



White Paper

## The Federal Mandate for Data Center Consolidation

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### **THE POWER OF CONSOLIDATION**

The Federal Data Center Consolidation Initiative (FDCCI) addresses decades of redundant IT investments that have resulted in a costly, unsustainable, and inefficient IT infrastructure. Redundant infrastructure investments, coupled with the inability to share resources and data across multiple agencies, is driving the federal government to implement a shared infrastructure and shift to cloud computing in order to drive better value from IT investments.

NetApp® consolidation and cloud computing solutions streamline infrastructure and deliver substantial cost, energy, and performance benefits. With a combination of technologies and services, our solutions can consolidate data centers, improve asset utilization, and deliver overall efficiencies.

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# 1 THE MANDATE FOR DATA CENTER CONSOLIDATION

## THE BURNING PLATFORM

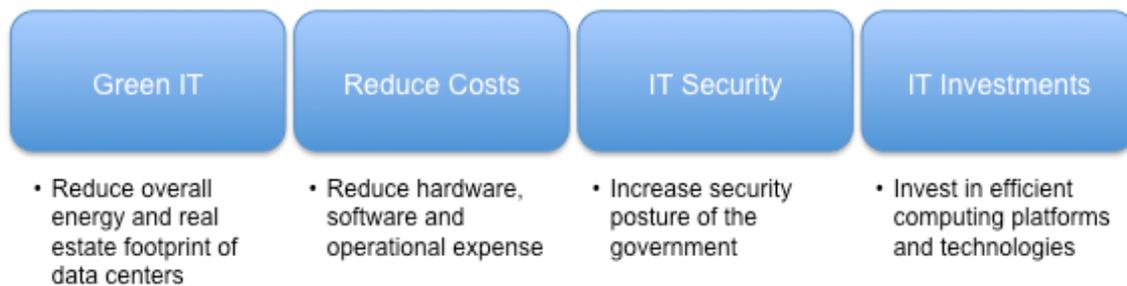
Over the past decade, the federal government has spent over \$600 billion on information technology. However, most government agencies have not attained the level of IT productivity or efficiencies achieved by the private sector. Projects often run over budget and/or behind schedule, do not deliver the promised functionality, or deploy solutions that are outdated by the time projects are completed. In addition, most projects have historically been developed with custom-designed solutions using proprietary, standalone systems. This has resulted in costly and inefficient investments that have neither the ability to share resources for improved utilization nor the ability to share data across agencies for improved decision making.

The White House has made it a priority to change this way of doing business, focusing on reducing overlap and duplication within the federal government. The data center growth between 1998 (432 data centers) and 2010 (2,094 data centers) is a perfect example of ineffective investments across government projects. This increase was largely due to custom, standalone systems that often duplicated functionality already existing within the federal government, resulting in wasted taxpayer dollars.

## THE FEDERAL DATA CENTER CONSOLIDATION INITIATIVE

On February 26, 2010, the Federal Data Center Consolidation Initiative (FDCCI) was announced. The FDCCI addresses decades of redundant IT investments that have resulted in a costly, unsustainable, and inefficient IT infrastructure. High energy consumption, low utilization rates of existing resources, and limited reuse of data centers within or across agencies are the driving forces for the initiative.

Figure 1) Driving forces behind the FDCCI.



The goals of FDCCI are to make infrastructure spending more cost effective and shift the budget freed up by savings to new, critical projects. The plan targets the closure of 800 data center by 2015 as the first step to reducing wasteful spending. In order to achieve this consolidation goal, agencies will centralize and consolidate sites, implement virtualization technologies, and shift to cloud computing. In addition, agencies must accelerate planning and development timelines, define modular projects that align with budget cycles, and improve program management to make sure that IT investments deliver value to taxpayers.

## DELIVERING VALUE TO AMERICAN TAXPAYERS

As part of a broader IT transformation, the federal government has identified the requirement to shift from building custom systems to adopting more lightweight technologies and shared solutions. Cloud technologies and infrastructure as a service will help agencies efficiently share demand across infrastructure assets, reducing the overall reserve capacity across IT environments. Additionally,

leveraging shared services of “commodity” applications such as e-mail across functional organizations allows organizations to redirect management attention and resources toward value-added activities.

