#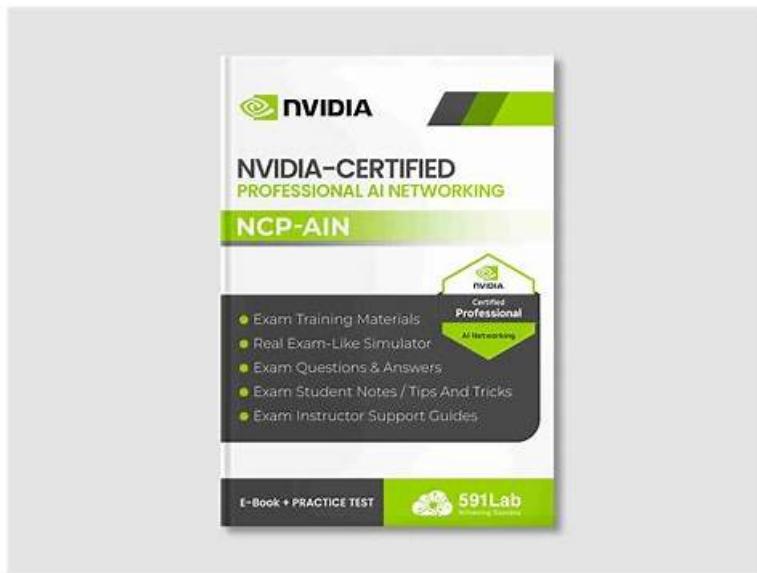 Professional NCP-AIN Exam Sample Online & Leading Offer in Qualification Exams & Free Download NVIDIA NVIDIA-Certified Professional AI Networking

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NVIDIA NCP-AIN Exam Syllabus Topics:

Topic	Details
Topic 1	• AI Network Architecture: This section of the exam measures the skills of AI Infrastructure Architects and covers the ability to distinguish between AI factory and AI data center architectures. It includes understanding how Ethernet and InfiniBand differ in performance and application, and identifying the right storage options based on speed, scalability, and cost to fit AI networking needs.
Topic 2	• InfiniBand Configuration, Optimization, Security, and Troubleshooting: This section of the exam measures the skills of Data Center Network Administrators and covers the configuration and operational maintenance of NVIDIA InfiniBand switches. It includes setting up InfiniBand fabrics for multi-tenant environments, managing subnet configurations, testing connectivity, and using UFM to troubleshoot and analyze issues. It also focuses on validating rail-optimized topologies for optimal network performance.
Topic 3	• Spectrum-X Configuration, Optimization, Security, and Troubleshooting: This section of the exam measures the skills of Network Performance Engineers and covers configuring, managing, and securing NVIDIA Spectrum-X switches. It includes setting performance baselines, resolving performance issues, and using diagnostic tools such as CloudAI benchmark, NCCL, and NetQ. It also emphasizes leveraging DPUs for network acceleration and using monitoring tools like Grafana and SNMP for telemetry analysis.

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NVIDIA-Certified Professional AI Networking Sample Questions (Q50-Q55):

NEW QUESTION # 50
What is the total throughput of the SN5600 Spectrum-X switch?

- A. 12.8 petabits per second
- B. 25.6 terabits per second
- C. 102.4 gigabits per second
- D. 51.2 terabits per second

Answer: D

Explanation:
The SN5600 smart-leaf/spine/super-spine switch offers 64 ports of 800GbE in a dense 2U form factor. The SN5600 offers diverse connectivity in combinations of 1 to 800GbE and boasts an industry-leading total throughput of 51.2Tb/s.
Reference:NVIDIA Spectrum SN5600 Ethernet Switch - Bluum

NEW QUESTION # 51
You are automating the deployment of a Spectrum-X network using Ansible. You need to ensure that the playbooks can handle different switch models and configurations efficiently.
Which feature of the NVIDIA NVUE Collection helps simplify the automation by providing pre-built roles for common network configurations?

- A. Collection roles
- B. Collection modules
- C. Collection plugins
- D. Collection libraries

Answer: A

Explanation:
The NVIDIA NVUE Collection for Ansible includes pre-built roles designed to streamline automation tasks across various switch models and configurations. These roles encapsulate common network configurations, allowing for efficient and consistent deployment.
By utilizing these roles, network administrators can:
* Apply standardized configurations across different devices.
* Reduce the complexity of playbooks by reusing modular components.
* Ensure consistency and compliance with organizational policies.
This approach aligns with Ansible best practices, promoting maintainability and scalability in network automation.
Reference: NVIDIA NVUE Collection Documentation - Ansible Roles

NEW QUESTION # 52
Which of the following commands would you use to assign the IP address 20.11.12.13 to the management interface in SONiC?

- A. nv set interface mgmt ip 20.11.12.13 20.11.12.254
- B. interface mgmt0 vrf mgmt ip address 20.11.12.13 20.11.12.254
- C. config ip add etho 20.11.12.13/24 20.11.12.254
- D. sudo config interface ip add eth0 20.11.12.13/24 20.11.12.254

Answer: D

Explanation:
In SONiC, to assign a static IP address to the management interface, the correct command is:

sudo config interface ip add eth0 20.11.12.13/24 20.11.12.254

This command sets the IP address and the default gateway for the management interface.

