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VOL21 ISSUE02 SOLUTIONS FOR STATE AND LOCAL GOVERNMENT IN THE INFORMATION AGE FEBRUARY 2008

HOW **TELEVISION CRIME INFLUENCES REAL-LIFE** CRIMINAL JUSTICE

inside:

GIS for Less:
Texas shared service delivers online maps

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CSI EFFECT

PAGE 18

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contents

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features

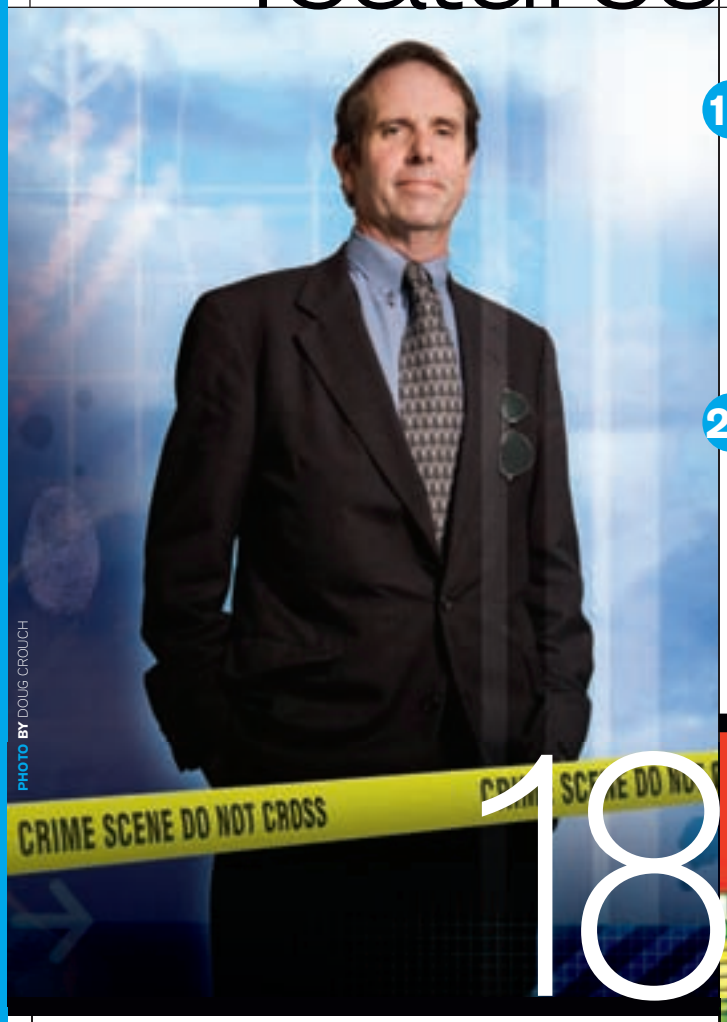

PHOTO BY DOUG CROUCH

18

COVER STORY

18 CSI Effect

Jurors demand forensic evidence in the courtroom because of what they see on TV.

BY JIM McKAY

26 Bad Medicine

Medical identity theft steals millions from government programs and leaves patient records in shambles.

BY JIM McKAY

26

32 Making Health Care Personal

As Congress and doctors dither on electronic health records, industry heavyweights unveil another option.

BY CHAD VANDER VEEN

32

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VOLUME 21 » ISSUE 2

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contents

govtech.com

departments

AcerPower 2000

news

columns

next month:

Doers, Dreamers and Drivers
In March, *Government Technology* presents its annual *Doers, Dreamers and Drivers* issue, saluting 25 public-sector professionals for using technology to advance the art and science of governing. Check out next month's issue to see who we think are some of the best and brightest in public service.

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point of view

Tackling Medical Identity Theft

Raise Your Voice
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Because of identity theft's prevalence, most of us have taken steps to protect ourselves — thanks to fears instilled from the horror stories of those who've been victimized.

But what about when someone hacks into a health facility, steals medical records and uses medical identification (ID) numbers to get health benefits?

Apparently few of us are concerned something like this will happen. We ignore the explanation of benefits from our health insurers, according to the World Privacy Forum, whose recent study, *Medical Identity Theft: The Information Crime that Can Kill You*, states that we should be looking closely.

Approximately 250,000 patients annually — or more, as some estimates reach higher — have their medical IDs stolen.

It's a shame more than 40 million Americans are without health insurance. And even more shameful is that some of the uninsured have resorted to stealing someone else's medical information to get the services they need.

But it's not just the uninsured or the two-bit drug dealer doing the stealing. There are documented cases of organized groups targeting physician identification numbers and manipulating million-dollar ripoffs of the health-care system.

The Health Insurance Portability and Accountability Act is supposed to provide a shield of sorts for our private medical data. Ironically it doesn't. In fact, it can work against a victim trying to correct a medical record that has been changed by an imposter.

The U.S. Department of Health and Human Services (HHS) is developing four prototypes for a National Health Information Network to make health records available electronically in real time to caregivers.

> "Some of the uninsured have resorted to **stealing someone else's medical information** to get the services they need."

The crooks use stolen identities to gain medical services or fraudulently bill private health insurers and government health-care programs.

If that isn't scary enough, consider this: The Blue Cross and Blue Shield Association estimates that medical ID theft represents 1 percent of health-care fraud, totaling about $600 million in losses per year.

In the last decade, the number of identity theft cases have skyrocketed, and medical ID theft appears to be a segment of it that's growing too.

But the proper authorities haven't addressed it yet.

The Government Accountability Office has noted "significant weaknesses" in the information security controls used for Medicare and Medicaid claims processing. The World Privacy Forum says a National Health Information Network must include significant safeguards.

With few mechanisms available to protect the medical records of patients, the HHS needs to consider the ramifications of a national system that makes medical identity theft even easier than it is now. GT

JIM McKAY
JUSTICE AND PUBLIC SAFETY EDITOR

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In late 2007, Dubai Internet City (DIC) — located on the Persian Gulf, 15 miles south of the city center of Dubai, United Arab Emirates — marked its seventh year of operation.

DIC is the Middle East's biggest information and communication technology (ICT) infrastructure. Companies operate without restrictions in DIC because it's a free-trade zone, which has led many global IT firms to move their regional bases and resources there.

DIC now features an international community of ICT companies including Microsoft, Cisco Systems Inc., IBM, HP, Dell, Sun Microsystems, PeopleSoft and Sony Ericsson.

BY CHAD VANDER VEEN
TECHNOLOGY AND POLITICS EDITOR

Climate Change: A New Religion?

With so much chatter focused on green technology, has this infatuation evolved into something akin to a religious movement?

The world's major religions have more in common than their respective followers would prefer to admit. Typically each maintains an elaborate dogma that dictates believers act a certain way and engage in traditional rituals. Most religions also warn of some world-ending cataclysm that can be avoided only by strict adherence to religious principles. Critics of religion often compare these true believers to sheep, blindly following a leader out of willful ignorance.

Today green technology is part of a movement that's winning millions of converts, many of whom would count themselves among the critics of traditional religion. This new belief system used to be called Global Warming, though its disciples now prefer Climate Change as the more accurate term. And woe unto he who neglecteth the tenets of Climate Change, for surely he will bring upon us the End Times.

Many who oppose religion do so based on science, a perfectly valid position to take. Ironically the science — or dogma if you wish — that drives the Climate Change movement is anything but agreed upon. Yet Climate Change believers are often so passionate about their "religion" that if you are in their numbers, you're probably seething right now — even before discerning the position I take.

Clearly finding renewable energy sources, deploying Earth-friendly technology and discouraging pollution are sensible goals regardless of whether manmade climate change is real. And even the staunchest Climate Change opponent might admit global temperatures are on the rise. The debate is what role, if any, man plays in contributing to this warming.

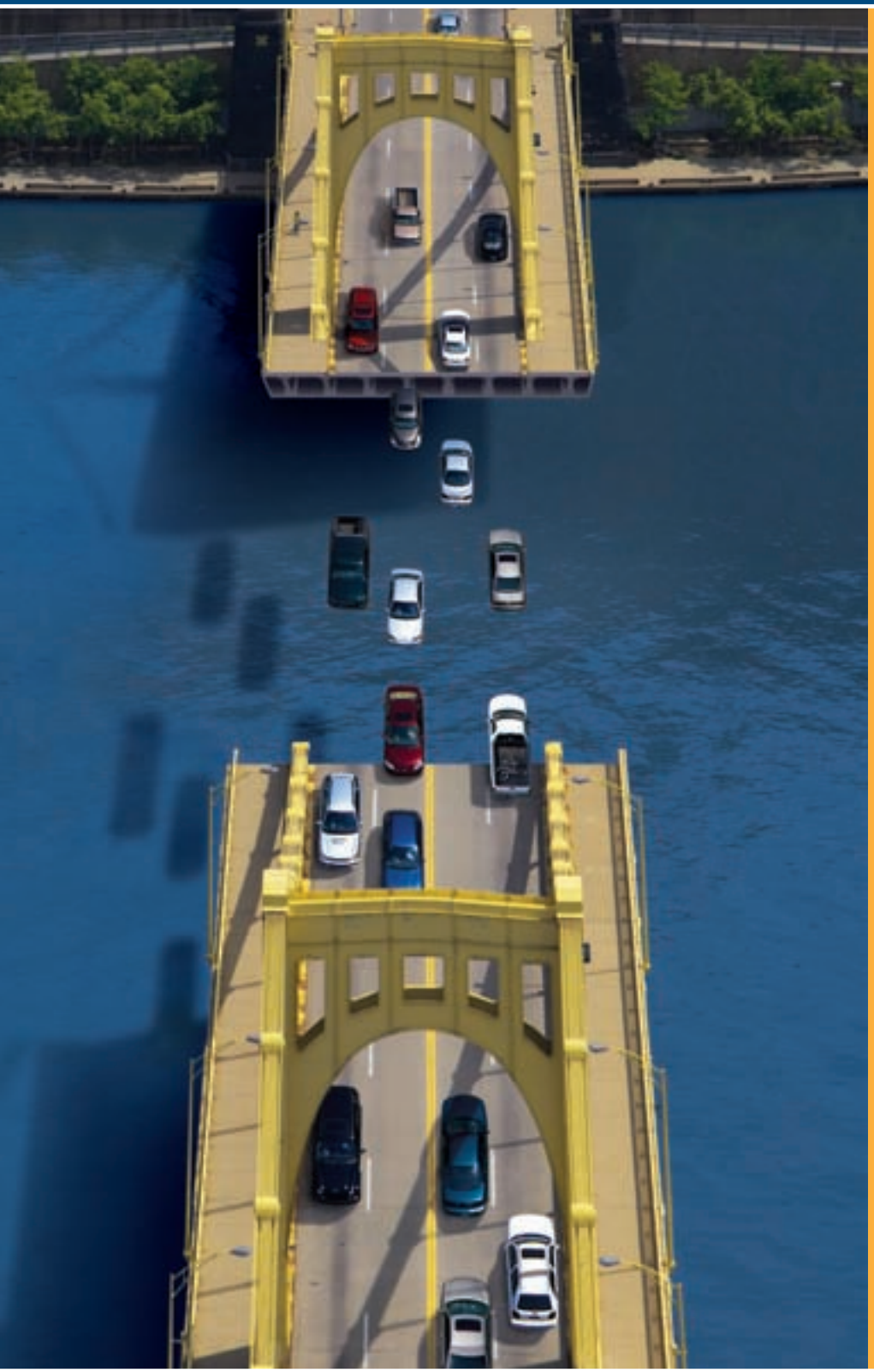
Both history and science tell us conclusively that the Earth's mean temperature is in perpetual flux. But just as Christianity teaches the sinful nature of man will be his undoing, so Climate Change tells us man's mistreatment of the environment will spell our doom.

The Climate Change clergy demands we live to as-yet undefined green standards, lest we create a global catastrophe. Many believers in manmade climate change are quick to mock religious beliefs as baseless superstitions; they also bristle at any suggestion that their own beliefs are debatable. But like other religions, there's no irrefutable proof that Climate Change is true. Correlation doesn't equal causation, after all.

Traditional religions have been blamed, often deservedly, for countless atrocities. But these religions also have done incalculable good. Likewise, the religion of Climate Change can do great works for the planet. But to the objective observer, simmering under the Climate Change movement is a palpable sense that a modern-day, politically correct inquisition is at hand.

One other tenet most religions share is that followers do unto others as they would have done unto them. Let's pray those who believe we are responsible for climate change keep that in mind. GT

WHEN INFORMATION AVAILABILITY MATTERS



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Honoring IT Innovation

SACRAMENTO, CALIF. — Three projects captured "Most Innovative Use of Technology" awards at the Center for Digital Government's 2007 Best of California event in December.

First was the Los Angeles Regional Transportation Management Center (LARTMC), a facility jointly used by the California Department of Transportation District 7, the California Highway Patrol and the Los Angeles County Metropolitan Transportation Authority.

The LARTMC integrates more than 25 technologies, enabling transportation agencies to share real-time traffic information. The project helps agencies calculate vehicle travel times, adjust ramp-metering rates, issue Amber Alerts and detect accidents.

State officials claim the project reduced traffic incidents by 40 percent, improved ambulance arrival times by 15 percent and decreased freeway delays by 30 percent.

The second award went to the Sacramento Police Department's Mobile Automated License Plate Reader, which uses digital cameras mounted in police cruisers to read cars' license plates. In seconds, the reader checks license plates against a database of stolen vehicles, lost plates, missing persons' vehicles and autos reported in Amber Alerts. An officer reads more than 3,000 plates in a typical patrol shift, according to Sacramento police.

The third award went to Riverside for its SmartRiverside Digital Inclusion Program. The nonprofit SmartRiverside aims to provide free Internet access and a free refurbished PC to each of the city's estimated 30,000 low-income households over the next five years. So far, the agency has given more than 800 households computer training, as well as a PC and wireless access device for Riverside's municipal Wi-Fi network.

Best of California

LEADERSHIP AWARDS

- **Management of IT:** Steve Reneker, CIO, Riverside.
- **Solving Business and Policy Problems through Technology:** Linda M. Dippel, director, Contra Costa County Dept. of Child Support Services
- **Project Delivery:** Ron Ohling, data processing manager II, Calif. Employment Development Dept.
- **Rapid Project Delivery:** ExpressJet Airline Launch Team, Sacramento County Airport System.
- **IT Operations, Support and Service** J6 Staff, Calif. National Guard; K.C. Roestenberg, director, Business IT Shared Services, Orange County.
- **Solving Business and Policy Problems through Security Technology:** Secure WAN Consolidation Team, Calif. Dept. of Health Care Services.

PROJECT EXCELLENCE

- **Serving Organization Business Objectives:** Agile Payment System, Calif. Controller's Office; MESH Network, Ripon and Web-based Solid Waste Information Management System, L.A. County Dept. of Public Works.
- **Serving the Public:** Online Inmate Information and Jail Visit Scheduling System, Santa Clara County; DMV Service Enhancements.
- **Serving Multiple Jurisdictions or Organizations:** Boomerang — Calif. Retirees Job Connection, Calif. Franchise Tax Board and State and Consumer Services Agency; Calif. WebTools, eServices Office, Dept. of Technology Services, the Information Organization, Usability, Currency and Accessibility Working Group, and State Webmasters; CaRES Calif. Compensation and Restitution System, Calif. Victims Compensation and Government Claims Board; Welfare Client Data Systems CalWIN, consortium of 18 Calif. counties.

Govtech.com Hot List

govtech.com

Here are the 10 most popular stories on Govtech.com from Dec. 8, 2007 to Jan. 8, 2008.

1 **Top Digital Cities for 2007** The seventh annual *Digital Cities Survey* examines how cities use technology to create a seamless environment for local government and constituents.
www.govtech.com/dc/articles/224330

2 **Teri Takai Named California CIO** In December, Calif. Gov. Arnold Schwarzenegger appointed Teri Takai state CIO. Takai had served five years as Michigan CIO.
www.govtech.com/dc/217130

3 **Top 10 Wireless Predictions for 2008** Events that will shape the wireless industry in 2008, from inCode.
www.govtech.com/dc/articles/238754

4 **Government Sites Post Social Security Numbers** Social Security numbers of citizens and government officials are out there for the taking on government sites, according to a report from *The Washington Post*.
www.govtech.com/gt/125968

5 **2007 Best of California Winners** Public agencies and leaders were honored for IT innovations by the Center for Digital Government.
www.www.govtech.com/gt/articles/218060

6 **U.S. Post Office Needs Reliable Database** The Postal Service considers whether it's more cost-effective to improve or replace its facility database.
www.govtech.com/gt/articles/239225

7 **Postal Service Updates Plan to Reflect New Law** The Postal Service updated its Strategic Transformation Plan to show how technology adds customer value.
www.govtech.com/gt/161567

8 **Texas Department of Information Resources Releases Five-Year State IT Strategic Plan** for information resources management.
www.govtech.com/gt/articles/218195

9 **Ready for Digital TV?** Broadcasters must switch from analog to digital by Feb. 17, 2009.
www.govtech.com/gt/242626?topic=117691

10 **American ITIL** IT Information Library finds an American audience.
www.govtech.com/gt/96174

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Four Questions for Norm Jacknis

CIO, WESTCHESTER COUNTY, N.Y.

PHOTO BY DOUG CROUCH

NORM JACKNIS, BECAME WESTCHESTER COUNTY'S CIO IN 1998 AND WAS NAMED ONE OF *GOVERNMENT TECHNOLOGY'S* "DOERS, DREAMERS AND DRIVERS" IN 2005 FOR HIS LONG-STANDING LEADERSHIP ON INFORMATION TECHNOLOGY ISSUES. WESTCHESTER ROUTINELY RANKS AMONG THE TOP 10 IN THE CENTER FOR DIGITAL GOVERNMENT'S *DIGITAL COUNTIES SURVEY*.

1

What challenges face your organization in 2008?