## THE 25-POINT IMPLEMENTATION PLAN FOR REFORM

A 25-point implementation plan<sup>1</sup> has been defined to deliver more value from IT services to the American taxpayer. The Office of Management and Budget (OMB) and agency operational centers will be responsible for driving these actions over the next 18 months, including:

- Turn around or terminate at least one-third of underperforming projects in IT portfolio within the next 18 months.
- Shift to “cloud first” policy. Each agency will identify three “must move” services within three months and move one of those services to the cloud within 12 months and the remaining two within 18 months.
- Reduce the number of federal data centers by at least 800 by 2015.
- Only approve funding of major IT programs that:
  - Have a dedicated program manager and a fully staffed integrated program team
  - Use a modular approach with usable functionality delivered every six months
  - Use specialize IT acquisition professionals
- Work with Congress to:
  - Consolidate commodity IT funding under the agency CIOs
  - Develop flexible budget models that align with modular development

Table 1) Key focus areas of the 25-point plan.

Section	Area of Focus	Goal
Part I	Achieve operational efficiencies	Apply light technologies and shared solutions
Part II	Effectively manage large-scale IT programs	Strengthen program management
		Align acquisition process with technology cycle
		Align budget process with technology cycle
		Streamline governance and improve accountability
		Increase engagement with Industry

## 2 THE NETAPP APPROACH TO DATA CENTER CONSOLIDATION

Data center consolidation has been a corporate initiative for NetApp over the past several years. Our consolidation solutions streamline IT environments, delivering substantial cost, energy, and performance benefits to our customers. With a combination of technologies and services, NetApp solutions can help government agencies achieve success with many of the steps outlined in the 25-point plan mentioned earlier. Our solutions effectively enable data center consolidation, resulting in increased asset utilization and improved overall IT efficiency across federal, state, and local IT infrastructures.

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<sup>1</sup> 25 Point Implementation Plan to Reform Federal Information Technology: December 2010.

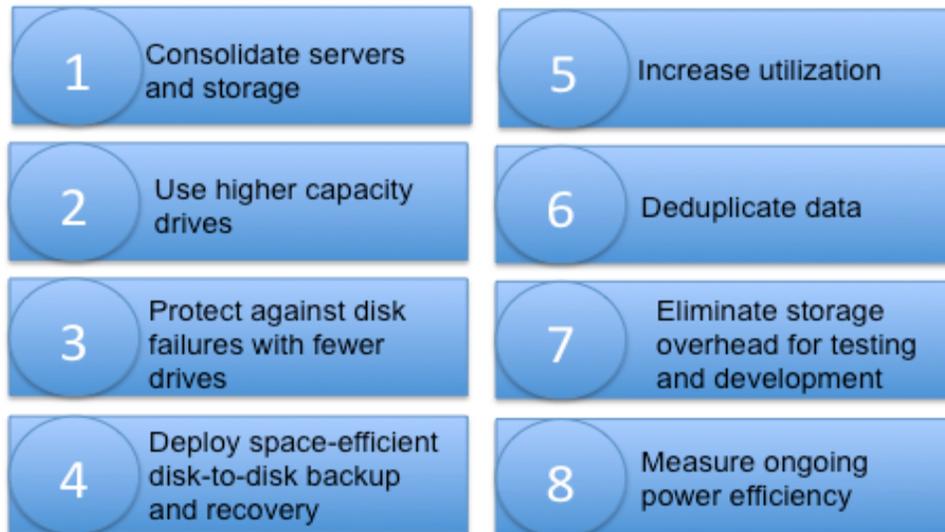
## GREEN IT

The exponential data growth experienced by the federal government has led to greater data storage needs. The traditional approach of simply adding more disks and storage systems satisfies demand, but also leads to a proportional increase in power, cooling, and space requirements that eventually stress data center limits.

NetApp reduces power consumption by subtracting machines and disks, resulting in lower costs for people, support, space, and service. But green IT is not just about power consumption. It also requires a dedication to providing solutions that are designed, produced, used, and disposed of consistent with our Supplier Responsibility Program<sup>2</sup> and environmental certifications<sup>3</sup>. We have long encouraged system recycling and, with a diversion rate above 99%, have diverted millions of pounds of expired equipment from landfills. Last year we ranked number 3 on the list of [Computerworld's Top 12 Green IT Vendors](#)<sup>4</sup>, demonstrating that we take our commitment seriously.

Government agencies can benefit from the NetApp [eight-point strategy](#)<sup>5</sup>, which defines key areas to reduce storage power consumption. By using your storage more efficiently, you can eliminate systems and disks from the power equation, enabling you to reduce complexity; lower people, support, and service costs; and improve network efficiency and performance.

