



IT MODERNIZATION FOR HEALTH AND HUMAN SERVICES IN AN ERA OF UNCERTAINTY

How migrating to an enterprise cloud makes it possible for HHS agencies to innovate while reducing costs.

With the federal government in a budget-cutting mood, health and human services (HHS) agencies that depend on federal funds face a great deal of uncertainty. Federal initiatives that cut funding for food assistance, housing aid and other programs could pose significant hurdles for states, counties and cities.

IT modernization offers a way for HHS agencies to improve service delivery while controlling costs. Research from the Center for Digital Government shows that among HHS agencies, top priorities for modernization include better data sharing, program integration and greater use of data analytics tools.

But HHS agencies face obstacles today that keep them from embracing these innovations. Key among those obstacles are a reliance on older IT systems, lack of integration among systems and inadequate budgets.

For HHS agencies that face these challenges, an approach based on a hybrid enterprise cloud offers a promising path toward better performance and greater efficiency.

Enterprise Cloud

Organizations have started moving to public cloud because it offers several major advantages. It allows them to “rent” infrastructure rather than “own” it, eliminating the need to make big, upfront investments in hardware and software. It lets them pay for only as much capacity as they need, with the flexibility to scale up and down according to fluctuations in demand. This flexibility makes public cloud a good choice when it’s hard to predict how much data traffic you’ll need to support in the near future, or when usage levels fluctuate over time.

The public cloud, however, is not the perfect solution in every case. When data usage is steady and predictable, an on-premises solution provides better economies of operation. It gives the organization more control over where its data resides

and how employees access it. Keeping the infrastructure on premises also gives you more control over system uptime, security, privacy, data governance and compliance.

Hybrid cloud offers the best of both worlds. In this approach, you implement workloads, applications and data across both public and private cloud environments. An application might run partly in one environment and partly in another. You might run an application on premises while using public cloud for backup. Or you might run an application on premises early on, when demand for it is still growing, and then move it to the cloud when usage becomes more predictable. You can make these decisions separately for each element or activity on your network, and you can modify the strategy whenever it makes sense.

One of the most effective ways to implement enterprise cloud is to build the on-premises portion on a hyperconverged infrastructure. Hyperconverged infrastructure replaces traditional blade servers, storage area network (SAN) fabric and storage arrays. This is done by putting the compute and storage into a single server and adding a software-based control system that allows a small or a very large environment to be managed as a single system. This has a big impact in terms of improving space, performance and management time.

A Better Path to Modernization

Among the benefits an IT organization gains by embracing the enterprise cloud model, an especially important one for HHS organizations is data sharing. Many HHS agencies are looking for ways to break down institutional silos, drawing data from multiple agencies and programs to create a holistic view of the people they serve. For example, a data-sharing program at the Missouri Department of Health and Senior Services and the state’s departments of Mental Health and Social Services aims to combine data from multiple sources to improve those agencies’ services to citizens.¹

Enterprise cloud provides a strong environment for innovative activities such as data analytics, which require a great deal of storage and processing power.

An enterprise cloud platform with hyperconverged infrastructure promotes data sharing by supporting integration across an organization and its systems. The distributed architecture of a multi-node hyperconverged infrastructure allows multiple workloads to run on virtual machines within a single node, and the distributed storage fabric allows data to move seamlessly across hypervisors and between private and public clouds.

Enterprise cloud also provides a strong environment for innovative activities such as data analytics, which require a great deal of storage and processing power. When you base the private portion of the cloud on hyperconverged infrastructure, there's no risk that you'll buy too little capacity for your needs and then have to undergo an expensive forklift upgrade to remediate the issue — nor is there a risk of tying up cash in underutilized infrastructure. Each node in the hyperconverged solution contains all the necessary elements in one package, allowing the organization to buy just the units it needs. As the agency starts to conduct more data analytics or other data-intensive operations, the IT department adds more capacity, paying for what it needs in a predictive, linear fashion.

A hyperconverged infrastructure approach strengthens an HHS agency's ability to protect its data and recover from a disaster. Features such as archiving, snapshots, backup, asynchronous replication and continuous availability ensure the agency can protect sensitive information, fend off malicious attacks, and stay up and running even in extreme circumstances.

Savings and Improvements

Crucially for HHS organizations, the enterprise cloud model with hyperconverged infrastructure helps cut costs even as they embark upon innovative initiatives. One study of 13 organizations that had deployed this kind of solution calculated an average five-year return on investment (ROI) of 510 percent. The average payback period was 7.5 months, and the total cost of ownership (TCO) for the system over five years was 58 percent less, on average, than the TCO for the legacy system. Organizations in the study realized performance improvements as well, including a 99.7 percent reduction in unplanned downtime.²

The state of Louisiana's Office of Technology Services realized these kinds of benefits when it deployed an enterprise cloud solution as part of a \$65 million modernization effort focused on its Medicaid program. The system included a statewide hyperconverged platform, a private, on-premises cloud and public cloud service. Because of the project's success, the modernization initiative with hyperconvergence grew beyond the Medicaid program to create a new, streamlined infrastructure that could serve the entire state government.

According to the state's chief technology officer, this new infrastructure will provide a stable, scalable platform that can incorporate "a hodgepodge of technologies," including "thousands of applications spanning all kinds of sectors." State officials expect the system's benefits will include initial savings of \$1 million on hardware.³

The Way Forward

Budget constraints in the coming years will make it tough for HHS agencies to fulfill their missions. By deploying modernized infrastructure, based on a hybrid enterprise cloud, an HHS agency can gain a more efficient IT operation, allowing it to deploy powerful new technology tools and strategies on behalf of the people it serves.

1. Adam Stone, "Data Sharing and Analytics: Changing HHS For the Better," *Government Technology*, January 9, 2015.

2. Matthew Marden, Eric Sheppard, "Quantifying the Business Value of Nutanix Solutions," IDC White Paper, August 2015, https://www.ciosummits.com/Online_Assets_Nutanix_Whitepaper_-_IDC_TCO_Report.pdf

3. Theo Douglas, "New Hyper-Converged Platform, Cloud Architecture Streamline Louisiana IT, Health Care," *Government Technology*, March 9, 2017, <http://www.govtech.com/computing/New-Hyper-Converged-Platform-Cloud-Architecture-Streamline-Louisiana-IT-Health-Care.html>



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