



## What's on the list?

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By John Moore,

### Agencies' IT priorities include consolidation, virtualization and, as always, security

There's nothing like a tight budget for getting people to focus on the bottom line. And many of the technologies government agencies have at the top of their priority lists follow that line.

Agency and industry executives say they see the government emphasizing technologies that reduce costs, boost efficiency and protect data. Near-term goals focus on infrastructure consolidation, virtualization and encryption.

The General Services Administration, for example, took on infrastructure consolidation last year when it awarded its Information Technology Global Operations contract.

Within that broad framework, the agency now pursues local-area network consolidation and security-related initiatives, said Casey Coleman, GSA's chief information officer.

The budget climate provides a mandate for consolidation and "forces us to look for ways to use each dollar most efficiently," Coleman said.

Agencies also have begun to explore nontraditional models, such as software as a service, that promise to reduce the upfront cost of applications.

And thin-client computing is back on some agency radars as interest in desktop virtualization increases.

IT managers who want to put these technologies into play need to keep the bottom line in mind: A solid business case can help get initiatives off the ground even in a challenging financial situation.

"If a good [return on investment] can be calculated for a proposed project, interest remains strong," said Shawn McCarthy, director of research for Government Vendor Programs at IDC's Government Insights and a GCN columnist.

Here are what agencies consider must-have technologies for the near term and what they have in mind for the future.

#### Consolidation and virtualization

Server consolidation — and the technologies that make it happen — ranks high on the short-term list. The reason is hardly surprising: Consolidation can lead to significant cost reductions.

The Agriculture Department, for example, has embarked on a program to consolidate data centers and centralize applications. The initiative, which includes server virtualization, could save \$40 million per year, said Charles Christopherson Jr., chief financial officer and CIO at USDA.

The savings take into account factors such as reduced hardware expenditures, software licensing fees, utilities and

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systems management.

“The footprint is getting smaller and smaller as we move forward on the infrastructure side,” Christopherson said.

USDA has established four centralized data centers and plans to reduce the number of smaller data centers from more than 30 to “as few as we can,” Christopherson said.

Virtualization will help USDA reduce its server count. This approach partitions a single server into virtual machines that can run multiple operating systems and applications. Virtualization let USDA's Farm Service Agency trim its server roster from 300 to the mid-100s, Christopherson said. Another USDA data center downsized from 40 servers to eight.

USDA, however, still has a lot of room for consolidation and virtualization. Christopherson estimated that the department runs about 19,000 servers.

“We are fairly young at virtualization,” he said.

The National Institute of Standards and Technology also employs virtualization. Simon Szykman, NIST's CIO, said the performance per dollar is the primary driver behind the move toward virtualization, which he described as “a way of providing more capability for a given cost.”

Server virtualization options include VMware's ESX Server, Citrix Technologies' XenServer and Oracle's Oracle VM. In February, Microsoft introduced Windows Server 2008 with a beta version of the company's Hyper-V technology. The company plans to add the full virtualization feature to the server operating system later this year.

Interest in virtualization is surfacing among state and local governments in addition to federal agencies.

A CDW survey of public- and private-sector IT buyers found that state and local governments and higher education institutions are the top server virtualization users. The implementation rate was 48 percent among state and local respondents and 49 percent in higher education.

David Cottingham, director of product and partner management at CDW, said he believes public-sector interest stems from the need to stretch resources. “State and local governments are trying to do more with less,” he said.

Blade servers are another must-have technology among agencies that are consolidating resources.

Such products house several server modules — or blades — in a single enclosure.

This contrasts with traditional one-unit (1U) rack-mount servers.

“It's a trend common across all the federal agencies we are dealing with,” said Joe Brown, president of reseller Accelera Solutions.

“They're shying away from 1U servers, with the blade form factor being deployed more readily.”

## **IT security**

IT security threats show no signs of going away, so agencies will continue to employ security improvements to protect day-to-day operations, McCarthy said.

Some budget-conscious moves serve double duty as security measures. Data center consolidation, for example, reduces agencies' exposure to data loss.

“From a security perspective, if there are [fewer] access points to your network, you're going to be more secure,” said Jim Pietrocini, vice president of business development at TechTeam Government Solutions.

Other approaches address security more directly.

For example, government organizations have started buying products that encrypt data on storage devices, and the Defense Department issued a data-at-rest directive in July.

The CIO's memo called for DOD components to encrypt data stored on mobile computers and removable storage media such as thumb drives. The policy applies to “all unclassified DOD data at rest that has not been approved for public release,” according to the memo.

Pietrocini said the services are in various stages of addressing the vulnerability of data at rest.

The Navy Marine Corps Intranet program, for instance, plans to implement encryption products from GuardianEdge as part of its data-at-rest defense. GuardianEdge deployment is set to begin in August, according to a tentative date cited in an Office of Naval Research presentation.

DOD and GSA, meanwhile, collaborate through the Data at Rest Tiger Team (DARTT) to make encryption products available to federal, state and local agencies.

The CIO office said it expects DOD to buy a considerable amount of encryption products this year because of the CIO's mandate for full data-at-rest encryption by Dec. 31. In addition, many state and local agencies and first responders are now buying such products in smaller quantities.

Already, 15 states have bought products through the DARTT initiative.

GSA is encrypting data at rest in accordance with an Office of Management and Budget security directive, Coleman said. BlackBerry devices have been encrypted, she added, and GSA has laptop PC encryption well under way and is moving toward encrypting mobile storage devices such as thumb drives.

