

MICROSOFT® EXCHANGE SERVER 2010

Using your Iomega® StorCenter™ px12-350r Network Storage Array in a 260-User Exchange 2010 Mailbox Resiliency Storage Solution



The Iomega StorCenter px12-350r network storage array offers easy-to-use, powerful and affordable network storage for any small business or remote office. Powered by enterprise-class EMC® LifeLine™ software, the StorCenter px12-350r is available in configurations starting at 4TB, and can be expanded up to 24TB in a single array. Robust connectivity allows simultaneous multi-protocol file and iSCSI block-level access. High performance makes the px12-350r an ideal candidate for email and database applications or as a fast backup target. High reliability features ensure maximum availability, including RAID with hot-swap drives and automatic rebuild, dual hot-swap power supplies, and redundant variable-speed hot-swap chassis cooling fans.



SOLUTION DESCRIPTION

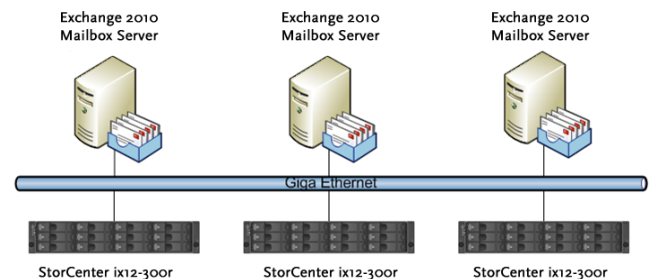
This solution utilizes low-cost, high-capacity 1TB SATA disks for Microsoft Exchange data in a raidless configuration. High availability is provided for this solution with the use of Microsoft Database Availability Groups (DAGs). A DAG is a set of mailbox servers that uses continuous replication to provide automatic recovery in the event of failures. A DAG may contain up to 16 mailbox servers, each one having a replicated copy of the production databases and log files.

Due to changes in the architecture of Exchange Server 2010, failover is now at the individual database level. DAGs provide automatic failover without the complexity of traditional clustering. With the new features in Exchange 2010, customers can now deploy much larger mailboxes than with previous versions of Exchange Server, without degraded performance. Exchange data can now also reside on lower speed disks such as the SATA drives as used in this solution.

This solution uses a building-block approach to storage design. One of the methods used to simplify the sizing and configuration of storage for use with Microsoft Exchange Server 2010 is to define a unit of measure—a building-block. Such a unit of measure needs to meet all of the Microsoft Exchange Server recommended metrics for excellent reliability, scalability and performance, and needs to be easy to implement. An organization can take this block of work and multiply it by some factor until the desired number of Microsoft Exchange server users (that is, Microsoft Messaging API [MAPI] Outlook users), has been properly met or configured to satisfy the Microsoft Exchange Server recommended performance metrics. If each unit is properly configured, it will match the Microsoft Exchange Server recommendations for a healthy-performing system, from both a disk and an end-user perspective.

EMC's best practices involving the building-block approach for an Exchange Server design proved to be very successful throughout many customers' implementations.

In this configuration, a single disk spindle supports a database and its corresponding log files. A 1TB spindle can be used for 65 users with a profile of 0.18 IOPS (which includes 20 percent overhead) and a mailbox



size of 10 GB. This building block can then be used for each DAG copy of the Exchange data. A total of four Exchange building blocks without RAID were used in this solution. When RAID is not being used there must be at least three copies of the database to provide sufficient protection in the event of disaster. In this solution, there are three copies of each of the four Exchange Server databases, and each copy of the database is placed on a separate array.

ITEM	DESCRIPTION
Number of Exchange mailboxes	260
Number of DAGs	1
Number of servers per DAG	3
Number of active mailboxes per server	260
Number of databases per host	4
Number of copies per database	3
Number of mailboxes per database	65
Mailbox size	10GB
RAID type for DB/Log	No RAID
Simulated profile: I/Os per second per mailbox	0.18
Database/Log LUN size	929 GB
Total database size	2536 GB
Percent storage capacity used by Exchange	68.25%

Note: In most deployments, since each px12-350r can provide 12 SATA drives, you can fully utilize each array by hosting 4 primary database copies and 8 (4 x 2) secondary database copies for the other 2 Exchange servers. Therefore, 3 Exchange servers can host mailboxes for 780 user mailboxes in total.