One is mobility. We're working on making sure there's a wireless data network all over — not for the public, but for government itself. We also need applications that will work in that environment because a lot of people who work for the county are doing things in the field and need to be supported by technology.

Next, there's a younger generation of people who have 20 years of experience with PCs, and they've outgrown us. We need to make sure our offerings are effective for them. Some new technology has come along as part of that generational movement: social networking software, *Second Life* and 3-D virtualization. We can use them to present our ideas for county planning. We can also use them to involve people more formally in the policy-making process.

2

Are you under pressure to provide wireless connectivity for public access?

We're under less pressure than most because several years ago we made a big effort to ensure broadband capability in the wired network. We made sure every nook and cranny of the county was covered. It's not like we're looking at wireless as a solution to cover areas that don't have broadband, which is what a lot of other people are doing. They thought it was going to be a cheap solution, and there isn't such a thing, unfortunately.

3

What other issues do you consider critical?

We have automated many government operations, and now everybody is sitting on a lot of data. One of our responsibilities is to help the departments figure out what they can learn from that data. So we've already initiated a statistical analysis unit.

4

Can you point to results from that effort?

We helped our public safety department figure out how to deploy police cars to minimize accidents. In the same study, we helped public works figure out how to engineer roadways — again, to reduce accidents. We've done the same thing in our parks department, which is a little bit more like traditional marketing. How do we fill up the golf courses? How do we get more people coming to our amusement park? It's been a real benefit. GT

BY **STEVE TOWNS, EDITOR**

"We're working on making sure there's a wireless data network all over — not for the public, but for government itself."

WATCH GTtv'S INTERVIEW WITH NORM JACKNIS AT WWW.GOVTECH.COM/GT/MULTIMEDIA

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BY JIM McKAY | JUSTICE AND PUBLIC SAFETY EDITOR
PHOTO BY DOUG CROUCH

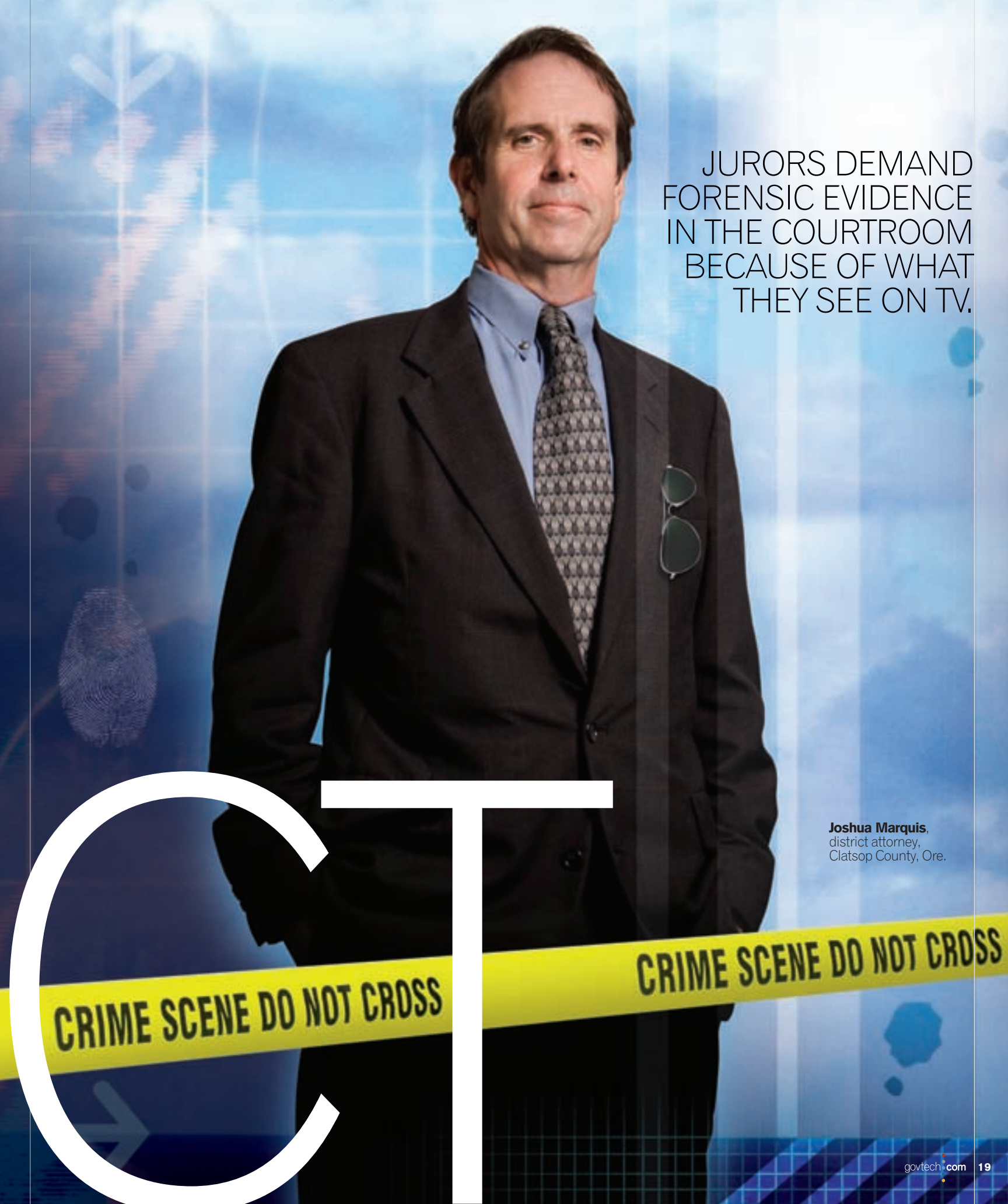
CSI EFFECT

IN A RUN-OF-THE-MILL methamphetamine case tried in Oregon in October 2007, defense attorneys argued there was insufficient evidence because the prosecution didn't test a crack pipe for DNA. The prosecutor, Clatsop County, Ore., District Attorney Joshua Marquis, ultimately convinced jurors that DNA evidence wasn't necessary to prove beyond a reasonable doubt. But the fact that the defense played the forensic evidence card at all is a sign of the times.

It's become common for jurors to request forensic evidence in cases that were once thought routine. Defense attorneys also are challenging the prosecution if forensic evidence is absent, even in cases where it's not applicable.

The trend is a product of what jurors see on TV. Legal professionals call it the CSI Effect, and debate rages over its impact on the criminal justice system. The theory is that a proliferation of crime-scene television series, such as CBS stalwart *CSI*, plants unrealistic expectations in the minds of jurors about how evidence is collected and processed.

If jurors believe what they see on TV, they might expect real-life investigators to collect and process evidence during the span of a TV commercial break: DNA test results in 15 minutes, fingerprints matched to a shady perpetrator, a mold of a knife wound poured with caulk.



JURORS DEMAND FORENSIC EVIDENCE IN THE COURTROOM BECAUSE OF WHAT THEY SEE ON TV.

Joshua Marquis, district attorney, Clatsop County, Ore.

Case Closed. Sort of.

CSI and similar shows create the false perception that there's always plenty of physical evidence at a crime scene, and that technology exists to infallibly provide conclusive results on that evidence. The reality is altogether different. Crime scenes are messy, and most crime labs resemble high-school science labs, sometimes staffed with forensic technicians who possess high-school educations.

According to the Human Genome Project, DNA testing is conducted by probing for the presence of markers on both suspect and crime-scene DNA. Matching a single marker does not mean the samples are from the same source. The more markers that match, however, the more likely the DNA is from the same source. Each probe adds time and expense to the process. A single unmatched marker can eliminate a suspect.

Most people in the criminal justice field agree that television crime shows affect real-life cases, but opinions differ on whether the impact is good or bad. The consensus is that jurors' heightened technological expectations prompt more evidence to be sent to labs for testing, which can unnecessarily slow the pace of trials and increase the cost of criminal investigations. On the other hand, the popularity of high-tech crime programs on TV has spurred nationwide interest in forensics, which could eventually cause life to imitate television.

Unreal Expectations

CSI is one of the highest rated TV shows, right up there with *Dancing With the Stars* and *Desperate Housewives*. Viewers are fascinated by beautiful-but-brainy, do-it-all cops who carry guns, question suspects, work with the district attorney, and use a battery of fancy tests that exclude the innocent and prove the guilt of the defendant.

To those who actually prosecute and defend criminal cases for a living, the image bears little resemblance to reality.

"I call them investigators in miniskirts," said Marquis, who is also a National District Attorneys Association vice president. "I mean, the formula is pretty clear. You always have an older male and a female who are kind of hot, and then a younger male and female lead who are very hot. It's done for dramatic license, and of course, they have CSI people doing arrests and investigations, which they never do [in real life]."

Real analysts do their work in the lab — they don't venture onto a crime scene, said Dan Krane, CEO and DNA specialist at Forensic Bioinformatics in Fairborn, Ohio.

"Going to a crime scene, collecting evidence and then performing tests upon it — and then coming to court and testifying about it — that's just not done by one person," he said. "It's a real production-line sort of approach."

And although at least some of the technology on TV is authentic, it's often portrayed as more agile and foolproof than it really is.

Marquis pointed to a *CSI* episode featuring a gas chromatograph, which is a real instrument, but it was shown in an unlikely location: an investigator's van. "They cost about $60,000 to $80,000, and nobody in their right mind would ever mount one in a car. Because the first time you go over a pothole, you'd have to recalibrate the entire machine," he said, "but it is a real machine, and it's used for detecting drugs."

In the scene, an investigator tests for the presence of a drug by swabbing a sink at the crime scene with a probe, which looks like an elongated Q-tip. The probe turns bright blue, suggesting a positive test. "It's television, so it always has to be a glowing blue," Marquis said. "It's really a black sludge."

The material on the probe is then examined by the gas chromatograph, which produces a results chart within seconds. "It is, in fact, what would be generated in about two and a half weeks when you send it in for analysis," Marquis said. "So in that case, they weren't making stuff up; there are really gas chromatographs. But the process was so easy and so fast that I think it creates false expectations."

> "It's conceivable that in another 10 or 15 years, there may even be handheld things that you could use at a crime scene as opposed to the refrigerator-sized things that are the workhorses right now."
>
> **Dan Krane,** *CEO and DNA specialist at Forensic Bioinformatics in Fairborn, Ohio*

Bias in Forensics?

Some prosecutors complain the CSI Effect creates unrealistic expectations among jurors who demand cut-and-dry forensic evidence that proves innocence or guilt. But that pressure may help counteract a pro-prosecution bias in the nation's crime labs, according to one forensic evidence expert.

"It's unintentional, but it's something subliminal and there's a tendency to be somewhat biased" said Dan Krane, CEO and DNA specialist at Forensic Bioinformatics in Fairborn, Ohio. "The bias, in turn, causes them to overlook things that an outside expert who's working for the defense might be able to pick up on and bring to their attention during the course of a trial."

Crime samples are often degraded or mixed with other materials, and that makes them difficult to interpret, making analysis by lab personnel sometimes subjective. "The analysts will have to fill in gaps more or less," he said, "and they have an unintended tendency to fill them in a way that's most favorable to the prosecution.

"I think it balances out," Krane continued. "There are these unrealistic expectations about what they can do, but there's also this putting them on a pedestal that may not be entirely justified."

Krane advocates blind testing or even double-blind forensic testing. "That's what you expect when you talk about checking for the efficacy of a new drug or some new treatment in the medical field, and yet in forensics, it's surprising what a novel idea that is."

Shades of Gray

Real-life crime lab equipment is big, bulky and not photogenic, according to Krane. "The equipment you see in *CSI* tends to be handheld and you get to focus more on the actor than the equipment." And unlike television gadgetry, the results produced by real tools often are ambiguous.

"In *CSI*, they have these sorts of magic lights they can shine on crime scenes that illustrate to them where the best evidence samples are," Krane said. "Black light really does help illuminate things you wouldn't see otherwise, but everything is simpler, easier and less complicated [on TV] — relative to what it is in the real world."

In real-life investigations, 50 percent to 75 percent of forensic evidence samples taken from crime scenes are difficult to interpret, according to Krane, due to degradation, contamination and small sample sizes. That leaves far more room for subjective analysis.

"The reality is," Marquis said, "that real crime is very messy, and in real life, it isn't as crisp as it is on TV. It raises unrealistic expectations about technology that really does exist, and in a perfect world, we would be able to do it."

Does It Matter?

What's the practical impact of the CSI Effect? Legal practitioners disagree.

Defense attorney and DNA expert Robert Blasier downplays the danger. "I think the CSI Effect is grossly overrated," said Blasier, who worked for the defense on both the Phil Spector and O.J. Simpson trials. "Both sides in a case usually talk about the fact that it's not anywhere near close to real life. You always bring it up.

"I just don't think the jurors really confuse television with reality," he continued. "If there's a particular forensic test and you think a jury might have some unreal expectations, I always will bring it up in cross examination: 'You understand that this is not television and you can't get a DNA result over a 30-second commercial. It just doesn't work that way, and the DNA technology is still relatively primitive.'"

Barry Fisher, crime lab director of the Los Angeles County Sheriff's Department, called

Hertzberg-Davis Forensic Science Center at California State University, Los Angeles.

PHOTO COURTESY OF CAL STATE L.A. PUBLIC AFFAIRS OFFICE

L.A. Builds Model Lab

A new $102 million forensic science center in Los Angeles could be a model for future labs throughout the country.

The 209,000-square-foot Hertzberg-Davis Forensic Science Center at California State University, Los Angeles, which opened in September 2007, means more room for new lab personnel, updated technology and the opportunity for some collaboration that has been absent.

The old building was so cramped, the Los Angeles County Sheriff's Department didn't have enough space to add all the forensics staff it needed. "And now we have this new concept that we've never had before — conference rooms," said Barry Fisher, the county's crime lab director. "So if a detective or district attorney comes down, you have some place to go as opposed to the hallway."

The county shares the facility with the Los Angeles Police Department, which should enhance relations between the two departments. "We're not consolidating services, but we're going to be sharing space," Fisher said. "And the way the building is configured, the office areas are all together and we expect that to cause a lot of really healthy dialog and collaboration."

Also exciting, Fisher added, is that the Cal State Los Angeles graduate program in forensic science is right in the building. "This gives us an opportunity to interact with the students, many of whom we hire, and to do research," he said. "There are a lot of big pluses in doing this, and I expect this to be a model for labs all over the country and maybe beyond."

The new lab has room for 70 DNA analysts, enabling the county to more than double its number of analysts. Some cutting-edge technology will be added as well, including new DNA equipment and up-to-date fingerprint technology, Fisher said. "We have some technology we've been using to visualize fingerprints. It deals with alternative light sources and it's more state-of-the-art than what we've been using," he said. "We're getting a whole bunch of new DNA equipment to replace some of the existing equipment we have which is getting old. And there is some newer equipment available that helps do some of the testing more quickly than we've been doing it."

the CSI Effect "media spin," but he admitted it can alter cases. "One of the things that might happen is, we're asked to do more tests than we might be asked to do otherwise," he said. "One of the things district attorneys often argue is we have to do these tests in anticipation of them being raised [as questions] by the defense."

> "The reality is that real crime is very messy, and in real life, it isn't as crisp as it is on TV. It raises unrealistic expectations about technology that really does exist, and in a perfect world, we would be able to do it."
>
> **Joshua Marquis,** *Clatsop County, Ore., District Attorney*

Marquis said he put crime technicians on the witness stand for four hours in one case to discuss the tests that weren't done and why they weren't necessary. "Basically I did it because, if we didn't, the implication would be that we were hiding something or failed to do something."

And although DNA can be incredibly helpful in the right situation, it's not a magic bullet in every crime, he added. "DNA helps in a lot of cases, but there are a lot of cases in which it doesn't do you any good at all, like a consent rape case."

Useful or not, today's juries simply demand more forensic evidence, according to Susan Riseling, chief of police for the University of Wisconsin-Madison. And those extra tests increase costs and slow the pace of criminal cases.

"*CSI* has led to a test-everything mindset. When there is a lot of blood and you take, say, 35 samples at a scene, you test 12 and want to stop there, but the defense then wants to argue that the lab didn't test all 35," she said. "Blood spatters the same way; splatter patterns can have lots of samples, and labs test a percentage of them. These take time and money, and cases pile up."

Riseling calls DNA the new fingerprint. "When fingerprints first came into being forensically, juries wanted to see the fingerprint evidence," she said. "When there were no fingerprints, people doubted the person was really there."

Such a scenario may have played out in the 2005 Robert Blake murder case. A Los Angeles jury acquitted the actor because of a lack of forensic evidence tying him to the murder of his wife. That verdict prompted Los Angeles District Attorney Steve Cooley to label the jury "incredibly stupid."

Life Imitates Art

Another potential impact of the CSI Effect is greater public attention on — and more appreciation for — forensics facilities.

For instance, the *CSI* shows may have helped Los Angeles County get a new $102 million forensics center (See *L.A. Builds Model Lab*, page 21) that was needed for years and finally opened in September 2007. The popularity of the shows and the subsequent interest in forensic science, helped focus attention on the need for a better facility as elected officials decided how to spend tax dollars.

"[These TV shows are] really helpful because they keep the issue in front of the public eye," Fisher said, adding that the county's old facility was so cramped "you had to go into the hallway to change your mind."

Most real-life crime labs — even brand-new ones — look nothing like the gleaming facilities shown on TV.

"Today, the only familiarity the average person has with a forensics lab is it's this wonderful pristine, sciencelike environment," said Kimberlianne Podlas, an attorney and assistant professor of media law and ethics at the University of North Carolina at Greensboro. The reality is, crime labs are cramped.

But Podlas, who has researched the CSI Effect, said there's nothing new about the public having high and maybe unreasonable

expectations for crime-solving technology. "I kind of think there's always a tech effect going on, no matter the decade," she said.

