Your Cloud, Your Data:
Understanding and Choosing the Best Cloud Solution for State and Local Government Needs

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March 2015 | WP-7213

Abstract

Cloud computing is gaining traction among a growing number of agencies looking to create a more efficient government with cost-effective storage and data management solutions that let those agencies do more with less. With a secure cloud solution, agencies can deploy a cloud infrastructure that accelerates time to market with new services and increases operational efficiency and flexibility while cutting costs. NetApp is a recognized leader with proven technologies to deliver the storage capabilities that will power cloud infrastructures both now and in the future.
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1 New Realities of Today’s Rapidly Changing IT Landscape

In today’s fast-paced and rapidly changing IT landscape, many state and local governments are seeking ways to create a more efficient IT function with cost-effective storage and data management solutions that enable them to do more with less. Among the common challenges facing many agencies:

- Tight or dwindling agency budgets for IT funding
- The need to replace outdated legacy systems that are not capable of handling new and changing technology demands or the growing volume and complexity of big data
- The need to purchase more storage systems, with many organizations today spending 40% to 50% of their technology budget on storage capability to manage rapid data expansion
- An aging workforce, many of whom lack the skills to work with today’s advanced technology, combined with stagnant wages that make it difficult to attract talented and younger workers

Any one of these challenges can create serious problems or potential risks. Although many state and local government agencies continue to ask IT department to control costs, increase efficiency, and keep up with rapidly changing IT business requirements, most IT departments find themselves with a limited or inadequate budget. This reality is prompting more IT leaders to seek effective solutions to properly update aging legacy systems and secure advanced technology that is operated by staff trained to work with today’s most advanced and complex technologies.

Managing costs while delivering advanced operational capabilities and supporting new projects is akin to the old adage of building an aircraft while in flight. In many cases that is exactly what is required of IT, and this thinking is moving IT to evaluate flexible and scalable on-demand cloud solutions to offer expanded and improved services in the cloud. Today’s cloud solutions allow agencies to quickly and cost-effectively create an adaptable IT infrastructure that can augment or replace outdated computing and storage systems, prepare for changing requirements such as disaster recovery planning or continuous operations to keep critical services running 24/7, and be able to unburden administrators by hosting services. Such cloud infrastructure solutions can offer more affordable access to the latest virtualization and shared service technologies, which can provide greater computing speed and storage capability for state and local government agencies. Working with us, our cloud customers on average are able to buy 50% less storage and save 50% on power, cooling, and space costs.

In 2014, when the National Association of State Chief Information Officers (NASCIO) asked state CIOs to rank their top priority technologies, applications, and tools as part of its annual survey, cloud computing ranked as the number two priority for CIOs as they look ahead to 2015.1

There is no question that cloud computing is undergoing rapid adoption by government agencies. By evolving existing IT infrastructures to include cloud capabilities, agencies can better position themselves to achieve significant operational and cost benefits in the delivery of agency services. In this era of open government transparency, NetApp® cloud services enable more effective and responsive services with data-driven insight.

As the recognized storage leader for public cloud infrastructure,2 NetApp is leading the way with proven and highly adaptive technologies to help agencies successfully make the transition to this new computing model and to deliver the storage capabilities that will power cloud infrastructures both now and in the future.

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2 Storage Users Demand Study 2013, International Data Corporation (IDC).
1.1 Social Media and Smart Devices Bring Major Changes

As more tech savvy constituents use smart phones and tablets to access desired information and conduct their business transactions online, many state and local governments must increase network capacity to integrate and manage the types of mobile services that are in widespread demand. Constituents are constantly demanding expanded and improved e-services. Agencies must provide the infrastructure necessary to support the growing demand.

The public’s widespread adoption of social media and the proliferation of new content on the Internet every day have resulted in an explosion of data that agencies must manage. Especially challenging is managing the vast and growing quantities of unstructured data that comes from mobile data devices.

At a time when more constituents are using smart mobile devices every day, there is a growing need to unify the management of information across individual divisions that are part of a large, multidivision agency. It is imperative for these agencies to protect data but also allow citizens to easily and securely move between divisions, thus ensuring citizens get the ease-of-use experience they have come to expect in today’s fast-paced, tech-enabled world.

