

MAY 2009

EMC²
where information lives®

Customer Education Catalog

EMC Education Services

Maximizing Storage Team Productivity

Including EMC Proven™ Professional Certification



Welcome to EMC Education Services

Thank you for engaging with EMC for your technical training and certification needs. Our approach to training is simple—provide training that is relevant, timely, convenient, and cost-effective. Our goal is to ensure that you maximize the return on your EMC investment by understanding our technology and solutions at the right level while respecting your budget and your time. Our industry-recognized training does just that.

Training Locator...Pick Your Topic, Go to the Learning Path

EMC Education Services has a broad array of training across our many storage platforms, application software, and solutions. To help you narrow your search for the right training, we have organized our training alphabetically by general category with the page number for the appropriate Learning Path.

EMC Systems, Software, and Solutions

Avamar page 34

Global data deduplication solution, used in backup and recovery environments

Data Protection Advisor..... page 23

Backup performance monitoring and reporting software, used in backup and recovery environments

Celerra Family..... page 24

Network-attached storage (NAS) systems, including Celerra Manager, DART, SnapSure, and more

– performance optimization workshop page 25

Celerra Replicator page 25

File systems replication software, used in Celerra NAS environments

– capacity optimization workshop..... page 25

Centera Family..... page 31

Content-addressed storage (CAS) systems including Centera Console, Universal Access, and more

CLARiiON Family page 15

Storage area network (SAN) storage systems, including Navisphere Manager, PowerPath, Access Logix, SAN switch native configuration tools

– plus SnapView, MirrorView, and SAN Copy..... page 16

– performance optimization workshop page 17

Connectrix Family page 20

Storage area network (SAN) switches and directors including Cisco and Brocade

ControlCenter Family

Storage resource management (SRM) and capacity optimization solutions

– ControlCenter Management page 18

– StorageScope Reporting page 19

DiskXtender page 35

Automated file system archiving software, used in Microsoft Windows, UNIX/Linux environments

EmailXtender and EmailXaminer page 30

Proactive automated e-mail archive and management software, works with Microsoft Exchange and IBM Lotus Notes

EMC Disk Library (EDL) page 36

Virtual tape library systems based on CLARiiON and Symmetrix families of reliable storage platforms

Infra..... page 43

Infra installation and administration

Invista..... page 21

Intelligent switch-based SAN virtualization solution, works with approved list of Connectrix directors

MirrorView page 16

Remote data replication software for CLARiiON SAN business continuity and disaster recovery environments

Integrating Data Replication Technologies with Key Applications

Microsoft Exchange/SQL Server Integration

with SnapView, MirrorView, Replication Manager/SE page 17
to automate local and remote data replication

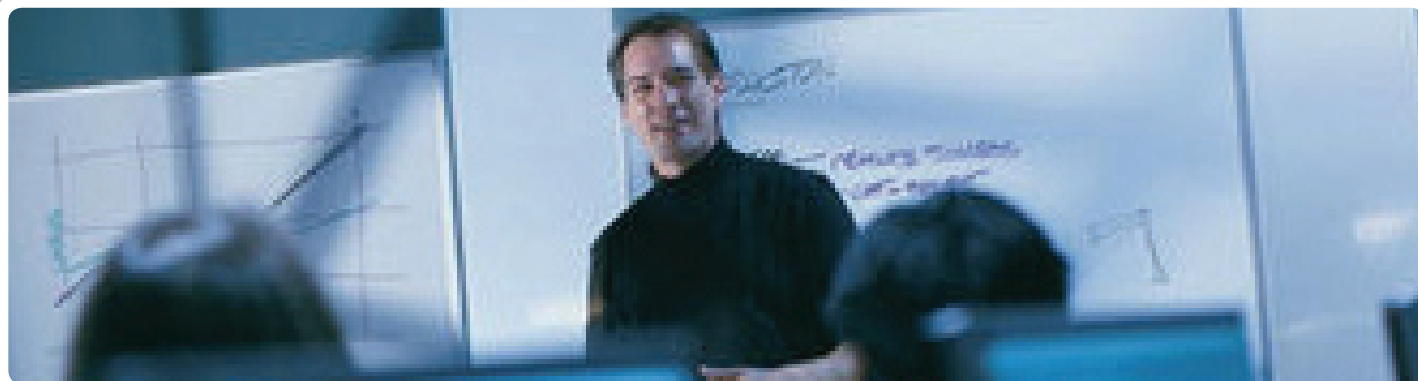
with TimeFinder, SRDF, Replication Manager page 27
to automate local and remote data replication

Oracle Integration page 27

with TimeFinder, SRDF, Replication Manager, to automate local and remote data replication

VMware Integration page 41

with CLARiiON and Symmetrix



NetWorker Family page 22

Backup and recovery solution, used to back up data to tapes, disks, virtual tape libraries over LAN and/or SAN

PowerPath

Server I/O load balancing and path failover software

– used in CLARiiON SAN environments **page 15**

– used in Symmetrix open systems (SAN) environments.....**page 26**

RecoverPoint page 37

Intelligent network-based data protection and recovery, works with SAN environment in general, including CLARiiON, Symmetrix, and Connectrix family of SAN components

Replication Manager page 29

Automating EMC data replication technologies, works with TimeFinder, SnapView, SAN Copy, SnapSure, Celerra Replicator, RecoverPoint CDP in a variety of application environments

Smarts Family page 32

Automating end-to-end management of your IT services

SnapView page 16

Local data replication software for CLARiiON SAN business continuity and disaster recovery environments

SRDF

Remote data replication software for Symmetrix-based mainframe business continuity and disaster recovery environments

– for open systems (SAN) **page 26**

– for mainframe **page 28**

Symmetrix Family

Enterprise storage including TimeFinder, SRDF, Solutions Enabler, SymCLI

– for open systems (SAN) **page 26**

– for mainframe **page 28**

– performance optimization workshop **page 27**

TimeFinder

Local data replication software for Symmetrix-based mainframe business continuity and disaster recovery environments

– for open systems (SAN) **page 26**

– for mainframe **page 28**

Voyence page 42

Installation, administration, and management of Voyence

VMware

– integration with CLARiiON **page 17, 41**

– integration with Symmetrix..... **page 27, 41**

– VMware Infrastructure 3 and Site Recovery Manager..... **page 40**

Planning and Design Best Practices for Information Infrastructure

Information Storage and Management—‘Open’ Course..... page 11

This ‘open’ course on information storage and management is the first step toward becoming an EMC Proven™ Professional. Learn concepts and principles of modern storage and information infrastructures. You’ll learn about SAN, NAS, CAS, IP-SAN, business continuity, backup and recovery, SRM, virtualization, and security. Regardless of your experience level, this course provides a new perspective on the information storage and management industry.

Storage Technologist—‘Open’ Curriculum page 13

Storage networking and information availability courses cover a process-oriented approach to plan, design, deploy, and manage solutions, coverage: Virtualized information infrastructure, SAN, NAS, CAS, IP-SAN, hybrid topologies, backup, recovery, archive, local and remote data replication.

Prerequisite: Information Storage and Management

ITIL® for Storage Services Management Curriculumpage 39

ITIL® (the IT Infrastructure Library) is the most widely accepted approach to IT service management in the world. Learn how you can apply ITIL® best practices to real-world storage management scenarios.

How do you validate the skills of your storage professionals?

Leverage the premier certification program in the information storage and management industry.



See Page 6 for program details.

Contact Us by Phone or E-mail

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Derive maximum value from your information infrastructure

Improve storage team productivity.

Are you directed to optimize team productivity without hiring new resources?

Over 1,400 storage professionals provided us their perspectives on team skills and organizational readiness*. They report that 66 percent of the team can benefit from additional skills development.

Further, the report findings indicate the first three areas consume over half of staff time and are most in need of skills development.

Capacity and Performance Optimization

Key knowledge and skills:

- How to customize reports to accommodate various decision-making requirements
- How to monitor and fine-tune data replications infrastructure configurations
- How to optimize layout and storage sizing for improved application availability

Planning and Design

Key knowledge and skills:

- How to analyze and justify business requirements using quantitative business metrics
- How to capture and consider technology requirements and performance implications
- How to plan, deploy, and manage processes, resources, and tools

Application Integration

Key knowledge and skills:

- How best to integrate key applications and virtual machines to data replication technologies
- How to validate and ensure data consistency and the ability to fail over and fail back applications

Information Infrastructure Management

Key knowledge and skills:

- How to install and configure multiple varying combinations of hardware and software
- How to efficiently conduct key day-to-day tasks using full capabilities of management tools
- How to protect more data and still meet backup, recovery, and archive requirements

EMC Education Services has the expertise, resources, and offerings to help you achieve IT organizational efficiency. We can help you determine the appropriate training and certification for your organizational development needs.

* Managing Information Storage: Trends, Challenges, and Options (2009-2010)

Table of Contents

“With a broad-based training program, we’re better equipped to find ways to improve performance, speed recovery, and manage rapid data growth across our entire IT infrastructure. This knowledge also helps us deploy our new systems more quickly and develop more solid strategies for the future.”

Tony Kempton
Capacity Planner
Progress Energy

Industry Awards for EMC Training



EMC ranked #4 in *Training Magazine's* Top 125 awards for 2009, and is the survey's leading enterprise high-technology company.



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Learning Paths

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EMC Proven Professional Certification Program

EMC Proven Professional is the premier certification program in the information storage and management industry. It offers a role-based series of courses and exams that covers the full range of EMC's hardware, software, and solutions. In addition to three levels of technical learning and certification, EMC Proven Professional also includes 'open' courses such as Information Storage and Management.

Being proven means investing in yourself and formally validating your knowledge, skills, and expertise by the industry's most comprehensive learning and certification program. Join a community of dedicated professionals, share exclusive benefits, get proven.

For up-to-date information on the EMC Proven Professional certification program, please visit <http://education.EMC.com/Certification>.

EMC Proven™ Professional Certification Framework

Level	EMC² PROVEN ASSOCIATE PROFESSIONAL	EMC² PROVEN SPECIALIST PROFESSIONAL	EMC² PROVEN EXPERT PROFESSIONAL	
‘Open’				
Storage Technologist (EMCST)	Information Storage and Management	Storage Networking	Information Availability	Enterprise Storage Solutions
EMC Technology Specific				
Storage Administrator (EMCSA)	Information Storage and Management	Backup and Recovery - NetWorker* Storage Management Storage Area Network (SAN) Network-Attached Storage (NAS) Symmetrix Business Continuity CLARiiON Solutions	Symmetrix Business Continuity CLARiiON Solutions	
Application Developer (EMCApD)	Content Management Foundations	Content Management Server Programming Content Management Web Programming		
System Administrator (EMCSyA)	Content Management Foundations	Content Management System Administration		
Technology Architect (EMCTA)	Content Management Foundations	Content Management Systems Architecture Content Management Application Architecture		
Product/Technology Specific	EMC Technology Foundations Mainframe Business Continuity EMC SourceOne EmailXtender and EmailXaminer Network Management (Smarts) DiskXtender EMC Disk Library and B2D			

* For Backup and Recovery specialties, participants also have the option of EMC Backup and Recovery Foundations to fulfill Associate requirement.



New! Online Community

Join the growing community of Information Storage and Management Professionals. Engage, collaborate, contribute!

<http://education.EMC.com/ProvenCommunity>

EMC Proven Professional Exclusive Benefits

Once you've achieved an EMC Proven Professional certification, you join a community of IT professionals that will lead us into the next generation of information and storage management. If that's not enough incentive, you'll also be eligible for exclusive benefits.

Knowledge Sharing—learn from other certified individuals and share your knowledge.

Knowledge Maintenance—Specialist or Expert-level certified individuals receive free, proactive electronic notification and access to the latest training updates. Stay current in your area of expertise.

EMC Proven Professional Logo—use on business cards and e-mail signatures.

Credit towards Master's Degree—jump start your graduate school goals toward a Master's of Information Technology degree.

GI Bill Reimbursement—receive reimbursement for EMC Proven Professional certification exam fees.

Three Levels of Certification

The **Associate level** recognizes storage technology knowledge; the **Specialist level** recognizes achievement in storage and information infrastructure solutions, and the **Expert level** recognizes integrating information infrastructure solutions.

The Storage Technologist curriculum introduces a process-oriented approach to design, deploy, and manage storage and information infrastructure solutions. It addresses the three most time-consuming tasks reported by storage teams identified in the EMC white paper, "Managing Information Storage: Trends, Challenges, and Options (2009-2010)": Designing and/or Participating in the Design of Storage Infrastructure, Troubleshooting, and Managing the Implementation of Storage Infrastructure.

- Backup and recovery in a NetWorker 7.x environment
- Storage management in a ControlCenter 6.x environment
- SAN environment built on Cisco and/or Brocade directors or switches, CLARiiON, or Symmetrix
- NAS environment built on Celerra NS
- Business continuity environment built on Symmetrix, TimeFinder, and SRDF
- CLARiiON-based SAN environment including SnapView and MirrorView

The Application Developer track is for content management professionals who develop, customize, and integrate EMC content management (Documentum) applications through server programming and web application programming.

The System Administrator track is for content management professionals who install, configure, maintain, troubleshoot, and optimize the performance of various EMC content management software and systems.

The Systems Architecture track is suited for systems or application architects with responsibility for preparing the architecture of an enterprise content management solution based on business requirements.

Product/Technology-Specific

- Manage mainframe (z/OS)-attached Symmetrix with TimeFinder and/or SRDF.
- Store, archive, and retrieve Microsoft Exchange or Lotus Notes e-mail data.
- Manage IP performance using Service Assurance Manager.
- Plan and deploy EMC DiskXtender in a Windows environment.
- Deploy and manage virtual tape libraries in a backup and recovery environment.

Leveraging Learning Paths

Take the guesswork out of your education plan.

Learning paths are structured road maps of courses that help you develop a thorough understanding of your selected technologies. They ensure the gradual introduction of complex technologies and challenging concepts from foundation through expert levels. Self-paced modules are a great way to learn the concepts and principles, enabling students in the classroom to spend more time on discussions and hands-on lab activities.

Maximize your storage expertise with advanced-level training.

If you have the knowledge and experience, go straight to the advanced levels. You will learn increasingly complex integration scenarios and application-centric solution best practices.



Validate your knowledge.

Our learning paths are conveniently aligned to EMC Proven Professional certifications. If you choose to take the next step, you already have the knowledge and access to the supporting study materials to prepare for the exam. Free practice tests are available online for all Proven Professional exams.

Utilize blended learning.

Not everybody learns the same way, or at the same pace. Some prefer a classroom environment, others do well with self-paced methods that are easier on your time and budget. EMC Education Services has a highly “blended” approach to learning, offering several training modalities. Some curriculum is offered in more than one way. Choose from traditional classroom training (with hands-on labs) or online learning where the pace of instruction is up to you.

Delivery Modes

The key advantage of blended learning is *flexibility*. Choose the learning mode that best fits your learning style, time constraints, and budget.



e-Learning — Self-paced training, generally 1 to 3 hours in length which can be accessed directly over the Internet or downloaded to your PC for use at your convenience. Also includes downloadable and printable student guides that can be taken anywhere, anytime.



Instructor-Led Training (ILT) — Traditional classroom training, with hands-on labs or case-studies, delivered at one of our many training centers worldwide, by a highly qualified EMC instructor.



Video Instructor-Led Training (VILT) — Top-instructor-delivered, Instructor-Led Training (ILT), packaged in a convenient CD-ROM format, with an intuitive navigation menu. Lecture content, lab exercises, and student materials are identical to the ILT.



EMC LIVE Virtual Classroom — A real time interactive training experience where students participate via Internet to access the instructor-led virtual classroom. Lecture, discussion, questions and answers, and lab exercises make this a rich and flexible training experience.

Purchase Options

We offer several convenient methods to purchase training from EMC Education Services. Purchase options are aligned with how many people require training, whether you or your teams are preparing for EMC Proven Professional certification, or whether your team of eight or more employees require the same class. If you have any questions about payment or your account, please contact an education Registration Consultant or your EMC account representative.

One employee will manage or work with a particular EMC product or solution.

ValuePaks and **Video ValuePaks** are the right choice. They offer a streamlined curriculum that aligns to our learning paths, and prepares learners for EMC Proven Professional certification.

ValuePaks are blended and include e-Learning and one or more instructor-led classes.

Video ValuePaks, in addition to being our “green” option, offer a blend of e-Learning courses and videotaped instructor-led classes. Learn without travel.

One employee needs a broad range and depth of knowledge about EMC products and solutions.

A **subscription** is your best choice. It provides one employee with access to the entire EMC training library (Instructor-Led, e-Learning, LIVE and up to 3 Video-ILT's) for one year from the date of purchase.

You also have the option of an e-subscription which offers you unlimited access to our entire library of self-paced e-Learning courses.

One year subscriptions hold a maximum attainable value of \$25,000 USD, based on the list price represented in the EMC Education Services on-line catalog. Subscription options do not apply to Content Management, or RSA.

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Subscription Pricing*

(USD)

CE-SUBCUS01	Customer Subscription	1 person, 1 year	\$ 10,995
CE-SUBCUS02	Customer Subscription	1 person, 2 years	\$ 19,995
CE-SUBCUSELN	e-Learning Subscription	1 person, 1 year	\$ 1,980

Many of my company's employees would benefit from EMC education.

Pre-paid training units are the right choice. They are pre-paid EMC education currency that can be shared by any of your employees. Valid for one year from date of purchase, pre-paid training units provide maximum flexibility to ensure your team's readiness.

Training Unit Pricing*

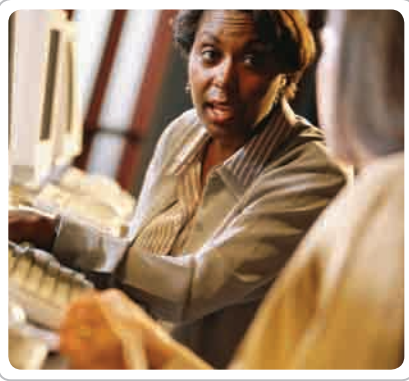
(USD)

CE-TU01	1 Training Unit	\$ 330	
CE-TU15	15 Training Units	\$4,950	
CE-TU30	30 Training Units	\$9,395	save 5%
CE-TU100	100 Training Units	\$29,995	save 9%

Eight or more employees from my company need the same EMC education class.

We can bring dedicated training to you. Please contact EMC Education Services or ask your EMC account representative for details.

* For local pricing in your region, please contact your EMC account representative.



Benefits: Information Storage and Management

Who benefits from taking Information Storage and Management?

The Information Storage and Management course is for Storage Architects, Administrators or Managers, Project Managers, or recent additions to storage and information management teams. This unique 'open' course focuses on concepts, principles, and design considerations of storage technology, rather than on specific products.

In this 'open' curriculum, you will learn about technologies such as SAN, NAS, CAS, and virtualization, and you also have an opportunity to earn your Associate Level EMC Proven Professional certification. Join this unique community of storage professionals!

Have you been asked the following questions, or do you dread the next scheduled meeting with your CIO?

- Should we deploy SAN or NAS to support the new application running an Oracle database?
- How should we handle our growth of data files? Expand our NAS or implement a CAS system to address file sharing data growth?
- What should we measure now to determine capacity planning for next year?
- Should we apply RAID 5 or RAID 3 for our new storage?
- How should we leverage local and/or remote replication technologies at the lowest price point?

If these questions sound familiar, the Information Storage and Management course will position you as a trusted advisor.

Top 4 Reasons to Complete Information Storage and Management

1. Recent IDC research forecasts a staggering 988 billion gigabytes of digital information will be created by 2010. Want to be among the elite group who can manage this growth?
2. Recent industry studies demonstrate that there is a significant shortage of skilled storage professionals which is impacting recruiting and retention. What an opportunity!
3. EMC is an award-winning education provider who can prepare you to manage the expanding digital universe. Why not learn, and get certified?
4. Information Storage and Management is your entry into the EMC Proven Professional certification program; the most comprehensive learning and certification program in the storage and information management industry.



"I have been in the SAN world for almost 10 years. Information Storage and Management clarified a lot of things that I had a working knowledge of but didn't really have the deeply detailed information about."

G. Douglas
Cingular Wireless

Information Storage and Management



Certification Alignment

Expert	N/A
Specialist	E20-011 and E20-012 Exam
Associate	E20-001 Exam

Benefits Storage Architects, Administrators, or Managers; CIOs or Project Managers; or recent additions to storage and information management teams.

