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GOVERNMENT TECHNOLOGY®

SOLUTIONS FOR STATE AND LOCAL GOVERNMENT IN THE INFORMATION AGE

20 YEARS

VOL 20 ISSUE 11

NOVEMBER 2007

inside:

WHEN THE GOING GETS TOUGH, THE TOUGH FIND PARTNERS.

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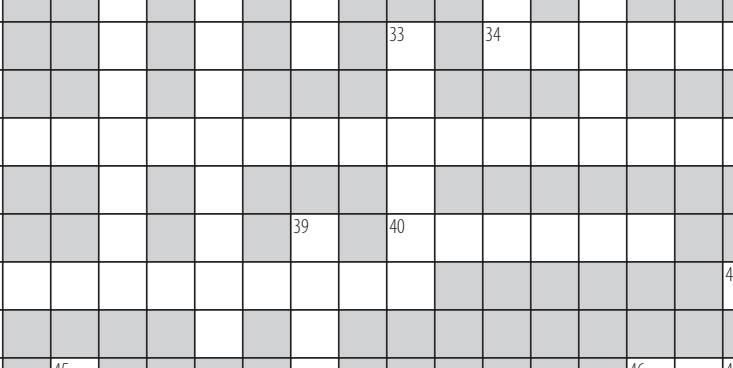
BUILDING BETTER GOVERNMENT



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ACROSS

1 Coding characters as numbers
4 Data holder
7 Keyboard shortcut part (two words)
9 Gateway's 2007 Technology Business Research customer satisfaction ranking[2]
14 Electronic message center (two words)
15 Association for computer standards
17 First responders like the Gateway E-155C Thin and Light Convertible Notebook featuring ____ Centrino Duo processor technology[3]
18 Computer instructions or data
21 Folder
22 Cursor mover
24 Retrieve internal storage (two words)
26 The Gateway® 9722 rackmount ____ won the Best of FOSE 2007
28 Dot
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34 The ____ line of Gateway computers provides enterprise-class performance for local governments (one hyphenated word)
35 UNIX system
36 Creating HD's physical format structure (three words)
38 Information unit
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42 Old measure of speed
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46 Structured Query Language
48 Practical extraction and report language
49 Widescreen Gateway® displays offer a better ____ in any command center
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56 Part of a URL
59 Act
62 Ctrl (two words)
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64 Like a procedure
65 Start of www.gateway.com/gov
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68 Gateway technology is available on most ____ contracts
69 Application
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13 Plug-in spot
16 Simplest programming language
19 Programming type (two words)
20 In-box contents
23 DRV extension (two words)
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44 Category of objects
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47 Logical ordering of data (two words)
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53 High-level language program
54 State agencies like Gateway® desktops featuring ____ operating systems
57 You get what you see
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60 Operational function or enhancement
61 A lineup of jobs for a computer
66 Kind of drive (two words)

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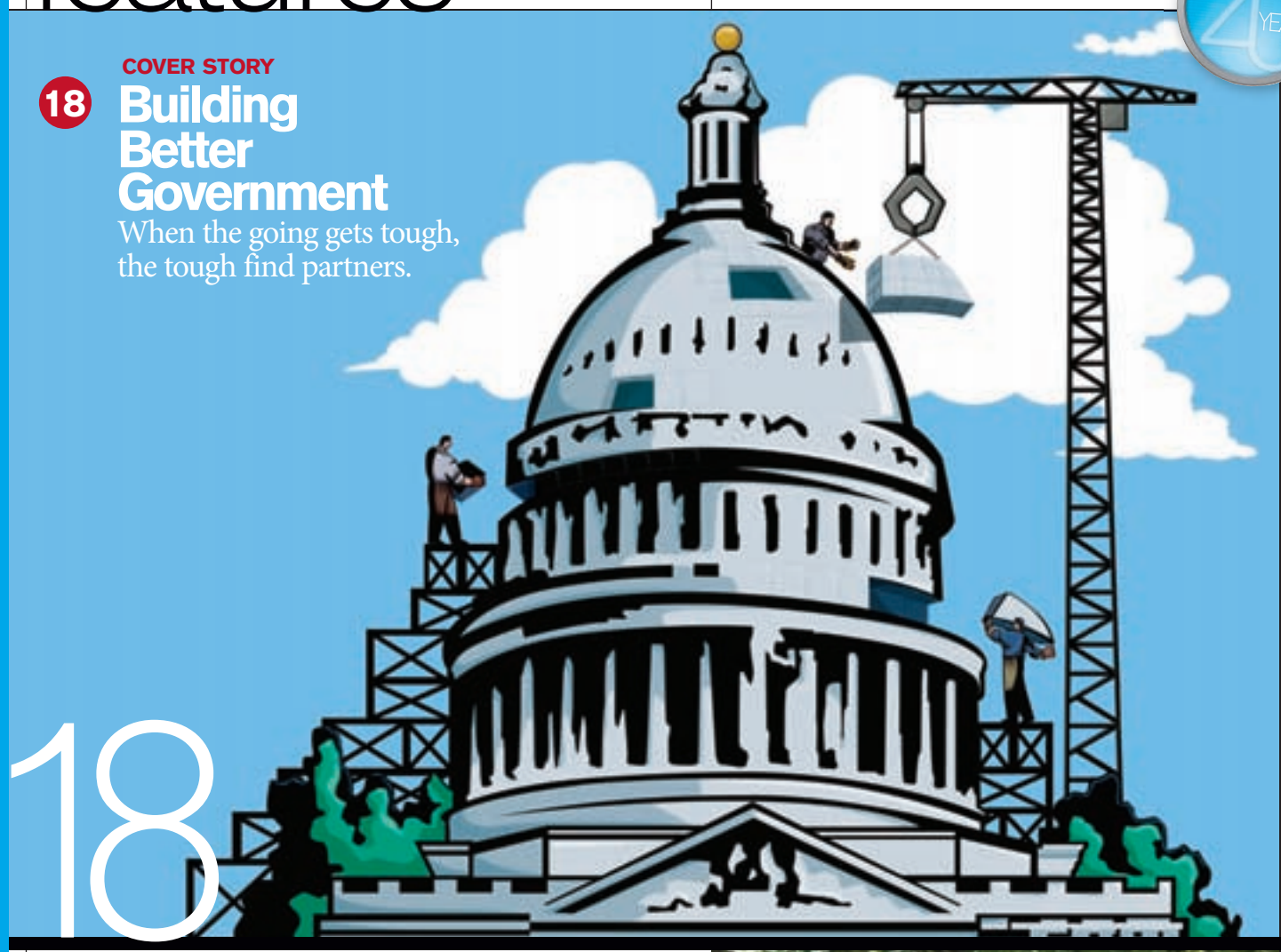
features



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november 2007

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Two Innovative Decades
Ending our year-long 20th anniversary celebration, we pay tribute to people and technology that made these last 20 years extraordinary. From the pre-Web days to virtual reality, we cover a bit of everything through interviews, images and more.

news

GTSI Solutions

When Safety and Security Depend on More than Image

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point of view

The Next 'Greatest Generation?'

Raise Your Voice
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Correction:
In the October issue of *Government Technology*, the story "Rising to the Challenge" contained an incorrect statement. The organization MAPPS does not endorse a particular technology for collecting accurate ground elevation data for use in FEMA's Floodplain Insurance Rate Maps. It is the position of MAPPS that a variety of state-of-the-art commercial geospatial technologies have a place in FEMA's ongoing efforts to review, update and maintain those maps.

I must admit I don't fully understand the Millennial Generation — that group of completely connected, always-online individuals born after 1982.

Sure I've seen MySpace, but creating and maintaining a MySpace page sounds more like work than fun. And don't even get me started on Twitter; who cares — other than me — what mundane activities I'm up to throughout the day?

But while pop culture celebrates the frivolous manifestations of Millennial online communities — Mentos and Diet Coke geysers, anyone? — author, historian and economist Neil Howe offers an encouraging take on how these citizens will impact society as they mature.

Howe spoke in October at the National Association of State Chief Information Officers' (NASCIO) Annual Meeting in Tucson, Ariz., and he drew parallels between the Millennials and what has been dubbed "the Greatest Generation," the group of Americans who came of age during World War II and created many of the government institutions and infrastructure we rely on today.

Like the generation that fought World War II, Millennials tend to be builders and team players, said Howe, who's written several books on generations in America and their impact on society. Unlike baby boomers, Millennials don't distrust large institutions, and are likelier to vote and participate in political processes than Gen-Xers.

This means good things for the nation. The Millennials, Howe says, are poised to pick up where the World War II generation left off. They'll be inclined to rebuild crumbling public infrastructure and embark on new projects designed to benefit society at large.

Hitting even closer to home, Howe says these individuals look favorably on public service. Their timing couldn't be better: A NASCIO report on state IT work forces found that, on average, nearly 30 percent of state government IT workers will reach retirement age within the next five years. As Millennials reach working age, it appears they may be quite interested in filling these public-sector jobs.

Much has been made of Millennial expectations for technology — they use it to connect and collaborate. And they want more balance between their work environment and their social life than workaholic baby boomers.

> The Millennials are **poised to pick up** where the **World War II generation** left off.

Government agencies need to accommodate these desires within reason, while maintaining the security, privacy and efficiency that citizens expect.

Furthermore, governments must promote the existing benefits of public-sector work. That's a key conclusion of NASCIO's report. Public-sector IT positions already offer challenging work and a chance to contribute to the public good, and Millennials prize these qualities. If public officials can do better at getting the word out, they may find a very receptive audience among young adults.

Ultimately, according to Howe, Millennials are coming of age when they're needed most — both by government IT shops and society at large.

Let's hope he's right. GT

STEVE TOWNS
EDITOR

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GOVERNMENT TECHNOLOGY'S

WAY BACK MACHINE

Revisiting 20 years of *Government Technology* magazine.

1996

Whether they know it or not, 1996 was pivotal for all Americans. Passage of the Telecommunications Act represented the first significant upgrade of the nation's telecom infrastructure in more than 60 years.

The act was explained to the public largely through the much-hyped V-chip technology. Part of the act established a voluntary ratings system for broadcast programming. The V-chip enables program blocking based on this system. But most people didn't realize the act set fairly rigid standards for telecom expansion. For example, the thousands of cell towers dotting the landscape today — and the associated growth of cell phone usage — stem from this act.

Many also blame the act for the shoddy state of broadband access in the U.S. today. Due to restrictions placed on "telecommunications service" providers and the comparative lack of regulation on "information service" providers, these murky definitions spawned heated debates, on issues such as network neutrality and Internet service provider monopolies.

BY CHAD VANDER VEEN | TECHNOLOGY AND POLITICS EDITOR

1 By 1996, government's embrace of the Internet and the Web, in particular, shifted into high gear. By February, we were running stories examining which agencies provided what services online — and the inequality of Internet accessibility for the general public. In that same issue, we also featured an in-depth look at growing concerns regarding Internet security. Our cover story focused on security breaches in Netscape and the now-too-familiar problems with Internet-enabled Windows.

2 From 1995 through 1997, *Government Technology* experimented with readers by attempting to inject some levity — humor, even — into the magazine with a back page section we called the *De-Engineering Department*. Though quietly killed off by 1998, a subsequent effort to get you to crack a smile would get under way in 2007 with *The Last Mile*, a column written by yours truly.

So far, results are mixed.

WAY BACK FACT

In the later half of the 1990s, people grew increasingly concerned that the year 2000 would spell doom for the world's computers. This was, of course, due to the problems that would supposedly result from the infamous Y2K bug. Because most computer systems recorded dates as two digits instead of four, it was thought that in 2000, many systems would understand that year to be 1900. The end result of Y2K was negligible. People are still unsure whether the multiyear effort to correct the problem saved the day or if the problem never really existed in the first place.

3 In the June 1996 issue, we ran three stories that featured up-and-coming technologies we treat as commonplace just 11 years later — data warehousing, electronic benefits transfer and electronic commerce. Can you imagine a world where Amazon, PayPal, eBay and online banking don't exist? Yet just over a decade ago, people were desperately trying to imagine a world in which they did.

4 Back in the mid- to late 1990s, schools also struggled with how to take advantage of the Internet. I recall from personal experience the advent of the Internet-enabled high-school computer lab. While some school districts still struggle to provide quality online access, many students today have wireless access anywhere on campus.

WAY BACK FACT

NASA ended 1996 with a bang when it blasted the Mars Pathfinder into the heavens. The Pathfinder was an extremely important mission for NASA; it was the first test for a new type of landing system. The spacecraft deployed airbags to land on the surface. It was also the first test for Pathfinder's cargo — a small robotic rover named Sojourner, which paved the way for the larger rovers Spirit and Opportunity. Those rovers landed on Mars in 2004 and were expected to operate for three months. As of this writing, both are still roving.