Figure 2) NetApp green IT eight-point strategy.



## ACHIEVE OPERATIONAL EFFICIENCY

Part I of the 25-point plan focuses on sharing IT resources across agencies to aggregate systems, software, storage, networking, and IT staff. The inherent flexibility of a shared IT infrastructure makes it much more agile and responsive than dedicated IT resources. You can now leverage best practices to

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<sup>2</sup> NetApp Supplier Responsibility Program: <http://www.netapp.com/us/suppliers/>.

<sup>3</sup> NetApp Environmental Certifications: <http://www.netapp.com/us/company/our-story/sustainability/environmental-certifications.html>.

<sup>4</sup> Computerworld's Top 12 Green-IT Vendors 2010:

[http://www.computerworld.com/s/article/351970/Top\\_12\\_Green\\_IT\\_Vendors\\_2010?source=CTWNLE\\_nlt\\_dailyam\\_2010-10-25](http://www.computerworld.com/s/article/351970/Top_12_Green_IT_Vendors_2010?source=CTWNLE_nlt_dailyam_2010-10-25).

<sup>5</sup> Reducing Data Center Power Consumption Through Efficient Storage: <http://media.netapp.com/documents/wp-reducing-datacenter-power-consumption.pdf>.

allocate resources across multiple people, projects, and organizations for improved efficiencies and cost savings.

NetApp, together with our global solution partners, helps government agencies design and deploy shared infrastructures to meet the mandate described in the FDCCI for faster responsiveness and greater efficiencies. These shared, virtualized infrastructures are the foundation for rolling out “cloud first” deployments that will allow multiple agencies to access shared IT resources.

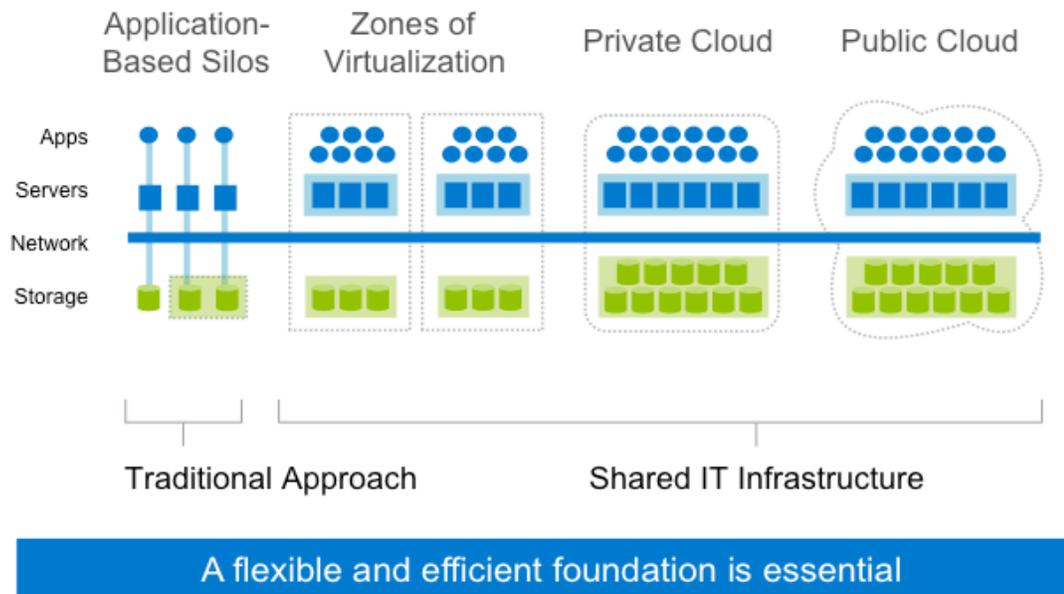
## START WITH A UNIFIED FOUNDATION

Moving away from silo-based architectures enables you to be more flexible and respond quickly to changing business needs. It’s IT as a utility service. Rather than partitioning information and data, you are applying hardware and software resources on demand to meet the needs of specific applications or departments.

NetApp Data ONTAP® 8 accelerates your move to a shared infrastructure by delivering storage that is always on and massively scalable. Superior operational efficiencies can help you manage data, application, and infrastructure growth. A flexible unified architecture enables you to bring new applications and services online faster, by:

- Requiring 50% less capacity, power, cooling, and footprint.
- Having each administrator manage two to three times more data storage.
- Reclaiming 35% disk space on third-party storage technology.
- Gaining the ability to cut provisioning time by 90%.
- Nondisruptively moving data for load balancing or dynamic scalability.
- Cutting development and test time by as much as 50%.

