

# EVOLVE

*your messaging environment.*

## HP Storage and Microsoft Exchange

Simplify, optimize, and scale your Exchange infrastructure

Solution brief

HP Storage and Microsoft® Exchange support your Instant-On Enterprise by helping you simplify, optimize, and scale your messaging environment to support stringent user requirements and to meet messaging service-level agreements (SLAs) – today, and as your needs evolve. Transform the economics of messaging by deploying storage that supports a converged infrastructure that delivers breakthrough savings and infrastructure agility with the ability to future-proof your Exchange investment.

### Messaging environment challenges

Enterprises rely heavily on communication tools to support business collaboration and workflow, and they expect those tools to be there when needed. Today, both the volume of business communications and their level of complexity are on the rise. For example, more users are accessing email through a variety of mobile devices. In addition, emails are no longer limited to text but contain pictures, audio, and video. This complexity places pressure on IT organizations to scale in order to support not only more users, but larger mailboxes, to deliver better performance, and to meet more demanding mail SLAs – all while assuring business continuity and controlling costs.

### HP and Microsoft partnership: building a future-proof messaging environment

For more than 25 years, HP and Microsoft have worked together to significantly simplify Microsoft Windows Server environments and reduce total cost of ownership (TCO).

As a Microsoft Global Technology Partner across storage, servers, networking, and technology services, HP enables you to deploy Exchange solutions with confidence.



- HP is the market share leader for both servers and storage in Exchange deployments according to IDC's July 2010 server workload study.
- HP has the industry's most comprehensive storage offerings for Exchange.
- HP is the infrastructure partner of choice for Exchange Server, and the only vendor to be named Microsoft Enterprise Partner of the Year five times.

## Microsoft Exchange 2010 implications for storage

Microsoft Exchange 2010 is designed to deliver new levels of reliability and performance with a wider range of deployment options and a lower TCO.

### New features and enhancements include:

- **Database availability groups (DAGs)** — With this feature, database copies are replicated between servers. Database availability groups provide greater site resilience and disaster recovery compared to previous Exchange offerings such as cluster continuous replication or standby continuous replication.
- **Reduced I/O per second (IOPs) requirement and lower acquisition costs with a choice of direct attached storage (DAS) or lower cost drives in shared storage arrays** — Exchange 2010 delivers up to a 70-percent reduction in disk I/O over Exchange 2007. Additional disk types meet the minimum performance required to run Exchange, so organizations can use the new architecture to drive down storage costs.
- **Mailbox resiliency** — New, unified solution for high availability, disaster recovery, and backup with fast, automatic, database-level recovery from database, server, and network failures.

Some of these features have significant implications for your storage infrastructure. For example, with Exchange 2010, additional disk types meet the minimum performance required to run Exchange, ultimately enabling enterprises to reduce storage costs. However, the use of database availability groups can demand a significant increase in storage capacity consumption, which can result in runaway storage costs.

The new features in Exchange 2010 have expanded the storage options available to customers implementing Exchange. HP has the breadth and depth to cover these choices and provide the storage platform that maximizes the benefits specific to your environment.

- HP is Microsoft's largest Gold Certified partner, with nearly 200 HP sites enrolled worldwide.
- HP and Microsoft announced an agreement in January 2010 to jointly invest \$250M in marketing and R&D. The E5000 Messaging System, a "preferred solution" from HP and Microsoft, is just one of a number of new products emerging from that agreement.

HP's expertise in Microsoft Exchange helps you evaluate needs, rapidly plan and deploy solutions, and cost-effectively operate your Exchange environment. Even as your business grows and your circumstances and requirements evolve, HP and Microsoft deliver the software, hardware, and services necessary to keep you moving forward.

## Building a converged infrastructure

HP Converged Infrastructure delivers a systematic approach to accelerate time-to-business value for IT organizations in large and mid-sized enterprises and service providers. This is achieved by helping them overcome the inflexibility and high costs created by data center, application, and IT sprawl in favor of shifting more resources to innovation.

A fundamental element of the HP Converged Infrastructure, HP Storage enables you to eliminate silos by enabling the integration of technologies into shared pools of interoperable resources. This infrastructure convergence enables you to enhance the efficiency, simplicity, and scalability of your Exchange deployment so that your IT department can spend less time maintaining corporate communication tools and more time initiating new projects that add value to the business.

