



# Effortless storage from the start

HP 3PAR 7000 Operating System Software Suite

## HP 3PAR StoreServ 7000 Storage: agile Tier 1 storage capabilities for the entire midrange

As an organization that constantly makes leaps and strides toward growth, you've seen firsthand what it means to maintain a perfect balance between managing large and increasing data volumes, unpredictable application workloads, cost efficiency, and flexibility to meet changing business demands. And while you juggle these multiple facets within your business, you also consider advancements and changes on the outside that can deeply impact what goes on inside your business.

HP 3PAR StoreServ 7000 Storage is an easy-to-deploy, affordable, scalable, and futureproof system designed from the ground up to meet fluctuating and mixed workload demands. With efficient, autonomic, and bulletproof capabilities and a unique, quad-node-capable architecture, HP 3PAR StoreServ 7000 Storage provides affordable scalability to meet your application demands and support business growth. HP 3PAR StoreServ 7000 Storage prepares you for what's next by supporting your data center, regardless of what your future holds—including server virtualization, an infrastructure refresh, or simplifying storage to more efficiently handle rapid data growth.

## The software foundation for HP 3PAR StoreServ Storage

The HP 3PAR StoreServ 7000 Operating System Software Suite provides the software foundation for HP 3PAR StoreServ 7000 Storage, giving you everything you need to get up and running quickly and efficiently. With support for the same enterprise-class, Tier 1 storage features available across the entire HP 3PAR StoreServ platform, this foundational software suite gives you the simplicity, efficiency, and resiliency you need to accelerate new application deployments and support server virtualization, the cloud, ITaaS, or whatever else your future may hold.

As part of the HP 3PAR StoreServ 7000 Operating System Software Suite, HP 3PAR Operating System Software comes preinstalled on HP 3PAR StoreServ 7000 Storage systems and includes a collection of advanced internal virtualization capabilities that increases storage efficiency and reduces administration time.

## Key features and benefits

Simple to install, own, and upgrade

- New software suites simplify purchasing and reduce cost
- SmartStart and Rapid Provisioning get you up and running in minutes
- Reconfigurable in just seconds without disruption
- Shares a single, simple management console with all HP 3PAR StoreServ arrays
- Online import makes upgrading from EVA effortless

Start thin, get thin, and stay thin

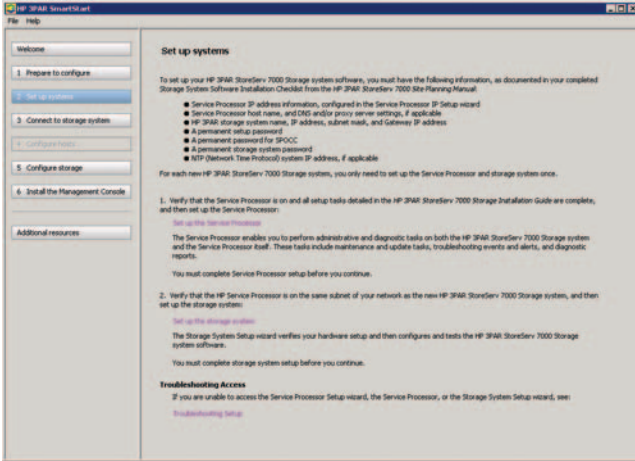
- Reduce storage capacity requirements by 50% or more—guaranteed
- “Thin” legacy storage to reduce technology refresh CAPEX
- Preserve high-capacity utilization levels over time

Enterprise-class data persistence, resilience, and security

- Persistent technologies deliver high availability and Tier 1 resiliency
- Maintain service levels in the virtual data center
- Deliver customized security features

The HP 3PAR Management Console simplifies administration through a unified, point-and-click interface that supports all HP 3PAR StoreServ Storage models, making management effortless. Rich instrumentation combined with robust and customizable reporting capabilities eliminates the need for add-on software tools and consulting services related to diagnosis and troubleshooting. Open administration support is provided via simple network management protocol (SNMP) and storage management initiative specification (SMI-S), and the recently added Web Services API.

Additional software included in the Operating System Software Suite offers enhanced capabilities including: rapid installation and provisioning, simple EVA to 3PAR data mobility, autonomic management, thin storage technologies, and data persistence.



