding that a filing system developed prior to his arrival was little help.

"I was confident we were spending too much time looking for public records requests," he said. "We're knowledge workers; we're supposed to add value information, not spend time looking for it. That was the business driver."

The next step? Managing e-mails and documents.

"Now we have the opportunity to manage this data in a much more robust way — in a way that you can apply retention schedules to individual documents now," Hill said. "We're working with the secretary of state to figure out moving documents from our e-mail to our vault product, then eventually into the state archives."

JESSICA JONES, ASSOCIATE EDITOR

CIO, ALABAMA

JIM BURNS

It's amazing what a dedicated CIO and a visionary governor can do for a state. Look no further than Alabama, often regarded as a technologically marginal state steeped in small towns and country farms.

CIO Jim Burns, supported by Gov. Bob Riley, has transformed his state — now regarded as an innovator in government IT, and has been recognized by the Center for Digital Government with multiple Best of the Web accolades.

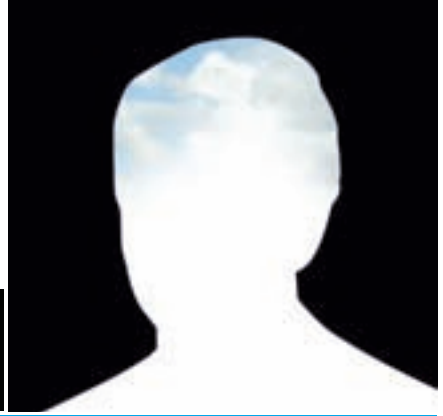
To take even a brief look at Alabama.gov is to see a model of easy navigation and user-friendliness. The CIO said the inspiration for the site was found, in part, by emulating some of the best private-sector sites.

"It's a clean, easy-to-use site," Burns said. "We've got live help, so if you can't find something or don't know how to do something, you can get a live person to interact with you just like your bank and other modern businesses do."

Alabama.gov offers dozens of online licensing applications, helping everyone from nurses to truck drivers save time and money. Burns also helped drive cross-agency interoperability — the likes of which many states can only dream of. The sub-site Camellia.Alabama.gov, named for the state flower, represents much IT coordination and collaboration. Camellia users can answer 25 questions, without entering personal information, to find out if they're eligible for 29 different programs, including food stamps, Medicare, Temporary Assistance for Needy Families and senior services.

"Using the existing infrastructure, we put [Camellia] together with seven different agencies," Burns said. "Their experts helped us build the algorithms that used the data that people entered to give them the answer to what they're eligible for. People don't have to show up at one office, fill out a bunch of paperwork and then get denied. They learn the programs for which they are eligible, so when they show up, they know they're going to get help. We're only one of two states that have done this. We're currently working on Camellia II, which will take it even further, and allow you to apply online for the programs."

CHAD VANDER VEEN, TECHNOLOGY & POLITICS EDITOR



STEVE FLETCHER

CIO, UTAH

There's no glamour in consolidation. Often sold as a way to rein in IT costs, CIOs are usually stuck with selling what's perceived as a negative by most agencies. Staff members dislike the disruption, the change and cost cutting. In the end, many CIOs end up drained of all momentum for initiating anything of strategic value.

> Fletcher also has a **flair for leadership** that enabled DTS to succeed.

That's not the case with Utah CIO Steve Fletcher. In 2005, out of the dysfunction and failure of running IT as separate agency fiefdoms, the state created the Department of Technology Services (DTS) and hired Fletcher to run what has become one of the nation's few fully centralized state IT departments.

Fortunately the state hired someone with both prior government IT experience — as CIO for the U.S. Department of Education — and a solid private-sector business background. Fletcher also has a flair for leadership that enabled DTS to succeed.

Since taking over, Fletcher streamlined how technical staff service remote government locations in the large, mountainous state — reducing travel time and labor costs. He also took control of an IT project that many government CIOs would gladly avoid: a state enterprise social service system. It is, in theory, a Holy Grail of systems integration. In reality, it can be an unwieldy IT project that may often buckle under the weight of federal policy mandates, cost overruns, cultural issues and inflexible software.

Fletcher took over the state's fledgling enterprise program for health and human

Mount Timpanogos, Utah

services (HHS) eligibility and case management, after removing the systems integrator who was struggling to keep the project on track. Fletcher made DTS the project integrator, partnered with the system's software vendor to ensure quality in the system's modules, and worked with the state's HHS agencies to maximize project management success.

Why did Fletcher believe it would succeed? "For one thing, we have control over the entire project and it's cheaper this way," he said.

That control is balanced by solid relationships with the software vendor and the various business managers who have a stake in the project's outcome.

Fletcher's unique background as both a public CIO and businessman makes him uniquely positioned to lead government IT in the 21st century. **TOD NEWCOMBE, EDITOR, *PUBLIC CIO***

CIO AND DEPUTY DIRECTOR, INFORMATION TECHNOLOGY SERVICES DIVISION, CALIFORNIA DEPARTMENT OF HEALTH CARE SERVICES

CHRISTY QUINLAN

Christy Quinlan is excited about IT. As CIO and deputy director of the Information Technology Services Division at the California Department of Health Care Services (DHCS), she's also excited about the department's mission. DHCS helps get health care to those who normally wouldn't have access to it, including about 6.5 million low-income residents.

"We also are the provider for Californians who have AIDS, people who would not be able to get health-care insurance otherwise," Quinlan said. "When you think about it in those terms, I find it compelling."

She's especially proud of DHCS's award-winning program for genetic screening, which tests expectant mothers and newborns for dozens of hereditary and congenital disorders. "In our pilots, we would identify babies who have these conditions, and change their diet in some cases, and profoundly affect the outcome of their life by just diet," Quinlan said. Sometimes this change eliminated the need for medication; sometimes it saved a life.

The testing also saves money. "The savings is monumental," Quinlan said, noting that a lifetime of care for one person with mental retardation can cost hundreds of thousands of dollars, while a diet change costs very little. Screening can make the difference.

> "I can honestly say **I have excellent staff**. They're very dedicated and committed."

When the department increased the number of disorders it was screening for, numerous IT challenges arose, such as aggressive legislative deadlines and hardware issues with delicate lab equipment from Europe. New requirements were also added during development.

Still, Quinlan's team finished the project a month early. "I can honestly say I have excellent staff. They're very dedicated and committed."

The staff is quite familiar with tight deadlines. Earlier, it added data encryption to about 2,000 laptops in a month. Once that ambitious goal was met, the team also encrypted 6,000 desktops.

Quinlan's team recently completed an award-winning service-oriented architecture (SOA) project for identity management with the Social Security Administration. It's a shared service, so other state agencies can also use it. "We've been focusing a lot on the SOA," Quinlan said. "I find that kind of exciting, because it seems to be giving us more flexibility."

SOA will help the DHCS move forward on various improvements, including health-care reform, automation, e-health records and e-prescribing. For Quinlan and her staff, it's all part of helping to improve the health of California's citizens. **JIM MEYERS, STAFF WRITER**

CIO, FLORIDA HOUSE OF REPRESENTATIVES

SCOTT McPHERSON

Becoming CIO of the Florida House of Representatives in November 2006 was like coming full circle for Scott McPherson, a Florida native who was elected to the House at age 25. Since then, he's been a legislator, political consultant, technology expert and disaster recovery authority.

McPherson has been a technology and communications consultant for 19 years, and has written a weekly technology column that's appeared in numerous major newspapers. He was also director of IT for the Republican Party of Florida. He led the state's Y2K preparedness effort, which was the largest IT project in Florida's history, and won several awards. He led the state's successful revitalization of its partnership with the U.S. Census Bureau. He headed the state's cyber-security effort, and then was appointed CIO of the Florida Department of Corrections.

Now in addition to being CIO for the Florida House, McPherson is nationally recognized as an expert in preparedness for influenza pandemics.

Obviously McPherson likes working in government. "To me, it's a very rewarding experience — the fact that we're able to actually implement change, implement efficiencies, and try to help people."

That desire to help motivated him to learn as much as possible about influenza pandemics. "Something inside of me said, 'I'm an expert in disaster recovery. I'm an expert in contingency planning. I just ran one of the largest projects in the state's history. I can certainly understand and recognize when there's a risk,'" McPherson said. It's a risk he felt compelled to investigate. His blog, on the subject, www.scottmcpherson.net is a key resource for many.

Should a pandemic occur, IT continuity would be a huge factor, McPherson said. Much of society depends on digital technology. "If you have any disruption in that ability to move those ones and zeroes in cyber-space, you're going to have a calamity," he said.

Although he's accomplished a lot, McPherson is most proud of the Y2K success, knowledge from which has helped Florida's efforts in information security, homeland security and pandemic preparedness. It's symbolic of McPherson's career. He's done many things over the years, but they all fit together.

JIM MEYERS, STAFF WRITER

FIRST LADY, WEST VIRGINIA

GAYLE MANCHIN

Ask Gayle Manchin to sum up her experience as West Virginia's first lady, and she arrives at two adjectives to describe it: adventurous and extraordinary.

A longtime educator, Manchin has used her position as a catalyst to transform West Virginia schools — a natural fit, given her background. "In the beginning I didn't see it as being very different from what I had been doing," said Manchin, who spent nearly 40 years in teaching-related positions. "I guess initially it was kind of a continuation."

In March 2007, her husband — Gov. Joe Manchin — appointed her to the West Virginia Board of Education to serve a nine-year term. Through her recommendation, the state is now consulting with Cisco on providing broadband access to remote areas.

She also advocated for a technology development initiative for higher education institutions — student teachers can get simulation training on classroom management, which is now being used in various schools statewide.

Manchin views technology as a vital resource for schools, particularly in such a rural state. She advocates distance learning and immersing technology in the school curriculum. But she doesn't see computers as a replacement for teachers.

"Teachers still have a great impact in students' lives," she said, "but I do think technology has the power to equalize schools and make sure students have the same access to the world and to learning opportunities."

> "Teachers still have a **great impact** in students' lives."

Manchin said her position as first lady lets her make a significant impact on West Virginia education. "If I look at anything in my career, it's that I was always looking forward," she said. "It wasn't until I was in this position for a while that I realized this truly is a window of opportunity to do more, be more, discover more and accomplish more."

Ultimately she intends to leave a legacy of improvement in West Virginia schools.

"I will be able to look back and have evidence that we have improved the lives of children and families in West Virginia, that we have done it through a better, more equitable education system, a better-skilled work force, a better collaboration between education at all levels — from preschool to higher ed," she said. "It isn't something that I have done individually, or that Joe has done individually. But through passion, or compassion maybe, that we have excited other people to get involved, and by doing that we've been able to make some great strides. I would hope that would be our legacy."

KAREN STEWARTSON, MANAGING EDITOR

DAVID WENNERGREN

DEPUTY CIO, U.S. DEPARTMENT OF DEFENSE

The U.S. Department of Defense (DoD) is the largest government agency in the world with the biggest IT budget of any organization — public or private — on Earth. The DoD has embarked on a massive transformation that will change the nation's armed forces into a network-centric military, where secure access to real-time information shapes the outcome of the next global conflict.

Few people possess the skill to lead such a large organization through a unique, IT-driven change. But David Wennergren does. As the DoD's deputy CIO and deputy assistant secretary of defense for information management, his task is to help the DoD create a 21st-century, net-centric military, where information is shared collaboratively across command structures, national boundaries and oceans.

Wennergren also has a less glamorous, more prosaic role: He is vice chair of the federal CIO Council, which must ensure that federal CIOs and IT get the attention they deserve in 2009 from the next U.S. president.

