Customer Education Course Overview

EVA 1: Managing HP StorageWorks Enterprise Virtual Array (5 days) (UC420S)

This 5-day course combines theory and practical labs to teach users how to manage the HP StorageWorks Enterprise Virtual Array. The hardware, concepts and terminology are covered in-depth followed by configuration tasks which include Command View EVA, Local Replication using Business Copy EVA with Snapshots, Snapclones and Mirrorclones, Replication Solutions Manager for Business Copy, Multi-path management with HP MPIO DSM on Windows, native multi-pathing on HP-UX 11iv3, command line/scripting with SSSU, Upgrading controller and disk drive firmware.

Addtional Description

A high level overview of Continuous Access (remote replication) and the EVAPerf performance monitoring tool is covered as well.

Audience

System and Storage administrators responsible for the configuration and day-to-day management of the Enterprise Virtual Array EVA environment.

Prerequisites

- SAN and Storage Technologies training/experience.
- Operating System Administration training/experience
- SAN Fundamentals (U5527aae)
- HP Accelerated SAN Essentials (UC434S)

Course title: EVA 1: Managing HP StorageWorks Enterprise Virtual Array (5 days)

HP product number: UC420S

Category/Subcategory: Storage

Course length: 5 days

Level: Intermediate

Delivery language: English

To order: You can order this course online at http://www.hp.com/learn. At the site, select a country, then choose "registration" or "Book a course" and fill out the online registration form.

Course objective

- Describe the features of the EVA solution family.
- Identify and describe the features and functions of the HSV controllers and disk drive enclosures.
- Describe the various EVA models and initial setup procedures.
- Define the basic terminology and concepts associated with the EVA architecture and storage virtualization.
- Describe and perform storage system configuration activities with Command View EVA
- Describe the EVA local replication capabilities and concepts.
- Describe the concepts and capabilities of Business Copy EVA
- Describe the concepts and capabilities of Continuous Access EVA (at a high-level)
- Describe and perform the installation and configuration of Replication Solutions Manager GUI and agents.
- Describe how to use the Storage System Scripting Utility.
- Understand how to monitor and manage the EVA via logs and tools.

Benefits to you

This 5-day theory and lab-based course explores the technology of the Enterprise Virtual Array focusing on configuration and management. The product concepts and terminology are initially presented to ensure a grasp of the key elements of the array. The configuration is then performed through the Command View GUI. More detailed topics are then presented such as snapshots/snapclones/mirrorclones and the SSSU command line as well as EVAPerf.

Why education services from HP?

- Experienced and best-in-the-field HP instructors
- Online instructor-led and self-paced training at http://www.hp.com/education
- Hands-on practice
- Focus on job-specific skills
- Customized on-site delivery
- Online instructor-led and self-paced training at http://www.hp.com/learn
- State-of-the-art classroom facilities
- More than 80 training locations worldwide
- Comprehensive student materials
- Online instructor-led and self-paced training at http://itresourcecenter.hp.com

Next steps

Students wishing a more in-depth study are encouraged to also take "EVA 2: Business Continuity and Availability" (HF839s) or "EVA Performance Analysis" (HG828s).

Detailed course outline

Solution Overview

- Product Features and options
- Key EVA values and Virtualization technology
- Functional and physical layout of the EVA solution
- Components of the EVA solution
- Command view EVA
- Product and OS support
- Availability and serviceability
- Licensing, Warranty and Services

HSV Controllers

- Controller features and redundancy
- Generation 2 controllers (HSV2x0)
- Controller redundancy
- Controller hardware
- Operator Control Panel (OCP)
- Configuring HSV2x0 controllers
- Controller cabling
- Generation 3 controllers (HSV300)
- Controller hardware
- Controller configuration
- EVA4400 Management Module
- Web-based OCP (WOCP)
- Generation 4 controllers (HSV4x0)
- Controller hardware
- Summary of all controller features