You will learn to make informed decisions across multiple technologies involving SAN, NAS, CAS, IP-SAN, Backup and Recovery, Business Continuity, Security, and Virtualization.

Prepare for your Associate-Level Certification.

Associate Courses

Course Topics

Information Storage and Management (Instructor-Led)

This course includes the following modules:

OR receive the same content in the following self-paced e-Learnings

Introduction to Storage Technology

- Review data creation and the amount of data being created
- Describe the value of data to a business
- Identify challenges in data storage and data management
- List the solutions available for data storage
- List and describe the core elements of a data center infrastructure
- Describe the role of each element in supporting business activities

Storage Systems Architecture

- List the hardware and software components of the host environment
- Define the key protocols and concepts used by each component
- Describe the physical and logical components of a connectivity environment
- Describe the major physical components of a disk drive and their function
- Define the logical constructs of a physical disk, access characteristics, and performance implications
- Define the concept of RAID and components
- Describe the different RAID levels and their suitability for different application environments - RAID 0, RAID 1, RAID 3, RAID 4, RAID 5, RAID 0+1, RAID 1+0, RAID 6
- Compare and contrast integrated and modular storage systems
- Describe the high-level architecture and working of an intelligent storage system

Introduction to Networked Storage

- Describe the evolution of networked storage
- Describe the architecture, components, and topologies of FC-SAN, NAS, and IP-SAN
- Describe the benefits of the different networked storage options
- Understand the need for long-term archiving solutions and describe how CAS fulfills the needs
- Understand the appropriateness of the different networked storage options for different application environments

Business Continuity

- List reasons for planned/unplanned outages
- Describe the impact of downtime
- Differentiate between business continuity (BC) and disaster recovery (DR)
- Define RTO and RPO
- Identify single points of failure in a storage infrastructure and list solutions to mitigate these failures
- Describe the architecture of backup/recovery and the different backup/recovery topologies
- Describe local replication technologies and their role in ensuring information availability and business continuity
- Describe remote replication technologies and their role in providing disaster recovery and business continuity capabilities

Managing and Monitoring

- Identify key areas to monitor in a data center
- Define industry standards for data center monitoring and management
- List key monitoring metrics for storage infrastructure components
- List key management tasks in a data center

Securing Storage and Storage Virtualization

- Define information security
- List the critical security attributes for information systems
- Define storage security domains
- List and analyze the common threats in each domain
- Identify different virtualization technologies
- Describe block-level and file-level virtualization technologies and processes


(5 Days)
OR


(16 Hrs)
(Total)



Instructor-Led Training



e-Learning

For more information on delivery modes, see page 8

Purchase Options

 **Information Storage and Management**
CE-VALPAKSTF \$2,690
Includes one Instructor-Led course.

For more information on purchase options, see page 9

 **Information Storage and Management eValuePak**
CE-eVALPAKSTF \$990
Includes six self-paced e-Learning courses.

Storage Technologist Overview

Who benefits from the Storage Technologist curriculum?

IT and storage professionals who will benefit from taking the Storage Technologist curriculum are involved with the following storage management tasks:

- Defining and documenting storage and availability requirements
- Designing and architecting storage and availability solutions requiring multiple technologies
- Planning, deploying, and managing storage networks and information availability solutions

The Storage Technologist curriculum walks you through the process-oriented approach to design, deploy, and manage storage and information infrastructure solutions. It will have a noticeable impact in how you approach storage requirements and challenges.

The Storage Technologist curriculum addresses three of the most time-consuming tasks reported by storage teams, as illustrated in the EMC white paper, “Managing Information Storage: Trends, Challenges, and Options (2009-2010)”. These are:

1. Designing and/or participating in the design of storage infrastructure
2. Troubleshooting (or how not to get into this situation)
3. Managing the implementation of storage infrastructure

IT Infrastructure Library (ITIL) Best Practices

Is your company implementing ITIL® as the framework for implementing IT best practices? Then you may also be interested in our ITIL® for Storage Services Management Curriculum. Go to page 39 for more information.

Storage Technologist Learning Path

Benefits any storage professional who plans, designs, deploys, and manages an information storage infrastructure.

You will learn to capture and analyze business requirements, design solutions, and implement plans in a process-oriented workshop using real-world case studies.

Prepare for your Specialist-Level Storage Technologist Certification.



Certification Alignment

Expert	N/A
Specialist	E20-011 and E20-012 Exam
Associate	E20-001 Exam See Page 11

Specialist Courses

Course Objectives



(5 Days)
(15 TU)

Storage Networking Design and Management (Instructor-Led)

Storage Networking Design and Management takes a process-oriented approach in designing, deploying, and managing storage networking solutions. This course builds on the technology concepts and principles learned in Information Storage and Management (prerequisite) and challenges you to apply your knowledge to real-world scenarios. Lectures and workshop style case-studies provide a thorough exposure to storage networking requirements analysis, business value justification, and technology and performance design considerations for implementing and managing storage networking solutions.

Section 1. Requirements Analysis and Business Value Justification

- Explain application classes and their characteristics
- Develop business value justification using sample TCO/ROI models
- Develop requirement specifications with quantitative metrics that define service-level targets

Section 2. Technology Design Considerations

- Design SAN, NAS, and IP-SAN solutions, considering connectivity, security, topology, and performance requirements
- Leverage case studies detailing technology design considerations

Section 3. Performance Stack–Design Considerations

- Discuss design elements in the application, host, and storage layer of the performance stack
- Gather data and profile requirements at each layer of the performance stack for optimal design
- Leverage case study for developing a storage networking design for an e-mail environment

Section 4. Implementation

- Develop design workbook and service implementation guide for storage networking deployment
- Conduct implementation gap analysis and develop work break-down structures and risk mitigation plans
- Discuss testing, verification, and validation

Section 5. Management

- Explore and discuss maturity model for storage management
- Explain storage management operations including process, policies, resources, and tools



(5 Days)
(15 TU)

Information Availability Design and Management (Instructor-Led)

Information Availability Design and Management takes a process-oriented approach in designing, deploying, and managing information availability solutions. This course builds on the process-oriented approach learned in the Storage Networking Design and Management course (prerequisite) and challenges you to apply information availability requirements into real-world scenarios. Lectures and workshop-style case studies provide a thorough exposure to information availability requirements specification, business impact analysis, and technology design considerations for implementing and managing information availability solutions.

Section 1. Requirements Specification and Business Impact Analysis

- Define availability and recovery in terms of quantifiable metrics
- Discuss requirements analysis for information availability solutions
- Conduct a business impact analysis

Section 2. Technology Design Considerations

- Explain technology components in backup and recovery, archive, local and remote replication solutions
- Discuss storage networking architecture (SAN, NAS, and IP-SAN) and network topologies
- Detail application/database recovery and restart
- Discuss continuous data protection (CDP) approach

Section 3. Implementation Planning

- Conduct environmental discovery and qualify the solution
- Size infrastructure for backup and recovery, local and remote replication
- Develop recovery strategies and business continuity plans

Section 4. Deployment and Management

- Develop an implementation plan for backup and recovery, archive and CAS, local and remote replication information availability solutions
- Develop management and maintenance procedures

Purchase Options

30 Training Units or \$9,900 USD

For more information on purchase options, see page 9



Instructor-Led Training

For more information on delivery modes, see page 8

EMC Technology Foundations Learning Path

ETF introduces the basic architecture and features of EMC's Celerra, Connectrix, Symmetrix, CLARiiON, and Centera technology. Plus addresses, backup, archive, information availability, virtualization, network management, and replication considerations.

Prepare for your Associate-Level Certification.



Certification Alignment

Product/Technology Specific
E20-040 Exam

Courses

Course Objectives

(5 Days)

(28.5 Hrs)
(Total)

EMC Technology Foundations (ETF) (Instructor-Led)

This course includes the following modules:

OR receive the same content in the following self-paced e-Learnings

CLARiiON Foundations

CLARiiON disk array, data protection, I/O management, and Navisphere

- Illustrate the key high-availability features of the CLARiiON
- Use Navisphere to perform common management tasks

SnapView Foundations

Local replication, SnapView terminology, features architecture, theory of operations and management, CLARiiON snapshots, and clones

- Describe the architecture, features, and benefits of SnapView on the CLARiiON storage platform
- Explain the various local replication solutions available in SnapView

MirrorView and SAN Copy Foundations

Remote Replication, MirrorView and SAN Copy terminology, theory of operations and management, and SAN Copy data mobility concepts

- Describe the architecture, features and benefits of remote replication on the CLARiiON storage platform
- Explain the various CLARiiON remote replication solutions

Symmetrix Foundations

Symmetrix disk array architecture, volume protection, I/O path, connectivity, vaulting and high availability features

- Draw and describe the Symmetrix DMX basic architecture
- Explain Symmetrix DMX theory of operations, connectivity options, and key features

TimeFinder Foundations

TimeFinder terminology, features, architecture, theory of operations and management, TimeFinder Mirror, Clone, and Snap local replication solutions

- Describe the architectural components and theory of operations of TimeFinder
- Explain how various replication options of TimeFinder can be integrated into a Symmetrix DMX business continuity/disaster recovery environment

SRDF Foundations

Symmetrix business continuity solutions for remote replication, features, functionality, and benefits of the SRDF family of products

- Describe architectural components and theory of operations of SRDF
- Explain how various replication options of SRDF can be integrated into a Symmetrix DMX business continuity/disaster recovery environment

Connectrix Foundations

EMC Connectrix B-Series, M-Series, and MDS-Series, EMC SAN Manager, Connectrix Manager, native switch management tools

- Describe the architecture and key features of the Connectrix B-, M-, and MDS-Series switches and directors
- List and explain EMC and native switch management tools

PowerPath Foundations

PowerPath terminology, features, architecture, theory of operations and management

- Discuss the features and benefits of PowerPath in an open systems host environment
- Explain how PowerPath achieves transparent recovery of host to storage channels

Celerra Foundations

Celerra platforms, Celerra/NAS replication technologies, Celerra/NAS backup options

- Describe the architecture and key features of the Celerra NAS platform
- Explain replication and backup products and technologies that support a Celerra NAS environment

Storage Virtualization Foundations

Invista SAN virtualization, Rainfinity NAS virtualization

- Describe the architecture and key features of EMC storage virtualization products
- Explain common deployments of EMC storage virtualization products

Backup Technologies Foundations

NetWorker, EMC Disk Library, DiskXtender, Avamar, EMC Backup Advisor architecture, and key features

- Describe the architecture and key features of EMC backup technologies and products
- Explain common deployments of core EMC backup products

ControlCenter Foundations

ControlCenter features, architecture, theory of operations, and management

- Describe the architectural components and theory of operations of ControlCenter
- Use ControlCenter to carry out common storage management tasks

Archive Technology Foundations

Content-addressed storage (CAS), EmailXtender Overview, DiskXtender For Windows Overview

- Describe the functions and features of content-addressed storage (CAS), EmailXtender, DiskXtender

Replication Technology Foundations

RecoverPoint, Replication Manager, Open Replicator, RepliStor overview

- Identify the concepts, value, and environmental aspects of RecoverPoint, Replication Manager, Open Replicator, RepliStor

Network Management Foundations

EMC Smarts product suite, Application Discovery Manager, and VoyenceControl

- Describe the value of a network management system
- Explain the EMC Smarts architectural concepts
- Discuss individual domain silos that comprise an enterprise IT infrastructure

Purchase Options

EMC Technology Foundations

9 Training Units or \$2,970

6 Training Units or \$1,980



EMC Technology Foundations eValuePak

CE-VALPAKETF \$1,980

Includes 15 self-paced e-Learning courses.

For more information on purchase options, see page 9



Instructor-Led Training



e-Learning

For more information on delivery modes, see page 8

CLARiiON Management Learning Path

Benefits any storage professional who deploys and manages CLARiiON SAN environments.

You will learn to configure SAN switches, the CLARiiON family of storage, and servers including PowerPath.

Courses		Course Objectives
 (3 Days)	CLARiiON Host Integration and Management (Instructor-Led) Security and Basic Management, Storage Provisioning & Management, Host Configurations (Windows, Solaris, Linux, ESX Server/VMware), Advanced LUN Concepts, Alerts and Event Monitor, Navisphere Analyzer, and Quality of Service Manager (NQM)	• Obtain storage system status information, configure storage objects and system cache features with Navisphere Manager/CLI • Configure PowerPath to ensure LUN trespassing, load balancing and performance • Configure Navisphere Manager optimal performance and security • Gather and analyze CLARiiON performance data
	The Instructor-Led Course above is supported by the following e-Learning prerequisites:	
 (2 Hrs)	CLARiiON Foundations (Prerequisite) CLARiiON disk array, CLARiiON data protection options, I/O management, and high-availability features, Navisphere	• Describe the basic architecture and features of a CLARiiON disk array and differentiate among the various models • Illustrate the key high availability features of the CLARiiON • Use Navisphere to perform common management tasks
 (1 Hr)	PowerPath Foundations (Prerequisite) PowerPath terminology, features, architecture, theory of operations, and management	• Discuss the features and benefits of PowerPath in an open systems host environment • Explain how PowerPath achieves transparent recovery of host to storage channels
 (2 Hrs)	CLARiiON Basic Management (Prerequisite) Navisphere Manager and CLI, basic management functions, CLARiiON storage platform	• Describe the utilities used to manage CLARiiON arrays and the Navisphere Manager GUI • Create and manage storage objects with Navisphere Manager
 (2 Hrs)	CLARiiON Advanced Management (Prerequisite) CLARiiON management concepts, including Access Logix, PowerPath, metaLUNs, and LUN migration	• Explain Access Logix theory of operations and functionality • Describe how to manage metaLUNs and migrate LUNs
 (2 Hrs)	Introduction to iSCSI (Prerequisite) iSCSI concepts, layers, address and names, login, discovery, communications	• Explain the basic concepts of the iSCSI protocol • List the iSCSI login processes • Explain how data is carried between the initiator and the target

Additional Courses		Course Objectives
 (24 Hrs)	CLARiiON Solutions for Small and Medium Enterprises CLARiiON Foundations, SAN Foundations, Basic CLARiiON Management, Access Logix, PowerPath, Windows Integration, Advanced LUN Concepts, Event Monitor, Navisphere Analyzer, SnapView Snapshots, SnapView Clones, VisualSRM Overview	• Configure storage objects and the CLARiiON storage system cache features with Manager and CLI • Configure the CLARiiON storage system to allow access to LUNs by Windows hosts • Configure PowerPath to ensure continued application availability • Implement Navisphere 6.x security • Configure SnapView cache and snapshots



Instructor-Led Training



Video-ILT (VILT)



e-Learning

For more information on delivery modes, see page 8

Purchase Options



CLARiiON Management ValuePak

CE-VALPAKCLN \$2,970



Includes one Instructor-Led course and five self-paced e-Learning courses.



CLARiiON Solutions for Small and Medium Enterprises

CE-VILTCLNSME \$990

Includes one Video-ILT.

For more information on purchase options, page 9

CLARiiON Business Continuity Learning Path

Benefits any storage professional who deploys and manages CLARiiON SAN environments.

You will learn to configure SAN switches, CLARiiON family of storage, and servers including PowerPath and local and remote replication.

Prepare for your Specialist-Level CLARiiON Solutions Certification.



Certification Alignment

Expert	E20-822 Exam
Specialist	E20-522 Exam
Associate	E20-001 Exam See Page 11

Specialist Courses

Course Objectives



(3 Days)

CLARiiON Host Integration and Management (Instructor-Led)

Security and Basic Management, Storage Provisioning & Management, Host Configurations (Windows, Solaris, Linux, ESX Server/VMware), Advanced LUN Concepts, Alerts and Event Monitor, Navisphere Analyzer, and Quality of Service Manager (NQM)

- Obtain storage system status information, configure storage objects and system cache features with Navisphere Manager/CLI
- Configure PowerPath to ensure LUN trespassing, load balancing and performance
- Configure Navisphere Manager optimal performance and security
- Gather and analyze CLARiiON performance data

The Instructor-Led Course above is supported by the following e-Learning prerequisites:



(2 Hrs)

CLARiiON Foundations (Prerequisite)

CLARiiON disk array, CLARiiON data protection options, I/O management, and high-availability features, Navisphere

- Describe the basic architecture and features of a CLARiiON disk array and differentiate among the various models
- Illustrate the key high availability features of the CLARiiON
- Use Navisphere to perform common management tasks



(1 Hr)

Connectrix Foundations

EMC Connectrix B-Series, M-Series, and MDS-Series, EMC SAN Manager, Connectrix Manager, native switch management tools

- Describe the architecture and key features of the Connectrix B-, M-, and MDS-Series switches and directors
- List and explain EMC and native switch management tools



(1 Hr)

PowerPath Foundations (Prerequisite)

PowerPath terminology, features, architecture, theory of operations and management

- Discuss the features and benefits of PowerPath
- Explain how PowerPath achieves transparent recovery of host to storage channels



(2 Hrs)

Introduction to iSCSI (Prerequisite)

iSCSI concepts, layers, address and names, login, discovery, communications

- Explain the basic concepts of the iSCSI protocol
- List the iSCSI login processes
- Explain how data is carried between the initiator and the target

AND



(1 Day)

SnapView Configuration and Management (Instructor-Led)

Configure and use CLARiiON local replication, SnapView snapshots and clones

- Calculate the required size of and configure the SnapView cache
- Configure and use SnapView SnapShots
- Configure and use SnapView clones



(1 Hr)

SnapView Foundations (Prerequisite)

Local replication, SnapView terminology, features architecture, theory of operations and management, CLARiiON snapshots, and clones

- Describe the architecture, features and benefits of SnapView on the CLARiiON storage platform
- Explain the various local replication solutions available in SnapView

AND



(1 Day)

MirrorView and SAN Copy Configuration and Management (Instructor-Led)

Configure and use CLARiiON based-business continuity solutions for remote replication, MirrorView, SAN Copy terminology, features, architecture, and theory of operations

- Configure the write intent log and remote replication connections
- Manage and monitor various MirrorView and SAN Copy configurations
- Correct issues that may arise during EMC SAN Copy sessions



(1 Hr)

MirrorView and SAN Copy Foundations (Prerequisite)

Remote replication, MirrorView and SAN Copy terminology, features architecture, theory of operations and management, and SAN Copy data mobility concepts

- Describe the architecture, features and benefits of remote replication on the CLARiiON storage platform
- Explain the various CLARiiON remote replication solutions



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options



CLARiiON Business Continuity ValuePak

CE-VALPAKCBC \$4,950



Includes three Instructor-Led courses and six self-paced e-Learning courses.



CLARiiON Business Continuity Video ValuePak

CE-VIDVPAKCBC \$3,960



Includes one Video-ILT* and six self-paced e-Learning courses.

* CLARiiON Host Integration and Management Video-ILT also contains SnapView and MirrorView course information

For more information on purchase options, see page 9

CLARiiON Business Continuity Learning Path (continued)



Certification Alignment

Expert	E20-822 Exam
Specialist	E20-522 Exam
Associate	E20-001 Exam See Page 11

The expert courses benefit Specialist-Level professionals who integrate storage with applications.

You will learn to integrate local and remote replication technologies with Microsoft Exchange and/or Microsoft SQL Server.

Prepare for your Expert-Level CLARiiON Solutions Certification.