The growing data explosion, combined with advanced technologies that are now readily available to anyone with a computer, has led to a substantial increase in recent years in the incidence of headline-grabbing cybersecurity attacks. Although many attacks are taking place overseas, they are affecting or putting at risk various institutions across the United States. Agencies today must be prepared.

Consequently, there is a growing need for IT staff who can manage the sorts of advanced technology that can track and monitor cybersecurity threats (these same technologies can often provide another benefit, which is to manage data analytics). It is of paramount importance for agencies to prevent unauthorized access to sensitive data and to meet all compliance regulations.
This need comes at a time when state and local governments today are faced with a talent crisis as the
demand for employees with sophisticated IT skills and knowledge intensifies, especially those with data
analytics and cybersecurity protection and monitoring capability. According to a 2014 report released by
Deloitte and the NASCIO, nearly 60% of state chief information security officers (CISOs) surveyed in 49
states believe that there is a scarcity of qualified professionals willing to work in the public sector. Nine in
10 respondents said that the biggest challenge in attracting professionals comes down to salary. 3

This talent threat is another reason why there is growing interest in leveraging the skills and capabilities of
third-party vendors offering cloud services. Agencies understand that leading global technology
companies and well-regarded cloud solution providers such as NetApp are able to attract highly skilled
and well-educated IT professionals. Agencies appreciate knowing that these highly sought-after IT
professionals are working on their behalf. It is just one of the many important benefits offered through a
cloud service provider relationship.

1.2 Trends Driving the Need for Cloud Computing

Several years ago, the two main reasons enterprises looked into cloud computing were cost savings and
help managing aging infrastructures. Today, those reasons remain important, but enterprises are now
more concerned with security and data privacy, as shown in Figure 2, based on KPMG’s 2014 Cloud
Survey of more than 500 global executives.

Figure 2) Findings from KPMG’s 2014 cloud survey report.

A number of additional factors are increasing interest in cloud computing among state and local
government agencies. These include, but are not limited to, the following:

• The federal government’s open data policies, announced in 2012, are pushing down to the state and
local level, thus creating the need for open government transparency and making key information
easily accessible to the public while preventing unauthorized access to data.

• Increased consolidation within agency departments and among divisions that have previously worked independently. In making the transition to an integrated approach, agencies are seeking an on-demand or cloud-based architecture that can enable new and flexible services while also saving money. It is worth noting that this transition is often met with resistance, so agencies should prepare themselves with a proven plan and work with a capable partner that can help the agency successfully move forward. NetApp has proven technology and extensive experience, combined with many industry accolades and many customer success stories to share.

• Widespread use of smart phones and mobile devices, along with fast growing adoption of online technology, means that a growing majority of citizens today expect ready access to needed information (for example, finding train schedules) and to conduct their business online (for example, paying fees over the Internet).

• As technologies advance and become more complex and as cybersecurity becomes a more pressing concern, there is a need for IT staff properly trained in the newest technologies. This need comes at a time, however, when many state and local governments are currently or soon will be looking to replace retiring IT staff. Many of those governments looking are finding it difficult to compete with higher paying private sector jobs and the allure of high-profile startups seeking the most qualified IT candidates.

Figure 3) Pressures driving technology investments in the public sector.

According to NASCIO’s 2014 State CIO Survey, 20% of respondents stated they are already heavily invested in cloud services (a dramatic increase from 6% of respondents surveyed in 2013). Seventy-three percent stated they already have some applications in the cloud and are considering others (compared to 68% of the NASCIO respondents in 2013).4

According to the NASCIO 2014 survey, the CIO respondents indicated that they no longer feel that there are significant barriers to use different sourcing and business models.

It is clear that today’s CIO needs to control data in order to manage the data explosion, gain meaningful insights from data (using increasingly robust analytics technologies), and ensure the data is secure.

Meeting these needs can be a daunting task without the right technologies and capabilities, including a proven and trusted technology partner.