With the justice system's acknowledgment in recent years that eyewitness testimony is often incorrect, the desire for more evidence isn't harmful to the system, according to Podlas. "I don't think it's a bad thing to have jurors out there who wonder, 'Well yeah, I am used to seeing people bring fingerprint evidence. You've got that little old lady who wears glasses the size of four plate glass windows saying this is the guy who stole the jewelry out of the case; I'm not sure I believe her identification.'"

Foretelling the Future?

Perhaps the biggest impact of the CSI Effect has been to spur interest in forensics among young people. Science and forensics programs are proliferating at colleges and universities around the country.

"When I go out and do career days and talk to high-school and college students, people are really interested in becoming forensic scientists now," Marquis said. "Although, I don't think they realize how much work it is."

That could mean an influx of good people to the field — a factor that's more important than slick new equipment, Fisher said.

"The most important thing in crime labs today is the quality of the staff," he said. "Most of the things we do are labor intensive. It's not so much the equipment that solves the crime; it's the quality of the people who are using the equipment, and their ability to recognize things they're looking at and figure out how it's related to a particular case. That's oftentimes the key between a successful investigation and one that's not."

Krane agreed, saying the popularity of fictional crime shows could boost the quality of both real-life analysts and the technology they use.

"It's conceivable that in another 10 or 15 years, there may even be handheld things you could use at a crime scene as opposed to the refrigerator-sized things that are the workhorses right now. Analysts down the road will be better, smarter, faster — and maybe even better looking." GT

CSI-Folsom

Crime scene investigation could someday be as glamorous in real life as it is on TV.

But for now, most police departments are merely concerned about collecting the evidence and keeping the chain of custody intact until the evidence is submitted to a crime lab.

The Folsom, Calif., Police Department enhanced its crime scene investigation capabilities in 2007 when it purchased a new CSI truck and gave nine officers CSI training.

The officers completed a two-week CSI course, and some have completed another advanced two-week class.

The truck contains everything an officer needs to process evidence, from a simple burglary to a homicide: Q-tips, tape, bags, black fingerprint powder, gloves and narcotics test kits.

Detective Sgt. Ron Peterson of the Folsom CSI examines kit contents.

PHOTOS BY JESSICA JONES

The Ford F250 that is the Folsom Police Department's CSI vehicle.

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Using information technology to create public value

corporate profile

Since 1983, state and local governments have leveraged GTSI's brand name products and professional services to fulfill their responsibilities to constituents and communities. From electronically managing Medicaid records to reduce fraud to implementing in-car video surveillance systems that decrease crime to deploying municipal broadband networks for expanded communications to developing IT infrastructures that safeguard personal data, authenticate identity, and improve traffic flow, GTSI's information technology products, services, and solutions create public value.

Teams of GTSI engineers with more than 100 industry, vendor, and professional certifications and PMI-certified project managers work closely with agency staff to develop technology roadmaps aligned to each state's IT strategic plan. Years of working with state and local governments give GTSI a high level understanding of agency policies, purchasing requirements, budgets, and business objectives. This knowledge and insight along with the precise application of technology figure prominently in each GTSI IT infrastructure solution that addresses agency priorities for:

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- Storage Consolidation
- Network and Physical Security
- Unified Communications
- Mobile Evidence Capture

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All GTSI's IT infrastructure solutions support the public sector's move toward technology-enabled government and address each stage of the technology lifecycle. They are designed for long-term security and scalability and incorporate technology innovations that support advanced applications such as VoIP, digital video, and wireless communications; e-discovery; virtualization; mobility, in-car and fixed-camera video surveillance; and ID authentication and authorization. GTSI recommends the best hardware and software components and designs, deploys, manages, and supports each IT infrastructure solution. Agencies can easily adapt each solution to their technology roadmap without compromising budgets or performance.

GTSI's professional services are the change agents that transform technology components into core IT infrastructure solutions. Extensive knowledge of brand name hardware and software is leveraged with the skills of GTSI's certified engineers, practice-area experts, and project managers. From project inception to end of life, GTSI enables agencies to successfully execute their IT programs through:

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As state and local government agencies continue to transform into high-performance organizations, GTSI adopted a Technology Lifecycle Management approach. This strategic, multiphased methodology provides the framework for agencies to effectively and efficiently address the IT infrastructure lifecycle, from initial assessment to product acquisition, implementation, refresh, and disposal. It also addresses systematic budgeting requirements so that agencies can execute cost-recovery strategies that reduce the burdens and risks of technology asset ownership.

The public sector can procure IT products, services, and solutions without delays or risk using GTSI's financial services. Each agency can work with GTSI's financial expert to devise a plan, such as IT as a service, that allows all products and services to be bought and paid at an agreed-upon rate over a period of time. Through these options, agencies can structure their IT expenses so they are predictable and manageable. As a result, agencies:

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BAD ME

MEDICAL IDENTITY THEFT STEALS MILLIONS FROM GOVERNMENT PROGRAMS AND LEAVES PATIENT RECORDS IN SHAMBLES.

DICINE

BY JIM McKAY | JUSTICE AND PUBLIC SAFETY EDITOR

A TREND EMBRACED BY WHITE-COLLAR CRIMINALS IS DRIVING UP HEALTH-CARE COSTS AND CREATING NIGHTMARES FOR ITS VICTIMS. Medical identity theft is health-care fraud and ID theft rolled into one, and it's a crime that's expected to continue growing because it's easy to carry out and difficult to detect.

The first study on the subject, done by the World Privacy Forum (WPF) in 2006, estimates that medical identity theft accounts for 2.7 percent to 3.2 percent of total ID theft, which is reported to be the fastest-growing crime over the last seven years.

In November 2007, the Federal Trade Commission estimated the number of medical identity theft cases at 3 percent of all ID theft cases. That's at least 250,000 medical identity theft cases per year.

Medical identity theft takes two forms: physician identification numbers that are stolen and used to bill for services, and patient identification information stolen and used to obtain services or bill for services. The latter scenario is especially damaging to the victims who inadvertently could be treated based on someone else's medical history and who might, as a result, have a difficult time rebuilding their medical files.

There are fewer resources for victims of medical identity theft than for regular ID theft, and victims get little help from laws such as the Health Insurance Portability and Accountability Act (HIPAA).

"First, we know the unique physician identification numbers (UPIN) that are used to bill both private insurance and Medicare/Medicaid are frequently compromised, and we see that in our enforcement efforts," said Kirk Ogrosky, deputy chief of the fraud section for the U.S. Department of Justice. "There's a second part of that, and that's compromised patient information, which would be the Medicare number. That Medicare number goes across different federal programs and private insurance. We see identity theft in both areas, and it's prevalent."

Expensive Problem

At least 3 percent of U.S. health-care costs (about $60 billion) can be attributed to fraud, according to the National Health Care Anti-Fraud Association. Of that, 1 percent is attributed to medical ID theft — an ominous figure when the numbers are triangulated, according to Sharon Ormsby, section chief for the financial crimes section of the FBI.

"If you figure by 2012, national health-care expenditure costs for the country will be approximately $3 trillion, you look at the fact that the

National Health Care Anti-Fraud Association conservatively estimates health-care fraud to be 3 percent to 5 percent of that expenditure amount," she said. "That's a significant amount of fraud, so we do have a strong interest in it."

Ogrosky said he began to see a trend in medical fraud schemes in 2003; the schemes run for 90 to 120 days then vanish. That's because by the time victims notice irregularities in the explanation of benefits (EOBs) they receive from their health insurers, the thieves have moved on.

A survey of 220 health-care providers and insurance companies conducted in 2006 by the Healthcare Information and Management Systems Society and Phoenix Health Systems showed that only 56 percent had complied with the HIPAA security requirements.

"These schemes really started to pop onto our radar around 2003 and 2004," Ogrosky said. "Since that time, they've grown, stealing from our federal programs to the tune of hundreds of millions of dollars, potentially billions of dollars. I've heard different estimates. There's no real way to quantify the amount of fraud that we don't yet know about."

Medical identity theft can be a profitable venture, and it's not that hard to pull off for someone who's in a position to download large amounts of digitized medical data. In September 2006, police arrested a clerk at a medical clinic in a Weston, Fla., hospital who stole the medical IDs of 1,100 patients and sold them. The numbers were subsequently used to bill Medicare for $2.8 million in false claims.

In another case, police arrested 38 people in Miami-Dade, Fla., in May 2007 and charged them with $142 million in Medicare fraud. The suspects had purchased or stolen medical ID numbers and billed the government for wheelchairs, walkers and other equipment.

A thief downloading and stealing data can get $50 on the street for a medical identification number compared to just $1 for a Social Security number. For those receiving the medical ID number and using it to defraud a health-care organization, the average payout is more than $20,000, according to Pam Dixon,executive director of the WPF. Compare that to just $2,000 for the average payout for regular ID theft.

> "IF YOU'RE BILLED FOR $1 MILLION OF MEDICAL EQUIPMENT BUT DIDN'T BILL THE OFFICE FOR A VISIT TO THE DOCTOR, THE DOCTOR'S NOT GOING TO BE NOTIFIED."
>
> **Kirk Ogrosky,** *deputy chief for health-care fraud, U.S. Department of Justice*

Growing Sophistication

Dixon said there have been cases involving Russian organized crime and identity theft rings that are buying health clinics and billing the government for services.

There was a recent case in Milpitas, Calif., where two Ukrainian brothers purchased a medical clinic, and staffed it with fake doctors while getting collusion from at least one real doctor who provided his Drug Enforcement Agency number and UPIN so the group could bill for services and drugs. The clinic advertised free checkups, free food and transportation to patients in a poverty-stricken neighborhood. When the patients arrived, their Medicaid or Medicare cards were photocopied and subsequently billed for more than a year. In total, the group used the stolen numbers to bill for more than $1 million in medical services.

"Those are the worst actors," Dixon said. "What is just so terrible is it preys on the elderly and the vulnerable, and the only way this was found out was somebody was paying very close attention to her bills and noticed strange billing for treatment she hadn't received. She raised a red flag and that's how the entire ring got busted."

A check of the victim's health insurance bill is usually the first sign that there is a problem, and most people don't look closely enough at their paperwork. That gives the perpetrators ample time to pull off a scam and move on before being noticed.

"Remember, claims to certain government programs are not going to go back to the doctor," Ogrosky said. "If you're billed for $1 million of medical equipment but didn't bill the office for a visit to the doctor, the doctor's not going to be notified."

That allows crooks to use a UPIN to bill for services without the doctor knowing about it.

In another recent Miami case, a medical equipment company had more than 500 claims in 45 days — from deceased people. "When you see that sort of thing, it's an immediate red flag that the data has been stolen," Ogrosky said.

Most of the cases originate from an insider with access to medical data, but there is also "one-time or limited misuse," according to Calvin Sneed, senior antifraud consultant with the Blue Shield and Blue Cross Association. "If you looked at the smaller schemes, what you see is the 'lending' and 'borrowing' of ID by someone who can't afford health

care, and they do this to get services they desperately need."

"We know health-care costs have risen considerably on an annual basis relative to inflation and probably higher than inflation, and we believe that 45 million to 50 million Americans are uninsured," Sneed continued. "We know prescription drug addiction continues to be a huge problem for some sectors of the population. Those are all contributing factors."

Broken Records

Besides raising the cost of health care for all, medical identity theft can leave a victim's medical records in shambles, and it's not easy to fix. Victims find their medical history changed to reflect the services billed by the identity thief; medications, allergies and surgeries fraudulently billed in the name of the victim become permanent records that are hard to expunge.

Victims of regular identity theft have more recourse under the Fair Credit Reporting Act than medical identity theft victims have under HIPAA.

Changes to medical records that reflect treatments for cancer, HIV and diabetes are the most common as those diseases require the most expensive treatment and are most profitable for medical ID thieves.

"You can imagine all three of those diseases have issues in terms of insurability, employability, and it's very hard for people once they get this on their records," Dixon said. "There's got to be a mechanism to get it purged."

Physicians are reluctant to have any treatment information deleted from records because of malpractice issues, Dixon said. And HIPAA can actually exacerbate the problem when there's confusion about which medical record belongs to whom.

The federal health privacy rule was enacted under HIPAA to protect patient privacy and security. But confidential medical information — patient records, documents on insurance benefits, and passwords to medical servers — is stolen from victims who share music and videos on peer-to-peer networks and unwittingly provide access to their hard drives.

Medical care facilities have also been negligent with critical patient data, exposing patients to medical identity theft. In a 2006 Oregon case, a computer bag holding 10 computer disks containing medical data for 365,000 patients from Providence Portland Medical Center was stolen from an employee's car. So far, there have been three cases of possible identity theft associated with the breach, and Providence has spent $7 million responding to the mistake.

Victims of medical identity theft sometimes find that HIPAA blocks their attempts to correct their medical records. HIPAA requires health-care providers and insurers to provide patients access to their medical records but doesn't require medical providers and insurers to remove incorrect records. HIPAA even says that if incorrect information leads to inappropriate treatment, the incorrect information must remain to preserve a paper trail.

In a 2004 case, a Coloradan named Joe Ryan received a bill for surgery from a hospital that he never visited. Two years later, Ryan was still trying to correct his records. HIPAA, which was supposed to protect him, was actually preventing him from even viewing his own records. Since his signature didn't match the signature of the crook who had stolen and used his medical identity, the hospital wouldn't let him see the records.

"HIPAA can be interpreted in such a way that gets in the way of this, but it can also be interpreted the other way," Dixon said. "It's in a gray area, and if you have a very conservative legal team that's never heard of medical identity theft, they may go the wrong direction. We're working hard to get that eradicated."

The FTC has studied regular ID theft but is not responsible for addressing medical issues, according to the WPF. That responsibility falls to the U.S. Department of Health and Human Services (HHS) , which has been slow to respond, according to Dixon. "I have to tell you, HHS has not been good to this point. They've not been looking at it. They've not been talking about it, and they need to."

MEDICAL ID THEFT BY THE NUMBERS

Somewhere between **250,000 and 500,000** people are victims of medical identity theft annually.

At least 3 percent of overall health-care costs are due to fraud. **That's $60 billion each year**.

At least **1 percent of fraud** is estimated to be medical identity theft: **$600 million per year**.

Average payout for regular ID theft: **$2,000**.

Average payout for medical identity theft: **$20,000**.

Cost, on the street, for a stolen Social Security number: **$1**

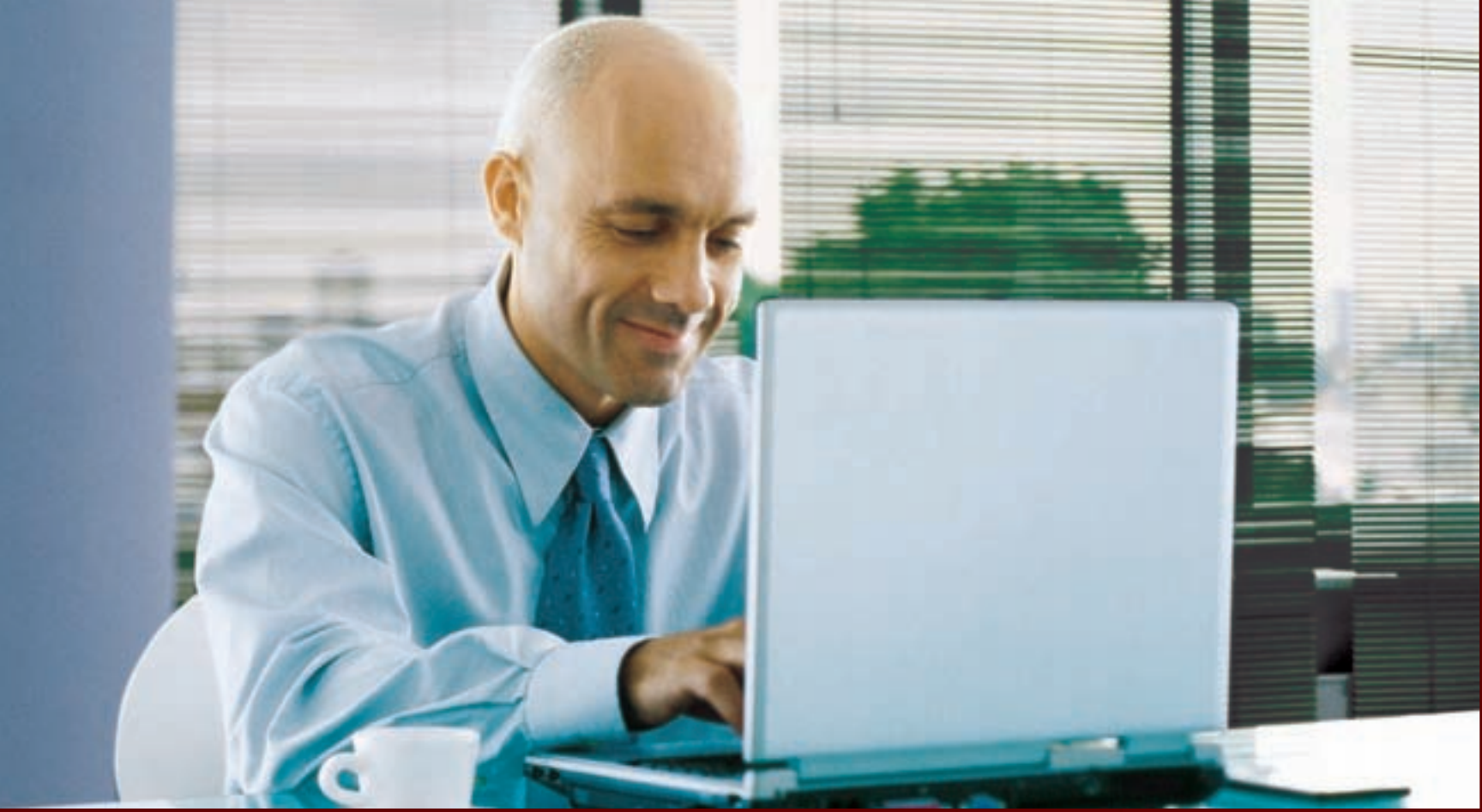
Cost, on the street, for stolen medical ID information: **$50**

Cost of medical identity theft, per family of four, per year: **$80**

SOURCES: THE WORLD PRIVACY FORUM AND BLUE CROSS AND BLUE SHIELD ASSOCIATION.

