Leaving Legacy Behind

Open source content management promotes modernization.

Government officials and legislators at the highest levels recognize the need for IT modernization because traditional approaches to websites, systems and network architecture can't deliver the kinds of user experiences that customers have come to expect from private-sector companies. As part of the transition from bulky on-premises legacy systems to solutions offered as a service in the cloud, an open-source, cloud-based content management system (CMS) can go a long way toward helping agencies at all levels of government to achieve their modernization missions, while securing sensitive data and systems

There are three main drivers of modernization:

The first is the inadequacy of bulky, outdated systems that are cumbersome and costly to run. Federal officials now understand that legacy data centers aren't critical to agency missions and that modern architectures, such as cloud, are better suited for supporting modernization.

The second driver is the country's aging IT workforce. Of the federal government's 2.1 million employees, nearly one-quarter is older than 55. Fifteen percent of federal workers are eligible to retire today. In five years, the percentage is expected to double. In addition, the average age of full-time government employees is 47.5, according to the Office of Personnel Management. The retirement rate is unlikely to slow any time soon.

Retiring workers are a drain on the skills and know-how for maintaining legacy technology. Incoming employees who fill retirees' vacated positions are more interested in applying technology they use in their everyday lives. Learning decades-old systems and processes is less than compelling.

"People joining government now, they have much higher expectations for IT," said Peter Durand, vice president of Acquia federal sector. To attract and retain them, government agencies need to be open to modern technology.

The third driver of modernization is the agility to architect open systems. Agility can help to stave off stovepiping, a common occurrence in traditional government IT that contributes to isolated environments and vendor lock-in.

"I think the whole IT mindset is changing with agile," Durand said. Agile development allows for a more collaborative approach with cross-functional teams and technology.

The government entities having success with IT modernization are those that start cloud migrations with low-hanging fruit, such as email systems, says Joe Kroger, vice president for state and local at Acquia, an open source digital experience company. Earlier this year, for example, the Air Force Network Integration Center completed the first phase of its $1 billion Cloud Hosted Enterprise Services. The program migrated 555,000 Air Force email accounts in the continental United States.

"What agencies are not there yet on, which is where the industry is really going to the next thing, is the rich user experience: rich, cross-channel delivery," Durand said, referring to the ability to have the same user experience on a laptop, tablet or smartphone. "It's just going to take time because it does take some cross-departmental, cross-agency cooperation, which is probably even more difficult at the federal level than at the state and local level." ∎

"FEDERAL AGENCIES ARE REALIZING THAT RUNNING HUGE LEGACY DATA CENTERS ISN'T ALWAYS CRITICAL TO THE MISSION OF WHAT THEY DO."

— JOE KROGER, VICE PRESIDENT FOR STATE AND LOCAL, ACQUIA

Acquia Fast Facts

• Founded in 2007 as a software company
• Based in Boston, the company has almost 900 employees
• Acquia provides a world-class cloud platform for building, managing, and optimizing Drupal-based websites & digital experiences

Sweet Benefits for Big Apples and Georgia Peaches

Urban and rural governments are turning to open source content management systems.

The Georgia Technology Authority (GTA) moved to replace its 10-year-old proprietary content management system (CMS) when it became apparent that the CMS couldn't keep up with increased network traffic and GTA couldn't keep up with the system's prohibitively costly maintenance requirements. Digital Services Georgia, which manages information technology infrastructure for the state's government agencies, sought to replace the CMS with a platform that would give residents better access to government information and services across the websites of 55 state agencies. After considering all options, the state chose Drupal, an open source CMS platform.

GTA officials wanted to replace two versions of a proprietary CMS. One version was unsupported by its developer, and the other required continuous monitoring by the technical team to ensure that sites were live and servers were running.

Officials also wanted a CMS that would take advantage of the cloud, especially its elasticity, making it possible for Georgia.gov to quickly scale when events generated more site traffic. And they wanted the ability to add websites without having to provision new servers. Most important, they wanted a user-friendly system that would accommodate the needs of content managers and operators of all skill levels.

"We wanted something that didn't require 20 clicks to publish something," said Nikhil Deshpande, director of GTA's GeorgiaGov Interactive office.

GTA worked with Phase2, a digital experience firm, to develop a strategy for migrating, rebuilding and redesigning the outdated CMS. The plan led to a multisite architecture that created consistency across all GTA sites on Acquia Cloud, an application lifecycle management suite. To support the migration and develop a custom, responsive, mobile-first search

application, they used OpenPublic, an open source CMS. Now, content administrators can easily spin up new sites and add them to Georgia.gov.

Within 12 months of adopting the new system, Georgia.gov launched 55 websites on the Acquia platform and consolidated 20 on-premises servers to Acquia Cloud. Officials estimate that the move will save $4.7 million over five years.