Market intelligence firm IDC wrote in a 2014 white paper how controlling data flow in a hybrid IT environment is crucial for businesses to effectively transform themselves into data-driven entities.  

Although there are some instances of state laws, regulations, and policies that may be a potential barrier to cloud service adoption, there is an undeniable increase in the number of agencies looking at cloud solutions. These agencies are delighted to discover that the cloud is the answer to many of their technology challenges and a way to do far more and create a more efficient government with less budget.

2 The Different Cloud Options

Many state and local governments today must replace legacy systems that are unable to deal with the data explosion or to manage today's advanced technology demands. They must also provide the needed cybersecurity measures to properly protect the agency's precious and confidential data. This reality is causing more state and local governments to explore the flexible and advanced capabilities of cloud infrastructure and sourcing.

In reviewing the different cloud options available today, agencies will find a wide array of possibilities and an expanding pool of vendors hoping to secure their business. It is no surprise that the level of capabilities and experience of the cloud technology vendors vary widely. Thus, it is imperative that agencies take a close look at a potential vendor's breadth of technology capabilities, track record of success, speed of service (NetApp can establish an infrastructure that can be deployed in minutes instead of weeks without sacrificing performance or availability), and relevant hands-on experience with comparable agencies, regulatory compliance, and technology environments.

The next three sections contain a brief overview of the different cloud options—private, public, and a blended hybrid approach—and the typical use cases and benefits that can be achieved with each model.

Figure 4) Cloud computing models

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5 White paper: “The Importance of Data Control if Hybrid IT,” International Data Corporation, July 2014.
2.1 Private Cloud

With this approach, an agency uses a private data center protected by an internal firewall to offer efficient and secure use by internal organizations. With a proper service delivery model, IT departments can leverage a private cloud to offer internal customers a service catalog (including automated processes, meter usage, and showback or chargeback models) to deliver needed services. The results are greater cost control, utilization, and efficiencies.

Through private clouds, agencies can:

• Deliver shared resources on demand among internal organizations wanting to quickly and securely access pools of shared resources without compromising data integrity and protection
• Drive efficiencies and reduce storage capex by as much as 50%
• Automate the provisioning process using self-service portals to allow internal groups to more readily access needed IT resources yet requiring less support than with traditional IT models
• Easily monitor and analyze internal department use to gain better understanding of what is being used by whom in order to make more insightful decisions and better define and meet internal SLAs

Private clouds can offer budget-constrained agencies more IT flexibility, reliable security, and cost containment versus continuing with a traditional “build and maintain your own” legacy systems approach.

NetApp is a market leader in helping customers deploy private cloud solutions in the data center. Offering a broad portfolio of technologies and solutions forged from strong alliances with a full spectrum of leading vendors, NetApp enables agencies to build a dynamic private cloud with NetApp clustered Data ONTAP® for greater IT flexibility, efficiency, and cost savings.

2.2 Public Cloud

Aberdeen Group defines public cloud services as a broad term that can include a number of specific options, including infrastructure as a service (IaaS), platform as a service (PaaS), software as a service (SaaS), and hybrid public-private adoptions. According to Aberdeen, regardless of the chosen service type, most public cloud service users report demonstrable benefit, both operational and financial, to their organizations.

Although public clouds have been available for more than a decade, their usage has gained more traction in the past five years as an effective means to meet fast-changing IT needs. Public clouds are now widely viewed as a viable tool that can offer flexibility to scale computing services based on demand, thus allowing the potential to create cost savings if demand drops or as efficiencies are gained.

For many agencies, the potential cost benefits of procuring cloud services from service providers (for example, to buy and use resources on an as-needed basis, scale up and down to meet variable workloads, and reduce provisioning time) are crucial. By acquiring cloud services from service providers to manage specific workloads (such as messaging or disaster recovery), agencies can move from a capex to an opex model, enhance efficiencies, provide IT on demand, and accelerate time to market with new agency services.

