

PROFESSIONAL EXAM GUIDE

FlashBlade® Architect Professional

Exam Number: FBAP_002



PURE STORAGE CERTIFIED

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About Pure Storage® Certified Exams

To be a Pure Storage Certified FlashBlade® Architect Professional is to demonstrate professional-level knowledge of how to plan and design FlashBlade solutions. 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 FlashBlade Architect Professional 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.

Section 1: Exam Registration Instructions

1.1. Exam Information

- Exam name: Pure Storage FlashBlade Architect Professional
- Exam number: FBAP_002
- Exam cost: \$129 (US Dollars)
- Number of questions: 75
- 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 FlashBlade Architect Professional".
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

ProctorU Requirements:

Ensuring our exams are secure only increases the value of a Pure certification.

Info provided [here](#) will walk you through the steps to take just before your exam, including testing your equipment, what you need to have on hand for your exam, and what you can expect from the launch process. **Your computer must meet the minimum requirements of ProctorU.**

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.

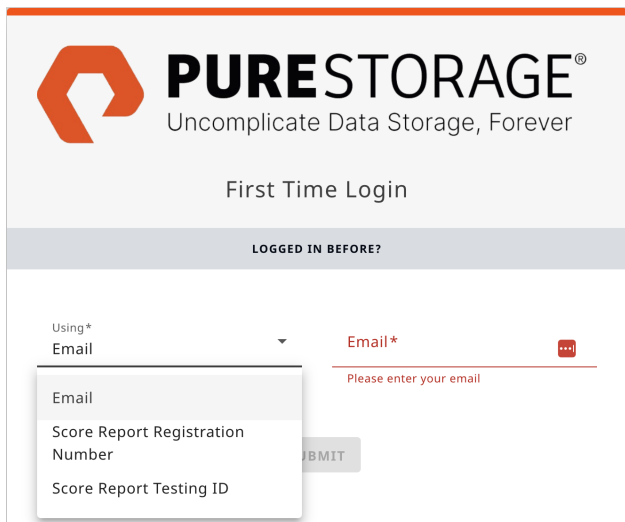
1.7. Your Candidate Record

To access your candidate record, visit <https://cp.certmetrics.com/purestorage/en/login>. 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.

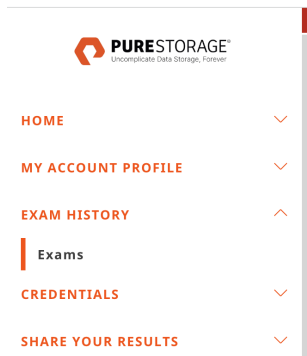


3. You will receive an email with instructions on how to access your account.

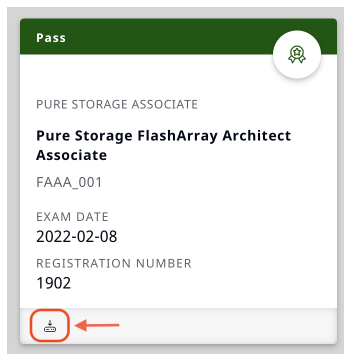
Once you create your account, you will be able to log in with your login ID and password.

To retrieve your score report(s):

After you log in, click Exam History, then Exams.



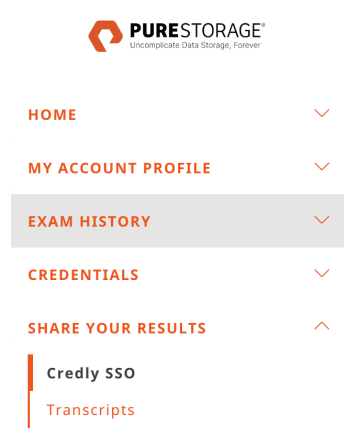
You will then see the exam card view for each of your exams. Click the icon in the lower left to download your score report.



To share your results:

Click Share Your Results. From this menu, you can connect to Credly to download your digital badge and certificate.

You can also create a custom transcript that you can download or share.



