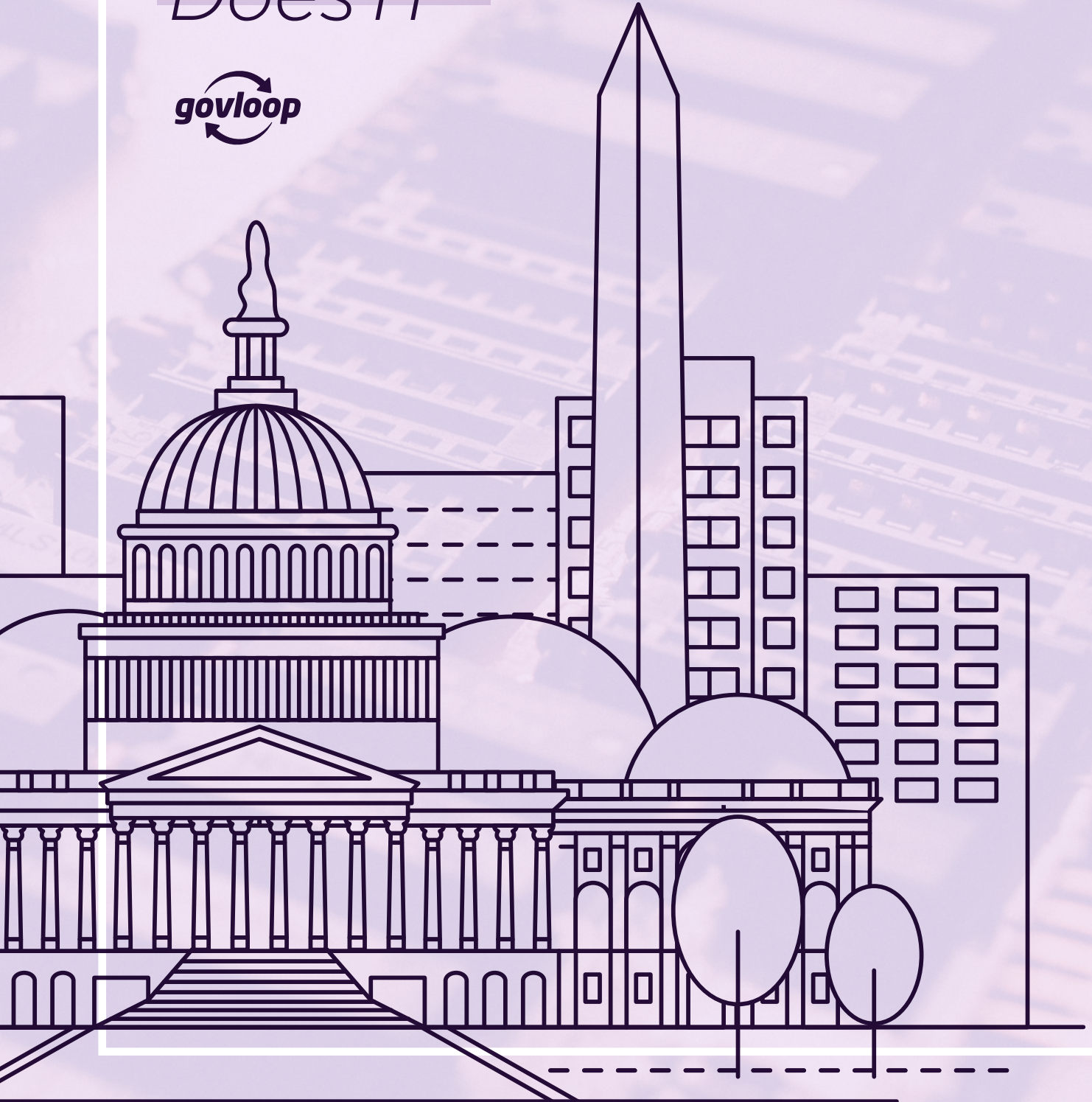


IT Modernization:

How Government

Does IT



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Executive Summary

Information technology (IT) modernization can revolutionize efficiency, convenience and effectiveness for all users. That's why government agencies and departments at the federal, state and local levels are eager to take advantage of all IT modernization has to offer. The move away from legacy systems and toward more innovative forms of technology continues to be a **top priority** for the Office of Personnel Management — and the rest of government.

But modernization takes serious commitment, cross-agency collaboration and persistence. And although many government entities have already started modernization projects, there are many **frustrations** and **challenges** they will likely encounter along the way, if they haven't already.

GovLoop's latest guide is here to help. It covers five common challenges for IT modernization and examples of ways agencies at all levels are navigating them. In this guide, you'll also learn:

- **The latest in government IT modernization.**
- **Insights from former Federal Chief Information Officer Tony Scott.**
- **Government modernization success stories.**

Modernization is necessary to deliver enhanced security, functionality and efficiency to government employees and the citizens they serve. That being said, government is well beyond the point of recognizing that IT modernization is a must. It is no longer a question of if but when and how. Use this guide to enable your agency's efforts and overcome your most pressing modernization challenges.

BACKGROUND

What's Hot in IT Mod Now

WHAT'S HAPPENING IN FEDERAL IT

MGT ACT Becomes Law

On Dec. 12, 2017, President Trump signed the Modernizing Government Technology (MGT) Act into law as part of the 2018 National Defense Authorization Act. The law creates working capital funds for IT projects for federal agencies and a central modernization fund housed by the General Services Administration.

The centralization fund is a \$500 million pot of money that can help agencies improve IT, enhance cybersecurity and fund other technology-related activities in the next two years. To access those funds, agencies will have to submit proposals to a Technology Modernization Board and agree to pay back that money within five years.

For many agencies, the MGT Act represents a significant step in the journey to IT modernization. However, that journey must still be well thought out by agencies, some of which are maintaining systems that are decades old. What the act is really meant to address are the constraints on spending and the way money moves within government, so that agencies can pull working funds and carry them over year-to-year. Ultimately, the act gives agencies a real chance to move away from impeding legacy systems.

White House Releases Final IT Modernization Report

On Dec. 13, 2017, the White House's American Technology Council released its final "Report to the President on Federal IT Modernization," highlighting the current and envisioned state of federal IT along with specific recommendations to jumpstart modernization efforts.

The report focuses on two primary recommendations: network modernization and consolidation and shared services. Network modernization and consolidation allow agencies to "maximize secure use of cloud computing, modernize government-hosted applications and securely maintain legacy systems." The report also emphasizes consolidating and improving the acquisition of network services by focusing on high-risk value assets and minimizing duplicative investments.

Shared services has been identified as a way to enable future network architectures and give agencies the opportunity to shift toward "a consolidated IT model by adopting centralized offerings for commodity IT." Shared services can help agencies increase efficiency by reducing duplication and data center and IT infrastructure costs while standardizing IT capabilities.

To expedite agency response to these recommendations, the report requires agencies to take nearly 20 actions during 2018. They include:

- Updating implementation and security guidance.
- Issuing data call for agency systems ready for cloud migration.
- Identifying security operations center-as-a-service capabilities.
- Pilot testing new acquisition tactics for cloud computing.



STATE CIOs' TOP 10 PRIORITIES FOR 2018

In November 2017, the National Association of CIOs released its top 10 strategies, management processes and solutions for 2018. The top four are security and risk management, cloud services, consolidation and optimization, and digital government.

Today, state and local governments are burdened with the growing cost and risk of aging technologies. CIOs and IT leaders are using emerging IT services and deployment models to modernize legacy applications, improve organizational performance and make progress toward digital transformation.

A main way that IT shops are modernizing is by implementing cloud technologies. According to recent reports, about half of state and local agencies had integrated cloud into their strategies as of 2017 because of benefits of cloud-driven IT modernization such as regular and undistruptive upgrades, mobility for caseworkers and citizens, and easier-to-use services.

Another major trend in state government is reducing spending and streamlining operations through IT consolidation.