To achieve desired cost benefits, it is critical that agencies choose an effective outsourced model with an appropriate service provider proficient at providing the needed capabilities and services that will enable the following:

• Accelerate time to market with on-demand infrastructure.
• Streamline administrative tasks by outsourcing noncore applications.
• Reduce IT capital requirements with a pay-as-you-go expense model.
• Improve data protection with disk-based backup and disaster recovery.
To facilitate the evolution to the cloud, NetApp has developed a global network of more than 175 public cloud service providers who deliver a comprehensive portfolio of cloud services built on NetApp technology. Public cloud services can now be used for backup, disaster recovery, and/or continuous operations.

2.3 Hybrid Cloud

A hybrid cloud is a computing environment in which an organization coordinates in-house computing resources with capacity located in the public cloud.

Hybrid cloud frameworks have been gaining more attention in recent years as a growing number of government entities are considering the operational and business process enhancements and the cost benefits that can be achieved with such a cloud computing approach. This flexible model allows agencies to easily store, move, and secure data across all cloud environments. It also offers enterprise-grade data management plus the economy of the public cloud. Our experience has shown that agencies are very interested in the greater flexibility, scalability, and pay-per-use approach offered with the hybrid cloud.

Figure 5) Example of a hybrid cloud solution.

To meet this growing interest and demand, NetApp continues to add capabilities and proven technologies to support the hybrid cloud. In September 2014, for instance, NetApp introduced StorageGRID® Webscale to address the challenges associated with the storing of large and growing amounts of unstructured data (known as object storage). This foundation platform provides enterprise-class data management capabilities for organizations faced with effectively and securely managing massive amounts of data every day.

3 What IT Functions Can Move to the Cloud?

Looking back over the past several years, the types of services that state and local governments are migrating to the cloud have been fairly consistent. The graphic in Table 1, from "The 2014 State CIO Survey," released by NASCIO in September 2014, shows little change since the survey in 2012.
Table 1) Recent shifts in the types of agency services migrating to the cloud.

<table>
<thead>
<tr>
<th>What categories of services have you migrated or do you plan to migrate to the cloud?</th>
<th>2014</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail and collaboration</td>
<td>63%</td>
<td>64%</td>
</tr>
<tr>
<td>Storage</td>
<td>47%</td>
<td>48%</td>
</tr>
<tr>
<td>Office productivity software (for example, word processing)</td>
<td>47%</td>
<td>37%</td>
</tr>
<tr>
<td>Geographic information systems</td>
<td>37%</td>
<td>48%</td>
</tr>
<tr>
<td>Disaster recovery</td>
<td>37%</td>
<td>44%</td>
</tr>
<tr>
<td>Digital archives/electronic records</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Citizen relationship management</td>
<td>33%</td>
<td>25%</td>
</tr>
<tr>
<td>Program/business applications (for example, licensing, unemployment insurance, workers' compensation, and so on)</td>
<td>29%</td>
<td>42%</td>
</tr>
<tr>
<td>Open data</td>
<td>28%</td>
<td>25%</td>
</tr>
<tr>
<td>Enterprise resource planning</td>
<td>28%</td>
<td>23%</td>
</tr>
<tr>
<td>Other</td>
<td>22%</td>
<td>15%</td>
</tr>
<tr>
<td>Imaging</td>
<td>18%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Compared to five years ago, when there was little trust in or understanding of the cloud, the attitude and level of understanding have shifted tremendously as more agencies have adopted a cloud solution. This may partially result from the FedRAMP guidelines (NetApp is on the short list of service providers that have received this critical authorization).

Today it is quite common for agencies exploring cloud solutions to ask “why not?” if it is unclear whether a particular function can be put in the cloud. The cloud is now increasingly viewed as important and viable by IT and non-IT departments alike. The agency determines which cloud option (private, public, or hybrid) is best after closely examining the vendors’ options, technologies, capabilities, and breadth of experience.

4 Cloud in Action: Agency Success Stories

Since our founding in 1992, customers have relied on NetApp to store, manage, protect, and retain their most precious asset: their data. Leading organizations worldwide count on NetApp for software, systems, and services to manage and store their data. We help customers manage their data across infrastructures and environments with best-in-class integration and a commitment to openness. Customers value our teamwork, expertise, and passion for helping them succeed now and into the future. They use our innovative storage and data management solutions to boost IT efficiency and flexibility and make their resources go further and faster in a cloud environment with a NetApp storage foundation.