## Incredibly simple to install, own, and upgrade

HP 3PAR StoreServ Storage leads the industry in providing array management features that remove the layers of complexity that typically weigh down storage administration. Simplicity saves you money, but it must be there from the start. As part of the HP 3PAR StoreServ 7000 Operating System Software Suite, the following software gets you up and running quickly, makes management incredibly simple, and provides effortless upgrades:

- **HP 3PAR SmartStart**

SmartStart simplifies the installation of HP 3PAR StoreServ 7000 Storage and gets you up and running in six quick and easy steps. An easy to follow wizards helps set up your storage—including installation of the HP 3PAR Management Console, HBA drivers, and HP 3PAR Host Explorer. Once complete, your storage is fully ready to use—often within minutes of installation.

- **HP 3PAR Rapid Provisioning**

Rapid Provisioning eliminates array planning by delivering instant, application-tailored provisioning through the highly virtualized HP 3PAR architecture. Provisioning is managed intelligently and autonomically, while system-wide data striping provides high and predictable service levels for all workload types.

- **HP 3PAR Autonomic Groups**

Autonomic Groups is a feature designed to simplify storage provisioning for clustered and virtual server environments. It gives you the flexibility to create host, volume, and domain groups to further automate and expedite storage provisioning, both now and in the future. Three clicks and 60 seconds are all you need to fully create and provision multiple volumes to multiple servers. All of these volumes are reconfigurable in just seconds, without disruption and without compromise. This greatly lessens the chance of human error by reducing manual repetition of tedious commands, making the provisioning process simpler and more reliable.

- **HP 3PAR Host Explorer**

Host Explorer is an autonomic storage management tool that establishes secure communication channels between storage and hosts. Host Explorer uses this connection to automate host discovery and the collection of detailed host configuration information that is critical to speeding storage provisioning and simplifying maintenance. Host Explorer automatically and securely communicates host information such as Fibre Channel World Wide Name (WWN) and host multipath data to the HP 3PAR StoreServ Storage to reduce manual administration.

- **HP 3PAR System Tuner**

System Tuner maintains peak HP 3PAR StoreServ Storage performance by autonomically and nondisruptively detecting and resolving performance bottlenecks and storage hotspots. HP 3PAR OS software autonomically spreads volumes evenly and widely across all available resources to deliver balanced performance. However, as the storage system scales and new applications come online, new access patterns may emerge that result in suboptimal performance levels. HP 3PAR System Tuner software rebalances volumes to maintain peak performance without impacting service levels or changing pre-existing service-level characteristics such as RAID level.

- **HP 3PAR Scheduler**

Scheduler also helps automate storage management, reduce administration time, and decrease the chance of administrative error. Scheduler does this by giving users full control over the creation and deletion of virtual copy snapshots—a process that is now completely automated with HP 3PAR StoreServ Storage.

- **HP 3PAR Online Import**

Online Import allows existing EVA customers to move data quickly and easily from HP EVA Storage to HP 3PAR StoreServ Storage using Command View EVA. HP 3PAR Online Import saves CAPEX on your technology refresh because it uses the HP 3PAR Gen4 ASIC to power the simple and rapid conversion of inefficient, “fat” volumes on your EVA Storage to more efficient, higher-utilization “thin” volumes on the HP 3PAR StoreServ 7000 Storage. This process couldn’t be simpler, and doesn’t require complex planning or depend on extra tools. HP 3PAR StoreServ Storage is everything you could want in a next generation of EVA—and more.

- **HP 3PAR Web Services API**

HP 3PAR Web Services API delivers a well-defined application programming interface for implementing durable automation of storage management tasks with HP 3PAR StoreServ Storage systems. This enables open administration support you can use for incorporating your storage infrastructure into your platform for end-to-end automation of your service delivery and management. The Web Services API implementation is based on RESTful Web API service using HTTPS, principles of REST, and data structures represented with JSON (JavaScript Object Notation).

- **HP 3PAR Autonomic Rebalance**

HP 3PAR Autonomic Rebalance optimizes the use of future capacity expansions without requiring administrator intervention. It analyzes how volumes on the HP 3PAR Storage System are using physical disk space and makes intelligent, autonomic adjustments to ensure optimal volume distribution when new hardware is added to the system.