Figure 2) Benefits of a shared infrastructure.



## ELASTIC SCALABILITY: VIRTUALIZATION AND CONSOLIDATION

The momentum in data center consolidation has increased the focus on virtualization technologies that contribute to more effective application provisioning, business continuity, and resource consolidation. The NetApp Data ONTAP software environment incorporates storage virtualization technology that simplifies enterprise data management while dramatically reducing TCO. NetApp provides storage virtualization

capabilities at every level of the storage hierarchy, and this capability is built into all NetApp storage platforms.

NetApp's flexible volume and thin provisioning technology (FlexVol®) abstracts storage volumes from underlying disks. Any storage container (LUN or volume), regardless of size, is automatically spread across a large number of disks for optimal performance and can grow or shrink nondisruptively. NetApp has already deployed tens of petabytes of storage in shared storage environments, in which customers routinely scale volumes up and down as needs change.

Of special value in data center consolidation is the NetApp OnCommand™ Insight software suite for monitoring and analysis of heterogeneous storage environments. OnCommand Insight discovers existing infrastructure resources, their relationships, and condition to provide a comprehensive view of the virtual and physical environment. It identifies and correlates service paths that describe the relationship between a particular application and all its mapped storage. The service path includes all virtual machines, physical servers, network devices, and storage systems required by an application or business unit, providing the information to proactively manage storage services to increase service quality, optimize performance, prevent application failures, and improve recovery time. It reduces costs by improving utilization and decreasing the time and effort required for troubleshooting.

Successful implementation of a consolidation initiative hinges on having visibility and control over shared IT infrastructure. OnCommand Insight provides cross-domain visibility of multivendor environments, from host to VM to storage, and offers a powerful what-if capability for proactive modeling of planned change. Planners are able to establish the true size of each consolidation target in terms of capacity and switch ports and accurately calculate costs. OnCommand Insight builds an actionable task list, allowing staff to validate changes or migration and consolidation plans, and eliminate potential errors or lost redundancy. OnCommand Insight dynamically monitors and validates all changes to verify successful completion. Each step is monitored and violations are issued on changes that adversely affect service levels. The result is a smoother migration process, with minimal disruption and faster time to completion.

OnCommand Insight helps identify the ideal IT initiatives to address growth and achieve cost savings targets. A baseline can first be established by assessing availability, performance and utilization levels in the current environment. Staff is then able to identify under-utilized resources that are candidates for re-tiering, and reclaim orphaned resources to recoup immediate savings. The environment can then be reassessed and plans for the consolidation be finalized based on actual and up-to-date information. OnCommand Insight reports on utilization and actual costs by tenant, business unit, line of business, tier, and application, as well as actual usage costs. This further enables staff to refine consolidation plans and implementation steps, and precisely measure return on investment and sustained value.

Many data center consolidation initiatives are guided by IT Service Management (ITSM) methodologies and best practices. OnCommand Insight can play an important role here, also, by integrating storage data with broader service management technologies and best practices. By importing storage domain data into the CMDB, designers can include storage in the service impact models and provide a more complete view of dependencies and analysis of business service impacts. CMDB integration with OnCommand Insight further enhances service impact management by providing more meaningful information and helping to identify the root cause of problems more quickly. Having this integration also allows for the timely and accurate assignment of problem resolution tasks to appropriate IT resources, resulting in improved IT service levels throughout the consolidation project and beyond.

NetApp also offers unique advantages for virtual environments through our close relationships with VMware, Microsoft, and Citrix to provide product integration and support for VMware® vSphere®, Hyper-V™, and XenServer, respectively. NetApp DataMotion™ complements the ability to move virtual machines between servers in these environments, as discussed previously. NetApp deduplication technology and/or NetApp FlexClone® can be used to eliminate the redundancy that results from having dozens of copies of the same operating system.

## BOOST UTILIZATION AND INCREASE DATA CENTER EFFICIENCY

NetApp helps you store more data for less money, in less physical space, while efficiently protecting and retaining data longer and reducing consumption of power, cooling, and space. Our customers often see reductions in data storage costs of 50% or more. Now you can save with these valuable features.

Table 2) NetApp storage efficiency benefits.

