Purpose

The intent of this guide is to set expectations about the content and the context of the exam and to help candidates prepare for it. Recommended training to prepare for this exam can be found on the certification requirements page on the HP Certified Professional Program web site. This guide may contain supplementary references relevant to the topics covered by the exam.

Audience

The Supporting the HP ProLiant Storage Server (NAS) Product Family exam is for personnel supporting HP ProLiant Storage Server (NAS) products.

Examples of job roles:

- HP Services field engineers, call center personnel, and other field personnel who provide installation and/or operational support assistance
- HP Channel Partners supporting HP storage products (e.g., engineers who perform warranty and installation services)

General areas of content include:

- Hands-on design, integration & support of business solutions involving HP ProLiant Storage Server product environments
- HP ProLiant Storage Server installation, configuration and upgrade
- HP ProLiant Storage Server troubleshooting and replacement procedures

Prerequisites

- Basic knowledge of:
  - Fibre Channel, SANs, Ethernet networks and IP networking protocols, storage and networking technologies, and HP storage products
  - Windows Operating Systems
  - HP ProLiant Storage Server Platform hardware
  - Supported storage for specific HP ProLiant Storage Server products
Windows event log information
- Ability to distinguish between NAS, DAS, SAN
- Ability to perform a system restore with the Restore-DVD
- Ability to present storage to networked hosts
- Ability to configure and troubleshoot HP ProLiant Storage Server products

Exam details
At the beginning of the exam, you will be asked to answer several survey questions. The survey has been designed to assist the exam development team in accurately profiling test results and to improve future exams.
- **Number of items:** 60
- **Item types:** Multiple choice
- **Passing Score:** 71% (raw score of 43)
- **Time commitment:** 90 minutes
- **Reference Material:** No on-line or hard copy reference material will be allowed at the testing site.

Comments on the exam
During the exam, participants can make specific comments about the items (i.e., accuracy, appropriateness to audience, etc). HP welcomes these comments as part of our continuous improvement process.

Exam content
The following testing objectives represent the specific areas of content covered in the exam. Use this outline to guide your study and to check your readiness for the exam. The exam measures your understanding of these areas.

**Supporting the HP ProLiant Storage Server (NAS) Product Family (HP0-698) Exam Content**

1.0 HP ProLiant Storage Server Products Storage Fundamentals
Identify and describe the various technologies that relate to HP ProLiant Storage Server Products.
- “multiprotocol” support
- file and print level access protocol
- security environments
- network interface controller (NIC) teaming
- Volume Shadow Copy
Identify and describe various RAID levels and their benefits in terms of cost, availability and performance.

- support for simultaneous loss of any two drives in an array
- assigning online spares

2.0 HP ProLiant Storage Server Product Lines

Describe the features and benefits of HP ProLiant Storage Server platforms, components, implementation methodologies, and restrictions and limitations

- integrating HP ProLiant Storage Servers in a SAN environment
- print services support
- iSCSI feature pack software support
- HP ProLiant Storage Server models with preconfigured storage

Describe relevant HP ProLiant Storage Server solution options to meet customer business needs

- high performance entry level solutions with scalable storage capacity
- enhancing the availability of file services on HP ProLiant Storage Servers
- providing increased network interconnect fault tolerance and throughput
- protocol for block level storage access across the network

3.0 HP ProLiant Storage Server Solution Opportunities

Describe how HP has the complete solution, storage software expertise, and worldwide service and support

- efficient storage infrastructure management for branch offices and remote locations without dedicate IT staff
- HP ProLiant Storage Servers acting as a NAS to SAN gateway
- storage deployment in multi-protocol environments
- ensuring high availability and unlimited storage scalability in network attached storage solutions
- Windows 2003 operating system functionality on HP ProLiant Storage Servers
- supporting block level data access across a network
- enabling IP based failover/failback of shares in a storage server environment with no SAN connections
- DL580 solution features
4.0 Installation, Configuration & Upgrade Procedures