## Evolve your Microsoft Exchange environment with HP

Deciding on the right Exchange solution may seem complex. Should you choose direct attached storage (DAS), a shared storage array, or a messaging appliance? With HP Storage, the best choice of infrastructure will depend on your individual requirements, but regardless of which path you go down, your deployment will be:

- **Simple.** HP Storage reduces complexity by driving ease of use – including deployment and administration – within your Exchange environment.
- **Optimized.** HP Storage reduces costs while improving efficiency, capacity utilization, and flexibility to support enhanced business continuity.
- **Scalable.** Rapidly deliver larger mailbox sizes, a greater number of mailboxes, improved performance, and enhanced reliability with HP Storage. Start small, then nondisruptively scale to meet the evolving requirements of a growing number of Exchange users.

## Deciding on the right HP storage solution





When choosing a DAS or SAN storage solution or messaging appliance to support Exchange, it's important to carefully evaluate your needs. Factors such as TCO, existing infrastructure, and data center maturity will lead you to a specific storage type. For example, if your email environment doesn't require virtualization, a DAS solution – with its lower initial cost and simpler deployment – may adequately meet your storage needs. A SAN is ideal when you consolidate applications with shared storage resources. Or you may deploy a SAN solution for more storage flexibility with storage tiering and thin provisioning. Virtualizing Exchange for mailbox server roles with a SAN storage solution can be a cost-effective way to ensure business continuity and enable flexible messaging environment designs to meet more demanding SLAs. However, virtualization may not make sense if the hardware infrastructure is not optimized for virtualization and where cost savings are already achieved by combining Exchange server roles (Client Access and Hub Transport) on the same physical server.

## Overcoming Exchange challenges with HP Storage

HP Storage offers a range of solutions to address the specific challenges present in your Exchange environment today by helping you converge your infrastructure.

- **HP 3PAR Storage Systems** — The next generation of Tier 1 storage for public and private cloud environments, HP 3PAR Storage Systems deliver the storage area network (SAN) infrastructure performance, scalability, and availability to transform your data center and enable virtual and cloud computing.
- **HP Enterprise Virtual Array (EVA) Family** — EVA disk arrays are ideal for enterprise customers that need highly available storage and want to make efficient use of valuable IT staff, resources, and budget.
- **HP P4000 G2 SANs** — Proven for blade servers, virtual servers, client virtualization, database, email, and business applications, HP P4000 G2 SANs offer a pay-as-you-grow, all-inclusive pricing model. With its intuitive storage management, this SAN is perfect to help get data growth under control.
- **HP E5000 Messaging System** — Built as a turnkey solution that can be up and running in a few hours versus days, the HP E5000 Messaging System delivers large mailbox sizes, an improved level of TCO when compared to traditional Exchange platforms, and dramatically simplified design and installation – all optimized and preconfigured around best practices from Microsoft and HP.

**Figure 1**  
HP Storage Solutions for Microsoft Exchange

	Dedicated – DAS	Shared – SAN		
	E5000	P4000	P6000 EVA	3PAR
				
<b>IT Driver</b>	<ul style="list-style-type: none"> <li>• Simple, pre-configured, turnkey solution</li> <li>• Repeatable, building block approach</li> <li>• Small footprint</li> </ul>	<ul style="list-style-type: none"> <li>• Virtualization</li> <li>• Performance</li> <li>• Capacity utilization</li> <li>• On-demand scaling</li> <li>• Preference for BladeSystem</li> </ul>	<ul style="list-style-type: none"> <li>• Virtualization</li> <li>• Performance</li> <li>• Preference for FC</li> </ul>	<ul style="list-style-type: none"> <li>• Virtualization</li> <li>• Performance</li> <li>• Capacity utilization</li> <li>• Multiple workloads</li> </ul>
<b>Key features</b>	<ul style="list-style-type: none"> <li>• Single SKU appliance</li> <li>• Push-button startup</li> <li>• Single site, multisite and remote office configurations</li> <li>• Scale from 500 to 15,000 mailboxes</li> </ul>	<ul style="list-style-type: none"> <li>• iSCSI</li> <li>• Storage clustering</li> <li>• Thin provisioning</li> <li>• Replication (Synch or Asynch)</li> <li>• Snapshot &amp; cloning</li> </ul>	<ul style="list-style-type: none"> <li>• iSCSI, FCoE, FC</li> <li>• Simplicity</li> <li>• Business copy efficiency</li> <li>• Dynamic capacity management</li> <li>• Modular architecture that scales with dense footprint for lower cost</li> </ul>	<ul style="list-style-type: none"> <li>• iSCSI, FC</li> <li>• Rapid provisioning</li> <li>• Thin provisioning</li> <li>• Dynamic optimization</li> <li>• Nearline for online</li> <li>• Recovery manager</li> </ul>