## Start thin, get thin, and stay thin

HP 3PAR StoreServ 7000 Storage enables you to meet your performance and service-level objectives with a minimum of 50 percent fewer disks due to superior thin provisioning technologies. Save on the cost of a storage technology refresh and then maximize storage ROI over time by keeping incremental purchases, administration, and operating costs to a minimum. In fact, the HP Get Thin Guarantee promises new HP 3PAR StoreServ customers a minimum 50 percent reduction in capacity requirements by replacing legacy storage with HP 3PAR StoreServ Storage—guaranteed.<sup>1</sup>

HP 3PAR StoreServ Storage makes these savings possible by offering the industry's most comprehensive approach to thin storage. This approach is built on thin technologies that combine both software and hardware innovations unique to HP 3PAR StoreServ Storage that enable your organization to not only start thin, but to get thin and stay thin:

### Start thin: HP 3PAR Thin Provisioning Software

HP 3PAR Thin Provisioning Software improves storage system efficiency and optimizes capacity utilization system-wide. It does this by addressing the problem of capacity overallocation through eliminating the need to dedicate storage capacity up-front and on a per-application basis.

Since its introduction, thin provisioning has given customers the ability to meet green IT targets and reduce capacity purchases. Thin provisioning makes this possible by cutting SAN costs, floor space requirements, and energy expenses by up to 50 percent. No more dedicating resources for each application or service level. No more paying to power, house, and cool disks that you may never need.

### Get thin: HP 3PAR Thin Conversion Software

In an ideal world, all your storage would start thin using HP 3PAR Thin Provisioning Software. But what if starting thin has not been an option because you've been limited to legacy arrays from a traditional storage vendor? Or what if you've already created volumes on an HP 3PAR Storage System without the use of thin provisioning?

It's never too late to become more efficient. When combined with HP 3PAR Thin Conversion Software bundled in the 3PAR 7000 OS Software Suite, the zero-detection mechanism built into the HP 3PAR Gen4 ASIC gives HP 3PAR StoreServ Storage the power to remove allocated but unused space without impacting performance.

HP 3PAR Thin Conversion Software extends the benefits of thin provisioning to your existing storage volumes for "fat-to-thin" conversions compatible with any host volume. HP 3PAR StoreServ Storage is the only platform in the industry to offer this built-in, hardware-accelerated, fat-to-thin conversion capability. This eliminates up to 50 percent of your legacy capacity by allowing the simple and rapid conversion of fully provisioned storage to thin provisioned storage.

### Stay thin: HP 3PAR Thin Persistence and Thin Copy Reclamation Software

To realize the ultimate efficiency and cost-saving benefits of starting thin or getting thin, you also need to stay thin. An industry first, HP 3PAR Thin Persistence Software ensures that thin volumes on the HP 3PAR StoreServ Storage stay as lean and efficient as possible. Thin Persistence accomplishes this by reclaiming unused space associated with deleted data within system storage volumes—simply, quickly, and without disruption.

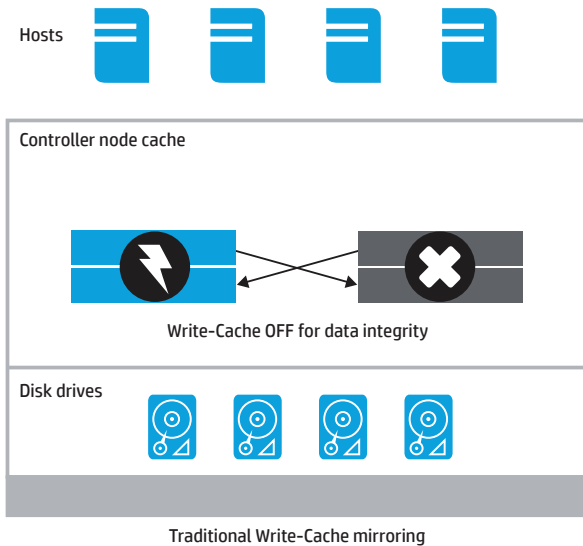
Thin Copy Reclamation is similar to Thin Persistence but instead of applying the space reclamation for thin volumes, this software reclaims unused space from thin copies (virtual copy snapshots and remote copies).