> "WE KNOW HEALTH-CARE COSTS HAVE RISEN CONSIDERABLY ON AN ANNUAL BASIS RELATIVE TO INFLATION AND PROBABLY HIGHER THAN INFLATION, AND WE BELIEVE THAT 45 MILLION TO 50 MILLION AMERICANS ARE UNINSURED."
>
> **Calvin Sneed,** *senior antifraud consultant, Blue Shield and Blue Cross Association*

CONTINUED ON PAGE 37



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MAKING HEALTH CARE PERSONAL

AS CONGRESS AND DOCTORS DITHER ON ELECTRONIC HEALTH RECORDS, INDUSTRY HEAVYWEIGHTS UNVEIL ANOTHER OPTION.

BY CHAD VANDER VEEN | TECHNOLOGY AND POLITICS EDITOR

SOMETIMES TECHNOLOGY IS AS MUCH A PROBLEM AS IT IS A SOLUTION. In the health-care industry, electronic health records (EHRs) are causing plenty of headaches because of a lack of standards and disagreement on best practices. EHRs offer another opportunity to improve medicine, from neighborhood private practices to huge government organizations. But the promise comes with a curse familiar to other helpful technologies: People disagree about how exactly to implement electronic health records.

Interoperability and standards issues have stalled progress toward the goal of seamlessly integrated health IT. However, personal health records (PHRs) could fill some of the gap as the nation waits for Congress and the health-care industry to lead a unified effort.

PHRs are nothing more than digital versions of a file folder filled with a patient's health records, and are designed to let people be guardians of their own health information. Now, industry heavyweights such as Microsoft and Google are creating simplified services that might make it easier for citizens to collect and keep those records. Microsoft says its HealthVault PHR system already works with dozens of existing, stand-alone hospital EHRs, giving patients an online repository for electronic health information that is ready to use.

Developments such as HealthVault may spur quicker adoption of industrywide standards and best practices. In the meantime, they offer a Band-Aid for citizens frustrated with the health-care industry's inability to solve the problem on its own.

The Contenders

PHRs are, in effect, the antitheses of EHRs, which are systems that health-care providers build to electronically manage patient information. The U.S. Department of Veterans Affairs (VA), for example, has a huge and often-praised EHR system called VistA. The system manages the electronic health records of millions of veterans across hundreds of locations. Currently it's only compatible within the VA system, though work is being done to expand VistA's capabilities. It is the kind of health records management system the industry and patients desperately want to interoperate.

On the other hand, PHRs are software applications that allow individuals to store and share their own health information. A PHR can be as simple as a Microsoft Word document, or like HealthVault, a Web site for users to securely upload, store and share their health records.

The Internet has been abuzz lately with rumors of a Google PHR tool in the making. Although Google was contacted to discuss its rumored project called Google Health, company representatives offered only links to the official Google Blog. There are, however, interesting tidbits to be discovered here. In June 2007, Google announced the creation of the Google Health Advisory Council to help the company "better understand the problems consumers and providers face every day and offer feedback on product ideas and development" for managing health records.

The Google Blog also publishes numerous entries written by high-level employees who hint at what Google Health might feature.

"We believe that patients should control and own their own health information, and should be able to do so easily," wrote Adam Bosworth, former vice president of engineering for Google. "Today it is much too difficult to get access to one's health records, for example, because of the substantial administrative obstacles people have to go through and the many places they have to go to collect it all. Compare this to financial information, which is much more available from the various institutions that help manage your financial 'health.' We believe our industry should help solve this problem."

According to an Aug. 14, 2007, *New York Times* article, Google has demonstrated a prototype of Google Health to a select number of health-care industry professionals. Since then, the company has offered few details regarding when, or if, the product will go live.

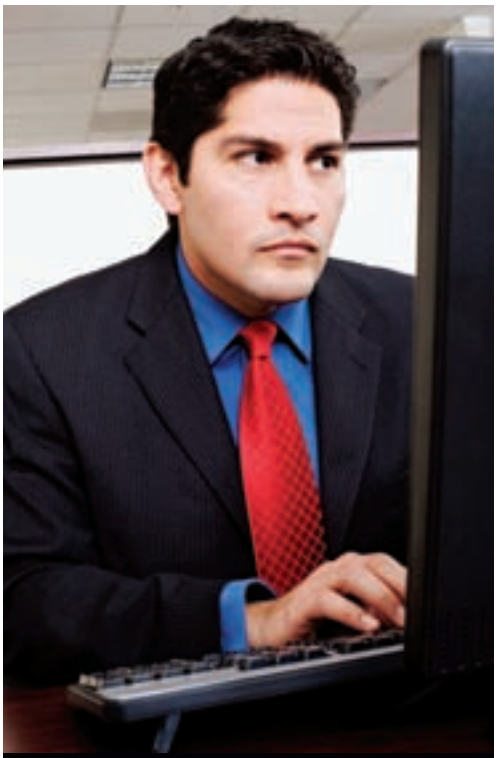
Microsoft, on the other hand, already rolled out its HealthVault PHR application. Microsoft's online health records management tool is free to use, and the company says, meets Health Insurance Portability and Accountability Act (HIPAA) security requirements.

Nate McLemore, director of business development for the Microsoft Health Solutions Group, explained why the software giant is getting involved in the health-care industry:

"Microsoft, about two and a half years ago, created what we call the Health Solutions Group to create very specific solutions for the health-care industry," McLemore said. "One of the things that struck us was just the level of data fragmentation that is out there for individuals. You've probably seen a handful of doctors over the years, and if you've moved around a little bit, some of that data is in different states.

"Some data rests at a health plant, some in a doctor's office, and at the pharmacy, or at the lab. You can just imagine there is kind of a complete health-care picture that rests in hundreds of different places around the world. It's very hard for any individual to pull that all together."

Typically a PHR is described as being in a single location — a Web site, for example — where a person can securely upload and store health history data, including X-rays, and current and past prescriptions. HealthVault works like an electronic file cabinet; it's a single Web site that aggregates data contained in disparate systems like a doctor's EHR system, an insurance provider's database and a pharmacy.



"WE DO KNOW THAT THERE ARE PEOPLE WHO ARE CONCERNED THAT THE EMPLOYER WILL SOMEHOW HAVE ACCESS TO THEIR MEDICAL INFORMATION. THAT'S A SCARY THING FOR PEOPLE."

Ann Boynton, *undersecretary, California Health and Human Services*

Microsoft hopes health-care providers will integrate HealthVault into their business processes, allowing patients — and other physicians — to receive and store test results, upload and download health documents, and store prescription information. It's a third-party solution to the problem of incompatible EHR systems. As more providers work with HealthVault, a patient who uses it will be able, in theory, to provide practitioners with a more complete health history. For Microsoft, the more patients and providers that use HealthVault, the better — though at present, the service is free.

"This is a different model that really places the consumer at control," McLemore said. "That's what people want when it comes to security and privacy: the ability to be in control. What makes people nervous is when they feel like they aren't in control, and they don't know who's looking at their data and how it's being used."

When it was launched in late 2007, HealthVault interoperated with 45 health information storage applications in use by various hospitals. Additionally HealthVault works with organizations such as the American Heart Association to allow users to share several categories of data: blood pressure readings, weight, exercise routines, among others. HealthVault also permits users to input data from devices such as pedometers, blood glucose monitors, blood pressure cuffs, and peak-flow meters for asthmatics.

Implementing electronic health records may be even harder for government-sponsored health care than it is for the private sector, McLemore said, adding that HealthVault could help ease the pain.

"If you think about government-sponsored health care, you can imagine the challenges around data fragmentation are even more acute," McLemore said. For example, the Medicaid population may come in and out of being covered by Medicaid. So a Medicaid plan may only have fundamental pieces of one's data — the same with Medicare plans — and individuals may be paying for some services out of pocket.

If people are moving in and out of Medicaid eligibility or choosing to pay for some of their services in cash, McLemore stressed that data fragmentation is a challenge. "Often, those are the populations dealing with some of the most chronic and serious conditions."

At press time, however, a relationship between government health-care programs and HealthVault had not been established. McLemore said "high-level discussions" are ongoing but so far, nothing concrete has been agreed upon.

Adoption Challenges

Because both PHRs and EHRs aim to better manage health information by using technology, the task of assuring patients, physicians and insurers the data is secure is probably the biggest challenge to widespread adoption. EHR systems and PHRs, like HealthVault, must be proven secure if they are going to win users. McLemore said Microsoft worked with an adviser from the nonprofit Patient Privacy Rights when it built HealthVault.

In California, discussion is under way to examine what role government should play in addressing these issues. California Health and Human Services Undersecretary Ann Boynton, whose technology background includes a long stretch as a consultant for IBM, said a critical step is instilling confidence in patients that the technology is secure.

"We know people are concerned, and this is the challenge of privacy, security and helping people understand why something like a PHR is incredibly important. We do know that there are people who are concerned that the employer will somehow have access to their medical information," Boynton said. "That's a scary thing for people. We need to assure them that even if it is an employer-sponsored PHR or EHR, their private medical information is private and we have appropriate safeguards in place."

Microsoft's HealthVault application lets users collect and store health information for individuals and families in one place on the Web.

In the case of PHRs, the issue might be more pressing because patients would be responsible for adding data to a PHR Web site. And if, for example, a person chooses a weak password, that information might be vulnerable.

PHRs are managed primarily by patients, while EHRs are managed chiefly by physicians and/or health-care organizations. With both technologies, however, patients and doctors will play some role in the creation, management and storage of health information. Another difference: In a PHR, the patient is considered to own the data; in an EHR, ownership of the data is less certain. It might be argued that patients, providers and insurers could each stake a claim to an EHR.

The other central challenge is widespread adoption. There are numerous electronic medical record vendors and virtually no agreed-upon standards about how these technologies ought to work. So even if a patient's doctor has a functioning EHR system or a patient has found a PHR application he or she likes, these tools may not work with other systems.

In late May 2007, the House Committee on Science and Technology introduced a bill to address this issue. The Healthcare Information Technology Enterprise Integration Act, H.R. 2406, is "intended to improve technology in the health-care system by creating a national, interoperable health IT system to maintain patient health care records. The IT system could potentially benefit thousands of people a year who suffer due to medical errors, improper diagnoses, or being prescribed incorrect medications due to lack of a comprehensive family medical history or poorly maintained records."

The bill's sponsor and committee chairman, Rep. Bart Gordon, D-Tenn., said there's a general consensus that fully utilized information technology would result in lower cost and improved patient care. "Regardless of its acknowledged benefits, the use of IT by the health-care community remains low and lags far behind other segments of our economy, such as financial services, banking and manufacturing," he said. "This bill aims to remedy that problem."

In California, EHR standards are now being considered, according to Boynton, though no formal decisions have been made. She said the state is actively pursuing a strategy that will help ensure patients' privacy as health information moves from paper to digitization.

"The secretary here at Health and Human Services, Kim Belche, has established a privacy and security advisory board to look specifically at the issues around health information technology, and the factors that impact privacy and security — from a legal perspective, from a regular term perspective, from a practice perspective, the practical implications of these issues and how those factor — how we as the

Less than two years after adoption, electronic health record systems can create enough cost reductions to pay for the cost of the systems, according to a study published in the July 2007 issue of the *Journal of the American College of Surgeons*. And an article in the January 2007 issue of *Health Affairs* estimates that the Veterans Health Administration's Veterans Health Information Systems and Technology Architecture — known as VistA — **costs $80 per patient per year**. This is almost exactly the same amount of money saved by eliminating just one redundant lab test for one patient. In addition, consumers adopting personal health records may actually save money — by keeping track, they could cut down on duplicate tests and unnecessary treatments, according to the Financial Planning Association.

state need to engage in encouraging changes in particular areas, whether that be statutory, regulatory, or otherwise, both at the state and federal level to ensure that people and their information is protected."

Risks and Rewards

In October 2007, Her Majesty's Revenue and Customs, a British agency responsible for tax collection and dispensing a variety of benefits, lost two computer disks. Those disks contained the personal information of 25 million Britons, such as names, addresses, even insurance and bank data. All British families with a child age 16 or younger had some information contained on the disks.

This sort of nightmare security breach clouds the future of electronic health records in the United States. EHRs and PHRs offer tremendous promise — reducing expenses, cutting medical errors, boosting overall efficiency. But does the promise of these systems make the risk worth it? Many in the industry say yes, but they caution that extreme care must be taken.

"Folks with chronic conditions that are used to managing their diabetes, for instance, want to manage it better," said Robert "Rim" Cothren, chief scientist for Northrop Grumman. "They know they have hypertension, and they will for the rest of their life, and they are interested in managing it better. That's a very active group of people that, given better information, really will manage their disease better. [Improved medical records] will have a positive impact on the cost of their health care and their own general health."

The key to making EHRs a reality, and PHRs to a degree, is making the systems work together. Cothren echoed the calls for standardizing electronic health data. The challenge, he said, is not dealing with a lack of standards, but managing the more than 1,000 standards that exist now.

Dr. David Donnersberger, chief resident at Evanston Northwestern Healthcare in Evanston, Ill., said his office has moved to the exclusive use of EHRs, anticipating the rewards his patients will reap outweigh the risks of digital health data. Donnersberger argues that if his bank account data can be managed electronically, his health data shouldn't be any different.

> "FOLKS WITH CHRONIC CONDITIONS THAT ARE USED TO MANAGING THEIR DIABETES, FOR INSTANCE, WANT TO MANAGE IT BETTER."
>
> **Robert "Rim" Cothren,** *chief scientist, Northrop Grumman*

"I think EHRs are fantastic. They hold terrific promise for the patient and the physician. Interoperability is the Holy Grail of electronic health records," Donnersberger said. "If you go to Honolulu and break your hip, your doctor in Honolulu can get on the Internet and get your records from Sarasota. The promise is the exchange of information between health-care providers for patients — geography unaffected, location nonspecific."

Furthermore, he argues, EHRs and PHRs can do things like reduce costs, eliminate duplicate tests and prevent allergic reactions by making ER physicians instantly aware of a patient's history.

Another reason advocates promote the importance of the technology is because the health-care industry is currently crippled by obsolescence and HIPAA regulations. Tom Dorsett, president of health-care solutions for Vemics Inc., said his company has launched what it claims is the world's first HIPAA-compliant, electronic medical records transport application in a product called iMedicor.

Dorsett said iMedicor is similar to an e-mail application, except it's completely secure and operates on a closed network. This allows physicians to confidentially exchange patient data with need-to-know colleagues. Dorsett said the health-care industry has been "bottlenecked by HIPAA," causing the industry to lag behind.

"Can you imagine not having e-mail?" he said. "That's really what health care has faced. We've created a driver that allows just about any electronic medical records system to interface with our portal. In lieu of taking a document out and faxing it over, they can select the document within their EHR and click 'print' and it will, through a special driver, drop that document into iMedicor. They select their contact and hit 'send,' and the other physician has access to that."

The case for EHRs might seem open and shut — but not everyone is convinced. There are some physicians who feel the entire electronic health data industry, including EHRs and PHRs, has not matured to the point that widespread adoption makes sense. And skeptics are armed with examples to back up their doubts, as it seems almost daily a newspaper reports on a gaping security flaw that has led to the loss of millions of pieces of personal information.

Dr. Demitri Adarmes is a practicing physician in Olympia, Wash., and is board certified by the American Board of Internal Medicine and the American Board of Physical Medicine and Rehabilitation. Adarmes steadfastly refuses to move to EHRs because he believes the standards need to be in place before adoption, not after. Additionally Adarmes said that should a physician become involved in litigation, digital data may not be sufficient.

"I'm pretty familiar with EHRs," he said. "As part of my training I worked with them at the VA hospitals and several of the other university hospitals [with internal EHR systems] where I did my training. Once I finished the training, though, I went back to charts. The main reason is I do a lot of medical legal work. So when papers go to court, they want a primary source."

Adarmes said he believes paper files are more secure than digital health records.

"If somebody wants to get a document, they have to come into my file room and pull the chart," he said. "Computer systems in doctors' offices are already targeted to steal identities."

Adarmes also is concerned about who owns the data. Is it the patient's? The doctor's? Maybe it rightfully belongs to the insurance provider. His point is that there are currently too many unknowns to comfortably move to an EHR system.

Most who are observing the issue agree EHRs and PHRs have potential to do good. The industry's readiness seems to be the central point of debate. Boynton's thoughts on electronic medical data probably go a long way toward summing up the feelings of both advocates and opponents.

"The possibilities, I think, are endless," she said "And as a result, so is the obligation to ensure that the information is well protected."

Dorsett said he thinks the industry will move toward implementing PHRs instead of EHRs because of an overall trend of consumer empowerment in the United States.

> "IF YOU THINK ABOUT GOVERNMENT-SPONSORED HEALTH CARE, YOU CAN IMAGINE THAT THE CHALLENGES AROUND DATA FRAGMENTATION ARE EVEN MORE ACUTE."
>
> **Nate McLemore,** *director of business development, Microsoft Health*

"PHRs focus on the patient having the ability to store their personal health information. They have absolute control over it; they decide who looks at it. I think there is a general movement toward consumer-driven health care. It's about empowering the patient to have control over his or her information. Right now, it's squarely in the hands of the physician."

Dorsett also cites problems that have cropped up in recent attempts to implement large-scale EHR systems. Kaiser Permanente and Cedars-Sinai Medical Center tried to deploy internal EHR systems. Both systems were met with high costs, user dissatisfaction, errors and technical problems. Consequently Dorsett thinks PHRs will be the preferred technology in the near future if only because they are so much simpler.