Since completing that project, GeorgiaGov Interactive has worked on another initiative with Acquia Labs, an innovation team that builds multichannel experiences. That project, "Alexa, Ask GeorgiaGov," integrates the Drupal-based website with Amazon's voice assistant. The goal was to widen access to information and get it to state residents faster. The initiative also sought to further the state's use of open-source innovation.

"We have long placed a very deliberate emphasis on connecting Georgians with government information and services in the way that works best for them," Deshpande said. "Making our content available via new channels like Alexa is an important next step for us."

Additionally, the digital services office launched Georgia GOVHub in April 2019. The digital publishing platform, powered by Drupal 8, helps state agencies manage their content.

"The bedrock of our digital properties is consistency of constituent experience," Deshpande wrote in a blog post. "When content is fragmented and stored in multiple places, it is impossible to manage consistency."

The Importance of the Citizen

To be successful, governments must design websites and mobile technologies with users in mind, concludes "Putting Citizens First," a report issued by McKinsey and Company.

"State governments need to adopt a citizen-centric approach to designing their websites and mobile apps, just as leading companies place customer needs at the heart of their designs for digital interactions. Too many states still provide online services that basically mirror their paper-based processes, including error-prone handoffs and delays."

Signs of the times

In New York City, the Metropolitan Transportation Authority serves more than 11 million daily passengers. In addition to keeping trains moving, officials are responsible for keeping riders informed. Its website, MTA.info, was a primary communication channel, but officials wanted to revamp how they delivered content to 1,800 digital signs in more than 400 New York City stations. The information has to be posted quickly to be relevant to riders. The goal was for train data on MTA.info to also be available at train stations and on platforms.

Through the Acquia Platform, Decoupled Drupal CMS and Acquia Professional Services, the agency now uses a single CMS to power its website and push content and data to the system's digital signs.

In order to feed its network of dispersed signs a steady diet of relevant, centrally managed information, MTA creates content inside Drupal and pulls data from external feeds; pushes it to Amazon IoT Services; and displays it in real time on countdown clocks. Drupal is equipped with provider application programming interfaces that pull data from transit information, weather and message feeds. Each data type comes from at least one source, and each one has different formats, granularity and update intervals.

MTA outfitted trains, for example, with Bluetooth beacons from which Drupal can pull data to improve the accuracy of predicted arrival and departure times that are displayed on platform countdown clocks. Drupal acts as the gatekeeper for all data, enabling the MTA to send data to signs from multiple APIs in real time.

But MTA wanted to ensure that the right messages arrived at the correct destinations. Passengers at the Broadway stop don't need to know when trains are arriving in the Bronx. What's more, the authority wanted to automate the distribution and management of tailored messages. Drupal's content modeling helped because it represents the transit system's physical attributes in a manner that allows for finer-grained content delivery.

The model is easy for non-technical employees to use and change as needed. Plus, it lets MTA officials customize messaging for display on a single platform or an entire route. After the content is set, MTA uses Amazon Web Services to provide near-instantaneous delivery of data.

Decoupled Drupal, an architecture that lets developers use any technology to render user-facing content, is another element of MTA's solution. It means data can continue to flow into the display without navigating away from or reloading the signs.

At the core of the efforts in Georgia and New York is the customer. GTA and MTA are putting consumers first by ensuring that they can access up-to-the-moment information in formats they're comfortable using. They exemplify how other government agencies can use modern technology to improve experiences for internal and external users alike, which ultimately translates into increased citizen engagement and trust. ∎

Better Technology, Better Government

Effective IT promotes efficient, effective business operations.

When government agencies struggle to adopt a new or updated technology, such as an open source content management system (CMS), often the culprit is culture, even though the benefits of modernization and cloud technology are well-established. Getting buy-in for new tech from government workers can be tricky, especially when changes to IT alter workflow. Employees naturally fear the unknown. One way to get them on board is to explain the three main capabilities of an open source CMS: mission attainment, financial stewardship and data management.

Mission attainment

In government, every initiative should track back to the mission and whether it's being met within budget and staffing constraints.

"For government, it always comes back to the concept of constituent service and stakeholder service," Kroger said. "Essentially, that's what government is built for. The federal government is really about setting policy direction and funding. State and local governments receive that funding and … [translate it] into service delivery."

An effective CMS provides an affordable, effective, secure and manageable way for agencies to consistently meet their goals.

Financial stewardship

Government has a responsibility to spend tax revenue wisely while serving customers – both agency workers and their constituents – effectively. One way to be fiscally responsible is by cutting down on waste, whether by reducing wait times, carbon footprints, paper usage or labor-intensive manual tasks, through automation and digitization.

DX explained

Acquia provides a powerful cloud-native platform for government agencies to build, manage and optimize Drupal-based digital experiences.