WAY BACK FACT

In 1997, IBM's chess-playing supercomputer Deep Blue defeated world chess champion Gary Kasparov in a six-game exhibition match. Kasparov accused Deep Blue and IBM of cheating, which IBM denied. These days, Deep Blue makes its living using its powerful computational innards to forecast weather, model financial data and design automobiles.

1997

WAY BACK FACT

In July 1996, science fiction once again became science reality. At the Roslin Institute in Scotland, Dolly the Sheep was born, becoming the world's first cloned mammal. Dolly lived to be 6 years old, about half the average life span for sheep. Dolly was diagnosed with a viral disease common among sheep, though some contend it was a result of the cloning process. Since Dolly, numerous other mammals have been cloned, including horses, cats, monkeys, people … er, umm, forget you read that last one.

In December 1997, *Government Technology* ended its first decade with a sobering story detailing the growing problem of America's inferior telecommunications network. Written by current *Digital Communities* Editor Blake Harris, *The Race for Bandwidth* showed how those in the know pleaded for investment to increase our broadband capabilities before foreign countries would begin overtaking us.

"We need bandwidth now. We need it instantly. And we are not going to wait around," said John Gage, co-founder of Sun Microsystems. "[Everything] is going to be on the Net, requiring this bandwidth. That is why bandwidth is going to be inexorable."

So how did we do in 10 years time? My $45 monthly bill for 6 Mbps indicates we didn't do well at all. GT

BY CHAD VANDER VEEN
TECHNOLOGY AND POLITICS EDITOR

Idiocracy, Inaction

Every month, we tell of dedicated public servants striving to increase government's accessibility for citizens. From innovative IT projects, to transportation and emergency response, government agencies nationwide really try to use technology to enhance our lives.

But have you ever thrown your hands up because some members of the public complain no matter what you do? Does some people's inability to operate basic Web applications make you wonder why you even bother?

I'd wager that at least once, you've thought, "What's wrong with some people?" If you've never imagined or uttered such words, you're a better person than I. But for those who have wondered about the public's collective intellect, I commiserate with you.

Today I read about seemingly an entire town gathering to see a mysterious apparition that's materialized on a garage door every day at 6 p.m. for the last two weeks. Many claim the image is the Virgin Mary. Video shows believers touching the specter and gasping in awe. It also shows their hands and arms casting shadows over Mary. Since it appears daily at exactly 6 p.m., maybe it's not a vague message from God, but in fact … sunlight.

This isn't a rant against the religious. It's just an example of what government faces when it tries to get John and Jane Q. Public to grasp newer technologies that can improve their lives.

Another instance of how slow-witted some Americans are: this obsession with celebrities. Why does anyone care about Lindsay Lohan's latest drug-fueled escapade or which screen starlet has the best beach body? They'll argue it's just a bit of escapism, a reprieve from daily life. But maybe these folks can't bother giving serious thought to the real issues directly affecting them. If so, how does government reach people who are less concerned about their own affairs than Brad Pitt's love life?

E-government's purpose is to get people online instead of in line. But how do you convince those who still won't use their check cards at the supermarket, choosing to wait for their total, dig for their checkbook and then finally write a check, enraging those of us who haven't yet mastered the fine art of patience?

All too often, people just don't care about government. In the 2004 presidential election, 197 million Americans were eligible to vote. Of those, 142 million actually registered. Among those, 126 million voted. That means at least 55 million Americans are too apathetic or dumb to care — 55 million who write checks at the grocery store, drive 45 mph in the fast lane and still use AOL by choice — if they use the Internet at all.

Is this a generalization? A bit. Is it elitist? Could be. But it's also probably true. I feel bad for public-sector IT employees. So often you strive to help inform people, only to have them balk at the technology and the opportunity. But, as the old saying goes, ignorance is bliss. GT

How does government reach people who are **less concerned** about their own affairs than **Brad Pitt's love life**?

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Spectrum

reports from the IT horizon

Smile :-)

Carnegie Mellon University professor Scott E. Fahlman said he was the first to use three keystrokes — a colon followed by a hyphen and a parenthesis — as a horizontal "smiley face" in a computer message 25 years ago.

Language experts say the smiley face and other emotional icons, or emoticons, have given people a concise way in e-mail and other electronic messages of expressing sentiments that otherwise would be difficult to detect.

Fahlman posted the emoticon in a message to an online bulletin board at 11:44 a.m. on Sept. 19, 1982, during a discussion about the limits of online humor and how to denote lighthearted comments.

— YAHOO.COM

Mobility on the Move

As notebooks become mainstream PC platforms throughout federal agencies, questions abound about the implications for data security. A study by the Telework Exchange, which interviewed 35 federal chief information security officers (CISOs), revealed that federal CISOs do support telework and mobility.

CISOs were asked if laptop use has increased.

No	17%
Yes	83%

CISOs were also asked if they have direct input into their agency's telework infrastructure.

Significant input	51%
Some input	37%
No input	12%

Online Living

Surfing the Net has become an obsession for many Americans. One in three adults give up friends for the Web, according to a survey of 1,011 American adults by advertising agency JWT. Conducted Sept. 7-11, 2007, the survey found that 28 percent of respondents admitted spending less time socializing face-to-face with peers because of the amount of time they spend online.

Calculating Collisions

Traffic signals may soon be smart enough to prevent car crashes. A team of scientists at Technion-Israel Institute of Technology in Haifa, Israel, is creating such signals by connecting computers and cameras to "stop" and "yield" signs.

When the cameras spot two cars approaching an intersection, the computer calculates the collision risk, then flashes warning lights on the sign to alert drivers to slow down or stop. The team's next goal is to invent a smart traffic light, which would delay a green light so an offending driver can clear an intersection without causing a crash.

— Businessweek.com

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

Kiosk Nation

A 2007 forecast showed that North American consumers would spend more than $525 billion at self-checkout lanes, ticketing kiosks and other self-service machines, including postal kiosks by the end of the year. That could reach $1.3 trillion by 2011.

— IHL Consulting Group

I Spy

London is equipped with 10,000 crime-fighting closed-circuit TV cameras — which cost approximately $400 million — but doubt has been cast on their ability to help solve crime, thanks to an analysis of the publicly funded camera network.

By comparing the number of cameras in each London borough with the proportion of crimes solved there, researchers found that police are no more likely to catch offenders in areas with hundreds of cameras than in those with hardly any. Four out of five of the boroughs with the most cameras have a below-average record of solving crime.

— THISISLONDON

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PHOTO BY ROB HINES

Generations and Technology

In October, representatives from more than 40 states gathered in Tucson, Ariz., for the National Association of State Chief Information Officers (NASCIO) 2007 Annual Meeting. The theme for the meeting was "Building on the Past, Managing the Present and Stepping into the Future."

Among other things, attendees discussed how the technology demands of the Millennial Generation will impact state IT operations.

"New technology is changing the way citizens interact," said NASCIO President **John Gillispie**. "This is the first generation that has grown up with this technology, and they expect it to work for them, not against them."

Top Row/ Left to Right
Gopal Khanna, Minnesota; Gary Robinson, Washington; Tom Jarrett, Delaware; Dugan Petty, Oregon; Jim Burns, Alabama; Mark Bengel, Tennessee; Gary Buonacorsi, Nevada; Kevin Iwerson, Idaho; Richard Clark, Montana; Dan Ross, Missouri; Jim Lacson, Guam; Richard Thompson, Maine.

Middle Row/ Left to Right
Claire Bailey, Arkansas; Ellis Kitchen, Maryland; Mark Rutledge, Kentucky; Steve Edmonson, Ohio; Lemuel Stewart, Virginia; Doug Kasamis, Illinois; Otto Doll, South Dakota; Richard Bailey, New Hampshire; Michael Locatis, Colorado; Steve Fletcher, Utah; George Bakolia, North Carolina; Russ Saito, Hawaii.

Bottom Row/ Left to Right
Joe Fleckinger, Oklahoma; Melodie Mayberry-Stewart, New York; Kyle Schafer, West Virginia; Brenda Decker, Nebraska; Brian Rawson, Texas; Teri Takai, Michigan; John Gillispie, Iowa; Denise Moore, Kansas; David Litchliter, Mississippi; Anne Margulies, Massachusetts.

Diagnosis: Success

BY SHANE PETERSON | CONTRIBUTING EDITOR

Indiana Health Information Exchange adds members and technology services, even as other health IT efforts struggle.

DESPITE THE high-profile campaign to prod the health-care world to adopt information systems that share patient data, the adoption pace isn't exactly on the fast track.

In part, the slow pace is a natural byproduct of the task's enormity. The health-care sector is mired in paper, perhaps more so than any other sector of the U.S. economy. By the end of the 1990s, according to White House data, most American industries spent approximately $8,000 per worker for IT. The health-care industry, however, spent only $1,000 per worker.

Erasing that gap will require a lot of hard work and money. Perhaps most importantly, formerly competitive parts of the health-care system will have to work together to solve complex health-IT problems.

It's a formula that's worked well for the Indiana Health Information Exchange (IHIE), though only after considerable effort.

The IHIE is a nonprofit created by a cross-section of Indiana health-care entities, including the Regenstrief Institute, private hospitals, local and state health departments, and BioCrossroads, a public-private entity supporting Indiana's research and corporate strengths in life sciences.

Starting Small

The IHIE's success stems from taking incremental steps, said Dr. J. Marc Overhage, president and CEO of the IHIE.

"We're not trying to boil the ocean here, and DOCS4DOCS is an example of that approach," Overhage said.

DOCS4DOCS (D4D) is one of two services the IHIE offers to physicians and hospitals. D4D is a standards-based, electronic clinical messaging service that delivers test results and other clinical information securely and efficiently. More than 25 Indiana hospitals use the fee-based service, and sends approximately 1 million messages per month to 5,000 physicians.

D4D saves millions of dollars per year for the health-care entities that use it, Overhage said, by eliminating duplicate tests ordered by hospitals and associated administrative costs.

The focus on delivering basic services to health-care practitioners is deliberate, said Overhage.

"IHIE is not trying to replace physician-practice systems," he said. "We're trying to be the grease in the middle. We're not focused on applications. We're focused on moving the data."

It's an important distinction, Overhage said, because the IHIE isn't trying to create electronic health record (EHR) software. The vision of a national health information network in which EHRs freely interoperate between hospitals and physicians' offices will take years and hundreds of billions of dollars to build, he said, and the IHIE wants to focus on solving grass-roots problems in the here and now.

"Eighty-eight percent of health care in this country is delivered by physician practices of 10 physicians or less," he said. "These are the practices least able to afford EHR software packages. In the near term, we're delivering a 'poor man's' EHR that's starting to feel like it's a fairly complete picture of what's going on with a patient."

Second Service

The other part of that complete picture is the IHIE's new service, Quality Health First (QHF), which, unlike the D4D, is available to users at no charge.

The QHF combines medical and drug claims, patient drug information, and laboratory and radiology test results with clinical data from the Regenstrief Institute's Indiana Network for Patient Care.

The idea, Overhage said, is to create a high-level, clinical database of patient-specific sets of diagnoses and preventive care procedures for doctors to help them improve the quality, safety and efficiency of patient care.

To assemble that spectrum of data, the IHIE worked with the Employers Forum of Indiana,

participating payers and health-care providers in the nine-county Indianapolis area.

But that was only half of the solution. Making the QHF attractive to physicians on a business level was equally important, Overhage said, and solving that problem required a diverse group of health-care payers to agree to one set of reimbursement dollar amounts to physicians using the QHF.

"We have a large group of payers who are providing incentives to help doctors follow up," he said. "By getting alignment across all payers, we are able to provide the physicians with incentives that are quality-based, rather than by volume. These incentives are over and above normal reimbursements for medical services."

By getting this alignment, he said, the IHIE can make a strong business case for doctors to incorporate the QHF into how they manage their practices. Even better, he continued, the QHF is a tool that can appeal to a large cross-section of physicians, thereby nudging more doctors' offices into the world of modern health IT.

Local Connection

Not only do doctors benefit from increased health IT use, so do public health departments.

Public health officials can tap new sources of health information to make health policy decisions, as well as public safety decisions, said Dr. Virginia Caine, director of the Marion County, Ind., Health Department (MCHD).

Caine, who sits on the IHIE's Board of Directors, has been involved with the IHIE from its beginning. What sets the IHIE apart, she said, is its grass-roots origins. The idea came from a group of physicians who sought to improve their patients' health care by reinventing how health-care entities in the Indianapolis region work and share data.

"We had physician representation from almost every major hospital, a number of large physician groups and different specialties, and people in private practice," Caine said. "That group became known as iCare Connect."

The Health and Hospital Corporation of Marion County — which operates the MCHD and the Wishard Memorial Hospital — was asked to provide the initial seed money for iCare Connect, Caine said, and iCare Connect evolved into the IHIE. One of the next steps was convincing hospitals to use the IHIE to exchange medical data.

The MCHD played a key role in pitching the IHIE to hospitals and hospital systems, Caine recalled, by creating formal proposals for hospital executives.