Expert Courses

Course Objectives



CLARiiON Remote Replication Advanced Workshop
SAN Copy and Incremental SAN Copy, MirrorView/A and MirrorView/S, FC/IP Protocols, Remote Replication Hardware

- Configure SAN Copy and Incremental SAN Copy
- Manage and monitor SAN Copy sessions
- Configure MirrorView/A and MirrorView/S for CLARiiON-to-CLARiiON data transfer
- Manage and monitor MirrorView/A and MirrorView/S mirrors
- Configure McData Eclipse 1620 and Cisco MDS 9000 switches to support remote data replication

AND



CLARiiON Performance Workshop
CLARiiON performance monitoring, environment-related performance issues, CLARiiON-related performance issues, CLARiiON layered applications and performance, backup-to-disk in CLARiiON environments

- Use Navisphere Analyzer and other performance tools to gather performance-related information from CLARiiON storage systems
- Recommend correct data layout for storage environment
- Configure CLARiiON storage systems to support the use of layered applications
- Make sizing recommendation for storage environments

AND one of the following



Microsoft Exchange Integration with CLARiiON Workshop
CLARiiON and Exchange Review, Best Practices for the Integration of Exchange and CLARiiON, Exchange Local Replication using EMC Replication Manager, EMC Remote Replication Solutions for Exchange 2007

- Apply stated best practices when implementing Microsoft Exchange on CLARiiON arrays
- Demonstrate the ability to implement Exchange replication solutions using EMC Replication Manager
- Appraise an Exchange environment in order to recommend a given remote replication solution based on RPO/RTO considerations
- Use the skills learned to implement and recover Exchange in a remote replication environment

OR



Microsoft SQL Server Integration with CLARiiON Workshop
CLARiiON and SQL Server Review, Best Practices for the Integration of SQL Server and CLARiiON, SQL Server Local Replication using EMC Replication Manager, EMC Remote Replication Solutions for SQL Server 2005

- Apply stated best practices when implementing SQL on CLARiiON arrays
- Demonstrate the ability to implement SQL Server replication solutions using EMC Replication Manager
- Appraise a SQL Server environment in order to recommend a given remote replication solution based on RPO/RTO considerations
- Use the skills learned to implement and recover SQL Server in a remote replication environment

Additional Courses

Course Objectives



VMware ESX Server – CLARiiON Integration Workshop (Instructor-Led)
CLARiiON Base Connectivity, Installation and Configuration of Array Management, Virtual Machine Storage Provisioning, Multipathing and Mapping Virtual Machines, CLARiiON Data Replication, CLARiiON Data Migration, Online and Offline Backups, CLARiiON and VMware Performance Considerations (To obtain VMware ESX Server skills you are recommended to attend the “VMware Infrastructure 3: Install and Configure” course)

- Examine specifics of migrating/expanding VM storage
- Configure and test ESX Multipath for correct operation in a CLARiiON environment.
- Integrate CLARiiON replication software with ESX Server
- Implement an appropriate online/offline backup schema for ESX Server
- Conduct performance monitoring for an ESX Server environment



CLARiiON AX4-5 Management
Navisphere Storage System Initialization Tool, Navisphere Server Utility, Navisphere Express Utility, Creating and Managing Disk Pools and Hot Spares, Creating and Managing Virtual Disks

- Identify the steps required to create and manage AX4-5 disk pools
- Identify the steps required to create and monitor virtual disks
- Identify the hot-spare functionality and advanced software
- Describe diagnostic file creation on an AX4-5
- Identify AX4-5 iSCSI management features



CLARiiON AX4-5 Fundamentals
Software and hardware options, installation guidelines, Host-attach options, PowerPath installation options, Service Pack options

- Describe the software and hardware features of the CLARiiON AX4-5
- Describe procedures for installing an AX4-5
- Explain startup and shutdown procedures for the AX4-5
- Identify Host attach options and PowerPath features
- Describe the AX4-5 Service pack release options

Storage Management Learning Path

Benefits any storage professional who deploys and manages an information and storage infrastructure using EMC ControlCenter and Symmetrix Management Console (SMC).

You will learn to monitor and manage users, alerts, and performance reports. You will also learn about SAN configuration, storage provisioning, and business continuity operations.

Prepare for your Specialist-Level Storage Management Certification.



Certification Alignment

Expert	N/A
Specialist	E20-582 Exam
Associate	E20-001 Exam See Page 11

Specialist Courses

Course Objectives



ControlCenter Management (Instructor-Led)

Administration, user management, alert management, reporting, performance management, Symmetrix and CLARiiON configuration management, SAN management, Symmetrix business continuance operations, host management, automated pathing, and storage provisioning

- Determine and administer ControlCenter security, users, resource allocation/utilization and data collection policies
- Manage alerts and autofixes, customize reports, and leverage performance management tools
- Perform configuration management tasks for SAN and storage devices and business continuity operations

The Instructor-Led Course above is supported by the following e-Learning prerequisites:



Symmetrix Foundations (Prerequisite)

Symmetrix disk array architecture, volume protection, I/O path, connectivity, vaulting and high-availability features

- Draw and describe the basic architecture of Symmetrix DMX
- Explain Symmetrix DMX theory of operations, connectivity options, and key features



TimeFinder Foundations (Prerequisite)

TimeFinder terminology, features, architecture, theory of operations and management, TimeFinder Mirror, Clone, and Snap local replication solutions

- Describe the architectural components and theory of operations of TimeFinder
- Explain how various replication options of TimeFinder can be integrated into Symmetrix DMX business continuity/disaster recovery environments



SRDF Foundations (Prerequisite)

Symmetrix business continuity solutions for remote replication, features, functionality, and benefits of the SRDF family of products

- Describe architectural components and theory of operations of SRDF
- Explain how various replication options of SRDF can be integrated into Symmetrix DMX business continuity/disaster recovery environments



CLARiiON Foundations (Prerequisite)

CLARiiON disk array, CLARiiON data protection options, I/O management, and high-availability features

- Describe the basic architecture and features of a CLARiiON disk array
- Illustrate the key high-availability features of the CLARiiON
- Use Navisphere to perform common management tasks



Connectrix Foundations (Prerequisite)

Storage connectivity overview, SAN architecture and components, SAN fabric topologies, EMC's Connectrix range, securing a SAN, SAN management tools, IP-based SAN extension, SAN technical positioning

- Components, services, and FC protocol used in a storage area network
- Identify fabric topologies and different types of Connectrix Products
- Explain how to secure a SAN using series-specific solutions



Celerra Foundations (Prerequisite)

Celerra architecture, theory of operations, features and functions, business continuity and backup solutions, platforms, benefits and requirements

- Identify architecture, terminology, and environmental aspects of NAS
- Describe Celerra features, functions, and management software offerings
- Different Celerra business continuity options and backup solutions



CLARiiON Basic Management (Prerequisite)

Navisphere Manager and CLI, basic management functions, CLARiiON storage platform

- Describe the utilities used to manage CLARiiON arrays and the Navisphere Manager GUI
- Create and manage storage objects with Navisphere Manager



ControlCenter Foundations (Prerequisite)

ControlCenter terminology, features, architecture, theory of operations and management

- Describe the architectural components and theory of operations of ControlCenter
- Use ControlCenter to carry out common storage management tasks



ControlCenter Install and Upgrade (Prerequisite)

Planning for, installing, and upgrading ControlCenter

- Identify the references for planning and installing ControlCenter
- Prepare the necessary information to install or upgrade ControlCenter



Symmetrix Management Console (SMC) Fundamentals (Prerequisite)

Documentation and installation, SMC-Symmetrix configuration, SMC – replication operations, SMC differences with SYMCLI, troubleshooting, SMC interface

- Install and configure the SMC Server and use various SMC views
- Perform Symmetrix configuration and replication tasks with SMC
- Troubleshoot SMC



ControlCenter StorageScope Reporting

ControlCenter StorageScope 6.0, basic reporting scenarios, advanced reporting scenarios

- Describe StorageScope 6.0 architecture, data processing, and repository maintenance
- Utilize StorageScope SRM views, dashboard snapshots, and reports
- Use the Query Builder to create custom queries



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options



ControlCenter ValuePak

CE-VALPAKCC \$4,950



Includes one Instructor-Led course and eleven self-paced e-Learning courses.



ControlCenter Video ValuePak

CE-VIDVPKCC \$3,960



Includes one Video-ILT and eleven self-paced e-Learning courses.

For more information on purchase options, see page 9

Storage Management Learning Path (continued)

These additional courses benefit Specialist-Level professionals who manage Symmetrix SAN environments, storage performance monitoring, availability, and policies.

It also benefits those who provide guidance for optimal capacity expansion and change management.

Additional Courses

Course Objectives



(12 Hrs)
(6 TU)

ControlCenter Alerts, Monitoring and Framework Integration (LIVE)

Introduction, alert management review, health alerts, capacity alerts, performance alerts, framework integration

- Understand the benefits of ControlCenter alerts
- Configure, monitor, and handle ControlCenter alerts
- Enumerate the ControlCenter alerts available in ControlCenter
- Understand the methodology and considerations for setting up health, capacity and performance-related alerts
- Integrate ControlCenter alerts with SNMP framework applications



(4 Days)
(12 TU)

Symmetrix Performance Workshop (Instructor-Led)

Performance overview and measurements, tools, analysis, front-end, system/cache, back-end, business continuance

- Fully utilize features of ControlCenter Performance Manager and Console to analyze Symmetrix performance
- Describe the performance benefits of Optimizer and PowerPath
- Identify the architectural components of a Symmetrix array, describe their performance characteristics, and differentiate between Symmetrix 8000 and DMX family arrays
- Use the standard Symmetrix roadmap of key measures to quickly identify performance problems



(4 Days)
(12 TU)

ControlCenter StorageScope Reporting Workshop (Instructor-Led)

StorageScope architecture, properties tables, trend tables, group tables, relationship tables

- Use the StorageScope documentation to locate the tables and columns needed to produce a report.
- Join tables to show trend data, object groups, and data path relations.
- Query the StorageScope Repository data using Query Builder, Crystal Reports, Microsoft Query, Microsoft Access, or Microsoft Excel.
- Use Query Builder to prototype SQL code for use in snapshots or reports.
- Use Crystal Reports Developer to create RPT files that can be included in the StorageScope reporting server.



(2 Hrs)
(1 TU)

ControlCenter StorageScope Reporting

ControlCenter StorageScope 6.0, basic reporting scenarios, advanced reporting scenarios

- Describe StorageScope 6.0 architecture, data processing, and repository maintenance
- Utilize StorageScope SRM Views, dashboard snapshots, and built-in reports to obtain detailed and high-level information about your storage environment
- Use the Query Builder to create custom queries and extract detailed information about your storage environment



(2 Hrs)
(1 TU)

ControlCenter 6.0 Differences

Overview, StorageScope, usability enhancements, managed-object enhancements

- Discuss the function and data paths of new architecture components
- Describe data collection and processing in StorageScope
- Use StorageScope views, reports, and queries to report on your environment
- Use ControlCenter Console usability enhancements effectively
- Enumerate managed object support changes
- Manage Cisco VSANs using ControlCenter
- Monitor VMWare servers using ControlCenter

Purchase Options



StorageScope ValuePak

CE-VALPAKSS \$3,960



Includes one Instructor-Led* course and two self-paced e-Learning** courses.

* ControlCenter StorageScope Reporting Workshop

** ControlCenter StorageScope Reporting and ControlCenter 6.0 Differences

Storage Area Network (SAN) Learning Path

Benefits any storage professional who deploys and manages multi-site, multi-vendor SAN environments.

You will learn to configure Brocade and/or Cisco SAN switches, CLARiiON and/or Symmetrix storage and server configurations including PowerPath.

Prepare for your Specialist-Level Storage Area Network (SAN) Certification.



Certification Alignment

Expert	N/A
Specialist	E20-532 Exam
Associate	E20-001 Exam See Page 11

Specialist Courses

Course Objectives



(4 Days)

SAN Management (Instructor-Led)

Native tools for managing Connectrix B, and MDS series switches and EMC SAN and storage management tools (i.e., Solutions Enabler SYMCLI, ControlCenter SAN Manager, Navisphere Manager, and PowerPath), legacy tools (ESN Manager and FibreZone)

- Perform switch management tasks using native switch tools
- Manage SAN environment (hosts, switches, and storage) using EMC tools
- Explain SAN management best practices including performance, monitoring, and reporting

The Instructor-Led Course above is supported by the following e-Learning prerequisites:



(2 Hrs)

Symmetrix Foundations (Prerequisite)

Symmetrix disk array architecture, volume protection, I/O path, connectivity, vaulting, and high-availability features

- Draw and describe the basic architecture of Symmetrix DMX
- Explain Symmetrix DMX theory of operations, connectivity options, and key features



(2 Hrs)

CLARiiON Foundations (Prerequisite)

CLARiiON disk array, CLARiiON data protection options, I/O management, and high-availability features, Navisphere

- Describe the basic architecture and features of a CLARiiON disk array and differentiate among the various models
- Illustrate the key high availability features of the CLARiiON
- Use Navisphere to perform common management tasks



(1.5 Hrs)

Introduction to Fibre Channel (Prerequisite)

Fibre Channel protocol, Fibre Channel topologies, WWN usage, and Fibre Channel logins in a SAN or NAS environment

- Discuss Fibre Channel protocol basics and identify key differences between various Fibre Channel topologies
- Define WWN and explain its role in Fibre Channel environments



(5 Hrs)

Basic Network Environment (Prerequisite)

ARPA network architecture, network and transport layers, application layer, and troubleshooting

- Describe the components of a typical network infrastructure
- Identify basic network concepts that will help to configure and manage EMC products



(2 Hrs)

IP SAN Technologies (Prerequisite)

Overview of iSCSI, FCIP, and iFCP, different methods of transporting block-level data in a SAN using IP as a carrier protocol

- Describe and discuss IP convergence in the SAN and its implications
- Explain the basic architecture of iSCSI, FCIP, iFCP, and potential IP SAN topology solutions



(2 Hrs)

PowerPath Configuration and Administration (Prerequisite)

Features and functionality of PowerPath across multiple UNIX and Windows platforms, for both Symmetrix and CLARiiON storage platforms

- Describe PowerPath architecture and its load balancing policies
- Explain PowerPath connectivity and configuration in both SCSI and Fibre Channel environments



(2 Hrs)

Connectrix B Series Architecture and Management (Prerequisite)

Common switch architecture, model hierarchy and functionality, native switch tools, optional switch tools, switch security

- Describe the various B-Series switch models and their architectures
- Identify the tools available for configuring and managing the B-series switches



(2.5 Hrs)

Connectrix MDS Series Architecture and Management (Prerequisite)

MDS configuration, basic implementation, and ongoing management interfaces, switch segmentation with VSANs and scalability with SAN extension

- Describe the various MDS-Series switch models and their architectures
- Identify the tools available for configuring and managing the MDS-series switches



(2 Hrs)

Connectrix M Series Architecture and Management (Prerequisite)

M-Series switch and director models, M-Series configuration and management

- Describe the various M-Series switch models and their architectures
- Identify the tools available for configuring and managing the M-series switches



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options



SAN ValuePak

CE-VALPAKSAN \$4,950



Includes one Instructor-Led course and nine self-paced e-Learning courses.



SAN Video ValuePak

CE-VIDVPAKSAN \$3,960



Includes one Video-ILT and nine self-paced e-Learning courses.

For more information on purchase options, see page 9

Storage Area Network (SAN) Learning Path (continued)

The expert courses benefit Specialist-Level Professionals who plan and provision SAN storage.

You will learn to assign, reclaim, and re-configure storage for different host operating environments.

Expert Courses

Course Objectives



(5 Days)
(15 TU)

Host to Storage SAN Implementation (Instructor-Led)

Pre-implementation tasks, SAN and switch configuration, host configuration part 1, storage configuration, host configuration part 2, advanced topics, post-implementation tasks

- Configure all the SAN components and host connections
- Configure a SAN switch and perform management operations
- Configure a CLARiiON and Symmetrix storage array and perform management operations
- Perform advanced host operations such as multipathing with PowerPath, volume management, and file systems
- Provide an overview of post-implementation tasks such as documentation, maintenance, and troubleshooting



(3 Hrs)
(1 TU)

SAN Monitoring and Policy Management

Overview of SAN monitoring and policy management, using EMC ControlCenter SAN Manager, using EMC VisualSAN, OEM tools

- Describe the key areas to monitor in a SAN
- Provide a generic overview of policy management
- Describe SAN management standards, key features and benefits
- Provide a detailed overview of SAN monitoring and policy management



(5 Days)
(15 TU)

Multi-Protocol SAN Implementation Workshop (Instructor-Led)

Protocols overview, traditional fabrics, SAN extension, iSCSI implementation, emerging technologies, virtualization, SAN and storage security, SAN performance, SAN troubleshooting

- Understand the concept and theory of operations of SCSI, FC, iSCSI, and FCIP protocols
- Configure iSCSI and Fibre Channel SAN environments
- Manage and boot hosts from iSCSI and FC SAN-attached arrays
- Setup a SAN extension using FCIP in B-Series and MDS-Series environments
- Replicate storage to remote locations using SAN extension technologies
- Implement basic host-to-storage on VMware platform via iSCSI
- Identify services and models that enhance SAN security

Additional Courses

Course Objectives



(3 Days)
(9 TU)

Invista Operations and Management (Instructor-Led)

Overview: Invista architecture and deployment, Element Manager V2.1: navigating the Invista GUI, creating and provisioning virtual storage, dynamic volume expansion: metavolumes, mobility operations, cloning of Invista volumes, volume mirroring, Invista security features, monitoring and maintaining an Invista instance

- Navigate Invista Element Manager V2.1
- Provision storage elements from storage arrays, create virtual volumes
- Perform fundamental operations on Invista virtual volumes in production, including: dynamic expansion, various types of mobility, cloning, and mirroring
- Perform routine monitoring of an instance, including audits of security and storage management operations



(2 Hrs)
(1 TU)

Invista Overview and Architecture

Introduction to storage virtualization, introduction to Invista architecture, Invista management, and functionality

- Understand the concept and benefits of storage virtualization
- Design goals, benefits, features, and competitive advantages of Invista
- Describe how components work together to achieve storage virtualization
- Describe basic configuration, implementation, and migration strategies



(5 Days)
(12 TU)

Implementing Cisco Storage Networking Solutions 3.0 (Instructor-Led)

MDS 9000 platform overview, system installation and initial configuration, building VSANs, managing SAN traffic, implementing FCIP, troubleshooting tools and scenarios, the Fibre Channel protocol, installation and configuration reference

- Implement a SAN with multiple virtual fabrics using the full range of features and capabilities provided by the Cisco MDS platform, so that the SAN demonstrates high availability, scalability, performance, and interoperability
- Configure and use fabric management, performance management, and security services on the Cisco MDS platform so that the SAN can be effectively managed, tuned, and secured
- Diagnose and correct software configuration issues and inoperable hardware components, so that the problems are resolved with minimal disruption to the SAN environment
- Identify and configure the appropriate iSCSI features to meet customer requirements

Backup and Recovery - NetWorker Learning Path

Benefits any storage professional who deploys and manages NetWorker 7.3/7.4 based backup and recovery in Windows and/or UNIX environments.

You will learn to conduct backups over LAN and/or SAN to targets including tapes, virtual tape libraries, and storage arrays. We also consider recoverability and performance.

Prepare for your Specialist-Level Backup and Recovery Certification.



Certification Alignment

Expert	N/A
Specialist	E20-597 Exam
Associate*	E20-097 or E20-001 Exam

Specialist Courses

Course Objectives



(5 Days)

EMC NetWorker Administration for UNIX and Microsoft Windows (Instructor-Led)

EMC NetWorker 7.x installation, configuration, maintenance, management, backup, recovery, autochanger configuration and management, save-set cloning and staging, generate reports

- Install and administer NetWorker and NetWorker Management Console
- Perform and customize backups
- Manage standalone devices, autochangers, databases, and media
- Recover client data and a NetWorker server

The Instructor-Led Course above is supported by the following e-Learning prerequisites:



(2 Hrs)

SAN Backup to Disk Overview (Prerequisite)

SAN backup to disk overview, recommendations and EMC offerings, performance and sizing considerations, CLARiiON and Symmetrix implementations

- Discuss the advantage of disk-based backups in a SAN environment
- Identify performance and sizing considerations



(2 Hrs)

LAN Backup to Disk Overview (Prerequisite)

LAN backup to disk overview and recommendations, backup via storage nodes, backup to Celerra NS arrays

- Describe disk-based backups in a LAN environment including network considerations
- Discuss recommendations for backup-to-disk with EMC Celerra



(2 Hrs)

EMC NetWorker Integration with Backup-to-Disk Technologies (Prerequisite)

Overview, NetWorker and backup-to-disk, configuration

- Identify the editions of EMC NetWorker software, its architecture and terms
- List the requirements for a successful backup-to-disk integration
- State the differences between NetWorker's "file type device" and "advance file type device"



(2 Hrs)

Backup and Recovery Fundamentals* (Prerequisite)

Backup overview, backup architecture, backup terminology considerations

- Describe basic backup procedures and terminology
- Explain generic backup architectures



(2 Hrs)

EMC NetWorker Foundations* (Prerequisite)

NetWorker architecture, features, and functionality

- Describe the EMC NetWorker solution, its advantages, and the NetWorker hosts and their roles
- Explain NetWorker backup and recovery processes and types



(1 Hr)

EMC NetWorker Modules Overview* (Prerequisite)

NetWorker modules (Database, E-mail, Enterprise Applications, SnapShot)

- Describe the EMC NetWorker Module solution and list the advantages
- Explain NetWorker Module architecture and describe the functionality of each of the modules



(2 Hrs)

EMC Avamar Overview* (Prerequisite)

Avamar fundamentals, Avamar snap-ups and restores, maintaining, monitoring and reporting

- Describe Avamar features and architecture and backup and restore process
- Explain how to perform snapups and restores
- Describe Avamar maintenance, monitoring and reporting capabilities



(1 Hr)

HomeBase Overview* (Prerequisite)

HomeBase fundamentals, profiling, recovery and replication, administration, monitoring and reporting

- Describe the HomeBase automated server recovery solution
- Describe the steps in creating a profile
- Explain the steps in the HomeBase recovery process
- Describe basic HomeBase administration and monitoring tasks



(2 Hrs)

EMC Data Protection Advisor Fundamentals* (Prerequisite)

Overview and positioning, architecture

- Describe Data Protection Advisor Architecture
- Identify platform requirements
- Discuss application and device support
- Explain how data gathering works



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options



Backup and Recovery ValuePak

CE-VALPAKBR \$4,950



Includes one Instructor-Led course and nine self-paced e-Learning courses.