Section 2: Pure Storage FlashBlade Architect Professional Exam Topics

2.1. Domain Names

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

- Discovery
- Planning
- Designing
- Support and Monitoring

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 FlashBlade Architect Professional, including but not limited to:

Discovery

- Identify use-cases where FlashBlade will be successful
- Identify a storage design and pain points
- Identify environmental hardware, software and logistic dependencies
- Determine how the FlashBlade scale-out approach benefits customer workloads

Planning

- Determine workflows and anticipate developments to efficiently utilize the scale-out architecture
- Identify internal FlashBlade networking components
- Identify supported cables and transceivers
- Identify rack and power requirements
- Determine appropriate external network infrastructure

Designing

- Determine an appropriate FlashBlade configuration given a scenario
- Map a customer use case to an appropriate class of storage
- Identify appropriate configuration for parallel workloads
- Determine customer side capacity and performance requirements

Support and Monitoring

- Modify parameters for performance tuning
- Monitor and manage devices and data using Pure1®

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
Discovery	29%
Planning	28%
Designing	33%
Support and Monitoring	10%

Section 3: The Pure Storage Certified FlashBlade Architect Professional 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 FlashBlade Architect Professional.

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 FlashBlade Architect Professional. The MQC is a Pure Storage employee, partner or customer system engineer, solution architect, or data architect who has between 3 and 5 years of storage industry experience and between 12 and 18 months of Pure Storage experience. The MQC will have network attached storage experience and familiarity with Pure Storage FlashBlade, Pure1®, Purity//FB OS, and scale-out architecture.

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

- Identify appropriate workloads
- Understand NFS, SMB, and S3 protocols
- Design environments that support FlashBlade (e.g., support functionality, connectivity, routing, and security)
- Mount NFS exports and USB keys
- Perform code upgrades
- Understand FlashBlade networking and architecture
- Understand parallel workflows
- Diagram and plan

The Pure Storage Certified FlashBlade Architect Professional should be able to participate in the following tasks with substantial guidance, mentoring, or instruction:

- Communicate tuning a workflow to relevant parties
- Understand network design requirements

3.2. MQC Work Experience

A minimally qualified Pure Storage Certified FlashBlade Architect Professional typically has the following work experience:

- Professional-level role
- Between 3 and 5 years of storage industry experience
- Between 12 and 18 months of Pure Storage 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 FlashBlade Architect Professional 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
Discovery		
Determine workload types and levels of concurrency		
Determine appropriate workloads for NAS		
Identify performance bottlenecks based on diagrams		
Identify network requirements (e.g., ports, bandwidth, vlan/subnet, IP address)		
Identify systems and software that will use FlashBlade		
Determine use cases for architectures (e.g., scale out, parallel, scale up)		
Determine use cases for parallel stream setup to maximize FlashBlade performance		
Planning		
Layout file system and object store configurations		
Identify data paths taken by the host to the FlashBlade		
Identify features of FlashBlade networking		
Identify supported cable types (e.g., passive copper/AoC fiber)		
Plan rack and power requirements		
Plan external network infrastructure		
Designing		
Recommend appropriate initial FlashBlade configuration		
Determine appropriate FlashBlade workflows (e.g., backup/restore, HPC, analytics, AI/ML, user data)		
Estimate network performance capacity of a given configuration (e.g., parameters, bonding configurations, parallelism)		
Determine the impact of blade failures on available capacity		
Support and Monitoring		
Analyze a data-flow diagram, and identify the bottleneck		
Identify trends in data growth and forecast capacity needs		
Export performance and capacity information (e.g., external exports)		

Section 5: Pure Storage FlashBlade Architect Professional 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. What is the maximum length of a passive Twinax uplink cable?

- a. 3m
- b. 5m
- c. 10m
- d. 15m

2. A customer is experiencing issues with servers that access data on the FlashBlade.

The customer reports the following:

- Servers assigned to the research network (192.168.1.0/24) are able to read and write data to the NFS filesystem.
- Servers assigned to the accounting network (192.168.2.0/24) are unable to write data to the NFS filesystem.
- Servers assigned to the sales network (192.168.3.0/24) are unable to access the NFS filesystem completely.
- The customer verifies that all network and client-side settings are correct across all subnets.
- There is a data VIP in each network.