"We looked at all the costs they spent with their information systems, all the faxing and materials they had to send out, and reports they had to send out for their individual departments," she said.

The basic message was simple: If a hospital used the same data system to store medical information that other hospitals in the region use, health-care providers would have more patient information than would be possible from just accessing a single information system.

Caine said those efforts started in 1999, and the process is slow going because some hospitals, though stand-alone facilities, share information connections with other hospitals.

"You've got to know which one to hit first, second, third and fourth," she said. "Each hospital has different issues. Some hospitals are on an information system that's tied in the same system as their network of hospitals. So how do you get everybody to be on the same system?"

In practice, this information sharing helps the MCHD track public-health issues, such as immunization rates in the community. Caine outlined a scenario that happens more regularly than MCHD officials would like to see:

A parent takes an infant to a health-care provider for immunizations. The next year, perhaps because of a change in health insurance, the parent switches to another hospital provider or physician, or even decides to see a public-health facility for the second series of immunizations to avoid paying out-of-pocket expenses. Unfortunately the child's immunization history isn't known to the second health-care facility, and the child starts back at square one.

This is a significant problem, Caine said.

"Because the providers are not aware these immunizations have been given, they have to start all over," she explained. "They have to start at the beginning, and that can make that child more vulnerable."

The immunizations are supposed to be delivered in a progression, Caine explained, and immunizations that start over don't do their job because it increases the window of time in which the child is vulnerable to infection.

"You're really vulnerable to something called H Influenza infections by the time you're 2 years old and over," Caine said. "There's a lot of risk of meningitis during that time frame. If you're starting your shots over and over, you don't get the protection of those shots by the time you hit that age range, so you're still susceptible to those infections."

Neutral State

Sharing health information requires more than just technology; it requires diverse, often competing, entities to agree to play their part.

The Indiana State Department of Health (ISDH) is akin to a safe haven for those groups, said Roland Gamache, director of the ISDH Health Data Center.

The ISDH's role is to expand the interoperability of health-data exchange to other areas of the state because the IHIE primarily serves central Indiana.

"Northern Indiana and southern Indiana as well want to participate," Gamache said. "So we're looking for ways to help develop interoperability within our state and also nationally as we move forward. But we're more enabling the discussion — bringing partners together — because we're a neutral convening ground for a lot of businesses that are normally competitors."

The best example of this type of collaboration is a new medical error reporting system created by the ISDH, said Joe Hunt, assistant commissioner of Public Health Systems Development and Data for the ISDH, which produced its first report in March 2007.

In October, the U.S. Department of Health and Human Services awarded $22.5 million to nine health information exchanges (HIEs) across the country, including Indiana University, to start piloting the Nationwide Health Information Network (NHIN). The NHIN is part of the Bush administration's goal to build a national, interoperable health data infrastructure that allows patients and health-care entities to exchange health data securely. In December 2007, the Centers for Disease Control and Prevention are expected to fund more HIEs to further expand the NHIN.

Source: U.S. Department of Health and Human Services

"We're sort of a neutral party," Hunt said. "If we hold the data, and hold it to certain standards, and then make it available to everyone under the same circumstances — that relieves the burden of reporting this data to other people from some of the hospitals. It also provides some consistency on how the data are recorded and presented."

Addressing the complicated issues surrounding health information is never a quick process, Hunt said, and when iCare Connect first started discussing the concept, hospital leaders displayed an enlightened grasp of the importance of sharing health information.

"They recognized that what we were talking about, sharing data, didn't undermine competitive factors," he said, "but through an integrated sharing of data, it can lower the cost for everybody, and they could compete on the services and the value of services they offer." GT

Winning Combination?

BY CHAD VANDER VEEN
TECHNOLOGY AND POLITICS EDITOR

Will Schwarzenegger's proposal for a privately managed California lottery pay off?

WHETHER YOU consider them a tax on the poor or a harmless way to spend a dollar or two, lotteries have entrenched themselves in almost every state government's operations. In California, Gov. Arnold Schwarzenegger hopes that transforming the state lottery into a public-private partnership will cure what ails the Golden State, while others contend government should not be involved with the lottery at all.

Forty-two states permit, operate or participate in one or more lotteries. Most games were established to generate revenue, usually to help perpetually feeble state programs such as education, or to add needed cash to a state's general fund.

The odds of winning are long — about 1 in 14 million for the traditional 6 of 49 games, and approximately 1 in 150 million for interstate games, such as Mega Millions and Powerball — but by and large, most state lotteries attract enough players to bring in money. In California, however, the lottery is a long-time underperformer. Despite a 2005 move to participate in a second lottery, the interstate game Mega Millions, the California lottery continues to generate far less revenue per capita than most states.

The Big Idea

Earlier this year, as part of his strategy to help mend California's budget, Schwarzenegger began floating the idea of outsourcing lottery management to a private consortium in exchange for a one-time lump sum somewhere between $12 billion and $37 billion.

"The governor is considering leasing the state lottery in order to maximize its returns and improve performance for California's taxpayers," said Schwarzenegger spokeswoman Sabrina Lockhart. "By allowing a private firm to run the lottery more efficiently and profitably, California will receive more money without giving up ownership.

"Any lease deal will protect the lottery funding our schools get now, and guarantee they'll continue to receive funding at current levels," Lockhart continued. "If the lottery performs better under leased management, education stands to get more money. This money isn't future revenues we'll bank today. These are brand-new funds from higher profits."

In a radio address earlier this year, the governor detailed why he was considering letting a private entity manage lottery operations and what he expected from such a deal.

"A leading investment firm says our lottery is worth tens of billions of dollars. Despite that tremendous market value, our lottery is only generating a little more than $1 billion a year for our schools," Schwarzenegger said. "By leasing the lottery to a private company, we would maintain ownership but turn ticket sales and marketing over to someone who could do it better. And the company that leases the lottery would pay hundreds of millions of dollars a year in corporate taxes."

Lucky Numbers

The governor's plan for the lottery seems like a great idea on paper.

The state would hand over lottery operations to a private organization. This as-yet-unnamed group would operate the lottery for 40 years after paying the state the estimated billions the lottery is reputedly worth.

After the transaction is made, the state would use the money paid by the private entity to set up an endowment fund — an investment fund in which the principal is left intact while any additional monies are used to support programs — for education, ensuring schools would receive the constant funding stream the lottery originally was set up to produce. Any money remaining after the endowment fund is created could be used to cover other expenses. If the lottery commands a selling price on the higher end of its estimated value, the governor claims schools would reap more than $1 billion annually.

And what value would there be for a private entity to manage lottery operations? Analysts claim a private firm could more effectively market the lottery and generate higher revenues — of which the private entity would take a significant portion.

Schwarzenegger has called the plan a "win-win" because if a private entity made the lottery

more profitable, the entity would pay more corporate income tax to the state. Furthermore, a profit-sharing clause would be included in the handover of lottery operations.

According to an analysis provided to the state by Lehman Brothers, a worldwide investment firm based in New York City and a potential partner in the proposed private consortium, "If a private operator were to eventually improve performance beyond average national levels, profit sharing would then begin, though we think this is unlikely to occur for the early part of the lease."

Because private operators would earn profits in California, they would have to pay state corporate income taxes, which would generate $175 million immediately, $410 million by the end of the lease, and average $315 million in annual tax revenue during the 40-year concession.

A fact sheet prepared by the governor's office cites the California Lottery's long-term problems meeting expectations. The report noted that annual per capita spending on lottery products is $158 in states that have lotteries, and in the 10 most populous states, per capita spending is $190. In California, it's $81. Clearly, officials said, there is a lot of room to improve.

Jackpot?

Not everyone is keen on handing over the reins of a multibillion dollar government program to some wealthy, unnamed group.

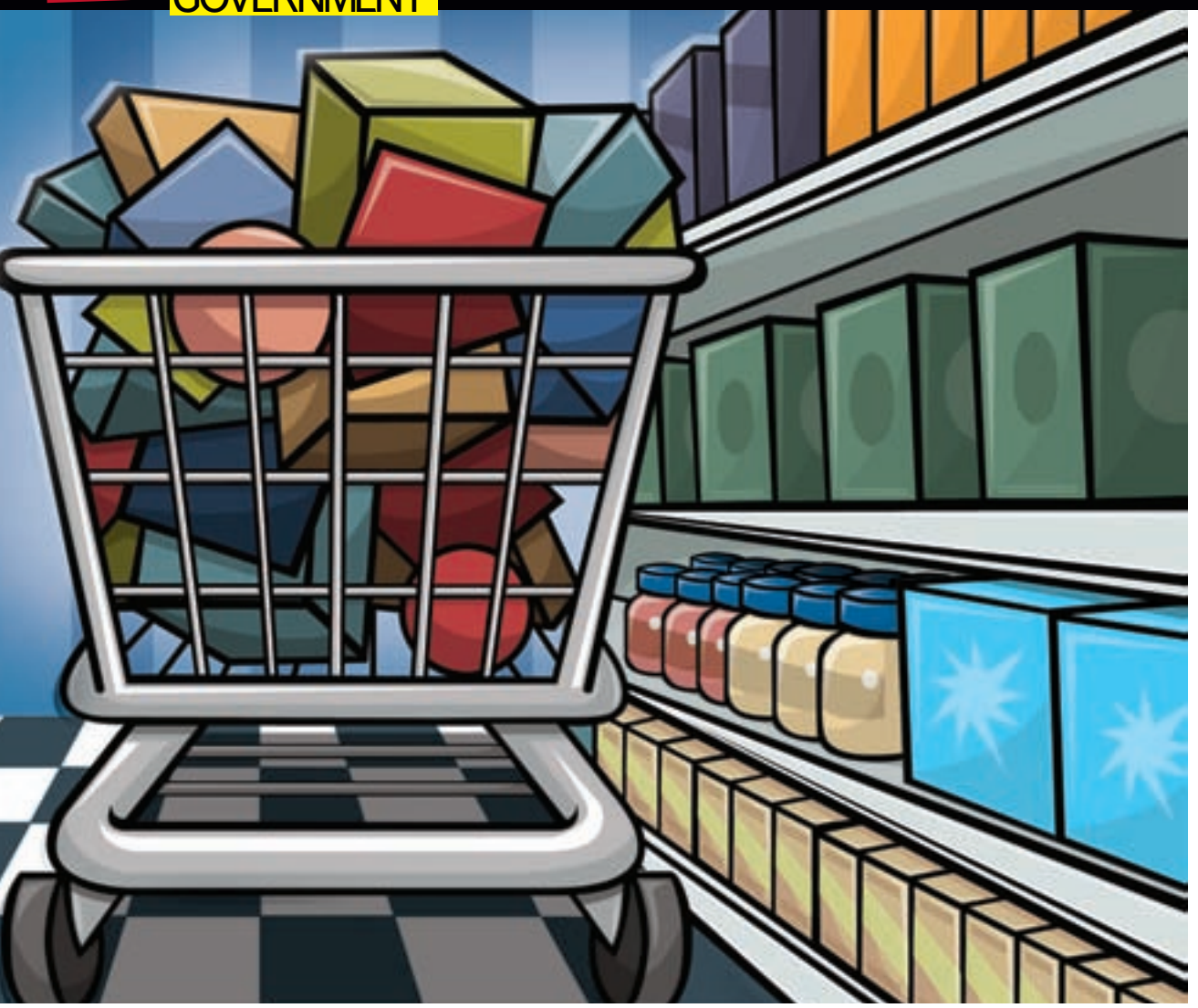
Jean Ross, executive director of the California Budget Project, a nonprofit fiscal and policy analysis organization, said the lottery tends to exploit the poor, and other means should be pursued to guide California out of its dire economic straits.

"I think it's appropriate to ask whether the state should be encouraging more Californians to gamble more of their money," Ross said. "In particular, we know that lower-income households are disproportionately likely to engage in gaming activities. Those are the Californians who have the toughest time making ends meet.

"California has what's called a structural budget deficit," Ross continued, "which means our expenditures exceed our revenues, and selling the lottery would be a one-time fix to an ongoing problem."

However, in a response to the governor's proposal, California Senate President pro tem Don Perata, D-Oakland, said he has no problem with the idea — noting his objection to government being in the lottery business in the first place.

"Let's face it: The lottery is like an expanded bake sale. That's all it is: It's extra money … I don't think we should be in that business to begin with." GT



We Deliver

BY JIM McKAY | JUSTICE EDITOR

Private sector proves nimble during emergencies.

THEY'RE FAST, efficient and already in the area — and FEMA is not.

Retailers and grocery chains, such as Wal-Mart, Home Depot and H-E-B, are prepared to transform themselves into disaster relief entities whenever disaster strikes Texas.

Rather than wait three to seven days for FEMA to arrive, Texas officials from the Governor's Division of Emergency Management and the Department of Homeland Security have welcomed local businesses and nonprofit organizations to help in times of need.