Technology	Benefits
RAID 6	The double-parity protection of RAID-DP® protects you if two disks fail at once, saving 46% compared to data mirroring.
Deduplication	Onboard deduplication of both primary and secondary data can save you up to 95% for full backups and 25% to 55% for most datasets.
Thin provisioning	With NetApp thin provisioning, storage is treated as a shared resource, and capacity is consumed only as it is needed. Thin provisioning can reduce your storage capacity requirement by 20% to 30%.
Measure efficiency	NetApp OnCommand Insight monitors thin provisioning and alerts customers when they are approaching the threshold for overcommitting on storage pools. OnCommand Insight works in multivendor environments, measuring and providing efficiency ratings on storage tiers to compare the efficiency of each vendor.
Snapshot technology	Space-efficient, scalable Snapshot™ technology yields dramatic reductions in your backup and recovery time. Our Snapshot copies do not require “copy” space, resulting in savings of up to 80% over other vendors’ solutions.
Thin replication	Replication is an effective way to enable business continuity. NetApp SnapMirror® and SnapVault® software perform only incremental block transfers—thin transfers—after an initial baseline, saving bandwidth and reducing the storage required for disk-based backups. Source and target storage systems need not be the same configuration. Efficient disk-to-disk backup with our SnapVault software can save you up to 95% in storage space.
Cloning	NetApp FlexClone technology lets you create a “virtual copy” of a dataset in seconds and only consume additional storage space as changes are made—making it an ideal technology for virtual environments that maintain many identical copies of the same operating systems. Space savings can be as high as 80%.

## ALWAYS-ON INFRASTRUCTURE

In a shared environment, you must be able to seamlessly add new storage capacity and storage performance, provide instantaneous failover for business continuance and disaster recovery, and perform all maintenance activities (on both hardware and software) without disruption. These capabilities further enhance your ability to deliver high SLAs to your customers.

To help avoid unplanned downtime, NetApp combines the proven reliability of its base hardware with innovative solutions to continue operations in the face of hardware failures or disasters that affect a site or region. Based on data from over 15,000 customer systems (the data has been audited and validated by IDC), NetApp storage systems in active-active controller configurations are delivering uptime greater than 99.999% on average. This translates to less than five minutes of downtime per year.

To achieve continuous operation, NetApp combines synchronous mirroring with clustering at the storage level to create a continuously available storage environment capable of spanning distances up to 100 kilometers. Unlike solutions from other vendors, MetroCluster™ does not rely on host-based clustering mechanisms. The result is a much more cost-effective solution: MetroCluster is up to 50% less complex and comes at a price that is up to approximately 50% less than the competition.

For protection against regional disasters, you need a solution that reaches beyond the metropolitan distances spanned by MetroCluster. NetApp SnapMirror software uses an asynchronous mirroring

methodology that effectively spans huge geographic distances. SnapMirror efficiently identifies and replicates only changed blocks. SnapMirror delivers faster, more efficient replication, so synchronization can be performed at a higher frequency.

## CONSOLIDATE COMMODITY APPLICATIONS

Growing messaging volumes and e-mail retention needs are driving increased storage requirements, resulting in escalating storage costs to meet demand. This issue is particularly common when inefficient storage systems are used to support the enterprise-messaging infrastructure. In addition to underused storage assets, higher IT management costs and increased data center costs (including space, power, and cooling) result. Any loss of e-mail data can bring your organization to a standstill. Given that Exchange is a mission-critical application for most agencies, you need a highly reliable storage infrastructure that meets your data availability requirements.

NetApp and Microsoft have worked closely together to develop a comprehensive portfolio of storage and data management solutions to help the federal government receive the full value of its Microsoft® technology investments. NetApp has a dedicated team of engineers (located in a test and development center in Redmond, Washington) who work closely with Microsoft engineers to optimize NetApp solutions for Microsoft Exchange Server 2010 and other key Microsoft applications. With our joint solutions, we can help consolidate Exchange installations to efficiently store and manage data for your Microsoft applications and databases, helping you to secure and protect data assets and reduce costs as defined in the 25-point plan.

## IMPLEMENTING THE “CLOUD FIRST” STRATEGY

As mandated in the FDCCI, agencies must quickly identify and move existing IT infrastructures to include cloud capabilities that provide IT as a service (ITaaS). Cloud computing enables IT to provide on-demand services using a shared resource model that deliver superior economics and efficiencies over the traditional approach of acquiring dedicated resources for every new project. The service-oriented infrastructure allows agencies to pool storage, network, and compute resources to create a shared infrastructure that is both efficient and flexible.

