EXPERT EXAM GUIDE

FlashArray™ Architect Expert

Exam Number: FAAE_001

Contents

About Pure Storage® Certified Exams

To be a Pure Storage Certified FlashArray™ Architect Expert is to demonstrate expertise in integrating Pure Storage FlashArray with third-party applications, SAN, and IP network environments. Pure Storage's Certification exams have been developed following industry best practices to strive for reliable and valid test score interpretations.

This guide has two purposes:

- to provide you with the recommended preparations for the Pure Storage FlashArray Architect Expert Exam, and
- to help you determine if you are ready to sit for the exam.

This guide outlines the knowledge, skills, and abilities required of a "minimally qualified candidate" for a specific job role, which will be evaluated in the exam.

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Section 1: Exam Registration Instructions

1.1. Exam Information

- Exam name: Pure Storage FlashArray Architect Expert

- Exam number: FAAE_001

- Exam cost: $129 (US Dollars)

- Number of questions: 50

- Question types: Multiple Choice (four or five options; one, two, or three correct answers)

- Time limit: 120 minutes

1.2. Creating an Online Account

1. Go to the ExamStudio Storefront.

2. Select "Pure Storage FlashArray™ Architect Expert".

3. Either confirm the scheduling process or log in. The system will automatically recognize if you are eligible and will allow you to move forward.

4. Log in to your candidate dashboard and click "Schedule" under the Actions tab.

5. Select the appropriate time zone; then, select the date and time you want to take the exam. Please note that exams require a 24-hour lead time to schedule. The earliest date on which you can make a reservation is the next business day.

6. Complete a technical compatibility check by visiting https://go.proctoru.com/testitout

1.3. Online Exam Computer Requirements

Your computer must meet the minimum requirements of ProctorU, including:

- A stable broadband internet service with a download speed of at least 12Mbps down and 3Mbps up

- Chrome or Firefox web browser. Download ProctorU extensions: Chrome or Firefox

- Webcam

- Microphone

To check if your computer meets the minimum requirements of the exam provider, visit https://go.proctoru.com/testitout. To watch a video on how ProctorU works, please click here.

You will be prompted to download and run a LogMeIn Rescue applet file that will bring up a chat box to allow you to text with your proctor. If prompted, be sure to click "Open" or "Allow" to give the file permission to run. When the chat box says "Waiting," it means that you are in the queue waiting for your proctor.

> **TIP:** If your status shows "Waiting," do not re-download the applet file. You will be put back at the end of the queue. For more information on what to expect on the day of the exam, please visit this link.

1.4. Day of the Exam

Requirements:

- You must provide one form of government-issued photo ID (e.g., driver's license, passport).

- If you do not provide acceptable proof of identification via webcam to the proctor prior to the exam, you will not be allowed to take the exam. No refund or rescheduling is provided when an exam cannot be started due to failure to provide proper identification.

- You must also consent to have your photo taken. The ID will be used for identity verification only and will not be stored.

- You must be in a private, well-lit environment such as a conference room or home office.

- You must close all third-party programs and unplug any secondary monitors.

- The proctor will ask you to show your desk and surroundings before your exam can start.

- You cannot consult notes or books during the exam. The proctor will not allow the use of documents, materials, or websites during the exam.

- Make sure you have downloaded the ProctorU extension for either Chrome or Firefox.

Log in to Launch the Exam

To launch the exam, log in to your ExamStudio account.

1. Enter your login credentials.

2. Click "Start Exam" under the Actions tab on your dashboard.

   NOTE: The timer for your exam does not start until the proctor launches the exam. You will have 120 minutes to complete the exam. You may start your exam once the countdown timer reaches 0:00:00. If you do not start your exam within 15 minutes of this time frame, the system will automatically mark you as a No-Show and you will not be able to take your exam.

Special Considerations

- To reset a forgotten password, visit https://portal2.examstudio.com/ResetPassword.aspx?id=100106. Once you reset your password, you can log in via your candidate portal.

- For additional questions regarding ProctorU, please visit this link.

- For any other additional questions or concerns, please contact the Pure Storage certification team at certadmin@purestorage.com.