What is causing this issue?

- a. AD directory services are NOT configured for those subnets.
- b. Jumbo frames are NOT properly configured across the 3 networks.
- c. The corporate edge firewall is blocking NFS traffic.
- d. The filesystem export options are NOT properly configured.

3. A customer application generates 12GB/s of read and 2GB/s of write traffic.

What is the minimum number of 40Gb/s uplinks required?

- a. 1 per FM
- b. 2 per FM
- c. 3 per FM
- d. 4 per FM



4. A banking customer needs to store check images in JPEG format on their FlashBlade system.

What compression ratio should the banking customer see?

- a. 3.6:1
- b. 2.0:1
- c. 5.1:1
- d. 1.1:1

5. How many replication VIPs are supported per FlashBlade pair?

- a. 0
- b. 1
- c. 2
- d. 4

6. A customer outlines their top three priorities for the year: ransomware mitigation, disaster recovery, and vendor consolidation.

What should the architect present to the customer?

- a. SafeMode, Replication, and Data Hub
- b. SafeMode, SMB, and Pure as a Service
- c. Replication, SafeMode, and Pure Service Orchestrator
- d. Data Hub, Splunk, and SafeMode

7. A customer has 7x17TB FlashBlade, which is 70% full. One 17TB blade has been added.

What is the expected result?

- a. The available capacity automatically increases by $17/2=8.5$ TB.
- b. The available capacity automatically increases by 17TB.
- c. The available capacity automatically increases by 15TB.
- d. A manual expansion is needed for the available capacity to grow.

8. A customer outlines their top three priorities for the year: ransomware mitigation, disaster recovery, and vendor consolidation. An architect is helping a customer size a FlashBlade for multiple use cases:

Application	Read Performance	Write Performance	Application Window	Number of Hosts
Backup	40Gb/s	120Gb/s	19:00-05:00	4
AI	200Gb/s	40Gb/s	00:00-23:59	200
Streaming Analytics	180Gb/s	120Gb/s	07:00-18:00	18
Log Server	40Gb/s	80Gb/s	00:00-23:59	5

Application	Read Performance	Write Performance	Application Window	Number of Hosts
Virtualization	120Gb/s	80Gb/s	00:00-23:59	12

What is the minimum number of 100Gb/s External Fabric Module uplinks that the architect needs to size for?

- a. 4
- b. 6
- c. 8
- d. 10

9. A customer is having trouble accessing their data VIPs on a new 7x17TB system.

1. The customer has 15 data VIPs
2. The customer has a single LAG to their switches
3. The 'purelag list' command shows that it is healthy

What is causing this issue?

- a. The customer improperly configured the data VIPs.
- b. The customer is using the wrong type of cables between the FlashBlade and their switches.
- c. The customer has NO data protocol enabled for the data VIP.
- d. The customer needs to create the VLANs on the switch to support the data VIPs.

10. A customer reports that they are only able to get 100Mb/s of throughput per NFS mount point.

The customer provides the following information:

1. The FlashBlades are connected by a 10Gb/s network link end to end. They are able to get 8Gb/s throughput with an iperf test.
2. The customer has done multiple ping tests between the FlashBlade and the client, which all have between 2 and 3 milliseconds of latency.
3. The customer has 2 NFS mounts, all with the following options: vers=3,rsize=16384,wsize=16384,hard,proto=tcp

What should the architect do to resolve this issue?

- a. Increase the network link to 40Gb/s
- b. Set the rsize and wsize to 524288
- c. Increase NFS mounts to 5
- d. Add additional data VIPs



Section 6: Answer Key

Correct answers are shown below in *bold italics*.

1. What is the maximum length of a passive Twinax uplink cable?

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Log Server	40Gb/s	80Gb/s	00:00-23:59	5
Virtualization	120Gb/s	80Gb/s	00:00-23:59	12



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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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