

Redefining ‘Making Do’

HOW STATE AND LOCAL GOVERNMENTS ARE OVERCOMING BUDGETARY SHORTFALLS TO STREAMLINE IT OPERATIONS, IMPROVE SERVICES

After several years on a steady diet of tight budgets, revenue shortfalls and the ongoing weakened economy, it would seem state and local governments might by now be unable to maintain current IT operations, much less build new services or applications.

However, despite ongoing hardships, states and localities have developed strong survival strategies, ferreting out cost reductions and reusing savings from ongoing data center consolidation efforts, for example, rather than seeking new funding for planned IT upgrades. This is how, for example, the state of Michigan funded an award-winning cloud-based disaster recovery implementation. It’s also how Utah created its cloud infrastructure and Illinois funded its data center server consolidation and virtualization project. Each of these implementations was recently recognized by the National Association of State CIOs (NASCIO) for its creativity and resourcefulness in the face of ongoing budgetary challenges. (Learn more about Michigan’s efforts on page 4 of this special report.)

Increasingly, state and local governments are finding ways to work around budget deficits to streamline operations, gain greater efficiency and improve services. While most of the current crop of federal data center consolidation initiatives are still in the ‘infrastructure investment’ phase, perhaps the biggest difference between federal and state IT operations nowadays is that states have managed to reap significant operational benefits, despite ongoing deficits.

Industry observers note ‘a disconnect’ between what most federal organizations claim is possible, and what has already been accomplished by states and localities. Earlier

this month, the Office of Management and Budget said in a memo to federal CIOs that after a rigorous peer review, there are nearly 1,000 more data centers than previous estimates indicated, underscoring the ongoing complexity and confusion federal agencies face in data center consolidation. According to Van Ristau, Chief Technology Officer at DLT Solutions Inc., Herndon, Va., “it’s amazing how state and local governments have managed to get big jobs done, without major new infrastructure investments – unlike their federal counterparts,” he said.

State government IT organizations have earned respect for resourcefulness despite ongoing budgetary struggles. Many of these public sector organizations are making use of mobile applications. Sanitation engineers in some regions of the country press a button on a handheld device to instantly send detailed information, including GPS mapping instructions and pictures, directly to officials in local government who can quickly address

Percentage of state and federal CIOs reporting status of cloud computing in their governments

Status of cloud computing	Percentage	
	State	Federal
Investigating the use of cloud computing, but as yet have not taken action	54	22
Running an active project to move portions of our computing infrastructure to a cloud computing environment	21	54
Undertaking a cloud computing pilot for a portion of our computing requirements	13	16
No formal plans to use cloud computing	5	8
Have been using cloud computing for years	5	NA

Source: 2010 State CIO Report, along with Transparency and Transformation Through Technology, a survey of federal CIOs from Grant Thornton, Feb. 2010

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Whether it is managing a data center, cutting costs and building efficiency, or securing electronic records and system information, DLT Solutions has technology solutions and partners to meet both state and local government technology needs. DLT Solutions partners with best-in-class vendors including Symantec, Red Hat, SolarWinds, Informatica, Oracle, NetApp, Google, Autodesk, Quest Software among others. To learn more, visit www.dlt.com or call 800-262-4358.

situations such as downed power lines or potholes. “It’s ingenious. Who has a better view of every street in a local area than garbage collectors?” Ristau asked.

New mobile apps can help city governments save money in coordinating repair trucks and personnel in the field. But mobile apps are just one example. Driven by ongoing budgetary challenges, state and local governments tend to focus most intently on revenue-generating applications and processes, industry sources said. In light of ongoing budget problems, the need is undoubtedly great. “Revenue generating apps can help local governments raise, monitor and identify revenue opportunities,” Ristau explained.

Perhaps this is why, in most states and local regions, cloud computing is being so quickly embraced. More than half (54%) of state government officials in a recent NASCIO-sponsored 2010 State CIO Survey said they were investigating the use of cloud computing, compared to 22% of federal CIOs in separate survey results. (See chart.)

The same 2010 State CIO Survey also reported that two-thirds of state agencies are using social media (e.g., YouTube, Twitter, Facebook) and three out of five CIOs say their states are preparing social media policies for state agencies.

And at the same time, separate research from Enterprise Management Associates, Boulder, Colo., highlights the accelerated pace of change taking place. While only 18 months ago, 15 percent of state and local governments used virtualization, more than half will be virtualized by 2012. “Server virtualization is all about saving space and lowering expenses. States are well experienced in making better use of existing hardware resources, so this technology works really well for them,” Josh Stephens, vice president of Technology for SolarWinds, an IT management software provider in Austin, Texas.

Within state and local governments, there’s also strong focus on open source software, evidenced by well-attended conferences in which developers work to build their own applications, based on open source platforms such as Red Hat. “These events help them do what needs to get done,” Ristau added.

Another growing trend involves the broadening use of video, for everything from broadcasting governor’s messages, to education and training, said Stephens.