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<sup>1</sup> The above is intended to highlight certain aspects of our Get Thin Guarantee and does not contain the full terms, conditions, limitations, definitions, and other provisions ("Terms") of the Get Thin Guarantee. The Terms shall be contained in a written Get Thin Guarantee Terms and Conditions which shall take precedence over the above. Qualification for our Get Thin Guarantee is subject to your acceptance of a Get Thin Guarantee Terms and Conditions and your satisfaction of those Terms.

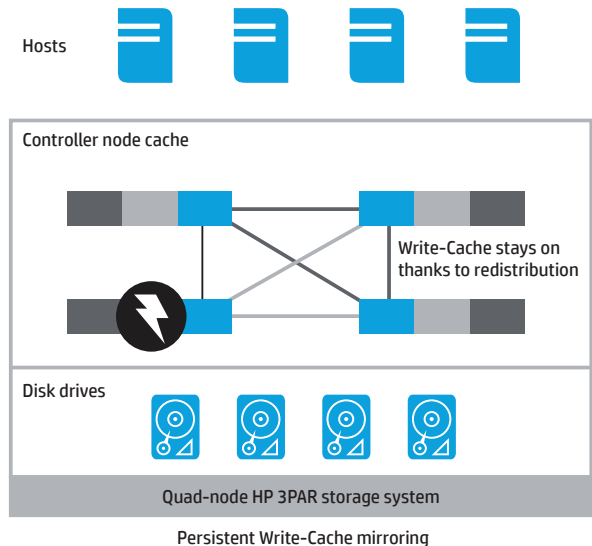
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Legacy Storage: Controller or cache failure impacts business operations



Significant service level degradation with write-through mode resulting in I/O latency spike and greater than 50% reduction in IOPS

3PAR StoreServ: Persistent Cache for bulletproof storage maintain service levels



Graceful service level preservation with HP 3PAR StoreServ Persistent Cache that maintains write caching by rapidly re-mirroring the cache to other controllers in the HP 3PAR StoreServ system in the event of a failure

On average, with thin technologies, HP 3PAR StoreServ Storage customers can purchase 60 percent less capacity than would have been necessary with traditional storage arrays. Thin Persistence and Thin Copy Reclamation can improve this average capacity savings by another 10 percent for a total savings of up to 70 percent. All volumes and snapshots stay thin to help sustain green IT targets, defer the cost of purchasing raw capacity to handle new data growth, and keep costs down—without having to purchase special host-based software or retaining professional services.

## Enterprise-class data persistence, resilience, and security

The HP 3PAR StoreServ 7000 Software Suite offers several data resilience and security products designed to deliver Tier 1 availability to the mid range:

- **HP 3PAR Persistent Cache**

Persistent Cache is a resiliency feature built in to the HP 3PAR OS that prevents data availability from being impacted by unplanned component failures—a key requirement for maintaining service levels in the virtual data center. Persistent Cache eliminates the substantial performance penalties associated with traditional arrays and “write-through” mode so that HP 3PAR StoreServ Storage can maintain required service levels even in the event of a cache or controller node failure. Persistent Cache leverages the array’s unique design to preserve write caching by rapidly re-mirroring the cache to other nodes in the cluster in the event of a failure. Persistent Cache is supported on all quad-node and larger HP 3PAR StoreServ models, including the HP 3PAR StoreServ 7000 quad-node storage array—making HP 3PAR StoreServ the only vendor to incorporate this industry-leading service level protection capability into midrange as well as enterprise arrays.

- **HP 3PAR Persistent Ports**

Persistent Ports makes software upgrades on HP 3PAR StoreServ 7000 Storage systems and attached HBAs nondisruptive, allowing them to take place online without reliance on multipathing software and without the need to initiate failover. HP 3PAR StoreServ 7000 is the first storage array to offer this Tier 1 resiliency feature for the entire midrange.

- **HP 3PAR Access Guard**

Access Guard is an HP 3PAR Operating System software feature that delivers user-configurable volume security at logical and physical levels, enabling you to secure hosts and ports to specific virtual volumes.

- **HP 3PAR Full Copy**

HP 3PAR Full Copy software flexibly delivers point-in-time (PIT) clones with independent service level parameters so you can share and protect data from almost any application simply and affordably. Full Copy offers rapid resynchronizations with base volumes as needed and is thin provisioning-aware for excellent capacity utilization.