Disk Drive Enclosures

- Drive enclosure models and configurations
- Generation 2 drive enclosures (M5314x)
- Enclosure features
- Environmental Monitoring Unit (EMU)
- Customer self repair operations for the drive enclosure
- Drive enclosure indicators and connections from front and rear views

- EMU functions, LED status displays and display and pushbutton operations
- Enclosure Address Bus EAB and Environmental Monitoring Unit EMU functions
- Generation 3/4 drive enclosures (M6412x)
- Enclosure hardware
- Supported disk drives
- Status LEDs
- Shelf identification

Command View EVA Introduction

- Command View EVA overview
- EVA Management Server requirements
- Launching and running Command View EVA
- Installation and configuration of Command View EVA versions 6.x - 9.x
- Server-based management (SBM) and array-based management (ABM)
- Licensing of the various versions of command View
- Firmware and management software for the EVA 4400

Basic Concepts and Terminology

- Virtual storage overview
- Powering the Storage System off and on sequence
- Storage system
- Disk group configurations, default disk group and metadata content
- Distributed virtual RAID (VRAID) technology
- Hosts and Virtual disk overview

Storage System Configuration

- Configuration guidelines, controller code loads and upgrades
- Gathering preliminary host information and configuration of host connections
- Uninitialize of the storage system
- Perform storage discovery and initialization
- Disk group creation and configuration guidelines
- Creation and deletion of virtual disks, presentation and configurations
- Cache Policies and configurations

Host System Configuration

- Operating system support
- Installing and configuring hosts
- Host properties
- Presenting Storage (LUN mask/map)
- Verifying LUN presentation

HP StorageWorks Multi-Path Solutions

- Automatic Path Failover and Load Balancing
- Supported multi-path solutions
- HP MPIO DSM (Windows only)
- Installing and management of Secure Path (HP-UX)

HP StorageWorks Multipath Solutions

- Automatic Path Failover and Load Balancing
- Supported multi-path solutions
- HP MPIO DSM (Windows only)
- HP-UX 11iv3 native multi-pathing
- Linux multipath solutions
- Vmware ESX4 Server native multi-pathing via vSphere Client

Advanced Concepts and Terminology

- Virtual storage terminology overview
- Redundant Storage Sets (RSS) concepts
- Physical disk volumes and space allocation
- Supported VRaid Configurations
- Virtual disk map, data location and leveling
- Disk failure protection levels

Local Replication (Business Copy)

- Array-based data replication from Command View
- Creating and using Snapshot, Snapclones and Mirrorclones
- Container creation and operation
- Traditional features, operation and properties

Remote Replication (Continuous Access Overview)

- Market Trends
- CA features
- CA concepts

Storage System Scripting Utility (SSSU)

- SSSU description, architecture and terms
- Installing and starting the SSSU (6.x/7.x/8.x
- Command Structure
- File paths and naming contentions

Business Copy and Continuous Access Operations using Replication Solution Manager

- Replication Solution Manager overview, installation and operation
- RSM replica jobs creation
- Advanced features

Performance Monitor

- EVA performance monitoring tool operation
- EVAPerf, Perfmon, and EVAPerf CLI
- Output file formats
- HP time line visualize (TLViz)

Upgrading EVA Software

- Customer Self-Update (CSU) overview
- Controller code load
- On-line and off-line disk drive code load

Event Management

- Troubleshooting techniques and approach
- Event handling, logs and processing
- Management agent, controller and termination event log features
- Event monitoring with Command View EVA
- Event log filtering
- Windows application event log
- Automated event management
- Configuring event notification
- HP services automated monitoring and HP Remote monitoring installation
- HP "WEBES/SEA architecture
- Remote hardware event management
- Installing and using Remote Support Software Manager (RSSWM)

Configuration Best Practices Summary

- Best practices for optimizing availability
- Robust Availability Configuration rules
- Disk Drive removal and replacement operation
- Best practices for optimizing performance and cost
- Rules on mixing drive types

(UC420S H.01)

To locate country contact information and to learn more about education services, please visit our worldwide web site at http://www.hp.com/learn.