The role of today's CIO is about being a team player, working with others in a network-centric world, where solutions are about the enterprise. Wennergren firmly believes that and applies the lessons of teamwork to his job every day.

In an article published in *The Business of Government*, Wennergren mentions that as Navy CIO, he co-authored a book called *The Power of Team*. "It was geared to help organizations create effective CIO organizations, and the only way to have an effective CIO organization is to have an effective team," he said. "And so this idea about being a positive force for change and being able to work with, rather than against, others is hugely important. … We really can find ways if we work together."

TOD NEWCOMBE, EDITOR, ***PUBLIC CIO***

CIO/DIRECTOR OF INFORMATION TECHNOLOGIES, LAS VEGAS

JOSEPH MARCELLA

Las Vegas is one of the most wired cities in America. Ironically that's due in part to its late start in IT. When the city hired Joseph Marcella as its first CIO and director of information technologies 10 years ago, the new department had ground to make up. Bringing in Marcella from the private sector provided a great opportunity.

"We started this process, basically with a blank slate," said Marcella, who had previously worked in banking. "Coming to a city without an IT organization and building one, we didn't necessarily build it according to the way government IT was built before. So I never had to unwind any of that."

The banking industry is extremely centralized. Marcella took the same approach by simplifying things across 15 departments. He was determined to make sure a citizen, for example, would only have to give his or her name and address one time when dealing with the city. "From my point of view, I didn't know that you weren't allowed to do that in government, so I just went and did it," Marcella said.

Though it was difficult at times, the city centralized numerous activities. As a result, the city IT department provides more services with the same number of staff as 10 years ago. It's that sort of progress that earned Las Vegas consecutive Best of the Web awards in 2006 and 2007 from the Center for Digital Government.

Las Vegas has been one of America's fastest-growing cities for years now. As that continues, there will be more challenges ahead. But no one seems worried, Marcella said. "We're confident because the foundation is so well laid out."

Marcella said there are three objectives within his organization: Give customers what they need; keep systems working at optimum efficiency; and give management the information it needs to run things. It's a simple strategy. And it works.

JIM MEYERS, STAFF WRITER

FIRST DEPUTY, CHICAGO OFFICE OF EMERGENCY MANAGEMENT AND COMMUNICATIONS

JIM ARGIROPOULOS

Jim Argiropoulos presides over the most comprehensive city surveillance system in America — Chicago's 3,000-plus video cameras that are part of the city's Operation Virtual Shield. It's an assignment that came from humble beginnings: Argiropoulos started his career as a 911 dispatcher at 15 years old, and then worked for a decade as a paramedic in Kentucky.

"I've been there. I've jumped off the ambulance, I've had 10 people hurt in the middle of the interstate," said Argiropoulos, who is first deputy of Chicago's Office of Emergency Management and Communications (OEMC). "Now I'm on this side of the fence, implementing technology and strategies that assist the public safety entities," he said. "It's invaluable. You really can start to apply real-time and past intelligence with today's modern technology."

The technology the OEMC uses is almost futuristic. In 2007, the city fine-tuned its Unified Communications Vehicle, a mobile rig that can serve as a full-service 911 call center in the field. The city also finished an additional 30-mile-long fiber network for downtown on top of the existing network, which will let Argiropoulos pursue his next initiative: video analytics via a contract signed with IBM.

Chicago will start making its surveillance cameras "intelligent" this year. One of some 50 software algorithms will monitor suspicious activities. The camera, in turn, will zoom in and send the OEMC a visual and audio alert.

Though public safety is the most robust part of the camera network, a video analytics "tripwire" feature could also be used to count cars and pedestrians for traffic congestion surveys.

"Our mayor [Richard Daley] is so forward-thinking. What we're very fortunate about in Chicago is — police, fire, EMS, homeland security — we all get along together as a family," Argiropoulos said. "Because of the vision of our mayor, he's always challenging us to do more." **MATT WILLIAMS,** STAFF WRITER

ROSARIO**MARIN**

SECRETARY, STATE AND CONSUMER SERVICES AGENCY, CALIFORNIA

For decades, penetrating California government for services was a tedious chore, but the Golden State has made a belated entrance into e-government, and Rosario Marin is leading many of its critical projects.

Imagine trying to file a complaint about your employer while at work. Californians frequently took that risk before the State and Consumer Services Agency, of which Marin is secretary, implemented a 24-hour online appointment request tool. Previously citizens could only file complaints over the phone — often in a whisper — on weekdays between 9 a.m. and 5 p.m. "We have the technology now that gives people access to government at whatever time they want to do business with the state," she said.

Marin also used technology to improve state procurement and improve disaster recovery; she led an effort to slash the time it takes California state government to classify potential vendors as small businesses — a process that previously took months. "We went from months, to weeks to days to hours," Marin said. "Now, it takes 15 to 20 minutes to go through the process online."

As a result, 27.6 percent of state contracts came from small businesses in 2007, beating California's previously unreached goal of 25 percent small business procurement.

During the 2007 San Diego fires, Marin's staff created www.RebuildYourLife.ca.gov, a Web page distributing survival information to victims within 24 hours. "We had about 30 people in one room using their computers, knowledge and experience," she said. "It was amazing."

Now California, which could lose roughly 40 percent of its public work force to retirement in three years, plans to overhaul its hiring processes to make pursuing a state job easier.

PHOTO BY ANDREA BOOHER/FEMA

In San Diego, in late October 2007, a Northern California fire crew works into the night monitoring the back burn that was set to stop the Poomacha fire from advancing westward.

Currently applicants must wait several months for a hiring window to open before they can even take an exam and be ranked for consideration. "It's archaic — years behind," Marin said. "It's not easy to want to be an employee of the state of California."

Marin is leading an effort to let applicants apply online for state positions, which she hopes will eliminate bureaucracy and accelerate the approval process. "We want the top people that we can attract," she said. "We want finding a job in the state to be convenient for you instead of being convenient for the people providing the tests or doing the classifications." **ANDY OPSAHL, FEATURES EDITOR**

DIRECTOR, DARPA

TONY**TETHER**

The Defense Advanced Research Projects Agency is part military, part James Bond and part fantasy. DARPA is where the strangest concepts are built and tested. The agency was formerly known as ARPA, the group that created ARPANET — which you know better as the Internet. The agency is also responsible for projects ranging from unmanned supersonic aircraft to tissue regeneration to developing artificial gecko feet, which would allow users to scale walls.

The agency's highest-profile project is the DARPA Grand Challenge, the autonomous robotic vehicle race covered in *Government Technology*. (See *Game On*, December 2007.) The man who runs the show at DARPA is Tony Tether, a distinguished engineer, businessman, civil servant and private citizen who has served as the agency's director since 2001. The DARPA Grand Challenge, which Tether designed to foster innovation in robotics for military applications, represents a culmination of his effort to "team people with autonomous platforms to create a more capable, agile and cost-effective force that also lowers the risk of U.S. casualties."

DARPA has hosted three challenges to date. The first two pitted robotic cars against the elements. The competing vehicles ran an off-road, desert racecourse without human assistance. The most recent event, the Urban Challenge, was a new kind of test. The agency swapped rocks and sand for city streets to see how well the robot cars navigate an urban setting without violating traffic laws. The Urban Challenge was a rousing success and the end results surprised everyone, Tether included. Few expected a single vehicle to finish the grueling 60-mile course. In the end, six vehicles saw the finish line.

The Urban Challenge race marked incredible improvement in the capabilities of autonomous vehicles. In the first event, no vehicle managed to go more than eight miles. Only a few years later, a half dozen did, reflecting the positive impact the challenges have had on developments in robotics.

> "The 2004 event was **equivalent to the Wright brothers' flight** at Kitty Hawk, where their airplane didn't fly very far but showed that flight was possible."

"The 2004 event was equivalent to the Wright brothers' flight at Kitty Hawk, where their airplane didn't fly very far but showed that flight was possible," Tether said. "I believe the significant progress after 2004 was due to the fact that the community now believed that it could be done."

CHAD VANDER VEEN, TECHNOLOGY & POLITICS EDITOR

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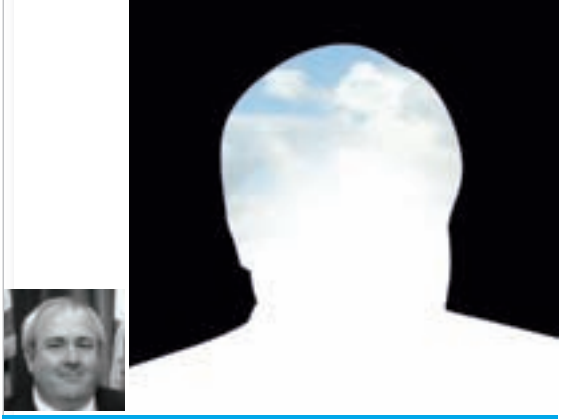

CRAIG FUGATE

DIRECTOR, FLORIDA DIVISION OF EMERGENCY MANAGEMENT

Craig Fugate has been called "low-key," "brilliant" and also "very in charge."

The first two descriptions might be debatable, but the third is not. Fugate is undoubtedly the force behind the successful response and recovery efforts during recent natural disasters in Florida.

"Craig Fugate is one of the brightest and most experienced emergency management professionals in the business today," said Trina Sheets, executive director of the National Emergency Management Association. "He is a forward-thinking risk-taker who pushes the envelope with each disaster to deliver aid faster and better to the citizens of Florida."

Fugate led Florida through some of the worst hurricanes in state history in 2004 and 2005, and he's recognized for making Florida one of the best-prepared states for natural disasters. Those efforts earned Fugate the National Hurricane Conference's 2005 Neil Frank Award, which honors excellence in hurricane preparedness, response and recovery.

Fugate helped Florida cut in half its response times to impacted communities during recent hurricanes, but he deflected the personal recognition. Instead, he praised the participants who helped to make it happen. The team, he said, is what makes him proud. The state's emergency response team is composed of state agencies, including the Florida National Guard, local government agencies, volunteers and the private sector.

He called the team "one of the best in the nation" and praised the state emergency management system that maximizes its capabilities and recognizes its strengths and weaknesses.

In 1997, Fugate was appointed chief of the Bureau of Preparedness and Response with the Florida Division of Emergency Management. He began immediately building the reputation of the state as a leader in mitigating disasters. In 2001, he was appointed director of the Division of Emergency Management and in 2004 managed the response to some of the largest disasters in Florida history.


Miami

His biggest emergency management challenge in Florida? "The unknown."

JIM McKAY, JUSTICE & PUBLIC SAFETY EDITOR

TIM BARBEE

DIRECTOR OF RESEARCH AND INFORMATION SERVICES, NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

In 2006, the Texas cities of Arlington, Carrollton and Grand Prairie pioneered a new business model in government. The result is a regional ERP system that may set the standard for implementing shared services in local government.

Tim Barbee, who at the time was CIO of Arlington, worked with a project team of representatives from all three cities and the North Central Texas Council of Governments (NCTCOG) to develop system requirements, release an RFP, evaluate bids and ultimately implement a shared ERP to handle financial, procurement and human resources for the three cities. The cities paid a fraction of what they would have paid for three separate implementations.

After the shared ERP was implemented, the position of director of research and information services at NCTCOG opened up, and Barbee went for it. "I was interested in the shared services concept, not just for this particular project, but in other areas too because to me, it just makes so much sense," he said.

"All of the cities do a lot of the same things. If you can come up with a way to share resources doing them, you can save a lot of money and spend the savings doing things that are value-added for the citizens — more police on the street, more firefighters, more money to parks and libraries — what the citizens really want anyway."

> The cities **paid a fraction** of what they would have paid for three separate implementations.