3 GOV TECH TRENDS YOU NEED TO KNOW

Across all levels of government, agencies are looking at new technologies and contracting vehicles to innovate the way they manage and execute modernization. Specifically, three trends to keep an eye on are:

Blockchain

Originally devised for the Bitcoin digital currency, blockchain technology offers a securer way to share information with partners through a securely distributed ledger. In a way, this technology has created a vehicle for a new type of internet. For government, blockchain can have even bigger implications. In 2017, lawmakers created a Congressional Blockchain Caucus, GSA recently launched the U.S. Federal Blockchain program and many agencies are eyeing blockchain pilot programs. [Read more about blockchain here.](#)

Enterprise Infrastructure Solutions

[Enterprise Infrastructure Solutions \(EIS\)](#) is a contract that serves as the main component of GSA's telecommunications portfolio. It condenses telecom services from three previous contracts – Networx Universal, Washington Interagency Telecommunications System 3 and GSA Regional Local Service Agreements – into a single vehicle while enhancing web and mobility services. The 15-year EIS contract is valued at \$50 billion and will provide a \$75 million minimum revenue guarantee per awardee. By converging network solutions through a shared services provider model, the contract is another piece in the government's move to update IT. [Read more about EIS here.](#)

Artificial Intelligence

When people think of artificial intelligence (AI), drones or handy bots such as Amazon's "Alexa" are often the first things to come to mind. But for government, AI can have greater implications for technology modernization, procurement and the workforce. AI is computers' and algorithms' ability to learn on their own to perceive things around them and to act using data. For government, AI is showing up in cyber warfare, security and healthcare, and it's accelerating the use of machine learning technology, robotics and virtual assistants. [Read more about AI here.](#)



SPOTLIGHT INTERVIEW

Thoughts from Tony Scott, Former Federal CIO

He's moved to the private sector, but Former Federal CIO Tony Scott still sees substantial promise in government IT modernization. In an interview with GovLoop, Scott shared his insights on the topic and why he remains optimistic.

MGT Act and Small Wins

When Scott originally helped draft the bill, the legislation included a \$3 billion centralization fund that agencies could tap for assistance with their IT modernization projects. Although some see the proposed centralization fund's reduction from \$3 billion to \$500 million – a difference of about 83 percent – as certain doom for the MGT Act's success, Scott argues that the amount doesn't make much difference.

"Even if we had gotten the \$3 billion, we still would have had to start with some smaller projects to test the process and make sure we work out all the kinks," Scott said. "I think with \$500 million you can still do that. Then, hopefully with some successes, you can go back and get more money later on or recycle the money you have in different ways. That was always part of the design of the MGT Act."

How Shared Services Can Save Costs and Achieve Mission Objectives

In describing the federal government's surplus of data centers, Scott likened agencies having their own data centers to the days when each industry had its own

generator or power plant. "Before public utilities, every institution had its own power-generating capability. They took special expertise to run and it was a big cost," he said.

That's why the future is all about shared services. It's impossible to eliminate all data centers, but shared services can help agencies consolidate them into fewer, common platforms to increase efficiency and savings.

That way, agencies can use their resources to focus on the mission-specific, mission-critical items that only those agencies can do. The MGT Act would eventually usher in a new model that would let agencies collaborate on and deploy a set of shared IT infrastructure and shared services. Agencies could then save costs while deploying improved services to their citizens and achieving improved goals.

The Need for Public-Private Partnerships

For government to fully reap the benefits of IT modernization such as cloud and shared services, agencies need to develop more collaborative relationships with the private sector.

"Government is increasingly going to rely on the private sector," Scott said. "That's why you need to have a set of shared ideas and goals and an exchange that allows for that synergy to happen."

The first step toward that synergy is to overcome the perception of the private sector as the enemy, he said. "You can have the attitude where every supplier is my enemy and you just try to see if you can get the lowest price, but that's usually a failing strategy," he said.



"Government is increasingly going to rely on the private sector. That's why you need to have a set of shared ideas and goals and an exchange that allows for that synergy to happen."

Government needs to find better ways to communicate needs with vendors and suppliers. "We need federal government to encourage more unsolicited proposal ideas," Scott added. Too often, agencies take a proposal from a company and solicit other companies for the same proposal but at a lower price. Although that seems cost-effective, government agencies may still lack the IT solutions they really need through such strategies.

To avoid this, Scott cautioned against over-specification in requests for proposals that limits the number of suppliers that can provide the solution. On the other hand, agencies should be wary of slightly more modernized versions of what they're trying to get rid of. Otherwise they could soon be revisiting the same issues.

"Focus on the key business objectives or customer outcomes instead," Scott said. "Then, go into a period of iterative design where you test and learn what will eventually lead you to the right solution."

Advice from Scott

Scott offered other tips for CIOs in their IT modernization efforts:

1. Think outside the agency. Have agencies A and B practice information sharing rather than each agency having many one-off interfaces. "Case management is a great example," Scott said. "There are thousands of custom-built, one-off case management systems in federal government. Instead of each agency modernizing their case management system, it would be more economic to have a core case management capability that your agency can then customize for its own unique mission."

2. Think ecosystem, instead of internal. CIOs tend to manage everything in a vertical supply chain within the four walls of their agencies. But trying to provide every capability to an agency can leave many IT professionals feeling overwhelmed and stretched thin.

"Instead, think of yourself as a participant in an ecosystem where you only have a small part that you directly control and add unique value. Save your precious resources and outsource everything else to meet your business goals."

3. Think about leadership buy-in before the meetings happen. For CIOs in particular, gaining buy-in for IT modernization is a long-term process that needs to start before meeting in person with stakeholders.

"In most organizations, decisions get made well before you get into the meeting," Scott said. "There's all kinds of seasoning of the steak that takes place before the steak gets cooked. You have to go around and talk to a whole bunch of people, get their inputs, develop your arguments and ensure there's a community decision being made.... Otherwise you're not going to be successful no matter how good the idea is, especially in government."

Ultimately, the MGT Act, shared services and public-private partnerships hold much promise for IT modernization. Like Scott, government should remain optimistic about the future of IT in the public sector.

IT Modernization by the Numbers

FEDERAL IT

Federal IT Leaders Understand the Need for IT Modernization

48%

of federal IT managers believe their legacy applications can meet their mission needs today.

69%

of federal agency leaders say at least part of their work output depends on ready access to a cloud platform, and 43 percent said they use cloud computing technologies to carry out their daily work duties.

58%

of federal leaders cite security as a top concern in needing to consolidate and optimize data centers.

Challenges to IT Modernization

\$7.3b

is the amount by which spending devoted to development, modernization and enhancement activities has declined since 2010.

28

federal IT systems are at least 25 years old and at least 11 are 35 years old.

1 in 4

federal IT managers have developed a business case around renewing or replacing existing applications.

How Federal Government is Doing

53%

of federal IT managers say their agencies have a formal strategy for modernizing legacy applications.

55%

of federal CIOs reported that their apps in the cloud reside in a commercial cloud, while 40 percent have apps in a government-only commercial cloud (or hybrid cloud); only 5 percent have apps in a government-run cloud.

59%

of federal IT executives report that they think their agency's IT modernization efforts have resulted in an increase in IT security challenges.

IT Modernization by the Numbers

STATE & LOCAL IT

CIOs Understand the Need for IT Modernization

90%

of CIOs considered at least 20 percent of their IT systems due for replacement or modernization.

3/4

of CIOs said they have developed or are developing cloud migration strategies to move legacy systems (drivers include cost, security, efficiency and agility).

76%

of state and local cloud adopters said their agency/institution would increase spending on cloud computing in 2017.

Challenges to IT Modernization

2/3

of IT decision-makers revealed they are still using manual processes to gather information to solve problems.

53%

of public-sector IT decision-makers feel their organization does not have end-to-end visibility across IT systems to foresee issues, and this leads to operational inefficiencies and waste.

44%

cited insufficient IT resources (budget and personnel) as the biggest risk to their organization or agency in the next year.

How States are Doing

17

Since 2014, use of technology and service delivery has improved in 17 states, declined in 10 and stayed even in 23.

A

Virginia and Ohio moved up to A grades with the top-performing states, while Michigan, Missouri and Utah maintained their A marks from 2014.

B+

Florida was the most improved state, rising from C to B+.



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INDUSTRY SPOTLIGHT

Harnessing Next-Generation Networks for IT Modernization

An Interview with Jose Padin, Public Sector Chief Technology Officer, Citrix

Although IT modernization shows significant promise for government, upgrading or migrating technologies just for the sake of doing so doesn't always translate to better agency performance. IT modernization requires leveraging the efficiencies technology has to offer, defining measures of success and aligning those measures with government missions.

