

Exchange 2003 Archiving for Operational Efficiency Enabled by EmailXtender

Reference Architecture



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Executive Summary

Purpose

This document describes the reference architecture of the Enterprise Exchange 2003 EMC® CLARiiON® CX3-40 EmailXtender® solution tested and validated by EMC Global Solutions Operations.

The purpose of this solution is to demonstrate the capabilities of EMC hardware and software in a large Enterprise Exchange environment. The CX3-40 is used for storage, and EmailXtender is used for storage management, legal discovery, and compliance for an organization's email.

The business challenge

Retaining and ensuring access to email-based records presents major challenges to many business and IT executives who must meet a growing list of regulatory requirements, best practices, and internal governance mandates. At the same time, email volume continues to grow rapidly, increasing the operational challenges of establishing effective controls.

As email management places an increasing burden on both end users and IT administrators, companies must find solutions that address internal service levels and productivity objectives reliably, while complying with the growing list of external regulations and internal requirements.

The technology solution

In partnership with Microsoft and its certified partners, EMC has designed email solutions for Microsoft Exchange environments using EMC software for the EMC CLARiiON® platform.

This solution leverages the email archiving functionality of EMC EmailXtender software to archive and manage email content from Exchange email environments.

Reference architecture key components

The Enterprise Exchange 2003 CX3-40 EmailXtender solution reference architecture includes components from EMC, Microsoft, Dell, and Brocade. This section briefly describes the EMC components. For details on all of the components that make up the reference architecture, see [Chapter 2, page 9](#).

EMC EmailXtender

The EMC EmailXtender messaging solution is a policy-based system that collects email messages and attachments for archival and data protection purposes. The collection process generates a full-text index for messages and attachments, providing fast retrieval access and recovery in the event of data corruption or virus attacks. The EmailXtender system is often used as a record-keeping mechanism for email messages and attachments to satisfy business or regulatory compliance needs, such as those required by the Securities and Exchange Commission (SEC). Proactive email management with EmailXtender enables customers to improve operational efficiency and storage management, and reduce time, cost, and risk of legal discovery.

EMC DiskXtender

EMC DiskXtender® is a storage management system that provides support for multiple hardware and media types, flexible data organization, and rules-based file migration. DiskXtender accomplishes this through an easy-to-navigate interface, and transparent communication with storage locations and device management software.

EMC CLARiiON CX3-40

The CLARiiON CX3 UltraScale™ architecture, based on a high-performance, high-availability design, enables the CX3 UltraScale series to address a broad range of application environments. The CX3 UltraScale series systems are built on the same redundant modular architecture and run the FLARE® storage operating environment. The innovative UltraScale architecture incorporates state-of-the-art CPUs and the highest performing memory subsystem, leveraging low-latency, high-bandwidth PCI Express interconnect technology.

Environment profile

Table 1 lists the parameters and assumptions for the solution.

Table 1 Environment profile

Parameter	Value
Number and type of storage system	1 x CX3-40
Number of Exchange 2003 users	12,000
Read/Write ratio	2:1
IOPS	1.0 IOPS - per user in production
Exchange 2003 server cluster configuration	4 nodes (3 active and 1 passive)
Number and size of quorum LUNS per cluster	1 x 1 GB
Number of Exchange 2003 users per server	4,000
Number of Exchange 2003 storage groups per server	4
Number of Exchange 2003 mail databases per storage group	5
Number of Exchange 2003 users per mail database	200
Size of Exchange 2003 user mailbox	200 MB
Size of storage group mailbox database	240 GB
Flex factor	20%
Storage group log LUN size	35 GB

Exchange 2003 production data RAID, physical drive size and speed	RAID 1/0 146 GB 15k
Exchange 2003 production clone RAID, physical drive size and speed	RAID 5 146 GB 15k
Number of storage groups per journaling server	1
Journaling servers	2
Number of journaling mailboxes per journaling server storage group	1

The hardware and software resources used in this environment are listed in the following tables.