"The technology is very expensive still," he said. "There are so many systems on the market and so many horror stories of wasted expense on trying to get up and running on EHRs, so you have a cautious market out there. The other issue is these systems, by and large, don't communicate with one another. There's apprehension in the marketplace. With PHRs, it's much easier because physicians aren't asked to adopt a PHR. Patients are." GT

BAD MEDICINE CONTINUED FROM PAGE 29

Ryan went to local law enforcement, but like most local agencies, they weren't familiar with medical identity theft. That fact, and the nature of the crime, makes it difficult to police.

"Sometimes you can identify somebody who had access to the medical data, then trace that medical data in terms of how it was falsely billed, and that will lead you to the subject," Ormsby said. "In other cases, such as hacking cases, those are more difficult because it's more of a cyber-crime." She said many of the cases are complex and require the expertise of a variety of agencies to solve.

Fighting Back

The best way to police medical identity theft is to prevent it, Ormsby said. Local law enforcement can begin by performing community outreach programs that educate their municipalities. Local police should also share identity theft information with state and federal authorities and make referrals to the appropriate state and federal agencies when they learn of a medical identity theft complaint. Lastly they can participate in federal and state working groups that deal with health-care fraud.

> "IN OTHER CASES, SUCH AS HACKING CASES, THOSE ARE MORE DIFFICULT BECAUSE IT'S MORE OF A CYBER-CRIME."
>
> **Sharon Ormsby,** *section chief for financial crimes, FBI*

Individuals should peruse EOB statements from their health insurers to spot unusual charges.

"We've established some programs and initiatives where we're trying to get our licensees to entertain the idea of educating their subscribers on a quick and regular basis," Sneed said. "Explain to them that they are our first line of defense with respect to health-care fraud. That means looking at your explanation of benefits form when it comes in."

Another aspect of prevention is better security for electronic health records, which are beginning to really take hold, Sneed said. "Facilities, associations and insurers have to keep that as an aspect they have to be aware of as they create their electronic health records, practices and procedures, and account for the idea that this is going to open up databases of information that may be vulnerable. There has to be a risk assessment."

The WPF advocates a National Health Information Network that would be established using comprehensive risk assessments that prevent medical identity theft while protecting privacy, and more mechanisms for individuals to correct errors in their medical histories, as well as notification of medical data breaches to consumers.

The prospect for a continuing trend in medical identity theft is good as health-care record-keeping becomes increasingly automated and because it is so difficult to detect, according to Dixon. "It's going to get worse before it gets better because it's really tough to fix." GT

Synopsis: Understanding the grant process will lead to more funds for your IT projects.

Cashing In

These strategies help demystify the grant application process.

Since there are far fewer grantmakers than there are organizations searching for money, requesting funds from granting agencies is a highly competitive process.

From researching funding agencies and contacting them, to preparing for a site visit and acknowledging contributions, these strategies should shed some light on the application process for agencies and jurisdictions new to the fundraising game.

Do Your Homework

The first step for individuals or organizations seeking outside support for technology projects is to identify a list of viable funders. In other words, do your homework.

Start with the Internet. Using Google, or any other search engine, do a keyword search by the terms "grant," "funding," "technology project" and other terms related to your project. You'll quickly identify what grantmaking institutions are out there, where they are located, and what their priorities are for that particular funding cycle. The goal is to compile a comprehensive list of public and private agencies that have technology projects as their main funding criteria.

Another way to identify likely funders is to find nonprofit organizations in your region that maintain a database of potential funding sources. These agencies can usually be accessed online and offer their services either for free, or for a nominal fee.

Oftentimes these centers have extensive collections of the annual reports of both public and private funding agencies, and they make this information available to prospective grantees upon request. By contacting the center directly or going there in person, you can generally make contact with someone who is knowledgeable about funding agencies and is willing to offer some helpful advice during your search.

To determine when and how much a corporation gives annually go directly to that organization's Web site. For instance, conduct a keyword search to identify what IT companies exist, and which are the largest. Then establish if corporate giving is considered a top priority. Like the public funders, corporate dollars are usually directed toward specific programs and interests, and it's important to establish what these priorities are before initiating a formal request.

Then, when and if you decide to make contact, let them know you've done your homework. The more you know about a corporate donor before you make a request, the better.

Tapping the Feds

The federal government provides ongoing major funding for specific projects. The guidelines, however, are fairly strict.

One of the best ways to determine if federal dollars are available for your IT project is to access the *Federal Register* online or in hard copy at the local library. The *Federal Register* consists of a daily update of all grants offered by the federal government, and it defines what types of projects, as well as dollar amounts, that are available on a competitive basis.

Also, try contacting city hall or reading the public notices section of your local newspaper to help identify types of local and regional projects being funded. Announcements generally are listed under the heading of Requests

BY SUZANE BRICKER | CONTRIBUTING WRITER

for Proposal and provide contact information for further details.

Make Contact

Securing grants for technology projects requires significant time and persistence. Therefore, once a list of potential grantmaking organizations has been completed, it's important to call, write or e-mail the funder for application instructions. Ask whom to maintain contact with throughout the funding cycle so you know where to direct questions about the application process.

Generally a funder is eager to share its grant guidelines with a prospective applicant. Guidelines typically state in writing what types of projects the organization funds, which projects have been approved recently and priorities that have been set for the current funding cycle.

A word of caution: Funding priorities change, so establishing contact with the granting agency helps to ensure that your application falls within the most recently published guidelines.

Grant applications will only be considered if they meet the funder's specifications and guidelines. When you receive the guidelines, be sure to determine when the application is due and call your contact at the granting agency immediately if you have difficulty locating this information. Applications may be accepted on a quarterly, annual or ongoing basis.

"Giving guidelines" are usually preset by the funding agency. Obviously if an agency funds only once a year, and the deadline for application has just passed, it's necessary to consider who else is out there.

Another important reason to establish contact with the funder is to determine how much money has been directed toward projects similar to your own. A frequent mistake many new grantees make is that they neglect to identify where the granting agency is targeting its resources for the current fiscal year.

Follow Directions

Remember to read the guidelines carefully to determine whether an agency provides support for IT projects. Some funders have regional priorities, and while they may in fact provide support for IT projects, dollars could be targeted specifically toward the Pacific Northwest, or the East, rather than where your project is located. These are all factors that must be considered before submitting a proposal.

Also, when applying for any type of grant, remember to follow application instructions down to the smallest detail: where the pages are numbered; how many copies must be submitted; and how, in fact, these copies are to be presented in either bound or unbound form.

Some grant applications request supplemental materials. For instance, if you are teaming with other organizations to secure a grant, a memorandum of understanding (MOU) probably will be requested from each program partner. An MOU is simply a formal statement of an organization's commitment to the project for which you seek funding. Make sure if an MOU or other type of attachment is required by the funder, that it's appropriately labeled and placed in the proper order.

Some agencies will request a table of contents with each application, while others won't — something to make note of. Also, try to assemble as many of the supplemental materials before you begin to write the grant because when you're under pressure to meet a deadline, some of these materials can be easily lost or misplaced.

Patience Is Key

If the funder does not respond to your request right away, don't be discouraged. There may be only one person evaluating all of the applications, or there could be an entire panel of people. Either way, sifting through the applications is a time-consuming process, so be patient. Wait for the funder to contact you. For federal grants, a response can take four to six months, or even longer. Private agencies may or may not respond sooner.

Also, sometimes before rendering a final decision, funders may contact you to request an onsite interview. This is generally considered a good sign. Make sure you're prepared to answer any questions agency representatives have. The person who talks with the funder should know the project cold. He or she should also be able to give the agency representative a full description of the organization's structure and funding history.

Grantmaking agencies like to see that the organization has a strong funding track record, and that the amounts they have received are comparable, if not greater than, the current amount being requested.

The final factor to consider is how to acknowledge the funder for a contribution, no matter how big or small the dollar amount. While most granting agencies will say in print that they provide money purely for philanthropic reasons — or to support the infrastructure of a certain municipality — the reality is that many funders like being recognized.

Recognition can vary from a simple thank-you letter, to the naming of a building or project element after the funder. While this process of recognition isn't necessary in all cases, it could make it a lot easier to approach an agency with future requests. GT

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

Funding Checklist

- ✓ Carefully research funding agencies and determine their stated objectives.
- ✓ Prepare a list of potential funding sources.
- ✓ Narrow the list down to agencies that are interested in funding IT projects.
- ✓ Contact the funder and request a list of grant guidelines.
- ✓ Read and review the application instructions carefully.
- ✓ Identify and include project partners in the review process, if applicable.
- ✓ Maintain contact with the funder throughout the application process.
- ✓ Follow application guidelines "to the letter."
- ✓ Prepare all supplemental documents in advance.
- ✓ Be prepared for site visits, if they're requested.

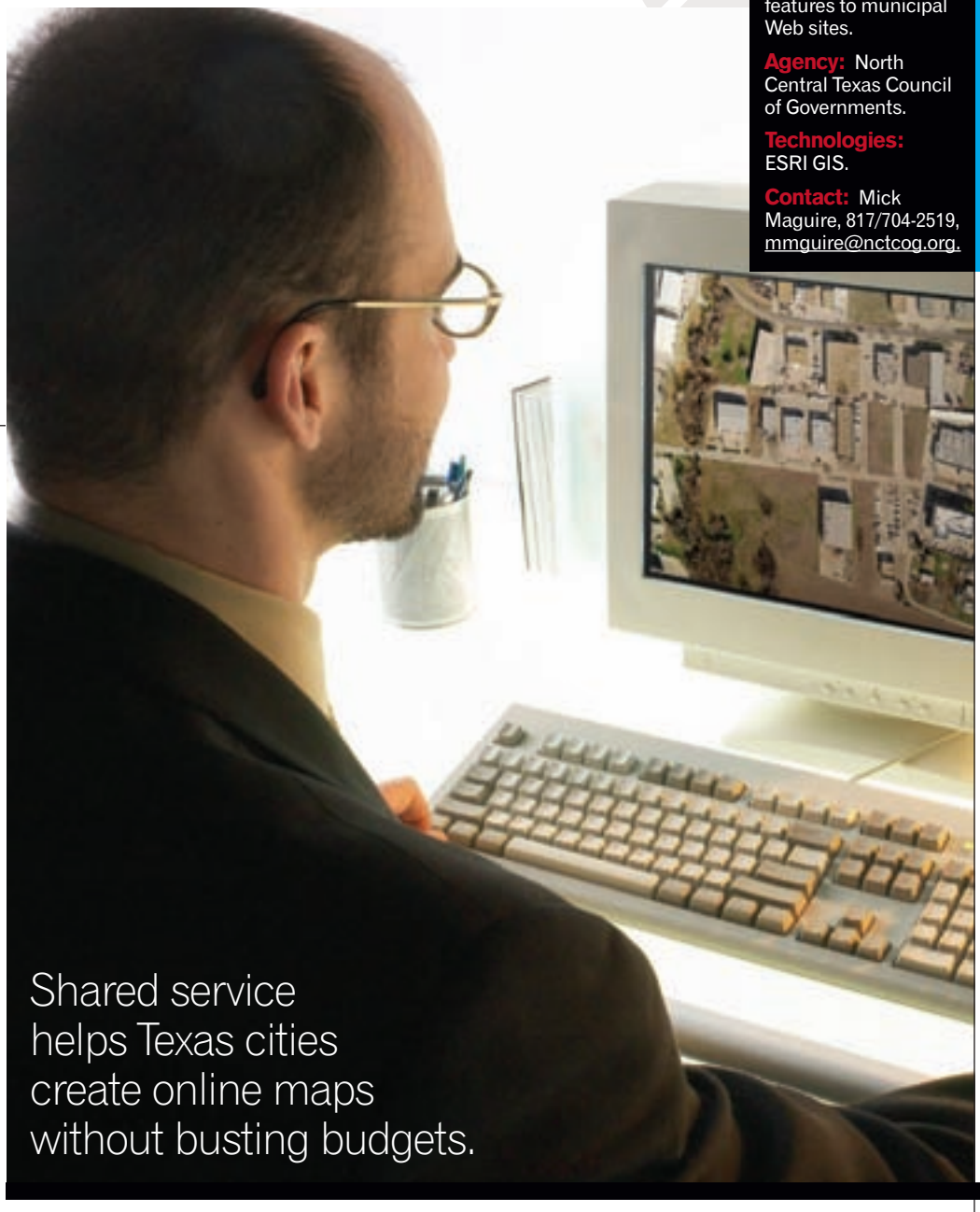
Synopsis: A cross-jurisdictional effort brings rich mapping features to municipal Web sites.

Agency: North Central Texas Council of Governments.

Technologies: ESRI GIS.

Contact: Mick Maguire, 817/704-2519, mmguire@nctcog.org.

GIS for Less



Shared service helps Texas cities create online maps without busting budgets.

BY ADAM STONE | CONTRIBUTING WRITER

Though Rowlett, Texas, has a population of just 53,000, it has an interactive online map that puts many larger municipalities to shame. Want crime statistics, building footprints, property for sale or sex offender data? Come and get it.

Krishna Veeragandham, the city's assistant director of development services, helped build the site, and even he admits it is an anomaly. "Normally smaller cities don't have that level of funding or even that level of need to run such a robust system," he said.

The secret weapon of Rowlett's online map — available at http://maps.ci.rowlett.tx.us — is iCommunities, an ambitious GIS initiative by the North Central Texas Council of Governments (NCTCOG), a state-sponsored entity charged with aiding development efforts in approximately 250 communities. The project uses the council's GIS expertise to bring local government data to life with interactive, customizable maps that mesh with existing municipal Web sites. NCTCOG generates maps using ESRI's GIS software, which already was in use within the organization when iCommunities launched in 1999.

"It's taking information about a specific jurisdiction and providing that information across the Web for use by employees of that organization, and also by citizens of that area," said Mick Maguire, research and information services program manager at NCTCOG.

In the big picture, iCommunities serves several needs for both large and small municipalities. It provides a template that makes assembling maps quick and easy, and it takes the maintenance burden off the jurisdictions, since NCTCOG hosts, maintains and updates iCommunities data. Perhaps most significantly, it dramatically reduces the cost of creating and running a rich GIS site.

The agency charges a municipality $8,800 to create a basic iCommunities site or $14,000 if the site includes in-depth economic development information. Annual upkeep costs $4,800 for the basic site, $6,000 with the economic development upgrade, or $7,200 with economic development and detailed crime data.

Casey Gardner, enterprise GIS manager for Dallas, calls it a bargain.

"We're paying what we consider a very small amount of money to have this information out there," said Gardner.

Prior to joining iCommunities in 2002, Dallas operated its own map site, a rudimentary interface displaying such basics as libraries and council districts. Security was a headache, with constant care needed as data left the city and went out into the wide world of the Internet. "There are just a ton of issues you encounter when you start publishing this kind of information," Gardner said.

When he takes into account the software, hardware, maintenance and staff time he would need to host an interface as rich as iCommunities, Gardner knows he is coming out ahead. "It would take at least one person to manage that site," he said. "And I promise

> "We're paying what we consider **a very small amount of money to have this information** out there."
>
> **Casey Gardner,** *enterprise GIS manager, Dallas*

you, that person would spend at least half their time working on it."

For the bargain price, Dallas gets not only a rich data set in its maps, but also a GIS page that looks like all other city Web pages. As part of the iCommunities template, map pages are built to incorporate existing visual elements within a site to ensure a seamless user experience.

GIS Bang for the Buck

The 30 municipalities, counties and special districts using iCommunities get more than just pretty maps to show constituents. They receive in-depth, interactive visuals that cover a surprising range of local data.

On a base level, visitors to most iCommunities sites see libraries, fire stations, schools, subdivisions and parcels. This data serves the public and also helps officials do their jobs. As zoning requests come up before a city council, for instance, iCommunities makes it easier to present those proposed changes to council members and citizens.

Cities can choose to pack their sites with other GIS layers, such as crime statistics. Users can choose to populate a map with icons marking the locations of thefts, robberies, murders and other dark deeds. A separate option flags the homes of registered sex offenders.

For sensitive data, planners have the option of password-protecting the site so the public can't access some iCommunities layers. Even within city offices, access can be restricted to only those employees with a need to know.

This password protection is a key element in at least one component of iCommunities: infrastructure. City officials are well served by a site that maps water mains, power conduits and other crucial data, but heightened national security makes it necessary that the information isn't made widely available. Here again, municipal leaders can cordon off that section of the site.

While most iCommunities information comes from the cities, some comes from NCTCOG's own collection, especially data that crosses city limits or spans an entire region. "It's things like the live weather radar — things that go beyond the data — that is particularly ours," Gardner said.

Some of iCommunities' most significant work comes in the form of specialized economic development maps. These go well beyond the typical municipal charts and graphs.

One example is the Dallas map site: http://maps.dallascityhall.com. Detailed economic development data includes the layout of the city's instrument manufacturing industry, positions of food processing plants and distribution businesses, and the breakdown of tax-increment financing districts.

Those detailed offerings help the city fulfill its public obligation. "It allows the public and the business community to answer questions more efficiently, to do their jobs and to make better, more informed decisions," Gardner said.

Since 2002, visitors to the Dallas site have generated approximately 11 million maps.

Keeping Up-to-Date

Three people work on iCommunities at NCTCOG. Working across jurisdictional lines, these staffers maximize not only their high-level data, but also the shared expertise and the interests of their member communities.

"The beauty of this program is that once somebody comes up with an idea, [NCTCOG] staff will spend a bunch of time developing that code," Veeragandham said, "and all the cities can use that code across the board."

For example, NCTCOG built an economic development module that gives planners the ability to tap into real estate databases and also connect to appraisal district data, which helps identify residents at a given address. That's helpful for public works needs and for disseminating public hearing information.

Despite iCommunities' appealing features, it's not a perfect system. Because iCommunities managers look for enhancements that will benefit the greatest number of users, some changes are pushed to the back burner.