One way that government is achieving IT modernization is through next-generation networks. In an interview with GovLoop, Jose Padin, Public Sector CTO at Citrix, shared how next-generation networks lead to successful IT modernization and how they can support digital workspaces. Citrix empowers government agencies in their digital transformation journey by aligning IT with agency missions.

The majority of IT modernization efforts start with virtualizing IT environments and moving to the cloud. Virtualization in government has made compute infrastructure and storage more flexible, yielding significant gains in IT efficiency. But unlike advancements in compute and storage virtualization, networking virtualization has not kept pace and poses significant hurdles, such as cyber risk, for government.

When networks remain static, any upgrades in virtual environments such as the cloud can lead to failure. "Government has well-matured network infrastructure with multiple layers of traditional firewalls, routing, switching and tools," Padin said. "But getting to the next level requires using predictive analysis and autonomous network defenses."

For example, an agency may have several solutions to address a serious cyberattack or repair systems after a breach. But next-generation networks do more than simply notify IT teams of attacks. They

enable the agency to inspect web traffic, autonomously counter threats and even predict future cyber events without human intervention. Not only can agencies detect and prevent more cyberattacks, but they can also ensure IT teams have more time for other mission-critical needs.

Next-generation networks are critical for enhancing security, but they are also vital to enhancing citizen engagement. According to Padin, networks are the bloodline of communications with citizens. "In today's world, everything is interconnected," he said. "It's all network-driven. Even talking to constituents is data-driven. Having networks that can help these processes along autonomously can help agencies keep up with their missions."

Lastly, next-generation networks support the move to digital workspaces. Digital workspaces allow employees to access their work from any device, anywhere, anytime thus improving employee productivity and efficiency. "The digital workspace can easily help the digital transformation journey and is great for aggregating cloud services," Padin said.

With IT modernization, agency devices such as printers, monitors and even Voice over Internet Protocol lines are increasingly connected to networks, enabling agencies to gather cybersecurity-related information and manage remote devices put to use in a government agency. The digital workspace can offer significant savings in energy, efficiency, security and time while automating processes to make employees' work lives easier and more productive.

Next-generation networks can also help secure the delivery of apps and data within adaptive and personalized digital workspaces. Users can access any resource they need while IT can monitor network

traffic. Additionally users can log on once and gain access to different services. At the same time, IT personnel can keep track of what different users are doing all while maintaining compliance.

Citrix's modern digital workspace gives agencies the power of next-generation networks to fuel their IT modernization efforts. "From an analytics perspective, we can help agencies see what's happening at the application level down to the lower levels of the network," Padin said. "We can give an agency visibility into the entire application layer and store that information. Real-time analytics of the application layer can help agencies understand what good network connections look like and what questionable threats look like."

With the digital workspace and an array of connected devices, government should always be prepared for cyberthreats. "Normally, you'd have to identify events after they occur," Padin said. "Citrix gives you the ability to sense and respond to what's happening in real time."

Next-generation networks enable agencies to meet a wide variety of mission needs, including improving cybersecurity, citizen engagement and employee productivity. By harnessing next-generation networks, government can take the next step toward IT modernization and, ultimately, achieve digital transformation.

5

Challenges to
Government IT
Modernization
Efforts

To help your agency overcome challenges to IT modernization, GovLoop designed this guide to offer insights from government success stories. We've highlighted five primary challenges agencies come across in their IT modernization efforts:

Overly complex IT governance

inhibits informed business choices for leaders making IT-related decisions.

Costly legacy technology

causes IT to focus more on operations and maintenance, and hinders innovation.

Data center sprawl

creates IT and data redundancies in addition to extra costs.

Lack of a talent pipeline for the IT workforce

leaves government scrambling to staff and manage IT modernization projects.

Poor IT change and disaster management

make agencies ill-equipped to help staff adjust to updated technologies and handle crises.

By understanding these five challenges, your agency will be able to strategically navigate any IT modernization project. Additionally, the case studies provided within each section will help you glean best practices and think critically through your agency's unique challenges in IT modernization.

CHALLENGE #1

Overly Complex IT Governance

THE PROBLEM

With an overabundance of data centers, networks, servers and storage, IT structures in government tend to be overly complex. The sprawl of disparate systems makes it difficult for IT to function effectively and inhibits informed decision-making by IT leaders. When IT is overly complex, proper IT governance becomes nearly impossible.

IT governance is a formal framework that provides a structure for organizations to ensure that IT investments support business objectives. IT governance should focus on establishing business investment decisions and oversight processes that help the organization achieve IT and mission success. By following a formal framework, government entities can produce measurable results toward achieving their strategies and goals. In fact, in October 2008, Office of Management and Budget Memorandum M-09-02 required that each agency have in place an IT management structure and governance framework.

But when IT gets too complicated, it becomes increasingly difficult to account for costs and alignment with business objectives. Additionally, overly complex IT creates recurring issues, including limited oversight, lack of authority and weak enforcement that can plague IT environments.

HOW TO ADDRESS IT

1 Create business goals and plan accordingly.

Establish agency goals and principles for IT governance. Determine what decisions need to be governed across an organization and which should be left to program managers' discretion.

2 Architect solutions.

Be sure that agency and IT leaders work together to define control and requirements. Define what decisions should be made, at what level, by whom and with what accountabilities. Recommend how to implement the project and then clearly communicate the plan with all stakeholders within the scope of IT governance.

3 Build.

Start with a framework that industry experts have already created and other organizations and agencies have used. Your implementation process should then include those for decision-making, committees, portfolio management, investment performance metrics, funding and chargeback for IT development and delivery as well as risk monitoring and management.

WHO'S DOING IT RIGHT?



South Dakota Implements Governance Archetype Model: Version 2.0

Depending on the degree of centralization or decentralization of IT demand and supply, IT governance structures should follow a specific governance archetype model (GAM). The state of South Dakota uses a GAM2 model as opposed to GAM1. In GAM1, individual business units determine budgets, projects and IT architecture in a decentralized model. In GAM2, large but streamlined administrators increase centralization of their IT demand governance. Responsibility for budgets, projects and architecture are still divided among business units, but IT supply is controlled centrally at the group level. Applications and infrastructure are then delivered by an IT staff serving all the business and administrative units.

South Dakota's CIO agency, which is responsible for all government computers, telecommunications, radio and public broadcasting, oversees IT finances, budgets and projects at the group level. On the demand side, development teams align with one another and maintain relationships with different government agencies.

For example, Development Team A could partner with the Agriculture Department, while Development Team B could be with the Transportation Department. Rather than these teams functioning in disparate IT units, a central supply leadership governs all development teams.



How Homeland Security Uses CDM for Better IT Governance

IT governance is critical to diminishing complexities in IT management, but it is also vital to maintaining a stronger cyber posture. Through its **Continuous Diagnostics and Mitigation (CDM)** program, the Homeland Security Department is playing an integral role in collecting and leveraging enterprisewide data to execute more centralized strategies to simplify IT governance and mitigate cyber threats.

CDM provides federal departments and agencies with capabilities and tools that identify cybersecurity risks on an ongoing basis, prioritize these risks based on potential impacts and enable cybersecurity personnel to mitigate the most significant problems first. Although the program is hardly new, using it as an approach to simplify IT governance and management is.

CDM uses automated sensors that are connected across federal agencies, so they can better access data about their networks. Agencies then can use a risk-based approach to IT governance when federal systems and the private-sector networks connected to them are in a single cyber ecosystem. This helps agencies identify and mitigate vulnerabilities before cyberattacks expose them. By applying CDM and a risk-based approach to IT governance, federal agencies such as DHS can better monitor their networks in an automated fashion, reducing cyber risk and simplifying IT.

SPOTLIGHT INTERVIEW

Technology Business Management in the Evergreen State

One of the most frequently cited challenges in government modernization, especially at the state and local levels, is accounting for IT spend. To improve accountability and transparency surrounding IT modernization, agencies at all levels of government are promoting the Technology Business Management (TBM) framework, in coordination with the CIO Council and OMB.