1.5. Exam Scoring

- One point is awarded for each correct answer to a single-response or multi-response question.

- No points are awarded for either incorrectly answered or unanswered single-response or multi-response questions.

1.6. After the Exam

Your candidate record will be updated with the results of your exam 24-48 hours following the exam. Please see Section 1.7 of this exam guide for instructions on how to review your candidate record.

If You Pass:

Your candidate record will have an eCertificate when you achieve a certification, as well as a Pure Storage certification logo for this exam. A certification is valid for 2 years, and, upon expiration, you will need to take the exam again.

If You Fail:

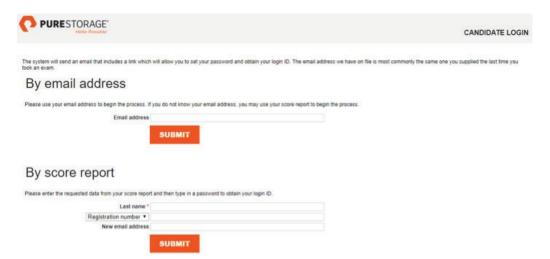You will need to wait 72 hours to re-schedule the exam.

1.7. Your Candidate Record

To access your candidate record, visit https://www.certmetrics.com/purestorage/login.aspx. From here, you will be able to access your score report(s).

The first time you log in, you will need to create an account.

To create an account:
1. Click "Never logged in before?" on the landing page.
2. Enter either your email address or data from your score report, as shown below.

3. You will receive an email with instructions on how to access your account.

Once you create your account, you will be able to log in with your login ID and password.

Section 2: Pure Storage FlashArray Architect Expert Exam Topics

2.1. Domain Names

The job tasks measured on the exam are grouped into the following domains of practice:

- Scope and Stage
- Third-Party Integrations
- Advanced Feature Design

2.2. Task Information

Within each domain, you will be asked about specific tasks you should be able to perform as a Pure Storage Certified FlashArray Architect Expert, including but not limited to:

Scope and Stage

- Explain to a customer why tradeoffs are made within architectural decisions
- Scope and stage the architectural viability to support the customers' environment with FlashArray

Third-Party Integrations

- Architect FlashArray and its integrations/extensions into orchestration, management, and monitoring frameworks
- Architect FlashArray into a DevOps environment leveraging Pure Storage third-party plug-ins and other software/API capabilities
- Architect FlashArray into a database environment or virtualized environment leveraging Pure Storage third-party plug-ins and other software/API capabilities
- Architect an application Disaster Recover (DR) or Business Continuity (BC) solution leveraging FlashArray software capabilities and Pure Storage third-party integration capabilities

Advanced Feature Design

- Architect solutions around local point in time copies
- Architect a FlashArray ActiveCluster™ or FlashArray Async replication solution

2.3. Domain Distribution

The questions on the exam are distributed as follows for each domain.

> **NOTE:** Each question carries the same weight, and there is no partial credit for any question.

Domain	Percent of Exam
Scope and Stage	31%
Third-Party Integrations	42%
Advanced Feature Design	27%

Section 3: The Pure Storage Certified FlashArray Architect Expert Job Role

This exam is designed for individuals who are currently performing or have previous work experience with the job responsibilities of a Pure Storage Certified FlashArray Architect Expert.

3.1. The Minimally Qualified Candidate (MQC)

To pass the exam, you must possess at least the minimum level of knowledge, skills, and abilities required of a Pure Storage Certified FlashArray Architect Expert. The MQC is a Pure Storage or a partner SE or SA who has at least 5 years of storage industry experience and 2 years of Pure Storage FlashArray experience. The MQC has extensive knowledge in designing a properly configured FlashArray and its integration points to a variety of customer application environments.