Another GSA priority — telecommuting — is helping fuel the need for encryption. The agency aims to have 20 percent of its employees engaged in telework by the end of 2008. Last year, GSA Administrator Lurita Doan set a target of having 50 percent of eligible GSA employees telework at least one day a week by 2010.

“One of the things we are doing there is issuing laptop [PCs] to employees who are teleworking,” Coleman said, noting that the laptops issued are 20 percent more energy efficient than those previously used in the field.

In addition, GSA will pursue its enterprise architecture this year, concentrating on the financial acquisition segments of its IT portfolio.

GSA's enterprise architecture efforts “are focused on modernization in those areas,” Coleman said.

Aside from encryption, McCarthy said configuration management will become increasingly important as the transition to IPv6 picks up steam and agencies support dual-stack IPv6 and IPv4 environments. Dual-mode operations can open security holes if agencies aren't careful, he said.

## **SaaS**

Other investments fall into the short- or medium-term category, depending on the agency. Software as a service (SaaS) is a case in point. Some government entities, particularly state and local ones, have already embarked on this approach to acquiring software, and others might move in this direction in the coming months.

Stratford, Conn., opted to obtain e-mail capability as a service rather than replace its Microsoft Exchange 5.5 server. David Wright, the town's IT manager, said replacement costs would have hit the \$250,000 mark.

**Stratford's subscription to Infostreet's hosted e-mail service runs about \$1,000 a month.**

West Linn, Ore., has embraced the pay-as-you-go aspect of SaaS. In January, the city entered a five-year subscription agreement with Agresso for its enterprise resource planning product. West Linn will host the software internally, although Agresso offers a service-based option.

Steve Arndt, the city's chief technology officer, referred to the arrangement as a rental of Agresso's product. He said the monthly payments under the five-year deal will amount to “substantially less than doing an outright purchase.”

He also described software rental as more financially attractive than leasing “We've spent our money judiciously in the sense of not having a large cash outlay,” he said.

Although the city runs the Agresso software in-house, Arndt said he sees the future evolving toward SaaS.

“As government agencies gain more experience with the controls and testing of the SaaS security model, I think you are going to see a lot more agencies utilize solutions for unclassified systems in the near term,” said Jay Tansing, managing director of public-sector services at Acumen Solutions.

## **Thin clients and Virtualization**

Thin-client computing has been talked about for years, but the technology could gain greater traction in the current market. This investment trend is getting a push from virtualization, security and SaaS.

Application and desktop virtualization, in particular, play into the thin-client model. Application virtualization lets organizations deliver applications from a central server instead of installing them on PCs. Desktop virtualization involves hosting desktop images — Windows Vista, for instance — within virtual machines at the data center.

Application virtualization products include Citrix Systems' XenApp, Microsoft's SoftGrid and Symantec/Altiris' Software Virtualization Solution. VMware also plays in this market through its recent acquisition of Thinstall.

Citrix and VMware offer desktop virtualization, which is sometimes referred to as Virtual Desktop Infrastructure technology.

Together, those forms of virtualization reduce the need to install software on desktop PCs and open opportunities for government agencies to introduce thin clients and get off the desktop refreshment treadmill, Brown said.

"People are considering using application virtualization and OS virtualization...to reduce the amount of time and energy they spend at the desktop level," Brown said.

At USDA, Christopherson said, the department will progressively deploy thin clients over time. Any new application the department brings onboard must now be supported on thin-client devices, he added. Laptop thin clients, along with the desktop variety, might be used for mobile applications.

Government agencies that adopt SaaS, which offloads the application to an outside party, might also be inclined to go the thin-client route.

"It's definitely something we are looking at," Wright said.

*Moore is a freelance technology writer.*

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## Sidebar: A call for wireless

### **Government agencies are expanding their use of mobile and wireless technologies for everything from simple connectivity devices to mission-critical networks.**

Shawn McCarthy, director of research for Government Vendor Programs at IDC's Government Insights, said he sees strong interest in cell phone attachments for laptop PCs. Such products let users connect to the Internet via cell phone.

"We see more going that way than WiMax and other networking options," McCarthy said.

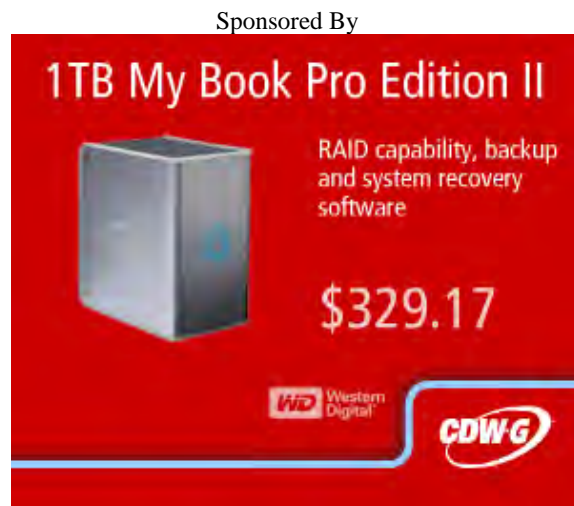
Verizon's Mobile Office Kit provides one example of an attachment product; it sells for around \$40.

Government organizations pursue higher-end mobile and wireless endeavors, too. "There is a need out there for what we call mission-critical applications in a mobile environment," said Mark Adams, chief architect of Networks and Communications at Northrop Grumman Information Technology.

The infrastructure available to support such applications might be limited, but some jurisdictions are creating their own. Northrop Grumman is building a dedicated system for New York City, Adams said.

Under a \$500 million contract, the company will provide a broadband public safety wireless network.

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