Backup and Recovery Video ValuePak

CE-VIDVPKBR \$1,980



Includes one Video-ILT and nine self-paced e-Learning courses.

For more information on purchase options, see page 9

Backup and Recovery - NetWorker Learning Path (continued)

These additional courses benefit Specialist-Level Professionals who apply NetWorker 7.x backup and recovery capabilities in particular application and storage environments.

	Additional Courses	Course Objectives
 (3 Days) (6 TU)	EMC AlphaStor Implementation, Configuration and Management (Instructor-Led) Overview and features, installing AlphaStor, configuring AlphaStor, integrating with NetWorker, managing media, managing resources, troubleshooting AlphaStor	• Explain the AlphaStor solution • Install and Configure AlphaStor • Integrate AlphaStor and NetWorker • Manage media and resources • Troubleshoot AlphaStor
 (3 Days) (9 TU)	Data Protection Advisor Implementation and Management (LIVE) Overview, installation, configuration, administration and management	• Install and configure the different EBA components • Manage the product through the GUI • Run and customize reports
 (2 Hrs) (1 TU)	Backing Up and Recovering Clusters with EMC NetWorker Basics of a cluster, configure a NetWorker client in a cluster, cluster nodes as NetWorker storage nodes, configure a NetWorker server in a cluster, NetWorker server works in a cluster, cluster licensing	• Describe how to configure a NetWorker client in a cluster • Explain how to recover a clustered client's data and cluster licensing • Describe how to configure cluster nodes as NetWorker storage nodes
 (2 Hrs) (1 TU)	Configuring NetWorker with Microsoft Volume Shadow Copy Service Microsoft Volume Shadow Copy Service (VSS), VSS components, back up to VSS SYSTEM save sets, VSS save operations, recovering VSS SYSTEM save sets, issues with VSS and NetWorker Module backups	• Describe what Microsoft Volume Shadow Copy Service (VSS) is and how it works • Explain the role of each VSS component and VSS save operations • Describe how to back up and recover VSS SYSTEM save sets • Explain issues with VSS and NetWorker Module backups
 (4 Hrs) (1 TU)	EMC NetWorker Module for Microsoft Exchange Server NME overview, installing NME, backing up Exchange data with NME, recovering data from a backup, mailbox and public folder operations, disaster recovery	• Describe the benefits of employing NetWorker Module for Exchange Server (NME) • Describe how to install and configure NME • Describe how to backup and restore data from an Exchange server • Describe how to backup and recover mailboxes and public folders
 (3 Hrs) (1 TU)	EMC NetWorker Module for Microsoft SQL Server Overview and features, Installing NMSQL, backing up SQL data with NMSQL, restoring SQL data with NMSQL, disaster recovery	• Describe the architecture and internal design of the NetWorker Module for Microsoft SQL Server (NMSQL) • List the steps to install NMSQL • Describe how to backup and restore SQL Server databases with NMSQL
 (1 Hr) (1 TU)	Implementing EMC License Manager Benefits of using EMC Legato License Manager (LLM), install and configure LLM	• List the benefits of using EMC Legato License Manager (LLM) • Describe how to install and configure LLM
 (2 Hrs) (1 TU)	Centera Backup and Recovery Module CBRM solution, CBRM operations	• CBRM solution, advantages, architecture, and operation • Explain the backup and recovery workflow • Perform CBRM client configurations
 (2 Hrs) (1 TU)	EMC NetWorker Module for SAP R/3 with Oracle NMSAP overview and features, installing NMSAP, back up and restore with NMSAP	• Describe the architecture and internal design of NetWorker Module for SAP R/3 with Oracle (NMSAP). • Describe the role of NMSAP and its benefits • List the steps to install NMSAP • Describe how to backup and restore SAP R/3 data using NMSAP
 (2 Hrs) (1 TU)	EMC NetWorker De-Duplication NetWorker deduplication overview, configuring & running deduplication backups, monitoring, replication and reporting	• Describe NetWorker deduplication functionality • Describe the NetWorker deduplication components and backup data flow • List the steps required to configure NetWorker for deduplication backups • Describe deduplication reporting and monitoring features • Describe the options for backing up VMware environments with NetWorker traditional and deduplication backup methods

Network-Attached Storage (NAS) Learning Path

Benefits any storage professional who deploys and manages network-attached storage (NAS) solutions in Microsoft Windows, UNIX or iSCSI environments using EMC Celerra.

You will learn to configure and manage Celerra using CIFS, NFS, and iSCSI protocols; and consider availability, security, and NAS data replication.

Prepare for your Specialist Level-Network-Attached Storage (NAS) Certification.



Certification Alignment

Expert	N/A
Specialist	E20-538 Exam
Associate	E20-001 Exam See Page 11

Specialist Courses

Course Objectives



NAS Operations and Management with Celerra (Instructor-Led)

Celerra Manager, Celerra CLI, basic network config, configuring file systems, exporting file systems to UNIX, usermapper, configuring CIFS, virtual data movers, managing permissions on CIFS only environment, authentication, file systems quotas, CIFS features, networking features, celerra and iSCSI, snapsure, celerra replicator

- Implement Data Mover failover and basic network configurations
- Configure and manage Celerra file systems
- Export Celerra file systems for NFS and CIFS access
- Implement Virtual Data Movers, file system quotas on the Celerra, CIFS features, Celerra in an iSCSI environment, SnapSure, and Celerra Replicator
- Configure Celerra Networking features

The Instructor-Led Course above is supported by the following e-Learning prerequisites:



Celerra Platforms Architectural Overview (Prerequisite)

Architectural overview of the current Celerra model family, Celerra platforms storage capacity, appendix for legacy Celerra platforms

- List the main components of a Celerra
- Describe basic Celerra operations
- Identify component connections
- List storage capacities for the Celerra Platforms



Celerra AntiVirus Agent (Prerequisite)

What is a virus and how it infects a system, CAVA's components, features, tools and utilities

- Describe the Celerra AntiVirus Agent purpose, functionality and methodology
- Describe the CAVA components and concepts, tools and utilities



NAS Backup Concepts (Prerequisite)

Backup terminology, tape as a backup medium, backup evolution, network data management protocol (NDMP) synopsis

- Describe the backup process using industry recognized terminology
- List the various challenges faced in the Industry surrounding backups
- Define the various methodologies of performing backup
- Explain the role of Network Data Management Protocol (NDMP)



CLARiiON Foundations (Prerequisite)

CLARiiON disk array, data protection options, I/O management, and high-availability features

- Describe the basic architecture and features of a CLARiiON disk array and differentiate among the various models
- Illustrate the key high-availability features of the CLARiiON
- Use Navisphere to perform common management tasks



Connectrix Foundations (Prerequisite)

Storage connectivity overview, SAN architecture and components, SAN fabric topologies, EMC's Connectrix range, securing a SAN, SAN management tools, IP based SAN extension, SAN technical positioning

- Components, services, and FC Protocol used in a storage area network
- Identify fabric topologies and different types of Connectrix Products
- Explain how to secure a SAN using series-specific solutions



Celerra Foundations (Prerequisite)

Celerra architecture, theory of operations, features and functions, business continuity and backup solutions, platforms, benefits and requirements

- Identify the concepts, architecture, terminology, and environmental aspects of NAS using the Celerra
- Describe Celerra features, functions, and management software offerings
- Different Celerra business continuity options and backup solutions

AND



Upper Layer Network Operations

Information and support services, file access and transfer protocols, monitoring and messaging protocol

- Build, configure, and observe key client/server-based network services in a distributed computing environment
- Explain how various network services interact to form an operational network environment
- Identify network components, applications, and protocols for accessing data over the network
- Build a simple CIFS environment and observe its operations
- Evaluate network services and data access operations
- Construct a simple NFS environment and observe its operations



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options



Celerra ValuePak

CE-VALPAKNS \$4,950



Includes one Instructor-Led course, one Video-ILT* and six self-paced e-Learning courses. *Upper Layer Network Operations



Celerra Video ValuePak

CE-VIDVPKNS \$1,980



Includes two Video-ILTs and six self-paced e-Learning courses.

For more information on purchase options, see page 9

Network-Attached Storage (NAS) Learning Path (continued)

The expert courses benefit Specialist-Level Professionals requiring additional knowledge and experience to manage and troubleshoot CIFS, NFS and Multi-Protocol environments, including data backup and replication.

Expert Courses	Course Objectives
 (3 Days) (9 TU)	NAS Symmetrix Business Continuity (Instructor-Led) NAS TimeFinder/FS, NAS SRDF, NAS Remote TimeFinder/FS • Configure, identify the components of, and demonstrate TimeFinder/FS using a Celerra with a Symmetrix backend • Configure, identify the components of, and demonstrate a NAS SRDF environment using a Celerra with a Symmetrix backend • Configure, identify the components of, and demonstrate a NAS SRDF environment in conjunction with TimeFinder/FS using a Celerra with a Symmetrix backend
 (1 Hr) (1 TU)	Celerra Multi-Path File System Overview Celerra MPFS technology overview • Describe the Celerra MPFS concept and architectures • Describe the protocols used to communicate between client and server in the MPFS architecture • Explain and discuss the MPFS with iSCSI/FC concept and architecture • Explain benefits of the Celerra MPFS with iSCSI solution for production environments • Describe the functionality and usage of the Celerra MPFS Configuration Manager
 (4 Days) (12 TU)	Celerra MPFS Solution Design and Implementation Workshop MPFS architectural basics and applications, Celerra MPFS performance characterization, iSCSI overview, Fibre Channel overview, implementing Celerra MPFS over iSCSI, Celerra MPFS best practices applied, solution configuration tool, configuration management tool, testing and assessing Celerra MPFS, MPFS basic troubleshooting, high performance file system assessment deployment, using the Celerra MPFS service kits and qualifier, EMC Celerra MPFS and media applications business • Discuss and understand the integration of solution components into production environments • Describe the basic iSCSI architecture and technology involved with an MPFS implementation • Describe the basic Fibre Channel architecture and technology involved with an MPFS implementation • Describe the Celerra MPFS implementation and best practices • Successfully configure MPFS for iSCSI with the CLARiiON combo card, with a CISCO MDS switch, and for Fibre Channel with a Fibre Channel switch • Use MPFS tools to analyze and configure an MPFS environment • Understand and discuss the components and scope of the EMC Technology Solutions service kits for MPFS
 (1 Hr) (1 TU)	Celerra Replicator Concepts Local replication, remote location, failover and failback, configuration, theory of operation, business solutions • Describe the features and functions of Celerra IP Replicator • Understand the solution benefits of a Celerra Replicator implementation • Describe a typical business solution using Celerra Replicator

Additional Courses	Course Objectives
 (4 Days) (12 TU)	NAS Performance Workshop (Instructor-Led) Performance overview, CLARiiON array considerations, host considerations, network environment considerations, workload considerations, EMC features considerations • Define NAS performance from an EMC perspective • Use IOMeter, Navisphere Manager, Navisphere Analyzer, and Celerra Manager to diagnose and troubleshoot NAS performance issues • Explain the operation of Automated Volume Management (AVM) • Explain the performance characteristics of CLARiiON storage arrays, and the Celerra • Diagnose and troubleshoot NAS performance issues related to poor file system layout, network problems, and EMC features • Use EMC “best practices” when proposing and implementing NAS solutions
 (4 Days) (12 TU)	Celerra NDMP Backup Solutions Workshop (Instructor-Led) Backup overview, backup solutions, NDMP theory of operations, Celerra with EMC backup environment, tape unit configuration • Successfully configure EMC Celerra systems for NDMP backup participation using both a local and a three way implementation • Successfully configure an EMC Disk Library (EDL) to be the target for an EMC Celerra system backup • Successfully configure and use the Celerra Virtual Tape Library (VTL) feature for EMC Celerra system backup • Successfully backup and restore file systems and individual files on an EMC Celerra system using EMC NetWorker

Symmetrix Business Continuity Learning Path

Benefits any storage professional who deploys and manages business continuity and disaster recovery in open systems environments using the symmetrix family of storage.

You will learn to apply different modes of TimeFinder and/or SRDF, and to achieve local and/or remote data replication to enable availability for mission-critical applications.

Prepare for your Specialist-Level Symmetrix Business Continuity Certification.



Certification Alignment

Expert	E20-817 Exam
Specialist	E20-512 Exam
Associate	E20-001 Exam See Page 11

Specialist Courses

Course Objectives



(2 Days)

Symmetrix Business Continuity—TimeFinder Solutions (Instructor-Led)
Configuration, operations, and integration with Windows and UNIX hosts, EMC Solutions Enabler command-line interface for managing SRDF operations in an enterprise environment; SRDF Synchronous, Asynchronous, and Automated Replication

- Describe TimeFinder functionality and theory of operations
- Describe TimeFinder host considerations and configurations within Sun Solaris, HP-UX, AIX, and Windows environments
- Use SYMCLI to perform TimeFinder BCV, TimeFinder Clone, and EMC Snap operations

The Instructor-Led Course above is supported by the following e-Learning prerequisites:



(2 Hrs)

Symmetrix Foundations (Prerequisite)
Symmetrix disk array architecture, volume protection, I/O path, connectivity, vaulting, and high-availability features

- Draw and describe the basic architecture of Symmetrix DMX
- Explain Symmetrix DMX theory of operations, connectivity options, and key features



(1 Hr)

Connectrix Foundations (Prerequisite)
Architecture and components, fabric topologies, EMCs Connectrix range, securing a SAN, management tools, IP-based SAN extension

- Describe the structure, purpose, and motivation for a storage area network,
- Identify and explain the different IP-SAN solutions and their advantages



(1 Hr)

PowerPath Foundations (Prerequisite)
PowerPath terminology, features, architecture, theory of operations, and management

- Discuss the features and benefits of PowerPath in an open systems host environment
- Explain how PowerPath achieves transparent recovery of host to storage channels



(2 Hrs)

TimeFinder Foundations (Prerequisite)
TimeFinder terminology, features, architecture, theory of operations, and management, TimeFinder Mirror, Clone, and Snap local replication solutions

- Describe the architectural components and theory of operations of TimeFinder
- Explain how various replication options of TimeFinder can be integrated into Symmetrix DMX business continuity/disaster recovery environments



(3 Days)

Symmetrix Business Continuity—SRDF Solutions (Instructor-Led)
SRDF Synchronous, Asynchronous, and Automated Replication configuration, operations, and integration with Windows and UNIX hosts, EMC Solutions Enabler command and Symmetrix Management console operations for SRDF

- Describe SRDF host considerations and configurations within Sun Solaris, HP-UX, IBM AIX and Windows—LVM environments
- Execute various operations for SRDF/S, SRDF/A, and SRDF/AR using SYMCLI

The Instructor-Led Course above is supported by the following e-Learning prerequisite:



(1 Hr)

SRDF Foundations (Prerequisite)
Symmetrix business continuity solutions for remote replication, features, functionality and benefits of the SRDF family of products, SRDF/S, SRDF/CG, SRDF/AR, and SRDF/A

- Describe EMC consistency technology
- Describe architectural components and theory of operations of SRDF
- Explain how various replication options of SRDF can be integrated into Symmetrix DMX business continuity/disaster recovery environments



(2 Days)

EMC Open Replicator Workshop
Open Replicator features, functions, benefits, operations zoning considerations, operations with Symmetrix Management Console, data migration, and data distribution

- Identify potential opportunities for Open Replicator-based data migration and data distribution
- Setup and execute different combinations of open replication between EMC arrays
- Understand how to migrate data between EMC and supported third party arrays



(2 Hrs)

Replication Manager Implementation and Management Overview
Replication Manager planning, licensing, installation, administration, logging, and troubleshooting

- Review the need for Replication Manager, plan and deploy
- Describe how Replication Manager is licensed
- Install, administer and troubleshoot Replication Manager



(2 Hrs)

SRDF/Star for Open Systems
Positioning, architecture and operations of SRDF/Star open system environments, SRDF/Star unplanned and planned failover procedures

- Position SRDF/Star in the SRDF product family
- Describe the underlying technologies that make SRDF/Star work
- Describe how SRDF/Star can operate under normal and fault conditions



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options



Symmetrix Business Continuity ValuePak



CE-VALPAKBC \$4,950



Includes two Instructor-Led courses, one Video-ILT* and seven self-paced e-Learning courses.

*EMC Open Replicator Workshop



Symmetrix Business Continuity Video ValuePak



CE-VIDVPKBC \$3,960

Includes three Video-ILTs and seven self-paced e-Learning courses.

For more information on purchase options, see page 9

Symmetrix Business Continuity Learning Path (continued)

The expert courses benefit Specialist-Level Professionals who integrate storage with Microsoft applications.

You will learn to integrate local and remote replication technologies with Microsoft Exchange, Microsoft SQL Server and/or Oracle.

Prepare for your Expert-Level Symmetrix Business Continuity Certification.