Identify and describe hardware components
- recommended components for a DL380 Storage Server cluster solution running Windows 2003
- populating single port Gigabit Ethernet NICs in an ML110
- supporting iLO or RILOE II functionality
- integrated lights-out functionality
- utilities for accessing standard internal RAID controllers
- stabilizing feet attached to a rack

Demonstrate correct platform configuration.
- NIC teaming configuration methods
- SCSI, RAID, and NIC configurations on HP ProLiant Storage Servers
- Remote Desktop feature configuration
- HP ProLiant Storage Server configuration tools
- Array Configuration Utility
- Insight Manager agent installation and use
- WebUI administrative procedures
- managing disks and volumes using the Disk Management Utility

Describe features for each version of Microsoft Storage Server 2003.
- Windows Storage Server Editions
- implementing print server support

Demonstrate the ability to perform Service Release Updates.
- performing software updates using Software Update Services
- recommended methods to obtain software patches
- installing a Microsoft Service Pack for Windows Storage Server on an HP ProLiant Storage Server
5.0 Troubleshooting & Replacement Procedures

Given a problem scenarios, identify the cause of HP ProLiant Storage Server related problems

- starting the secondary operating system on HP ProLiant 1x0 Storage Servers
- data volume configuration considerations
- generating Array Diagnostics Utility reports
- slot type usage
- Power On/Standby button considerations

Given a problem scenario, choose the best method to repair or replace the defective subsystem or components.

- diagnostic utilities and messages
- considerations when installing a non-hot-plug SCSI drive
- CMOS battery replacement
- disk drive replacement

Given a problem scenario, choose the best method to troubleshoot and repair HP ProLiant Storage Server software related problems.

- domain controller configuration function issues
- disk space volume utilization issues
- recommended methods for starting system recovery
- restoring HP ProLiant Storage Servers using the Quick Restore DVD
- Remote Desktop access problems
- Creating and formatting new partitions or dynamic volumes
- disabling shadow copies on NAS volumes
- creating new file screening groups in WebUI

Training

Recommended training to prepare for this exam is accessible from the certification requirements page on the HP Certified Professional Program website. See the Supporting courses section for this exam on the certification requirements page, to view and register for courses. You are not required to take the associated courses; however, HP strongly
recommends that you complete the training and thoroughly review all course materials and documents before taking the exam. Sufficient on-the-job experience may also be required.

Studies conducted by HP and Prometric show that a combination of course attendance, self-study and on-the-job experience maximizes the likelihood of passing the exam on the first attempt.

Additional Study References

This section lists documents that can help you acquire additional knowledge needed to pass the exam. You must also gain the practical experience outlined in this guide.

Documentation

The following technical documentation was also used in the development of this exam and is contained in the downloadable from the link shown.

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<th>Document</th>
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<tr>
<td><strong>QuickSpecs</strong></td>
<td><strong>OR, alternatively:</strong></td>
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<tr>
<td>- HP ProLiant DL380 G4 Storage Server QuickSpecs Worldwide Edition</td>
<td>1. Click Self Study, Online Learning and enter your ID and last name.</td>
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<td>6. Click View Registered Courses.</td>
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<td>7. Click link under course title to download the zip file.</td>
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### Reference and Troubleshooting Guides
- HP ProLiant DL380 Generation 4 Server Reference and Troubleshooting Guide
- HP ProLiant ML350 Generation 4 Reference and Troubleshooting Guide

### Administration Guides
- HP ProLiant Storage Server Administration Guide
- HP ProLiant Storage Server Administration Guide

### Additional Guides
- HP ProLiant Storage Server Family (Product Brochure)
- HP ProLiant Storage Server Installation Guide
- HP ProLiant Storage Server Release Notes

### Conclusion
HP wishes you success in the HP Certified Professional Program and in passing the exam for which you are preparing.