CX3-40 Exchange 2003 EmailXtender Environment

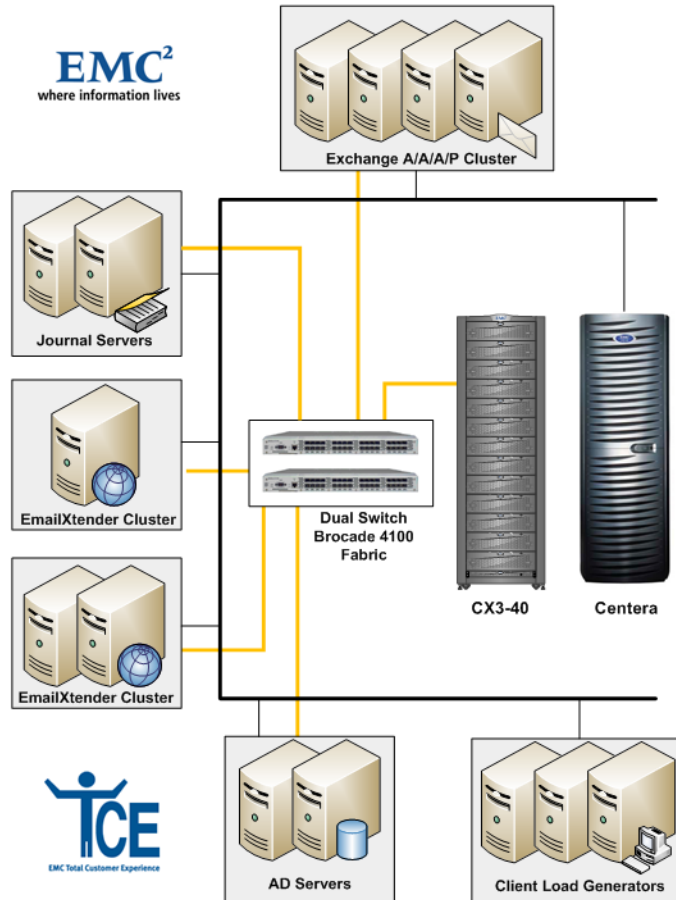


Figure 1 Enterprise Exchange CX3-40 EmailXtender environment

Exchange resources

This section describes the Exchange hardware and software resources.

Hardware

Table 2 lists the Exchange hardware resources used in the solution.

Table 2 Exchange hardware resources

Equipment	Quantity	Configuration
Storage	1	CX3- 40 FC Array: <ul style="list-style-type: none"> • 8 GB MEM • 11 DAEs • 166 GB FC, 146 GB, 15k 15 GB FC, 300 GB, 10k
SAN	2	Brocade 4100, 64 ports total, 32 ports per switch
Production Exchange server active nodes	3	Dell 6850, 4 CPU, 3 GHz, 16 GB RAM, 4 GB Emulex LP11000 HBAs
Client Load Generators	3	Dell 6850, 2 CPU, 3 GHz, 16 GB RAM, VMware ESX, (to support 30 virtual clients, 10/ESX server)
Primary domain controllers	2	Dell 1850, 2 CPU, 3 GHz, 4 GB RAM
Production passive node	1	Dell 1850, 2 CPU, 3 GHz, 4 GB RAM
Exchange Journal servers	2	Dell 6850, 4 CPU, 3 GHz, 4 GB RAM

Software

Table 3 lists the Exchange software resources used in the solution.

Table 3 Exchange software resources

Title	Version	Configuration
Windows Server 2003 Enterprise Edition	2003 SP1	Cluster (3 active / 1 passive)
Microsoft Exchange	2003 SP2	Cluster (3 active / 1 passive)
Windows Resource Kit	2003	
Microsoft Jetstress	2003 V. 6.05.7830	
Microsoft LoadSim	2003 V.6.05.7705	
PowerPath™	4.5.1	
AdmSnap	6.24	
Navisphere® Agent and CLI	6.24 (Agent and CLI)	
VMware ESX server	3.0.1	

EmailXtender resources

This section describes the EmailXtender hardware and software resources.

Hardware

Table 4 lists the EmailXtender hardware resources used in the solution.

Table 4 EmailXtender hardware resources

Equipment	Quantity	Configuration
SQL Server hosts (EmailXtender server)	2	Dell 6850, 4 CPU, 3 GHz, 4 GB RAM, 1 x Dual Port LP11002-E
EmailXtender passive node (EmailXtender server)	1	Dell 1950, 2 CPU, 3GHz, 4GB RAM, 2 x 4 GB 11000 HBAs
Exchange journaling server	2	Dell 2850, 2 CPU, 3 GHz, 4 GB RAM, 2 - 2 GB HBAs
Archiving target	1	EMC Centera, 8-node

Software

Table 5 lists the EmailXtender software resources used in the solution.

Table 5 EmailXtender software resources

Title	Version	Configuration
EmailXtender	4.8	
EmailXtract	4.8	
DiskXtender	6.1	
Windows Server 2003 Enterprise Edition	2003 SP1	Cluster (3 active / 1 passive)
PowerPath	4.5.1	
AdmSnap	6.24	
Navisphere Agent and CLI	6.24 (Agent and CLI)	

The following sections provide additional details about the solution.

Storage design

The storage design uses a concept that is referred to as the Exchange server building-block. The building-block approach defines the number of disks required for a certain number of users per Exchange server.

Exchange server building-blocks are validated to provide optimum storage performance to the corresponding number of users. To support a given number of Exchange users it is simply a matter of creating the appropriate number of building blocks and allocating that storage to the Exchange servers.

This solution uses a building block of 38 disks, which supports 4,000 Exchange Heavy users. To scale to the required 12,000 users, three building blocks are configured in the CLARiiON storage system and presented to the Exchange servers to hold the databases and logs.

EmailXtender design

EMC EmailXtender is a comprehensive, policy-based system that automatically collects, organizes, retains, and retrieves email messages and attachments. This solution provides answers to customers around the design and performance of EmailXtender for journaling and archiving. It shows the results of various historical archiving, shortcutting, and journaling tests to better understand the abilities of EmailXtender and its effects on I/O.

DiskXtender design

DiskXtender allows automatic file migration to storage media, such as an EMC Centera device, DVD-R, tape, or magneto-optical. In this solution EmailXtender clusters use DiskXtender to archive messages to an EMC Centera.

Conclusion

Building an Enterprise Exchange environment that encompasses local backup as well as remote site disaster recovery is a complicated endeavor. This reference architecture depicts a validated design using an EMC CX3-40 storage system, EMC EmailXtender, and EMC DiskXtender. This solution provides effective management of email systems, which have become critical business applications.

To learn more about this, and other solutions, contact an EMC representative or visit www.EMC.com/solutions/microsoft.