Certification Alignment

Expert	E20-817 Exam
Specialist	E20-512 Exam
Associate	E20-001 Exam See Page 11

Expert Courses

Course Objectives

(4 Days)
(12 TU)



Open Systems Business Continuity–SRDF/Star Solutions (Instructor-Led)
Introduction to Star underlying technologies, verifying software and hardware prerequisites, Star in a normal configuration, transient faults, disaster faults requiring a move of the production workload, changing the Star configuration

- Position SRDF/Star in the SRDF product family
- Describe underlying technologies that make SRDF/Star work
- Operate an SRDF/Star configuration under normal and fault conditions
- Perform routine maintenance work on a Star configuration

AND

(4 Hrs)
(1 TU)



Exchange Integration with Symmetrix
Preparing to Implement Microsoft Exchange Server 2007 on Symmetrix/DMX, implementing TimeFinder solutions in an Exchange environment, distance solutions for Microsoft Exchange Server 2007

- Describe how to configure an Exchange server for use with Symmetrix/DMX storage
- List EMC best-practices for Exchange Server 2007
- Understand server recovery from an Exchange backup host by utilizing business continuance volumes

(3 Hrs)
(1 TU)



SQL Server Integration with Symmetrix
SQL Server basics, EMC solutions for SQL server

- Configure an Microsoft SQL server for use with Symmetrix/DMX storage
- List the options available for creating replicas of an Microsoft SQL Server

(4 Hrs)
(1 TU)



Oracle Integration with Symmetrix
IT business challenges, RAID/database layout considerations, Oracle storage replication features, EMC replication solutions

- Describe the process to set up an Oracle database environment
- RAID configurations, Oracle ASM (Automated Storage Management), flashback technology, SRDF/A replication solution

(5 Hrs)
(1 TU)



SRDF/CE for MSCS Overview
Cluster services components and architecture, cluster terminology, typical SRDF/CE cluster configurations, SRDF/CE benefits, components and settings, MSCS and SRDF/CE failover processes

- Review and describe components that make up cluster services
- Define what a Majority Node Set (MNS) represents
- Describe what a File Share Witness is and how it is used
- Identify the advantages of integrating MSCS with EMC SRDF application

AND one of the following

(3 Days)
(9 TU)



Exchange Integration with Symmetrix (Instructor-Led)
Implementing TimeFinder Integration Module for Exchange, configuring EMC Replication Manager to replicate Exchange Server 2007, distance solutions for Microsoft Exchange Server 2007

- Configure an Exchange server for use with Symmetrix/DMX storage
- Install, configure, and execute backups using TimeFinder Exchange Integration Manager on a single Symmetrix/DMX
- Configure, and execute backups using on a single Symmetrix/DMX

OR

(4 Days)
(12 TU)



SQL Server Integration with Symmetrix (Instructor-Led)
Implementing Solutions Enabler Database SRM for SQL Server, implementing TimeFinder Integration Module, configuring EMC Replication Manager to replicate SQL Server 2005, distance solutions for Microsoft SQL Server 2005

- Implement EMC best practices for SQL Server 2005
- Install, configure, and execute backups using Solutions Enabler–Database SRM and TimeFinder SQL Server Integration Module
- Install, configure, and execute backups using EMC Replication Manager

OR

(4 Days)
(12 TU)



Oracle Integration with Symmetrix (Instructor-Led)
Symmetrix DMX introduction and architecture–Oracle 10g database application setup, Oracle storage related features, EMC–Oracle software integration, replication solutions using EMC's TimeFinder/SRDF product set

- Recommend an optimal performance layout for an Oracle 10g database application
- Identify features and the relationship between volume management and an Oracle database application environment
- Perform TimeFinder/Mirror Clone and Snap operations using SYMCLI commands

Additional Courses

Course Objectives

(5 Days)
(15 TU)



VMware ESX Server - Symmetrix Integration Workshop (Instructor-Led)
Symmetrix base connectivity, management, virtual machine storage provisioning, mapping virtual machines, Symmetrix data replication, data migration, Symmetrix and VMware performance considerations (To obtain VMware ESX Server skills you are recommended to attend the "VMware Infrastructure 3: Install and Configure" course)

- Provision storage to an ESX Server virtual machine
- Configure and test ESX Multipath for correct operation
- Integrate TimeFinder and SRDF with ESX Server, and test backup, migration, failover and failback operations involving virtual machines
- Implement an appropriate online/offline backup schema for ESX Server

(4 Days)
(12 TU)



Symmetrix Performance Workshop (Instructor-Led)
Performance overview and measurements, tools, analysis, front-end, system/cache, back-end, business continuance

- Describe the performance benefits of Optimizer and PowerPath
- Identify the architectural components of a Symmetrix array, describe their performance characteristics, and differentiate between Symmetrix 8000 and DMX family arrays

(4 Days)
(12 TU)



Symmetrix Configuration Management (Instructor-Led)
Symmetrix V-Max configuration management using EMC Solutions Enabler command line interface (SYMCLI) & Symmetrix Management Console (SMC)

- Configure RAID groups, port flags, logical devices, device attributes, host device access and mapping
- Configure & manage SRDF/A DeltaSet Extension (DSE) & TimeFinder/Snap SAV pools.
- Configure and manage virtual provisioning using Thin Devices.

(5 Days)
(15 TU)



Symmetrix Business Continuity Management (Instructor-Led)
Symmetrix V-Max TimeFinder, SRDF & Open Replicator configuration, operations, & integration with Windows & UNIX hosts, using EMC Solutions Enabler command line interface (SYMCLI) & Symmetrix Management Console (SMC)

- Describe host considerations and configurations within Sun Solaris, HP-UX, IBM AIX and Windows environments
- Use SYMCLI and SMC to perform TimeFinder, SRDF two-site and Open Replicator operations

Mainframe Learning Path

Benefits any storage professional who deploys and manages business continuity and disaster recovery in zSeries mainframe environments using the Symmetrix family of storage.

You will learn to apply different modes of TimeFinder and/or SRDF, and to achieve local and/or remote data replication enabling availability for mission-critical Mainframe applications.

Prepare for your Mainframe Business Continuity Certification.



Certification Alignment

Product/Technology Specific
E22-201 and E22-211 Exam

Specialist Courses

Course Objectives



(4 Days)

Mainframe Business Continuity – Local Replication Solutions (Instructor-Led)

ResourcePak Base, TimeFinder Extended, TimeFinder/Mirror, TimeFinder/Snap, TimeFinder/Clone, TimeFinder Utility, zSeries mainframe local business continuity considerations/practical applications

- Perform TimeFinder management operations, including TimeFinder/Mirror, TimeFinder Snap Facility and TimeFinder Utility; including multiple BCV and concurrent BCV
- Describe the architecture and operations of ResourcePak Extended
- Explain important host considerations for successful implementations of local replication solutions and identify key EMC business continuity solutions services and tools

The Instructor-Led Course above is supported by the following e-Learning prerequisites:



(2 Hrs)

Symmetrix Foundations (Prerequisite)

Symmetrix disk array architecture, volume protection, I/O path, connectivity, vaulting and high-availability features

- Draw and describe the basic architecture of Symmetrix DMX
- Explain Symmetrix DMX theory of operations, connectivity options, and key features



(2 Hrs)

TimeFinder Foundations (Prerequisite)

TimeFinder terminology, features, architecture, theory of operations, and management, TimeFinder Mirror, Clone, and Snap local replication solutions

- Describe TimeFinder's architectural components and theory of operations
- Explain how various replication options of TimeFinder can be integrated into Symmetrix DMX business continuity/disaster recovery environments



(5 Days)

Mainframe Business Continuity – Remote Replication Solutions (Instructor-Led)

ResourcePak Base, SRDF/S, SRDF/CG, SRDF/A, SRDF/A, with Multi Session Consistency, SRDF/AR, AutoSwap, SRDF/Star and zSeries mainframe remote business continuity considerations/practical applications

- Explain the benefits, architecture and management of the ResourcePak Base Symmetrix Control Facility in z/OS environments, SRDF/Star and AutoSwap
- Perform SRDF configuration, management and recovery operations for the SRDF/S and SRDF/A base products and the add-on products SRDF/CG and SRDF/AR
- Explain important host considerations for successful implementations of SRDF remote replication solutions in z/OS environments

The Instructor-Led Course above is supported by the following e-Learning prerequisite:



(1 Hr)

SRDF Foundations (Prerequisite)

Symmetrix business continuity solutions for remote replication, features, functionality and benefits of the SRDF family of products, SRDF/S, SRDF/CG, SRDF/AR and SRDF/A

- Describe architectural components and theory of operations of SRDF
- Explain how various replication options of SRDF can be integrated into Symmetrix DMX business continuity/disaster recovery environment

Additional Courses

Course Objectives



(5 Days)
(15 TU)

Mainframe Business Continuity—SRDF/Star Solutions (Instructor-Led)

Introduction to Star business continuity solutions, SRDF/CG - Consistency Groups, SRDF/A—Asynchronous, SRDF/A Multi-Session Consistency, SRDF/Star—Symmetrix Triangular Asynchronous Replication, SRDF/Star Recovery Panels, business continuity solutions Summary

- Describe the benefits, architecture and management of ResourcePak Base Symmetrix Control Facility in z/OS environments
- Demonstrate SRDF management operations, build a complete three-site star configuration.
- Explain host considerations for successful implementations of Star replication solutions such as Concurrent SRDF in z/OS environments



(2 Days)
(6 TU)

EMC Disk Library for Mainframe Implementation and Management (LIVE)

Introduction to DLm, DLm operation, using DLm with z/OS, back-end tape, data exchange, volume handling

- Describe the DLm and its strategic positioning
- Describe and demonstrate the benefits, architecture and management of the DLm product in z/OS environments
- Describe and demonstrate DLm Implementation issues, management, usage, and recovery operations for the tape to disk environment



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options



Mainframe Business Continuity ValuePak

CE-VALPAKMF \$8,250



Includes two Instructor-Led* courses, and three self-paced e-Learning courses.

*Mainframe Business Continuity – Local Replication Solutions

*Mainframe Business Continuity – Remote Replication Solutions



Mainframe Business Continuity Video ValuePak

CE-VIDVPKMF \$3,960



Includes two Video-ILTs and three self-paced e-Learning courses.

For more information on purchase options, see page 9

Replication Manager Learning Path

Benefits any storage professional who manages integrated and automated data replications using Replication Manager.

You will learn to integrate and automate TimeFinder, SRDF, SnapView, MirrorView, and other replication technologies into application environments.

Working knowledge of array-based local and remote data replication technologies is a prerequisite to this Learning Path.

Courses

Course Objectives



(5 Days)
(15 TU)

Replication Manager Workshop (Instructor-Led)

Overview, planning and installation, administration, operations, remote replications, troubleshooting

- Install Replication Manager software
- Configure a Replication Manager environment
- Perform administrative functions using Replication Manager software
- Perform operational functions using Replication Manager software
- Perform basic troubleshooting in a Replication Manager environment

The Instructor-Led Course above is supported by the following e-Learning prerequisite:



(2 Hrs)
(1 TU)

Replication Manager Implementation and Management Overview (Prerequisite)

Replication Manager planning, licensing, installation, administration, logging, and troubleshooting

- Review the need for Replication Manager, plan and deploy
- Describe how Replication Manager is licensed
- Install, administer and troubleshoot Replication Manager



Instructor-Led Training



e-Learning

For more information on delivery modes, see page 8

Purchase Options



Replication Manager ValuePak

CE-VALPAKRM \$4,950



Includes one Instructor-Led course, and one self-paced e-Learning course.

For more information on purchase options, see page 9

EmailXtender and EmailXaminer Learning Path



Certification Alignment

Product/Technology Specific
E22-181 or E22-183 Exam

Benefits any storage professional who deploys and manages EmailXtender and EmailXaminer in Microsoft Exchange or IBM Lotus Notes environments.

You will learn to conduct cost-effective e-mail archiving, assist legal discovery, and demonstrate regulatory compliance.

Prepare for your EmailXtender and EmailXaminer Certification.

Courses

Course Objectives



EMC EmailXtender Administration for Lotus Notes (Instructor-Led)

Plan, install, configure, and administer EmailXtender in a Lotus Domino environment

- Demonstrate the ability to properly connect to and communicate with the targeted mail server for Lotus Notes
- Describe and perform the methods for retrieving e-mail messages that are indexed and archived by EmailXtender

OR



EMC EmailXtender Administration for Microsoft Exchange (Instructor-Led)

Plan, install, configure, and administer EmailXtender in a Microsoft Exchange environment

- Demonstrate the ability to properly connect to and communicate with the targeted mail server for Microsoft Exchange
- Describe and perform the methods for retrieving e-mail messages that are indexed and archived by EmailXtender



EMC EmailXtender Foundations (Prerequisite)

Overview of EmailXtender architecture, functionality, and terminology

- Understand the EMC EmailXtender functionality, installation requirements, administration, definitions, and terminology
- Describe the EmailXtender rules, short cutting process, mail extract, and audit capability

AND



EMC EmailXaminer Administration (Instructor-Led)

Plan, install, configure, and administer EmailXaminer Manager and Reviewer applications

- Understand EmailXaminer concepts and functions and how to plan and install EmailXaminer
- Demonstrate the ability to perform administration and supervisor tasks
- Install EmailXaminer clients and monitor and troubleshoot EmailXaminer

Additional Courses

Course Objectives



EMC EmailXtender and EMC DiskXtender

DiskXtender overview, installing DiskXtender, configuring file system manager, storage media and media services, DiskXtender with Centera, managing data using DiskXtender, DiskXtender search module, disaster recovery for DiskXtender, high-availability solutions for DiskXtender, troubleshooting DiskXtender, EmailXtender overview, installing EmailXtender, using the EmailXtender administrator, understanding rules, retention and process flows, searching the message center, using EmailXtract, using EmailXtender audit utility

- Install and configure DiskXtender File System Manager
- Describe storage media types and DiskXtender media services
- Configure NAS and Centera media
- Search the archive using DiskXtender Search Module
- Configure DiskXtender for disaster recovery and high availability environments
- Connect to and communicate with the targeted mail server
- Capture e-mail messages and archive them to the EmailXtender server
- Configure EmailXtender with DiskXtender for Windows for e-mail migration
- Describe and perform the methods for retrieving email messages



EMC EmailXaminer for Compliance Officers and Reviewers

Reviewing messages, understanding EmailXaminer functions and concepts

- EMC EmailXaminer in e-mail content monitoring and supervision
- Use EmailXaminer Reviewer application for reviewing messages
- Explain how EmailXaminer works to ensure compliance



EMC Advanced EmailXtender Administration (Instructor-Led)

Understanding message processing and archiving, performing advanced installation planning, advanced administration, troubleshooting the EmailXtender environment, implementing a data protection plan, configuring EmailXtender for disaster recovery and high-availability environments

- Plan EmailXtender installation and size the servers
- Perform advanced administration including registry settings
- Troubleshoot the EmailXtender environment
- Describe the search syntax and perform advanced searches
- Implement data protection to prepare for possible failures



EMC EmailXtender User Cache Installation and Configuration

User Cache overview, architecture, and installation & topology

- Describe EmailXtender User Cache solution
- Explain the EmailXtender User Cache architecture
- Describe EmailXtender User Cache installation and topology



Instructor-Led Training



Video-ILT (VILT)



e-Learning

For more information on delivery modes, see page 8

Purchase Options



EMC EmailXtender and EmailXaminer ValuePak

CE-VALPAKMSG \$2,970



Includes two Instructor-Led* courses and one self-paced e-Learning course.

*Choose either Lotus Notes or Microsoft Exchange Instructor-Led course



EMC EmailXtender and EmailXaminer Video ValuePak

CE-VIDVPKMSG \$1,980



Includes three Video-ILTs and one self-paced e-Learning course.

For more information on purchase options, see page 9

CAS Essentials Learning Path

Benefits any storage professional who deploys and manages a Centera content-addressed storage (CAS) environment.

You will learn to configure Centera Virtual Pools, set retention policies and other archival settings to reconcile an overall tiered storage environment.

Courses

Course Objectives



(3 Days)

CAS Management (Instructor-Led)

Centera management, day-to-day tasks, and basic troubleshooting steps

- Explain how data is stored, retrieved, and replicated on EMC Centera
- Perform day-to-day management tasks on an EMC Centera using the native tools, and create/test virtual pools and access profiles
- Perform EMC Centera replication and basic performance and networking troubleshooting

The Instructor-Led Course above is supported by the following e-Learning prerequisites:



(2 Hrs)

Archive Technology Foundations (Prerequisite)

Content-addressed storage (CAS), EmailXtender overview, DiskXtender for Windows overview

- Describe the functions and features of content-addressed storage (CAS), EmailXtender, DiskXtender



(5 Hrs)

Basic Network Environment (Prerequisite)

Operational capabilities, service delivery, details of server installation, configuration, basic setup and usage

- Describe the components of a typical network infrastructure
- Identify basic network concepts that will help to configure and manage EMC products



(2 Hrs)

EMC Centera Console Implementation Overview (Prerequisite)

Operational capabilities, service delivery, details of server installation, configuration, basic setup, and usage

- Describe features, functionality, and benefits of the EMC Centera Console
- Install, configure, and navigate Centera Console to identify operational characteristics of an EMC Centera environment



(2 Hrs)

CAS Solution Strategies (Prerequisite)

Activating archives, business areas for CAS, mainframe solutions, SDK and CAG solutions, business continuity, and disaster recovery

- Explain the types of data that should be stored on fixed media and identify business areas where CAS is the optimum solution
- Discuss SDK and CAG solutions and theory of operations including replication and restore

Additional Courses

Course Objectives



(8 Hrs)
(3 TU)



(2 Hrs)
(1 TU)

Centera FastStart Fundamentals (LIVE)

Introduction to Centera, Centera operational overview

- Define fixed content
- State the challenges of managing fixed content
- List the 11 terms of the Centera solution and list CenteraStar software features
- Define read, write, and query operations
- List the available Centera interface tools and define the Centera security profiles



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options

CAS ValuePak

CE-VALPAKAS \$3,960

Includes one Instructor-Led course, and four self-paced e-Learning courses.



CAS Video ValuePak

CE-VIDVPKAS \$1,980

Includes one Video-ILT and four self-paced e-Learning courses.



Centera FastStart Fundamentals Site License

CE-FSTSRTCAS \$5,000

Includes LIVE training for up to 12 individuals.

For more information on purchase options, see page 9

For additional details on Purchase Options or Contact Information, see Page 9

Network Management (Smarts) Learning Path

Benefits any IT professional who deploys and leverages end-to-end network management solutions from EMC Smarts.

You will learn to configure the EMC Smarts suite of software, view and understand the diagnostic analysis results, and resolve network and service issues.

Prepare for your Network Management (Smarts) Certification.



Certification Alignment

Product/Technology Specific
E22-250 Exam

Courses

Course Objectives



EMC Smarts Service Assurance Manager Administrator (Instructor-Led)
Install, configure and administer EMC Smarts Service Assurance Manager; create user profiles, configure SAM to connect other domains. Configure Business Impact Manager to view topology and events in the context of the business services they support

- View the results of the EMC Smarts diagnostic analysis and understand the network and service impacts caused by failures
- Automate actions to respond to failure notifications
- Incorporate customer and service information into Service Assurance Manager to manage infrastructure in the context of business

AND



EMC Smarts IP Manager Administrator (Instructor-Led)
Install and configure EMC Smarts IP Management Suite; configure and perform topology discoveries; enable and configure auto-discoveries; set up desired management policies using Polling and Threshold Groups

- Install and Configure EMC Smarts Software
- Understand how to start and stop EMC Smarts for IP Domain Manager with the various options
- Launch the powerful EMC Smarts Discovery process

The Instructor-Led Courses above are supported by the following e-Learning prerequisites:



Introduction to EMC Smarts Architecture
EMC Smarts terminology, architecture of Service Assurance Manager, and other common solution components

- Describe how to start and stop EMC Smarts for IP Domain Manager with the various options
- Enable, configure, and monitor Auto-Discovery
- Create and apply management policies, set connectivity and performance thresholds, and control the management of systems and their components



EMC Smarts Global Console
Service Assurance Manager Global Console, customization of a global console, the Notification Log Console, the Topology Browser, the Map View

- View and explore the results of the EMC Smarts diagnostic analysis
- Maintain user logins and associated user profiles
- Automate actions to respond to failure notifications
- Incorporate customer and service information into SAM to manage infrastructure in the context of business



EMC Smarts Global Console Advanced
Business Impact Manager, understanding groups, the Summary View, the Status Table View, Context Sharing

- Respond to failure notifications
- Customize the layout of the EMC Smarts Console

Additional Courses

Course Objectives



VoyenceControl Application and Device Management (Instructor-Led)
User workflow, automating the workflow, policy enforcement, workspaces, report advisor

- Create and enforce network policies
- Manage devices using Config Editor, Configlet Editor, Command and Interface Editor
- Create Attributed Queries and Compliance Tests
- Use the VoyenceControl Event Manager to monitor network system, security, and device events
- Install and configure EMC Voyence Report Advisor



VoyenceControl Installation and System Administration (Instructor-Led)
EMC VoyenceControl overview, architecture and design, installation, configuration and discovery, common system administration tasks

- Describe the basic capabilities and architecture of VoyenceControl
- Explain the sizing, security, platform support, and port considerations for a Voyence Control implementation
- List the steps to install VoyenceControl via command-line interface, graphical user interface, and silent installation scripts
- Configure VoyenceControl for an initial network discovery
- Create and discover a Network



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options

EMC Smarts SAM/IP Administrator ValuePak
CE-VALPAKSMT \$4,950
Includes two Instructor-Led courses and three self-paced e-Learning courses.

EMC Smarts SAM/IP Administrator Video ValuePak
CE-VIDVPKSM \$2,970
Includes two Video-ILTs and three self-paced e-Learning courses.

EMC Smarts Global Console ValuePak
CE-VALPAKGCL \$660
Includes three self-paced e-Learning courses.