And data integration is also on the rise. “States are increasingly embracing master data management (MDM),

integrating data from multiple sources to create a single view of an entity, whether it’s a patient in a regional health information exchange, or an individual in the state support system,” said Ray Shanley, principal sales consultant for Informatica.

One growing requirement among state and local governments involves centralizing the management of all benefits so that school lunch programs, food stamps and all other benefits are brought together onto a single platform. “Each region is working now to either build such a data warehouse from scratch, or taking existing systems and layering MDM tools on top to aid in developing a 360 degree view of a child or family to better understand the total level of benefits provided,” Shanley explained.

Increasingly, state and local governments hope to reduce fraud and ensure benefits are used to their maximum effect. “A more coordinated effort to help families in need tends to have better outcomes than disjointed individual approaches to each program,” Shanley explained.

Fraud reduction, meanwhile, was a primary benefit of Nevada’s award-winning Vehicle Information Database (VID). Recognized for Outstanding Achievement in the Field of Information Technology in State Government, in the government to business category, the Nevada database, along with a web-based system connects emission stations with the state’s Department of Motor Vehicles, giving the DMV access to emissions data even during a test, said Arun Kumaran, information technology professional for the Nevada DMV. The new database replaced a telephone-based system operated by a private contractor for a savings to the taxpayer of more than \$3 million annually. And the new system has enabled many more stations to offer registration renewals as well, Kumaran explained.

Geospatial technologies have also grown in importance to state and local governments as a way to more efficiently manage municipal services. Tools such as Google Earth and Google Maps can enhance a region’s tax base without the need to put actual adjusters out in the field. Using satellite technology, city officials can zero in on Main Street, to see what new extensions have been added to buildings, or in back yards, to aid in accurate property tax collection, said Ed Jones, senior vice president for business development at DLT solutions. “Using geospatial technologies, regions can also hone in on environmental problems, such as anomalies in wetlands or landfills that have grown to encroach on residential areas,” he

explained.

State and local governments are also actively investigating Google applications such as Enterprise Search. The use of this appliance hooked to servers in the data center can help state employees conduct searches on state databases, gaining the look and feel of familiar Google search tools, Jones explained.

At the same time, the need to reduce costs has also led to increased automation, to enhance security and streamline operations. Denton County, Texas, for example, recently implemented network access control solutions from SolarWinds, including the Orion Network Performance Monitor, to enhance the county's ability to monitor and validate network traffic, said Don Click senior infrastructure manager for Denton County. The new tools allow Click's team to ensure uptime is high, and sends alerts for better monitoring of traffic. For instance, "we can clearly see when utilization on servers spikes, which can be sign of a virus or malware attack," Click said.

On the Horizon

Desktop virtualization is one of the newer technologies most likely to move from experimental to full deployment in the coming months. Industry suppliers are working out how to fix traffic bottlenecks when sudden bursts of demand occur on aging network infrastructures. And public sector organizations are also working to better segment traffic, add more capacity and assign more flexible work hours for employees to dissipate spikes in demand.

Cloud computing is clearly also being deployed. NASCIO's 2010 CIO Survey, as well as recent winners of its Recognition Awards all reported significant cost and efficiency gains. Of the ten winning programs recognized, at least four incorporated some cloud-based services. Overall, NASCIO received 134 nominations from 30 states. Full submissions from all 130 nominations are posted on NASCIO's website at www.nascio.org/awards.

The biggest hurdles to deploying newer technologies are structural and/or political, observers said. "Any state looking to migrate operations to a cloud must first clearly define what cloud computing means to that organization, then engage stakeholders early on, to gain buy in," said Carol Steele Sherman, Data Center Director, Michigan Department of Technology, Management & Budget (DTMB).

It's important for state and local public sector

organizations building the processes around new technologies to ensure policies and procedures can be adequately maintained, said SolarWinds' Stephens. "In the rush to implement virtualization, some organizations have failed to incorporate critical lifecycle management discipline. Organizations must decide when to draw the line on new apps per server. Also, they must build processes for the 'de-deployment' of virtual machines on servers. Organizations that fail to do this often end up with too much capacity reserved for virtual servers that are no longer in use," he said.

Privacy and security are also crucial concerns, especially for state and local government officials involved in health and human services. Classifying each municipality's information is paramount. "IT officials must ensure private or classified data is well protected and not openly available to anyone with access to the system. Sensitive or private information should only be available on an 'as needed' basis for users with proper authorization," Informatica's Shanley said.

Undoubtedly, learning to work with newer technologies, such as cloud computing will take some time. Portability in cloud implementations and management of cloud assets are ongoing concerns, industry observers said. Nebraska's CIO, speaking on behalf of the recent awardees, is hoping to leverage lessons learned from early adopters. "There are many critical decisions to be made in migrating to cloud infrastructures. States simply can't afford to make the wrong choices. This is likely where NASCIO's database of winners and nominees, all 130 from 2010 can be of help," Brenda Decker, Nebraska's CIO since 2005, and a member of NASCIO's board. Decker was recently also elected secretary/treasurer for NASCIO.