The Pure Storage Certified FlashArray Architect Expert should be able to perform the following tasks without any assistance:

- Properly size a FlashArray advanced features for a customer workload
- Demonstrate the Array management GUI and Pure1 for the purpose of managing, monitoring, and providing analytics for the FlashArray
- Demonstrate and configure all FlashArray capabilities and features
- Utilize the CLI and REST API for FlashArray
- Explain automation and extension capabilities of the FlashArray
- Attach a FlashArray to an IP or FC storage network
- Explain the integration points of FlashArray for VMware environments

The Pure Storage Certified FlashArray Architect Expert should be able to participate in the following task with substantial guidance, mentoring, or instruction:

- Explain the integration points of FlashArray for Hyper-V and containers
- Dev-ops Automation and Orchestration

3.2. MQC Work Experience

A minimally qualified Pure Storage Certified FlashArray Architect Expert typically has the following work experience:

- Advanced-level role
- At least 5 years of storage industry experience
- 2 years of Pure Storage FlashArray experience

Section 4: Determine Exam Readiness

Nothing can guarantee that you will pass your test; however, the more practical work experience you have, the better your chances are to pass the test. Use the self-assessment preparation worksheet (below) to evaluate your level of readiness.

4.1. Exam Prerequisites

There are no prerequisites for the Pure Storage FlashArray Architect Expert Examination.

4.2. On-the-Job Experience

Since Pure Storage exams measure knowledge, skills, and abilities for a specific job role, one of the best ways to prepare for the exam is to make sure you have the minimum work experience, as described in this guide.

4.3. Self-Assessment Preparation Worksheet

Use the following worksheet to review the exam topics and assess your own readiness. If you need to prepare more for a certain topic, determine if you need training, on-the-job experience, or both.

I can:

Topic	Yes	No
Scope and Stage		
Demonstrate to a customer the benefits of an Active/Active Frontend with Active/Passive backend architecture		
Given a customer use case, recommend an appropriate solution set		
Determine the capacity required based on the customer workload/change in workload		
Third-Party Integrations		
Describe the uses of Purity//FA REST API, PowerShell, and Python SDK with FlashArray		
Describe the benefits of the Docker and Kubernetes Plug-in, and the Pure Service Orchestrator™ for DevOps automation		
Apply appropriate copy automation tools built by Pure, per the customer's database environment		
Explain FlashArray's integrations and benefits around orchestration/ automation		
Explain the integration points of FlashArray replication		
Given a scenario, apply FlashArray snapshot integration with Microsoft or VMware		
Advanced Feature Design		
Apply FlashArray Snap to NFS		
Apply FlashArray ActiveCluster to determine the requirements for a multi- site environment		

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Section 5: Pure Storage FlashArray Architect Expert Exam Sample Questions

Review and practice taking exam questions to get a sense for the types of questions on the exam. Please note that **your performance here does not indicate how you will do on the actual exam**. To fully prepare for the exam, closely review the topic areas and objectives in this Exam Guide.

The correct answers are at the end of the exam guide.

1. A customer asks an architect to size a new FlashArray solution for their environment with the following constraints:

    - Three Microsoft SQL databases

    - Databases need 30, 40, and 80TiB

    - The 80TiB database is utilizing SQL Compression

    - Testing shows that 3:1 reduction is achievable for the uncompressed databases

    - Performance requirement dictates //x50R2 controllers

    What is the minimum required raw capacity (TB) in a FlashArray for this environment?

    a. 245 TB (91/91 + 63/0)

    b. . 90 TB (45/45)

    c. 182 TB (91/91)

    d. 153 TB (45/45 + 63/0)

2. An architect unstretches a Pod post migration. The architect used ActiveCluster and removed the FlashArray "A" volume presentation.

    How should the architect identify which volume on FlashArray "B" is the migrated volume?

    a. Use REST API filtering to search for the volume

    b. Scan VMFS volumes on the host

    c. VMware vRealize Log Insight

    d. Compare the number of volumes on each FlashArray

3. In a Swarm cluster, a member node must be able to mount any volume created on a FlashArray.

    Which docker plugin configuration parameter must be set to meet this requirement?

    a. PURE_DOCKERNAMESPACE

    b. PURE_DOCKER_NAMESPACE

    c. DOCKER_PURE_NAMESPACE

    d. DOCKER_NAMESPACE

4. A customer needs the ability to clone a large 5 TB SQL Server database. They want the ability to be able to apply transaction logs to the clone and roll forward to a specific point in time.