*Source:
https://www.acquia.com/blog/keeping-digital-experience-platforms-dxps*

"Any time you can remove human beings from a work cycle, you're going to do much better," Kroger said. "So much of government delivery can be automated because it's designed that way. It isn't designed for one-offs."

IT-enabled financial stewardship, for example, could replace some brick-and-mortar Department of Motor Vehicles locations with kiosks that handle many routine transactions. Automating manual tasks can reduce overhead (heating, cooling, lighting, etc.) and increase customer satisfaction.

Data management

With the amount of data worldwide expected to grow from 33 zettabytes in 2018 to 175 zettabytes by 2025, according to research firm IDC, managing that proliferation is top of mind for many government officials. A robust CMS can minimize the burden of creating, organizing and modifying content.

A good business process that's defined and delivered through a digital platform will be a more efficient use of data, regardless of the application, Kroger said. ■

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What is open source software?

Open source software is an application whose creators have made the source code openly available. Anyone with a license can inspect, modify and distribute the software freely. It differs from proprietary software that legally remains the property of its creators. The source code of proprietary software is rarely released.
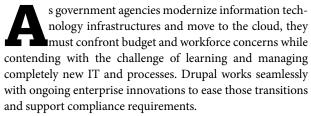
Defining Drupal

Acquia founder Dries Buytaert developed the bulletin board system that in 2001 became Drupal, the open source platform for web content management. Distributed under the GNU General Public License, Drupal has no licensing fees, which has enabled it to amass a large community of contributors and a library of modules and themes that can change how websites look.

Paving a Path to Modernization

On the way to cloud, forward-thinking agencies build in accessibility and data-sharing functions.

As government agencies modernize information technology infrastructures and move to the cloud, they must confront budget and workforce concerns while contending with the challenge of learning and managing completely new IT and processes. Drupal works seamlessly with ongoing enterprise innovations to ease those transitions and support compliance requirements.

Federal officials now understand that legacy data centers aren't critical to agency missions and that modern architectures such as cloud are better suited for supporting modernization.

"Federal agencies are realizing that running these legacy data centers isn't always critical to the mission of what they do," Durand said. "That's why the cloud and all these other kinds of architectures really lend themselves well to modernization because it makes it easy, but it's also a way for the government to relinquish some of that IT responsibility and cost."

Open application programming interfaces are key, he added. Drupal's open API works well with existing IT systems, providing developers access to a proprietary software application or web service.

"The beauty of Drupal is organizations don't have to rip out all the other IT that they have," Durand said.

During the initial push to the cloud, agencies sometimes rushed. In some cases, that meant lifting and shifting on-premises environments to the cloud without necessarily considering whether they were suited for it. Now, agencies are taking the time to build business cases for migrations, such as providing higher-quality services in greater volume – and delivering them more quickly. They're seeing that cloud can decrease time to market because they don't have to wait for a vendor to develop a proprietary software model. Although revenue doesn't drive agencies, timeliness does, Durand said.

Using an open source CMS can help governments move away from the model of a central IT organization that has sole responsibility for updating and pushing out content. Instead, it lets individual departments handle those responsibilities, which results in faster delivery times.

Another consideration is accessibility. Section 508 of the Rehabilitation Act states that federal agencies must make all IT accessible by everyone. Because the Drupal community has contributed models that help with accessibility, agencies can quickly adapt them for their needs.

Drupal also supports recent government initiatives on data and services sharing. The 2018 President's Management Agenda made sharing among government agencies a priority. Drupal is open source and intended to be shared by design. Durand said it's like free research and development for the government.

"We have so many organizations contributing back to the open source community, and we find major Cabinet agencies sharing code among each other for functionality. That's really interesting in the government," Durand said.

From a procurement perspective, open source also lets agencies avoid the vendor lock-in that so often comes with large proprietary solutions that only a few people know how to use and maintain.

"With open source, you could argue there's a technology lock-in, but there's really no vendor lock-in," Kroger said. "You're not locked to a vendor's product road map and a vendor's decision on product direction." ■

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How the Private Sector Flattens Modernization's Learning Curve

Whether they're examples or partners, companies can help agencies get digital services.

To keep modernization efforts humming along, government agencies could learn a thing or two from the private sector.

"Government is starting to look more at the user journeys that are going on in the private sector and trying to learn from those," Kroger said. "It's video, graphics and data driving users. It's not just about driving content to a web-based site."

He points to NBC Sports Digital, which has some of the world's most trafficked websites and streams some of the largest sporting events. It's an example of how to use a content management system (CMS) based on Drupal to improve user experience while maintaining technological integrity.

A few years ago, the company was using a proprietary CMS that struggled to accommodate the range of events streamed by NBC, from a regional high school basketball tournament to the Super Bowl. The search for a solution that could scale rapidly and also handle day-to-day operations brought the company to the digital CMS firm Acquia. Today, NBC uses the Acquia Platform to manage dozens of websites.