Figure 3) Shared infrastructures drive efficiencies and flexibility.

<b>Economical</b>	Pay-as-you-go approach to IT. Start with low initial investment , and expand as needed as system use increases.
<b>Flexible</b>	Anticipate fluctuations in user demand. Add or subtract capacity quickly and easily as requirements change.
<b>Fast</b>	Eliminate long procurement and certification processes, while providing a near-limitless selection of services.

Shared cloud infrastructures, however, have introduced a new set of requirements, including secure multi-tenancy, service automation, data mobility, and integrated data protection. NetApp is leading the way with proven technologies to help provide these critical capabilities, including NetApp MultiStore®, NetApp DataMotion, and SANscreen®. At the same time, NetApp continues to evolve its Data ONTAP operating environment to deliver the storage capabilities that will power cloud infrastructures both now and in the future.

When it comes to storage for cloud computing, NetApp is a preferred technology partner, whether you are

building your own 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.

## **SECURE MULTI-TENANCY**

Security in cloud computing must be as tight as possible without sacrificing efficiency. Traditionally, providing the highest level of data isolation and security has meant independent storage hardware. The ability to make sure that multiple, distinct applications or agencies can securely share the same IT infrastructure—secure multi-tenancy—and the ability to move data without application disruption represent the most dramatic departures from existing IT practices.

NetApp MultiStore software lets you create multiple, separate, and private virtual storage controllers (vFiler® units) on a single storage system, so you can share storage with minimum impact to privacy or data security. The result is secure, multi-tenant cloud storage with increased storage utilization. MultiStore is an embedded feature of Data ONTAP; over 16,000 licenses have been sold to Fortune 1000 service providers and enterprise customers.

## **SERVICE AUTOMATION AND MANAGEMENT**

NetApp provides a suite of management products that simplify storage operations by automating all tasks associated with storage so you can manage more capacity with fewer resources while increasing operational efficiency. Policy-based automation maps end-user requirements to specific levels of service. Once policies are established, new storage consumers (a new application, a new agency, and so on) can request and receive storage and automatically get the appropriate level of data protection and other services without manual intervention. Through API and Web services, NetApp data management solutions can be integrated into orchestration systems to create end-to-end cloud management solutions.

Self-service operations make it possible for the users or consumers of services to perform common operations for themselves without the assistance of a storage administrator. For instance, the NetApp SnapManager® suite of products makes it simple for users of popular applications to perform file or data recoveries as necessary.

## **DATA MOBILITY**

In a dynamic cloud environment, you need to be able to move data without interrupting running applications. The ability to continue operations without deferring necessary maintenance enhances the service-level agreements (SLAs) you can offer to your customers or users.

NetApp DataMotion allows virtual storage controllers within NetApp MultiStore to be transparently migrated from one storage system to another, in a manner analogous to VMware vMotion®, XenServer XenMotion, or Hyper-V quick migration. This feature helps you avoid the need for planned downtime, as well as optimize operations by moving virtual storage controllers to balance load or achieve other objectives.

## **INTEGRATED DATA PROTECTION**

The traditional approach to data protection is expensive and inflexible. Many data centers keep two full data copies plus incremental backups stored in backup formats that are only useful for recovery. NetApp takes a different approach to data protection—one that is more efficient and leaves data in a format in which it can be leveraged for other purposes. With NetApp integrated data protection, footprint and network traffic are reduced up to 95%. Greater efficiency yields up to 75% savings on capital and operating expenses.

NetApp integrated data protection allows you to offer a range of SLAs to meet varying requirements, including compliance regulations. NetApp provides fully integrated and comprehensive data protection and disaster recovery based on mature technologies that include NetApp Snapshot, SnapVault, the SnapManager suite, SnapMirror, MetroCluster, and Protection Manager. These technologies offload the burden of data protection from servers to storage, providing a consistent approach to data protection

across a cloud infrastructure while allowing utilization of backup and disaster recovery data for development or other activities. The result is an efficient data protection infrastructure that protects availability and reduces risk. A policy-based management framework, application-specific data protection for popular applications, and full coverage for both NetApp and third-party data complete the offering.