Now working for NCTCOG, Barbee's department handles research, such as demographic studies, that assist with regional planning. The department also provides information services to internal staff, as well as external entities. One project, which Barbee said predates him, is a hosted GIS application called iCommunities that takes data from cities and supplies it to users via the cities' Web sites using mapping applications and hardware managed by NCTCOG.

Barbee said his organization listens to the needs of the communities NCTCOG serves and looks for opportunities where shared services can make a difference. For example, the agency is finalizing a deal that would help smaller communities enjoy the benefits of ERP using a software-as-a-service approach.

"Our focus is to listen to the customers, and when they tell us that they need something — or if we see something we think they need, we'll go talk to them — but we focus on what the customers tell us they need and that's how we start to set up a new program."

EMILY MONTANDON, ASSOCIATE EDITOR

FORMER CIO, KENTUCKY

MARK RUTLEDGE

When Mark Rutledge became Kentucky's CIO in 1999, he was determined to use technology to grow his state's economy beyond manufacturing and agriculture, which had supported it for decades. "We all know manufacturing is going offshore. We all know agriculture is changing as the climate has changed," said Rutledge, who recently joined McAfee, an anti-virus software provider.

As CIO, Rutledge wanted to foster a **technology-centered culture** in the state with an e-government initiative for citizens to interact with government online.

As CIO, Rutledge wanted to foster a technology-centered culture in the state with an e-government initiative for citizens to interact with government online. He hoped the technology agenda would grow the tech industry's interest in the state.

In the past, Kentuckians had to visit agency offices, mainly residing in three of the state's major cities — Frankfurt, Louisville and Lexington. Rutledge persuaded various agencies to partner with his Commonwealth Office of Technology (COT) on a state Web portal in 2003. Kentuckians now use the site to renew licenses, obtain legal services, apply for state jobs and find state employees, among other things.

The COT contracted portal maintenance to NIC, which agreed to share some of its revenue when the site became profitable. Rutledge used that revenue to partner with a government-created nonprofit called Connect Kentucky, which helps local governments build their own Web portals, and collaborate with school districts, libraries, county clerks, courthouses and other local agencies to create unified, "one-stop shop" portals. Roughly 100 of the state's 120 counties participate in the program.

Before using the portals, however, Kentuckians needed reasonably fast Internet connections. Most rural areas had no broadband access, and providers refused to build an infrastructure. The Kentucky Public Service Commission (PSC) required providers building those infrastructures to charge a set price for services and allow competing providers to use that infrastructure. The PSC also let smaller providers charge cheaper rates than the major providers that built the infrastructures.

Rutledge persuaded the Kentucky Legislature to remove the PSC's broadband regulation authority in 2005, enabling providers to build infrastructures and charge what the market will pay, which generated more than $700 million in broadband infrastructure investments across the commonwealth, Rutledge said.

"Kentucky is the fastest-adopting broadband state in the country," he said. "We have broadband available in more than 98 percent of our entire foot map. For that other 2 percent, we're partnering right now to get people in the wireless communities to cover that so we can say we have 100 percent."

"We all know manufacturing is going offshore. We all know that **agriculture is changing** as the climate has changed."

ANDY OPSAHL, FEATURES EDITOR

CONTINUED ON PAGE 55

IMAGINE AN EMPLOYEE WHO SPENDS 90 PERCENT OF THE WORKDAY WANDERING THE HALLS AND TAKING CATNAPS. In most organizations, that person would be sent packing before closing time on Friday. But not so in data centers. Governments all over the world keep them packed with servers that are kind of like this hypothetical slacker — they don't live up to their potential.

"Average CPU utilization is probably somewhere in the range of 5 percent to 7 percent, maybe 10 percent to 12 percent on a server that's really being taxed," said Tennessee CIO Mark Bengel.

Just as each person in an office — productive or not — commands a desk and chair, a paycheck and benefits, each server box in a data center takes up floor space, arrives with an initial price tag, and generates ongoing costs for software licensing, power, cooling and maintenance. These costs accrue whether the box performs at 5 percent of capacity, or 75 percent.

The desire to get a much bigger return on hardware investments is one reason some government organizations turn to virtualization technology. Virtualization uses software to simulate multiple entities inside one physical server box. Each entity has its own personality and performs as though it is a real component.

Virtualization can mean, for example, creating 20 independent servers in one physical box, each with its own operating system and configuration, and the ability to run a separate application. It might mean creating a dozen desktop PCs from one server and 12 thin clients, or dividing the resources of one network infrastructure into what looks like three entirely separate networks.

VIRTUAL SERVERS AND DESKTOPS **SQUEEZE MORE WORK** FROM LESS COMPUTER HARDWARE.

LET'S [NOT GET PH

BY **MERRILL DOUGLAS** | CONTRIBUTING WRITER

Tennessee CIO **Mark Bengel**, left, and Executive Director of Data Center Operations **Max Arnold** at the Tennessee Data Center.

YSICAL

PHOTOS BY BOB SCHATZ

Much interest in virtualization focuses on servers. One important reason data center managers create virtual servers is to consolidate facilities, running more applications on fewer physical boxes.

That strategy offers several benefits, said Gary Chen, senior analyst with the Yankee Group. "No. 1, you'll save money on hardware: You won't have to buy as many servers. No. 2, you'll save money on space." Most government agencies and private companies pay for data centers based on square footage, he said.

"No. 3, you'll also save on power," Chen added. That's good for the environment as well as for the financial ledger, he said.

Virtual servers also make it easy to troubleshoot hardware and plan for disaster recovery. Because virtual servers are simply software, if the box they're running on experiences hiccups or crashes altogether, it's easy to slide them onto another piece of hardware, leaving end-users none the wiser, Bengel said.

Spin it up

The server farm in Tennessee's state government data center hosts 350 virtual machines. If a physical server breaks down entirely, the storage area network (SAN) that houses the virtual servers can send them to a different box, Bengel said. "It gives you tremendous flexibility to perform maintenance in the middle of the day, which you normally couldn't ever do." And if a disaster hits the data center, the SAN can send any virtual server to a backup location. "I can just spin it up at another farm at another site, and everything is intact, including the IP address."

Virtual servers work well for testing updates, code changes and patches, said Rob Campbell, senior technology specialist with the Microsoft Federal Team. They also reduce the amount of hardware a person needs to lug around when demonstrating applications, he said. "If I want to set up a demo environment that has multiple servers and clients interacting, I can do all of that on top of one laptop, because each of the demo machines can run in a virtual environment," Campbell said.

A virtual server also is an ideal platform for software developers who need a machine for a few months, said Max Arnold, Tennessee's executive director of data center operations. "Once they have [the software] developed, they no longer require that server," Arnold said. The data center can simply absorb the virtual server back into the farm. "So you're not stuck with a large investment that you no longer need."

That's just one example of the flexibility that makes virtual servers easier to manage than physical machines. Instead of requiring a computer and an operating system to run an application, you just need a few files, Chen said. "I can move them to any server that has the virtualization software installed on it, whether it's local or half-way across the world. And you can do it just like copying files."

Leading companies that offer virtualization software include VMware, Microsoft, Oracle, IBM and Citrix.

One thing virtual servers don't do well is run large, demanding applications that need to move large streams of data through the CPU quickly. "The translation between the virtual hardware and the physical will have a performance hit," Campbell said. "You should virtualize based on intended workload and the performance profile."

"If you have a large application that has a tremendous amount of I/O [input/output], whether it be a database, or an application server, virtualization may not be your best candidate," Bengel said.

More Machines, More Work

Officials in Tennessee's IT office became interested in virtualization when the state began working toward a centralized computing model. Back when client/server systems were in vogue, the volume of data passing over limited bandwidth prompted agencies to house servers in their own facilities. As network bandwidth grew more abundant and the client/server model gave way to Web-based applications, the state moved servers back into a central data center. That posed a problem for the data center: More machines meant more work for the technical team.

"I wanted to be able to do consolidation while minimizing the amount of additional staff that I had to add to my data center," Bengel said. By reducing the number of physical machines required in the center, virtualization allowed Tennessee to manage more servers with fewer employees.

In the past, a systems analyst or systems programmer took charge of 25 to 30 machines, Arnold said. "Now I have upward of 70 machines per person."

The data center runs mostly Sun Fire X4600 machines, with an average of 25 virtual servers running on each dual-core box. There's also a server farm with some single-core HP ProLiant DL580 servers, which average 10 virtual machines per box. The state uses VMware virtualization software.

One of the initial challenges Tennessee IT officials faced as they implemented virtual servers was determining which applications would run well, and which made too many demands on the software. "We had to do some experimentation to find out," Bengel said.

They discovered that a virtual machine makes a great Web server or application server and can handle a small database, he said. "It doesn't make quite as much sense with really big applications — although even with, for example, our Web servers on our [enterprise resource planning] application, which is one of the largest in

the state, we've found that virtualization is working great."

Tennessee's virtual servers will soon find a new home in two data centers that the state is building to replace its 20-year-old, 70,000-square-foot facility. At 35,000 square feet apiece, each of the two new centers will house half the state's active servers, and each will serve as the disaster recovery site for the other. If one center becomes unusable, staff can quickly move applications from virtual servers in one building to the other.

"And actually, with all of our critical systems, we won't even have to move the data over," Bengel said. Each time a server in either center conducts a transaction, it will write the data simultaneously to SANs in both facilities. "The data will be in both places, so all we have to do is recover the physical boxes and systems, not the data," he said.

3,000 and Counting

Virtual servers also are part of the data management strategy at the Collier County Public Schools in Naples, Fla. But the school district has taken virtualization a step further. Following a successful pilot program of virtual desktops in 2006, it started implementing that technology in earnest. So far, Collier County Public Schools has served up 3,000 virtual desktops to end-users, and the number continues to grow.

"Our goal with this first phase is to get up to 6,000," said Thomas Petry, the school district's director of technology. With some 44,000 students and 5,000 staff, the Collier County Schools operate a total of 25,000 desktops. District officials eventually would like 90 percent of them to be virtual machines, he said.

Collier County hosts the virtual desktops on HP ProLiant BL35p blade servers running HP VMware ESX virtualization software. The servers "push" virtual desktops, including operating systems, configurations and applications, to users working on HP dc7600 thin clients.

The main reason the school district started deploying virtual servers was to reduce the time technicians spent troubleshooting desktop machines in the field, Petry said. "It gives us more time to spend on other things besides just fixing the same old desktop problems over and over."

Because the virtual desktops reside in the district's data center, technicians at a central help desk can solve most problems remotely. Technicians also can discard troublesome virtual machines and request new ones by clicking that option on the Web site where they log in.

"To us, they're not real machines, so they're not commodities," Petry said. Technicians delete the discarded machines, or if they think the trouble may recur, they can mark certain virtual desktops for further study.

"We want to make sure we don't have trends, where the same problem is happening to hundreds or thousands of machines," Petry said. "As time permits, technicians review the machines that have been 'trashed' and see what was going on with them, why they were trashed."

The virtual desktops also offer substantial hardware savings, since thin clients don't become obsolete nearly as fast as full-fledged PCs do. "They only have to be refreshed when major thin client technology refreshes. So you really only have to refresh the technology in the data center," Petry said. If a user requires a faster computer, technicians simply assign more RAM or other resources to his or her virtual desktop — an easy software operation.

Virtual desktops don't work well for graphics-intensive applications, the kinds used by video editors or engineers, Petry said. "Those just do not play well in the virtual desktop space." But only about 0.5 percent of the desktops in the Collier County Schools require that kind of power, so this limitation isn't an issue, he said.