Private companies demonstrated their worth during Katrina — and more recently Hurricane Dean — and have since become part of the emergency management team, taking part in exercises and brainstorming sessions to lend their expertise and experience.

The companies were convened by Gov. Rick Perry to form a task force after a disorganized response to Hurricane Rita in 2005. The groups train alongside emergency management personnel, and each has a defined role should an emergency occur. During the first 72 hours, retailers donate supplies, such as water, to the response effort. Once the disaster moves into long-term recovery phase and federal dollars are available, the state can enter into a contract with those retailers on recovering the cost of the supplies. Nothing is promised to the retailers beforehand. However, Shell Oil has a contract to provide fuel along evacuation routes during emergencies.

During Katrina, Wal-Mart delivered food and goods to first responders almost immediately, and during a recent flood, police, firefighters and paramedics gathered in a Wal-Mart parking lot and were given gift cards for groceries. During the same flood, H-E-B Emergency Management Coordinator Justen Noakes showed up with bottled water and sandwiches for first responders.

"The partnership isn't anything new," said Krista Moody, Perry's deputy press secretary. "It's not a new concept because we've worked with the private sector in the past, we have the contact information and whether it's them calling us or us calling them — it happens interchangeably. It's a relationship like any state agency where they know there is a possibility of them being activated and playing a role."

Preparation Paid Off

As Hurricane Dean, a Category 5 storm, bore down on Mexico and threatened parts of Texas, officials were ready, having learned from the chaos that ensued after Hurricane Rita.

A week before Dean arrived, more than 1,300 buses showed up in San Antonio, then Brownsville and McAllen. An additional 1,600 buses were on standby around the state waiting to evacuate "special-needs" residents, who either didn't have a vehicle or were unable to travel on their own because of medical or other reasons.

The buses took preidentified routes, along which Shell Oil Co. had positioned 11 fueling stations to ensure the buses were well fueled. It was part of a plan put in place after Rita, involving local governments and private businesses like Shell.

Since then, Shell has taken a lead role in planning the efforts of the private sector and state and local governments to assure a swift and organized response to the next event.

Shell's involvement, along with efforts to organize all parties, consists of assuring the state's fuel needs are met and that vehicles for the estimated 133,000 special-needs citizens who need evacuation are fueled and ready to go. Shell also helps after an event on mass care and providing fuel where it's needed.

"We work on a day-to-day basis," said Martin Padilla, fuel coordinator and regional

Hurricane Dean took a west-northwest path through the Caribbean Sea, passing just south of Jamaica on Aug. 20, 2007, and making landfall in the Yucatan on Aug. 21, 2007. Because the Texas coast was a possible target, officials were ready to respond.

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"With the private sector, you have **experts in the field** who can go right into a situation, and many of these organizations and companies are **already situated** where the disaster is happening or is going to happen."

Krista Moody, *deputy press secretary, Gov. Rick Perry, Texas*

manager for Shell Oil in Texas. "Probably the largest effort goes toward the special-needs evacuations due to the size of the special-needs populations in certain parts of the state. They are individuals who just can't evacuate on their own, whether they just don't have a car or whether they're [medically in need]."

The locals bring special-needs evacuees to those hubs, and then they will evacuate along evacuation routes, Padilla said. "We have set up temporary fueling locations that consist of tanker trucks outfitted with dispensers," he said. "The Texas Military Forces provide the Porta Potties, refreshments, the comfort issues for special-needs folks, and then they get back on the bus and continue to their next destination."

Read On
To learn more about how Texas prepared for Hurricane Dean's arrival, read the November issue of *Emergency Management* magazine, or visit **www.govtech.com/em.**

Two years of preparation since Rita paid off as the region was more than ready for the effects of Dean. A result of the effort is increased communication between the private sector and state and local governments.

"The best thing that occurred from the Texas plan is the communication and collaboration we've had between industry and government," Padilla said. "That has been paramount. During Rita, we were doing our own thing, the state was doing their own thing, and we didn't communicate. Now we know what's happening and we're able to provide feedback to the state and local government."

Home Field Advantage

The idea of enlisting the private sector to provide goods and services they deal with every day is proving a much better tactic than waiting for FEMA to ramp up and arrive several days after an event.

"With the private sector, you have experts in the field who can go right into a situation, and many of these organizations and companies are already situated where the disaster is happening or is going to happen," Moody said.

That gives them a distinct advantage over FEMA, she said. "FEMA isn't a grocery store, FEMA isn't a fuel tanker, they aren't medical care providers. It's not an apples-to-apples comparison."

"And really," Padilla said, "the oil and gas industry has been doing this for more than 100 years. We pull oil out of the ground, we refine it, we put it into a distribution network, we sell it at retail. We have the infrastructure, we do it on a day-to-day basis whether there's a hurricane, an earthquake or just a regular day."

Moody did emphasize that saying FEMA can't be counted on is inaccurate. "Our federal partners supported us a great deal in this effort and efforts of the past," she said. "This is just one more avenue for help. We take this approach to emergency management because the state has limited resources, and partnering with the private sector certainly helps fill a void — and helps fill it fast." GT

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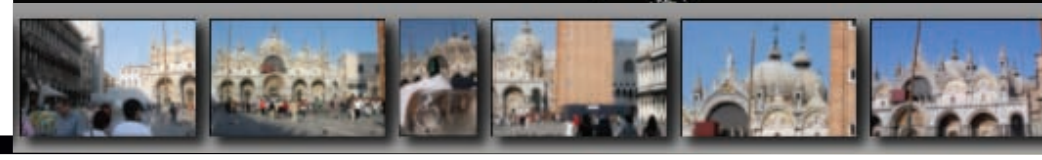

Someone surfing the Internet can now glimpse what it might be like to stand in Venice's Piazza San Marco, shown here, the Piazza San Píetro in Rome or the Gyeongbokgung in South Korea.

How? Photosynth — an application from Microsoft Live Labs — takes a large collection of photographs of a specific location or object and analyzes them for similarities. It then displays the images in a 3-D venue.

You can even get a 3-D view of the Space Shuttle Endeavor on Launch Pad 39A, as well as other collections, thanks to a collaboration between Microsoft's Live Labs team in Seattle; NASA's Kennedy Space Center in Cape Canaveral, Fla.; and NASA's Ames Research Center in Silicon Valley.

Users can zoom in and out of a location's 3-D rendition, fly around it, and see which specific images were used to form the 3-D interpretation.

Though individuals can't yet "photosynthesize" their own images, Microsoft Live Labs has plans for that in the future.

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HTTP://LABS.LIVE.COM/PHOTOSYNTH

VISIT WWW.GOVTECH.COM TO VIEW GTtv'S REPORT ON PHOTOSYNTH.

IMAGES COURTESY OF MICROSOFT

A Los Angeles County Sheriff's program serves as a gateway for technologies of the future.

INSPECTOR Gadget

PHOTO BY JESSICA JONES

Dragon Egg
This egg-shaped wireless video system can be thrown through windows or around corners to crash the party on unsuspecting crooks. The egg, which acts like an extra set of eyes for cops, contains four cameras that provide 360 degree viewing. The device transmits video to an analog receiver, allowing officers to see what's going on before they bust into a room.

BY JIM McKAY | JUSTICE EDITOR

"The Earth curves at 6.5 feet per mile," said Los Angeles County Sheriff's (LASD) Commander Sid Heal when showcasing one of the many new technologies he introduces to law enforcement agencies worldwide. Heal logs many hours on the road demonstrating such technologies and spitting out that seemingly atypical sheriff speak.

As the point man for the Technology Exploration Program (TEP), Heal is clearly enamored by his job, which lets him showcase new technologies to law enforcement agencies worldwide. TEP is a test bed for new and developing technologies with the potential to alter how law enforcement does its job.

"Some things you find will make what you do better," he said. "Some things will make what you do obsolete."

Consider the Magnetic Acoustic Device, a loudspeaker on steroids — and more. Heal calls it a noncollaboration communication system, because you can broadcast a voice message up to 1,000 feet, then flip a switch and hear — from that far away — a voice response from someone stranded in the wilderness, trapped in a collapsed building or who is otherwise lost.

"It replaces conventional hailing devices like bullhorns," Heal said.

It can also artificially re-create and broadcast creepy sounds like fingers on a chalkboard in superloud frequencies, which could, theoretically, be used to flush perpetrators out of hiding by driving them, well … mad.

New Phenomenon

Making technology available to officers is a relatively new phenomenon, which the events of 9/11 made more feasible, because after the World Trade Center attacks, law enforcement's obligations grew to include homeland security concerns.

Those particular concerns brought attention to local law enforcement agencies and their need for additional tools to fight crime and terrorism. This opened the door for the federal government and private vendors to consider the nation's law enforcement agencies as viable customers.

Still, it's difficult for defense contractors to market technologies to local law enforcement because the market is fragmented, Heal said. "There are 17,800 local law enforcement agencies, and 50 percent of them have fewer than 24 employees. Defense contractors don't want to deal with selling one item 1,000 times."

For that reason, the best options for local law enforcement aren't giant IT firms, but smaller vendors who put their heart and soul — and wallets — into their projects.

The LASD encourages small vendors to test their prized technologies with TEP for possible future use by law enforcement. Hundreds of technologies pass through TEP and most are rejected, Heal said. "When they bring it to us, we expose it. We get in early and make sure it's viable before they market it," he said, adding that, "You can't spend money just on what's available — it has to be good."

That's important, Heal said, because if a vendor rushes a technology to market and it's flawed, it's likely to stay flawed and never be of value to law enforcement. "They're not going to be willing to change it if it doesn't work," he said.

PHOTO BY JESSICA JONES

Magnetic Acoustic Device (MAD)
Pink Floyd would have been proud of this speaker on steroids. MAD can broadcast a sound or voice message up to 2 miles away without any significant degradation of the sound. The volume of the speaker, when demonstrated for *Government Technology* magazine, was the same to the human ear at 2 feet up to about 200 feet. What's also remarkable is that the device can reportedly receive a sound, such as a person's voice, from just as far, making it a potential tool for search-and-rescue missions.

PHOTO COURTESY THE LASD

Pole Cam
In effect, it's simply a wireless camera on a pole, but for an officer who has to clear an attic or peek around a corner, it could be a lifesaver. There are many manufacturers of similar tools, but Los Angeles County's Sheriff's Department Commander Sid Heal says this, developed by Chang Industries in Southern California, is the only wireless one. The Pole Cam flashes video back to a computer or laptop to give officers a visual of what awaits.

PHOTO COURTESY OF THE LASD

Skyseer
Dubbed the flying IP address, the GPS-guided Skyseer will patrol the skies for at least an hour and broadcast video back to a computer. Skyseer can be configured to fly a specific route or it can spy on an individual or object, providing a constant stream of video to the computer. The plane can fly as high as 8,000 feet, but the optimum level is 250 feet. It weighs 4 pounds and is stored in a tube that fits in the trunk of a police car. The Skyseer will be tested in field trials soon.

Sleeper Technology

Some of the technologies with the best chance to be developed for law enforcement use are those that detect contraband, stop fleeing vehicles and help officers intervene with less lethal force. Products that combine multiple technologies also may have potential. One such device is the Cobra StunLight, a flashlight that also shoots a stream of pepper spray. "This one is a sleeper," Heal said.

LASD deputies test the new gadgets in the field under live conditions, and file real-time reports on the results. Heal can view information on how new technologies are performing without paging through a stack of reports. "Everything we do is paperless," he said.

Heal is quick to point out that deploying technology without adopting corresponding procedures on how to use it is a waste of time. "You have to focus on function, not technology," he said. "You can get wrapped around an axle if you're focused on the technology. We have to have the mindset that we won't have the technology, so we have to adopt procedures. Technology is always in a supporting role."

That's partly because there isn't much money for experimental technology in the law enforcement realm, and there's the danger of investing in a technology that will be obsolete soon after it hits the field. "You have to be careful you're not trying to solve yesterday's crime," Heal said.

For instance, trends in criminal behavior point to less street crime because people are carrying less cash. "You need to focus on what the future is going to look like."

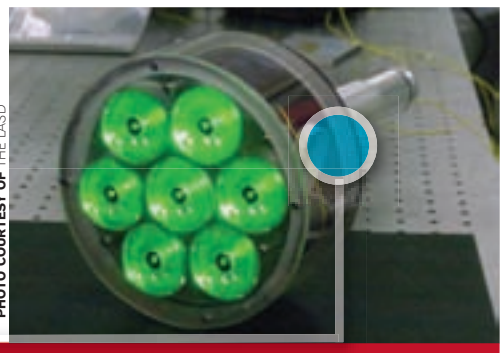

PHOTO COURTESY OF THE LASD

LED Incapacitator
The name sounds ominous, but this device is designed to provide nonlethal intervention. The LED Incapacitator uses a display of blue, green and red lights to temporarily disorient suspects and make them feel nauseous.

PHOTO COURTESY OF THE LASD

Boxers or Briefs?

