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Exchange 2010 — An Upgrade Worth Considering

Better Back End, Basic Archiving, And Bigger Mailboxes Lead The Benefits List

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EXECUTIVE SUMMARY

Email is business dial tone. Whether on computers or smartphones, email is the most popular application. And Microsoft Exchange is a popular choice for business email. Microsoft's recent release of Exchange Server 2010 has material benefits that should prompt some Exchange 2007 and many Exchange 2003 customers to consider an upgrade. Look for improvements in three areas: back-end improvements largely connected to storage; benefits to information workers; and built-in basic archiving capabilities. But Exchange 2010 is not a panacea. In particular, many Exchange 2007 shops won't see enough new benefit to accelerate an immediate upgrade. Organizations with substantial archiving and legal risk mitigation needs should stick with their traditional archiving vendor or evaluate other archiving and eDiscovery partners.

EXCHANGE 2010 OFFERS ADVANCES ON THREE FRONTS

It was a busy autumn in Redmond. In addition to launching Windows 7 and Windows Server 2008 R2, Microsoft released Exchange Server 2010 in November 2009. Unlike Exchange Server 2007, where performance and availability improvements were noticed mainly by IT administrators and consolidation opportunities appealed to those who held the purse strings, Exchange 2010's appeal reaches a broader audience. With Exchange Server 2010, Forrester sees key improvements — noticeable when compared with Exchange 2007 and significant when compared with older versions of Exchange — in:

- **Back-end infrastructure.** Exchange 2010 delivers back-end performance enhancements including a consolidated approach to high availability and disaster recovery, opportunities to drive down storage costs, and better integration with hybrid cloud-and-on-premise deployment options. A new approach to the Exchange storage architecture sits squarely in the middle of delivering most of these benefits.
- **Information worker experience.** The biggest improvement is the potential for much bigger mailboxes. But full-fidelity browser support for Internet Explorer, Firefox, and Safari and a low-cost way to support personal mobile devices are also benefits to the folks who really matter — your employees.
- **Archiving.** With Exchange 2010, Microsoft is making early investments in archiving and eDiscovery capabilities. While significant shortcomings remain on this front, these advances look promising, especially for organizations with low legal risk profiles and limited storage burdens.



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FOR IT PROS, EXCHANGE 2010 CAN DRIVE DOWN COSTS AND INCREASE FLEXIBILITY

Exchange is a mature email platform, but even with its tenure IT pros still face a mix of business and technical challenges in putting the right infrastructure behind Exchange. Many of the problems can be tied to storage. Microsoft didn't have a lot of native options for providing high availability and disaster recovery prior to Exchange 2007 and relied heavily on the storage platform and its partner ecosystem to fill in the gaps.¹ Some of the most common challenges for IT pros include questions around using cloud-based services for some or all of email architecture, storage, and virtualization. Some of the biggest historical issues with Exchange that customers have struggled with include:

- **High storage costs.** Expanding email usage and a decreasing tolerance for downtime forced many organizations to increase their storage investments. Use of shared storage was once a requirement to provide high availability — and the required storage area network (SAN) storage didn't come cheap, forcing many large organizations to provision 100 to 200 MB mailboxes. Exchange 2007 introduced a new storage architecture and native resiliency that eliminated the requirement of a SAN.² Microsoft published a whitepaper about its own use of direct-attached storage (DAS) that sent a message to the industry: It was pulling high availability (HA) and disaster recovery (DR) out of the storage layer and into the Exchange platform.
- **A muddy architectural vision.** The advent of virtualization and cloud-based alternatives opened up new options for provisioning email to the organization — but also brought along questions of their applicability. Forrester explored the impact of cloud-based services on email architecture in a previous series of reports.³ At the root of the virtualization question is the fact that there are two diverging storage paradigms — Exchange is moving toward a DAS model while virtual server environments typically require shared storage. Users also complained that Microsoft was slow to provide guidance around the use of virtualization and Exchange.
- **Prohibitive disaster recovery and high-availability costs.** These capabilities vary based on the regulatory and business needs of the organization: from low-cost tape backup and recovery to premium SAN-based clustering. The price tag for high availability made it out of reach or a luxury item for many firms. Microsoft ecosystem vendors like Neverfail, Double-Take Software, and Teneros filled the gap.⁴