User Pools

One strategy the district pursued for phasing in virtual desktops is grouping together users who require the same applications and have similar workloads. Each of these groups forms a user pool, and the data center assigns each group a pool of generic desktops. When a user signs on, he or she doesn't necessarily get the same desktop every time. But since all the desktops in the pool look and behave the same, the user doesn't know the difference.

The user can't customize the desktop or install extra applications, but at the same time, there's less chance a virtual PC user will make inadvertent changes that mess up desktops and drive IT technicians crazy.

"If you can get users to the point where they can use as generic a desktop as possible, and you can do this application push — where they have the applications they need any time, anywhere — then it really reduces the workload on your technicians," Petry said.

For users whose jobs require custom configurations, the virtual desktop software provides "sticky sessions," allowing them to get the same desktops every time they log in, Petry said.

The major challenge Collier County faced in implementing virtual desktops was choosing a virtualization software package that met all its needs. "Even with the [VMware] Virtual Desktop Manager, we're dealing with small glitches," Petry said. The district is working with the vendor to iron those out.

But virtualization technology definitely works; most users don't know they're not using standard PCs, Petry said. "It's very seamless. People just seem to get in there and experience it for themselves and figure out how easy it is to use." GT

MERRILL DOUGLAS MDOUGLAS@STNY.RR.COM IS A WRITER BASED IN UPSTATE NEW YORK. SHE SPECIALIZES IN APPLICATIONS OF INFORMATION TECHNOLOGY.

No Data Left Behind

Synopsis: New Mexico implements an educational data tracking system to ease federal reporting, improve operational efficiency and help educators boost student achievement.

Jurisdiction: New Mexico Public Education Department.

Technologies: Data warehouse, data collection and business intelligence software.

Contact: Daryl Landavazo, NM STARS IT Project Manager, Daryl.Landavazo@state.nm.us, 505/795.0178.

Longitudinal educational data system offers New Mexico better accountability.

A key requirement of the 2002 No Child Left Behind Act (NCLB), federal legislation aimed at improving primary and secondary schools' performance, was to implement accountability systems that analyze student and educator data, and report those results to the U.S. Department of Education. These reporting systems were heralded as an effective way to help state departments of education collect statistics to assess teacher proficiency and student progress.

"It's really important to be able to follow individual students from grade to grade, school to school, district to district and see how they are doing over time," said Jim Hull, a policy analyst at the National School Boards Association (NSBA). "We haven't been able to do that before."

In addition, educational data systems offer the advantage of getting assessment data back to educators faster than before. "You had the old-fashioned assessment test that's taken in April and no one gets results until October or November. It's not a useful timeframe; those kids have moved on," said Ann Flynn, director of education technology programs at the NSBA.

While there is little doubt that collecting more specific data — and publishing the results more quickly — is beneficial to educators, many states have struggled with how to best implement data systems. Limited funding, institutional resistance to change, and schools' use of various student information systems have been impediments.

New Mexico officials, however, believe they have solved some of those issues with the state's Student Teacher Accountability Reporting System (STARS).

Longitudinal Student Data

STARS is a statewide, "longitudinal" educational information system that collects data from students through all grade levels, starting in kindergarten and continuing through the 12th grade. Although NCLB doesn't require longitudinal systems, states such as Florida have shown that having that kind of long-term data can be a useful measurement when assessing how well a school, district or state is meeting educational benchmarks for schools and individual students. Florida has electronically collected longitudinal student data since the 1980s, allowing the state to make decisions about its schools based on comprehensive, accurate and timely data.

In New Mexico, the STARS system collects and aggregates a variety of student data: demographics and achievement information, exam scores on state- and federally mandated tests, districts' financial information, and teacher licensing data. "At a minimum, the system collects information on students, teachers, staff, programs and schools," said Philip Benowitz of Deloitte Consulting, the engagement director for the STARS project. "But there's no limit to what the system could collect. We're still in the early stages of understanding what makes sense and what's really valuable."

Moreover, the system standardizes data so it can be reported to the federal government as required by NCLB.

But Benowitz asserts that STARS has value beyond NCLB compliance. New Mexico can provide data to the school districts for their own analyses and use. "The intent and the spirit is to put the data in the hands of educators and analysts who can make a difference in student achievement — the classroom teacher, the principal, the state educational analyst,"

BY KAYT SUKEL | CONTRIBUTING WRITER

he said. "People who can help to improve the curriculum and student achievement."

Creating Interoperability

New Mexico CIO Roy Soto said it was a challenge to determine the best way to collect and consolidate data. "New Mexico is no different from any other state. We have 89 school districts, all collecting data in a different form and fashion."

Unlike many other states, New Mexico had been collecting student-level data since 1997 with the STARS predecessor, the Accountability Data System (ADS). But ADS had maintenance and system integrity issues. Before making critical implementation decisions on a new system, the state conducted several legislative audits. After careful consideration of the results, the state chose a data warehouse solution and put out an RFP to find a vendor.

"We basically took the audits, with specific emphasis on what needed to be fixed, and put them into our request for proposal," said Robert Piro, CIO of the New Mexico Public Education Department (PED). "Deloitte Consulting presented us with a solution based on eScholar and Cognos."

With eScholar, an educational data collection and analysis tool, and Cognos business intelligence software, Deloitte created a commercial-off-the-shelf system that allows school districts to collect data as they've always done.

"In New Mexico, there are a dozen or more student information system vendors that have systems in place in one or more of the 89 school districts. The last thing we wanted to do is mandate that they all use the same system," Benowitz said. With the STARS solution, school districts can continue using their existing systems and produce a flat extract data file that can be uploaded to the data warehouse automatically.

New Mexico implemented the system in nine months. "We started the prototype in December of 2005, and then did a pilot with 11 districts in spring 2006," Piro said. "We're now in our second year of data collection."

Overcoming Resistance

One of New Mexico's biggest hurdles was change management. Since the system was implemented in less than one year, there was pushback at the district level from some educators.

"When you have so many different entities that are basically independent, doing things a certain way, it's hard," Soto said. "Some people saw it as, 'Here comes Big Brother.'"

Although school districts could keep their internal systems, the move to STARS required a redefinition of processes for what kind of data to collect and when to collect it. This caused some consternation from districts that already had workflows in place.

Daryl Landavazo, New Mexico's STARS IT project manager, said the districts have been collecting student-level data for some time. "So the assumption was, 'We're using data; we know how to report, and we know what we're collecting,'" he said. "But that's not always the case."

To combat resistance, the STARS team marketed a proof-of-concept system to both the school districts and the Legislature. "We showed them the proof of concept, and said, 'This is what STARS is going to be and this is what it can do.'"

New Mexico is now in its second year using the system, and the marketing endeavors have borne results. "People are not pushing back now that they are seeing more information come back to them," Piro said.

That's critical, according to the NSBA's Flynn. "Educators need to understand that the data collected provides information to help improve instruction. They shouldn't see it as a punitive tool that points fingers."

Moving Forward

Despite the fact that the system has only been operational for two years, STARS has proved to be productive.

"One of the things STARS found was an $18 million funding error," Piro said. New Mexico funds instructional aides for schools, but only certified staff. Once data was uploaded into the STARS system, the state learned it was paying for aides who did not qualify.

Beyond that, STARS has allowed schools to generate yearly progress reports, view student assessment reports and check teacher qualifications.

"We've taken the manual process out of this thing," Piro said. "We can now determine the status of any teacher in the state. It was something we could never provide before. We had the data but just couldn't put it together."

Though the STARS system isn't the first state longitudinal educational data system, Landavazo believes it's in the top 10 percent of what's out there now. New Mexico is currently working to expand STARS so it can track students from prekindergarten to higher education and offer an educational portal to teachers for accessing educational data.

> "We can now **determine the status of any teacher** in the state. It was something we could never provide before. We had the data but just couldn't put it together."
>
> **Robert Piro,** *CIO, New Mexico Public Education Department*

"We now have a lot of impressive data in the warehouse," Landavazo said. "We want to create a business intelligence tool where teachers can log in, look around and grab the data that is pertinent to them." Landavazo describes it as a My Yahoo-type page where teachers can intuitively access reports that can help them improve student achievement in the classroom.

Soto is pleased with STARS, and he believes New Mexico has created a model that other states can follow. "I think we've done it for less money and we're further ahead than anyone else," he said. The system was implemented with an initial $6.5 million budget, and it received legislative funding infusions of $2 million and $2.5 million in the two years since its inception.

"But you have to have an understanding of where you are going and how long it will take to get there," he said. "Sometimes people want results overnight, and that just doesn't happen." GT

KAYT SUKEL IS A WRITER BASED NEAR FRANKFURT, GERMANY. HER WORK HAS APPEARED IN THE *WASHINGTON POST, GOVERNMENT HEALTH IT* AND *HEALTHCARE INFORMATICS.*

Synopsis: San Jose announces aggressive plans to become the leading green city in America, including powering its entire geography with renewable energy.

Jurisdiction: San Jose, Calif.

Technologies: Renewable energy, servers, desktops, laptops and natural cooling.

Contact: Collin O'Mara, clean technology policy strategist, San Jose, Calif., 408/535-8181.

Conservation King

San Jose, Calif., announces plans to run almost all its infrastructure on renewable and energy-efficient technologies.

Green initiatives driven by local governments are popping up all over the United States, but San Jose, Calif., might be taking the movement further than any other city. San Jose Mayor Chuck Reed recently announced a 15-year, "Green Vision" plan to power nearly the entire city with renewable and energy-efficient technologies.

Conserving energy is just one goal of the initiative. Reed sees it as a way to spur job creation, said Michelle McGurk, public information officer of the San Jose mayor's office. As demand for green IT expands, a growing number of experts view energy-efficient technologies as a potential source of numerous, high-paying jobs.

San Jose's work force is poised to make the city's lofty green goal a reality, said Collin O'Mara, clean technology policy strategist for the city.

"We have a lot of IT companies looking to get involved in the energy monitoring business. We also have many architectural firms that are now becoming green building experts," O'Mara said. "We're seeing it over and over again — companies are really trying to become innovative and drive the products that we're going to need to become more sustainable."

Power Source

To power the entire city with renewable energy, San Jose will attempt to reduce energy consumption by 50 percent. California already has mandated that all of its public utilities must generate 20 percent of their power from renewable sources by 2010 — but that requirement might climb to 33 percent by 2020, according to the California Public Utilities Commission.

San Jose's eventual target is a 100-percent renewable energy benchmark. The city's hopes for meeting this aggressive goal rest on the market's ability to deliver new innovations during the next few years. San Jose's work force is ideally suited to deliver the necessary technology, O'Mara said.

"We have one of the most talented work forces in the country. We have access to venture capital dollars. We have a growing consumer base that is more advanced than other parts of the country; demand more green products. Combine that with the high-tech research institutions in the area, like the University of California, Berkeley; San Jose State University; and University of California, Santa Cruz," O'Mara said, adding that promising technologies were already emerging in San Jose.

"We're seeing a real renaissance in onsite solar-power generation. It's not just the tra-

BY ANDY OPSAHL | FEATURES EDITOR

ditional photovoltaic cells," he continued. "We're seeing a lot of great innovation in solar thermal technology, where they concentrate the power of the sun to generate electricity. We're also seeing an amazing innovation with thin film. Instead of the bulkier voltaic cells, it's a more malleable purchase, so you can put it on curved areas."

The city plans to be a big part of California Gov. Arnold Schwarzenegger's initiative encouraging citizens to install 1 million solar roofs by 2018. The initiative aims to allow homeowners who install solar panels to sell back the excess energy they produce to their local public utilities. Customers using Pacific Gas and Electric, Sacramento Municipal Utility District and Los Angeles Department of Water and Power can participate in the program.