"The major hurdle we have to get over is the realization that this is a shared system for the cities," Maguire said. "Whenever we are out there talking about the advantages in this program, drawing on the combined knowledge of all these other entities, [municipalities] need to know they also need to make sacrifices. This is not a 100 percent fully customized version of your Web site."

For iCommunities' smallest users — some cities have populations of 10,000 people — this drawback is a worthwhile price to pay for a site that's far more robust than whatever they might have built on their own.

In addition to new features, iCommunities users also can request ongoing updates to their data. Veeragandham revises parcel data once every six months and aerial photographs once per year. Cities can submit data manually in a batch upload or arrange for the iCommunities system to submit regular queries and pull in new information when data changes.

> "Normally **smaller cities** do not have that level of funding or even that level of need to run such a **robust system**."
>
> **Krishna Veeragandham,** *assistant director of development services, Rowlett, Texas*

The updates are easy. The data covers an array of municipal and citizen concerns. Users don't have to worry about maintenance. It costs far less than an in-house effort does. As cross-jurisdiction initiatives go, it's not hard to see why iCommunities continues to build a cadre of loyal users among its north central Texas constituency. GT

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

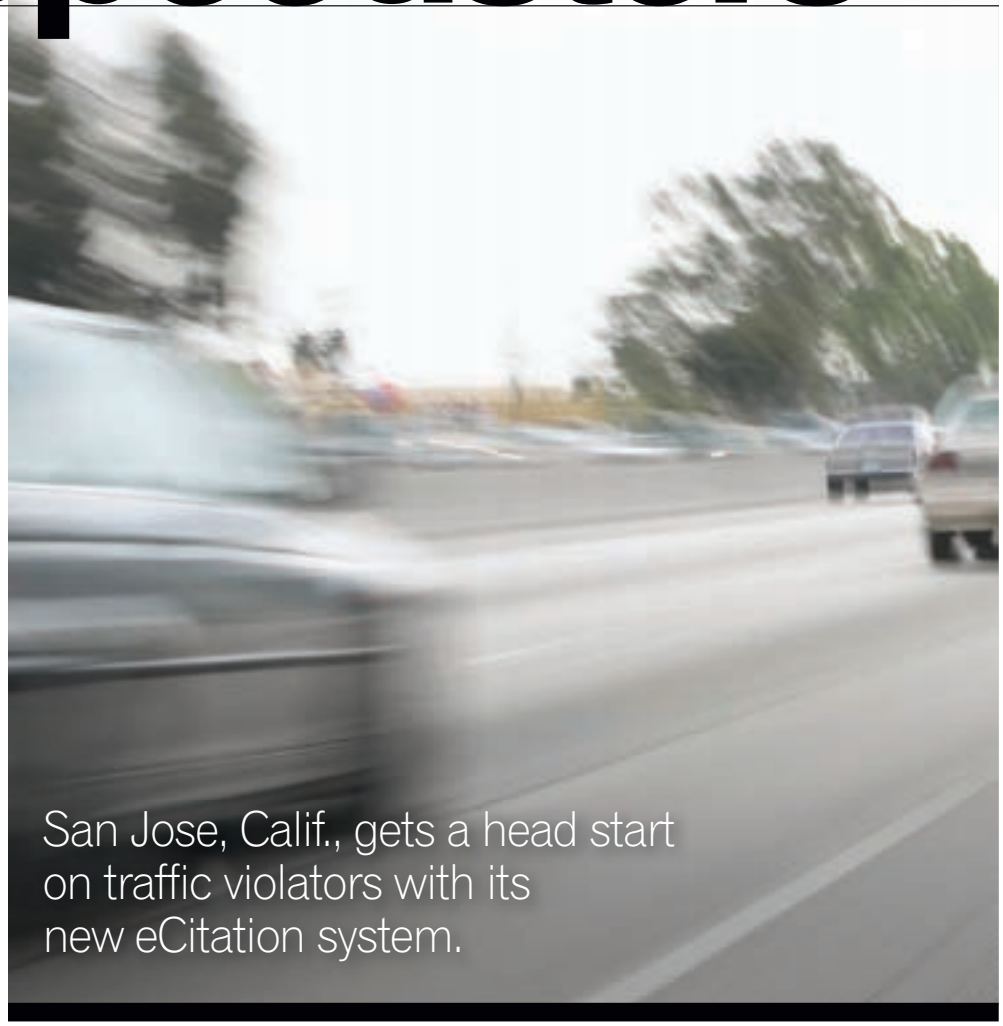
Synopsis: San Jose's new eCitation system helps police officers issue more accurate tickets to motorists.

Agency: San Jose Police Department.

Technology: Intermec, 3i Infotech, eCitation system.

Contact: Lt. Ruben Chavez, 408/277-4847, ruben.chavez@sanjoseca.gov.

Nabbing Speedsters



San Jose, Calif., gets a head start on traffic violators with its new eCitation system.

Back in 2006, the San Jose Police Department (SJPD) issued paper citations that took three weeks to process. But now, thanks to an electronic citation system implemented in 2007, officers issue more accurate tickets and the courts process them more quickly.

Located in the heart of California's Silicon Valley, San Jose has long prided itself for being technologically ahead of the game. So it should come as no surprise that in mid-2007, the SJPD brought some bad news to the city's boozers and speed demons: The eCitation system — designed by Intermec Inc. in collaboration with 3i Infotech — was rolled out to more than 50 officers, who now carry handheld computers loaded with the eCitation software. Additional units are on the way to 100 more SJPD officers.

"This is an entirely new platform," said SJPD Lt. Ruben Chavez, project manager of the eCitation system. The software reduces the percentage of citations that have errors, from 10 percent down to 2 percent.

"Accuracy is ensured at the front end when the officers are issuing the citation," he said. "For efficiency, that is 3,800 tickets [per year] that no one has to complete a quality-control review or retype all the data. It is extremely efficient."

With more than 4,000 citations issued since the new system went online July 30, 2007, efficiency and accuracy have improved, and officers can complete their jobs more quickly.

Paper citations issued by the SJPD took three weeks to process, said Ramesh Narayanaswamy, president of government services at 3i Infotech. "This included copying, filing, hand sorting and hand entering them into a records department and then sending them to the court, which had to key-enter them into the court system for processing," he said. With the new system, the citations automatically are sent to court after a 48-hour waiting period.

"This wait period has been incorporated to allow officers to add notes and dismiss [or] amend citations if and when required," Narayanaswamy said. "Otherwise, these tickets could be automatically routed immediately."

The eCitation system also allows officers to nab more offending drivers.

"The most significant productivity feature in the application allows users to perform a 'make similar' [function] to any ticket they have written," Narayanaswamy said, "so subsequent tickets can be written very quickly, without having to re-enter data."

Though writing tickets more quickly is a nice benefit, it wasn't the goal of the system, he said, noting that the ultimate objective was to reduce the error rate and redundant entries. "When the full complement of officers is using the new eCitation system, a significant

BY JESSICA JONES | ASSOCIATE EDITOR AND TAMARA WARTA | CONTRIBUTING WRITER

productivity improvement will be realized on the order of a 10 percent to 15 percent error and redundancy reduction."

Enforcement Integration

The court system in Santa Clara County, where San Jose is located, processes more than 250,000 traffic tickets per year.

The courts have been involved with the eCitation system since its inception. The system now is fully integrated for all violations heard in traffic court.

Because the system integrates with the courts and other branches of law enforcement, processing these tickets is streamlined and there is no risk of lost paperwork or misinterpretation of what is written. The technology cuts time spent processing citations for the other departments involved.

Officers enter the citation on a handheld computer, print a copy of the citation on a mobile printer and issue it to the driver, and then at the end of their shift — or if they drive by a wireless access point — officers upload the citations to the central server, Narayanaswamy said. "This data is processed, updates the current records database, and after a 48-hour wait period, they are electronically sent to the Santa Clara court system."

Also, the system's accuracy reduced fine disputes and other violator protests often heard within the judicial system.

Although the traffic courts are the only part of the judicial system currently linked to eCitation, the police department also plans to link eCitation with the Criminal Justice Information Center to let criminal citations be produced in the same manner.

San Jose's system has a number of advanced features, such as capturing fingerprints in the handheld application in the field; capturing photographs for each citation; automatically syncing data from the handheld to the server; and capturing data electronically, not only for citations, but also for collision reports, vehicle reports, field investigations, driver's license suspension/revocation and driver re-examination.

After a driver's license is scanned, the information is transferred to a small printer mounted inside the officer's vehicle. A simple electronic signature, similar to those used in retail stores, is all it takes to receive the citation and get a motorist back on his or herway.

With quicker turnaround and more accurate record keeping, the only thing left in question was SJPD personnel's response to the switchover. According to Chavez, the force embraced the philosophy that change is good, and every officer is now on board.

"As with anything involving change, there are perception and workflow issues that need to be overcome," Chavez said, "but it has occurred, and the officers who are not computer savvy love it and don't want to go back [to the old systems]."

While the eCitation system has eased the workload of the SJPD and its affiliates, it isn't flawless.

Officers have reported approximately half of California drivers' licenses cannot be scanned due to age or everyday wear and tear. As drivers' licenses are renewed, the older versions will be phased out and more cards will be compatible with the system. Wear and tear eventually will happen with newer licenses, so officers can enter, when needed, all the license data by hand.

Another eCitation challenge is out-of-state licenses, which still need to be added into the technology. Though they can't be scanned, the driver's license number can be entered into the eCitation system manually. "The number of out-of-state licenses is currently very minimal," Narayanaswamy said. "It will be added as requirements warrant this addition to the project."

San Jose is the first California city to use such an advanced system, and more cities within Santa Clara County are being encouraged to adopt the updated technology so police departments can become interlinked. Also, because this application uses California Highway Patrol approved and required forms, Narayanaswamy said 3i Infotech is working with several other California cities to implement this solution in 2008.

Funding the System

San Jose paid for the eCitation system with the aid of five grants as well as extensive planning. For a year, Lt. Gary Kirby of SJPD's Research and Development Unit worked on how to fund the system, and he pieced together the income needed by receiving portions of the Local Law Enforcement Block Grant, Justice Assistance Grant, Supplemental Law Enforcement Services Fund, the Certified Law Enforcement Executive Program, and Urban Area Security Initiative funding.

In total, the system's purchase and implementation cost the city $782,000. Because the system is still so new, monetary return on investment is unknown, but less labor-intensive processing is already proving it's worth the investment.

> "For efficiency, that is **3,800 tickets** [per year] that no one has to complete a quality-control review or retype all the data. **It is extremely efficient.**"
>
> **Lt. Ruben Chavez,** *eCitation system project manager, San Jose, Calif., Police Department*

"While it's too early in the project to estimate the actual savings to San Jose, the goals of the eCitation project were to reduce the error rate, which required a full-time person to conduct quality control, and another to process amendments and dismissal requests," Narayanaswamy said. "The major staffing changes were the reduction of the staff that had to manually input all the data. This was extremely labor intensive for both the courts and SJPD, and has resulted in the reduction of these tasks.

"These tasks will all be eliminated when all officers are entering electronic citations. Already, the project has reduced hours, errors — and improved the efficiency." GT

Synopsis:
Cape Coral, Fla., implements an e-document management system to streamline the construction process.

Jurisdiction:
Cape Coral, Fla.

Technologies:
SIRE, Electronic document management system.

Contact:
Joe Mascari, business systems analyst and workflow project manager, Cape Coral, Fla., Department of Community Development, jmascari@capecoral.net.

Records Management

Cape Coral, Fla., implements a site-plan automation system.

In 2005, Cape Coral, Fla., saw about 8,000 single-family home permits issued in the city — one of the largest in southwest Florida with a population of about 170,000. This swells to 220,000 when the retired "snowbirds" flock south to enjoy the warm winter weather. As baby boomers retire and move here, the community is expected to continue growing.

Single-family construction required a great amount of coordination among the builders, developers, homeowners and the city government's staff. Much of this coordination hinged on the site-plan approval process.

The process was so expensive and time-consuming; we knew there had to be a more efficient way. So we came together to develop a better, paperless system.

Old, Complex Processes

We previously used a manual, paper-based approval method that required developers and builders — of both homes and commercial properties — to submit as many as 18 copies of blueprints, plans, architectural documents and other supporting materials. These piles of documents had to be hand-delivered to Cape Coral City Hall.

This manual process was difficult, complicated and expensive. An applicant usually paid about $3 per sheet to print and copy large prints. With 18 copies required for the approval process, the costs could pile up to more than $1,000 per application.

Once the documents were in the door, the approval workflow began.

To move a site plan through, each reviewing agency needed to provide its seal of approval, usually completed with a rubber stamp. When dealing with a commercial project, which can have 20 pages of plans, each reviewing discipline — mechanical, electric, plumbing, etc. — would mark each page manually with its rubber stamp. Since the plans were so large, approvers would come to stamp the plans at a special table.

BY JOE MASCARI | CONTRIBUTING WRITER

This laborious process could take several hours to finish.

We knew there would be an immediate improvement in speed if an applicant didn't have to come to city hall to submit a site plan. Plus, if an applicant didn't have to submit a dozen copies of a plan, there would be substantial cost savings to both the applicant and the city.

Site-Plan Automation Is Born

The solution to our challenge came from an unexpected source — a software program from SIRE Technologies that was being used in the Cape Coral Clerk's Office.

Scott Craig, the business systems analyst in the clerk's office, had used SIRE's Electronic Document Management System (EDMS) for a few years to manage the city's documents and workflow processes, with tremendous results. Between the clerk's office and Cape Coral's Department of Community Development, the city has added more than 5 million documents to the system.

After observing SIRE's capabilities, we decided to look at the product's workflow portion and see what we could implement in our department. As we analyzed the product, we believed it could improve our process, so we created a workflow process to manage the stream of paperwork going to and from the city tax assessor's office. Craig put together a process that made it possible to electronically scan, submit and approve the paperwork.

We agreed that scanning the documents and sending them electronically was good. However, what if we could eliminate the scanning and have site plans submitted electronically by the customer? No one had ever done that, but SIRE representatives were optimistic that it could be accomplished. If we could map out the workflows and the forms, SIRE could program it for us.

We gathered people from different disciplines at city hall to brainstorm and bring their best practices to the table. Planning was important for this system to work; the team spent about two hours of planning for every hour of implementation.

Cathy McPeak, forms designer for the city, took the paper-based forms and created an electronic counterpart. The Site Plan Form involves quite a bit of information. She made a template in Microsoft Word and bookmarked all the fields so it was easy to integrate into the SIRE work forms. We now have a much simpler way to obtain information.

Manny Ratliff, the city's workflow designer, mapped workflow processes and integrated them into the system.

Efficiency Upgrade

The collaboration worked, and a new program was born. The SIRE Site Plan is now in operation.

Contractors and design professionals now work with the city more efficiently than before. We start the process by issuing a PIN, which grants them access to the SIRE program. They fill out online forms that check for errors, perform mathematical functions and help the applicant avoid mistakes when submitting. The applicant also uploads any additional paperwork, such as site drawings, plan sheets and other related documents. This triggers the application review workflow, which is forwarded automatically to the queue of the first reviewer. This reviewer checks the application for errors and confirms the documents have been uploaded.

Once the prints are submitted electronically, a plans examiner receives and reviews them on 32-inch screens. The plans are approved or disapproved electronically. Comments are compiled within the workflow and sent to the applicant. Depending on the outcome, the workflow either ends or loops until all reviewers have approved and "stamped" the plans with an image that looks just like their rubber stamp.

We also use the workflow for miscellaneous permits submitted in-person at city hall. A customer service representative accepts the application over the counter from applicants' scans and uploads the documents into a workflow, which takes the application through the new electronic approval process.

In the end, the files are all stored in the EDMS. Cape Coral recycled 18.5 tons of paper in 2007, which illustrates how much space and cost savings can be created using electronic file management.

Moving the system to an electronic document format brought an added element of security to the city. With the electronic backup in place, the files are not at risk from a hurricane or other disaster. In addition, paper-based items can get lost.

Previously, issued permits and documents were stored in a series of giant, mechanical file cabinets. To retrieve a file, we entered a file number on a keypad, and the file cabinet rotated and found the file. However, if the person who pulled the file did not place the "out" card in the right place, the file could be difficult to find again. Citywide e-mails would be sent by staff members who were looking for a particular permit, when the file was simply sitting on someone's desk. With SIRE, several people can view the same file simultaneously. The file is electronic and cannot be lost.

By incorporating these strategies, our customers can save up to $1,000 per application. In addition, time and paper resources are saved.

We have realized a savings of 11,000 to 15,000 labor hours to date, and we expect to save from 20,000 to 30,000 hours as we continue to build the program.

We also created more space in our buildings by reorganizing the office and eliminating more than 50 percent of our file cabinets because we no longer need to retain and store paper files.

Our vision was to be a state leader in electronic document management, and we ended up setting an example for the rest of the United States. We are constantly helping other city and county governments that seek to emulate our system.

When our director of community development asked me what we can expect to get out of this project, I said we will have the best site-plan application system in the world. I think we are well on our way to making that happen. GT

Cape Coral recycled **18.5 tons of paper** in 2007, which illustrates how much **space and cost savings** can be created using electronic file management.

JOE MASCARI IS THE BUSINESS SYSTEMS ANALYST AND WORKFLOW PROJECT MANAGER FOR THE CAPE CORAL DEPARTMENT OF COMMUNITY DEVELOPMENT.

Synopsis: Governments make 24/7 interactive support available to citizens.

Jurisdictions: Virginia Beach, Va.; Utah.

Technologies: LivePerson Web-based chat service.

Contact: Gwen Cowart, gcowart@vbgov.com; Sara Watts, swatts@utahinteractive.org.

Chatter Box

E-government is available 24/7. Now, in some places, so is 24/7 live support.

In the age of always-available government, providing citizens with online support can be just as important as offering online services. To achieve this dual objective, several state and local government Web sites now feature live chat applications for people who need answers right away. And in some cases, it's a night owl's dream: live chat that's available 24 hours a day, seven days a week.