Exchange 2010 Ditches A Legacy Storage Architecture To Create New Efficiencies

Exchange 2010 eases many of these difficulties by picking up where 2007 left off in the storage redesign that drives many of the back-end benefits of the upgraded platform. There are tradeoffs though, and IT pros evaluating their options should take note of some of the changes. In your evaluation you will want to consider that Exchange 2010 has:

- **Significantly increased performance.** Exchange 2010 repeats the I/O performance leap Microsoft made from Exchange 2003 to 2007. This performance boost means that you don't

have to necessarily invest in the highest performance drives out there and even consider significantly cheaper SATA drives. To improve performance, one step Microsoft took was eliminating a feature known as single instance storage (SIS). When enabled, SIS reduces the mail store size by only retaining a single copy of an email attachment per database. Microsoft counters that newer compression offsets this loss and the effectiveness of SIS has diminished.⁵ Storage vendors like EMC and NetApp offer compression via deduplication natively at the storage layer as well.

- **Greater architectural flexibility.** Microsoft finally discussed support for virtualization in August 2008 and has since updated and refined its guidance.⁶ Exchange 2010's performance increases also make it a better player in a virtual server environment. Exchange 2010 is also natively multitenant, which yields several benefits. For those considering Exchange Online, its multitenant nature also helped to drive down the price. There's a price war going on with cloud-based email, and in November 2009 Microsoft dropped the cost of a multitenant hosted Exchange mailbox to \$5 with a big mailbox. Also, a single administration console makes it possible for firms to run some mailboxes on-premise and some in the cloud.
- **Better high availability and disaster recovery options.** With Exchange Server 2010, Microsoft consolidated Exchange 2007's multiple replication technologies focused on HA and DR into a single technology called database availability groups (DAG).⁷ Early adopters report that this new approach simplifies providing HA and DR for their Exchange deployments. One important point: Microsoft completely eliminated the legacy option to use single copy clusters (SCC) in Exchange 2010, meaning an upgrade with native HA and DR requires using the newer approach.

FOR INFORMATION WORKERS, EXCHANGE 2010 MEANS MORE FREEDOM

Email and calendaring are mainstays of the information workday: Almost 90% of information workers, people that use computers in their jobs, use email — and 57% use their email application hourly.⁸ But Exchange's storage legacy has meant frustration and kludges for employees that need to store more emails and attachments than their tiny corporate mailbox allows. Information workers have coped by moving huge attachments on work emails into their personal email accounts, storing emails in .pst files on their desktop hard drives, and generally cursed IT every time the "your mailbox is full" message popped up. Exchange 2010 brings capabilities that can improve information worker productivity and satisfaction:

- **Support for much bigger mailboxes.** Most firms limit mailbox size to 100 to 250 MB for good IT operations reasons such as high storage cost and narrow nightly backup windows. This of course seems ludicrous to your average employee when they can get free personal email from Google with a 7 GB mailbox. With the cheaper storage and more efficient backup options in Exchange 2010, even when compared with Exchange 2007 it becomes much easier for IT to expand the mailboxes to 1 to 2 GB, or even larger.