## EFFECTIVELY MANAGE LARGE-SCALE IT PROGRAMS

Part II of the 25-point plan focuses on driving the effectiveness of large-scale projects, with an emphasis on improved project management and best practices. This will enable the federal government to better serve its customers by driving significant benefits from its technology investments. Going forward, projects must define realistic scope and timelines and be structured to deploy working functionality in release cycles of 6 to 12 months, with initial deployment to end users no later than 18 months after the program begins.

## STRENGTHEN PROGRAM MANAGEMENT WITH NETAPP PROFESSIONAL SERVICES

The complexities of implementing a shared infrastructure to move to cloud computing require a different skill set for project design and program management. The question is whether you can access the expertise and methodologies to quickly address these challenges with confidence. NetApp and Authorized Professional Services Partners (APSPs) provide you with specialized deployment teams that partner with your IT group to address and identify every opportunity for infrastructure and application consolidation. From helping you make operational improvements to deploying streamlined storage architecture, our experienced and certified professionals will minimize the risk and deployment time of your consolidation program:

- **Assessment.** Our experts work with you to identify gaps and inefficiencies that need to be addressed to achieve desired levels of people, process, and tools capability. Experts characterize your data center environment, including servers, storage, network components, and applications. We deliver a written report, including a conceptual model, our findings, and recommendations for making immediate improvements.
- **Consulting.** We work with you to develop the most efficient storage architecture blueprints for your IT environment. Our consultants deliver a thorough implementation road map detailing the precise steps necessary to execute a smooth consolidation project.
- **Migration.** We work with you to perform careful up-front planning while easing the overall migration process and freeing up your internal resources. Our comprehensive migration plan fully defines what, where, when, and how to move your data. At each stage, we employ best practices based on experience with thousands of customers. We accelerate the migration process and reduce business impact and risk.
- **Deployment.** Our experts will work with you to design and implement the optimal consolidated storage platform based on NetApp's innovative technologies.
- **Management.** We'll help you manage your consolidated storage platform by allocating certified Professional Services staff on site.

Working together, we can help you plan and execute an end-to-end transformation of your infrastructure and processes with a stepwise approach that provides incremental benefits at your pace. We offer key areas of consolidation and cloud expertise.

## LEVERAGE BEST PRACTICES TO IMPROVE SKILLS AND PROJECT CONSISTENCY

New best practices in shared infrastructure data storage can dramatically improve the cost, flexibility, and environmental impact of an overall cloud architecture. This shared storage architecture can also improve the efficiency of traditional hard-drive-based storage and can virtualize legacy storage systems. A multi-tenant virtual storage solution can provide open data sharing while maintaining security controls for each agency colocated in the federal cloud. As a leading provider of enterprise storage to the federal

government and a chief innovator of shared infrastructure data storage platforms, NetApp can assist with best practices to make the Obama administration's vision for cloud computing a reality.

Based on its extensive past performance with government agencies in the federal IT community, NetApp has identified several best practices for modernizing and improving federal information technology processes through the use of this shared infrastructure data storage. The "Best Practices for Shared Infrastructure Data Storage in the Federal Government" document describes several of those best practices<sup>6</sup>.

### 3 SUMMARY

NetApp's consolidation solutions create a simple and scalable data environment. We provide a flexible approach to consolidation that will give you more performance from less hardware and fewer processes. Our innovative technologies backed by first-class professional services will contribute to the success of your consolidation projects. Starting with a unified storage architecture enables you to create a common storage pool that can be networked and shared across a diverse set of applications with a common group of management processes. You can simplify your data center infrastructure through consolidation of all your storage on one of our unified storage systems. We take you beyond simple multiprotocol storage to provide integrated data management and data protection, support for all tiers of storage, quality of service, and other elements, all in a single platform.

By enabling multiple agencies to share a common pool of resources, you can reduce the cost of storage infrastructure and data management. This results in improved resource utilization and enables a wide range of operational efficiencies, including:

- Faster, more scalable IT services
- Improved architectural flexibility and responsiveness
- Faster application delivery
- Lower overall acquisition and management costs
- Improved productivity
- Easier agency and IT priority alignment

### GET STARTED TODAY

NetApp Professional Services and APSPs will partner with your IT group to address and identify every opportunity of infrastructure and application consolidation. From helping you make operational improvements to deploying a streamlined storage architecture, our experienced and certified professionals will minimize the risk and deployment time of your consolidation program.

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<sup>6</sup> Best Practices for Shared Infrastructure Data Storage in the Federal Government, December 2011, NetApp.

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