"Our overall goal is to have 100,000 of Gov. Schwarzenegger's 1 million solar roofs installed here in San Jose," McGurk said.

However, an obstacle is blocking the city from that goal. California Public Utilities Commission regulations block San Jose citizens from selling power to their local public utilities. Policy analysts in Mayor Reed's office are exploring ways to change those regulations, said McGurk.

More than 40 percent of the greenhouse gas emissions in San Jose come from lighting, according to O'Mara. Many local governments are switching traffic lights to light-emitting diode (LED) technology, which use between 82 percent and 93 percent less energy than traditional incandescent lights, according to the Lighting Design Lab, a project of the nonprofit Northwest Energy Efficiency Alliance. LED lights, depending on the model, can last for years, while incandescent lights last for months. San Jose already has LED traffic lights, but wants to go a step further, powering each with a solar harvesting device.

Overall, the city expects to invest in a diverse combination of emerging renewable technologies to make the 100-percent goal possible.

"We'll do some things with fuel cell technology and the electric chemical technology that's coming out," O'Mara said. "There are a lot of opportunities with water throughout the coastal area. We're not saying that 100 percent of it has to be derived onsite in the city, but the power that we're buying will come from renewable sources."

Tapping Landfills

San Jose already has one of the highest recycling rates in the country: Sixty-two percent of its garbage is recycled. The city plans to ramp up those efforts with a campaign encouraging residents to purchase easily recyclable products. San Jose plans to convert to energy, anything that is remaining in the city landfills, helping it reach another green goal — converting 100 percent of San Jose landfill waste to energy.

"The idea is to make it a continuous string where we're diverting and recycling as much as possible. The little bit that's left on the biosolid side, we're converting to energy. That's what we're talking about when we say 'waste-to-energy.' We're not talking about incinerators. The problem with those is they create power, but they pollute," O'Mara said.

> "**Our overall goal is to have 100,000** of Gov. Schwarzenegger's 1 million **solar roofs installed here in San Jose**."
>
> **Michelle McGurk,** *public information officer, San Jose Mayor's Office*

Green IT

Most government data centers consume huge amounts of power. Many local governments pursuing green initiatives include data center overhauls, which consolidate servers and deploy more efficient cooling systems.

San Jose was ahead of the game on green IT. In 2005, San Jose built a new city hall building and relocated several departments to it. Before the move, those departments occupied several buildings, each with its own data center. Sharing one data center enabled those agencies to slash power consumption.

Thanks to high levels of sunlight, California can benefit greatly from solar power. Reducing dependence on fossil fuels and nuclear power, and opting for clean renewable energy such as solar power, can protect the environment while also diversifying energy resources and lowering energy prices. Solar power can also reduce strain on the electric grid by generating electricity. *— Environmentalcalifornia.org*

The facility also uses a cooling system that sucks in the cold air from outdoors at night to naturally cool the equipment.

"By mixing [cooler] outside air with the chilled water, we're able to reduce the amount of water we need to chill," said Vijay Sammeta, division manager for IT in San Jose. The city which also is working to further reduce data center power consumption with server virtualization technology. This allows the work of up to 10 normal servers to be done on one by transforming hardware into software.

The city recently switched to more energy-efficient desktops and laptops, and it also mandated that all the city's electronic IT hardware must be approved by the Electronic Product Environmental Assessment Tool (EPEAT). The EPEAT is a set of energy-efficiency criteria created by the nonprofit Zero Waste Alliance through a grant from the U.S. Environmental Protection Agency. Many vendors view it as the strictest standard to meet for green products.

"We've seen about 40 percent to 50 percent less energy use coming out of those [new computers] than the ones we were buying five to six months ago" Sammeta said. "We are now redoing our desktop contract to incorporate green requirements and calculating energy savings as part of the total cost of ownership."

He said he hoped the city would implement a five-year replacement cycle for that equipment as part of its green agenda. That would enable the city's IT to keep up-to-date with energy-efficient hardware, making the city greener. But Sammeta said persuading city leaders to fund that replacement cycle has been difficult because San Jose is struggling with a tight budget right now.

"The opportunity is right because manufacturing from different vendors, especially the big players, has really gotten on board," he said. "It means investing in those technologies, getting on a PC replacement cycle on a four- or five-year cycle, as opposed to 10 years." GT

Synopsis: Researchers have discovered a fast, economical way to test a community's wastewater for drugs, which could be valuable to law enforcement.

Agency: Medford, Oregon Police Department.

Contact: Caleb Banta-Green, researcher, Alcohol and Drug Abuse Institute at the University of Washington, calebbg@u.washington.edu, 206/685-3919.

Community Drug Test

Researchers develop method of testing wastewater for pharmaceuticals.

Wouldn't it be interesting to know if your neighbors are taking illegal drugs? Though it's not feasible to pinpoint exactly who is doing them, it is possible to detect trends in communitywide drug use with a new, simpler test that samples a teaspoon of wastewater.

Two researchers from the Pacific Northwest have simplified a procedure that is, in effect, a urinalysis for an entire community. The test's main goal is to determine how the environment is being contaminated by pharmaceuticals that are flushed down toilets and throughout sewers. But law enforcement and public health officials also might find a new stream of data they can use to fight emerging drug problems.

The wastewater test could be used to identify drug-use trends, such as the prevalence of methamphetamine, which has been a source of angst for law enforcement in parts of the Northwest and the rest of the United States.

"What we used to see with methamphetamine labs was, for many years, the number of labs were increasing," said Caleb Banta-Green, a researcher with the Alcohol and Drug Abuse Institute at the University of Washington, who was involved in developing the new procedure. "Now they're declining.

BY JIM McKAY | JUSTICE AND PUBLIC SAFETY EDITOR

I was doing mapping, and I could see that as numbers declined, [meth labs] were getting pushed from urban to rural areas. That's a perfect example of a phenomenon relevant for law enforcement."

Medford, Ore., Police Chief Randy Schoen said his department hasn't discovered a meth lab in two years since the state passed a law requiring customers to register and present ID to buy over-the-counter medications, like Sudafed, that are used in the manufacturing of meth. "We would be interested in the results of the meth chemicals in the water as that would possibly alert us of meth labs that may be operating in our area," Schoen said.

New Procedure

Wastewater treatment plants are tested regularly to maintain functionality and to assure they comply with state and federal discharge requirements. They are tested for pH, residual chlorine and biological oxygen — but not drugs. Plants must report on how well they are functioning, but they typically aren't required to report on the presence of pharmaceuticals.

The new wastewater drug test streamlines existing ones; it's cheaper and speedier. The typical testing method — tandem mass spectrometry — identifies the unique products of various drugs by determining their molecular weight. It requires, however, a time-consuming step to concentrate the samples. Banta-Green and Jennifer Field, a professor of environmental and molecular toxicology at Oregon State University, eliminated that step.

"[Treatment plants] take a number of small samples over a 24-hour period and put them into a single container, and then a subset is tested for the things they usually monitor," Field said. "We ask for a portion of that, and that's brought into a lab and analyzed. What our methodology does is quantify and produce a concentration of each drug, metabolite or biomarker in the whole water sample."

A biomarker is a substance in the water — one example is caffeine — to which the measurement of drugs, such as meth and cocaine, can be compared. Caffeine, probably found in the wastewater of every community, is considered an accurate biomarker to other drugs.

The researchers multiply the drug concentration numbers found in the wastewater by the total flow of the plant, which yields a calculation that is the total mass of the drug coming from the community. "You can then divide by either the stated population or some other biomarker of population," Field said. "You get a per capita, equivalent drug excretion for that municipality."

Field said there were a few surprises in what she and Banta-Green found in the water the first time they used their new process to test a local community. "What surprises me could simply be a function of my naiveté," Field said. "For example, there are enough users excreting enough drugs that it's measurable."

She also was surprised to get queries about the confidentiality of the test: There's no way to pinpoint who is using drugs and who isn't because the sewer is a public commons. Everybody uses it. Field said the drugs found in the water were the "usual suspects," including cocaine, LSD, heroin and meth.

Chemical Society

Most of what is ingested by humans eventually ends up in the toilet and becomes wastewater. One of the goals for wastewater drug tests is to determine how much pollution is created by flushing human waste containing pharmaceuticals into rivers and streams.

It's a question being asked in many places around the country.

In Benton County, Ark., an eight-member committee was formed to investigate the amount of water pollution caused by pharmaceuticals being flushed down the toilet.

In Montana, a hydrologist tested 35 drinking water wells and found 32 were contaminated with pharmaceuticals, endocrine disrupters (hormones and birth control drugs) and personal care products. The hydrologist concluded that when expired prescription drugs are flushed down the toilet, people and wildlife could ingest them secondhand.

In Helena Valley, Mont., researchers found acetaminophen, caffeine, nicotine, codeine and antibiotics in backyard groundwater.

No one exactly is sure how these chemicals affect fish and wildlife, let alone humans. The ability to test wastewater — and increasing interest in doing so — may shed light on questions researchers haven't answered.

Tracking Trends

The new test method could be used to track drug excretion rates over time to spot trends that may be applied to drug intervention policies, Field said. "I see a lot of interest in individual communities to simply know if they have a drug issue that you can see in their [wastewater]."

The method could be used as an early warning system for the presence of drug problems within a community, according to Banta-Green. There's typically a lag of five to 10 years between the time an individual starts using drugs and the time he or she gets treatment. Mortality is obviously another indicator with a long lag time. "With this [wastewater test], theoretically, there's not a lag," said Banta-Green. "We're talking about a 24-hour lag, not a five-to-10-year lag."

The new test could give law enforcement a head start on addressing drug problems, enabling agencies to allocate resources before problems get out of hand, Banta-Green said. "This would give law enforcement the data to go to captains or chiefs and say, 'Not only do we think we're seeing drugs, we're hearing about it and it's in the water.'"

The test, however, cannot tell exactly how many people are using drugs and who they are, Banta-Green said. "We're really talking about a community load of a drug, and not how many people it is."

But there is some correlation between the load and heavy use by a community. If the test indicates a large load of meth in the wastewater, that's a good indicator of substantial use. "It's crude in terms of trying to quantify the number of people," Banta-Green said.

The utility of the test is being able to track drug-use changes over time and how it moves within a region, he said. "If it's getting done throughout the state, you can know geographically where it is, and if it's spreading." GT

Synopsis: The Minnesota Department of Employment and Economic Development deploys an almost-paperless, Web-based system to expedite unemployment insurance processes.

Agency: Minnesota Department of Employment and Economic Development.

Contact: Kirsten Morrell, spokeswoman, Minnesota Department of Employment and Economic Development, Kirsten.Morell@state.mn.us, 651/259-7161.

Reinventing the System

Minnesota self-service Unemployment Insurance Program improves efficiency.

When Minnesota's economy took a nosedive in the late 1990s, thousands of newly unemployed workers struggled to get by on unemployment insurance — and the state's Department of Employment and Economic Development (DEED) was saddled with piles of paperwork.

All applicants to the system had to complete an initial screening and weekly review. They had to show they were seeking a job and entitled to an unemployment insurance check. Each of the state's 130,000 employers was required to keep up-to-date tax information on file with the state's Unemployment Insurance (UI) Program office.

"Imagine a 10-by-10-foot cube filled with paper," said Kathy Nelson, the director of Minnesota's UI Division.

Those were dark days, filled with recession and cardboard boxes. Because an economic downturn is what unemployment insurance is there for, the office's leadership decided to do something to get rid of the boxes.