Ancillary policy issues, as Heal calls them, can also play a role in whether a technology is marketed. One of those is privacy. For example, 3-D scanners would let prison officials detect contraband on inmates and visitors, but is it too intrusive?

"It shows everything," Heal said. "Is it too revealing? Is it a search? Developers worry about that."

There are many obstacles to clear before new technology gets deployed. "For every gateway to the future," he said, "there are a thousand guardians of the past."

Hundreds of technologies keep Heal and his staff busy tinkering and collaborating with law enforcement worldwide on what works and what doesn't, some of which we've featured. Though the odds are long, one of these technologies might just make a current tool go the way of the dinosaur. GT

Nighthawk
Another unmanned aerial vehicle that Heal and staff feel has real potential, the Nighthawk was developed by the military and is closer to production than the Skyseer. But the Skyseer has the advantage of being developed specifically for law enforcement applications and doesn't need any modifications.

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WATCH A GTtv REPORT ON THE L.A. COUNTY SHERIFF'S TECHNOLOGY EXPLORATION PROGRAM.

VIEW A SLIDESHOW OF EXPERIMENTAL LAW ENFORCEMENT TECHNOLOGIES.

Gaining Altitude

Sacramento Police Department develops its own unmanned vehicle.

The Sacramento, Calif., Police Department (SacPD) recently unveiled an addition to its air program that could greatly bolster search-and-rescue missions, help monitor floods and free up the department's two helicopters for more critical calls.

The new unmanned aerial vehicle (UAV) will provide an affordable — not to mention quieter — alternative to the hovering helicopter during incidents, said Sacramento Police Chief Albert Nájera, who said the department gets many complaints about the helicopter's noise.

"The noise factor is huge. This is almost silent; you can't hear it," he said. "Not many police departments can afford a helicopter, but most will be able to afford this."

The miniature airplane is one of two aircraft in the development stage designed to enhance the department's existing airborne technology program. There is also a mini helicopter under development that hasn't been unveiled yet. The SacPD's current air program consists of two conventional helicopters with video downlink communications that stream video to mobile data terminals in police patrol cars and to mobile command vehicles.

The Sacramento area is at high risk for a catastrophic flood and needs to be monitored closely during periods of heavy rain. The department currently uses its helicopters to shine infrared light on the levees surrounding the city to detect leaks. UAVs could be used for this task, Nájera said, freeing up the helicopters to handle critical calls. The miniature aircraft could also be used for search-and-rescue missions.

"I wish I had a dollar for every time I've heard over the radio, 'Is an air unit available?'" said the developer of the aircraft, Mark Bateson, senior solution architect of public safety IT for the department.

The 5-foot-long aircraft weighs about 12 pounds and can carry multiple video cameras. It is hand-launched and can circle autonomously for 45 minutes at about 30 mph.

It has "stare capability," which means officers at the station can remotely train the video on a subject for its entire flight. "With a right click, I can give it latitude and a longitude and point the camera," Bateson said.

The aircraft is battery operated, flies autonomously for the most part, and even calculates the direction and speed of the wind while in flight. Bateson said the next step is to pursue Federal Aviation Administration (FAA) certification and authorization. "It is our intention to work in a cooperative teaming arrangement with the FAA to make this work and follow the book, so to speak, to make this a success."

Synopsis: A successful ITIL implementation gives a state agency the metrics and data it needs to improve IT services, increase efficiency and save money.

Agency: North Carolina Office of IT Services.

Contact: Bill Willis, deputy CIO, North Carolina, <bill.willis@ncmail.net>

By the Numbers

state local federal

ITIL revs up North Carolina's service performance.

BY MERRILL DOUGLAS | CONTRIBUTING WRITER

Bill Willis was looking for a better way to talk with his customers. As deputy CIO of North Carolina, he needed to know if his organization was doing a good job serving IT users in state government and which aspects of its services needed improvement. But pinning down the facts wasn't easy.

"I was getting overwhelmed by anecdotes," Willis recalled. "I can't fix those. But I can fix numbers."

In 2004, as North Carolina started moving from an agency-based IT structure toward an enterprise operation, the demand for a common language and a set of metrics grew ever clearer. It's one of the major reasons the state launched a program to deploy the framework called the Information Technology Infrastructure Library (ITIL).

Today, the state's Office of Information Technology Services (ITS) is in the midst of a three-phase ITIL implementation. In June, Pink Elephant, an ITIL consultancy in Richmond, Calif., and Burlington, Ontario, gave North Carolina its 2006 award for ITIL Project of the Year.

ITIL is a set of best practices for IT service management, which was developed in the 1980s by the UK-based Central Computer and Telecommunications Agency, now called the Office of Government Commerce. Contained in a series of books, ITIL offers guidelines for providing high-quality IT services using standard processes and establishing measurable performance goals.

When a service organization lacks well defined processes, a problem that takes 10 minutes to resolve on Tuesday, for example, might take an hour and a half on Friday, said Joe Lithgo, director of the operational excellence program at ITS. Or a call for help with a balky PC might get passed like a hot potato from one technical group to the next.

"The ultimate point is to make sure the computer is restored to normal service operation within the time required, as specified by the

established service level," Lithgo said. And the principle of adhering to specification applies not just to troubleshooting, but also to a whole range of service categories, such as configuring systems, introducing changes in technology and installing new releases. "The point is to make IT more responsive to the business and more in line with the business needs."

A Natural Fit

Lithgo learned about ITIL in early 2004 at a conference in Washington, D.C., sponsored by the IT Services Management Forum. At the time, he was chief operating officer of ITS, which was planning to procure a tool to help refine its incident management and change management processes. Since those are two areas that ITIL addresses, "It was a natural fit," he said.

That same year, Willis became the state's deputy CIO. He arrived with recent ITIL experience. As vice president of global IT for the UK-based communications company Cable and Wireless, he had sponsored a large ITIL project that covered 14 countries. "So we were immediate allies," said Lithgo, who heads the state's ITIL initiative.

ITIL's Impact

- twenty percent increase in overall efficiency;
- thirty percent increase in service desk productivity;
- cost of resolving an IT problem dropped from $1,300 to $750; and
- ninety-nine percent of system changes completed on time.

In late 2004, ITS established a formal ITIL program. It issued RFPs for training and implementation services, and started to benchmark its service activities. In 2005, ITS started training staff in the fundamentals of ITIL, formed a steering committee and created an advisory group, which included CIOs of various state agencies.

The project focuses on three phases of process design. North Carolina completed phase one in 2006, using the ITIL framework to design processes for managing incidents, problems, changes and service levels. (For definitions of ITIL processes and related terms, see www.best-management-practice.com/gemimage/ITIL_Glossary_May_v2_2007.doc).

Phase two, scheduled to wind up at the end of this year, covers release management and configuration management, plus some upgrades to help desk policies and procedures. Phase three, covering capacity management, availability management and some upgrades based on the latest release of ITIL, will start early next year.

To illustrate how these processes work, Lithgo described the set that covers incident management. Those processes assign priorities to different kinds of service interruptions, spell out who must respond to each kind and specify how fast they must respond. Also, under the new regime, the service desk monitors incidents to make sure response teams meet the standards. "We're putting out reports twice a day for any incidents that we're in danger of breaching," Lithgo said. "The service owners get copies of that report, and they get escalated internally before we breach them."

Each month, a team examines a report on any service breaches that slipped through the safety net, to see if they indicate a trend. If they do, the team tries to figure out the root cause.

One key to the project's success so far has been that each process design team includes people who actually use the processes, Lithgo said. "This wasn't a couple of managers going off in a corner, designing it and saying, 'Thou shalt do it this way.'" Another key was that leaders in the operating divisions assigned their best talent to the project, he said.

Disrupting Comfort Zones

Still, an ITIL project, like any initiative that introduces change, will spark some resistance. "You're disrupting comfort zones. You're changing roles in various ways," Lithgo said.

Some employees embrace the new career opportunities that an ITIL implementation presents, while others resent the disruption.

"There'll be some tense months up front," Lithgo said. But issues get resolved as the project unfolds. "Sometimes it takes training, or there may be months when you have some metrics that don't look so good, or some meetings that can be uncomfortable. But we move past that."

With phase one complete, ITS already has gained significant benefits from ITIL. "Overall agency productivity improved 20 percent. Service desk productivity improved 30 percent with no increase in staff," Lithgo said.

Thanks to this rise in efficiency, the state is saving money. The average cost to resolve an incident dropped from $1,300 to $750, Willis said. "That's $1.4 million a year in lower resources to resolve incidents, because we're doing it faster, cleaner, with less confusion."

> "Sometimes **it takes training**, or there may be months when you have some metrics that don't look so good, or some meetings that **can be uncomfortable**."
>
> **Joe Lithgo,** *director, operational excellence program, North Carolina Office of Information Technology Services*

North Carolina's IT professionals also are putting out fewer fires. In the past, only 26 percent of changes ITS made to IT systems were carried out according to a plan, Willis said. The rest were emergency changes made at the last minute. As of July, ITS was planning 76 percent of its system changes in advance. As a result, it made 99 percent of those changes successfully the first time around, compared to 49 percent before the ITIL implementation.

In addition, technicians are resolving incidents faster. "If you'd looked a year ago, you'd have seen 200 to 300 tickets open more than seven days," Willis said. But a recent report found only 11 trouble tickets open one week after the initial complaint. "Things aren't falling through the cracks as much," he said.

North Carolina still has a way to go in sharpening its service performance, Willis said. Using the metrics it has developed with help from ITIL, the organization continually benchmarks itself against its peers to find specific areas it needs to improve. Having this data available makes a big difference.

"Instead of managing by organizational line and turf, you're managing by numbers. You're going from unmeasured — and to some significant extent, therefore, unmanaged — to measured and managed," Willis said. "In a consolidation, or in a large organization with delivery goals that change, all of those things are great. They make for very productive discussions." GT

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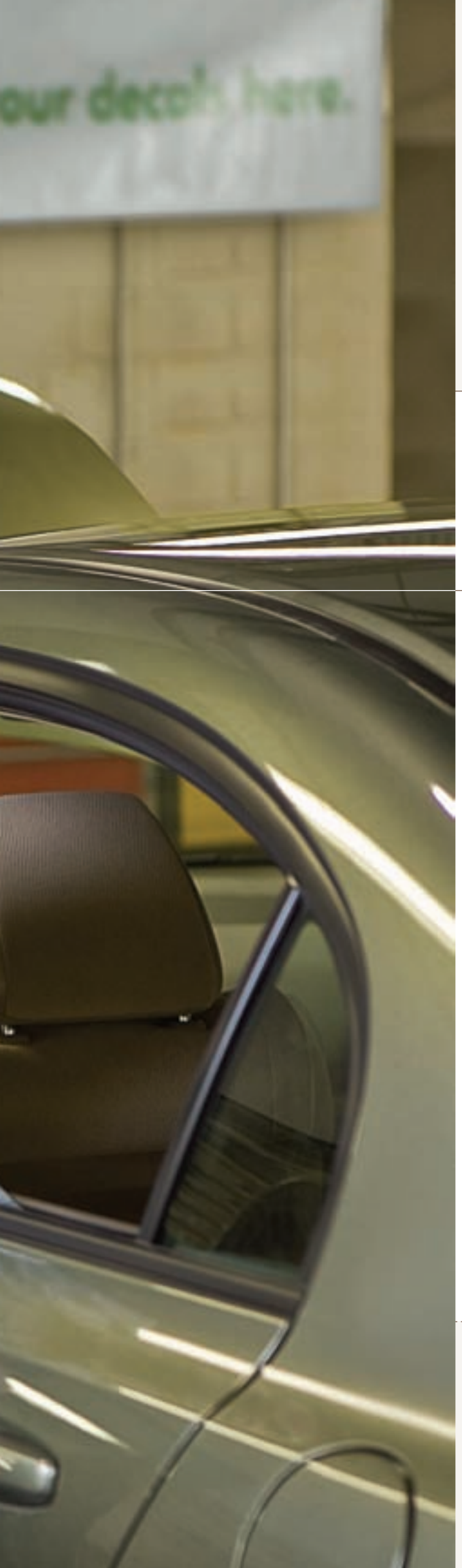

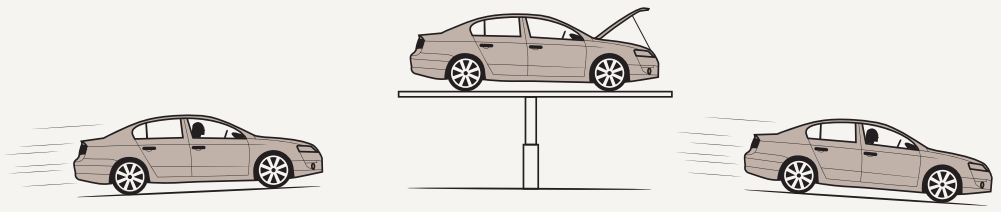

1 Drive to inspection station

2 Get car inspected

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Synopsis: Green IT is slowly catching interest in state and local government as a path to cheaper electricity bills.