## Challenge:

Complexity in deploying and managing your messaging environment

## HP Solution:

### **Simplify Exchange deployment and management**

Due to the large number of components in a messaging solution, the supporting infrastructure is typically complex. In addition to planning for server hardware and operating system requirements, you need to select a storage solution that supports growth in mailbox size and number. Whether you choose an appliance approach or need shared storage to support Exchange as one of several applications, HP enables you to simplify Exchange deployment and management so that you can shift resources away from operations and toward higher value pursuits.

- **Simple planning and deployment**

Planning and deploying an Exchange environment typically requires many steps. HP offers Exchange solutions that alleviate planning and require fewer sizing steps, therefore enabling you to plan and configure your Exchange environment in seconds as opposed to days. In addition, HP offers solutions that accelerate and validate setup and automated lifecycle management to make it easier to migrate quickly without disrupting your messaging service.

- **Rapid provisioning**

One of the most common storage tasks is provisioning storage to host systems, providing the host with storage for a particular application. For many traditional storage systems, provisioning of storage is complex, manual, and tedious. HP offers next-generation storage systems that simplify the deployment of new mailboxes by provisioning storage, adjusting logical unit numbers (LUNs), and creating redundant array of independent disks (RAID) groups in seconds without pre-planning. With advanced automation, storage capacity is “right-sized” to the needs of Exchange automatically – alleviating administration and dramatically improving storage capacity utilization.

- **Easy data protection**

Administrators need to quickly restore (or nondisruptively back up to tape) Exchange instances or databases for near-continuous data protection from snapshots that are created and managed intelligently by storage systems. Traditional Exchange data management can create dilemmas that cause unnecessary IT complexity. Recovery

from tape requires inordinate complexity when a user only needs to recover a single mailbox or message. Disk-based backup and recovery speed operations but are expensive with full-disk copy technologies. In addition, due to limitations on the number of snapshots that can be created, disk-based backup often doesn’t provide the granularity that is desired, especially when many or frequent points of recovery are needed. HP Storage solutions ease administration by providing rapid, affordable online backup and recovery of entire Exchange server databases or even an individual email from multiple, highly granular points in time.

## Simplify Exchange planning and deployment with HP Storage

- **HP E5000 Messaging System** — Simplify planning and deployment with 87-percent fewer steps to size and configure Exchange 2010.<sup>1</sup>
- **HP 3PAR Rapid Provisioning** — Reduce storage administration time for your Exchange environment by up to 90-percent.<sup>2</sup>
- **HP 3PAR and HP P4000 G2 SAN Recovery Manager for Exchange and integration with Microsoft Volume Shadow Copy Service (VSS)** — Benefit from a standardized interface for easily creating online, application-consistent point-in-time copies of a single or multiple volumes.

## Challenge:

High cost due to infrastructure inefficiencies such as low capacity utilization

## HP Solution:

### **Optimize your infrastructure by improving storage efficiency and deploying proven configurations**

Storage inefficiencies can make your environment more complex and run up costs. With traditional storage, this means that your organization is not only managing more storage than needed, but also paying to house, power, and cool unnecessary capacity. For example, in Exchange 2010 environments, DAGs help protect Exchange databases by replicating multiple copies of the Exchange database. HP Storage helps improve storage efficiency with the higher amount of capacity required for DAG replication.