In a conversation with Acquia Founder Dries Buytaert, NBC Sports Chief Technology Officer Eric Black said that the ultimate measure of success is the lack of complaints about technology failures on social media following major events such as the Kentucky Derby, when traffic can go from almost none to more than 30 million within several minutes.

Another approach is to partner directly with commercial firms. In 2014, Google-owned Waze, a navigation app that draws on real-time information from drivers, created the Connected Citizens program. It lets cities and states partner with the company at no cost. The two entities exchange information, with Waze providing data about traffic jams and user-reported problems such as potholes; in turn, governments provide details on road closures.

"Looking at open source software, instead of spending costs on software and products of that nature, agencies could actually turn those dollars and use them for building mission function-

ality, and that's a real change," Durand said.

Constituents expect digital experiences with government entities to mirror what they use in their personal lives, and there is a lot of potential for governments to fulfill those expectations. As cities become smarter and collect more data from sensors and other Internet of Things devices, for instance, they can use that information to improve people's lives, Kroger said.

"I think we're just scratching the surface of what the digital experience can be for the citizens and how government will be able to leverage that," he said. ■

Government satisfaction by the numbers

71 – 2018 American Customer Satisfaction Index (ACSI) ranking of the quality of information the federal government provides, which is at its lowest level since 2015

76 – ASCI ranking of the usefulness of government websites, a decrease from 2017

68.9 – Federal government services' overall ASCI ranking, down 1.1 percent from 2017

73 – Ranking of customer satisfaction with government websites, according to a 2019 report from CFI Group

Open Source for Maximum Modernization

The right content management system is crucial for long-term success.

To effectively modernize information technology, government agencies at the federal, state and local levels must adopt and adapt to cloud solutions. Getting there can be challenging, both from technological and cultural perspectives. The payoff is cost savings, increased efficiency and better service delivery. An open source content management system (CMS) such as Acquia's Drupal-based solution can ease the transition.

When agencies procure or make their own proprietary solutions, they run the risk of having limited support. Only a few people may know how to maintain a proprietary system or develop applications for it. With open source, resources are nearly limitless.

"There's a lot of places to learn about it," Kroger said. "There's a lot of resources with third-party consultants. There's a lot of free stuff online that people can use to get up-to-speed on open source software. There are user groups everywhere across the country. There's a large support network and a large safety net for these governments."

> "AT THE LOW END OF THE SPECTRUM, WE ESTIMATE, AUTOMATION COULD SAVE 96.7 MILLION FEDERAL HOURS ANNUALLY, WITH A POTENTIAL SAVINGS OF $3.3 BILLION; AT THE HIGH END, THIS RISES TO 1.2 BILLION HOURS AND A POTENTIAL ANNUAL SAVINGS OF $41.1 BILLION."
>
> — DELOITTE UNIVERSITY PRESS

What's in a name?

Drupal's name is based on the Dutch word "dorp," which means village. When inventor Dries Buytaert searched to see if "dorp.org" was available, he mistyped it as "drop". When the website, drop.org, went live, it began attracting new members who talked about innovative web technologies and evolved the site into an experimentation environment. When Buytaert released the software behind drop.org in 2001, he called it Drupal, derived from the English pronunciation of the Dutch word "druppel," which means drop.

The open source CMS easily integrates into existing environments and meshes with three main goals of the government: mission attainment, financial stewardship and data management. Because the solution promotes an agile environment and faster time to market, it enables agencies to better meet their missions. It can automate manual tasks, freeing government workers to focus on higher-value work – a better use of taxpayer dollars. Additionally, as data grows in number and importance to decision-makers, a robust CMS simplifies creating, organizing and modifying content.

The result is an IT environment that provides employees and constituents with digital experiences akin to those they have in their personal lives – interactions that both groups have come to expect from the workplace and the public sector.

A Drupal-based CMS is one way for government agencies to achieve their mission of delivering world-class service to constituents in an affordable, consistent, effective, safe, secure and manageable way. ■

What Acquia offers

Acquia Cloud - helps development teams build, manage and deliver Drupal-based websites and applications quickly and with less cost.

Acquia Cloud Site Factory - a platform for teams to centrally build, deploy and manage large numbers of websites with global scale.

Acquia Lift - a personalization solution that improves customer experiences to drive engagement, conversions, and loyalty.

Acquia DAM - a digital asset management solution that helps companies manage, find and use all the creative assets used by marketing and beyond.

Acquia Lightning - an open source Drupal 8 distribution with preselected modules and configuration to help developers build better sites faster and to empower editorial teams.

Acquia Journey - a customer journey orchestration solution that helps brands deliver the best-next content, offer or action to every individual on any channel or touchpoint.

Learn how Acquia's open source solutions improve business operations, advance missions and benefit customers.
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