Purpose of the exam prep guide

The intent of this guide is to set expectations about the content and the context of the exam and to help candidates prepare for the exam. In this guide, you will find recommended HP training courses, and reference and study material to help you achieve a successful passing score.

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

Audience

This exam is for technical presales and installation & setup personnel who propose, design, deploy, configure and integrate SAN-based storage solutions.

Examples of job roles:

- HP SAN Architect
- Storage SA

General areas of content include:

- SAN Concepts
- How to Design a SAN
- HP Infrastructure
- SAN Management
- Working with the HP StorageWorks SAN Design Reference Guide
- SAN Topologies
- SAN Storage Performance
- Heterogeneous SANs
Certification requirements

Designing and Implementing HP SAN Solutions Exam (HP0-841) is one of the core requirements to be certified in AIS – HP StorageWorks [2008].

This level of certification measures the competencies required for hands-on planning and the integration and support of technical solutions in business class, networked environments. Given a set of customer business requirements, this individual is expected to be able to design, support and integrate platform, operating system, storage, network and option components to solve business needs. The ideal candidate is anyone who deploys business class solutions based on HP technologies.

Designing and Implementing HP SAN Solutions Exam (HP0-841), is also one of the core requirements to be certified as an Accredited Presales Consultant (APC) - HP Enterprise Storage Solutions. This level of certification requires an individual to take a set of customer business requirements, and plan and design a solution (including application, platform, operating system, storage, network and option components) within a specialty area. Accredited Presales Consultants are expected to be able to explain and position business class and enterprise class products, as well as solutions and services at a generalist level. The ideal candidate for this certification level is any technology-aligned specialist who plans and designs solutions for their customers based on HP technologies.

Designing and Implementing HP SAN Solutions Exam (HP0-841) is also one of the core requirements to be certified in ASE – HP StorageWorks [2008]. This level of certification measures the competencies required for hands-on planning and the integration and support of technical solutions in enterprise class, networked storage environments. Given a set of customer business requirements, this individual is expected to be able to design, support, and integrate platform, operating system, storage, network, and option components to solve business needs. The ideal candidate is anyone who deploys enterprise class solutions based on HP technologies.
Prerequisites

APC requires no prerequisites. For AIS - HP StorageWorks [2008] certification, a prerequisite is required that consists of successful completion of one of the following:

- Prerequisites for the AIS - HP StorageWorks [2008] (Choose one.)
  - CSA - HP-UX 11i v3
  - CSA - HP-UX v11 (transitional)
  - CSA - HP OpenVMS v8
  - SNIA Certified Storage Professional (SCSP) 2008
  - SNIA Certified Storage Engineer (SCSE) 2007
  - Cisco CCNA
  - Cisco CCNP
  - Brocade Certified SAN Designer - BCSD
  - SAIR LCA (Level 1)
  - SAIR LCE (Level 2)
  - Linux Professional Institute Certification Level 1 (LPIC-1)
  - Red Hat Certified Technician (RHCT)
  - Red Hat Certified Engineer (RHCE)
  - Novell Certified Administrator (NCA)
  - Novell Certified Engineer Enterprise Services (NCE)
  - Certified Novell Engineer: Novell Open Enterprise Server for NetWare are 6
  - MCITP - Enterprise Administrator
n MCITP - Server Administrator
n MCSA on Windows Server 2003
n MCSE on Windows Server 2003
n Microsoft Exam #70-290
n Microsoft Exam #70-292
n Microsoft Exam #70-282
n Sun Exam #CX-310-200 (v10)
 n Sun Exam #CX-310-014 (v9)
 n Sun Exam #CX-310-011 (v8)
 n IBM TEST #190
 n IBM TEST #180
 n IBM TEST #222

For ASE – HP StorageWorks [2008], the AIS – HP StorageWorks [2008] must be completed as a prerequisite.

Exam details

At the beginning of the exam, you will be asked to answer several survey questions. The survey questions are designed to assist the exam development team in accurately profiling test results and to improve future exams.

The following are details about the exam:

n Number of items: 63
n Item types: multiple choice and drag-and-drop
n Time commitment: 75 minutes time
n Passing Score: 70%

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.

**SAN Concepts**
- Describe the purpose, features, and functions of a SAN.
- Identify basic and advanced SAN concepts (tiering, fabric resiliency, SAN security, LAN-free backup, redundant fabric SANs, etc.)
- Identify similarities and differences of SAN and NAS technologies.
- Describe the purpose, features, and functions of HP Adaptive Infrastructure.

**How to Design a SAN**
- Identify and describe the basics of designing a SAN.
- Identify the infrastructure requirements of a SAN.
- Explain how to design a SAN utilizing a phased approach.
- Identify the factors and performance considerations when designing a SAN.
- Describe the HP SAN philosophy.