TBM is a set of best practices for running IT like a business. The primary goal of TBM is to empower IT and business leaders to have data-driven discussions about cost and value of IT to best support business goals.

The largest public-sector TBM implementation to date is in the Evergreen State: [Washington](#). By implementing TBM, the state improved IT spending data, increased accountability and made a better case for IT modernization. To find out more about how Washington implemented TBM so successfully, GovLoop sat down with experts at the Washington Office of the CIO: Cammy Webster, Senior Program Manager for TBM, and Derek Puckett, Technology Business Consultant.

Getting Started with TBM


Much like federal government, Washington's state government is a federated system in which each agency operates with significant autonomy. But the CIO and the state legislature wanted more insight into how agencies were spending taxpayer dollars on IT, and better information on the value that taxpayers were receiving in return.

"[In 2010], the state was unable to answer questions about what we'd achieve with the IT we purchased," Webster said. "The process started with multiple surveys and a total cost of ownership study that was performed by Gartner. That prompted our legislature to put legislation through that required TBM."

By 2012, the CIO's office started a broad IT cost transparency effort to effectively manage the state's IT services and investments and improve transparency. Initially, the implementation hit roadblocks because of a lack of a standard taxonomy, decentralized reporting and disparate configuration of the enterprise software reporting applications across agencies.

The challenges were so significant that the entire cost transparency initiative had to be re-architected and restarted in 2016. As a result, the state started consolidating its data collection approach, expanding the TBM office within the Office of the CIO and using a single enterprisewide reporting software configuration.

"What we opted to do was centralize and standardize TBM into a single, statewide implementation," Puckett said. "We templated that process for the agencies and the individual stakeholders within them as well. We had all 44 agencies migrated to a single enterprise solution."



"We now have 100 percent compliance for the state and the agencies take full ownership of the data. Agencies can report autonomously in a single enterprise solution. So, the agencies get to have their own voice."

The Evergreen Benefits of TBM

As of 2017, Washington state can report IT spending by cost pools and IT towers – the first two levels of the TBM taxonomy. Financial data is collected via the state's centralized accounting system. This accounting system categorizes IT expenditure data in three ways: IT acquisitions, IT maintenance and operations, and data processing services. Cost pool data is then rolled up for statewide IT spend and IT tower data is provided for 44 state agencies with annual IT spend greater than \$250,000.

"We now have 100 percent compliance for the state and the agencies take full ownership of the data," Webster said. "Agencies can report autonomously in a single enterprise solution. So, the agencies get to have their own voice."

Enabling agencies to take full ownership of their technology through the TBM program was a big priority for Webster and Puckett. "That really helps agencies control their own narrative," Puckett said. "Since they have defensible IT spend numbers they can stand behind, they know what their possible improvements are. That really helps when the legislature is looking at the statewide IT trends. Then, the agency can defend their IT spend and speak to the why."

For example, one agency discovered a gap in their IT attributes when they miscoded about \$9 million worth of spend that was missing IT coding attributes. They tracked the data, found the error and made a change in policy to improve the process going forward that corrected the numbers in their future reporting.

"TBM is supposed to help uncover those gaps so you can make improvements," Webster said. "Some of the wins are just discovering these gaps."

Best Practices for TBM

Implementing TBM is not an overnight or simple process. Webster and Puckett recommended that agencies at the federal, state and local levels follow these best practices:

- **Start small and scale up.** Don't try to boil the ocean by picking massive IT modernization endeavors. Start with smaller projects so you can provide quicker turnaround value. That way, you can justify TBM for larger projects later.
- **Identify what questions you want to answer.** What do you want to discover? Who are your audiences? What data are you going to use? Don't be afraid to discover the "ugly" data that reveal shortcomings in your agency's IT. Such discoveries can turn into wins when you know what needs correcting.
- **Include all stakeholders.** Talk with private-sector and executive counterparts. Get leaders' support by clearly laying out the entire vision of your IT modernization project and how TBM will help. Reach out to other agencies to discuss their ideas and best practices. Let all stakeholders know where they fit in the process.

When it comes to IT applications, agencies must think critically about how to modernize, upgrade or replace legacy applications. With TBM, agencies can more easily identify where to invest or avoid spending money on legacy systems that are outdated and unneeded. As Washington state demonstrates, TBM can help agencies uncover their spending gaps and retain accountability for the numbers and data in their source systems.



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INDUSTRY SPOTLIGHT

The Four Components of IT Modernization

An interview with Ashok Sankar, Director of Solutions Strategy, Splunk

The federal government spends nearly 80 percent of its annual IT budget on operating and maintaining existing systems. These legacy systems can cause many problems, including increased risk against cyber threats and an inability to provide the capabilities that government employees need, or that citizens want.

That's why agencies are attempting to modernize their IT infrastructures to better support mission-critical functions. To achieve these missions, agencies need to embrace four key components of IT modernization: cloud computing, shared services, data center consolidation and Agile development.

In an interview with GovLoop, Ashok Sankar, Director of Solutions Strategy at Splunk, a recognized leader in data analytics and IT modernization, discussed how these four components can best be leveraged by incorporating a real-time data analytics platform into agency strategy and solutions.

A priority in the 2017 "Report to the President on Federal IT Modernization," maximizing secure use of cloud computing is one cornerstone of the government's overall IT modernization strategy. Cloud provides better elasticity, flexibility and performance than traditional on-premises options. Plus, it can create major cost savings for agencies when it's scaled appropriately. Most importantly, cloud computing helps agencies adapt as technologies and user needs change.

For agencies to successfully migrate workloads to the cloud, they need granular visibility into migrations through continuous monitoring in real time. With a single event analytics platform, IT administrators and staff can not only monitor and facilitate successful migrations

but also gain insights to resolve any issues with performance and availability of workloads.

"Splunk delivers operational insights in real time into the most popular cloud services during and after migrations," Sankar said.

To prevent the procurement of separate technology solutions and then trying to integrate them in an ad-hoc manner, government should also turn to shared services – a model in which multiple organizations can procure the same solution, rather than having to seek individual systems to solve the same problem. Not only do shared services reduce costs by maximizing buying power, they also make it easier to standardize systems, operations and most importantly security.

Security Operations Centers as-a-service help agencies collect, organize, monitor and provide central visibility into the state of security on their network. A security analytics platform functions as a nerve center to a SOC.

"Splunk offers a flexible analytics-driven security platform to power an SOC and make its personnel and processes more effective," Sankar said. "With the platform, all SOC personnel have quick access to all the data and contextual information needed to prioritize events and quickly detect, investigate and respond to threats."

As government adds more tools and systems, agencies' volume of data will also grow. Each new tool creates new data, in addition to new storage and computing needs for tech shops. That means agencies must revamp the way they manage and upgrade their data centers – where all that information is housed and accessed. In fact, the Data Center Optimization Initiative, or DCOI, requires federal agencies to do just that.

DCOI aims to optimize the usage and efficiency of federal data centers, which includes consolidating and maximizing server use and energy efficiency.

Agencies can maximize success with a single platform that can deliver insights by monitoring activities to meet the standards, using a single interface.

"With Splunk, agencies can track capacity utilization and availability of managed space, gather energy efficiency such as power usage effectiveness, gain insights and monitor virtual machines and physical servers for utilization to calculate and meet DCOI targets," Sankar said.

Finally, to effectively modernize government IT, Agile processes, specifically DevOps should support technology investments. DevOps is a software and application development approach in which developers and IT operations teams work in close collaboration throughout the lifecycle of a project. With DevOps, agencies can develop higher-quality digital services more efficiently because of the iterative and collaborative nature of the process. But to really get the benefits of DevOps, teams need a single place to access and analyze data.

"With the Splunk platform, you can collect, index and correlate data from multiple sources," Sankar said. "Once your data is in, you can easily search and visualize that data. It can provide insights into any environment, including testing, staging and production."

By incorporating the four components of IT modernization, and leveraging a true data analytics platform, agencies can increase their chances of successful IT modernization.

CHALLENGE #2

Costly Legacy Technology

THE PROBLEM

Before agencies can start exploring the applications of emerging technologies, they must tackle their legacy IT. Costly, aging systems are a major barrier to modernization. Nearly 80 percent of agencies' IT budgets goes toward operating and maintaining obsolete systems, leaving few resources for investment in systems development and enhancement. As agencies face shrinking budgets and shortages of skilled IT personnel, modernizing legacy systems is a powerful way to improve efficiencies.