## Virtualizing Exchange

Server virtualization is another way to optimize your Exchange environment so that you can cost-effectively implement a flexible messaging architecture that delivers higher service levels. To achieve these benefits, the messaging infrastructure must be capable of satisfying Exchange requirements as well as the specific demands of virtualization – such as performance, capacity efficiency, and a high degree of flexibility. HP 3PAR Storage Systems, HP P4000 G2 SAN Solutions, and HP EVA disk arrays are ideally suited for highly virtualized environments and are therefore an excellent choice when virtualizing Exchange. Refer to the solution brief HP Storage and Microsoft Exchange 2010 with Microsoft Hyper-V for details about virtualizing Exchange with HP Storage and Microsoft Hyper-V.

- **Thin provisioning and dynamic capacity management**

With traditional storage platforms, capacity is typically fully provisioned to accommodate the anticipated future growth of storage for Exchange DAGs, both to avoid the need to request additional storage too frequently and to ensure that capacity is readily available for new application requests. HP Storage solutions featuring thin provisioning eliminate this inefficiency by ensuring that DAGs consume only what they need and by allowing virtual volume capacity to be allocated without actually committing physical storage up front.

- **Storage tiering**

In Exchange environments, different users have varying workloads within the same mailbox database. Tiered storage from HP provides the flexibility to meet varied Exchange requirements while minimizing cost. HP Storage solutions offer the option of statistical analysis system (SAS) or serial advanced technology attachment (SATA) and Midline SAS for storage node disk drives or supporting solid state drive (SSD), Fibre Channel, and enterprise SATA capacity within a single storage array. This flexibility delivers consolidated, tiered application services as well as cost and performance optimization. With HP Storage, you can also optimize storage cost and performance either autonomically – intelligently and without administrator intervention – or on-demand by non-

## Optimize your Exchange infrastructure with HP Storage

Improve storage efficiency and deploy with the following proven configurations:

- **HP 3PAR and HP P4000 G2 SAN thin provisioning** — Reduce storage administration by up to 90-percent and slash capacity requirements by 50-percent or more, guaranteed.<sup>3</sup>
- **HP Dynamic Capacity Management (DCM) Software for HP EVA family** — Automate storage provisioning and improve capacity utilization by “right-sizing” the supported file system and the EVA virtual disk (Vdisk) storage volume to the needs of Exchange.
- **HP P4000 G2 SAN storage tiering** — Deploy the option of SAS or SATA and Midline SAS for storage node disk drives.
- **HP 3PAR Utility Storage** — Deliver consolidated, tiered application services as well as cost and performance optimization with solid state drive (SSD), Fibre Channel, and enterprise SATA capacity within a single array.
- **HP 3PAR Adaptive Optimization and Dynamic Optimization Software** — Optimize storage cost and performance by non-disruptively converting data service levels across SSD, Fibre Channel, and Nearline storage tiers.
- **HP 3PAR Nearline for Online** — Offset the potential costs of increased storage consumption with cost-effective enterprise SATA drive technology to meet online data needs, made possible by unique performance benefits of the HP 3PAR Architecture.

disruptively converting data service levels across multiple storage tiers. In addition, with HP Storage you can further offset the potential costs of increased storage consumption due to the use of DAGs with cost-effective enterprise SATA drive technology.

- **Proven configurations**

Sizing your messaging infrastructure for Exchange 2010 requires careful planning. HP Storage provides best-practice configurations optimized for Exchange 2010 and relieves enterprises from the burden of configuring Exchange 2010 while providing a more predictable outcome and stable solution.

## Challenge:

Decreased performance and reliability as the number and size of mailboxes increase

## HP Solution:

### Scale seamlessly and nondisruptively to deliver larger mailboxes for more users

Enterprises constantly face an increase in the number of users requiring not just email access, but always-on access. At the same time, IT is challenged to deliver larger mailboxes as larger files with rich media become more common. Both trends demand a high-performance and reliable storage infrastructure, such as one that is built on HP storage.