The next two sections feature brief agency success stories outlining the impressive, but not uncommon, cost and efficiency benefits achieved through a cloud solution with NetApp. Both state agencies were recently featured in separate case studies that are available for review at [www.netapp.com](http://www.netapp.com).
4.1 California Natural Resources Agency

Several years ago, the California Natural Resources Agency (CNRA) was facing serious budget shortfalls combined with a 30% annual data growth rate. The agency wanted to transform its approach to IT and to unite 29 disparate departments by convincing them to entrust their data storage needs and services as part of what would be California’s first private cloud solution.

By working with NetApp and leveraging its world-class storage infrastructure and capabilities, CNRA successfully harnessed the power of cloud computing. The results: reduced IT capital costs by 35%, increased storage capacity by 300%, decreased storage footprint by 30%, and increased service delivery by 70%.

“Without a fundamental change in our service architecture, we would have been out of the game,” says Tim Garza, IT director at CNRA. “NetApp provided the multi-tenant shared services storage infrastructure and functions to support the increased data demands on resources within our agency.”

4.2 King County, Washington

When officials from King County, Washington, wanted to transition from their decentralized approach to deploying IT systems and delivering services for its nearly 2 million citizens, they turned to NetApp and one of its partners to consolidate and standardize the county’s IT system by creating a secure, shared cloud environment that would be far more efficient and could be scaled as needed to meet increasing demand.

“The shared infrastructure and private cloud we created with NetApp allow us to extend services to taxpayers in a more reliable, secure, and scalable way,” says Bill Kehoe, chief information officer for King County. “As public servants, that’s what we are all about.”

The results: King County developed a standard virtual environment utilizing NetApp and was able to consolidate the county’s 48 data centers down to two, which saved over $700,000 annually. A 70% cost reduction across 29 agencies.
reduction in the size of the overall storage environment maximized the value of data center resources, which improved value for taxpayers.⁷

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5 NetApp Proven Cloud Capabilities and Experience

In a 2014 white paper, market research firm IDC reported that “very few suppliers can lay claim to the ability to offer consistent and universal Data Control for hybrid IT environments; NetApp provides dynamic data portability and extended customer choice for storage in hybrid IT deployments, offering data control without compromises in choice.”⁸

NetApp has witnessed firsthand a growing number of local government decision makers realizing that they will need to leverage multiple cloud solutions and architectures (including hybrid clouds) to meet their dynamic business and technology challenges. The cloud computing approach allows agencies to maintain control of their data while fully maximizing cloud computing economics. NetApp works collaboratively with all the agency stakeholders who are needed to create understanding, consensus, and buy-in to ensure a successful cloud implementation and ongoing execution.

We understand that data is an agency’s most critical asset. We offer secure multi-tenancy to help ensure security. When looking at cloud options that would move data outside of an agency’s physical purview or make an agency relinquish control of its data, we counsel current and prospective clients to partner with cloud vendors that have a proven track record of success. It’s important to choose vendors that can demonstrate security SLAs with teeth, rather than SLAs that are marketing gimmicks or check-the-box lists that will not bail out an agency if an issue arises.

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⁸ White paper: “The Importance of Data Control in Hybrid IT,” International Data Corporation, July 2014.
Another factor to consider is protocol capability. NetApp storage solutions are protocol agnostic, so the benefits are available across all NetApp SAN and NAS solutions, whether FC, FCoE, iSCSI, NFS, or CIFS.

As a trusted data steward, we also advise customers and prospects to avoid vendor lock-in by establishing a sound cloud vendor exit strategy.

The telecom industry boom in the early 2000s provides a valuable reminder of the importance of good exit strategies. Following the government’s industry deregulation, hundreds of start-up service providers popped up. Within a couple of years, most went bust because they were never truly viable in the first place. Unfortunately, many organizations using these start-up vendors did not have an exit strategy and either suffered painful transitions or paid heavily to ease the process. Agencies today should avoid making that same mistake by planning an exit strategy that can be executed rapidly and cost-effectively with minimal disruption should a cloud vendor prove troublesome.