Former UI Director Jack Weidenbach envisioned and sold state officials on a nearly paperless system to relieve the burdened and small UI staff. The new system was designed to handle the glut of applications that would inevitably, as the economy soured, bog down the paper-based system. "The concept was, how do you build for the future?" Nelson said. The UI program wanted a solution to respond to any fluctuations in the unemployment rate.

From those seeds of discontent, rooted in the recession nearly a decade ago, Minnesota developed a streamlined Web-based system to efficiently serve applicants and employers, and cut the state's labor and paper costs.

Self-Service Unemployment

The UI system's initial phase rolled out in 2005, and focused on letting companies self-report their tax information. In the past, state staff calculated what each company owed to the UI program based on that company's employment and financial records. Today, the company enters the relevant data itself, and the software returns an updated balance due. It even alerts companies to periodic updates.

"We needed to get out of the data entry business," Nelson said. "The work we do with the most value is determining whether employees should be paid, and whether employers should pay for that."

This let the UI office cut its staff from 60 employees to 20 because they no longer needed to calculate employers' payments, a time-consuming duplication of labor.

"We can now get done in one month what used to take three," Nelson said.

Melinda Skalicky, who works for Technology Navigators Inc., a consulting firm in Owatonna, says although online tax payment systems are now commonplace, she was won over by the online UI system's clarity amid so many dense tax regulations.

"It's very confusing," she said about tax regulations. "We thought we had submitted everything for the quarter, but it turned out we hadn't." She started looking for information on Minnesota's UI Program because the company was continuously getting fined.

When she explored the new UI program site in April 2007, Skalicky said she found answers to her questions, payment alerts sent by the system and free tutorials the state offers on how to use the program.

BY PATRICK MICHELS | CONTRIBUTING WRITER

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Doing More With Less

In November 2007, the UI added an online application process that makes the program more efficient and user-friendly. Those without computer access can apply via a new phone system instituted with the program overhaul. The new application system is more responsive to unemployment surges and slowdowns — a crucial feature for the state.

"Minnesota probably has one of the highest seasonality rates in the nation," Nelson said. The state's unemployment rate peaks in mid-January, during the state's harsh winters when construction and other outdoor work slows. "When we have the seasonality rates that we have, it's hard enough. In a recession, that pretty much doubles and it hits fast. There's no way we could ramp up for that kind of volume," she said. "If people use the online application, it's not as staff-intensive. That's one of our goals because our funding was flat and now it's falling."

With the online application system, an out-of-work Minnesotan can learn about UI entitlements and complete an entire application online. Applicants receive payments weekly through direct deposit; unemployed workers used to be paid every two weeks.

Kathleen Murray was an unemployment counselor in St. Paul for more than three years. When funding for her job was cut, she suddenly found herself in the same position as the people she once helped. Murray turned to UI while she explored new career options. The new online system made applying to UI simpler, she said, than it had been for those she previously counseled.

The detailed online help section has been just that for Murray — extremely helpful. Without the online system, she said, it would take longer to get a phone response.

"Everything is there. I go on once a week, and it takes less than five minutes," she said. The biggest time-saver for her has been the online weekly update, where she confirms she is still out of work and looking for a job.

The system is available to online applicants during daytime hours on weekdays, but system maintenance requires downtime when it can't handle applications, Nelson said. "To have a system that was both batch ready and online ready, it added so much complexity and cost that we didn't think it was worth it," she said. Nelson hopes to make the online UI program available on Sundays soon.

The employers' side of the site, which is in less demand, runs 24/7. Fraud detection is built into both the employers' and applicants' sides of the system, Nelson said.

Increased Usage

Since the new system went online, the number of Minnesotans taking advantage of the UI program has increased.

"Never underestimate how difficult it is for people to change," Nelson said. "A lot of old applicants and employers said, 'What was wrong with the old system?' When you explain to them that it costs three times as much to process that piece of paper, and that you can get your work done in one place rather than needing to handle all these pieces of paper, they're a little more appreciative."

What has made Minnesota UI's technology integration so successful, Nelson said, is that it specifically targets the unique needs of Minnesota's UI Program.

"Even though we changed all of our technology, we wanted to make sure business was driving the technology and that our business practices were going to change," she said. "We wanted to ensure we weren't just going to apply new technology to the old cow path."

With the new tech-heavy system in place, the Minnesota Unemployment Insurance Program reached its goal of doing more with less — but that wasn't the case during the system's early planning days.

In the late 1990s, Weidenbach, with DEED Legal Director Lee Nelson, began selling state legislators on a budget to make an electronic overhaul of the UI program happen.

Nelson was hired in 2001 to lead the new project, and to develop a strategic plan and solicit bids for developing the new UI system. Her early tasks included sketching out a rough timeline and articulating expectations for the new system: "For the next four to six years, what will be the goals?" Nelson said. "How will we measure success?"

What is UI?

Unemployment insurance is a joint federal-state program to help workers laid off for reasons beyond their control, such as a company downsizing or an office closing. The program is funded and administered by individual states, but is overseen and sometimes supplemented by the federal government. The payout amount applicants receive is based on a percentage of their previous pay — a maximum of $538 per week in Minnesota. To stay on the program, individuals must be seeking a new job.

In 2003, the UI Program selected BearingPoint Inc. to handle the entire integrated system, which included Web-based interfaces for employers to report tax data and individuals to submit applications online, as well as a new phone bank for taking applications offline without creating more paperwork.

BearingPoint tapped a handful of subcontractors for specific pieces of the new system, like FileNet Corp., whose Business Process Manager program handles the electronic workflow, according to a FileNet white paper. According to a UI Program press release, the project was completed in 2007 "on time and on budget" for $42.6 million. Special taxes on Minnesota employers contributed $25 million to that cost. The rest came from supplemental federal grants and the U.S. Department of Labor's allotment for the state's UI program, according to Minnesota UI spokeswoman Kirsten Morell.

BearingPoint also worked closely with UI staff to ensure the new system would meet Minnesota's needs, and keep the UI staff's learning curve to a minimum, Nelson said. "We took 20 staff within the [UI] program who understood what we were trying to get at, and they worked side-by-side with the developer to learn the new system."

The staff participation was one key to the system's success when it was time to bring the system online, said Ed Valencia, CIO of the Minnesota Department of Employment and Economic Development. What were other important success factors? "Constantly evaluating risk, moving the project along and making adjustments to expectations," he said. GT

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Synopsis: The Department of Homeland Security has announced the final Real ID regulations. Will it be enough to get all the states on board?

Agency: Department of Homeland Security.

Contact: Ron Snell, Director, NCSL State Services Division, Ron.snell@ncsl.org.

Better Late Than Never

DHS extends Real ID deadline, but funding and privacy questions remain.

After nearly three years of leaving states to twist in the wind, the U.S. Department of Homeland Security (DHS) released in January the final regulations for Real ID. The Real ID Act, which became law in 2005, mandates national standards for the issuance of state drivers' licenses and personal identification cards. Among the many criticisms of the legislation was the fact that it was passed without having a complete set of rules dictating how, exactly, states were supposed to comply with the law.

On Jan. 11 — just 120 days before the law's original compliance deadline — the DHS issued its final rule on Real ID. The 300-page document pushed back the compliance deadline to 2014 for states working to implement Real ID, and it relaxed the deadline even further, to 2017, for drivers over age 50. According to several observers, however, the new rule does little to ease funding and privacy concerns that have prompted several states to refuse to comply.

Troubled History

The Real ID Act, according to its authors and supporters, will establish a set of national standards for drivers' licenses to prevent terrorism, security breaches and identity theft. The law came under immediate fire for the aforementioned issues as well as for requiring license-holder information to be available to all 50 states. According to critics, this amounts to the creation of a national database of citizen information, which many believe is a privacy disaster in the making. Moreover many opponents decry Real ID as a subversive attempt to establish a system of national ID cards.

Government Technology first reported on Real ID shortly after President Bush signed it into law in 2005. (See *Papers Please*, November 2005.) We revisited the issue two years later (See *Identity Crisis*, June 2007.) due to a growing uproar among states over the DHS's failure to provide clear details about how states were to issue new drivers' licenses. Also high on the list of states' concerns was the glaring omission of federal funds to help pay for the multibillion dollar undertaking.

Originally states had to comply with Real ID by May 11, 2008. However, by mid-2006, the DHS hadn't defined the technologies states needed to implement, and no funding had been secured. In response, a number of states passed resolutions — some even passed binding legislation — to opt out of participation in Real ID, despite the fact that without a Real ID-compliant license, citizens could not enter a federal building or board an aircraft. The revolt prompted the DHS to push back the deadlines for deployment. Instead of a "drop-dead" implementation date, the DHS added a rollout window of several years, beginning Dec. 31, 2009 and lasting through 2011.

With the ongoing revolt among states, many close to the issue hope the latest announcement will help restore order.

"We are still sifting through them to see how they compare with what we've asked for and what kind of changes the department has made," said Jeremy Meadows, committee director for the National Conference of State Legislatures' (NCSL) Standing Committee on Economic Development, Trade and Cultural Affairs. "Generally speaking, it does look like they listened. There are some changes we

BY CHAD VANDER VEEN | TECHNOLOGY AND POLITICS EDITOR

think are very favorable, such as the additional time for re-enrollment and also not requiring states to utilize verification systems until they're actually operational."

> "**The good news** is that the DHS seems to have listened to some of the recommendations of the states and what it may take to **move Real ID from the improbable to at least the possible**."
>
> **David Quam,** *director of federal relations, National Governors Association*

A Mixed Bag

According to the final regulations, the date for compliance will be extended again, to 2014, for states that can prove they are actively attempting to meet the federal license standards. In addition, those born prior to Dec. 1, 1964, will not need to obtain a Real ID-compliant license until 2017, a move the DHS says reduces the estimated compliance cost for states from $11 billion to $3.9 billion.

Meadows has already found a lot to be disappointed with, however. Despite the concessions, he said the DHS did not heed a number of other requests from states. Funding and privacy concerns appear to have gone ignored.

"Even if we accept the [Homeland Security] Department's new cost estimate of $3.9 billion, that's still $3.9 billion," said Meadows. "One of our requests of the department was that certain populations be exempted from the Real ID process, such as people already vetted by the federal government, namely people who already have passports or military IDs who are going to be able to use those forms of identification for all of the official purposes that a Real ID is going to be used for — boarding aircraft, entering federal buildings, etc. And they didn't do that."

Meadows said the NCSL, as well as organizations such as the National Governors Association (NGA) and the American Association of Motor Vehicle Administrators (AAMVA), had hoped citizens already granted a passport or military identification could skip the enrollment process required by Real ID. The application process requires every citizen to show up in-person at the DMV — a crush of humanity that DMVs are ill prepared for, as well as an inconvenience for millions of Americans now accustomed to managing such affairs online.

Questions also loom about states that have passed laws requiring nonparticipation in Real ID. The final regulations may go a long way toward bringing such states back into the fold, but they may not be enough, especially for states such as New Hampshire and Nevada whose residents pride themselves on independence and a tradition of states' rights.

"The good news is that the DHS seems to have listened to some of the recommendations of the states and what it may take to move Real ID from the improbable to at least the possible," said David Quam, director of federal relations for the NGA. "But every state has to evaluate its situation to see if these rules match reality. Those states are going to have to look at the decisions they've made and determine whether to make a change. But that is ultimately going to be up to them. They've made some very strong statements and as of right now, I haven't heard of anyone changing."

Technical Hurdles

Technology continues to present challenges as well. As they exist today, state DMVs generally can't effectively share information with other states. However, there is a promising solution that could make information exchange possible without needing a national database, which many fear would be a cyber-terrorist's dream come true.

