Taking Digital Transformation into the Cloud

Aligning IT and the cloud advances modernization.

When the Office of Management and Budget (OMB) finalized the administration's Cloud Smart strategy in June 2019, it essentially asked agencies to shift the way they thought about IT transformation. Modernization, according to OMB, "is not a commitment that is sustained solely by interventions once every decade. Rather, modernization is a constant state of change and part of the day-to-day business of technology at every agency."

Unless agencies are willing to "iteratively improve policies, technical guidance, and business requirements," their IT portfolios will become obsolete. Cloud – and Platform-as-a-Service (PaaS), in particular – helps agencies with continuous processes that transform how employees and constituents access federal services. Modernization also makes it easier to use artificial intelligence (AI) and machine learning (ML). The bottom line is that PaaS could completely change internal and external agency customer experiences.

If agencies are ready.

Changing with the times

We are at the beginning of a potential sea change, according to a recent trends report. At present, slightly more than a third of agencies surveyed by an industry analyst in conjunction with Affigent (an Akima company and platinum partner for Oracle), reported that they are discussing the Cloud Smart strategy and its recommended best practices and policies. Another 17 percent aren't discussing it, and 19 percent said they aren't familiar with Cloud Smart.

It doesn't bode well for the future of federal IT that almost 40 percent of federal agencies aren't engaged with the government's cloud strategy. Cloud use has become ubiquitous. Some agencies are using PaaS for a range of activities, from data management and integration services – providing the glue that allows organizations to connect applications to each other, regardless of the application's location – to application engines. Yet there is much more that PaaS can do, says David Knox, group vice president, Sales Consulting, for Oracle. Agencies have recently been using PaaS for DevOps automation, gaining instant access to the tools and processes that help an organization automate the movement of code through the stages of write, build, containerize, test, deploy and manage.

While the supply side of cloud still provides three tiers (SaaS, PaaS, IaaS), the demand side is far simpler. There are buyers who want to subscribe to prebuilt applications (SaaS), and there are builders who want to use infrastructure and app-dev tools to create new applications. The builders use tools at both the PaaS and IaaS levels, but they do not draw a clear distinction between the categories. Ultimately, end users and constituents don't care how they get their applications. They want them quickly, and they want them to run correctly. PaaS is becoming the technology of choice.

"The use of PaaS for DevOps has increased IT's agility and its ability to quickly experiment," Knox says. "Agencies are using PaaS to create better and more repeatable DevOps processes, leading to faster changes across the enterprise. Because PaaS automates many DevOps tasks, it allows developers to release new versions of software faster. End users don't have to wait for months and months to get what they want or need – and a lot of times what they're asking for is extremely critical to the agency's mission. This ability to do agile development and release is very critical to the experience of more frequent and faster delivery of new functionality." In addition, PaaS automation consistently delivers higher quality products. Liberated from boring, repetitive tasks, agencies' IT staffs can spend more time refining product design and customer-facing experiences, he says.

Looking Ahead

Agencies are finding new uses for Platform-as-a-Service (PaaS) all the time. Looking ahead, the biggest impact of PaaS will be in the net new systems and applications developed by agencies. PaaS provides a more cloud-native architectural pattern, including microservices, APIs and serverless computing. Some recent uses focus on emerging technologies, such as machine learning (ML) and Internet of Things (IoT).

PaaS is changing machine learning by taking a database approach (as opposed to a rules-based mode that uses a large number of rules to simulate human decision-making). "Now, agencies can collect a large sample set of data that they can use to train a machine learning model and not the other way around," says David Knox, group vice president, Sales Consulting for Oracle. "PaaS makes this ML approach affordable and available to government agencies, thereby enabling the agencies to address hard problems such as threat detection, pharmaceutical research and transportation analysis."

PaaS is also helping agencies to embrace IoT because it can handle the ever-expanding workload of IoT. "PaaS makes IoT much easier and cheaper than what existed pre-cloud," says Knox. "As a result, IoT affects the mission by enabling government executives to accomplish things that were just not economically feasible in the past."

security than that."

Finally, Oracle PaaS allows agencies to take greater advantage of existing infrastructure and applications. While it might sound like a good idea to start from scratch in the cloud, some legacy applications simply aren't going away, especially those that have been customized and used with great success for 10 or 20 years. Oracle PaaS, with its record of working with government agencies and all manners of applications, has experience with application integration. It also has the ability to bring back-end systems into an environment that can fully integrate with brand new deployments.

This is why, as agencies move into the future, they can rest assured that Oracle's PaaS has the ability to move their digital transformation plans into high gear, easing the burden of compliance, improving end-user satisfaction, and accelerating innovation. Some agencies are already using Oracle PaaS to create better and more repeatable DevOps processes, leading to faster changes across the enterprise.

"Agencies can and are leveraging the automation of PaaS to shorten their development cycles and include larger bundles of functionality in each release of an application," Knox says. "End users will experience this as more frequent and larger deliveries of end-user functionality."

Finding the right partner

These things are possible when an agency engages with a partner that has the right technology. A trusted partner also understands and complies with relevant regulations. Cloud providers must meet FedRAMP security compliance and Department of Defense Impact Level 5 (DOD IL5), for example. The cloud provider must achieve these authorizations, and the organizations must process them into their authority to operate. For many government organizations, this is no easy task, Knox says.

"Security reviews and ATOs are not new, but having a third party create and operate the infrastructure is. Deploying into a PaaS environment that has already achieved these certifications saves project development time, increases security, and ultimately saves costs," he explains.

Oracle's PaaS has an added level of security derived from its incorporation of hardware elements available from its acquisition of Sun Microsystems. Merging their assets created one of the biggest, fastest, most reliable, most secure data systems in the world, Knox says. "We have physically separated the application code from the cloud control code. They are physically separated. So what does this mean? This prevents cybersecurity attacks because no matter how good you are at software hacking, if your code cannot physically get to the cloud infrastructure, you can only infect the application you've already infected," he explains. "You can't get better