Although advanced technology is a core component to cloud success, it is also critically important to choose the best technology partners with the right skills, resources, and expertise. NetApp has cultivated robust partnerships with key virtualization, networking, and cloud technology providers around the world to offer a broad selection of the best and most secure cloud solutions built on NetApp technology.

### 5.1 NetApp Proven Cloud Technologies

Imagine if all the data management elements in the different clouds on which customers place their data were well integrated, cohesive, and coherent like a seamlessly woven fabric. We call this vision and architecture the NetApp data fabric for the hybrid cloud. The NetApp data fabric allows customers to control, integrate, move, and consistently manage their data across the hybrid cloud. This enables customers to take advantage of the economics and elasticity of the cloud while maintaining control of their data across a hybrid cloud environment.

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9 IDC Worldwide Quarterly Disk Storage Systems Tracker 2014 Q3, December 2014 (Open Networked Disk Storage Systems revenue)
When it comes to storage for cloud computing, NetApp is a preferred technology partner, whether your agency is building a private cloud infrastructure, working with a system integrator, or outsourcing to cloud service providers. NetApp offers superior technology to meet cloud requirements combined with established solutions and partnerships.

NetApp offers the infrastructure for any type of cloud that best fits an organization’s needs. From storage as a service to a traditional infrastructure in a data center to using private and public resources, NetApp has the options to help any agency successfully make the transition to the cloud. There are multiple paths to the cloud, all with the goal of maximizing capacity utilization, improving IT flexibility and responsiveness, and minimizing cost. Whatever type of storage you need, NetApp can deliver.

Table 2) NetApp cloud computing technologies.

<table>
<thead>
<tr>
<th>Functionality</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unified data storage architecture</td>
<td>Supports multiple workloads</td>
</tr>
<tr>
<td>Nondisruptive operations</td>
<td>Enable nonstop data availability for shared cloud storage resources</td>
</tr>
<tr>
<td>Seamless multidimensional scaling</td>
<td>Meets the dynamic demands of cloud computing</td>
</tr>
<tr>
<td>Storage efficiency</td>
<td>Reduces capacity requirements and costs by 50% or more</td>
</tr>
<tr>
<td>Secure multi-tenancy</td>
<td>Segments, isolates, and delivers shared server, storage, and network resources</td>
</tr>
<tr>
<td>Service automation and analytics</td>
<td>Automates storage provisioning, comprehensive visibility, and monitoring</td>
</tr>
<tr>
<td>Integrated data protection</td>
<td>Supports backup, disaster recovery, archiving, compliance, and security service-level agreements</td>
</tr>
</tbody>
</table>

With NetApp’s superior storage capabilities and unified storage approach, agencies no longer need to buy different storage systems to support different needs, such as one storage system for high-end SAN, another for NAS, and another for archive and compliance. The entire NetApp FAS storage family runs a single operating environment: the Data ONTAP operating system.
Our scalable and highly efficient cloud-enabling technologies are built on the NetApp Unified Storage Architecture and the NetApp Data ONTAP operating environment, a flexible architecture that supports many applications, multiple protocols, diverse workloads, and changing requirements. This unified set of tools and processes can help reduce complexity and costs by leveraging existing infrastructure for current and future workloads as cloud solutions are built and deployed. It also provides agencies with the ability to provide their users with nondisruptive operations, even during maintenance and lifecycle operations and unplanned failure events.

The ease of management inherent in NetApp storage can actually reduce operator errors, which are now a major cause of system downtime. With NetApp, agency storage needs are all met with the same hardware, software, staff, and processes to achieve the efficiencies and cost savings of cloud computing.

Recognizing that security in both private and public clouds must be as tight as possible without sacrificing efficiency, NetApp’s technologies provide the highest level of data isolation and security and allow agencies to share storage with maximum privacy and data security.