The prevalence of decades-old digital infrastructure also poses a significant risk to organizational cybersecurity. With the changing nature of cyberattacks today, on-premises systems are ill-equipped to handle threats and must constantly be patched or upgraded in a piecemeal fashion. Legacy IT is not only growing increasingly expensive to maintain, but it's also unable to evolve to meet rising citizen expectations for secure, efficient service delivery.

Replacing legacy systems takes a substantial investment, but it is clear that legacy systems are no longer sustainable.

HOW TO ADDRESS IT

1 Take advantage of cloud platforms and a hybrid approach.

By using a cloud platform, agencies can enhance and augment – rather than replace – their existing systems. Architectures that combine on-premises and cloud capabilities can help governments use cloud to handle common applications while still maintaining data centers for essential, mission-critical functions.

2 Partner outside your organization and use shared services.

Agencies don't have to go it alone. Look to successful modernization efforts at peer organizations instead of creating entirely new processes or duplicating systems that exist at other agencies.

3 Start small.

With limited budgets, time and experienced IT personnel, it is impossible to update your IT systems in one fell swoop. Start with pilot programs or by moving a few services to the cloud. Demonstrating successful modernization, even at the most basic level, can make it easier to get necessary buy-in from agency leaders and top managers.

WHO'S DOING IT RIGHT?



Modernizing 311 Service Request Systems in Los Angeles

A common feature of older IT systems is siloed data, which hinders interoperability across government agencies and slows operations. This was the case for the city of Los Angeles' four 311 service request systems, which connected requests for city services to the appropriate departments. The systems were independent and unable to exchange information, and there was no central database from which to pull information.

In early 2017, Los Angeles replaced the antiquated architecture of the 311 service center with MyLA311. This three-year modernization project, led by the mayor's office and the city's Information Technology Agency, involved consolidating four key service management systems into one integrated repository where residents and city departments could access all requests and status updates.

The new centralized system improved data access and analytics, provided transparency and clarity, increased efficiency, and allowed for a uniform tracking methodology across all departments. The open source platforms, for example, allow the government to access metrics on wait times and other service request data, which can then help provide insights and guide decisions about resource allocation and better customer care.



VA Moves to Modernize Its Health System

The Veterans Affairs Department (VA) spends 75 percent of its IT budget on maintaining decades-old infrastructure. VA's antiquated legacy systems are not only slowing operations, but also affecting the delivery of services to veterans. Veterans often wait 60 days or more for new appointments for primary and mental health care at VA medical facilities nationwide, and more than 90,000 disability claims have taken more than 125 days to process. The excessive wait times can be traced in part to VA's outdated scheduling and financial systems.

In light of these challenges, VA will spend \$10 billion over 10 years to implement a new electronic health record (EHR) system. The new EHR system through Cerner's Millennium platform will enable VA to achieve interoperability and keep pace with improvements in health IT and cybersecurity.

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INDUSTRY SPOTLIGHT

Executing on the Promise of Open Source in Government

An interview with Henry Sowell, Chief Information Security Officer, Hortonworks

Due to a confluence of challenges – including outdated infrastructure, disparate data and lack of data security – open source is more important than ever for government missions.

However, many government agencies miss out on all the benefits that open source has to offer. It's especially challenging to transition to the new and unfamiliar platforms open source requires when so much has been invested in existing systems. To navigate these challenges and help agencies understand how they can execute on the promise of open source, GovLoop sat down with Henry Sowell, Chief Information Security Officer at Hortonworks, an enterprise open source Hadoop solutions provider.

He explained that, too often, government tries to address its IT problems through disparate solutions. "Normally, individual agencies look to solve their own tech problems by hiring internal developers and using their own software," Sowell said. "These stovepipe solutions are hard to maintain because agencies have to use their own budget and internal manpower. Plus, these solutions don't integrate well with other solutions."

Open source lets agencies modernize their IT systems in a more innovative manner with the help of the expansive IT knowledge in tech communities. "Open source as a community is more effective and faster than any single organization," Sowell said. "The innovation never stops. The open source community helps design solutions to different problems and is always working on a piece of technology."

The key to helping government fully harness the benefits of open source is modernizing to newer, improved technologies in a familiar pattern. That means agency personnel get the most of IT modernization without having

to relearn an overwhelming amount of new processes and systems.

Open source is clearly the way forward for government, but to help agencies keep pace with the speed of innovation that open source enables, it's important to seek the right technology partners and open source experts.

Agencies should strive to find technology partners committed to an open source approach that spurs innovation. Used correctly, open source enables enterprises to deploy, integrate and work with greater volumes of structured and unstructured data for more actionable intelligence. For example, agencies can use their data to better predict citizen needs and respond to inquiries accordingly. Additionally, agencies should be able to use software that fosters innovation without feeling locked in to a particular vendor.

Agencies can draw on open source experts to compile multiple projects into an integrated, implementable package while providing subject-matter expertise, support and services. "Make sure that you're preparing your organization by helping everyone understand the focus on IT modernization," Sowell said. "You also have to partner with the right organization to help you do open source in the most cost-effective manner."

To identify the right technology partners in the open source community, it's imperative that agencies understand their business and mission needs. For example, is the mission focus on constituent communications, open data and greater transparency or other objectives such as improved cybersecurity? Knowing the impetus for the IT modernization project, agencies can form teams from the open source community that understand the business problem and can address it accordingly.

"At Hortonworks, we're concerned with tackling advanced technologies like Hadoop and working with government agencies to invest wisely," Sowell said. "We offer standard technologies that organizations can access in a familiar and secure way because we have a very wide partner base. When we can work with many of their existing technologies, it becomes far less daunting and faster to achieve the mission and comply with security regulations."

With the right expertise, agencies also can execute their IT modernization efforts for open source in a more cost-effective manner.

"We want to help the public sector get better at executing on the promise of open source by providing 100 percent open source solutions that reduce cost while meeting security requirements," Sowell said. "We work to provide a solutions platform that can meet all technical skillsets while enabling a modern-day infrastructure."

Agencies across the federal government are deploying enterprise open source solutions on government networks to capture data-driven insights. "Hortonworks is a leading innovator in the enterprise-grade open source industry – creating, distributing and supporting enterprise-ready data platforms and modern data applications," Sowell said.

Ultimately, by using enterprise open source, government can tackle any of its mission-critical IT needs while achieving IT modernization more effectively and at a lower cost. With the knowledge and expertise of tech communities, the right technology partners and sufficient preparation, government can fully execute on the promise of open source.

CHALLENGE #3

Data Center Sprawl

THE PROBLEM

Eight years after the creation of the [Data Center Consolidation and Optimization Initiative](#), agencies still struggle to get a handle on their data centers and on-premises storage systems. In the federal government alone, about [11,700 data centers](#) still need to be consolidated.

But although consolidation sounds straightforward, collecting information about IT assets can be quite challenging. Sorting through the data and deciding which data is most important to keep is a long and arduous process. Additionally, independent data sources link all kinds of information, including data that is irrelevant or unstructured, that can be difficult to correlate or analyze.

For many IT teams, consolidation projects can be extremely time-consuming, especially because they require manual efforts to collect, clean and normalize all hardware and software asset information. This can take nearly 9,000 labor hours in a typical project.

HOW TO ADDRESS IT

1 Commit to organization & communication.

Data center migrations and consolidations require strong organizational management. Commit to a project management structure that will guide the organization through this process. Liaise with cross-functional groups to coordinate and assess concerns such as scheduling impacts, staffing needs and personnel assignments. Include both an agency engagement model and a roles and responsibilities matrix.

2 Streamline the environment.

Begin streamlining the source and destination environments early in the migration and consolidation process. Have a separate team work with program organizations, in addition to operations and maintenance teams, to find areas of these environments to simplify. Remove unnecessary, outdated or obsolete applications, and ensure that results and intended changes are communicated to all teams involved in the process.

3 Virtualize, virtualize, virtualize.

Migrate physical servers to virtual machines and consolidate them onto fewer physical servers. This can help reduce your energy footprint and lower monthly power and cooling costs in the data center. Be sure that you have already evaluated your server and application data inventory in addition to network, storage and backup capabilities.