A couple of dozen pages into the massive final regulations document, the DHS outlines a strategy to use an existing system called the Commercial Drivers License Information System (CDLIS). The CDLIS, according to the DHS, "currently supports queries to every state DMV every time an individual applies for a driver's license in any state or the District of Columbia. CDLIS already meets the data exchange requirements of Real ID for those drivers holding commercial drivers' licenses. Moreover CDLIS is a secure, state-governed system that stores the minimum amount of personal information possible to facilitate the routing of queries and responses between states. DHS is considering an effort to define system requirements for Real ID state-to-state data exchanges based upon the CDLIS model or platform."

Such a system is promising, according to Brendan Peter, the senior director of LexisNexis special services and chair of the Information Technology Association of America's (ITAA) subcommittee on identity management. Peter said the CDLIS should quell concerns about information being vulnerable because data is not stored in a single place.

"CDLIS is a system AAMVA operates for the states, and all the states use it to check when somebody comes for a commercial driver's license, whether you have a license in any other jurisdiction," Peter explained. "The records aren't centralized anywhere. It's a pointer system; when the states initiate a query through AAMVA, [the association] sends messages to the individual states and gets responses back, then sends them back to the jurisdiction that initiated the query. That's the same type of architecture that would exist for the state-to-state transactions to cover all drivers."

Despite the final rule, Real ID's future seems unclear. The law challenges states' rights while saddling states with an estimated $4 billion bill. And as anyone familiar with government spending can attest, there's a good chance that cost estimate will go up.

Half the states in the Union have passed or are considering laws requiring noncompliance with Real ID, setting the stage for an epic showdown between states and the federal government. If half the nation refuses to carry the only ID the federal government recognizes, what would happen to the airline industry? No one without a Real ID would be able to pass airport security. It's just one of the intriguing questions Real ID presents.

But there are some states, such as California and Alabama, which already issue drivers' licenses that meet almost every technological requirement set forth in the Real ID Act, according to those states' DMVs. For these states, funding deployment and managing tens of millions of DMV appointments will be the biggest challenge.

While it's true the DHS issued its final Real ID regulations, the reality is this is just the beginning. GT

Synopsis: Understanding the do's and don'ts about communicating your grant needs to a panel.

Closing the Deal

Experts reveal oral presentation tips on what it takes for project approval and funding.

Walking into a room full of agency reviewers who have the power to decide the fate of your IT proposal takes courage. You already know you're among the select few who have advanced this far, and therefore, your proposal is being considered carefully. But now you must conduct an oral presentation that demonstrates the same level of commitment that, so far, has propelled you forward in the selection process.

It's not enough to be excited about your project; you want the reviewers to share your enthusiasm by the time you finish your presentation. However, the questions still remain: How do you stand out from the competition and win the favor of the reviewers? And how can you possibly anticipate what the reviewers will expect of you during the oral presentation phase? These tips may help.

Communication Is Key

As the assistant city manager and interim IT director/CIO of Des Moines, Iowa, Mike Matthes reviews IT projects on an ongoing basis. They key, he says, is to communicate well. "You have got to think through exactly what the points are that you are trying to make."

In his role as interim IT director, he's reviewed about five proposals per month submitted by a combination of outside vendors and internal staff members. Based on those experiences, Matthes said he believes that respondents must be able to answer clearly the following questions when they step foot into the interview room: "Why is this proposal a good one?" and "What problems does it solve?"

It may sound easy, but when you're trying to appeal to more than one reviewer, how do you know what points to emphasize in your oral presentation?

Matthes suggests one of your main priorities should be to demonstrate that you have the support of everyone who has made a commitment to the project. For example, if he interviews a firm that has responded to an RFP, then he wants everyone involved in the project on the telephone line.

"I may ask them one question in half an hour, but you must demonstrate that you can do the project," he said. "And that means I want to see the horsepower you have."

Other basic do's and don'ts that Matthes suggests include the following:

- Avoid using buzzwords that may cause the reviewers' eyes to glaze over, such as "collaboration," "interface," "critical mass," and "business intelligence." Also eliminate any type of sales jargon that might turn off the reviewers.

BY SUZANE BRICKER | CONTRIBUTING WRITER

- Don't present a manifesto. Give a brief summation of your key selling points and use bullet points to highlight essential information.
- When explaining central ideas, use metaphors that reviewers can easily understand.
- Limit your presentation to 15 minutes. However, do not use up valuable time by reading slides or other printed materials that are also being passed out to the reviewers.
- If you must include a PowerPoint presentation, limit the number of slides to 10, and only use two bullet points per slide. Then, if possible, use schematics or other graphic illustrations to highlight your main ideas.
- Restrict the length of handouts to one page.

Sometimes the emphasis of an IT project isn't necessarily to add capability, he said, as much as it is to maintain the capabilities that an organization or agency already has. That can definitely be a tough sell. "That is why I have to trust you. If you are asking me for a lot of money, I have got to trust that you are going to deliver."

In essence, applicants must be both truthful and accurate in the presentation, and not misrepresent their capabilities or abilities, said Bill Beveridge, director of Colorado's Unemployment Insurance Operations. By initiating the review process, Beveridge said, the agency wants to identify the best possible candidate from the pool of potential bidders. In turn, if the reviewers have questions during the presentation, then the respondent must be able to provide complete answers.

"Try to stay up with the most current technology — hardware applications, that type of thing," he said. "You are looking far beyond not using something that would be considered obsolete. You are looking for something that is finding the best solution for the problem."

Dale Bowen, director of professional development for the Public Technology Institute, a nonprofit technology research and development organization focused on local governments, concurs with Beveridge's views.

> "Whomever you have established as your **primary contact** must be knowledgeable about any **major initiatives and priorities** that the IT department and the administration are focusing on."
>
> **Dale Bowen,** *director of professional development, Public Technology Institute*

"Do your homework," Bowen said. "Know the background of the agency that you are applying for funding from."

Because Bowen primarily serves the CIOs, GIS coordinators and Web directors of cities and counties, the priorities to which he is referring are generally set by mayors or other elected officials such as council members.

"Whomever you have established as your primary contact must be knowledgeable about any major initiatives and priorities that the IT department and the administration are focusing on," Bowen said.

Marjorie Rubenstein, a supervisor for the Technology Acquisition Section of the Procedure Division for the California Department of General Services, suggests that applicants shy away from a sales-presentation approach because IT officials will tune out.

"We usually don't like to hear the whole 'dog and pony show' about what the bidder has ever done," said Rubenstein.

> "If you are asking me for a **lot of money**, I have **to trust** that you are going to deliver."
>
> **Mike Matthes,** *IT director/CIO, Des Moines, Iowa*

In other words, reviewers want to know you can demonstrate a successful track record in terms of implementing solutions that have been outlined in your application.

Other Side of the Table

When setting up an oral presentation, giving those coming to present a little guidance never hurts.

"Provide an outline for the people who are coming to present and tell them what you want to know. Tell them the time limits on each item." said Lisa Meyerson, the strategic initiatives unit chief with the Government Information Technology Agency, the IT strategic and oversight agency for Arizona.

Meyerson has 10 years experience in government procedure for IT projects, and has been dealing with contracts for more than two decades. "Choose those topics carefully, and request that they discuss the areas that will be critical to help the evaluation committee make the best decisions on behalf of the state," she said. "It will help you to get a fuller picture of their solution and enable you to have a better apples-to-apples comparison between the solutions."

And according to Doug Robinson, executive director of the National Association of State Chief Information Officers, presenting a winning bid isn't strictly about offering a technology plan that works: Demonstrating your understanding that a partnership is being formed is also important. "The states want to focus on what type of innovation you are going to bring to the table in terms of a solution," he said.

What is the best way to garner the attention of the reviewers when you're asked to present your IT proposal?

According to the experts, conciseness is vital, as is the ability to recognize and respond to the priorities set by committee members and the municipalities they represent.

Before you enter the room to present your proposal to the decision-makers, keep in mind these experts' advice about what it takes to gain project approval and funding. GT

SUZANE BRICKER HAS EXTENSIVE EXPERIENCE AS A GRANT WRITER FOR EDUCATIONAL INSTITUTIONS AND SOCIAL SERVICES AGENCIES, AND HAS SECURED FUNDING FOR HER OWN NONPROFIT ORGANIZATION IN SOUTH FLORIDA.

Spectrum

reports from the IT horizon

Outlook Is Out

Short message service and instant messaging are fast becoming the writing tools of choice for teens and young adults. A poll of more than 2,000 South Korean middle-school, high-school and college students taken recently in Seoul revealed that more than two-thirds rarely or never use e-mail. Furthermore Korea's digital generation is ahead of the Japanese in the uptake of new technology, according to the poll.

Fifty percent of South Koreans are signed up to their country's version of Facebook, called Cyworld, which went online almost a decade before other social networking sites. For most young South Koreans, e-mail is fit only for addressing the old or for business and formal missives.

— THE SYDNEY MORNING HERALD

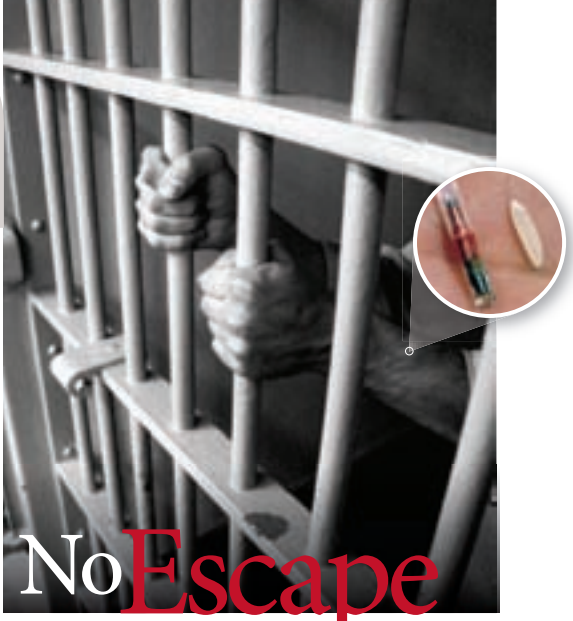
MySpace Dominates

MySpace continues to hold a big lead in membership numbers over rival social networking Web sites. The margin is shrinking slightly, however.

Top 10 social networking sites among U.S. Internet users ranked by visits, December 2006 and December 2007 (% market share and % change):

		December 2006	December 2007	% change
1.	MySpace	78.89%	72.32%	-8%
2.	Facebook	10.59%	16.03%	51%
3.	Bebo	0.99%	1.09%	10%
4.	BlackPlanet.com	0.96%	1.04%	8%
5.	Club Penguin	0.54%	0.08%	48%
6.	Gaiaonline.com	0.58%	0.76%	31%
7.	myYearbook	0.14%	0.73%	407%
8.	hi5	0.64%	0.63%	-1%
9.	Classmates	0.58%	0.55%	-7%
10.	Yahoo! 360	0.91%	0.54%	-40%

— SOURCE: HITWISE



No Escape

The UK government is considering a plan to implant prisoners with radio frequency identification (RFID) tags containing data on identity, address and criminal record. The RFID tags, about the size of two grains of rice, would be injected under the skin and scanned by a reader. There are also proposals to link the RFID tags to a larger GPS device to monitor the location of high-risk prisoners. The Ministry of Justice confirmed that it is considering the proposal as part of plans to modernize the prison system.

The RFID proposals are designed to address problems with the UK's existing tagging system which uses a transmitter strapped to the ankle. More than 2,000 of the 17,000 offenders fitted with the ankle tags have escaped by tampering with the device or simply cutting it off.

