Executive Summary

Today in government, chief information officers and chief technology officers are on the verge of facing one of the biggest challenges to come their way: a perfect storm of data management.

Consider this: data is growing at an exponential rate, and is expected to reach 44 zettabytes globally by 2020. Unstructured or semi-structured data, such as email, videos, images and social media, is growing at a rate of 75 percent, while structured data is increasing by 23 percent. And the world’s available storage capacity is growing slower than the digital universe.

Moreover, the consumers of that data – agency employees and constituents – are demanding more immediate access to a growing number of platforms and locations. This burdens those charged with managing that data with new challenges around security and accessibility as well as the existing requirements for federal records retention, data protection and resource management. This all is happening while government budgets are growing more slowly than their data.

IT departments must also face the fact that much of the data that agencies are generating and storing isn’t even usable. In 2012, the market research firm IDC estimated that 23 percent of digital data could be useful if it were properly tagged and analyzed, but only 3 percent has been tagged and only 0.5 percent analyzed.

Taken together, all of these issues are wreaking havoc on government information technology departments. They’re struggling to keep tabs on data as it’s created, stored and accessed, all while facing IT infrastructure silos and storage sprawl across their agencies.

Government agencies are facing a tipping point, where the currently accepted business practices will no longer keep up. Agencies faced with defaulting on their organizations’ goals will need to adapt new data management procedures to protect their budgets and their human capital.

The good news? In facing this deluge of data and all its accompanying challenges, there are solutions. Emerging data management procedures that address the end-to-end lifecycle of data – from creation to retirement – and the controlled progression of data to and from each stage within its lifecycle can turn this data problem into an opportunity.

To better understand this current data challenge, and the possibilities of an effective data management strategy, GovLoop interviewed Kevin Warnk and Christina Stafford, subject-matter experts at ViON, a veteran-owned IT solutions provider with over 35 years of providing data management and storage solutions to the public sector. With their help, we’ll look at what’s creating this perfect storm of data management and how government can best navigate it.
What’s Causing the Perfect Storm of Data Management

Several issues affect data management today: the sheer amount of data that currently exists and the rate at which new data is being created; a record demand for quality data to make informed decisions; and the difficulty end users have accessing and sorting through the data they need.

Like puzzle pieces, these issues taken together reveal the whole picture, but to get there, we must first examine what’s shaping each.

The Data Landscape: Growing, Sprawling, and Hard to Manage

One reason why data is doubling every three years is that agencies are simply creating much more of it.

“Everything from end users creating it to sensors to airborne platforms — you name it, it’s more data than ever,” said Warnk, Director of Data Protection and Management at ViON. “There are so many vectors for data these days. Twenty years ago, not so many systems were creating data. Now, almost everything in your environment is creating information, including the concept of the Internet of Things, where there’s a lot of machine-written data.”

Warnk is right. The public sector is seeing the most explosive data growth in human history, and it’s possible that this trend will continue to accelerate exponentially. The amount of data that today’s IT departments must store, manage and protect is massive. Over the course of the last 10 years the market has seen a dynamic shift where the growth of unstructured data – including email, images, video, social media, documents and more – is outpacing the growth of storage systems.

In addition to the massive amounts of data being created, other factors are at play when it comes to where data lives, how it’s accessed, and how it’s retained.

For example, the rise of mobile devices and employees using multiple, personal devices means that data is scattered over a wide variety of devices that can be difficult to index and access. Today in the public sector, employees no longer use only agency-issued smartphones, tablets and laptops. For the past few years, they’ve pushed to bring their own devices. Now many use their personal devices to conduct official business, including creating, storing and sharing government data. The result is that data could reside anywhere – even in places agencies don’t know about – raising additional questions about security, compliance with retention policies and storage.

Additionally, compliance policies and mandates play a part in data management because much more of the data created today must be retained long-term and in an easily accessible format. One example? To account for digitization of records, President Barack Obama signed in 2011 a memorandum on government records management that requires federal agencies to manage all permanent electronic records in a digital format by Dec. 31, 2019, and all permanent and temporary email records in an accessible electronic format by Dec. 31, 2016. Among other things, the law “clarifies the responsibilities of federal government officials when using non-government email systems.”

This perfect storm of data creation and sprawl has to be dealt with in a world where the fact is that data is increasing between 37 percent and 77 percent a year but IT budgets are increasing between 2 percent and 4 percent a year.
Continued

Access and Demand of Actionable Data

In every agency at every level, end users are demanding access to quality data now more than ever. For instance, government workers need it to fulfill FOIA requests in a timely manner and to adhere to compliance requirements. End users also want to use the data for decision-making analytics, a booming industry that IDC said will be worth $187 billion by 2019. But if agencies can’t keep track of their data, they can’t produce it to FOIA requesters, prove that it’s properly filed away or provide meaningful results through careful analysis.

Demand is also coming from external end users – citizens. They look to data to provide transparency about government actions and to make better decisions. For instance, in April 2016 the Open Government Partnership found that open data empowers citizens and enables them to make more informed decisions in addition to engaging them in data-driven problem-solving.

But giving data a longer lifespan isn’t akin to making it appear – or to making it useful when it does appear. The answer to helping end users find data where and when they want it is to centralize and organize data.