WHO'S DOING IT RIGHT?



Oklahoma Saves Millions with Unified IT

After starting IT and data center consolidation efforts in 2011, the state of Oklahoma has now saved more than \$350 million in reduced IT spend and cost avoidance.

The state's 111 agencies used to run and manage their own IT infrastructures. But under CIO Bo Reese, the state centralized IT operations and moved every agency's applications and data to two primary data centers, including one for public safety.

"Twenty-five Oklahoma agencies used to run their own email systems. Now, many of them have migrated to email cloud services. The state's Health and Human Services Department (HHS) used to have its own 8,300-square-foot data center. Through virtualization, however, the state was able to move 53 critical systems and consolidate HHS' IT infrastructure down to six racks in the state's new primary data center," Reese said.

Not only has the state saved millions in costs, but it stands to become more efficient by enabling migration off legacy systems.



USDA Consolidates to Revamp IT

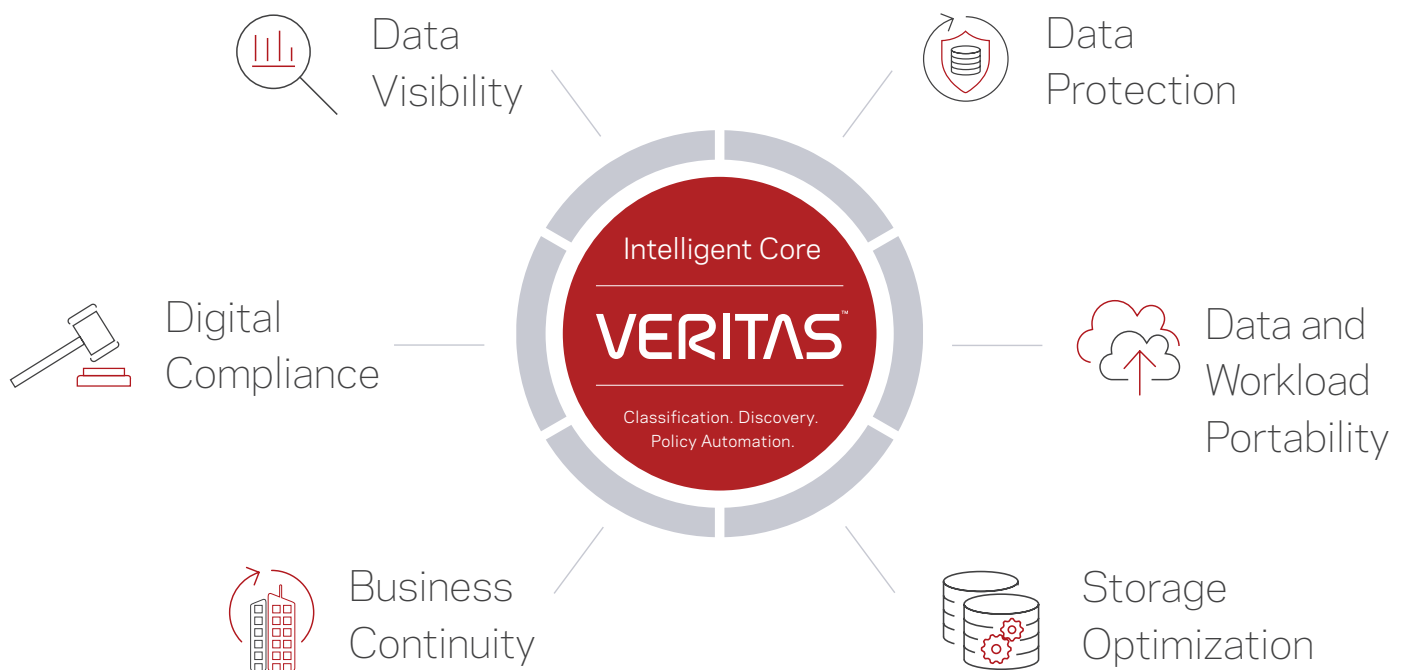
USDA is working with the White House Office of American Innovation to revamp its IT operations model to increase efficiency in serving its customers. USDA's work with farmers, ranchers, national forest users, rural communities, consumers, trade partners, agricultural industry members and scientific researchers, not to mention the general public, means it affects American citizens every day.

Besides strengthening strategic IT governance and implementing a new Farm Bill programs online service portal, USDA aims to consolidate end-user services and data centers from 39 to one and a backup.

This move is expected to provide a cost-effective, high-quality, departmentwide help desk that would also help reduce cybersecurity vulnerabilities. By consolidating these data centers, USDA plans to enable a more strategic approach to data management and introduce data-driven capabilities by implementing executive dashboard solutions with USDA-wide data.

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INDUSTRY SPOTLIGHT

Leveraging Virtual Environments and Cloud for Data Migrations

An interview with Paul Nguyen, Sales Engineer, DLT Solutions

It's no secret that public sector data is growing at exponential rates. But with governments at all levels under pressure to do more with less, many agencies are looking for ways to optimize their IT infrastructure to meet their growing storage needs.

Two driving advances in IT today are virtualization and cloud computing. Virtualization uses software to create multiple, independent environments from a single, physical hardware system, allowing organizations to optimize the use of existing computing capacity and save costs by requiring less physical hardware. Cloud computing lets different departments or agencies access shared computing resources as a service and on-demand through the internet.

In an interview with GovLoop, Paul Nguyen, Sales Engineer for DLT Solutions, discussed how virtualization and cloud computing can help organizations make the most of their current resources and the importance of a data assessment before implementing either of these solutions. DLT Solutions is a government technology provider offering a range of software and cloud solutions.

Most IT leaders recognize cloud computing as crucial to their IT modernization efforts due to its scalability, flexibility, and performance. Additionally, it provides significant cost savings, allowing agencies to only pay for what they use, and helps organizations continuously evolve its IT to meet ever-changing business needs.

But agencies won't reap these benefits if they don't strategically identify data before migrating it to the cloud. "There are several factors that go into moving data to the cloud," said Nguyen. "You have to consider the time sensitive nature of the move, the amount of data and the complexity of IT services that are being migrated."

For agencies who need to maintain greater control of their IT environment, but still want the flexibility and cost savings of cloud, virtualization provides an alternative, and often times complementary solution. Traditionally, when agencies needed more storage they had to "scale up" and purchase more memory and hardware. But with virtualized environments they can "scale out" and distribute resources from a virtual storage repository as needed. Virtual environments are much more cost effective and increase the efficiency and utilization of existing hardware.

Virtualization and software-defined solutions also allow for streamlined communication between different vendor solutions, so agencies don't experience vendor lock-in. "Say a customer has all of their storage from one particular industry vendor," said Nguyen. "With a virtual environment, they don't have to stick with only that vendor. They can buy another industry vendor's solution and then they can work together as one in a software-defined storage pool."

While cloud and virtual environments allow organizations to scale their resources as needed to meet demand, it's critical that agencies avoid treating them as a data "dumping ground" but instead perform a data assessment to ensure they're only storing data that's of real value.

DLT and Veritas, a market leader in data management, are two providers who work with agencies to gain an understanding of what data exists in their environment. "We can look at your storage and tell where data flows, who has access to it, how long it's been in your storage environment, and whether it's obsolete," Nguyen said. "We then can set up retention plans and storage lifecycle policies, so you can move data around from on premise to the cloud and vice versa". Once the assessment

is complete, an agency can reduce their storage needs by getting rid of the data they don't need and determining the best storage option for their mission-critical data.

For organizations ready to move away from their legacy IT systems, Nguyen advised that the first step is get to know your data. "Make sure you test it before you actually migrate so there's no down time, no corruption, no loss of data, and you know ahead of time that it's going to work, before you actually go live," said Nguyen.

Today's rapid pace of data growth provides agencies with unprecedented insight into the needs of the citizens they serve and the missions they need to meet. With more data, however, comes new challenges around organizing and storing it all. By migrating from legacy IT systems to more streamlined virtual environments, and implementing a data management strategy and accountability around your data, government can generate the information insights they need without exponentially increasing data storage and cost.