**HP Infrastructure**
- Identify the industry vendors supported by HP.
- Discuss SAN infrastructure positioning.
- Identify and describe the HP SAN design rules on infrastructure.
- Distinguish between the B-Series, M-Series, and C-Series switches.
- Identify the multiprotocol routers supported by HP.
- Identify and describe heterogeneous and interoperable SAN fabrics.

**SAN Management**
- Describe the purpose, features, and functions of HP supported SAN management.
- Identify and describe the HP supported SAN fabric management tools.
- Identify and describe the HP supported SAN storage management tools.
- Identify and describe the HP supported SAN data management tools.
- Identify and describe the HP supported SAN usage and monitoring tools.

**Working with the HP StorageWorks SAN Design Reference Guide**
- Utilize the HP StorageWorks SAN Reference Guide.
- Identify and utilize the rules associated with the various components in a SAN.
- Identify and explain how to use the SAN fabric zoning rules.
- Identify and describe interoperable SAN fabrics.
Describe data availability in a SAN.
Identify and describe the various supported SAN security options.

**SAN Topologies**
Identify and describe the HP supported SAN topologies.
Describe the data access usage patterns.
Identify the HP supported switch maximums.
Identify and describe the HP supported small SAN topologies.
Describe and apply the general fabric rules.

**SAN Storage Performance**
Identify factors that affect SAN performance.
Identify factors that affect disk performance, such as data rates and response time.
Describe Fibre Channel technology and explain how it affects storage performance.
Explain how drive speed affects performance.
Plan a disk system that accounts for the effects of RAID, cache, and chunk size on performance.
Identify other performance considerations.
Describe the benefits of HP StorageWorks B-Series SAN switches.

**Heterogeneous SANs**
Define heterogeneous operating system SANs.
Identify basic Fibre Channel topologies.
Identify and describe Fibre Channel WorldWide Names, Arbitrated Loop IDs.
Identify and describe Fibre Channel addressing on Linux and HP-UX.

**SAN Enabled Backup**
Describe an HP StorageWorks Enterprise Backup Solution (EBS) in a SAN.
Explain how to implement EBS environments.
Identify and utilize the general backup configuration rules and recommendations with EBS and primary storage on the same SAN.
Explain how to optimize EBS performance.
Identify and utilize HP StorageWorks sizing and performance tuning tools.
Describe HP OpenView Data Protector.

**Implementing a SAN**
Identify the information required from a customer.
Design and utilize a documentation process that can be used to document the SAN.
Identify scalability requirements.
Describe SAN interoperability.
Identify and explain how to use best practices to migrate and merge.
Describe SAN deployment.
Identify troubleshooting steps.

**Recommended Training and Study References**
This section lists training courses and documents that can help you acquire a majority of the knowledge and skills needed to pass the exam. You must also gain the practical experience outlined in this guide.
You are not required to take the courses listed in this section. However, HP strongly recommends that you attend the classes, participate in class labs, and thoroughly review all course material and documents before taking the exam, even if you believe you have sufficient on-the-job experience.

**Instructor-Led Training**

Use the information in this guide and the practical experience you have gained to determine your need for the instructor-led training.

- Designing and Implementing HP SAN Solutions, Instructor-led Course (3 days) (eLMS: 33060)

**Web-based Training**

Self-paced training and technical documentation may provide appropriate learning alternatives to instructor-led training for more experienced candidates.

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<tr>
<th>Title</th>
<th>How to Order/Obtain</th>
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<tbody>
<tr>
<td>HP StorageWorks Technologies</td>
<td><a href="http://www.hp.com/go/training">www.hp.com/go/training</a></td>
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<tr>
<td>SAN Fundamentals</td>
<td><a href="http://www.hp.com/go/training">www.hp.com/go/training</a></td>
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<tr>
<td>Intro To Storage Area Networks</td>
<td><a href="http://www.hp.com/go/training">www.hp.com/go/training</a></td>
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**Documentation & Other Reference Material**

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Exam Registration


Sample Test Items

The following examples represent the types of items and question formats that you could see on the exam. These are generic samples and do not reflect the content being tested.

1. Which planet is closest to the Earth?
   A. Mars
   B. Pluto
   C. Venus
   D. Saturn

2. Which planets are “inner planets” — planets found within the asteroid belt? (Select two.)
   A. Pluto

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<td>Solution Design Guide</td>
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1. B. Earth
C. Neptune
D. Mercury
E. Venus

3. Click the Exhibit button.
What is this constellation called?
A. Leo
B. Aries
C. Orion
D. Taurus
E. Gemini
F. Pleiades
G. Ursa Minor
H. Ursa Major
I. Andromeda

4. Click the Task button.
Place the planets in order of closest to farthest from the planet Earth by dragging and dropping the boxes.

5. Click the Task button.

Review the picture of the planets and click on Saturn.
Conclusion

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