## Software suites for HP 3PAR StoreServ 7000 Storage

HP 3PAR StoreServ 7000 Storage supports the same operating system and software offerings as the other members of the HP 3PAR StoreServ family, but with these specific 3PAR StoreServ models you have the opportunity to purchase software bundled into a series of suites designed to simplify purchasing and save you money. Selected software titles can also be purchased separately, as indicated below.

<b>HP 3PAR Operating System Software Suite</b>	Required for all new HP 3PAR StoreServ 7000 systems, this foundational software suite gives you everything you need to get up and running quickly and efficiently. This suite includes the HP 3PAR Operating System, Management Console, Host Explorer, and SmartStart—software designed to get you off to a quick start with your new HP 3PAR StoreServ 7000 system. It also includes all of the platform’s thin software offerings—Thin Provisioning, Thin Conversion, and Thin Persistence. Other highlights of this suite include Full Copy, autonomic rebalancing capabilities that help you optimize the use of future capacity expansions, and support for standard multipathing software for high availability in clustered environments. A 180-day license for online import is included to enable migration from HP EVA storage.
<b>HP 3PAR Replication Software Suite</b>	This optional suite bundles HP 3PAR Virtual Copy with Remote Copy Software, both also sold separately for all HP 3PAR StoreServ 7000 models. Included in this bundle is Peer Persistence, which enables peer federation for VMware clusters to improve overall availability. Licensed based on system capacity.
<b>HP 3PAR Data Optimization Software Suite</b>	This optional software bundle combines HP 3PAR Dynamic Optimization, Adaptive Optimization, and Peer Motion Software so you can move data and workloads between arrays without impacting applications, users, or services. Licensed based on system capacity, the three software titles bundled in this suite are also sold separately for all HP 3PAR StoreServ 7000 models.
<b>HP 3PAR Security Software Suite</b>	This optional suite bundles HP 3PAR Virtual Domains and Virtual Lock Software, both also sold separately for all HP 3PAR StoreServ 7000 models. With this suite, you can segregate access and deliver robust storage services for different applications and user groups with additional security attached to the retention of storage volumes. Licensed based on system capacity.
<b>HP 3PAR Application Software Suite for VMware</b>	Everything you need to make your VMware environment more agile and efficient—including HP 3PAR Recovery Manager for VMware, Host Explorer for VMware, VASA support, and three essential plug-ins: the VMware Site Replication Manager (SRM) Adapter, the HP 3PAR VAAI plug-in, and the 3PAR management plug-in for VMware View. This suite is optional and licensed on a per-system basis.
<b>HP 3PAR Application Software Suite for Exchange</b>	This bundle gives you the essentials for use with Microsoft Exchange, including HP 3PAR Recovery Manager for Exchange and the VSS Provider Software. This suite is optional and licensed on a per-system basis.
<b>HP 3PAR Application Software Suite for Oracle</b>	Everything you need for protecting Oracle databases, including HP 3PAR Recovery Manager for Oracle and Oracle Space Reclamation capabilities, sold as an optional suite and licensed on a per-system basis.
<b>HP 3PAR Application Software Suite for SQL</b>	Protect Microsoft SQL databases with HP 3PAR Recovery Manager for Microsoft SQL and the 3PAR VSS Provider Software, bundled with this optional suite and licensed on a per-system basis.
<b>HP 3PAR Reporting Software Suite</b>	Enhance system visibility and reporting capabilities with this optional suite, which includes HP 3PAR System Reporter Software and the 3PARInfo application, licensed on a per-system basis.

## For More Information

Gain enterprise-class features at a midrange price with HP 3PAR StoreServ 7000 Storage. Visit [hp.com/go/storeserv7000](http://hp.com/go/storeserv7000).



## HP Technology Services for HP 3PAR StoreServ

Tap into the HP Technology Services advantage—backed by the strategic and technical know-how of our consulting experts—for a single-source solution that makes the most of your investments. Choose from services recommended for HP 3PAR StoreServ Storage that meet your business needs.

### Discovery, planning, and design services

HP Services can help you assess and understand your options, develop a comprehensive plan, detail the end-to-end solution, and specify the right technology to meet your business needs. HP Services provides assessment services and planning workshops that clearly define business requirements and help develop the business case for your new storage investment. An efficient storage strategy is challenging and is best achieved through concerted effort and planning. Shrinking budgets and increasing business demands are a challenge for even the most experienced IT managers. HP Services can help streamline this process by helping you discover needs and create a plan geared toward simplifying the environment, reducing risk, and improving your HP 3PAR StoreServ Storage investments.