In December 2004, Virginia Beach, Va., implemented its Live Online Assistance program, giving visitors logging on to VBgov.com the ability to communicate online with Public Information staff about Virginia Beach information, services and events, according to Gwen Cowart, the city's director of communications and information technology.

Utah Interactive, meanwhile, has managed the state's Web portal since May 1999 and has developed more than 100 online applications in collaboration with state government partners, according to Sara Watts, director of operations and marketing for Utah Interactive. Cowart and Watts explained to *Government Technology* what it takes to launch and staff a 24/7 live chat application.

Q: How do you build a live help service?

Cowart: The application [in Virginia Beach] is a Web-based service we purchased from Live Person Inc. Virginia Beach is believed to be the first municipal government in the country to utilize this type of technology.

In addition to our other online services, live assistance has proved to be popular and successful based on the reactions we have received from citizens and visitors to the site. Online Assistance averages 2,000 users per month.

Q: From a technology standpoint, is this easy to do, or is it more difficult than one would assume?

Cowart: From a technology perspective, the Live Assistance transition was relatively easy to do, and the launch was very smooth.

Watts: I am certain that building a really good, live help system is a lot harder than we would think it is. A simple live help system would probably be of medium technical difficulty. We purchased one. We contracted with a company that does it. It's not that expensive.

Q: Are 24/7 services meeting people's needs, and are those services making them aware of something they haven't considered before?

Cowart: Live Assistance is just one component of a much larger initiative we undertook. Every second counts, whether that is by responding quicker or getting the citizen notification out to avert disaster.

Virginia Beach understood this critical need and set out to improve our service delivery in the areas of emergency citizen notification, by minimizing nonemergency calls to 911 and enhancing our 311 service offerings. Instead of taking the approach that these items were separate and distinct functions, we turned our focus on how we could utilize the 911 and 311 service areas to collaborate on enhanced service delivery to our citizens.

So the initial, and very important, value achieved was alleviating nonemergency calls being placed to 911. By having 24/7 access to 311, the number of nonemergency calls received by 911 was greatly reduced, which increased 911's performance for emergency call answering.

The related goal was to offer information to our citizens, businesses and visitors through whatever means of interaction they may be most comfortable with. That can be in-person, navigating the Web, talking to someone on the phone, information displays on our government television channel, or in print. The Live Assistance is particularly helpful as the operator can actually navigate through the Web site on behalf of the customer and answer their question directly.

BY CHAD VANDER VEEN | TECHNOLOGY AND POLITICS EDITOR

Watts: The need came because we put services online. And because we made government services available 24/7, that grew a need for support that was 24/7. We're telling people, "Now you can do this anytime you want." A government office doesn't have to be open, and yet, if they get online and get stuck and have a question, they need a way to have it answered.

We noticed we were getting e-mail questions all hours of the day. We also noticed transactions were occurring all hours of the day, so it was a logical step.

Older generations would consider that a luxury — to not only be able to do something online, but to be able to get support online, especially in a government arena. Younger generations are annoyed if they can't do something online and are told to go into an office to do it. So more and more, with the younger generation, it's not a luxury. It's not even a nicety. It will become a necessity.

Q: How is staffing managed?

Cowart: Our 311 operators staff both the 311 telephone calls and the VBgov.com Live Assistance. The center is staffed at different levels throughout the day relative to call volume and live assistance statistics. Staffing consists of 14 full-time positions and three part-time. 311 handles, on average, 17,000 telephone calls a month and 2,000 Live Assistance sessions a month.

Watts: We [Utah Interactive] do the staffing from 7 a.m. to 7 p.m. every day. That's because the bulk of the questions come in during those hours. After that, we turn it over to another state location, so it's state employees at an alternate office who answer the questions during the off-peak hours.

We have four people who sit here and take chats, and answer e-mails and phone calls. They do all three things, and sometimes simultaneously.

The live chat is actually beneficial for us because it's freer than a phone call. You have a little bit more time to form a response. And it's quicker in a lot of cases than an e-mail because you have the immediate, back-and-forth response. Our customer support people really like the chat environment.

Q: What kind of training does the staff get? Where do they get all the answers?

Watts: They knew all the answers because they were doing the phone calls and e-mails already. The issue with chat is you have to be on top of your game with grammar. You do with e-mail too. But with chat, because you're doing it so quickly, we have to hire people who excel in grammar.

Q: What kinds of questions do people want answers to in the middle of the night?

Cowart: The calls cover the entire range of questions about government services, from how to pay traffic tickets to tax questions, to information about recreation classes, to court-related questions. Time of day doesn't seem to have any special correlation to the question type.

Watts: Because we support all of Utah.gov, I couldn't even explain the myriad questions we get — everything from what different agencies do, to specific support on an application.

I asked customer support to find out what they're getting after-hours versus during the day, and there are a few things that drive after-hours questions. The first, they said, is deadlines: People come down to the end of the month. For example, they're late on their vehicle renewal and have to get it done that night. They're really concerned about late fees. Or they're trying to pay their taxes at midnight and they want to know if they get it in at 11:30 p.m., does it still count?

They also get many questions about our leisure applications, like hunting and fishing licenses. People, after they've left work, have time to think about that sort of thing.

They also get a lot of homework-related questions. There may be parents helping their kids with state history reports.

It's a lot to know, and normally our live chat staff knows where to find that information on the Web. So in the case of homework help, they can point students to locations on Utah.gov that will help them get the specific answers they need.

And all the applications, like purchasing a fishing license or registering a vehicle — they know all those answers. We have more than 800 different online services, and they really are adept at having the knowledge needed to answer questions about those applications.

Q: What's the volume of questions relative to time of day?

Watts: I looked at online service on a typical day, Dec. 6, 2007, and we did 876 transactions during normal office hours and 291 outside office hours. You can extrapolate this to all our services, so approximately 30 percent of transactions are done outside of normal office hours.

It makes perfect sense when you think about it. Is it easier to go to the DMV at 3 p.m., or is it easier to take care of that at 6 p.m. or 7 p.m. when you're done with your work? You can see why there's a need for these online services and support to help people using them after-hours.

We implemented online chat in 2003 as 24/7. The fact is, those questions are going to come in whether someone is there or not. And if you have staff available after-hours, which we did, we might as well utilize them so we didn't have all those issues to deal with the next morning, and put people off until 11 a.m. or noon.

The big thing, too, is the state of Utah has given us the ability to do it 24/7. In 2006, we did more than 61,000 support calls, 80,000 e-mails and 21,000 chats. So chat is still lower than the other avenues, but is increasing every year.

Population makes a huge difference for e-government because it's a lot harder for big states to consolidate services and get applications like these built. It's easier in Utah, frankly, to get the government to buy in and consolidate the idea around one online service. In California, for example, it's so huge that, logistically, it's a lot harder. GT

Cost Breakdown

Utah Interactive costs approximately $15,000 per year, said Sara Watts, director of operations and marketing, noting that this doesn't include staffing resources.

And in Virginia Beach, Va., the initial purchase cost for Live Online Assistance program was $5,064 — $1,500 for training and a $3,564 annual cost, said Gwen Cowart, the city's director of communications and information technology. "Our annual cost is $3,564, which is for three licenses at $99 a month," she said. "So as you can see, it is a very inexpensive service."

Synopsis: Oregon consolidates 11 data centers, slashing power costs by 35 percent, reducing energy consumption and simplifying IT.

Agency: Oregon Department of Administrative Services.

Contact: Mark Reyer, state data center administrator, 503/378-2176, Mark.Reyer@das.state.or.us.

Oregon Data Centers Go Green

State government consolidates 11 data centers into one energy-efficient facility.

Data centers devour more electricity than almost any other state government facility, but few states have implemented green data-center initiatives. Oregon, however, is now one of the first to do so.

On Dec. 13, 2007, Oregon announced it consolidated 11 power-hungry data centers into the Oregon State Data Center (SDC), an energy-efficient facility located in Salem.

Before switching to new equipment, project leaders moved the state's existing data center equipment into the new central facility, cutting power bills by 35 percent, according to Mark Reyer, state data center administrator for Oregon.

Access Pool

Among the new technologies used for this data center is a storage area network (SAN) installed to centralize data storage, rather than using hard disk drives on individual servers, which are major power drains.

"If you have four or five 300-gigabyte hard drives on a server, and you're using 50 percent of their capacity — and then you multiply that by 1,500 servers sitting in the data centers — you have a tremendous amount of capacity that is being underutilized, but can't be allocated somewhere else," Reyer said.

The SAN pools all of the data, eliminating the problem of unused excess capacity.

"This gives us incredible flexibility to have on-demand computing so we don't have oversized and underutilized assets, such as servers waiting for peak periods," Reyer said. "We can have the amount of capacity we need and be able to allocate it on an as-needed basis for

CONTINUED ON PAGE 53

BY ANDY OPSAHL | FEATURES EDITOR

Toshiba recommends
Windows Vista® Business

as the laptop experts, we'd like to extend our sincerest apologies to paper shredders.

Use less paper and get more done with the Portégé® M700. Impossible? Not for a laptop with a tablet surface and touchscreen capability. Simply jot down your notes and use the built-in WiFi® to send them off digitally. It makes form completion and document review easy and paper-free. Plus its Intel® Centrino® Duo processor and Windows Vista® Business operating system provide enough muscle to keep you up and running smoothly. Because it's about time someone helped you cut through that red tape. www.toshiba.com/tablet

TOSHIBA

Leading Innovation

Tough-Built

The **Panasonic Toughbook W7 notebook** is equipped with an Intel Core 2 Duo 1.06 GHz processor; 1 GB DDR2-533 SDRAM standard, expandable to 2 GB; an 80 GB shock-mounted hard drive; and an integrated DVD Super MULTI drive. The display is a 12.1-inch, 1024x768 XGA, anti-glare TFT LCD. The notebook comes with Bluetooth and 802.11a/b/g Wi-Fi capability and weighs 3 pounds. **www.panasonic.com**

Map It

The **Magellan MobileMapper CX** is a rugged, waterproof handheld GPS receiver with multiple DGPS modes, including SBAS, Beacon, NTRIP and RTCM. The full-color, daylight-readable, advanced TFT LCD has 320x240-pixel resolution. The unit has up to 4 GB of removable SD card memory and supports Bluetooth and WLAN technologies. It offers a field-replaceable, all-day battery and built-in alphanumeric keypad. **http://pro.magellangps.com**

Picture This

The **Pentax Optio A40 camera** features 12 megapixels and three types of shake reduction: mechanical, digital and movie. It has a 2.5-inch LCD monitor with a booster that adjusts the screen brightness when viewed outdoors, 3X optical zoom and 6X digital zoom. The Optio captures movies at 30 frames per second at sizes up to 640x480 pixels. The camera holds approximately 21.0 MB of built-in memory. **www.pentax.com**

Tiny Reader

The **Videx iBR9000** is a miniature reader of iButtons: dime-sized metal canisters containing a unique identification number that can't be duplicated. The handheld data collector is 2.75 inches long and weighs less than 2 ounces. The iBR9000 stores an iButton's ID in its memory, along with the date and time of contact. iButtons are assigned to a person, location, item or action, and can be used for inmate tracking, safety inspections and field data collection in agricultural applications. **www.videx.com**

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mjones@govtech.com

two cents

our take on the latest technology

BY EMILY MONTANDON | ASSOCIATE EDITOR

AcerPower 2000

Good things come in small packages.

The tiny AcerPower 2000 may fit in a shoebox, but it's big enough inside to do the jobs most of us need to do, plus it has some fancy sound capabilities.

The small form factor machine is equipped with an Intel Core2 1.80 GHz processor, 1 GB installed memory and 160 GB hard drive, and Gigabit Ethernet.

I am one of those people, however, who appreciates a machine's innards for what I don't see — hang-ups, crashes, and the like — so I was pleased with the Acer's responsiveness and reliability. But what I liked most wasn't on the inside, but on the outside.

One thing that drives me crazy about many computers is that the USB ports are located on the back of a 50-pound machine. So every time I want to connect or disconnect my iPod, digital camera or any other device, I have to lug the big monster out of its cubby.

Nowadays, computer manufacturers are providing a limited number of USB ports on the front of the machine. This machine, however, solves the port accessibility problem in every way. The AcerPower 2000 offers four USB ports in front in addition to the mic and headphone jacks. On the back, it gives users four more USB ports, plus the VGA, DVI and Ethernet ports, power supply and six line in/line out jacks. And if you need to switch the cables behind the machine, it can be picked up with one hand.

And one added bonus: This machine is quiet. If it weren't for the "on" indicator light, you likely wouldn't know it was on.

There were lots of reasons to like this machine, but I must take a moment to point out that there's such a thing as too fancy. This device has some audio perks, including high-definition audio. If you purchase this machine for its audio capabilities and want to tinker with every aspect of it, then it will please you much.

Some of us, however, just want to plug something in and have it work. When I plugged in my speakers, I was faced with a number of options, and being impatient, I proceeded quickly rather than thoughtfully. And for this, I was punished with no music. So I tried again and got a strangely high-pitched version of all my favorite songs. So I tried again, still high-pitched.

After dragging co-workers and our IT guy into it, and jumping through a few hoops — downloading a new media player and tinkering a little with the audio software — we finally got normal-sounding music. Once we got the audio on track, there was a lot that can be done with the sound, so all these options are valuable to a certain audience.

The AcerPower 2000 UD431C configuration is a good little machine for about $600. GT

specs

Dimensions: 2.4x9.8x7.9 inches
Processor: Intel Core2 E4300 1.80 GHz
Storage: 160 GB SATA hard drive
Memory: 1 GB installed
Video: Integrated Intel Graphics Media Accelerator 3000
Audio: High-definition audio
Communications: Gigabit LAN

rating:

price:

Starting at $550

Spectrum

reports from the IT horizon

Behind the Curve

Neither public- nor private-sector organizations are adequately planning and investing in new data centers, according to a survey conducted by the Aperture Research Institute. The survey covered 600 data center facilities in the finance, health-care, government, retail, pharmaceutical and telecommunications industries across the U.S.

Almost two-thirds (64 percent) admitted they weren't planning or building new data centers. Thirty-six percent predicted demand for scaling their operations, and are building and/or planning new data centers.

Despite the age and unreadiness of some data centers, there's already an investment in high-density computing, with 87 percent of organizations having introduced blade servers. Of survey respondents that were building a data center, 26 percent anticipated between two and three years before the center would go live, while 15 percent planned for more than three years.

Satisfaction not Guaranteed

Citizens are less satisfied with federal government services than with private-sector services, according to an annual report from the American Customer Satisfaction Index (ACSI). In aggregate, citizen satisfaction with the federal government is 67.8 on ACSI's 100-point scale, 11 percent lower than the average national ACSI (75.2). Private-sector services scored 74.

Biggest Cyber-Threats

Here are the 10 most prevalent computer malware threats, as a percentage of all e-mail-borne malware, along with the 10 countries hosting the most malware during November 2007, according to Sophos, an IT security and control firm.

E-Mail-Based Malware Threats	
Troj/Pushdo	29%
W32/Traxg	24%
W32/Netsky	18%
Mal/Dropper	5%
W32/Zafi	5%
W32/Mytob	5%
W32/Flcss	3%
W32/MyDoom	3%
W32/Strati	3%
W32/Bagle	1%

Countries Hosting Web Malware	
China (inc. Hong Kong)	55%
United States	20%
Russia	11%
Ukraine	2%
Germany	2%
Turkey	1%
Canada	0.8%
United Kingdom	0.7%
Poland	0.7%
France	0.6%

Google me

Almost half of all U.S. Internet users — 47 percent— have searched for information about themselves online, according to a poll conducted in 2006 and released in December 2007 by the Pew Internet & American Life Project. Only 22 percent of Internet users googled themselves in 2002.

Ignoring Security

The increasingly mobile nature of the U.S. work force is creating new security challenges for IT staffs, according to research from the Computing Technology Industry Association. Sixty percent of the 1,070 organizations surveyed said security issues related to the use of handheld devices for data access and transfer increased significantly or increased somewhat over the past 12 months.

Nearly 80 percent of the organizations allow data access by remote or mobile employees, but just 32 percent of organizations said they have implemented security awareness training for these workers. Just 10 percent plan to implement training in the next 12 months.

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

CONTINUED FROM PAGE 48

the agencies and their business cycles. It's a tremendous saving of assets, as well as optimal use of power itself."

Oregon's SAN puts data in a tier system, placing frequently accessed data in the top tier. As end-users access a piece of data less often, it drops to lower tiers until it hits the bottom and moves into an automatic tape library.

The automatic tape library provides additional power savings. In the past, each group of four servers had its own tape backup system. Now, one library serves all data, using robotics to move data in and out of the library, saving IT workers the hassle of manually moving data to and from the tape library. Eventually that data travels to a state-mandated, offsite data-archive facility.

The data center also reduces power consumption by using Oregon's temperate climate to cool the facility. The system sucks in cool air from outdoors, routing it through the floors supporting the servers. Warm air, in turn, is pushed out of the building. As a result, the facility uses its water chiller only 25 percent of the year, while most other data centers run their chillers year-round, Reyer said. "Oregon is a good place for data centers, given this climate," he added.

Learning to Share

It took several years to persuade agencies to relinquish IT control to a centralized "shared services" model, Reyer said, adding that agencies worried a centralized model would ignore agency-specific needs. But leaders realized many of their IT functions were the same across the state.

"If it has to be customized for an agency, then it's not a shared service. However, almost everything we do is at the utility end of the IT spectrum," Reyer said. "If it's on the infrastructure end of the IT spectrum, it can be shared. Storage, computers, networks, security — those don't differentiate whether you're providing transportation services or state police services to citizens."

> "If it has to be **customized for an agency**, then it's not a shared service. However, **almost everything we do is at the utility end** of the IT spectrum."
>
> **Mark Reyer,** *state data center administrator, Oregon*

PHOTOS **PROVIDED BY** OREGON STATE DATA CENTER

Oregon centralized state computing resources and implemented changes in how it cools data center facilities. The changes improve equipment utilization and cut power consumption.