- **Full-fidelity messaging experience with three different browsers.** Information workers are increasingly working from home and while on the go. With Exchange 2007, the Exchange team at Microsoft had previously addressed this scenario by offering full-fidelity email, calendar, and contact support for Internet Explorer. They have now expanded that support to include a full-fidelity email client on the very popular Firefox and also Safari browsers.⁹ There is an often unnoticed security benefit with browser access to email: No data is downloaded to the computer, which means there is no data to lose or have stolen.
- **Mobile support is a configuration entry away.** Microsoft's ActiveSync protocol is becoming a de facto standard protocol for messaging on smartphones, supported by Apple, IBM, Google, Nokia, Notify Technology (used in Oracle's Beehive), and of course Microsoft. While ActiveSync falls far short of Research In Motion's (RIM) proprietary approach to securing and managing mobile messaging, it does provide good enough capabilities for many firms. And ActiveSync has three additional benefits: 1) It has a \$0 license cost if you have an Exchange Standard Client Access License (CAL); 2) it doesn't require any additional hardware or software; and 3) it is managed through Active Directory through a configuration flag.
- **Cloud or on-premise: You decide.** Microsoft has made a commitment to run the same code in its Exchange Online service as in Exchange 2010. This will make it easier for companies to run a hybrid email system, giving some information workers a cloud-hosted mailbox and some an on-premise mailbox. With online pricing between \$2 and \$5 per mailbox, using the cloud is a good way to expand email coverage without incurring big capital or operating expenses.¹⁰ Running a hybrid email system makes sense for firms that want to provision partners, expand mailbox size, provision a joint venture or acquisition, or begin a migration to cloud-hosted email.

WITH EXCHANGE 2010, MICROSOFT DIPS ITS TOE INTO ARCHIVING AND EDISCOVERY

Over the past decade, tens of thousands of organizations have adopted message archiving solutions. An array of vendors, providing archiving offerings for Exchange, Notes Domino, and other messaging systems, have helped these buyers comply with regulations, mitigate legal risk, and improve operational efficiency. Now, with new functionality built into its messaging platform, Microsoft is making an initial foray into the market. Exchange 2010 delivers enhancements for archiving, eDiscovery, and information protection. Key advancements include:

- **Personal archive.** The latest version of Exchange now includes the ability to create a second mailbox, or Personal Archive, for users. Organizations can move items to personal archives either by setting automated retention policies or by supporting simple drag and drop. Note: Personal Archive functionality in Exchange 2010 requires Enterprise CALs, and organizations will need either Outlook 2010 (which is not yet shipping) or Outlook Web Access to view this archived content.

- **Legal risk mitigation.** Exchange 2010 adds retention management policies, legal hold functionality, and multi-mailbox search capabilities. In this latest release, Exchange administrators can set retention policies that can be applied to specific items, conversations, or folders in a mailbox, and information workers can set simple policies for deletion and archiving as well. Exchange 2010 also now enables legal hold, preserving mailbox items in both primary mailboxes and Personal Archives when appropriate for litigation needs. The release also supports new Web-based, multi-mailbox search that can be delegated to specialist users, such as compliance officers, to help meet eDiscovery, regulatory, and other requirements.
- **Information protection.** To help prevent unauthorized and accidental distribution of data, Exchange 2010 supports the ability to analyze email and automatically apply the appropriate level of control based on the sensitivity of the message. For less sensitive messages, organizations can allow the message to be delivered, but add alerts, disclaimers, or other recipients as needed. For more sensitive data, organizations can apply more rigid controls to encrypt, redirect, or block messages.

What Exchange 2010 Doesn't Deliver For Archiving And eDiscovery.

It's good to see Microsoft's focus on archiving and compliance functionality, and we'll look forward to enhancements of these capabilities in future releases. For now, organizations should keep a few things in mind regarding the archiving and compliance capabilities of the recent Exchange Server release:

- **Storage and access shortcomings.** Exchange 2010 supports a greater choice of storage hardware options, from traditional SANs to low-cost DAS. Although the offering's storage flexibility can cut costs, it doesn't allow organizations to capture other key potential storage optimization benefits. For example, the current Exchange 2010 release doesn't include single-instance storage capabilities for attachments (something that IBM Lotus Domino 8.5 does provide), the ability to migrate items across different tiers of storage (personal archives can only be stored in the same mailbox database as the original mailbox), or functionality for ingesting high volumes of dispersed .pst files. Also, unlike some third-party archiving applications, Exchange 2010 does not natively offer offline access to archived content.
- **eDiscovery and compliance limitations.** In addition to storage and performance optimization drivers, mitigating legal risk looms large as a key factor leading many organizations to deploy message archiving solutions. While Exchange 2010 delivers basic retention management, auditing, and legal hold functionality, these capabilities may prove insufficient for many firms. For example, organizations can impose legal holds in Exchange 2010, overriding defined retention policy when appropriate for litigation needs, but current capabilities are limited to a mailbox level, not at a mailbox item level. Due to gaps such as this and limited support for other stages of the eDiscovery process (e.g., legal review), solutions provided by the Exchange partner community will remain key.