### Deliver larger mailboxes to more users with HP Storage

- **HP 3PAR Storage Systems:** Next-generation Tier 1 storage based on a highly scalable, tightly clustered, multi-tenant architecture. Reduces storage infrastructure complexity and increases performance at a fraction of the cost relative to market-leading monolithic and modular storage architectures. Wide striping of writes across all system resources delivers massively parallel performance and the flexibility to configure various service levels. HP 3PAR Dynamic Optimization Software enables you to align Exchange requirements with data service levels easily, precisely, and on demand.
- **HP P4000 G2 SANs:** Clustered, scale-out SAN allows you to scale capacity and performance linearly without incurring downtime or incurring performance bottlenecks. The P4000 G2 SAN reduces costs with an all-inclusive, enterprise feature set for physical and virtual environments while eliminating risk via data high availability. Wide striping of writes across all system resources delivers massively parallel performance and the flexibility to configure various service levels.
- **HP Enterprise Virtual Arrays (EVA):** Modular design enables you to select an affordable entry configuration with the potential to later expand and scale up to 480 TB.
- **HP E5000 Messaging System:** Delivers a building-block approach to scaling mailboxes. Add resources and capabilities to the Exchange solution as business needs change over time.

### • Highly scalable architecture

You need to deploy your Exchange environment on a storage architecture that enables you to start small and grow the number and size of mailboxes as you go – affordably, non-disruptively, and all within the same infrastructure. The highly scalable architecture of HP Storage solutions ranges from multi-tenancy to storage clustering to a modular design that supports the scalability needs of your Exchange environment.

### • Wide striping

The storage solution that supports your Exchange environment must deliver both a high capacity utilization rate and high performance level to your Exchange environment. HP Storage features wide striping capabilities that expand capacity automatically and non-disruptively to ensure optimal volume performance.

### • Building-block approach

Scaling dynamically to many mailboxes without impact to Exchange users and without requiring long deployment cycles is critical for business continuity and agility. HP Storage offers the option of deploying Exchange using a building-block approach by adding scale-out units that can be deployed in hours, not days. You can also balance workloads automatically and increase existing mailbox size with optional capacity upgrades.

## Modernizing your Exchange environment: Exchange 2010

HP Storage and Microsoft Exchange 2010 can transform the economics of messaging with breakthrough savings, rapid deployment, and infrastructure agility. Whether you choose a SAN-based storage solution such as HP 3PAR Utility Storage (which delivers scalability and optimized capacity utilization) or a DAS-based storage solution such as the HP E5000 Messaging System (a purpose-built appliance designed for large, low-cost, and highly available mailboxes), HP provides the highest level of scalability and optimization for maximum uptime while dramatically reducing complexity and TCO for Exchange 2010.

## Data protection and disaster recovery in your Exchange environment

Your users expect business communications to be both seamless and “always on.” As a mission-critical application, Exchange stores much more than the text of messages; it stores files and multiple versions of files as well as calendar and contact information. Today’s new storage requirements involve meeting the data protection needs for Exchange without introducing inefficiency or complexity.

- HP Storage solutions feature easy-to-use, efficient data protection and disaster recovery to ensure “always-on” availability for users without introducing complexity into your Exchange deployment. In Exchange 2010 environments, the Exchange databases are already protected using DAGs. However, the boot LUN can benefit from the added data protection of using SAN-based data replication. For example, the **Network RAID feature of HP P4000 G2 SAN** provides volume-level high availability data protection against controller, storage node, rack, and even site failures.
- The ability to replicate Exchange data to remote locations in the most efficient and cost-effective way is important for data protection in the event of a site disaster. For example, by utilizing the asynchronous feature of **HP 3PAR Remote Copy Software**, Exchange snapshot replication can be safely performed to a secondary site, ensuring that the data is application-consistent for recovery purposes. **HP3PAR Recovery Manager Software** for Microsoft Exchange uses a unique asynchronous periodic mode to deliver a disaster recovery solution that guarantees data integrity and application-consistent snapshots on the remote site.
- **HP Data Protector** provides a single console from which clients can manage any level of Exchange protection, delivering the most advanced levels of snapshot-based protection on **HP 3PAR Storage Systems, HP P4000 G2 SAN** arrays, and **HP EVA** family – including down-to-the-second recovery of applications. Administrators simply enter into the Data Protector console the hour, minute, and second to which they would like to roll back data. HP Data Protector also reduces the time required to protect Exchange environments through one-touch protection policies. Once a protection policy is set, HP Data Protector can be automatically adjusted to configuration changes such as new databases or failovers. In addition, single items can be recovered through the HP Data Protector console.