- **Discovery services**  
HP Storage Efficiency Analysis Service
- **Planning services**  
HP Storage Impact Analysis Service
- **Design services**  
HP Storage Modernization Service

### Deployment services

Mitigate risk and accelerate storage implementation with services that provide a best practices design, provide configuration and deployment from day one, and improve time to revenue. The proper configuration and setup of HP 3PAR StoreServ Storage is crucial to safeguard the performance, efficiency, and utilization of your environment, as well as to protect against data loss. HP Services uses best practices developed in-house at HP to install and configure your new HP 3PAR StoreServ Storage, which reduces disruption to your application and infrastructure while reducing risk and improving your storage investment.

- HP 3PAR StoreServ and Software 7000 Storage Installation and Startup Services
- HP 3PAR 7000 Replication Software Suite Installation and Startup Service
- HP 3PAR Adaptive Optimization Policy Implementation Service
- HP Enhanced Implementation Service for SANs
- HP Data Replication Solution Service
- HP Storage Virtual Volume Design and Implementation Service

### Integration services

These services can help migrate your data and integrate HP 3PAR StoreServ Storage into your environment to effortlessly respond to changing business needs. HP can also help you operate and manage your HP 3PAR StoreServ Storage throughout the full lifecycle of the array. With integration services from HP, we can help you efficiently use your storage, improve capacity utilization to reduce costs, and establish information management standards that can be used across backup, replication, and archiving.

- HP Data Migration Services
- HP 3PAR Health Check
- HP Performance Analysis Service
- HP 3PAR Rebalance Service
- HP 3PAR Storage Assessment Service
- HP Thin Volume Conversion Service
- HP EVA to 3PAR StoreServ Acceleration Service

### Support services

Your product warranty protects against product defects, while services protect your business, helping you to avoid downtime and improve performance with the right support level and access to firmware and patch updates and upgrades. Depending on your individual support requirements, choose from three levels of support that cover the entire product lifecycle to better address your needs:

<b>Optimized Care</b>	For mission-critical environments demanding the best performance and stability: <ul style="list-style-type: none"> <li>• <b>Support:</b> HP Critical Service</li> <li>• <b>Additional options:</b> 10 HP Proactive Select credits per year per array</li> </ul>
<b>Standard Care</b>	For business-critical environments that need to maintain the highest level of uptime: <ul style="list-style-type: none"> <li>• <b>Support:</b> HP Proactive Care 24x7, plus 20 HP Proactive Select credits per year per array</li> <li>• <b>Additional options:</b> HP Proactive Care Personalized Support (once per each new Proactive Care support environment), HP Personalized Support Additional Day, and an additional 10 HP Proactive Select credits per year per array</li> </ul>
<b>Basic Care</b>	For the minimum recommended support: <ul style="list-style-type: none"> <li>• <b>Support:</b> HP Proactive Care 24x7, plus 10 HP Proactive Select credits per year per array</li> <li>• <b>Additional options:</b> HP Proactive Care Personalized Support (once per each new Proactive Care support environment), HP Personalized Support Additional Day, and an additional 10 HP Proactive Select credits per year per array</li> </ul>

If none of our support recommendations meet your specific needs, we can tailor a service solution for your unique support requirements. Only HP brings together deep expertise, proactive and business-critical support, and a strong partner network—plus a full set of infrastructure services designed to power a converged infrastructure. Visit [hp.com/services/storage](http://hp.com/services/storage).

## HP Factory Express

HP Factory Express provides customization and deployment services along with your storage and server purchases. You can customize hardware to your exact specifications in the factory—helping speed deployment. Visit [hp.com/go/factoryexpress](https://hp.com/go/factoryexpress).

## Customer technical training

We offer a variety of training courses on storage software, networking, archiving, and disk storage systems. Our classes are available in many delivery modalities—from traditional instructor-led courses at one of our 80 training centers worldwide to online and onsite training. Visit [hp.com/learn/storage](https://hp.com/learn/storage).

## HP Financial Services

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4AA4-3465ENW, Created October 2012