    Which technology must be implemented to meet this requirement?

    a. Pure Storage ActiveCluster

    b. Volume Shadow Copy Service

    c. Pure Storage PowerShell SDK

    d. Pure Storage Protection Groups

5. An application running on a FlashArray sees an average I/O write response time of 1 ms and average read IO response time of 0.5 ms. The architect implements ActiveCluster in a uniform configuration to meet recommended best practices. The latency round trip between the FlashArrays in the ActiveCluster is 5 ms.

    No additional latency is caused by the busyness of the link or other external factors.

    What should be the expected application response time performance after implementing ActiveCluster?

    a. Write: 7.2 ms
        Read: 0.5 ms

    b. Write: 5 ms
        Read: 0.5 ms

    c. Write: 5 ms
        Read: 5 ms

    d. Write: 6.2 ms
        Read: 5 ms

6. A customer needs to replicate VMware VMs for DR between Chicago and London. The customer has a //X70R2 in Chicago and //X50R2 in London. The RPO requirement is 1 hour. The RTO requirement is 15 minutes.

    Which two Pure FlashArray features can help the customer meet their needs? (Select two.)

    a. Purity ActiveCluster

    b. Purity Site Recovery Adapter

    c. Purity Asynchronous Replication

    d. Pure Service Orchestrator

    e. Purity vCenter Plugin

7. A company needs to implement an Active-Active data center architecture but is unsure if their network can meet the requirements.

The following data points are relayed to the account team:

- MTU = 1500

- Distance between data centers = 50 km

- Round trip latency between data centers = 3 ms

- 20,000 peak IOPS

What additional information should the architect gather to confirm that the network meets these requirements?

    a.   Peak read and write IOPS, dataset size, network bandwidth available

    b.   Peak read and write bandwidth generated by hosts, network bandwidth available

    c.   Peak read and write bandwidth generated by hosts, data reducibility, network bandwidth available

    d.   Peak read and write bandwidth generated by hosts, data reducibility, network vendor, dataset size

8. Which configuration file should be populated with FlashArray access information before running the `docker plugin install` command?

    a.   /etc/docker/config.pure

    b.   /etc/pure-docker-plugin/pure.json

    c.   /etc/pure-docker-plugin/pure.yaml

    d.   /etc/docker-plugin/pure.config

Section 6: Answer Key

Correct answers are shown below in *bold italics*.

1. A customer asks an architect to size a new FlashArray solution for their environment with the following constraints:

   - Three Microsoft SQL databases

   - Databases need 30, 40, and 80TiB

   - The 80TiB database is utilizing SQL Compression

   - Testing shows that 3:1 reduction is achievable for the uncompressed databases

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   What is the minimum required raw capacity (TB) in a FlashArray for this environment?

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2. An architect unstretches a Pod post migration. The architect used ActiveCluster and removed the FlashArray "A" volume presentation.

   How should the architect identify which volume on FlashArray "B" is the migrated volume?

   a. ***Use REST API filtering to search for the volume***

   b. Scan VMFS volumes on the host

   c. VMware vRealize Log Insight

   d. Compare the number of volumes on each FlashArray

3. In a Swarm cluster, a member node must be able to mount any volume created on a FlashArray.

   a. Which docker plugin configuration parameter must be set to meet this requirement?

   b. ***PURE_DOCKERNAMESPACE***

   c. PURE_DOCKER_NAMESPACE

   d. DOCKER_PURE_NAMESPACE

   e. DOCKER_NAMESPACE

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    c. *Peak read and write bandwidth generated by hosts, data reducibility, network bandwidth available*

    d. Peak read and write bandwidth generated by hosts, data reducibility, network vendor, dataset size

8. Which configuration file should be populated with FlashArray access information before running the `docker plugin install` command?

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    b. */etc/pure-docker-plugin/pure.json*

    c. /etc/pure-docker-plugin/pure.yaml

    d. /etc/docker-plugin/pure.config

Support

For information on Pure Storage's certification programs, visit this link. To contact us, please send an email to certadmin@purestorage.com.

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800.379.PURE

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