For more information on purchase options, see page 9

Network Management (Smarts) Learning Path (continued)

Additional Courses

Course Objectives

 (2 Days) (6 TU)	EMC Smarts Adapter Platform (Instructor-Led) Introduction to Smarts adapters, the command-line interface functions, SNMP trap receiver, advanced processing using a hook script, Syslog adapter, notification adapters, notification adapter processing	• Configure and customize the Service Assurance Manager Platform • Use the command-line interface to process data from multiple sources • Configure and run the SNMP Trap Receiver to process SNMP Traps • Configure and run the EMC Smarts Syslog Adapter to process syslog messages and adapters to export information from an EMC Smarts server
 (2 Days) (6 TU)	EMC Smarts Application Discovery Manager (Instructor-Led) Introduction to ADM, host and business application grouping, using the map and reporting, configuration, administration, and basic troubleshooting, passive discovery configuration, detail discovery configuration & policies, change tracking	• Configure and troubleshoot the ADM solution • View the information available in the ADM console • Configure and perform a Passive discovery • Perform a detail discovery and set detail discovery policies
 (1 Day) (3 TU)	EMC Smarts ASL for Service Assurance Manager (Instructor-Led) Understanding the EMC Smarts architecture, enhancing SAM with ASL, developing data exchange adapter hookscripts, importing information into SAM, utilizing imported information	• Populate user-defined attributes • Access Information from the originating server • Import information into SAM • Enhance your notifications
 (1 Day) (3 TU)	EMC Smarts ASL (Instructor-Led) Introduction to adapters, the EMC Smarts Common Model, types of adapters, how to save output to a file, how to run sm_adapter	• Write ASL scripts to pull information from the Domain Manager • Use scripts to set values of attributes in the ICIM topology • Read data from files for input • Write adapters to modify discovery behavior
 (2 Days) (6 TU)	EMC Smarts MPLS Manager (Instructor-Led) Introduction to EMC Smarts technology, MPLS/VPN fundamentals, Introduction to EMC Smarts MPLS Manager, object model, discovery and monitoring with EMC Smarts MPLS Manager, overlapping IP networks, EMC Smarts Cisco ISC adapter	• Explain how EMC Smarts MPLS Manager fits within the EMC Smarts suite of products • Analyze the impact of physical connectivity failure on logical connectivity • Explain how EMC Smarts MPLS Manager can leverage the analysis performed by other EMC Smarts applications • Configure and manage remote ICMP pings
 (1 Day) (3 TU)	EMC Smarts NPM Manager (Instructor-Led) OSPF fundamentals, Smarts Protocol Services Manager, BGP fundamentals, EMC Smarts Protocol Services Manager, diagnostic analysis, impact analysis, Smarts Protocol Services Manager administration	• Understand how EMC Smarts Protocol Services Manager diagnoses connectivity failures at the protocol layer • Explore how EMC Smarts Protocol Services Manager cross-correlates physical connectivity failures with protocol layer failures • Navigate through the comprehensive view of the network domain maintained by EMC Smarts Service Assurance Manager
 (2 Days) (6 TU)	EMC Smarts Storage Insight for Availability (Instructor-Led) Overview of Storage Insight for Availability, SIA architecture and theory of operation, SIA performance and scalability, EMC ControlCenter requirements for SIA, SIA installation, configuration and startup, discovery, console views, topology, and maps, monitoring, troubleshooting and log files	• Explain SIA architecture, theory of operation, performance and scalability requirements • Perform an SIA installation and configure an SIA environment • Perform an SIA discovery and explain console views, topology, and maps • Monitor a data center environment using SIA and identify and understand SIA log files
 (3 Days) (9 TU)	EMC Smarts VoIP Performance Manager and Performance Reporter (Instructor-Led) Architecture, node topology, planning an installation, displays, databases, setting and using thresholds, understanding configurations, web publishing, managing security, understanding analysts, managing Cisco Unity and Microsoft Exchange, Managing Cisco Unified Callmanager version 4, maintenance and troubleshooting	• Install the product • Administer user groups • Configure the product • Navigate the interface • Set and use thresholds • Manage security settings
 (2 Days) (6 TU)	EMC Smarts Application Connectivity Monitor (Instructor-Led) Overview of EMC Smarts, the application domain, fundamentals of application connectivity monitor, ACM installation, the discovery process, management policies, the topology builder, integrating third-party events	• Use EMC Smarts Application Connectivity Monitor to monitor TCP-based hosted applications for availability and analyze the impact of physical connectivity failure on TCP connectivity • Use EMC Smarts Application Connectivity Monitor to perform automatic discovery of TCP-based software services and to leverage the analysis performed by other EMC Smarts applications

Avamar Learning Path

Benefits any storage professional who deploys and manages data deduplication technology using EMC Avamar.

You will learn to configure Avamar in backup and recovery environments to reduce storage, network and other backup resource requirements.

Working knowledge of network backup and recovery technology are prerequisites to this learning path.

Courses

Course Objectives

EMC Avamar Administration (Instructor-Led)

Avamar fundamentals, Avamar administration, Avamar snapups, Avamar restores, system monitoring and maintenance, replication, troubleshooting, and reporting

- Describe the Avamar advantage over traditional backup systems
- Define Avamar terminology
- Describe the major cycles in the snapup process
- Describe Avamar system architecture, components, and processes
- Install Avamar Administrator and Client software
- Create a group policy
- Run on-demand snapups from the Avamar Administrator and the Avamar Client interfaces
- Restore files using Avamar Administrator and Avamar Web Restore interfaces
- Describe Avamar daily maintenance activities: checkpoints, HFS checks, and garbage collection
- Use Avamar tools

The Instructor-Led Course above is supported by the following e-Learning prerequisites:

Backup and Recovery Fundamentals (Prerequisite)

Backup overview, backup architecture, backup terminology and considerations

- Describe basic backup procedures and terminology
- Define the different backup types
- Describe generic backup architecture

EMC Backup Technologies Foundations (Prerequisite)

EmailXtender overview, DiskXtender overview, NetWorker overview, Avamar overview, EMC Backup Advisor overview, EMC Disk Library overview, RepliStor overview

- List the data protection challenges that organizations face
- Describe the EMC BURA initiative
- Describe the functions and features of EMC BURA products

EMC Avamar Overview (Prerequisite)

Avamar fundamentals, Avamar snapups and restores, maintaining, monitoring, and reporting

- Describe Avamar features and architecture
- Describe the Avamar backup and restore process
- Explain how to perform snapups and restores
- Describe Avamar maintenance activities
- Describe Avamar monitoring and reporting capabilities

Additional Course

Course Objectives

EMC Avamar Virtual Edition Overview

EMC Avamar fundamentals, EMC Avamar editions, EMC Avamar virtual edition installation

- Describe EMC Avamar features and architecture
- Discuss EMC Avamar server configurations
- Describe EMC Avamar Virtual Edition solution installation
- Discuss differences between EMC Avamar Virtual Edition and Data Store Edition



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options



EMC Avamar Administration ValuePak

CE-AVAXIADMIN \$2,970



Includes one Instructor-Led course and 3 self-paced e-Learning courses.

DiskXtender for Windows Learning Path

Benefits any storage professional who plans and deploys EMC DiskXtender in a Windows environment.

You will learn to configure DiskXtender to archive and manage file systems and data using SAN, NAS, and CAS-connected devices. Working knowledge of Windows operating systems and networking is a prerequisite to this learning path.



Certification Alignment

Product/Technology Specific
E22-310 Exam

Courses

Course Objectives



EMC DiskXtender for Windows Installation, Configuration, and Management (Instructor-Led)

DiskXtender overview, installing DiskXtender, configuring File System Manager, storage media and media services, DiskXtender with Centera, managing data using DiskXtender, DiskXtender search module, disaster recovery for DiskXtender, high-availability solutions for DiskXtender, troubleshooting DiskXtender

- Explain the DiskXtender solution, benefits and components
- Install and configure DiskXtender File System Manager
- Describe storage media types and DiskXtender media services
- Configure NAS and Centera media
- Manage data using DiskXtender
- Search the archive using DiskXtender Search Module
- Configure DiskXtender for disaster recovery and high availability environments
- Troubleshoot DiskXtender

The Instructor-Led Course above is supported by the following e-Learning prerequisite:



EMC DiskXtender for Windows Concepts

Introduction to archiving, the DiskXtender solution, DiskXtender architecture, DiskXtender features

- Differentiate between backup and archive
- Explain the DiskXtender solution
- List the components of DiskXtender software
- Describe various DiskXtender media services and media types
- Identify features and benefits of DiskXtender

Additional Courses

Course Objectives



EMC EmailXtender and EMC DiskXtender

DiskXtender overview, installing DiskXtender, configuring file system manager, storage media and media services, DiskXtender with Centera, managing data using DiskXtender, DiskXtender search module, disaster recovery for DiskXtender, high-availability solutions for DiskXtender, troubleshooting DiskXtender, EmailXtender overview, installing EmailXtender, using the EmailXtender administrator, understanding rules, retention and process flows, searching the message center, using EmailXtract, using EmailXtender audit utility

- Install and configure DiskXtender File System Manager
- Describe storage media types and DiskXtender media services
- Configure NAS and Centera media
- Search the archive using DiskXtender Search Module
- Configure DiskXtender for disaster recovery and high availability environments
- Connect to and communicate with the targeted mail server
- Capture e-mail messages and archive them to the EmailXtender server
- Configure EmailXtender with DiskXtender for Windows for e-mail migration
- Describe and perform the methods for retrieving e-mail messages



Instructor-Led Training



Video-ILT (VILT)



e-Learning

For more information on delivery modes, see page 8

Purchase Options



DiskXtender for Windows ValuePak

CE-VALPAKDX \$2,970



Includes one Instructor-Led course and one self-paced e-Learning course.



DiskXtender for Windows Video ValuePak

CE-VIDVPKDX \$1,980



Includes one Video-ILT and one self-paced e-Learning course.

For more information on purchase options, see page 9

EMC Disk Library and B2D Learning Path

Benefits any storage professional who deploys and manages virtual tape libraries in a backup and recovery environment.

You will learn to create EMC Disk Library virtual resources (libraries, drives, and tapes) and integrate them with common operating systems and backup products.

Working knowledge of backup and recovery products is a prerequisite to this learning path.



Certification Alignment

Product/Technology Specific
E22-315 Exam

Courses

Course Objectives

(2 Days)

EMC Disk Library Data Deduplication Implementation and Management (LIVE)
Product overview, configuration, management, advanced configuration
(This course is not currently aligned to EMC Proven Professional Certification)

- Identify the DL3D product line
- Describe the data deduplication methodology used
- Implement an EMC Disk Library DL3D 1500/3000
- Manage an EMC Disk Library DL3D 1500/3000

OR

(3 Days)

EMC Disk Library Implementation and Management (LIVE)
Configuration, management, OS and backup software configuration, advanced configuration, troubleshooting and considerations

- Implement an EMC Disk Library DL4000
- Manage an EMC Disk Library DL4000
- Use troubleshooting features

The Instructor-Led Course above is supported by the following e-Learning prerequisites:

(1 Hr)

EMC Disk Library Fundamentals (Prerequisite)
EMC Disk Library features and positioning, EMC Disk Library architecture

- Explain general tape library features and benefits
- Explain EDL positioning and solution target
- List EDL models and components
- Describe EDL hardware and software architecture
- Describe EDL features

(2 Hrs)

EMC NetWorker Integration with EMC Backup-to-Disk Technologies (Prerequisite)
Overview, NetWorker and backup-to-disk, configuration

- Identify the editions of EMC NetWorker software, its architecture and terms
- List the requirements for a successful backup-to-disk integration
- State the differences between NetWorker's "file type device" and "advance file type device"

(2 Hrs)

Veritas NetBackup Integration with EMC Backup-to-Disk Technologies (Prerequisite)
Overview, NetBackup and B2D configuration

- Identify the editions of Veritas NetBackup software, its architecture and terms
- List the requirements for a successful backup-to-disk integration
- Describe the NetBackup backup-to-disk features
- Configure disk backup using Veritas NetBackup

(2 Hrs)

IBM TSM Integration with EMC Backup-to-Disk Technologies (Prerequisite)
Overview, TSM and backup-to-disk, configuration

- Identify the editions of IBM Tivoli Storage Manager software, its architecture and terms
- Identify the requirements for a successful backup-to-disk integration
- Configure disk backup using Tivoli Storage Manager

(2 Hrs)

SAN Backup-to-Disk Overview (Prerequisite)
SAN backup to disk overview, recommendations and EMC offerings, performance and sizing considerations, CLARiiON and Symmetrix implementations

- Discuss the advantage of disk-based backups in a SAN environment
- Identify performance and sizing considerations

(2 Hrs)

LAN Backup-to-Disk Overview (Prerequisite)
LAN backup-to-disk overview and recommendations, backup via storage nodes, backup to Celerra NS arrays

- Describe disk-based backups in a LAN environment, including network considerations
- Discuss recommendations for backup-to-disk with EMC Celerra



EMC LIVE Virtual Classroom



e-Learning

For more information on delivery modes, see page 8

Purchase Options



EMC Disk Library 4000 ValuePak

CE-VALPAKEDL \$1,980



Includes one LIVE Virtual course* and six self-paced e-Learning courses.

*EMC Disk Library Implementation and Management



EMC Disk Library 3D 1500/3000 ValuePak*

CE-VALPAKDL3D \$1,320

Includes one LIVE Virtual course* and six self-paced e-Learning courses.

*EMC Disk Library Data De-Duplication Implementation and Management

For more information on purchase options, see page 9

RecoverPoint Learning Path

Benefits any storage professional who deploys and manages EMC RecoverPoint continuous data protection (CDP) and continuous remote replication (CRR) appliances.

You will learn how to configure RecoverPoint’s CDP and CRR capabilities in multi-vendor, multi-site SAN environments. Working knowledge of multi-vendor, multi-site SAN configuration and management is a prerequisite to this learning path. For more information on SAN see page 20.

Courses

Course Objectives



(3 Days)

EMC RecoverPoint Operations and Management (Instructor-Led)
RecoverPoint overview, consistency groups, failover and failback operations, advanced configurations (SANTap and Cluster), event notification, and troubleshooting

- Articulate and explain both design and architecture principles of the RecoverPoint platform
- Implement the RecoverPoint appliance/solution in complex EMC SAN environments
- Provide details and knowledge transfer on conducting both CDP and CRR configuration and operations

The Instructor-Led Course above is supported by the following e-Learning prerequisite:



(2 Hrs)

EMC RecoverPoint Architecture and Management Overview (Prerequisite)
Overview of EMC RecoverPoint, architecture of EMC RecoverPoint, planning and design considerations implementation overview

- State key features of EMC RecoverPoint
- Describe the architecture of the RecoverPoint solution for CRR and CDP implementations
- Apply suitable design guidelines to create a supported RecoverPoint solution
- Describe the steps to configure replication using EMC RecoverPoint



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options

EMC RecoverPoint ValuePak

CE-VALPAKRP \$2,970

Includes one Instructor-Led course and one self-paced e-Learning course.

For more information on purchase options, see page 9

EMC ControlCenter StorageScope

Benefits any storage professional who creates tailored reports based on the StorageScope schema using StorageScope Query Builder or an external reporting tool.

You will learn to write effective reports using the EMC ControlCenter StorageScope Repository, join and filter commonly-used tables to create useful results, research the StorageScope documentation and use Query Builder to investigate the environment's data to develop a reporting solution.

Additional Courses

Course Objectives



(4 Days)
(12 TU)

ControlCenter StorageScope Reporting Workshop (Instructor-Led)
StorageScope architecture, properties tables, trend tables, group tables, relationship tables

- Use the StorageScope documentation to locate the tables and columns needed to produce a report.
- Join tables to show trend data, object groups, and data path relations.
- Query the StorageScope Repository data using Query Builder, Crystal Reports, Microsoft Query, Microsoft Access, or Microsoft Excel.
- Use Query Builder to prototype SQL code for use in Snapshots or Reports.
- Use Crystal Reports Developer to create RPT files that can be included in the StorageScope reporting server.

The Instructor-Led Course above is supported by the following e-Learning prerequisites:



(2 Hrs)
(1 TU)

ControlCenter StorageScope Reporting (Prerequisite)
ControlCenter StorageScope 6.0, basic reporting scenarios, advanced reporting scenarios

- Describe StorageScope 6.0 architecture, data processing, and repository maintenance
- Utilize StorageScope SRM Views, Dashboard Snapshots, and built-in reports to obtain detailed and high level information about your storage environment
- Use the Query Builder to create custom queries and extract detailed information about your storage environment



(2 Hrs)
(1 TU)

ControlCenter 6.0 Differences (Prerequisite)
Overview, StorageScope, usability enhancements, managed object enhancements

- Discuss the function and data paths of new architecture components
- Describe data collection and processing in StorageScope
- Use StorageScope views, reports, and queries to report on your environment
- Use ControlCenter Console usability enhancements effectively
- Enumerate managed object support changes
- Manage Cisco VSANs using ControlCenter
- Monitor VMWare servers using ControlCenter



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options



StorageScope ValuePak
CE-VALPAKSS \$3,960



Includes one Instructor-Led course and two self-paced e-Learning courses.

ITIL® Learning Path

Benefits IT professionals and managers who are responsible for implementing ITIL® best practices .

EMC Storage Service Consultants will show you how to apply ITIL® best practices in your environment.

Certification Alignment

The ITIL® (V3) Foundations Certification Course provides and includes ITIL® certification.



Courses

Course Objectives



ITIL® V3 Foundations Certification Course (Instructor-Led)

Introduction, service strategy, service design, service transition, service operation, continual service improvement

- Service management as a practice
- Service lifecycle
- Key principles and models
- Generic concepts
- Selected ITIL V3 processes, roles and functions
- ITIL V3 technology and architecture
- ITIL® V3 qualification scheme
- Practice test preparation for foundations exam
- Take the ITIL V3 foundations exam

AND



ITIL® for Storage Service Management Workshop (Instructor-Led)

Storage service management overview, service asset and configuration management, service desk, incident management, problem management, change management, release and deployment management, service-level management, capacity management, availability management (This course supports ITIL® (V2) students as well as (V3))

- Discuss ITIL and IT Service Management (ITSM)
- Describe the benefits of ITIL and a service management philosophy
- Explain the five stages of the ITIL V3 service lifecycle
- Relate the criteria for successful ITIL implementation
- Describe the benefits of process-based storage service management to an IT organization, its customers, and the overall business
- List storage service management best practices for the major ITIL® processes, including the policies, activities, and measurements
- Describe three perspectives of process responsibility that support storage service management, and how they interact to deliver high quality storage service levels
- Apply best practices when managing storage as a service, demonstrate a clear understanding of policies, activities, measurements, and how information flows across the three perspectives of process responsibility
- Apply training and supporting collateral to contribute to the introduction or improvement of storage service levels within your IT organization

Additional Courses

Course Objectives



ITIL® V2 to V3 Foundations Bridge Course (Instructor-Led)

Service strategy, service design, service transition, service operation, continual service improvement

- Service management as a practice
- The service lifecycle
- Key principles and models
- The new and changed ITIL® processes
- Selected ITIL® roles and functions
- ITIL® technology and architecture
- The ITIL® qualification scheme and certification program



Instructor-Led Training

For more information on delivery modes, see page 8

Purchase Options



ITIL ValuePak

CE-VALPAKITIL \$4,950

Includes two Instructor-Led courses.

For more information on purchase options, see page 9

VMware Infrastructure 3 and Site Recovery Manager



Certification Alignment

These courses are aligned to VMware Certification.

Derive maximum value from your virtualized information infrastructure by investing in VMware education and certification.

You will learn to install, configure, secure, and analyze the VMware Infrastructure 3 suite of server virtualization technology.

Prepare to become a VMware Certified Professional (VCP).