“The same kinds of information existed previously, but now it’s about how we can actually access it and eventually analyze it,” Warnk said. “So instead of organizations’ data being locked into specific containers, we are unlocking it to become more productive and deliver more value.”

For example, properly tagging and tracking data and storing it in appropriate tiers can make all the difference when a congressional inquiry or FOIA request comes in. IT managers must prioritize data storage based on data type. They should ask themselves, “Is it active data that should be in Tier One storage, or is it stale data that should be moved down to lower tiers?” Warnk said.

And end users must be able to search multiple data sources and storage tiers, and to classify data even as the data retains chain of custody, he added.

But that requires IT funding and resources at a time when agencies find themselves having to do more with less. The question is how to manage the information with the same resources.

Another question is how to adapt models that allow agencies to manage information more easily and more fluidly and aligning the right data to the appropriate tier of storage. That’s where agility comes in. “We need to have systems and policies that allow us to move data from the cradle to the grave, from most expensive systems to least expensive, while still allowing end users, applications and businesses to leverage the value of that information without impacting day-to-day operations,” said Warnk.

The objective here needs to be migrating data from the edge to the core, Warnk said. That means consolidating data at the remote endpoints of any agency that has multiple data centers or offices, where data might be duplicated.

“When we’re able to consolidate this data, we’re also able to encrypt it, which is a big help,” he said. Agencies should have the ability to migrate data from either an edge device into a centralized repository or from that repository into the appropriate tier of storage.

Clearly, there is a huge need for implementing an effective strategy of aligning technology with process to meet these data challenges.
Organizations like ViON offer a variety of data management solutions, like object storage solutions that give IT managers and cloud service providers centralized control to store, share, sync, protect, preserve, analyze and retrieve file data from one system. These solutions can automate data protection and adapt to changes in scale, scope, applications, storage, server and cloud technologies throughout the life of data. In IT environments where data grows quickly or must live for years, decades or even indefinitely, these capabilities are invaluable.

Here is how the data management solutions like those offered by ViON help in the context of the perfect data management storm:

**Consolidation**
Because they give full visibility of all control points where data enters, exits and exists across an agency’s IT landscape, these tools would eliminate duplication and the need for remote site storage. The agency would save money and gain capacity.

**Data Sprawl & Shadow IT**
Data management tools eliminate silos by providing multiple storage tiers, security, reliability, cloud capabilities, protocol support, multitenancy and configurable attributes for each tenant. Access to cloud applications means that the platforms can solve myriad problems and adapt to meet future needs, too. What’s more, as data ages, these platforms can encrypt it and send it from a hybrid on-premise cloud solution to a public cloud to save money.

**Mobility Support**
Data management platforms lay to rest IT managers’ concerns about BYOD and shadow IT by giving them a centralized look at all of the agency’s data. Additionally, the platforms have a native REST-based interface and S3-compatible and OpenStack Swift-compatible interfaces, allowing for seamless wireless or local network access for new and existing web 2.0 and mobile applications.

**Storage Optimization**
These platforms move content automatically based on business value or your storage-related service-level agreement. This means content can go to HCP S series nodes or cloud services without human intervention. “It helps control budget by moving the data from line systems to secondary systems, and we can do that based on policy,” Warnk said. “It frees up resources on the frontline systems, both storage and compute, and then consolidates it back to less expensive media.”

**Governance**
The IT department handles the governance of data, but does not own the individual information end users do. As a result, end users create content and put it on primary systems, where it sits because IT managers don’t know what data is valuable based on the content. “There’s no one actually managing at that point,” Warnk said. “What happens is you end up with more and more frontline systems. They just end up buying another one and buying another one and buying another one.” Through automation, a data management platform can decrease the number of frontline systems, reducing their footprint in the data center, while still managing that data and allowing end users to access their data anytime, anywhere.
In closing

Conclusion

The proliferation of data has opened a lot of doors for government agencies. They can use the information to provide better services to citizens and to govern themselves. At the same time, that mind-boggling growth has created new sets of problems for agency IT shops.

IT managers need a new data management approach, one that centralizes data management and automates storage processes, enabling them to keep data available to end users to access whenever they need it and from any device. Better data management benefits the entire agency by reducing costs through data consolidation and smarter storage, supporting a growing mobile workforce and providing a single system through which to manage data and shine a light on shadow IT. There's no denying the evolution of data, and modernizing data management now will prepare agencies for the next advances.
About ViON

Designing and implementing innovative solutions that meet dramatically changing IT requirements is ViON’s mission. Founded in 1980, we’ve grown from a small product reseller into a leading systems integrator delivering customized solutions and best of breed offerings from the world’s premier OEMs to large public and private organizations.

Known for our engineering expertise and exacting standards, ViON ensures that only those with the highest level of training, experience and industry certifications design, install, maintain and support our breadth of solutions.

We focus on data management, so you can focus on your organization’s success. We’re on the leading edge of Big Data and Cyber Analytics, Cloud, Video Surveillance and Storage. ViON’s cloud-based “as a Service” Program Management Office delivers direct access to the technology you need for today and tomorrow. From the data center to the cloud, let ViON’s passion for innovative solutions secure the competitive advantage required for your enterprise.

Learn more at www.ViON.com.

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