Although states clearly aren't dealing with challenges that scale to levels faced by most federal organizations, it appears federal organizations could learn from state and local government playbooks about how to consolidate -- at least a portion of their operations, without major capital investments. The search for lower cost, more efficient IT will drive federal as well as state and local government agendas for the next few years. Whether federal organizations can overcome arduous political struggles to achieve significant consolidative gains remains to be seen. Meanwhile, as more states learn how to reduce IT costs, lower energy consumption, take up less real estate, bolster IT security and expand the use of cloud computing, they may ultimately lead the way for all public sector organizations.

Michigan Wins Kudos For Migrating Disaster Recovery to the Cloud

Despite historic budget shortfalls over the last decade, Michigan has managed to streamline state IT operations by turning to a cloud implementation, and recently migrated disaster recovery operations to a cloud service as well, funded from savings derived from its ongoing data center consolidation efforts.

“We started this process in the mid 1990s, by consolidating 15 mainframe systems housed in data centers all over the state, onto a single platform, with additional hardware for disaster recovery and a test/development environment as well,” said Carol Steele Sherman, Data Center Director, Michigan Department of Technology, Management & Budget (DTMB).

Based on the efficiencies gained from several consolidations, the state’s DTMB has returned more than \$46 million to agency clients over the past five years, and funded the new disaster recovery cloud service at no cost to Michigan’s agencies. “By consolidating continuity of government and disaster recovery planning, we have also realized an additional savings of \$120,000 per year,” Sherman said.

Michigan has learned how to drive greater efficiency from IT operations, with minor infrastructural investments. “Each success along the way has avoided millions in costs, and helped us build greater credibility,” she explained.

For instance, because the state no longer needs large teams of personnel to run 15 mainframes in separate data center locations, “we are now able to manage one of our State Mainframe Technical Support services 24X7, 365 days a year, with three employees,” she said.

Meanwhile, numerous awards, including Outstanding Achievement in the Field of Information Technology in State Government from the National Association of State CIOs (NASCIO) and recognition from the Center for Digital Government acknowledge Michigan’s ongoing efforts. The latest NASCIO award recognized the state’s risk management initiative. “Michigan’s successful cloud-based disaster recovery implementation stands as a strong example for all states seeking better continuity of operations,” said Brenda Decker, Nebraska’s CIO and a member of NASCIO’s board. Decker was recently also elected secretary/treasurer for NASCIO.

Michigan implemented a Government Cloud Protection Program on the heels of its successful IT

cloud implementation. The Michigan government cloud currently supports all essential state functions. Despite revenue cuts, the state has significantly improved risk management, developed policies, procedures and strategies to address risks. Governor Jennifer Granholm said the solution could serve as a national model for risk reduction via consolidation, shared services and the management of cloud computing environments. “The processes and practices established create new opportunities to reach local partners, address emerging federal cloud computing requirements and offer important risk reduction to complex enterprise technology architectures,” she said.

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Carol Steele Sherman, Data Center Director, Michigan Department of Technology, Management & Budget

Taking a step-by-step approach to consolidation, and then modernization through the addition of virtualized servers, and most recently cloud computing, Michigan has earned top marks among state governments by leveraging technology to preserve and protect the state’s most vital resource – its information. Sherman emphasized the need to work methodically. “Consolidating and virtualizing servers or other operations all at once is like trying to eat an elephant,” she said.

For example, in the last decade, the state has leveraged virtualization to consolidate not only servers but storage as well, to meet skyrocketing storage demands that grew from 13 terabytes in 2001, to 4.4 petabytes in a ‘storage as a service’ implementation in 2010.

Benefits derived from the disaster recovery cloud service now include:

- The Red Card, used across state government delivers a definitive list of critical functions and applications for Michigan's operations;
- With instantaneous and consistent communication and a plan for recovery, citizens, businesses, clients and other Michigan government jurisdictions gain new delivery models, better uptime, quicker problem resolution and lower overall costs;
- Incident management processes have improved and recovery times have decreased due to information documented in the State's Configuration Management Database;
- Data collected so far has enabled the state to make better use of virtualization by sharing systems, applications and hardware so the return to operations of critical applications has been enhanced with little or no cost to state agencies. "The tools used are enabling us to systematically resolve over 40 previous audit criticisms of the state's disaster recovery processes," Sherman said.

Ultimately, Sherman said while the state can't control whether it will be affected by a natural disaster, power outage or terrorist attack, it now has the ability "to proactively ensure our government cloud services are reliable and resilient, and we are prepared to recover those services with minimal impact and data loss."

WEBCAST

Technology Solutions that Lead to Budget Savings in State Governments

Under the gun to provide more and better services, while striving to manage shrinking resources, state and local governments are seemingly being squeezed from multiple directions. Luckily there are some technological tools available to help, such as web-based self services and desktop virtualization, among others.

View this recent event and listen to i360Gov's expert panel (including Carol Sherman, Data Center Director, for the state of Michigan) highlight the solutions that best aid these government organizations in closing budget deficit gaps while delivering greater agility to constituent-facing services.

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