Agency: California Environmental Protection Agency.

Technologies: Green data centers, energy-efficient computers, Windows Vista.

Contact: Gary Arstein-Kerslake, IT officer, California Environmental Protection Agency, 916/341-6147.

Green IT emerges as a solution to rising energy prices.

Money Talking

BY ANDY OPSAHL | GREEN TECHNOLOGY EDITOR

Powering and cooling data centers will match the capital costs of the data centers by 2012, according to International Data Corp. Private-sector IT leaders have shown that reconfigured data centers and better heat tracking mechanisms reduce the electricity required to power and cool servers, and state and local governments are beginning to follow suit. Green IT currently may not be top priority for most government CIOs, but surging electricity bills may soon force government to get hip with surprising rapidity.

The National Association of State Chief Information Officers (NASCIO) featured green IT on a conference agenda for the first time at its annual meeting in September 2007. Each year, NASCIO bases its conference agenda on what state CIOs identify as their top priorities. Though CIOs listed green IT as an important issue, it still failed to make the top 20, said Doug Robinson, executive director of NASCIO.

"When you're competing with front-page issues like IT security, consolidation, disaster recovery, ERP [enterprise resource planning] implementation, ERP strategies, health information technology — that's the challenge. It's not as strategic as some of those," Robinson said. "It's much more tactical."

Large technology vendors — such as IBM, HP, Dell and AMD — are encouraging green IT in both the public and private sectors by joining industry initiatives, like the Climate Savers Computing Initiative, which started last June. Participating companies promise to build machines that are at least 90 percent efficient in their power use by 2010.

"A few years ago, nobody cared much about how much energy they were using," said Brad Westpfahl, director of government industry programs at IBM. "They were trying to optimize other things. Now the cost of energy has gone up, and political awareness of the impact on the environment has gone up."

Green Data Centers

A number of solutions have emerged to help reduce energy consumption in data centers. One of the lowest levels of technology, the computer chip, can make servers greener. Servers can use multicore chips, which enable the machines to perform more computational tasks with less electricity.

Many government data centers waste energy by spreading work across many servers, leaving most of them with unused capacity. This leaves agencies paying to power and cool extra servers that don't need to be in the data center. Server consolidation initiatives reduce this problem. These plans may include deployment of virtualization software that can compress a data center's work down to just a few servers, further reducing power and cooling needs.

IT departments can also deploy software that more efficiently juggles computing tasks. For instance, IBM released a product called IBM Director, which lets IT departments maintain a power consumption level prescribed by the department. IT staff specify the priorities of the different tasks. Director helps them schedule all IT jobs to stay within the constraints of that power consumption level. For example, Director could tell the data center to execute a job immediately or wait to perform the task during nonpeak electricity times.

> "A few years ago, nobody cared much about how much energy they were using. They were trying to optimize other things. Now the **cost of energy has gone up**, and **political awareness** of the impact on the environment **has gone up**."
>
> **Brad Westpfahl,** *director of government industry programs, IBM*

"I may change when my payroll gets done. I don't care if it gets done at three in the afternoon or three in the morning, as long as the checks go out the next day," Westpfahl said.

He warned, however, that governments need to thoroughly assess the amount of power they use and the amount they can realistically reduce before implementing such a product.

A data center's layout is another factor in increasing energy efficiency, according to Andrea Di Maio, a vice president at Gartner. "Simulation software can allow you to look at airflows in the data center, highlighting hot spots there. By just repositioning some of the racks, it actually has a tremendous impact," he said. "The interesting thing about green IT is that when you think about it, you can have a number of quick wins."

Reaching 15 by 2015

New York state officials and technology leaders recently met in Albany, N.Y., to discuss methods for cutting the state government's energy consumption. Earlier this year, New York Gov. Eliot Spitzer announced his "15 to 15" plan, which seeks to reduce state electricity consumption 15 percent by 2015. Visit **www.govtech.com** to watch GTtv's report on the event.

Green Future

NASCIO's Robinson predicted green IT will gain prominence in the public sector as energy costs climb. Part of government's sluggishness on the issue stems from the fact that many agency data centers are renovated state office buildings that weren't built to be data centers. Many of these buildings aren't conducive to the rack-mounted servers, blade servers and storage area network arrays that energy-efficient data centers contain.

Due to the bureaucracy involved in building their own data centers, many governments may get greener by outsourcing data center operations to energy-efficient contractors, said Robinson.

"It's a capital construction project, and it can take many years to get it approved," Robinson explained. Governments unable to approve those projects would likely outsource to vendors with green data centers.

Many state and local governments remain quiet about their green IT research for now, according to James Costa, vice president of government industry for IBM. He said many don't want to publicize their efforts without completing their needs assessments.

"If you're talking 12 months from now, you'll see that three or four state governments have major efforts in this area they've actually had results from," Costa said.

Di Maio said energy-efficient data centers would be an easy first step for green IT in government. Green data centers already have well established designs, and the cost savings are obvious. The next challenge will be implementing green initiatives that don't necessarily reduce energy bills, but promote green values. An example would be a more environmentally friendly disposal process for computers.

Green IT will have different meanings for different government agencies, based on what produces each agency's "carbon footprint," said Di Maio. For example, the carbon footprint of an agency mostly composed of employees using computers would come from electricity consumption. Energy-efficient data centers and computers would be the focus of green activities for those agencies.

On the other hand, the overall carbon footprint of an agency focused on managing fleets of trucks comes from internal combustion engines. So rather than reducing data center energy consumption, that agency might deploy software that helps the agency use vehicles more efficiently.

Financial motivations are a start, Di Maio added, but only a cultural change will make government IT truly green. GT

Green Sleep

It doesn't take a technologist to grasp that governments could reduce energy consumption by reducing the amount of time they run large fleets of desktop PCs. The problem is how do you do that during the workday? California may have found the answer.

The state's Windows Vista conversion will allow PCs to go into a state of "hybrid sleep" whenever workers leave their desks, according to Gary Arstein-Kerslake, IT officer for the California Environmental Protection Agency.

An agency desktop would almost entirely power down during hybrid sleep. Power consumption per machine would drop from roughly 90 watts to 3 watts — just enough to maintain memory for unsaved material. Most parts of the computer would stop running. The machine would take roughly 10 seconds to awaken when the worker returned and used the PC's mouse or keyboard.

Arstein-Kerslake said California would likely implement the function by March 2008. But the process won't work unless Microsoft finds a way for the machines to go into hybrid sleep when the user walks away without saving his or her work, said Arstein-Kerslake. The state's current servers don't know how to allow desktops to power down while leaving unsaved content open. He said Microsoft's 2008 generation of servers would enable the process, but the current generation of servers would not.

Arstein-Kerslake said he expects Microsoft to solve the problem.

Synopsis: California public utilities and other agencies join to make schools healthier and more energy efficient.

Agency: Collaborative of High Performance Schools (CHPS).

Contact: Kristin Heinen, assistant director, CHPS, 877/642-2477, <kristin@chps.net>.

No Greenwashing

state
local
federal

California schools use formalized standards to prevent watered-down green technology programs.

PHOTO COURTESY OF LIONAKIS BEAUMONT DESIGN GROUP, COURTESY OF CHPS

BY ANDY OPSAHL | GREEN TECHNOLOGY EDITOR

Everybody wants to be green these days, but some businesses and governments try to cheat. They implement token measures for public relations reasons that don't significantly increase energy efficiency, reduce carbon emissions or clean the environment. Many in the environmental community call it "greenwashing," said Kristin Heinen, assistant director of the Collaborative of High Performance Schools (CHPS).

The CHPS, joining public utilities, government agencies and other industries, sets the standard for green schools in California. The organization started as a project of the California Energy Commission, joining public utilities to promote greener, healthier schools in 1999. In 2001, the CHPS became a nonprofit organization.

The CHPS promotes "high-performance" standards aimed at making schools greener, healthier and more academically beneficial. To prevent greenwashing, the CHPS requires schools to clear two bars before classifying them as high-performance schools.

First, the school must meet 11 baseline standards. For example, energy efficiency must be at least 10 percent above the state's normal code requirement. After the school meets the 11 standards, it faces a point system in which it must earn 32 points to win the CHPS's endorsement. Schools earn these points for measures they take, in addition to the 11 baseline requirements in six categories. The first category is further energy efficiency. The second category is sustainable site selection, i.e., efforts to reduce hazards like erosion from

> "The school gets more money, the **children are healthier**, and they're **performing better**, so everyone's happy."
>
> **Kristin Heinen,** *assistant director, Collaborative of High Performance Schools*

water runoff. The third category is material efficiency, meaning avoiding natural resources for construction. The fourth is water usage efficiency, and the fifth is indoor environmental quality. The sixth category is policy and operation — the measures to operate and maintain the school's high-performance features.

A school could accrue all 32 points from just a few of those categories, or from all of them.

"It's really flexible for school districts," Heinen said. "Something that is really easy in Los Angeles could be really difficult for school districts in the central valley or the [San Francisco] Bay Area. It allows school districts to choose which points or features work best for their climate or local priorities. Obviously water is a bigger issue in Los Angeles than in the Bay Area. Los Angeles might want to choose more water efficiency credits."

More than 25 CHPS schools have finished construction so far, with another 100 under way. Several other states now pursue the CHPS's guidance on school construction. The organization will go national in 2008.

"High Performance"

In addition to green efforts, the CHPS requires measures to promote a healthy environment, like using paint, carpet and flooring with low emissions of harmful toxins.

"We have some pretty strict standards on ventilation in the classroom to make sure there is plenty of fresh air coming in," Heinen said. "If you're in a classroom with 30 kids, and one of them is sick, with poor ventilation, there is a higher chance all the other kids will get sick."

The CHPS argues that this health aspect directly leads to financial benefit for the schools because the less kids are sick, the more days they attend school, leading to more funding.

"The school gets more money, the children are healthier, and they're performing better, so everyone's happy," Heinen said.

Another aspect of CHPS high-performance standards is academic performance. For example, the organization mandates certain acoustical standards for schools sited near a highway or train track.

Schools can also get CHPS points for installing mechanisms designed to fill classrooms with natural light, rather than electric.

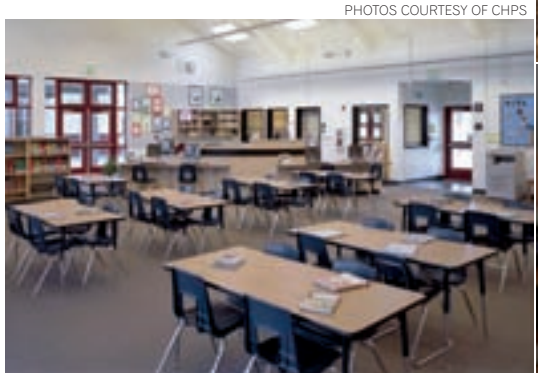
"Natural light is a lot easier on the eyes. It's a matter of orienting the building — putting it in a position where you can take advantage of sunlight during the daytime."

The buildings also use "light shelves" to bounce more light onto the ceilings, illuminating classrooms even more.

"They're like a shelf that hangs off the outside of the window," Heinen said. "Usually they look like they're decorative, but they actually perform a function."

CHPS schools also save money on maintenance costs because they involve many automated functions.

PHOTOS COURTESY OF CHPS



Conley-Caraballo High School in Hayward, Calif., was designed with a PV solar energy system that can produce at least 85 percent of its energy consumption.

> "As we in the public sector get into buying **more solar**, then the cost of solar will drop and make it **affordable for everybody**."
>
> **Enrique Palacios,** *executive director of operations, New Haven Unified School District, Calif.*

"A good example is waterless urinals. If you install waterless urinals, the way they're designed, water doesn't flush through them. The maintenance staff doesn't have to clean them every day," Heinen said. "We also require training of the maintenance operation staff so they know how to maintain and operate them."

Solar Schools

Heinen said CHPS schools typically saved from 30 percent to 40 percent on their energy bills, compared to schools of similar sizes and locations.

The New Haven Unified School District (NHUSD) in California built Conley-Caraballo High School, a CHPS school in 2005 in Hayward. Roughly 85 percent of the school's electricity comes from its solar power facility.

The system cost roughly $840 million, but the school district only paid $440 million. Pacific Gas and Electric Co., the district's local utility, gave it a grant of $264 million, and state solar incentives covered the remainder.

The district estimates that the solar system will save roughly $40,000 per year, taking it roughly 10 to 12 years to recover its investment. The system's life expectancy is 20 to 30 years, meaning it will save the district roughly $1 million in the long run, according to estimates.

Enrique Palacios, executive director of operations for the NHUSD, plans to bring solar power to all schools in the district. Just as mass federal purchasing of recycled paper dropped the price of recycled paper in the market in general, during the 1970s and '80s, Palacios wants government to do the same with solar power.