SPOTLIGHT INTERVIEW

Challenges and Solutions for Small-Agency IT Modernization

With bloated infrastructure and IT maintenance costs, organizations have less bandwidth to focus on mission and service delivery to citizens. For that reason, IT modernization has been named a key governmentwide priority. But small federal agencies — defined as those having fewer than 6,000 employees — face particular challenges and obstacles to implementing new technologies.

During a November 2017 panel hosted by the American Council for Technology-Industry Advisory Council, public- and private-sector representatives discussed common challenges and solutions for small government agencies to successfully transition from legacy systems and achieve more efficient IT.

"The need for modernization at small agencies is not any different from that of large agencies. We have to do it," said Kirit Amin, CIO at the U.S. International Trade Commission. "However, we don't always have the financial resources or personnel to get it done."

Faced with budget constraints and limited staff with IT experience — such as cybersecurity or analytics experts — smaller organizations can struggle with governmentwide initiatives and one-size-fits-all mandates. "The government is good at laying out regulations and requirements for modernization, but not very good at providing funding for it," said Dan Jacobs, Cybersecurity Coordinator at GSA's Office of Governmentwide Policy.

The main problem then lies in the fact that many offerings that make sense for larger agencies are not always available to small ones because of their lower-volume requirements. But if offerings for IT services could be available to smaller agencies with procurement assistance — or ease of acquisition through bulk purchasing — small and independent agencies could modernize their systems without exceeding their limited budgets.

After all, small agencies do have one advantage: agility. It's faster for small agencies to implement changes — when they have the financial resources they need — than it is for larger ones.

The solutions for IT modernization are there, but agency budgets have remained flat while service costs have risen. However, there are ways for small agencies to meet their IT modernization needs.

One strategy involves having a larger federal agency operate and deliver a service to multiple small agencies, or allow small agencies to use the larger agency's existing and unused infrastructure.

Another solution is for small agencies to pool their resources to procure contracts for common functions, such as email, data storage, human resources or learning management. "From a governmentwide perspective, it isn't necessary for every federal agency to have separate instances of email. We can provide the same service to all organizations at 99.9 percent availability and migrate everything to a secure cloud," Jacobs said. "There are many vendors who can provide these higher levels of service and do it more cheaply than the government can."



"Identify the low-hanging fruit you can tackle today. Position your agency to act sooner rather than later to make the transition easier."

By sharing their requirements under a common platform or service provider, small agencies have greater buying power to drive cost efficiencies and negotiate better procurement contracts. But the shared services model isn't as prevalent as one might expect, in part due to agency silos and the lack of clear, governmentwide standards.

In addition to shared services, the future of government and IT is "everything-as-a-service." But the question is how fast agencies can get there.

"If we want to help small agencies, we need to start talking about standardization and normalization," Jacobs said.

"If I move to a shared service, I don't necessarily have full autonomy over my IT, which is not the case if I'm overseeing and running the systems and servers from our building closet. This can create concern for a lot of CIOs," said Jeff Donahue, Acting Director of the Procurement Department at Pension Benefit Guaranty Corporation.

"Agencies tend to be conservative, and no one wants to be the first to make that call. In many ways, there would be benefits to having a small governance model," Donahue added. "Government needs to provide better requirements to industry in order for us to see better solutions. We need smarter regulations and mandates."

Another challenge is figuring out what "modernization" actually means across agencies' varying requirements, standards and needs.

"Mission comes first, and we're most concerned with seeing tangible benefits for the end user. Complying with mandates isn't necessarily talked about," said Juliet Felent, Managing Director for Office of Acquisition, Overseas

Private Investment Corp. "So, it can be really difficult to align our IT roadmap to the IT modernization efforts laid out by larger agencies."

Part of the solution requires creating a culture shift around IT modernization. "IT isn't typically looked at as a mission enabler, but that's a false perception. It is a key mission driver," Donahue said.

Modernizing legacy systems is imperative for federal agencies to deliver on their missions securely, efficiently and effectively. So, what can small agencies do today to better meet their needs?

"We need a few 'Yodas' at the Office of Management and Budget level who are championing IT modernization and training people like Jedis. Get some 'Yodas' in large agencies and have them train others. Leverage the people and IT personnel you have," Amin said.

It's also important for small agencies to take the first step, even as official government standards are still being developed. "Identify the low-hanging fruit you can tackle today," Jacobs said. "Position your agency to act sooner rather than later to make the transition easier."

CHALLENGE #4

Lack of Talent Pipeline for IT Workforce

THE PROBLEM

IT modernization demands government's best and brightest talent to supply the most innovative strategies and solutions. But for federal, state and local governments, recruiting and retaining the next generation of IT talent is at the top of the list of challenges. Challenges to recruitment include perfecting position descriptions (PD). The current library of IT PDs is full of descriptions that are either too obsolete or don't reflect the skills needed for today's workforce.

Additionally, because the time between recruiting applicants and issuing official start dates takes so long in government, many agencies lose well-qualified candidates to the private sector. Recruiting the future IT workforce will require innovative solutions that tap into tech communities and startups and pave more accessible pathways for recent graduates to enter the government workforce.

HOW TO ADDRESS IT

1 Empower the next generation of technology leaders.

Remember that today's students will be tomorrow's IT modernization leaders. Incentivize young professionals to pursue IT at your agency or department through special internships or fellowships such as Coding IT Forward. Many programs offer fully funded technology internships and clear routes for students to potentially join government full time.

2 Host opportunities for innovation.

Whether it's a smart city innovation lab, a coding boot camp or a national bug bounty, invite members of surrounding communities in the public, tech and private sectors to either gain or demonstrate their IT skills. Doing so can help your agency spot critical vulnerabilities in your networks, innovative solutions to difficult IT problems or potential talent to recruit for your IT workforces.

3 Go straight to the source of innovation.

Rather than posting on USAJobs and waiting for talent to come to you, get your agency or department out to the innovation hotspots ripe with budding tech entrepreneurs. The National Geospatial-Intelligence Agency, for example, is setting up an outpost in Silicon Valley with a plan to host three new data teams and bring best practices and talent from the tech industry into the intelligence community.

WHO'S DOING IT RIGHT?



State Department Offers Foreign Affairs and IT Fellowship Program

Without a strong pipeline for young talent, government risks lagging behind an increasingly globalized, digital world. But the State Department is aiming to counteract this trend through its Foreign Affairs and IT fellowship program. With funding from the department and administration provided by the Washington Center, the fellowship program provides current graduate and undergraduate students pursuing an IT-related degree with the chance to apply technology solutions to diplomacy.

The fellowship accepts five students per year. It offers internships at a domestic office of the department and/or an overseas consulate, mentorship from a current Foreign Service Information Management Specialist (IMS), tuition assistance for the last two years of fellows' undergraduate or graduate studies, and a job opportunity for fellows who successfully complete the program and IMS entry requirements.

By providing one-on-one mentorship with a professional in the field, generous stipends and valuable internship experience plus a direct transition to employment, the fellowship offers significant benefits for students. More importantly, by offering students the chance to become diplomats through IT, the fellowship demonstrates strong incentive for the future government IT workforce.



Health & Human Services Hosts IT Hiring Fair

In a first for the federal IT community, the Health and Human Services Department's CIO used an unconventional approach for hiring in government: on-the-spot offers during a job fair. The CIO's team made initial offers during a two-day hiring fair in Montgomery County, Maryland, in November 2017. The event brought together more than 1,800 job seekers from 40 states and hiring managers from 33 federal agencies, including five from the intelligence community.

The goal is to fill 500 IT and cybersecurity positions governmentwide. When the event kicked off on Nov. 6, organizers were expected to make about 50 job offers that week, but significantly more offers were made post-event. The fair was a joint effort by the CIO Council, OPM and OMB.

Before the event, applicants registered online, submitted their resumes via USAJobs and were invited to take an assessment. From there, they were rated and ranked to determine their job qualifications, and their information went to agencies for review. Agencies were then granted direct-hire authority to expedite hiring for positions. This innovative approach demonstrates that government can do fast-track hiring even for tech positions that require security clearances.