- **Narrow focus on messaging.** Today, Exchange 2010 supports simple archiving for Microsoft's email, instant messaging, voicemail, and other content in Exchange. The offering, however, doesn't support archiving other email or collaboration systems. Exchange 2010 also doesn't have the ability to archive structured data or SharePoint, file servers, and other systems. eDiscovery and regulatory requirements require focus on a broad array of applications and content types, including a variety of unstructured and structured sources. To mitigate legal risk, organizations need to ensure that the scope of their efforts and technology investments isn't just limited to email.

RECOMMENDATIONS

EXCHANGE 2010 IS NOT A PANACEA; BE SURE TO THINK THROUGH YOUR SITUATION

It's clear that Exchange 2010 moves the ball forward for the platform, but it's not a slam dunk that an immediate upgrade is right for you. Many Exchange 2003 shops will want to bypass Exchange 2007 and move to 2010, but many Exchange 2007 shops shouldn't be in a rush to jump. Organizations evaluating Exchange 2010 and their approach to provisioning email should:

- **Study the storage options and their implications.** If you're using a single SAN for storage that's shared between two Exchange mailbox servers and use the newer replication approach, this doubles the amount of storage required. If you're an Exchange 2003 customer wedded to the use of your SAN, but aren't willing to move to a replicated storage model yet with its associated cost burden, then Exchange 2007 might be a better choice for now. Alternatively, some companies are continuing to use their SAN for their primary mail storage and replicating this to cheaper storage in case of the need for a failover. Sound confusing? Weigh the architectural tradeoffs and model the costs associated with your storage options to help make the right choice for your organization.
- **Pick the right mix of virtualization for your environment.** There are pros and cons to virtualizing Exchange whether it is on VMware, Hyper-V, or Xen. On the positive side, you get the usual server benefits associated with virtualization, like better hardware utilization. In 2010, the improved I/O performance also chips away at virtualization concerns. On the downside, purely using resiliency at the virtualization layer circumvents some native Exchange resiliency features like native Exchange heartbeat detection. Of note, the Exchange Unified Messaging role isn't supported in a virtual machine as well.
- **Examine the broader application ecosystem impact for 2010 support.** In addition to the potential storage cost impact if you continue to use a SAN, an Exchange upgrade can have a ripple impact with supporting tools like backup, antivirus, and mobility platforms as well as other business applications that integrate with the platform. For instance, RIM recently added support for the BlackBerry Enterprise Server in Exchange 2010, but you have to be on the latest version. When factoring in the cost and feasibility of an upgrade consider the change management required for applications like customer relationship management (CRM) or finance systems that might require modification.

- **Recognize archiving and eDiscovery limitations in Exchange 2010.** For organizations with no message archiving systems in place, Exchange 2010 represents a step up. For firms with minimal storage optimization and legal risk mitigation needs, Exchange 2010 can help meet archiving and compliance objectives. For most organizations, however, third-party archiving and eDiscovery solutions will remain important. In any case, buyers should recognize that Exchange 2010 is just one part of the archiving and eDiscovery equation. Firms will also need to deal with related applications, aligning IT and legal stakeholders, and standardizing workflows to achieve regulatory, legal risk mitigation, and operational efficiency goals.