"As we in the public sector get into buying more solar, then the cost of solar will drop and make it affordable for everybody," Palacios said, adding that he also embraces CHPS standards as a way to culturally influence kids to value green technology. GT

Synopsis: In Manor, Texas, officials have found creative ways to stretch their IT dollars.

Agency: Manor CIO.

Technologies: Servers, thin clients, Google Earth, blogs.

Contact: Dustin Haisler. CIO, Manor Texas, 512/272-5555, <dhaisler@cityofmanor.org>.

Pinching Pennies

city
county

One small Texas town builds IT solutions on a shoestring.

BY ADAM STONE | CONTRIBUTING WRITER

Creatio ex nihilo: Something from nothing. A phrase common among biblical scholars, it could apply as easily to Manor, Texas, where CIO Dustin Haisler is building a meaningful IT infrastructure with virtually zero financial resources.

In 2006, the city's technology shop operated on an IT budget of $64,893, or roughly half of 1 percent of the municipality's $12.6 million budget. In a year and a half on the job, Haisler pursued a number of creative projects to stretch those dollars to meet a range of needs for the community of 5,220 residents.

"Small communities can get by with what they have," he said. "But to do so, they are going to have to seek innovative solutions. We needed innovative solutions to get done what we needed without spending an arm and a leg."

First on Haisler's list: consolidating a wildly fragmented IT environment. Throughout the city, each department ran its own software, usually single copies installed on individual PCs. The police used PROCOP from CBS Specialty Software for records management. Housing permits were tracked on Excel spreadsheets. The system needed coordination.

Haisler convinced the City Council to spend $9,000 on a pair of Dell PowerEdge servers, making his pitch on potential time and cost savings, and waste reductions. It was Haisler's biggest purchase, but an absolutely vital step, he said.

The servers became home to Tyler Technology's Incode, a software package that addresses virtually all aspects of government management on a consolidated platform.

Making It Work

With the infrastructure in place, Haisler said he set out to tackle one of the costliest IT items on the city budget: police dispatch.

In the past, Manor's emergency dispatch work was handled by nearby Travis County. In 2006, however, the county started charging for the service and presented Manor with a

bill for more than $100,000. Haisler and Police Chief Robert Snyder started looking for ways to reduce the cost.

They looked at using ruggedized laptops in police vehicles, like many police departments nationwide, but the cost was insurmountable. Haisler estimated an expense of $5,000 per machine, plus many thousands of dollars for software. With 13 cars to outfit, Haisler said, the idea was quickly shelved.

So he hit on the unusual solution of mounting thin clients in the police cars. The CPU goes in the trunk, while the interface lies on the passenger seat. Relevant software runs on the city's servers back home. For wireless connectivity, the system relies on a Cingular EDGE Card for access to the provider's high-speed cellular network.

"After doing some research, we discovered Manor is a haven for Cingular signal," Haisler said. "We are getting just amazing speeds out of these cards."

"It's just so much more efficient," Haisler said.

Talk Is Cheap

In another effort to enhance citizen service without breaking the bank, Haisler started examining the potential of a city blog. He said he figured blogging could serve the city's need to reach out to citizens while making it easy for citizens to respond with their thoughts and ideas about the city's diverse activities.

Haisler was pressed to find an inexpensive implementation and found it at Blogspot.com, a free and publicly available forum for all things blog-related.

"If individuals are using it, I thought, why can't we?" Haisler said. "We wanted some way to communicate with our citizens, to let them give input into ongoing projects or just anything, but any CRM database would have been incredibly expensive."

> "Small communities can get by with what they have, but to do so, they are going to have to **seek innovative solutions**."
>
> **Dustin Haisler,** *CIO, Manor, Texas*

The system lets officers run real-time checks on vehicle identification, poll state criminal databases, log ticket entries and report incidents.

"In looking at ways to minimize costs, we looked for the ability for the officers to find their own information without having to go through the dispatcher," Snyder said. "With every search officers conduct, the city saves the cost of one more county dispatch ticket."

The thin client setups cost about $500 each, Haisler said. "The long-term cost savings are astronomical," he said.

Still, the thin-client solution has its drawbacks. In particular, engineering peculiarities posed a challenge. "It's a device that was never intended to mount in a vehicle," Haisler said, "so we had to figure out if they would even work in this environment."

The machines use purely flash-based memory so there are no moving parts, which is a plus. On the downside, a computer plugged into the battery of a heavily rigged police car is likely to encounter power fluctuations. Haisler solved that one by attaching a power capacitor into the power chain to regulate voltage.

The city has no fire department, but next year, it may introduce the thin clients to city service vehicles to speed service orders.

Haisler set up the blog cityofmanor.blogspot.com using only the tools freely available at Blogspot. He cites this as one of the advantages of his freebie approach.

"Blogspot has very sophisticated tools for posting pictures. It is incredibly user-friendly; you don't need any HTML skills, any programming skills, nothing."

This contrasts with the city's existing Web site, which is Haisler's responsibility and requires IT abilities to manage. If he goes on vacation, the Web site must wait. The blog, on the other hand, can be managed by virtually anyone in his absence.

The official Web site is chock full of formal data, such as forms and ordinances, official documents and applications for services, but the blog is less formal. There's a weekly update, an invitation to send in photos, even a quiz.

The Web site gets about 35,000 hits a month. The blog has drawn half that each month since its May launch. Citizens' biggest concern to date: When is a supermarket going to open here?

Where in the World . . .?

Thin clients, free blog hosting — Haisler clearly knows how to stretch dinero. One more example: Manor's GIS system, or lack thereof.

Haisler wants geographical data, but he doesn't want to pay $50,000 or more for a big commercial system. Fortunately Google Earth offers free, highly detailed maps. Superimpose existing city maps on the Google landscape, and voilà! — GIS on the cheap.

Is this an ideal way to build a civic IT infrastructure? Probably not. However, Manor is making do with what it has. Haisler said he'd like a bigger slice of the local budget, but recognizes that critical upgrades in the local utility infrastructure come first.

In the meantime, he said, it would be great if the leadership of corporate IT firms would step up to brainstorm with smaller communities, like Manor.

"We want their assistance in helping to develop a more efficient city, a more efficient society for our citizens," he said. "Maybe in the process, we could together come up with an idea that would maybe help their businesses too. We want to be a catalyst. We want to work with them to seek innovative solutions that will help them, and help the city too." GT

CONTRIBUTING WRITER ADAM STONE WRITES ON BUSINESS AND TECHNOLOGY FROM ANNAPOLIS, MD.

Residents Matter

Manor's blogspot I-Report section lets residents e-mail brief narratives and photos of situations they need help resolving. For example, a resident concerned about a potential West Nile virus outbreak posted a query about how to get rid of tires that contained water — a habitat for infected mosquitoes.

Bay Bridge Bustle

Synopsis: Advanced technology and careful planning let agency retrofit critical span in 70 hours.

Agency: California Department of Transportation.

Technologies: Computer-controlled hydraulics, electronic traffic-condition signs, Internet.

Contact: Bart Ney, 510/286-7165.

Improving a vital California gateway in one busy weekend.

BY TAMARA WARTA | STAFF WRITER

The San Francisco-Oakland Bay Bridge is a vital artery for Northern California commuters, carrying nearly 300,000 vehicles per day. So closing the span for seismic upgrades presented state transportation officials with perhaps the ultimate high-profile and high-pressure project.

The California Department of Transportation (Caltrans), in conjunction with a team of private contractors, devised a plan to demolish a 350-foot stretch of roadway and slide a new, seismically strengthened piece of road in its place using a series of computer-controlled hydraulic jacks. The work needed to be done entirely over the three-day Labor Day weekend, with the bridge returning to service in time for commuters to return to work on Tuesday morning.

Following a carefully choreographed process, Caltrans and the California Highway Patrol closed the bridge at 8 p.m. on Friday, Aug. 31. Work was completed by 6 p.m. Monday, Sept. 3 — 11 hours ahead of schedule.

"We're tremendously proud to be able to open the bridge early," said Caltrans Director Will Kempton, in a statement released after the project's completion. Besides replacing the roadway, located on what's known as the Yerba Buena portion of the bridge, the project included installation of improved signs, alerts and electronic toll collection booths. The entire procedure cost around $40 million and is only phase one in a handful of planned improvement initiatives.

> "No matter how much you do, **you never know whether you're going to reach everybody.** Even if you do, you don't know whether they're going to listen."
>
> **Bart Ney,** *spokesman, Caltrans*

All-Star Team

Caltrans worked with C.C. Myers, a Sacramento, Calif.-based construction firm, which in turn hired several subcontractors to help with the planning and demolition stages of the weekend project. Mammoet, a Dutch firm specializing in heavy lifting projects, devised the method for sliding a new, pre-constructed section of road into the cleared out portion of highway.

The new section of roadway was built months in advance of the project and was situated east of Yerba Buena Island, which is at the center point of the bridge, until traffic was cleared from the span. Sixteen computer-controlled hydraulics, known as a skid jacking system, were mounted beneath the 6,700-ton section of new roadway, which needed to be lifted and moved approximately 100 feet into place.

> "Installation of the rail system on the lower deck of the bridge went simultaneous with the final portions of demolition, and **the actual move of the structure took only two hours** — and was **estimated to take five**."
>
> **Bart Ney,** *spokesman, Caltrans*

With such a vital bridge being taken out of commission, time and coordination were of the essence. The majority of the 70-hour project was devoted to demolition of the old roadway, which was handled by Silverado Contractors, a demolition company based in Oakland, Calif. Once demolition was finished, Mammoet's skid jacking system eased the new road into place.

PHOTOS COURTESY OF CALTRANS/BILL HALL

"Installation of the rail system on the lower deck of the bridge went simultaneous with the final portions of demolition, and the actual move of the structure took only two hours — and was estimated to take five," said Caltrans spokesman Bart Ney.

Mammoet's proprietary system was particularly attractive to Caltrans due to its ability to both push and pull hydraulically. "Since this type of operation is not common, it takes a company with worldwide experience to perfect it," Ney said.

Tracks were placed along the lower level of the double-decked bridge, and the new roadway was rolled into place using the hydraulics. The computer-driven moving system is modular, so it can be shipped from site to site. According to Ney, it took a little less than a week to set up the system for the Bay Bridge project, followed by two days of testing.

Getting the Word Out

How did Caltrans retrofit the bridge without triggering massive gridlock, especially during a busy holiday weekend that included Oakland A's baseball games and the season opener for UC Berkeley's football team?

Warning drivers of the bridge closure posed almost as big a challenge as the seismic upgrades themselves, according to agency officials. Caltrans started by alerting commuters through electronic traffic-condition signs, providing routine reminders to motorists months ahead of the scheduled Aug. 31 shutdown date. As a next step, the Caltrans Web site displayed closure reminders on its front page as well as in separate links throughout the site. Radio and TV spots were aired, and notices appeared in newspapers throughout the San Francisco Bay Area and neighboring Sacramento and central valleys.

Bay Bridge officials were careful to utilize every form of technology they had to alert those intending to head out of town for the holiday that their most direct route would be out of commission. Caltrans even posted a video announcement on YouTube warning drivers of the closure.

"No matter how much you do, you never know whether you're going to reach everybody," Ney said in a recent media report. "Even if you do, you don't know whether they're going to listen."

So did officials succeed at communicating? Having spent almost $1 million on getting the word out, most agree the outcome was positive — although Ney alluded to the fact that some people were informed and annoyed. Following the mantra "better safe than sorry," it quickly became apparent that lack of notification wasn't the problem — an incessant bombardment of facts was. "I had a lot of people telling me they were sick of hearing it," Ney said. GT

> "Since this type of operation is not common, it takes a company with **worldwide experience to perfect it**."
>
> **Bart Ney,** *spokesman, Caltrans*

PHOTO COURTESY OF CALTRANS/BILL HALL

Ahead of the Game

Built-in security protects critical Harris County, Texas, information network from threats.

The converged information network in Harris County, Texas, serves as the Internet service provider for the county government. Operated by the Harris County Information Technology Center (ITC), the network supports voice over IP (VoIP), video and high-speed access for more than 275 remote locations, e-commerce applications, and wireless local area network and radio convergence for the entire county. With so many mission-critical systems relying on the ITC's converged information utility, the network cannot be compromised without serious consequences.

With more than 16,000 users whose actions cannot be controlled by the ITC, the county has learned security must be integrated within the network.

The county relies on Alcatel-Lucent OmniSwitch Chassis LAN switches equipped with the Alcatel-Lucent OmniVista 2770 Network Management System, which comprises the Quarantine Manager module and Alcatel-Lucent Access Guardian, to detect and quash threats before they harm network operations.

Plus, this solution performs in the face of intense user-traffic. The network managed more than 3 billion Web page hits and more than 61 million e-mails during 2006. That year, the ITC thwarted nearly 80 million Internet attacks and processed 1.8 billion secure non-PC-based transactions. The solution's combination of content management tools, firewalls, intrusion prevention systems (IPSs) and other security appliances were critical to that achievement.