— *Vnunet.com*

Top 10 Cyber-Security Menaces

The SANS Institute recently gathered 12 cyber-security veterans to compile a list of the attacks most likely to cause substantial damage during 2008. Here are their picks:

1. More complex Web site attacks that exploit browser vulnerabilities — especially on trusted Web sites.
2. Increasing sophistication and effectiveness in botnets.
3. Cyber-espionage efforts by well resourced organizations looking to extract large amounts of data — particularly using targeted phishing.
4. Mobile phone threats, especially against iPhones and android-based (a Linux-based platform for cell phones) phones; plus VoIP.
5. Insider attacks.
6. Advanced identity theft from persistent bots.
7. Increasingly malicious spyware.
8. Web application security exploits.
9. More sophisticated social engineering, including blending phishing with VoIP and event phishing.
10. Supply chain attacks infecting consumer devices (USB thumb drives, GPS systems, photo frames, etc.) distributed by trusted organizations.

Send spectrum ideas to managing editor **Karen Stewartson** kstewartson@govtech.com

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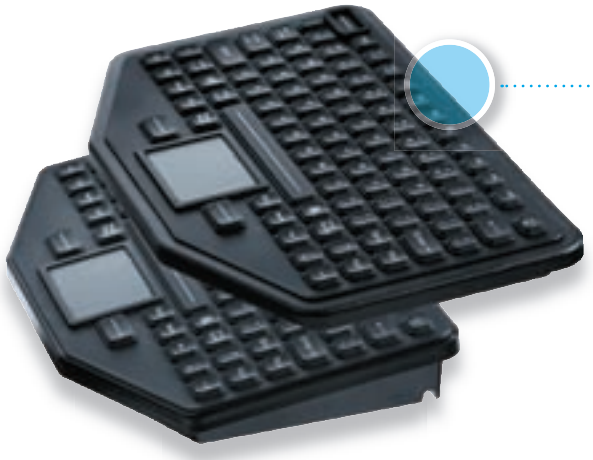

Keyed In

The thin **iKey** SL-86-911-TP-FL keyboard measures 12.0x7.75x1.125 inches, and features a programmable emergency key, backlighting for low-light environments and an integrated touchpad. It's NEMA 4X and IP65 rated, so it's resistant to dirt, dust and spills. The keyboard is designed to serve various public safety applications, including as an on-board police, ambulance and military keyboard. **www.ikey.com**

Snapshot

The **Samsung** S760 digital camera offers 7.2-megapixel images and 3x optical zoom. Movie mode lets users capture video in one of two resolutions: 320x240 or 640x480, at 30 frames per second in AVI (MJPEG) format. The camera is powered by two AA alkaline batteries, and includes options for resizing and rotating images, and adjusting brightness, contrast and saturation levels. **www.samsungcamerausa.com**

Print on the Move

The **Intermec** PB50 wireless mobile label printer produces labels, tags and receipts through Bluetooth and WLAN connectivity. The unit contains 16 MB RAM and 64 MB Flash memory. It prints four images per second at 203 dpi and can endure five-foot drops onto concrete. The rechargeable 14.8 volt lithium-ion battery provides 32.56 watt hours. It can be worn using a belt clip or shoulder strap, or be mounted in a vehicle. **www.intermec.com**

CIO AND DIRECTOR, DEPARTMENT OF INFORMATION TECHNOLOGY, CITY AND COUNTY OF HONOLULU

GORDON BRUCE

CONTINUED FROM PAGE 33

Gordon Bruce enjoyed a long, successful IT career in the private sector. But when the public sector beckoned three years ago, he accepted the challenge. And he's glad he did. For three years now, Bruce has been CIO and director of the Department of Information Technology for the city and county of Honolulu.

"I tell everybody it's the best job I've ever had, because it's an opportunity to make a difference across the board," Bruce said, adding that whether it's working on public safety or helping people do business with the city or county, he enjoys making a contribution.

Waikiki Beach, Honolulu

Since **Bruce came on board, much of the focus has been on creating a solid new infrastructure.**

Starting out in government was certainly an adjustment. "Among my friends, the odds were that I wouldn't last three months," Bruce said. At first, he did get frustrated with how slowly things moved in government, but he's now known for getting things done quickly.

"Even the private-sector people I talk to cannot believe what we've done. And that's something I tell my people they should be proud of," he said. "We replaced a 38-year-old financial system with a new state-of-the-art ERP solution in 18 months — on time and on budget." The system cost more than $10 million, but it was much less expensive than many predicted it would be.

"I tell everybody it's the best job I've ever had, because it's an opportunity **to make a difference** across the board."

That's just one of many projects Bruce and his team have approached aggressively. It's a method that's been endorsed by the mayor, who recruited Bruce for his private-sector experience. Once hired, Bruce inherited an antiquated infrastructure that needed major upgrades — one independent study concluded that IT had been underfunded by at least $100 million in the previous five years.

Since Bruce came on board, much of the focus has been on creating a solid new infrastructure. The goal is to lay the foundation for better future service for city and county residents. The infrastructure upgrade is about 90 percent done.

It's been a busy three years for Bruce and his staff, but he's satisfied with the results thus far. "The direction of the mayor, his leadership, the partnering with our vendors and the team effort on the part of the staff that jumped onto this train, have been refreshing for me," Bruce said. "It's wonderful to see how it all works."

JIM MEYERS, STAFF WRITER

BY REID GOLDSBOROUGH

Finding the Right Clothes for Your Words

If you're conscientious, you probably think carefully about the words you choose in an e-mail message or a formal report. Making yourself understood helps get your message across, and it helps your readers benefit from what you're saying.

Many people, however, don't think twice about the way their words, specifically the letters, look on screen or paper. The particular form that letters take depends on the font you choose, and the art of choosing the right font is called typography.

The meaning of the word "font" has changed over the years, and in today's digital world it's largely synonymous with "typeface," meaning a stylistically coordinated set of letters, numbers and punctuation marks.

Typography has been around longer than personal computers, but PCs opened up typographic possibilities to the masses.

When desktop publishing was introduced in 1985, the surfeit of font choices led many people to create documents that resembled ransom notes written by an inspired 10-year-old. The opposite extreme is to always use the same font, which isn't much different from always wearing the same clothes. People make judgments about you and your writing because of the font you choose, just as people draw conclusions from your wardrobe.

The two most popular fonts today are Times New Roman and Arial. The former is a serif font, with small designs at the ends of letter strokes, and the latter is a sans-serif font, which lacks those designs. Sans-serif fonts, which are starker and bolder, are often used for titles and headlines; serif fonts aid legibility and are often used for the body of works.

People typically choose among the default fonts that come installed with word-processing programs, but you can also buy fonts separately. And there are thousands available. You can also visit Web sites where generous designers make fonts available to download for free, such as 1001 Free Fonts, at www.1001freefonts.com.

Choosing a font that is appropriate for your work is like choosing what clothes to wear to work, a formal party, a gathering of friends or a workout at the gym. You should aim for both image and utility.

A study by the Software Usability Research Laboratory at Wichita State University sheds light on this. Researchers analyzed 20 commonly used fonts by asking more than 500 people what images the fonts projected. For example, the study found the best font for projecting flexibility is Kristen, assertiveness is Impact, practicality is Georgia and creativity is Gigi. But there are two sides to a coin (or font): Kristen also projects instability and rebelliousness; Impact connotes rudeness and unattractiveness; and Gigi suggests impracticality and passivity.

Some people use Courier New because it's a monospaced font: Each letter takes up the same amount of horizontal space, just like a manual typewriter's font. It's useful if you need to align numbers in a column. But Courier New can project conformity, unimaginativeness and dullness, according to the Wichita State researchers. A better monospaced font choice is Consolas.

Times New Roman is a versatile, all-around font with an interesting history. It was commissioned by the British newspaper *The Times* in 1931, hence its name. Microsoft has included it in every copy of Windows since version 3.1, and it's the default font in many Windows programs. On the Apple Macintosh, it's called Times, and it's also the default for many Mac programs. In 2004, the U.S. State Department in 2004 mandated that all diplomatic documents use Times New Roman instead of previously mandated Courier New. But if you use Times New Roman reflexively, also consider Georgia, which is less stiff but equally legible.

Even though the Wichita State study looked at only 20 fonts, reading the results, at http://psychology.wichita.edu/surl/usabilitynews/81/PersonalityofFonts.htm, gives you a feel for why type talks.

Fonts can be fun, but don't overdo it. One rule of thumb: Use a maximum of three different fonts per page. You should use minimally the varying font sizes. Too much variety can be jarring to the eye.

Avoid long stretches of text in italic, bold and uppercase, which can be more difficult to read than regular upright type. Similarly make sure there's enough contrast between the letters and their background.

Black on white is easier to read than white on black, and both are easier to read than green on blue. The most legible combination is black on cream. GT

REID GOLDSBOROUGH IS A SYNDICATED COLUMNIST AND AUTHOR OF THE BOOK *STRAIGHT TALK ABOUT THE INFORMATION SUPERHIGHWAY.* HE CAN BE REACHED AT REIDGOLD@COMCAST.NET OR **WWW.REIDGOLDSBOROUGH.COM**.

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BY PAUL W. TAYLOR
CHIEF STRATEGY OFFICER
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Too Bad We Don't Have a Word for It

Pity state legislators. After years of hearings about an impending demographic doomsday, the bow wave comes ashore this session. The start of 2008 comes with an anticipated demographic inflection point that brings with it unprecedented economic and public policy implications. This year, the first of 78 million baby boomers turn 62, making them eligible for Social Security retirement benefits. In three years, they'll also qualify for Medicare.

Owing to their generation's size and expectations, baby boomers have changed everything they've touched. As they begin to reach old age this year, boomers will spike the demand on federal assistance programs — Medicare, Medicaid and Social Security. According to the Congressional Budget Office, federal spending on these programs will rise from 8 percent of the nation's 2007 gross national product to almost 19 percent in 2050.

For their part, state legislators have much shorter timelines to balance budgets in an environment of increasing demands and declining revenues. The bipartisan National Conference of State Legislatures (NCSL) says an anticipated public-sector revenue slowdown is deeper and more widespread than first thought, due partly to a drop-off in property tax collection in 12 states and fallout from the subprime mortgage collapse.

Against that backdrop, the NCSL released its Top 10 legislative priorities for 2008, most of which have implications for the public-sector technology community. The Center for Digital Government (CDG) thought it would be useful to map the legislative priorities to technologies that the executive branch will use to operationalize solutions.

The Internet is three decades old, and like roads, bridges and other vital public infrastructures, it needs repair and expansion to meet the competitive and technical demands of a broadband world.

The 2008 legislative sessions also promise to be contentious as legislators and governors seek to burnish their records before the November election.

Last year, this might have constituted "a perfect storm." But that phrase topped the list of words from 2007 that deserved to be banned, according to an annual poll of affronts to the English language by Lake Superior State University in Michigan. So keep an eye out for the whatchamacallit — it will make good watching and, if it hits you, it's going to hurt. GT

NCSL Top 10	CDG Technology Ties
State budgets	ERP, dashboards
Immigration	Surveillance, identity proofing
Driver's license standards	Real ID and DMV modernization
Uninsured Americans	Eligibility, case management, CRM
Education reform	1:1 computing, interactive classrooms, education networks
Concerns for the middle class	Web 2.0 economic development
The environment	Green buildings and technologies that run cooler and cheaper (see the Center's 'green' paper, *Simply Green*)
Consumer protection	Revisiting and strengthening privacy and cyber-security policies, practices and public education
Pensions	Eligibility, case management, CRM
Transportation and the nation's infrastructure	Intelligent transportation technologies, municipal (intercity) wireless

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