ENDNOTES

- ¹ One of the key benefits of leveraging a storage area network (SAN) is consolidated storage — but this advantage is often lost in Exchange deployments. Many firms avoid mixing Exchange with other workloads on the SAN because Exchange is so I/O intensive and most storage systems can't enforce quality of service for multiple workloads. As a result, most firms deploy a dedicated SAN to Exchange. A dedicated SAN also provides additional resiliency capabilities such as snapshots and replication, features that were lacking within Exchange itself. Shared storage was also required to support Exchange clustering. See the April 28, 2008, "[Trimming The Fat From Exchange](#)" report.
- ² Microsoft introduced options known as cluster continuous replication (CCR) and local continuous replication (LCR) with Exchange 2007, and standby continuous replication (SCR) with Exchange Server 2007 SP1. These three replication-based approaches protect Exchange from server, storage, or complete site failures. Rather than relying on a single copy of a mail database on shared storage, the xCR technologies opened up the door to using less expensive forms of storage in place of more expensive shared storage. See the October 9, 2007, "[Messaging Continuity: Ensuring High Availability For Microsoft Exchange](#)" report.
- ³ The different alternatives to email architecture are not necessarily black and white, mutually exclusive options — there can be a mix of on-premise and externally hosted services that fall into two categories. First, you can peel off support services like message filtering, archiving, and continuity and use a hosted service provider while keeping the rest of the mail infrastructure on-premise. Second, you can use an inexpensive single- or multitenant-hosted mailbox service for a large number of users while retaining others on an on-premise email system. This can shift the economics back in favor of providing email to those users that you don't currently serve. See the January 5, 2009, "[Should Your Email Live In The Cloud? An Infrastructure And Operations Analysis](#)" report.
- ⁴ In order to cluster Exchange Server 2003 and previous iterations, companies must deploy a storage area network (SAN) so that the clustered Exchange nodes have access to shared storage. See the October 9, 2007, "[Messaging Continuity: Ensuring High Availability For Microsoft Exchange](#)" report.
- ⁵ Microsoft first scaled back SIS in Exchange Server 2007 and then finally eliminated it altogether in 2010. SIS only works for users in the same mail database and now that it's more common to have multiple databases, SIS' effectiveness has diminished.

- ⁶ Customers evaluating use of server virtualization should check out Microsoft's official guidance on uses, considerations, and support implications. Source: Microsoft Support Policies and Recommendations for Exchange Servers in Hardware Virtualization (<http://technet.microsoft.com/en-us/library/cc794548%28EXCHG.80%29.aspx>).
- ⁷ As described above, Exchange Server 2007 introduced the CCR, LCR, and SCR technologies for protecting Exchange from server, storage, or complete site failures. In Exchange Server 2010, these three technologies were collapsed into a single technology Microsoft called database availability groups, or DAG for short.
- ⁸ In April 2009, Forrester surveyed 2,001 US information workers at organizations with 100 or more employees to find out how they use technology in their jobs. We created a graphical readout of our Workforce Technographics® US Benchmark Survey, Q2 2009. This report covers devices, productivity, mobility, collaboration, intranet portals, and Web 2.0. See the October 9, 2009, "[The State Of Workforce Technology Adoption: US Benchmark 2009](#)" report.
- ⁹ Note: This full-fidelity browser support requires a full Exchange license. It is not the same as the "deskless worker SKU," which supports different browsers, but with a much lighter-weight mail client at a lower cost.
- ¹⁰ Information and knowledge management (I&KM) pros are used to giving all employees the same software tools. While this has the benefit of simplicity, it often means buying licenses for software that is seldom or never used. With cloud-based email, firms now have a way to tune their email costs to the actual needs of their workforce. The easiest way to get started is to host some mailboxes on-premises and others in the cloud. While firms with fewer than 15,000 employees can almost always save money by moving all mailboxes to the cloud, every firm can save money by moving their occasional users — workers that can get away with a Web-based email client — to a cloud-based email provider. How much money? For these occasional users, as much as \$63 per user per year. See the August 13, 2009, "[Tier Your Workforce To Save Money With Cloud-Based Corporate Email](#)" report.