## Email archiving

As your business generates and shares an abundant volume of information through email, you need to protect and preserve these critical communications. Whether you need to meet regulatory requirements for data retention or lower the costs of conducting electronic discovery (e-Discovery), Exchange archiving solutions can help simplify the process of preserving and discovering email without having to change the way your users or administrators work with and manage your Exchange environment.

In addition, you can optimize your Exchange infrastructure by reducing backup time, improving recovery, and eliminating the needs for quotas while still keeping the active data store lean. Key to a robust email archiving solution are storage capabilities such as single-instance storage (SIS) technology that efficiently stores messages and attachments in the archive as well as multiple storage options for the archive, including disk, optical, and tape. HP Storage offers archiving solutions with CommVault and Symantec in an Exchange environment.

## HP Services

HP offers a comprehensive range of Microsoft Exchange 2010 upgrade and migration services. Beginning with an ROI evaluation, HP consultants can help you design and deploy an Exchange environment that meets user needs and reduces messaging costs. HP’s Exchange upgrade and migration services support the full messaging lifecycle: strategy, design, transition, operation, and continual improvement.

HP is a top provider of enterprise messaging and unified communications solutions based on Microsoft Exchange Server 2010. Our comprehensive solutions include industry-standard server and storage systems and a wide range of mobile devices for on-the-go users.

HP’s Messaging Services are included with HP Exchange Services for private cloud. With Microsoft Exchange experience and expertise that is recognized worldwide, HP Technology Services professionals work with you to help enable a successful transition

## Services include:

- **Readiness and Design Workshop** — Assess, design, and plan your destination Microsoft Exchange environment and the subsequent migration.
- **Implementation Services** — Build on the design and planning phase to help you construct and transition to the new system.
- **Pilot and Migration Services** — Transition users from the existing messaging platform to the new Exchange 2010 platform.

Migration paths include Exchange-to-Exchange and Notes-to-Exchange migrations.

## Summary

The infrastructure that supports your business-critical operations is one of the most crucial investments your enterprise can make. Increasing email uptime and scalability while reducing cost and complexity are the main business drivers for today's Exchange environments. As a Microsoft Global Technology Partner across storage, servers, networking, and technology services, HP enables your enterprise to become Instant-On by supporting user requirements and providing a converged infrastructure foundation with the agility to support your future IT needs.

With the combination of HP Storage and Microsoft Exchange, you can cost-effectively implement a converged, always-on messaging infrastructure that supports your business communications needs by enabling you to simplify, optimize, and scale as needed.

By building your Exchange environment on HP Storage, your IT organization can control data center sprawl and management demands so that you can redirect those resources toward innovation to drive your business forward. By enabling you to simplify deployment, optimize operations, and scale on demand, HP Storage solutions help you face today's challenges and prepare your infrastructure for what's next.

## Resources

HP has a wealth of Microsoft Exchange reference architectures and technical whitepapers to accelerate deployment with predictable results and reduced risk. They can be found at [www.hp.com/solutions/activeanswers/exchange](http://www.hp.com/solutions/activeanswers/exchange).

### Other resources include:

HP Storage for Microsoft Exchange:

<http://h71028.www7.hp.com/enterprise/us/en/solutions/storage-microsoft-exchange-server-overview.html>

HP Messaging Solutions with Microsoft Exchange:

[www.hp.com/solutions/microsoft/exchange](http://www.hp.com/solutions/microsoft/exchange)

HP E5000 Messaging System for Microsoft Exchange:

<http://www.hp.com/go/e5000>

HP Microsoft Joint Portal (UC&C section):

[www.hp-microsoft.com](http://www.hp-microsoft.com)

HP Services for Exchange:

[www.hp.com/services/messaging](http://www.hp.com/services/messaging)

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<sup>1</sup> Tolly Group Report: <http://www.tolly.com/DocDetail.aspx?DocNumber=211107>

<sup>2</sup> Texas Christian University case study: [http://www.microsoft.com/casestudies/Case\\_Study\\_Detail.aspx?casestudyid=4000004659](http://www.microsoft.com/casestudies/Case_Study_Detail.aspx?casestudyid=4000004659)

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