Consolidation and standardization reduces Oregon's need for specialized IT knowledge, which Reyer said was a relief given the projected exodus of baby boomers ready to retire. When agencies individually managed their data centers, the state worried it would need to train new employees on different systems.

"Much of that fear has gone away because Windows Server administration is Windows Server administration," he said. "There are not too many differences from agency to agency."

Keeping with the state's energy efficiency goal, the data center also reduces power consumption in the office section of the building.

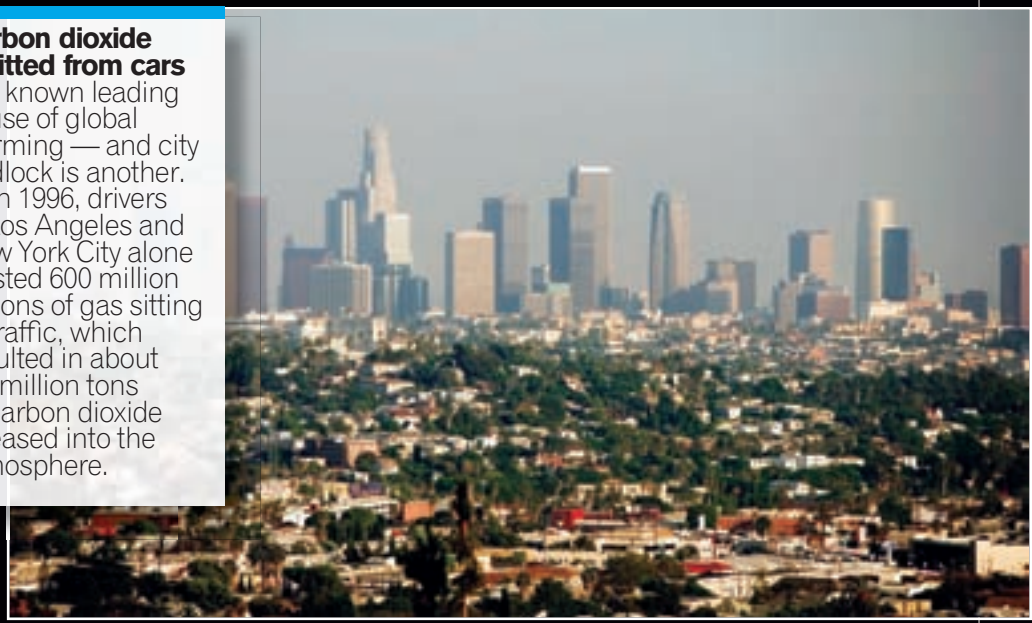
"We built our office with a tremendous amount of natural lighting," Reyer said. "The exterior and interior have metal louvers that actually take the light from the outside and direct it in." GT

Up Close

Extreme Forecast

Global warming — the gradual increase in the average temperature of air near the Earth's surface and its ocean water — is projected to continue. But there are ways we can help.

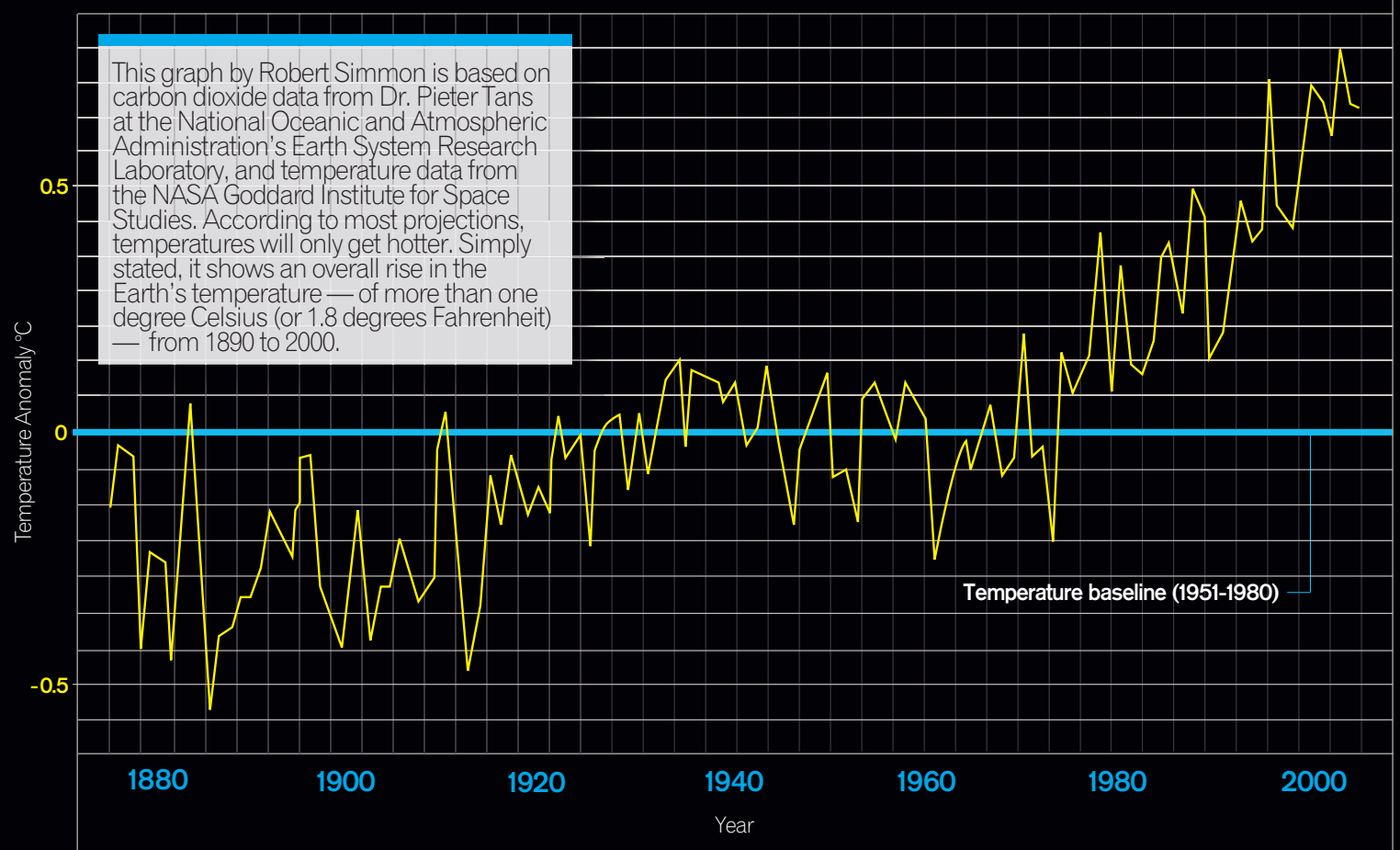
With greening initiatives on the forefront of government officials' minds, reducing carbon emissions by allowing government employees to telework a few days per week may help mitigate climate change.

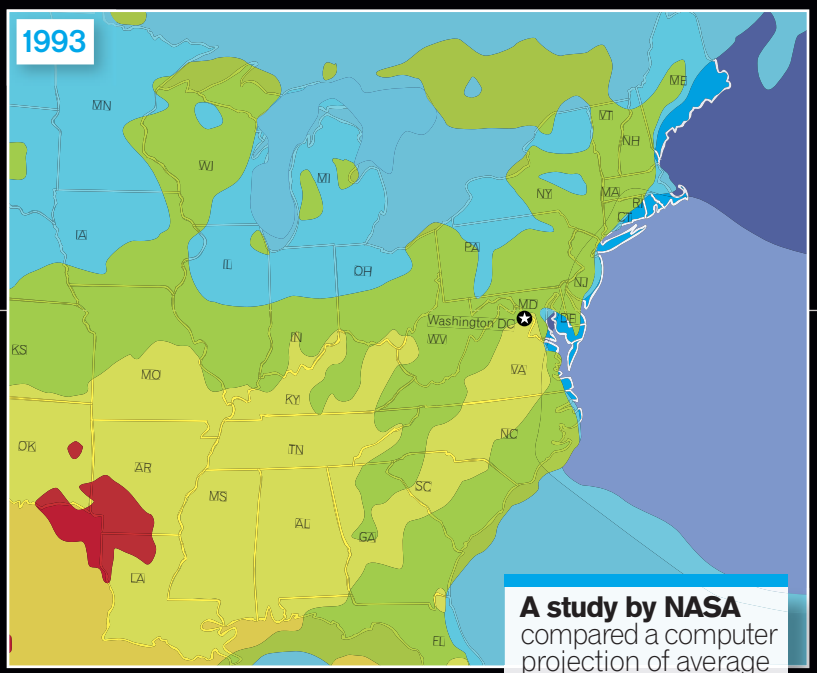


Carbon dioxide emitted from cars is a known leading cause of global warming — and city gridlock is another.

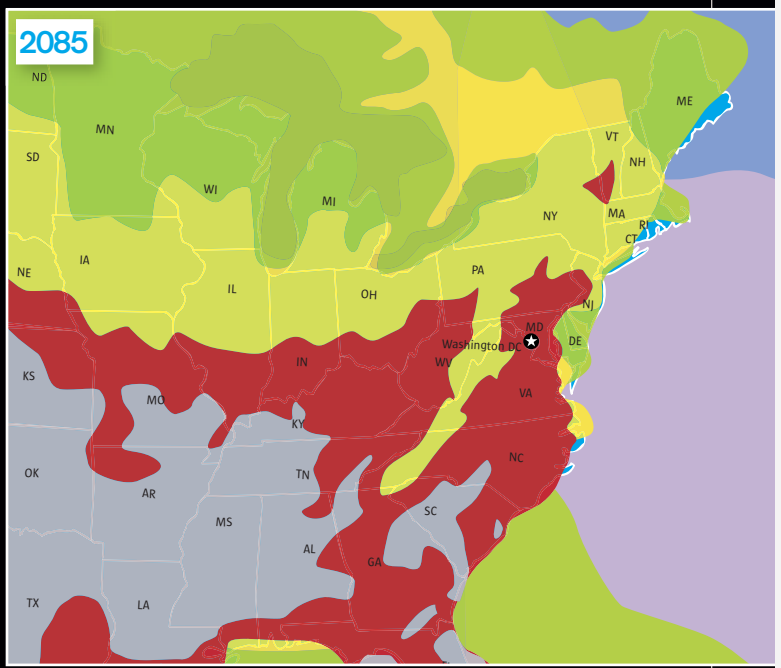
In 1996, drivers in Los Angeles and New York City alone wasted 600 million gallons of gas sitting in traffic, which resulted in about 7.5 million tons of carbon dioxide released into the atmosphere.

This graph by Robert Simmon is based on carbon dioxide data from Dr. Pieter Tans at the National Oceanic and Atmospheric Administration's Earth System Research Laboratory, and temperature data from the NASA Goddard Institute for Space Studies. According to most projections, temperatures will only get hotter. Simply stated, it shows an overall rise in the Earth's temperature — of more than one degree Celsius (or 1.8 degrees Fahrenheit) — from 1890 to 2000.





A study by NASA compared a computer projection of average daily maximum temperatures over the eastern United States for July 2085 with actual temperatures in July 1993. The overall increase nationwide is staggering.



In December 2007, a National Public Radio segment noted the **Mingyong Glacier** on the Tibetan Plateau is warming almost twice as fast as the rest of China. According to scientists, the glacier is retreating about 150 feet per year.

PHOTO BY DAVID DEWEY/CHINAFORGE.COM

BY REID GOLDSBOROUGH

E-Mail Etiquette

Despite the availability of video and text messaging, e-mail remains the most common form of one-to-one, Internet-based communication in business settings.

You might think it's old hat by now. E-mail has been around, believe it or not, since the 1960s — before the Internet was a gleam in the eyes of technocrats at the U.S. Department of Defense.

But there are subtleties to this e-mail business — ways of looking good and not so good.

Many people let their hair down when firing off an e-mail message and write more informally than for reports or office memos. E-mail has a conversational feel to it. It's a cross between a chatty phone conversation and a formal business letter.

When sending an e-mail, it's generally OK to follow the tone of the culture where you work. If people don't capitalize the first letter of sentences or don't pay attention to spelling, don't sweat trying to dot an "i" and cross a "t."

But don't make the mistake of using the same informal tone with people outside your organization unless you're sure it won't be misinterpreted. A lot of people get off on the wrong foot by addressing people they've never met by their first name and writing as if they never made it out of grade school.

The purpose of e-mail, like all writing, is to communicate. If you prioritize speed at the expense of correctness, you'll make your e-mail recipient spend needless time trying to decipher what you're trying to say.

Think through all parts of an e-mail communication, starting with the salutation. Beginning an e-mail message by using the quaint letter-writing convention of "Dear" can make you look outdated. "Hello Mr. Jones,"

when being formal, or "Hi Sam," when being informal, are preferable greetings.

It's also acceptable to follow whatever convention is common in your organization when deciding how you quote someone's words in an e-mail reply. It's best to place your own words in some kind of context. If you don't use the feature offered by all modern e-mail programs that includes the original messages in your response, you should still remind your correspondent of any previous discussion and summarize the subject matter. It's generally best to quote a relevant snippet of a message and place it in front of your response, or quote multiple snippets and respond directly under each of them if you're responding to multiple points. Do, however, avoid quoting the entirety of a long message preceding your response.

Gauge the e-mail experience of the person you're communicating with when using acronyms such as IMHO, which is short for "in my humble opinion," and emoticons such as <g>, which is short for "grin."

Match your response's length with how eager you are to converse. A short, polite response indicates you received the other person's message but need to move on. A longer, thoughtful response indicates a willingness to engage.

You have more options with e-mail closings than openings. If you're making a request or filing a complaint, "Thank you" works well. "Best" is a good all-around ending. Some letter closings also work well with e-mail, including "Sincerely" and "Regards."

Some people choose to dispense with closings and salutations, but both are quick nods to politeness or friendliness. At the very least, close with your name or initials. At the other extreme, you can engage the signature feature of your e-mail program, which will automatically end a message with your name, title and company name, or other information appropriate for formal e-mail, such as phone, fax and Web links.

Don't forget to proofread the contents of your e-mail message. E-mail spell checkers, like all spell checkers, aren't foolproof. Misspelled words sometimes wind up as similar words that are spelled correctly.

Last, take a look at the headers of your e-mail. The last thing you want is for a flirty message intended for a single recipient a couple of cubicles down to go to a distribution list sent to your entire company. GT

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

index

BY PAUL W. TAYLOR
CHIEF STRATEGY OFFICER
CENTER FOR DIGITAL GOVERNMENT

Strategy by Top 10 Lists

David Letterman is synonymous with a particularly sardonic form of Top 10 list, and countdown legends Dick Clark and Casey Kasem have convinced us that there is something important about rankings, intoning significance to even small changes.

So let's try. Changes in the yearly IT priority countdown compiled by NASCIO, based on the views of its members, would have rocked lesser countdowns. Half of the Top 10 are new!

E-Discovery debuts at No. 4, propelled by worries over changes to Federal Rules of Civil Procedure. This Electronic Records Management revival is flanked by another four entries charted with bullets. Connectivity is cool again, up 11 slots to No. 7, buoyed by a push by new administrations for statewide broadband, and the early buzz around unified communications.

2008	2007	State CIO Priorities (NASCIO)
1	2	Consolidation
2	1	Information Security
3	5	Disaster Recovery/ Business Continuity
4	16	Electronic Records Management/Preservation/ e-Discovery
5	6	Health Information Technology
6	3	Shared Services
7	18	Connectivity
8	22	IT Governance
9	14	Interoperability
10	--	Human Capital/IT Work Force

2008	Priority Technologies (NASCIO)	Strategic Technologies (Gartner)
1	Virtualization	Green IT
2	Server Virtualization	Unified Communications
3	Security Enhancement Tools	Business Process Modeling
4	Geographic Information Systems	Metadata Management
5	Legacy Modernization (ERP)	Virtualization 2.0
6	Identity and Access Management	Mash-up and Composite Applications
7	Networking, Voice and Data	Web Platform/SaaS
8	Document/Content Management	Computing Fabric
9	Wireless, remote and fixed	Real World Web
10	Service-Oriented Applications/SOA	Social Software

A new cover of the perennial favorite Governance rockets to No. 8, and the intractable Interoperability jumps to No. 9 on hopes that new technologies can finally crack the code. Newcomer Human Capital places 10th out of fears that today's headliners are becoming golden oldies.

Virtualization plays well on both charts: Gartner's nod to Virtualization 2.0 maps with the two entries at the top of NASCIO's list, covering storage, computing and data center virtualization, and server virtualization.

But while the NASCIO charts have a heavy "blocking and tackling" rhythm to them, Gartner's list pushes into what's new and next, with a huge play for the expanded role of the Internet and utility computing in the enterprise. The greatest divergence on the charts may be over Green IT, which tops the Gartner list but hasn't gotten traction among public CIOs beyond a vague sense of being a moral imperative. The absence of clear business drivers echoes a complaint spoken at the origins of pop culture charts — "Good beat, but I can't dance to it." GT

"The greatest divergence on the charts may be over **Green IT**, which tops the Gartner list but hasn't gotten **traction among public CIOs**."

The three-point fall of Shared Services is hard to explain given its popularity in the trade papers and on the ground. Consolidation knocked Security from No. 1, but that may only be until Security's next big hit.

NASCIO also released a new chart to tap sentiment about the next big thing — setting up inevitable comparisons between its priority technologies and IT research firm Gartner's longer-running list of strategic technologies.

New World Systems

The Public Sector Software Company

"Their development architecture, from a technology perspective, was very influential. New World Systems is on the leading edge with a product developed from the ground up with .Net technology and utilizing Microsoft SQL server 2005. New World Systems offers a robust application solution that meets our needs."

– Roger Fahnestock, Director of Information Technologies
Kane County, Illinois

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