Courses

Course Objectives


(4 Days)
(12 TU)

VMware Infrastructure 3: Install and Configure (Instructor-Led)

Virtual Infrastructure overview, ESX Server installation, networking, storage, VirtualCenter installation, VM creation and management, virtual infrastructure access control, resource management, resource monitoring, data and availability protection, planning VI deployment

- Install ESX Server
- Configure ESX Server networking and storage
- Install and configure VirtualCenter
- Control user access to the VMware infrastructure
- Deploy and manage virtual machines using VirtualCenter
- Allocate and monitor virtual machine resources
- Ensure high availability of applications


(4 Days)
(13 TU)

VMware Infrastructure 3: Deploy, Secure, and Analyze (Instructor-Led)

Storage administration, network administration, DRS configuration and performance monitoring, business continuity and data protection, operational maintenance, modify logging behavior, service console security, rapid deployment of ESX Servers

- Perform scripted installations
- Administer an ESX Server using commands
- Configure Virtual Infrastructure security
- Monitor Virtual Infrastructure
- Configure and implement VMware High Availability (HA), Distributed Resource Scheduler (DRS), Consolidated Backup, and Update Manager
- Perform fault analysis on Virtual Infrastructure components


(5 Days)
(20 TU)

VMware Infrastructure 3: Fast Track Program (Instructor-Led)

VMware overview, ESX Server installation, networking, storage, VirtualCenter installation, VM creation and management, VM access control, VM resource management, VM resource monitoring, high availability, data protection, VMware Update Manager, service console security, service console security, scripted install

- Perform manual and scripted ESX Server installations
- Understand and configure security on the Service Console
- Install, configure, migrate, manage, and monitor virtual machines using ESX Server and VirtualCenter
- Utilize VMware Converter and VMware Update Manager
- Learn specific commands used to administer an ESX Server
- Configure and implement VMware HA, DRS and VCB
- Perform fault analysis in Virtual Infrastructure


(2 Days)
(6 TU)

VMware Site Recovery Manager (Instructor-Led)

SRM overview, introduction to disaster recovery, SRM planning, SRM installation, array managers, inventory mappings, protection group, recovery plans, SRM alarms and site status, troubleshooting, failover testing and failover, failback (Our recommended prerequisite to attend this course is "VMware Infrastructure 3: Install and Configure")

- Create a disaster recovery workflow for your virtual machines using SRM
- Install SRM components
- Configure SRM storage replication adapters
- Configure SRM protected and recovery sites and array managers
- Define SRM inventory mappings
- Create SRM recovery plans
- Test SRM recovery plans
- Execute SRM recovery plans (failover)

Purchase Options

VMware Infrastructure 3: Install and Configure

CE-VMWINFIC \$2,995 (12 TU)
Includes one Instructor-Led course.

VMware Infrastructure 3: Deploy, Secure, and Analyze

CE-VMWINFDSA \$3,295 (13 TU)
Includes one Instructor-Led course.

VMware Infrastructure 3: Fast Track

CE-VMWINFFT \$5,495 (20 TU)
Includes one Instructor-Led course.

VMware Site Recovery Manager

CE-VMWSRM \$1,695 (6 TU)
Includes one Instructor-Led course.



Instructor-Led Training



**EMC LIVE
Virtual Classroom**

For more information on delivery modes, see page 8

Get curriculum details and course schedules at: <http://education.EMC.com>

VMware Integration with EMC Storage and Replication Technologies

Derive maximum value from your virtualized information infrastructure by enabling and optimizing business continuity and disaster recovery solutions from EMC.

You will learn to integrate CLARiiON and/or Symmetrix local and remote replication technologies with VMware ESX Server functionality.

Additional Courses

Course Objectives

(5 Days)
(15 TU)

VMware ESX Server – CLARiiON Integration Workshop (Instructor-Led)

CLARiiON base connectivity, installation, and configuration of array management, virtual machine storage provisioning, multipathing and mapping virtual machines, CLARiiON data replication, CLARiiON data migration, online and offline backups, CLARiiON and VMware performance considerations (To obtain VMware ESX Server skills you are recommended to attend the “VMware Infrastructure 3: Install and Configure” course)

- Examine specifics of migrating/expanding VM storage
- Configure and test ESX Multipath for correct operation in a CLARiiON environment.
- Integrate CLARiiON Replication Software with ESX Server
- Implement an appropriate online/offline backup schema for ESX Server
- Conduct performance monitoring for an ESX Server environment

(5 Days)
(15 TU)

VMware ESX Server - Symmetrix Integration Workshop (Instructor-Led)

Symmetrix base connectivity, management, virtual machine storage provisioning, mapping virtual machines, Symmetrix data replication, data migration, Symmetrix and VMware performance considerations (To obtain VMware ESX Server skills you are recommended to attend the “VMware Infrastructure 3: Install and Configure” course)

- Provision storage to an ESX Server virtual machine
- Configure and test ESX Multipath for correct operation
- Integrate TimeFinder and SRDF with ESX Server, and test backup, migration, failover and failback operations involving virtual machines
- Implement an appropriate online/offline backup schema for ESX Server

Available only from EMC Education Services

- Are you deploying and managing end-to-end virtualized environments using EMC’s virtualized storage platforms and VMware virtual machines?
- Are you looking to integrate array-based local and remote replication technologies into your virtualized server environments?



Instructor-Led Training

For more information on delivery modes, see page 8

Purchase Options*



VMware ESX Server – CLARiiON Integration Workshop

\$4,950 (15 TU)

Includes one Instructor-Led course.



VMware ESX Server - Symmetrix Integration Workshop

\$4,950 (15 TU)

Includes one Instructor-Led course.

Voyence Learning Path

Benefits any IT professional who installs, administers, or manages VoyenceControl solutions.



(2 Days)

Courses

Course Objectives

VoyenceControl Installation and System Administration (Instructor-Led)

EMC VoyenceControl overview, architecture and design, installation, configuration and discovery and common system administration tasks

- Describe the basic capabilities and architecture of VoyenceControl
- List platform support and security considerations for deploying VoyenceControl
- Describe the distributed and combo VoyenceControl architectures
- Explain the sizing, security, and port considerations for a VoyenceControl implementation
- List the steps to install VoyenceControl via command-line interface, graphical user interface, and silent installation scripts
- Configure VoyenceControl for an initial network discovery
- Create and discover a network
- Describe common system administration tasks

AND

VoyenceControl Application and Device Management (Instructor-Led)

User workflow, automating the workflow, policy enforcement, workspaces, report advisor

- Describe the attributed model and multi-configuration
- Create and enforce network policies
- Determine device state using device properties
- Manage devices using the Config Editor, Configlet Editor, Command Editor, and Interface Editor
- Create Attributed Queries and Compliance Tests
- Manage Device OS using VoyenceControl
- Use the VoyenceControl Event Manager to monitor network system, security, and device events
- Use Engineering Workspaces to plan changes to a network configuration
- Install and configure EMC Voyence Report Advisor
- Construct Voyence Report Advisor reports



(2 Hrs)
(1 TU)

Voyence PCI Advisor

PCI Advisor overview and architecture, installation, reporting options

- Describe the purpose of Voyence PCI Advisor
- Explain how to install Voyence PCI Advisor
- List the key components of Voyence PCI Advisor
- Describe how to adapt Voyence PCI Advisor to individual environments
- Describe the reporting options offered by Voyence PCI Advisor



(2 Hrs)
(1 TU)

EMC Voyence Network Advisor Technical Overview

Voyence Network Advisor

- Describe the purpose of Voyence Network Advisor
- Explain how to install Voyence Network Advisor
- Describe how to install vulnerability definitions and updates to Network Advisor
- Explain how to contextually launch VoyenceControl from a Network Advisor report



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options

The courses listed above can be purchased individually with a subscription, Training Units, or Credit Card

For more information on purchase options, see page 9

Infra Learning Path

Benefits IT professionals aiming to implement an ITIL-compatible ITSM system.

Our comprehensive range of training courses support end users, administrators, and developers in the key areas of incident, problem, change, configuration, and service-level management and how these processes are managed using Infra. Customization and design courses are available for clients who wish to customize their Infra implementation.

Service Desk Courses

Course Objectives



(1 Day)

Infra - Service Desk Operator (Instructor-Led)

Call logging, call details interface, actioning a call, IPK workflow rules, call linking and cloning, data options, other call features, managing calls, searching, reporting, internal communication

- Create, update, action and close calls
- Attach files to calls and email customers
- Manage call queues, link and clone calls
- Create reports on incident and problem management activity



(1 Day)

Infra - Service Desk Administration (Instructor-Led)

Infra administration, IPK management settings, IPK groups, officer roles, adding and updating officer, defining key fields, call workflow, IPK workflow rules administration, develop and ITIL call lifecycle

- Configure global service desk settings
- Create service desk groups and officers
- Create, assign and update security role permissions for officers
- Edit e-mail templates in Infra
- Set up IPK workflow rules

Workflow Courses

Course Objectives



(1 Day)

Infra - Managing Requests and Tasks (Instructor-Led)

Configuring the Infra interface, amending request details, sending an e-mail from a request, linking a request to a call, adding a note to a request, Creating a Template from a request, using the timesheet, searching and saving searches, running a report, creating a bulletin article

- Navigate the workflow interface
- Raise requests and action tasks and approvals
- Manage request and task queues
- Use the timesheet, search for tasks and approval
- Report on change management activity



(1 Day)

Infra - Workflow Template Design (Instructor-Led)

Introducing change management, the workflow interface, creating templates, conditional branching, shared task data fields, other tasks, component workflow, request submission designer (if licensed)

- Discuss roles and responsibilities in change management
- Create, modify, clone and delete a workflow template
- Use the full workflow palette to create a workflow process
- Add tasks and define task dependencies



(1 Day)

Infra - Workflow Administration (Instructor-Led)

Workflow management settings and approval groups, officer roles, defining key fields, configuring workflow management

- Configure global workflow management settings and workflow groups
- Create, assign and update security role permissions for officers
- Edit e-mail templates in Infra

Customization Courses

Course Objectives



(5 Days)

Infra - Certified Developer (Instructor-Led)

Technical architecture, problem analysis, troubleshooting tools, standard and advanced customizations, db control, browse object, api, vb.net example, stored procedure, customizing email functionality and letters, report designer, customer portal visual customization

- Complete advanced customizations with a variety of tools
- Create and apply stored procedures
- Customize e-mails and create standard letters
- Use report designer and editor to create and edit reports
- Understand integration, including web services



(1 Day)

Infra - Screen Designer (Instructor-Led)

Creating and modifying screen templates, field properties, and the explorer, customer portal re-branding, custom screens with the server console, re-branding e-mails, shared data fields

- Create custom screens for different configuration items
- Create and use shared data fields for requests
- Edit e-mail templates in the server console
- Rebrand the customer portal



(1 Day)

Infra - Report Designer Advanced (Instructor-Led)

Report designer basics, report designer, editor overview the data, params, and design tab, report formatting, report designer and editor, the data, params, and design tab, report formatting and views, advanced report design, charts, data source manipulation, sub-reports, advanced scripting

- Create a new report from an existing report
- Edit existing reports and add data to reports
- Create and edit report filters
- Manage reports using Reports Designer
- Create and edit report filters, templates and views
- Format and add charts to reports
- Perform advanced scripting



(1 Day)

Infra - Customizing Customer Portal (Instructor-Led)

Introduction to the customer portal custom templates live data population customizing table data customer portal re-branding

- Configure and administer the customer portal
- Create multiple custom templates
- Customize the URL links in the customer portal
- Generate dropdown lists on Portal pages from live data

Other Administration Courses

Course Objectives



(1 Day)

Infra - Configuration Management (Instructor-Led)

Building, customizing screens, searching, and administration of CMDB

- Understand the principles of configuration management
- Build and identify the different CMDB entities
- Track and control changes in the CMDB
- Configure global settings, security roles and keywords for CMDB



(1 Day)

Infra - Service Level Management (Instructor-Led)

Service commitments, slm events, slm administration, creating agreements, managing escalations, reporting

- Understand the difference between SLA, OLA, and UC agreement types
- Discuss the business implications of service-level management
- Know the difference between an escalation and a breach event
- Set up matrix templates to control escalations

Purchase Options

To view a complete list of Infra offerings, including new e-learning, and to learn more about purchase options, visit <http://education.EMC.com>



Instructor-Led Training

For more information on delivery modes, see page 8

RSA Learning Path's



Certification Alignment

Select courses below are aligned to RSA Certification.

Benefits system, security, or help desk administrators who need to administer and support RSA products. also, technical personnel who install, service, and support RSA installations.

Prepare for your RSA SecurID Administrator Certification and RSA SecurID Systems Engineer Certification.

RSA SecurID®

Course Objectives



RSA SecurID® Administration (Instructor-Led)

This course provides an overview of the administrative responsibilities associated with an RSA SecurID® system. The working principles behind RSA Authentication Manager software and RSA SecurID authenticators are discussed, including product architecture, time synchronization, using external identity sources and exploring all aspects of an administrative structure. Extensive hands-on labs reinforce the administrative tasks involved in managing a user population and token assignment. The subject matter in this course prepares students with the classroom component recommended for the RSA SecurID Certified Administrator certification.

- Explain the basic architecture and theory of operation
- Describe the configuration required for RSA Authentication Manager system operations
- Perform the Administration functions and populate and manage users
- Perform report functions and user troubleshooting
- Perform ongoing maintenance requirements
- Set up and use the software authenticators
- Use of the RSA Credential Manager function



RSA SecurID® Installation & Configuration (Instructor-Led)

This course offers hands-on training on the installation and configuration of RSA Authentication Manager software, Authentication Agents, and other RSA SecurID® system components. This course assumes that the student has attended the RSA SecurID Administration course or has equivalent operations experience with RSA Authentication Manager – operations are not covered as part of this course. The subject matter in this course prepares students with the classroom component recommended for the RSA SecurID Certified Systems Engineer certification.

- Plan and perform the pre-installation tasks to prepare for RSA Authentication Manager installation in a Microsoft Windows environment or RSA SecurID Appliance
- Use the RADIUS interface functions of the RSA Authentication Manager system
- Establish Identity Sources for external user repositories (Active Directory and LDAP)
- Create redundant/failover RSA Authentication Manager replica servers and understand the role and management of replica server instances
- Install and configure RSA Authentication Agent hosts for local workstation and web access protection
- Perform RSA Authentication Agent host configurations to accomplish system load balancing

RSA® enVision

Course Objectives



RSA® enVision Administration and Operations (Instructor-Led)

This course provides a rigorous hands-on approach to the overall administrative and operation aspects of the RSA enVision product. Students learn the essentials of the product architecture, data collection, analysis, and the details involved in setting up alerts and comprehensive reports. Students who successfully complete this course will be capable of administering their RSA enVision appliance and performing basic forensic analysis of the network, server, and security events collected by enVision.

- Explain the basic architecture and integration of RSA enVision in an enterprise environment
- Describe the management functions used for collecting and viewing data.
- Establish parameters for data queries to retrieve data for analysis and reporting
- Establish system alert triggers and functions



RSA® enVision Universal Device Support Development (Instructor-Led)

This course provides an understanding of the process to add additional device support to the RSA enVision engine as well as providing a deeper insight into enVision's ability to parse message data. Students will acquire the knowledge to add support for undefined messages and unknown devices to their system; enhancing the usage of the compliance and security capabilities provided by enVision. This class is lab-intensive. More time will be spent working on lab exercises than in lectures. This course assumes that the student has attended the RSA enVision Administration and Operations course or has equivalent operations experience with RSA enVision.

- Demonstrate the process of extending RSA enVision support for unknown devices
- Map data to RSA enVision fields
- Describe how to plan for unknown devices
- Create a device by defining events and messages in an .xml file

RSA® Data Loss Prevention

Course Objectives



RSA® Data Loss Prevention - Installation and Configuration (Instructor-Led)

This course provides comprehensive instruction in the installation and configuration the RSA Data Loss Prevention (DLP) Suite. This course is intended for technologists who are involved in planning and deploying the RSA DLP product suite. Theory and product basics such as the RSA DLP Suite architecture, integration of RSA DLP components, and the importance of various configuration parameters are discussed. Students are presented with hands-on exercises that build on the basic concepts and allow practical experience in building an RSA DLP system.

- Explain the technical details of the RSA DLP Suite architecture
- Describe the processes required for performing a successful installation and configuration of the RSA DLP components
- Explain the configuration parameters that can be used to tailor and optimize the RSA DLP components
- Perform installation and configuration tasks in lab exercises within a virtual network environment



Instructor-Led Training



Video-ILT (VILT)

For more information on delivery modes, see page 8

Purchase Options

* The purchase options described in this catalog do not apply to this offering. Visit <http://education.EMC.com> > Other EMC Sites, for purchase options.

EMC SourceOne

Benefits any administrators of the EMC SourceOne E-mail solution.

You will learn to plan an EMC SourceOne e-mail installation, install and configure EMC SourceOne with the targeted mail server, capture and archive e-mail messages in the EMC SourceOne server, and perform basic searches with EMC SourceOne.



Certification Alignment

Product/Technology Specific
E22-185 Exam

Courses

Course Objectives



(4 Days)

EMC SourceOne Email Management (Instructor-Led)

EMC SourceOne overview, EMC SourceOne architecture, pre-installation planning, installation, install and configure domino support, EMC SourceOne administration console, configuring archives, configuring mapped business folders, managing organizational policies, configuring and managing activities, journaling activities, managing jobs, managing worker servers, EMC SourceOne search, configuring and managing rules, PST and NSF Processing activities, shortcut processing activities, user-directed archive activities, debugging and troubleshooting, maintaining EMC SourceOne

- Install and configure EMC SourceOne
- Configure worker servers and repositories
- Manage archives, tasks, activities, and jobs
- Create and manage business policies
- Verify message archival
- Perform basic searches



Instructor-Led Training



Video-ILT (VILT)



e-Learning



EMC LIVE Virtual Classroom

For more information on delivery modes, see page 8

Purchase Options

* The purchase options described in this catalog do not apply to this offering. Visit <http://education.EMC.com> > Other EMC Sites, for purchase options.

Content Management System Administration Learning Path



Certification Alignment

Expert	N/A
Specialist	E20-465 Exam
Associate	E20-120 Exam

Benefits any content management professional who installs, configures, maintains, troubleshoots, and optimizes the performance of EMC Documentum content management software systems. You will learn to use the Documentum Administrator web interface and to conduct advanced content server tasks.

Prepare for your Content Management System Administration Certification.

Associate Course

Course Objectives



(3 Days)

Technical Fundamentals of Documentum (Instructor-Led)

Provides a technical introduction to the basic operations of the Documentum Content Server platform and a general overview of Documentum technology and products. Students will be introduced to Documentum's product architecture, content management functionality, client interfaces, and underlying technical structure.

- Describe the primary components of the Documentum ECM system
- Create and manipulate content in the repository, including renditions and virtual documents
- Describe how Documentum manages content and metadata
- Describe the Documentum object model
- Describe the Documentum security model
- Configure users, groups, and roles
- Create custom object types
- Configure business processes, lifecycles, and alias sets
- Configure and install a DocApp
- Manipulate the Content Server repository through DQL



(3 Hrs)

Technical Fundamentals of Documentum Supplemental Materials

Virtual documents, object and content relationships, advanced DQL, advanced alias sets, workflow manager

- Create and manage virtual documents
- Describe the different types of object-content relationships
- Use DQL statements
- Describe alias resolutions
- Use Workflow Manager to create workflows

Specialist Courses

Course Objectives



(5 Days)

System Administration for Documentum- Fundamentals (Instructor-Led)

Installing Content Server, Documentum system pre-installation tasks, users, documentum, end-user clients, repository configurations, jobs and methods, storage areas, full-text indexing, logging and monitoring, upgrading the content server and components

- Upgrade Content Server
- Deploy Documentum Administrator
- Practice administration tasks using the Documentum Administrator interface
- Discuss how the Tomcat Application Server integrates with Documentum
- Examine a variety of server configurations
- Set up and manage full-text indexes
- Set up and manage content storage areas
- Discuss tracing and troubleshooting features
- Discuss backup and restore techniques for a Documentum repository



(2 Days)

System Administration for Documentum- Advanced (Instructor-Led)

Encryption, authentication, audit trail security, login tickets and application access control (AAC) tokens, method servers, federations, object replication, content storage services, mandatory access control, dump and load, WDK application configuration, distributed content for web clients, performance tuning

- Enable encrypted communication (SSL) with the Content Server
- Deploy and use a customized authentication plug-in to access the Content Server and repository
- Configure and search for audit trail records and use the Method Server to run a custom method
- Create and use a repository federation and replicate objects between repositories
- Create and run a job sequence
- Create assignment policies and migration policies
- Configure a lifecycle action to move a content file to a different file storage area
- Create permission sets using mandatory access control restrictions
- Install and configure Accelerated Content Services and Branch Office Caching Services servers
- Configure WDK-based applications
- Recognize factors affecting Documentum application performance
- Use a tuning methodology to identify and resolve performance issues



Instructor-Led Training

For more information on delivery modes, see page 8

Purchase Options

* The purchase options described in this catalog do not apply to this offering. Visit <http://education.EMC.com> > Other EMC Sites, for purchase options.