NetApp MultiStore® software permits multiple, separate, and private virtual storage controllers to be created on a single storage system, allowing storage to be shared with minimum impact on privacy or data security. The result is secure multi-tenant cloud storage with increased storage utilization. With MultiStore, storage can be provisioned, moved, and protected based on user-defined boundaries; virtual storage controllers allow appropriate policies to be applied to each container, which can correspond to a particular application or client of a cloud service. With secure end-to-end multi-tenancy across applications and data, agencies can reap all the benefits and advantages of a shared IT infrastructure for private cloud computing.

Figure 7) NetApp secure multi-tenancy (a critical requirement for cloud computing.

NetApp offers a suite of management products to efficiently manage storage capacity in a shared infrastructure, from policy-based automation to end-to-end cloud management tools from NetApp and our partners. Our open management strategy simplifies third-party or in-house tools integration with NetApp management products.

NetApp OnCommand® data management software offers effective, cost-efficient management of shared storage infrastructures to help optimize utilization, meet SLAs, minimize risk, and boost performance.

For government agencies looking to implement a private cloud computing infrastructure with a unified, validated data center architecture, the NetApp FlexPod® data center platform makes it easy. FlexPod integrates best-in-class Cisco® and NetApp components in a prevalidated solution combining storage, networking, and server components into a single, flexible architecture that enables maximum efficiency, minimal risk, and increased flexibility. The FlexPod architecture can scale up or out and can be optimized for a variety of mixed workloads in both private and hybrid cloud environments.
5.2 Why NetApp

It is clear that agencies today are responding to the continued push to “do more with less.” By evolving existing IT infrastructures to include cloud capabilities, agencies are able to position themselves to achieve significant operational and cost benefits in the delivery of agency services. However, they need the right partner to help them achieve their cloud computing goals.

“NetApp’s operating system, (which) protects and manages data and maximizes efficiency, is top in the industry.”

– Barrons, July 2014

We are proud that in a 2013 study, IDC ranked NetApp #1 in storage systems capacity shipped for public cloud infrastructure. \(^\text{10}\)

As the #1 storage provider to the U.S. government, \(^\text{11}\) we offer proven technologies to deliver the storage capabilities that will power cloud infrastructure, both today and tomorrow. Ninety-six of Fortune 100 companies are NetApp customers. In addition, 12 of the world’s top 15 cloud service providers are partners enabled by NetApp.

Customers value our teamwork, expertise, integrity, and passion for helping them succeed now and into the future. They look to us for vision and leadership in software, systems, and services to manage and store their data. They rely on our proven ability to provide best-in-class integration along with a reliable enterprise-class customer experience.

We invite interested state and local government agencies to discover the Unbound Cloud™: NetApp’s new vision for cloud data management. You can create your private, public, or hybrid cloud strategy with NetApp and your choice from among our 300+ leading cloud service provider partners worldwide.

6 Summary

NetApp has the products, partners, best practices, and experience to help government agencies successfully design and deploy the correct cloud computing model to support business objectives and long-term success. By building a cloud solution on a NetApp foundation, agencies can deploy a cloud infrastructure that makes it possible to accelerate time to market with new services, leverage a shared infrastructure that increases operational efficiency and flexibility, enhance service-level agreements (SLAs), and cut costs.

Partnering for Success

Although technology is a critical component of cloud success, having the right technology partners with the right expertise is just as critical as you contemplate the transition to cloud computing. NetApp has cultivated robust partnerships with key virtualization, networking, and cloud technology providers to offer a broad selection of secure cloud solutions built on NetApp. Our partners, including Rackspace, Amazon

\(^{10}\) IDC Storage Users Demand Study 2013, Spring Edition, IDC #244209, November 2013.

\(^{11}\) Findings based on FPDS-NG Reports, 2009-2001.
Web Services, Siemens, Verizon, and T-Systems, offer cloud solutions from data protection and infrastructure services to application services such as Exchange and SAP®.

Given the brevity of a white paper, we hope this asset has provided an effective overview and introduction to some of our most important cloud computing technologies and capabilities for your initial consideration. To obtain more detailed information about our leading cloud technologies and to review additional information and resources, visit our website, www.netapp.com, or contact us by phone at 877 263 8277.
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