Built-In Security

The network switches and security appliances provided by Alcatel-Lucent enable county technicians to detect abnormal network activity and quarantine the user or affected area of the network, stopping the problem before it can propagate.

"When switching first came out, the whole idea was how fast you can move traffic. But the thing nobody thought about was: If you get a virus, an attack, what you just managed to do was move infected data at a million bits per second through your network. There was nothing to stop it," said Keith Bryant, division manager for networking and security at the ITC. "The type of hardware we have now allows us to stop it."

The OmniVista 2770 can receive feedback from other security devices, such as firewalls and IPSs, and can automatically quarantine the affected network area or alert network managers, depending on how managers choose to configure it.

"If we get a rogue device, I can take that device out of the system. If harmful traffic goes past the device where it's in an area supported by a port, I can take the port out. If it goes past there and travels to the switch level, I can take the switch out," said Bryant.

He said the process typically happens without other network users being the wiser.

"The biggest thing this solution gives end-users is stability," said Harris County CIO Steven Jennings. "With that stability, they often never know when a problem actually is impacting the network. We have a lot of automatic rollover capability in our network from ports and different switches and systems. If the system senses the network is having a problem in one area, it automatically rolls over to a different path, and the customer never knows his primary path is taken out of service.

"It has worked very well for us to be able to notify other departments, let them go down to the infected device and tell them what to do with it."

The solution also includes the Alcatel-Lucent Access Guardian authentication platform, which can screen devices and gives them access to the network areas they're pre-authorized to enter.

The Harris County Alcatel-Lucent solution also centralizes all county network management. "This approach really allows us to become network-centric and do network-centric management," Jennings said. "We're not dependent on multiple management stations to review only portions of how the network flows."

He said centralization enabled a more comprehensive, proactive approach.

"We can manage outages from a single location," Jennings said. "We can see and do trend analysis, allowing us to adjust bandwidth to meet our needs. In the same center, we can also watch security, and if a security issue happens or if we see a trend in bandwidth out of the norm, we can do online diagnostics to stay ahead of the problem, instead of trying to react to it."

That proactive approach saves the county money through increased productivity. It keeps government work from stalling by avoiding battles with security threats after they do their damage.

Limitless Potential

Harris County can scale its network infrastructure to meet a broad array of needs, due to Alcatel-Lucent's open standards foundation. The solution works with any system an agency adds, saving technicians from navigating various proprietary obstacles And the network's flexible and scalable bandwidth enables end-users to reliably operate the numerous tools, such as VoIP and transactional applications, that rely on the network even during user traffic spikes.

The county Information Technology Center can dramatically multiply the bandwidth capacity of network switches without replacing them. Technicians merely upgrade the switch interface to allow more bandwidth to pass through the switch.

"We're trying to be very proactive as far as providing way more bandwidth than necessary, as well as putting in networks that can support anything that's requested, whether that is voice over IP, video or data," Bryant said.

The solution included Alcatel-Lucent's mobile user functionality, network switches and virtual local area network (VLAN) tagging, which allows multiple bridged networks to transparently share the same physical network link without leaking information between those networks.

"In the justice building and the juvenile justice building, we allow the attorneys to have wireless Internet access but at the same time, have no access to our network," said Bryant.

The VLAN capabilities enable the ITC to easily establish normal network functionality at temporary locations under limited network conditions, which is vital while responding to emergencies. The solution proved critical during Tropical Storm Allison, when the ITC connected more than 2,000 relocated employees across eight different buildings in three days.

The Alcatel-Lucent OmniSwitch 9000 Chassis LAN Switch family supports multi-layered security, enabling sophisticated hardware- and software-based solutions that can be integrated with policy-based management and other technologies, such as the OmniVista 2770.

The **OmniSwitch 9000** family security features include:

- User authentication
- Virtual local area networks (VLANs)
- Quarantine VLANs
- Access control lists
- Authenticated switch access
- Encryption for secure management (SSH/HTTPs/SNMP v3)
- Denial of service protection

Alcatel-Lucent OmniVista 2770 works with existing security solutions, such as intrusion prevention systems, to proactively and defensively identify and isolate viruses and network attacks before they devastate the network and automates the response for self-healing.

Alcatel-Lucent Access Guardian provides identity-based network access to enable enforcement of device and network security policies, resulting in increased privacy and availability of communications.

"Because we have static IP addresses, we could utilize VLAN tagging, enabling us to extend one subnet across multiple buildings, and do it over a weekend, without pulling one piece of cable," Bryant said.

Jennings said the solution's equipment and technical support were pivotal components to making the county network ready for any challenge.

"We have the reliability and support of the equipment because it is quality manufactured equipment, and Alcatel-Lucent includes an in-house FE in the maintenance contract to help us manage and maintain that equipment as well as provide training for the network staff. We have redundancy because we keep spare parts onsite. We also have redundancy engineered into the equipment."

The inherent security, open standards and scalability of the county's converged information utility empowers the government to meet any technical challenge.

"This puts us in a proactive position," said Bryant. "It also puts us in a position to say 'yes' to anything our users request. We know we've got enough bandwidth. We know we've got the security. We know we've got reliability. We know we've got quality of service, and that allows us to support whatever requirements departments come up with. For example, if they want to upload video from squad cars, we can do it. We can use existing hardware. We don't have to go buy or reinvent a network to do this."

This *Government Technology* Solution Spotlight was sponsored by Alcatel•Lucent.

product news

two cents our take on the latest technology

Alienware MJ-12 8550i workstation

It's pleasing when a review product draws attention the minute it arrives at the office, especially when the box is large, black and features an alien head. Co-workers gathered 'round and jaws dropped as the Alienware MJ-12 8550i workstation was wheeled over to the editorial department. This machine's configuration included an Intel Xeon 5355 processor, 2.66 GHz 1333 MHz FSB with 8 MB cache and Quad Core. It also had 4 GB dual channel memory DDR2 FBDIMM at 667 MHz — 4 x 1024 MB. The hard drives totaled 750 GB, and can be configured with as much as 16 GB of memory, and as many as four 15,000-rpm hard drives.

The 18X dual layer DVD±RW/CD-RW drive burned DVDs twice as fast as the machine our reviewer — a member of our IT department — uses every day, which features a 150 GB Maxtor SATA hard drive and 3.0 GB Pentium 4 processor with 4 MB of cache.

Two NVIDIA Quadro FX 4500 video cards made all the difference to our reviewer, whose machine usually gives 30 frame-per-second (fps) performance while playing *World of Warcraft* with the display settings set at half. Just one card in the Alienware, however, gave 60 fps with all display settings going full blast. Both cards ran a standard total of 140 fps and peaked at 195 fps.

Our test unit ran quietly for all the power it produced. The workstation's feet make it sturdy, and instead of swinging outward on hinges, the door slides to one side, and then folds out of the way against the side of the machine. The hard drives are located on the front of the box so users don't have to open the case to remove them. Accessing the inside was still easy with the thumbscrews on the case's back, however, and the inside wiring was neatly arranged and hidden well. The memory card reader on the front of the unit is a nice touch, and two USB and a FireWire port were also on the front.

The one drawback of the workstation is that its fans didn't offer quite enough cooling, given the robustness of the machine, but some excess heat is a small price to pay for performance.

Although the workstation doesn't come with a monitor, a Microsoft keyboard and mouse are included. And just a note: The workstation can handle as many as four monitors at once. The unit's pricing starts at $2,500, but the configuration we received is worth $8,612. And with all the goods inside, it's worth the cost. GT

specs

- Up to 16 GB of dual channel DDR FBDIMM at 667 MHz memory
- Hard drive: from 250 GB to 3 TB of storage with four drives
- Graphics: from 128 MB to 1024 MB NVIDIA Quadro FX and ATI FireGL
- Sound card: Creative sound blasterX-Fi Xtreme Music High Definition 7.1 Surround Sound
- Two IEEE 1394a ports (one back/one front)
- Six Hi-speed USB 2.0 ports (four back/two front)
- Front mic and headphone jacks
- 28-in-1 digital media reader/writer
- Locking front panel secures and conceals drive bays
- Up to three high-efficency, low-noise chassis fans — two 92 mm and one 120 mm

rating: **price:** $2,500

BY MIRIAM JONES | CHIEF COPY EDITOR

Send product review ideas to Chief Copy Editor **Miriam Jones** <mjones@govtech.com>

Next month ...
Though the **Acer TravelMate 8210** is described as "stellar," our interaction was less so. Find out why next month.

Send product review ideas
to Chief Copy Editor
Miriam Jones
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Knockout PDA

The **AMREL** ROCKY DA5-M rugged PDA offers a 4-inch, 640x480 display, full-size PCMCIA and two 2.0 USB ports. Encased and sealed in magnesium, certified at military standard (MIL-STD) 810F, MIL-STD 461E and IP65, and explosive atmosphere tested, the PDA weighs less than 1 pound, and comes equipped with Bluetooth, GPS, wireless 802.11g and phone options.
<www.amrel.com>

Mobile Desk

The **LapWorks** Laptop Desk Futura portable desk for Mac and PC notebook computers provides an ergonomic workspace across the lap and folds into a wedge-shaped stand for use at a desk. Constructed of high-impact ABS plastic, the desk weighs 16.25 ounces and folds in half to 11 x 10.75 inches and 0.5-inch thick for easy storage in a computer bag.
<www.laptopdesk.net>

On Screen

The **Planar** PX2611W widescreen LCD monitor features WUXGA 1920x1200 widescreen resolution, which lets users view two full pages of text and graphics side by side. The unit offers DVI-D, VGA video inputs; and four-port USB 2.0 for flexible monitor setup and connection with peripherals. The PX2611W has 5-millisecond gray-to-gray response rate and 800:1 contrast ratio, and the stand provides an extended 2.2 inches of height adjustment and 340 degrees swivel.
<www.planar.com>

Load and Go

Neopost DS-86 folder inserter maintains an outgoing speed of 4,300 filled envelopes per hour. Thickness is automatically detected as documents are fed into the machine and inserted into envelopes. High-capacity document feeders hold as many as 325 sheets for a total 3,050 sheets, and an integrated envelope hopper holds 500 envelopes. Six flexFeed technology feeders handle any document size or paper type, including glossy paper and coated material.
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BY PAUL W. TAYLOR
CHIEF STRATEGY OFFICER
CENTER FOR DIGITAL GOVERNMENT

Wiki by Wiki

Two years ago, I mused about wiki-Government as a quick way for a subject-matter expert within government to tell the world, "What I know is." There was no way to know how much wikis would wind their way into the relationship between the public and public servants.

Enter 24-year-old California Institute of Technology graduate student and self-described disruptive technologist Virgil Griffith, and his WikiScanner — a data mining tool that traces Internet protocol (IP) addresses of those who make Wikipedia changes.

Griffith conceived the idea when he heard about, "Congressmen getting caught for white-washing their Wikipedia pages," and wondered whether it could be done on a massive scale and indexed.

NASA tops the list with 6,846 edits, but four states and three local governments ranked among the top 30 Wikipedia editors:

- California (ca.gov): 4,148 edits
- New York City (nyc.gov): 2,404 edits
- Connecticut (ct.gov): 2,398 edits
- North Dakota (nd.gov): 2,140 edits
- Virginia (virginia.gov): 1,047 edits
- Philadelphia (phila.gov): 871 edits
- King County, Wash. (metrokc.org): 783 edits

Wikipedia changes originating from public agencies' IP ranges are eclectic. Edits from the New York Police Department delete information about the department's infiltration of peace groups and question assertions about falling crime.

Edits from a Detroit city IP defend the city's mayor amid mentions of controversies that swirl around his office. Edits by someone using network access through the Washington State Department of Information Services attempted to tie the Jack Abramoff bribery scandal to a West Coast law firm. That's much tamer than some of the salacious highlights of federal agency edits, which reflect a mix of national security concerns, conspiracy theories and petty vandalism.

> State and local governments accounted for **37 percent** of the active governments responsible for **one-quarter** of Wikipedia edits.

The result was a database of 34.4 million edits made to the English version of Wikipedia between February 2002 and August 2007, and the 187,529 organizations that made them.

Within those totals were 206 organizations using the dot-gov domain to make 74,131 edits in Wikipedia. Put another way, governments account for one-tenth of 1 percent of the organizations and two-tenths of 1 percent of the total edits during that time.

State and local governments accounted for 37 percent of the active governments responsible for one-quarter of Wikipedia edits — the lion's share is attributed to federal agencies.

Griffith concedes that there's no way to know whether agents of these organizations made the changes, but, "We do know that edit came from someone with access to their network."

Beyond the headline grabbers are 74,000 other edits, which appear to be routine and often arcane clarifications of articles on everything from aging in place to water fluoridation. Public employees have begun to help make sure the information on this growingly important reference is accurate and complete. Some ethics officials have already signed off on this activity — a tacit recognition that this is part of what the future of work looks like. GT

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