Content Management Server Programming Learning Path

Benefits any application developer who develop and customize EMC Documentum content management applications using DFC classes and interfaces.

You will learn programming best practices are addressed in the advanced portion of the curriculum.

Prepare for your Content Management Application Developer Server Programming Certification.



Certification Alignment

Expert	N/A
Specialist	E20-405 Exam
Associate	E20-120 Exam

Associate Course

Course Objectives



(3 Days)

Technical Fundamentals of Documentum (Instructor-Led)

Provides a technical introduction to the basic operations of the Documentum Content Server platform and a general overview of Documentum technology and products. Students will be introduced to Documentum's product architecture, content management functionality, client interfaces, and underlying technical structure.

- Describe the primary components of the Documentum ECM system
- Create and manipulate content in the repository, including renditions and virtual documents
- Describe how Documentum manages content and metadata
- Describe the Documentum object model
- Describe the Documentum security model
- Configure users, groups, and roles
- Create custom object types
- Configure business processes, lifecycles, and alias sets
- Configure and install a DocApp
- Manipulate the Content Server repository through DQL



(3 Hrs)

Technical Fundamentals of Documentum Supplemental Materials

Virtual documents, object and content relationships, advanced DQL, advanced alias sets, workflow manager

- Create and manage virtual documents
- Describe the different types of object-content relationships
- Use DQL statements
- Describe alias resolutions
- Use Workflow Manager to create workflows

Specialist Course

Course Objectives



(5 Days)

DFC Programming (Instructor-Led)

DFC overview, clients and sessions, DFC type-related interfaces, retrieving objects, virtual documents, searching, security, operations, exceptions and errors, logging and tracing, working with business processes, server methods, BOF overview, creating and using TBOs, creating and using aspects, creating and using SBOs, creating and using custom modules, using modules with lifecycles, web services

- Define Documentum Foundation Classes (DFC)
- Use the DFC Javadocs
- Compare the Content Server object model to the DFC interface hierarchy
- Instantiate objects using factory methods
- Create and manage objects
- Search the repository using IdfQuery and search services
- Use the operations interfaces to work with content
- Work with errors and exceptions
- Use DFC logging and tracing
- Create and apply ACLs
- Design secure applications using dynamic groups, application tokens
- Create server methods for use with the Java Method Server
- Create type-based business objects (TBOs), service-based business objects (SBOs) and aspects
- Create custom modules (IDfModule) for use with lifecycles
- Create a custom web service using Documentum Foundation Services (DFS)



Instructor-Led Training

For more information on delivery modes, see page 8

Purchase Options

* The purchase options described in this catalog do not apply to this offering. Visit <http://education.EMC.com> > Other EMC Sites, for purchase options.

Content Management Web Programming Learning Path

Benefits any application developers who develop and customize content management-related web applications using the Documentum Web Development Kit (WDK).

Detailed customization examples are presented in the advanced portion of the curriculum.

Prepare for your Content Management Application Developer Web Programming Certification.



Certification Alignment

Expert	N/A
Specialist	E20-455 Exam
Associate	E20-120 Exam

Associate Course

Course Objectives



(3 Days)

Technical Fundamentals of Documentum (Instructor-Led)

Provides a technical introduction to the basic operations of the Documentum Content Server platform and a general overview of Documentum technology and products. Students will be introduced to Documentum's product architecture, content management functionality, client interfaces, and underlying technical structure.

- Describe the primary components of the Documentum ECM system
- Create and manipulate content in the repository, including renditions and virtual documents
- Describe how Documentum manages content and metadata
- Describe the Documentum object model
- Describe the Documentum security model
- Configure users, groups, and roles
- Create custom object types
- Configure business processes, lifecycles, and alias sets
- Configure and install a DocApp
- Manipulate the Content Server repository through DQL



(3 Hrs)

Technical Fundamentals of Documentum Supplemental Materials

Virtual documents, object and content relationships, advanced DQL, advanced alias sets, workflow manager

- Create and manage virtual documents
- Describe the different types of object-content relationships
- Use DQL statements
- Describe alias resolutions
- Use Workflow Manager to create workflows

Specialist Courses

Course Objectives



(2 Days)

WDK- Fundamentals (Instructor-Led)

WDK overview and installation, application layer configuration, component configuration I, component configuration II, introduction to component customization, behavior and events, controls overview, search components, Docbase and format controls, validation controls, themes, internationalization

- Identify the advantages of WDK-based applications
- Find the application layer hierarchy of a WDK-based application
- Identify configuration file best practices
- Find the appropriate files to configure WDK-based applications
- Differentiate WDK components, forms, controls, and the behavior class
- Customize JSP pages to change the properties of controls
- Create event handlers in the component's behavior class
- Use Documentum Application Builder (DAB) to specify property and tab order
- Use validation controls
- Create a custom theme
- Internationalize WDK components



(3 Days)

WDK- Advanced (Instructor-Led)

WDK overview/review, WDK components, events and framesets, container components, the configuration service, roles, actions, creating a control, databound controls, content transfer, authentication framework, special features

- Customize existing WDK components
- Create new components
- Create client and server-side event handlers
- Use container components
- Create actions
- Create custom scope qualifiers
- Use Docbase roles
- Customize and create controls
- Customize databound controls
- Use content transfer services in components
- Use the authentication framework



Instructor-Led Training

For more information on delivery modes, see page 8

Purchase Options

* The purchase options described in this catalog do not apply to this offering. Visit <http://education.EMC.com> > Other EMC Sites, for purchase options.

Content Management Systems Architecture Learning Path

Benefits any Technology Architect who uses EMC Documentum software to design the systems architecture for an enterprise content management solution while meeting customer requirements for scalability, performance, high availability, and security.

Prepare for your Technology Architect certification in Content Management.



Certification Alignment

Expert	N/A
Specialist	E20-475 Exam
Associate	E20-120 Exam

Associate Course

Course Objectives



(3 Days)

Technical Fundamentals of Documentum (Instructor-Led)

Provides a technical introduction to the basic operations of the Documentum Content Server platform and a general overview of Documentum technology and products. Students will be introduced to Documentum's product architecture, content management functionality, client interfaces, and underlying technical structure.

- Describe the primary components of the Documentum ECM system
- Create and manipulate content in the repository, including renditions and virtual documents
- Describe how Documentum manages content and metadata
- Describe the Documentum object model
- Describe the Documentum security model
- Configure users, groups, and roles
- Create custom object types
- Configure business processes, lifecycles, and alias sets
- Configure and install a DocApp
- Manipulate the Content Server repository through DQL



(3 Hrs)

Technical Fundamentals of Documentum Supplemental Materials

Virtual documents, object and content relationships, advanced DQL, advanced alias sets, workflow manager

- Create and manage virtual documents
- Describe the different types of object-content relationships
- Use DQL statements
- Describe alias resolutions
- Use Workflow Manager to create workflows

Specialist Course

Course Objectives



(5 Days)

Architecting EMC Documentum Systems (Instructor-Led)

Introduction to architecture, platform architecture overview, content storage architectures, content transfer architectures, products and solutions, storage systems, information lifecycle management, infrastructure choices, business continuity, designing for performance, scaling documentum systems, capacity planning, security, geographically distributed systems, internationalization and localization, application design, operational readiness

- Describe topics that should be covered in a comprehensive Content Management System Architecture document
- Explain the Documentum platform architecture including detailed explanations of content storage and content transfer
- Identify the functionality and appropriate use for Documentum products
- Describe network storage components and concepts
- Describe the I/O workload characteristics of Documentum system components
- Describe techniques for implementing information lifecycle management (ILM)
- Define security mechanisms for authentication, access control, and auditing
- Describe approaches for insuring business continuity including designs for backup and recovery, disaster recovery, and high availability
- Size hardware based on workload characterization, software architecture, and hardware choices
- Design architectures for a geographically distributed user base
- Configure platform components for multiple languages and locales
- Determine application design impact on system architecture
- Plan a Documentum upgrade
- Develop operational readiness strategies



Instructor-Led Training

For more information on delivery modes, see page 8

Purchase Options

* The purchase options described in this catalog do not apply to this offering. Visit <http://education.EMC.com> > Other EMC Sites, for purchase options.

Glossary of Education Terms

Blended Learning – EMC delivers its training curriculum in a variety of modes; traditional classroom style, e-Learning, Video-Instructor-Led (VILT), and virtual classroom sessions over the Internet. This mix of learning modalities is referred to as blended learning. EMC's blended learning is exceptionally powerful and robust.

Certification – the validated certificate of achievement for having passed a proctored exam within the framework of the EMC Proven Professional program. Certifications can be earned for Associate, Specialist, and Expert levels. (See page 6 for information on the EMC Proven Professional certification program.)

Course – a single instructional component. An EMC course can be e-Learning, an Instructor-Led class (that can be one or more days), Video Instructor-Led Training (VILT), or an EMC LIVE training event.

Curriculum – a general term that describes a set of courses (or, infrequently, a single course) that provide knowledge or skills on a particular technology or solution. For example, in the EMC Proven Professional certification program we refer to "Specialist-level curriculum", which is the set of courses prescribed to prepare for the Specialist-level exam within a certification track.

Dedicated Training – EMC training sessions for a single company, either on site at their facility, or at an EMC location. Dedicated training is a custom engagement for EMC customers or partners and is scheduled and priced independently. Call a Registration Consultant or speak with an Education Solution Consultant.

Education Solution Consultants (ESCs) – a team of EMC field sales professionals who are dedicated to EMC Education Services and are deployed worldwide. ESCs can be reached through the Education Contacts listed in this catalog.

e-Learning – self-paced training in which students can download and print course materials. E-Learning courses (sometimes referred to as "self-study") are generally 1 to 3 hours long and can be accessed directly over the Internet, or they can be downloaded to a PC for use any time.

EMC LIVE Virtual Classroom – realtime interactive training where students use an Internet connection to access a live audio learning session with electronically delivered slides. EMC LIVE classes are not self-paced. (See page 8 for details.)

Information Storage and Management (ISM) – An 'open' storage technology course focused on storage concepts, and design and management rather than on specific products. ISM is delivered either as an e-Learning curriculum or as an instructor-led course.

Instructor-Led Training (ILT) – traditional classroom-based training, usually with hands-on labs, led by a qualified instructor.

Learning Path – a full, logical curriculum around a particular EMC product or technology solution. Courses in a Learning Path begin with the technology basics (often called "fundamentals") and build from there to support complex storage and information management concepts. Learning Paths are aligned with the EMC Proven Professional Specialist and Expert levels, but often include supplementary advanced training outside of the Proven Professional framework.

Module – refers to either an e-Learning course or an online video learning course.

Powerlink – EMC's information extranet for customers, partners, and EMC employees. Access to Powerlink requires an account.

Registration Consultant – an EMC Education Services employee who handles registration and sales inquiries from customers and partners by e-mail or phone. (See contacts, page 4)

Training Plan – a customized assessment and set of recommendations for EMC training prepared by an Education Solutions Consultant for customers and partners. Training plans provide clients a high level of detail for individuals in their organization, including specific curriculum, certification goals, and purchase options.

Training Units (TU) – Training Units are EMC Education currency. Upon purchase, TUs are deposited into your company's training account and made available for general consumption by your organization's employees. They are the most flexible education purchase option.

Training Unit Account Balance – the Training Units companies have in their training account which can be applied to EMC training. As Training Units are redeemed for training, the balance is reduced. This balance can be viewed online.

ValuePaks and Video ValuePaks – A ValuePak is a convenient, prescribed set of courses that allows you to complete all or part of a learning path. Purchasing a ValuePak allows you to obtain the set of courses at a discounted rate. ValuePaks are available for redemption for one year from the date of purchase.

Video Instructor-Led Training (Video-ILT or VILT) – video content of actual Instructor-Led Training (ILT) packaged in a convenient CD format, with an intuitive navigation menu. VILTs allow students to receive training from top instructors, at their own pace and location. VILTs include all of the lecture materials and the student guide.

List of Instructor-Led and EMC LIVE Training

Course Title	Mode	Duration	Page	Technology
CAS Management.....	ILT/VILT	3 Days	31	Consolidation and Archive
Celerra MPFS Solution Design and Implementation Workshop	ILT	4 Days	25	NAS
Celerra NDMP Backup Solutions Workshop.....	ILT	4 Days	25	NAS
Centera FastStart Fundamentals.....	LIVE	8 Hours	31	Consolidation and Archive
CLARiiON Host Integration and Management	ILT/VILT	3 Days	15,16	Consolidation
CLARiiON Performance Workshop.....	ILT/LIVE	3 Days	17	Consolidation
CLARiiON Remote Replication Advanced Workshop	ILT/LIVE	3 Days	17	Consolidation
CLARiiON Solutions for Small and Medium Enterprises	VILT	24 hours	15	Consolidation
ControlCenter Alerts, Monitoring, and Framework Integration.....	LIVE	12 Hrs	19	Resource Management
ControlCenter Management.....	ILT/VILT	5 Days	18	Resource Management
ControlCenter StorageScope Reporting Workshop	ILT/LIVE	4 Days	19,38	Resource Management
Data Protection Advisor Implementation and Management	LIVE	3 Days	23	Backup
EMC Advanced EmailXtender Administration	ILT	2 Days	30	Archive
EMC Avamar Administration.....	ILT/LIVE	3 Days	34	Backup
EMC Disk Library Data De-Duplication Implementation and Management.....	LIVE	2 Days	36	Backup
EMC Disk Library Implementation and Management	LIVE	3 Days	36	Backup
EMC DiskXtender for Windows Installation, Configuration, and Management	ILT/VILT	3 Days	35	Archive
EMC EmailXaminer Administration	ILT/VILT	1 Day	30	Archive and Compliance
EMC EmailXtender Administration for Lotus Notes or Microsoft Exchange.....	ILT/VILT	2 Days	30	Archive
EMC EmailXtender and EMC DiskXtender	ILT	5 Days	30,35	Archive
EMC NetWorker Administration for UNIX and Microsoft Windows	ILT/VILT	5 Days	22	Backup
EMC Open Replicator Workshop	ILT/VILT	2 Days	26	Consolidation
EMC RecoverPoint Operations and Management	ILT/LIVE	3 Days	37	Consolidation
EMC Smarts Adapter Platform	ILT	2 Days	33	Resource Management
EMC Smarts Application Connectivity Monitor or Application Discovery Manager.....	ILT/LIVE	2 Days	33	Resource Management
EMC Smarts ASL, EMC Smarts ASL for Service Assurance Manager.....	ILT	1 Day	33	Resource Management
EMC Smarts IP Manager Administrator	ILT/VILT	2 Days	32	Resource Management
EMC Smarts MPLS Manager	ILT/LIVE	2 Days	33	Resource Management
EMC Smarts NPM Manager.....	ILT/LIVE	1 Day	33	Resource Management
EMC Smarts Service Assurance Manager Administrator	ILT/VILT	3 Days	32	Resource Management
EMC Smarts Storage Insight for Availability.....	ILT/LIVE	2 Days	33	Resource Management
EMC Smarts VoIP Performance Manager and Performance Reporter	ILT/LIVE	3 days	33	Resource Management
EMC Technology Foundations (ETF).....	ILT	5 Days	14	Multiple EMC Technologies
Exchange Integration with Symmetrix.....	ILT/LIVE	3 Days	27	Consolidation
Host to Storage SAN Implementation	ILT	5 Days	21	Consolidation
Implementing Cisco Storage Networking Solutions 3.0	ILT	5 Days	21	Consolidation
Information Availability Design and Management.....	ILT	5 Days	13	Business Continuity/DR
Information Storage and Management	ILT	5 Days	11	SAN, NAS, CAS, IP-SAN
Infra.....	ILT	Varies	43	IT Service Management
Invista Operations and Management.....	ILT/LIVE	3 Days	21	Consolidation
ITIL® V2 to V3 Foundations Bridge Course.....	ILT	1 Day	39	ITIL Best Practice
ITIL® (V3) Foundations Certification Course.....	ILT	3 Days	39	ITIL Best Practice
ITIL® for Storage Service Management Workshop.....	ILT	4 Days	39	ITIL Best Practice
Mainframe Business Continuity – Local Replication Solutions	ILT/VILT	4 Days	28	Consolidation
Mainframe Business Continuity – Remote Replication Solutions	ILT/VILT	5 Days	28	Consolidation
Mainframe Business Continuity – SRDF/Star Solutions	ILT	5 Days	28	Consolidation
Microsoft Exchange Integration with CLARiiON Workshop	ILT/LIVE	4 Days	17	Consolidation
Microsoft SQL Server Integration with CLARiiON Workshop.....	ILT/LIVE	3 Days	17	Consolidation
MirrorView and SAN Copy Configuration and Management	ILT/VILT	1 Day	16	Consolidation
Multi-Protocol SAN Implementation Workshop.....	ILT	5 Days	21	Consolidation
NAS Operations and Management with Celerra	ILT/VILT	5 Days	24	NAS
NAS Performance Workshop	ILT/LIVE	4 Days	25	NAS
NAS Symmetrix Business Continuity.....	ILT	3 days	25	NAS
Open Systems Business Continuity SRDF/Star Solutions	ILT	4 Days	27	Consolidation
Oracle Integration with Symmetrix	ILT/LIVE	4 Days	27	Consolidation
Replication Manager Workshop.....	ILT	5 Days	29	Consolidation
SAN Management.....	ILT/VILT	4 Days	20	Consolidation
SnapView Configuration and Management	ILT/VILT	1 Day	16	Consolidation
SQL Server Integration with Symmetrix.....	ILT/LIVE	4 Days	27	Consolidation
Storage Networking Design and Management	ILT	5 Days	13	SAN, NAS, CAS, IP-SAN
Symmetrix Business Continuity Management	ILT/VILT	5 Days	27	Consolidation
Symmetrix Business Continuity – SRDF Solutions	ILT/VILT	3 Days	26	Consolidation
Symmetrix Business Continuity – TimeFinder Solutions	ILT/VILT	2 Days	26	Consolidation
Symmetrix Configuration Management.....	ILT/VILT	4 Days	27	Consolidation
Symmetrix Performance Workshop	ILT/LIVE	4 Days	19,27	Consolidation
Upper Layer Network Operations.....	ILT/VILT	5 Days	24	Consolidation
VoyenceControl Application and Device Management.....	ILT/LIVE	3 Days	32,42	Resource Management
VoyenceControl Installation and System Administration	ILT/LIVE	2 Days	32,42	Resource Management
VMware ESX Server – CLARiiON Integration Workshop.....	ILT	5 Days	17,41	Virtualization
VMware ESX Server – Symmetrix Integration Workshop.....	ILT	5 Days	27,41	Virtualization
VMware Infrastructure 3: Deploy, Secure, and Analyze.....	ILT/LIVE	4 Days	40	Virtualization
VMware Infrastructure 3: Fast Track Program	ILT	5 Days	40	Virtualization
VMware Infrastructure 3: Install and Configure	ILT/LIVE	4 Days	40	Virtualization
VMware Site Recovery Manager.....	ILT/LIVE	2 Days	40	Virtualization

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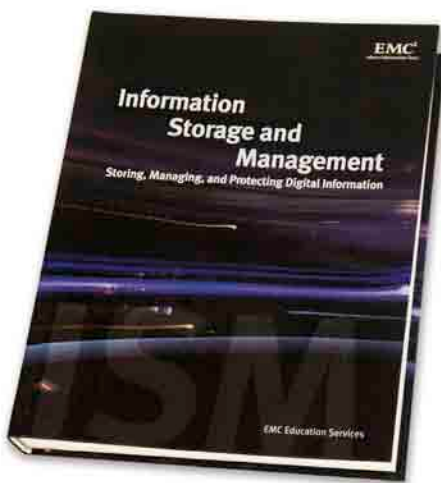
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The Information Storage and Management Book from EMC



The ISM book, written by EMC Corporation storage technology experts and published by John Wiley and Sons, Inc., takes an 'open' approach to explaining information storage and management and how the technologies and strategies learned can be applied in all IT environments.

Topics include an introduction to storage systems, storage options and protocols (including storage virtualization), business continuity and replication, security, storage infrastructure monitoring and management, and more. Additionally, information covered in this definitive storage industry resource is aligned to EMC Proven Professional certification.

Whether used as a reference resource or as a study guide, the ISM book is a "must have" addition to any IT professional's reference library!

Purchase the book now, visit <http://education.EMC.com/ISMBBook>