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INDUSTRY SPOTLIGHT

Future-Proofing Data Centers Through Data Center as-a-Service

An interview with Rob Davies, Executive Vice President of Operations, ViON

When it comes to the future of data centers, government IT faces many challenges. First, technology is rapidly evolving while government data centers lag in their ability to deploy such technologies. Secondly, agencies must make tough decisions when balancing between the priorities of securing data while making it accessible to the right users. Lastly, IT leaders need to derive maximum value from their data through analytics to enable better decision making.

Instituting a future-ready data center is essential to ensure data is secured and integrated across the data center and into hybrid and multi-cloud environments. But to modernize the data center, agencies not only must navigate the data deluge and transfer of workloads, they must consider what is financially and logistically feasible.

Traditionally, IT teams worked in silos, tackling each part of their data center operations independently rather than opting for a single robust solution that balances resources and performance needs across an entire enterprise. Given the vigorous pace associated with managing data capacity, back-up, disaster recovery, data protection, storage, compute and networking needs, modernizing all these disparate components of data centers can be overwhelming.

That's why the path forward involves an as-a-Service approach to streamline delivery of capabilities and technology while reducing costs. Specifically, Data Center as-a-Service (DCaaS) will help agencies modernize their data centers and operate more efficiently while supplying better services to citizens.

To learn more about DCaaS, GovLoop sat down with Rob Davies, Executive Vice President of Operations at ViON. ViON Corporation, is a Cloud Service Provider with over 37 years of experience designing

and delivering enterprise data center solutions to government agencies and commercial businesses.

"Agencies have to respond to multiple competing goals, and are required to comply with FITARA legislation and the Modernizing Government Technology Act," Davies said. "Agencies must have a very detailed, granular understanding of their data centers (for example, what databases are running which critical workloads and what other applications call on that data) to make good decisions regarding IT modernization."

DCaaS can help agencies streamline their modernization efforts and meet these competing priorities through scalable, on-demand services. It can address many modernization challenges by providing all facets of data center technology, including hyperconverged infrastructure, data management, data protection and analytics, as-a-Service. By accelerating and streamlining delivery of capabilities and technology, DCaaS can immediately reduce costs and rapidly scale the data center assisting agencies that need to improve their FITARA scores and optimize their data centers.

"DCaaS is not about the individual components of the data center," Davies said. "It's operating a technology stack such as hyperconverged infrastructure (HCI) that's very dense. It's dense in storage capability and compute capability, which means agencies are consuming less power, maximizing floor space and virtualizing their data center platform."

Through DCaaS, agencies can improve IT performance and efficiencies cost effectively; not just in procurement but also in terms of energy efficiencies, floor space and human capital. "As you improve the deployment of these technologies, you're going to see a lot less downtime," Davies

added. "Once you virtualize workloads across platforms, you're not dependent on one set of servers or storage."

Data center modernization strategies can involve multiple stakeholders, adding complexity that requires serious innovation. This can be overwhelming for any agency with disparate legacy infrastructure and pressure to comply with legislation like FITARA. Applying as-a-Service models to data centers can help agencies secure and manage their data in a unified solution. Ultimately, DCaaS can help government future proof their data centers while delivering and securing mission critical-data.

"In the end, agencies have a mission to support and they need resources to operate," Davies said. "With DCaaS they can effectively manage, monitor and deploy the resources needed to operate those data centers."

"ViON has helped agencies optimize their data center with as-a-Service programs for over 17 years. We focus on strategic agency mission as top of mind, rather than primarily focusing on technology," said Davies.

ViON leverages their professional services teams to help organizations make the right architectural choices and determine the level of support they need to future-proof their data center and, ultimately, plan their hybrid cloud solutions. ViON's Data Center as-a-Service offers innovative hyperconverged solutions from OEMs such as NetApp with an as-a-Service offering including a full range of professional and managed services, allowing customers to focus on business outcomes while ViON delivers outstanding customer experience.

CHALLENGE #5

Poor IT Change and Disaster Management

THE PROBLEM

Whether it's upgrading to newer software, migrating to the cloud, retiring a data center or recovering from an IT disaster, your agency employees and constituents will be the most affected.

Too often, modernization efforts fail because end users didn't accept them. In fact, only 29 percent of agencies have established an application modernization change management team. That's why CIOs, senior IT managers and senior leaders must consistently demonstrate their commitment to IT modernization programs.

But IT upgrades aren't the only type of change that can rock government's world. Last year almost broke records for massive natural disasters in the United States, with 15 in the first nine months of the year, each costing at least \$1 billion. These recent events highlight federal, state and local governments' challenges in effective response. When IT systems go down, how do governments navigate? Failing to have modern IT that can withstand these crises can have enormous consequences.

HOW TO ADDRESS IT

1 Build a clear roadmap.

Ensure that IT modernization is part of your agency's overall strategy and emphasize the link between better IT, better services, stronger cybersecurity and agency mission. Define the compelling reason for why the change was needed, including current limitations and how they are affecting performance. Assess your needs and understand your compliance requirements, determine your IT modernization project's scope and complexity, and create a timeline.

2 Organize and staff the project.

A strong manager and governance team leading your agency's modernization effort are two of the most important ingredients to success. Create a solid management team by thoughtfully filling each of the leadership roles to make the rest of the process smoother.

3 Incorporate standards and automate.

The Information Technology Infrastructure Library (ITIL) is a set of detailed practices for IT service management that focuses on aligning IT services with business needs. In developing a business-minded IT environment, you need to create reports to monitor the quality of your agency's or department's services. ITIL can help you document everything in the IT modernization process, including management of services, change and assets.

WHO'S DOING IT RIGHT?



Social Security Administration Uses Agile Development to Help Teams Modernize

In early 2017, the Social Security Administration (SSA) transformed its Disability Case Processing System (DCPS) into a modernized, cost-effective and user-friendly IT platform. SSA partners with state disability determination services (DDS) to evaluate disability status. Those organizations use various customized IT systems to process disability claims.

DCPS is an SSA initiative to develop a common system for all DDS organizations to simplify system support and maintenance, and improve the speed and quality of the claims process.

SSA decided to rebuild the entire DCPS from scratch, which required a huge IT overhaul. By deploying in the cloud and using Agile methods, IT professionals on the project could better connect with the customers they were trying to serve. To improve communications and Agile development, the team was co-located together, enabling them to swiftly adapt to the newer software.

As more DDS organizations convert from legacy technology, SSA will reduce IT and significantly advance the working environment for the staff, improving the services they deliver.



Puerto Rico Manages Disaster Aftermath through Technology Innovation

As government, tech companies and nonprofits have worked to bring the U.S. territory back online, Puerto Rico and its people have turned to new technologies to connect with one another and the outside world. Months after Hurricane Maria made landfall, experimental technologies and portable satellite terminals have helped the government and private sector restore communications across more than 85 percent of the island.

After the storm hit, Puerto Rico's CIO began working with the telecommunications industry to clear red tape to start working on the network as soon as possible. The team also brought industry leaders together to flesh out an open roaming agreement that would allow Puerto Ricans' smartphones to jump from one carrier's network to another. That way, people could call and send text messages wherever there was a signal, regardless of what network it was.

Besides reconnecting citizens, the government also needed to build a communications network for disaster responders. To do so, Puerto Rican and federal officials used lightweight satellite communications systems called very small aperture terminals that can send and receive data in the absence of a network.

Conclusion

Modernizing IT systems is an increasing imperative for government at all levels to deliver better citizen services, support mission programs and improve security and efficiency. With the MGT Act passed and IT modernization a priority at the top, agencies need to double down on their modernization efforts, regardless of fiscal or resource constraints.

Although the challenge of modernizing in a lean government landscape seems daunting, it is possible. Your agency can navigate through any one of these common IT modernization challenges:

- 1. Overly complex IT governance.**
- 2. Costly legacy technology.**
- 3. Data center sprawl.**
- 4. Lack of a talent pipeline for the IT workforce.**
- 5. Poor IT change and disaster management.**

Agencies at the federal, state and local levels have faced similar challenges and, despite seemingly impossible odds, overcome them. With the right strategy, planning, team and solutions, your agency can overcome the top IT modernization challenges, too.

About & Acknowledgments

ABOUT GOVLOOP

GovLoop's mission is to "connect government to improve government." We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 270,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

For more information about this report, please reach out to info@govloop.com.

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