SONiC (Software for Open Networking in the Cloud) is an open-source network operating system used on NVIDIA Spectrum-X platforms, including Spectrum-4 switches, to provide a flexible and scalable networking solution for AI and HPC data centers. Configuring the management interface in SONiC is a critical task for enabling remote access and network management. The question asks for the correct command to assign the IP address 20.11.12.13 to the management interface, typically identified as eth0 in SONiC, as it is the default management interface for out-of-band management.

Based on NVIDIA's official SONiC documentation, the correct command to assign an IP address to the management interface involves using the config command-line utility, which is part of SONiC's configuration framework. The command sudo config interface ip add eth0 20.11.12.13/24 20.11.12.254 is the standard method to configure the IP address and gateway for the eth0 management interface. This command specifies the interface (eth0), the IP address with its subnet mask (20.11.12.13/24), and the default gateway (20.11.12.254), ensuring proper network connectivity.

Exact Extract from NVIDIA Documentation:

"To configure the management interface in SONiC, use the config interface ip add command. For example, to assign an IP address to the eth0 management interface, run:

sudo config interface ip add eth0 <IP_ADDRESS>/<PREFIX_LENGTH> <GATEWAY> Example:

sudo config interface ip add eth0 20.11.12.13/24 20.11.12.254

This command adds the specified IP address and gateway to the management interface, enabling network access."

-NVIDIA SONiC Configuration Guide

This extract confirms that option C is the correct command for assigning the IP address to the management interface in SONiC. The use of sudo ensures the command is executed with the necessary administrative privileges, and the syntax aligns with SONiC's configuration model, which persists the changes in the configuration database.

Reference:Dell EMC Networking S-Series Basic Switch Management Configuration

NEW QUESTION # 53

You are configuring the Unified Fabric Manager (UFM) for an InfiniBand fabric in a multi-tenant environment. You need to implement a solution that can detect potential security threats.

Which UFM feature uses analytics to detect security threats and predict network failures in InfiniBand data centers?

- A. Host Agent
- B. Cyber-AI platform
- C. Telemetry platform
- D. Enterprise platform

Answer: B

Explanation:

The UFM Cyber-AI platform is an advanced feature of NVIDIA's Unified Fabric Manager designed to enhance security and reliability in InfiniBand data centers. It leverages AI-powered analytics and machine learning techniques to detect security threats, operational anomalies, and predict potential network failures.

By analyzing real-time and historical telemetry data, UFM Cyber-AI can identify abnormal system behaviors, performance degradations, and usage profile changes. This proactive approach enables administrators to address issues before they escalate, ensuring the integrity and uptime of the data center.

Reference Extracts from NVIDIA Documentation:

* "The NVIDIA Unified Fabric Manager (UFM) Cyber-AI platform offers enhanced and real-time network telemetry, combined with AI-powered intelligence and advanced analytics. It enables IT managers to discover operational anomalies and even predict network failures."

* "UFM Cyber-AI uses machine learning (ML) techniques and AI models for anomaly detection and prediction to learn the lifecycle patterns of data center network components."

* "The NVIDIA UFM platforms revolutionize data center networking management by combining enhanced, real-time network telemetry with AI-powered cyber intelligence and analytics to support scale-out InfiniBand data centers. ... The UFM Cyber-AI platform takes fabric management to the next level by adding an analytics layer powered by artificial intelligence. It enables data center operators to proactively monitor and manage the InfiniBand fabric, predicting and preventing potential failures, optimizing performance, and enhancing security. By analyzing telemetry data and historical patterns, UFM Cyber-AI can detect anomalies that may indicate security threats or operational issues, providing actionable insights to prevent downtime."

NEW QUESTION # 54

Which component of the Spectrum-X platform is responsible for reordering out-of-order packets?

- A. DOCA software
- B. NetQ
- C. Spectrum-4 switch
- D. SuperNIC

Answer: D

Explanation:
Within the Spectrum-X platform, the NVIDIA BlueField-3 SuperNIC is responsible for reordering out-of- order packets. When RoCE adaptive routing is employed, packets may arrive at their destination out of order due to dynamic path selection. The BlueField-3 SuperNIC handles this by reassembling the packets in the correct order at the transport layer, ensuring that the application receives data seamlessly.
Reference Extracts from NVIDIA Documentation:
* "As different packets of the same flow travel through different paths of the network, they may arrive out of order to their destination. At the RoCE transport layer, the BlueField-3 DPU takes care of the out- of-order packets and forwards the data to the application in order."
* "The BlueField-3 SuperNIC offers adaptive routing, out-of-order packet handling and optimized congestion control." The NVIDIA Spectrum-X networking platform is an Ethernet-based solution optimized for AI workloads, combining Spectrum-4 switches, BlueField-3 SuperNICs, and software like DOCA and NetQ to deliver high performance, low latency, and efficient data transfer. A key feature of Spectrum-X is its adaptive routing, which dynamically selects the least-congested paths for packet transmission to maximize bandwidth and minimize latency. However, this per-packet load balancing can result in packets arriving out of order at the destination, necessitating a mechanism to reorder them for seamless application performance. The question asks which Spectrum-X component is responsible for reordering these out-of-order packets.
According to NVIDIA's official documentation, the BlueField-3 SuperNIC is the component responsible for reordering out-of-order packets in the Spectrum-X platform. The SuperNIC, a network accelerator designed for hyperscale AI workloads, handles packet reordering at the RDMA over Converged Ethernet (RoCE) transport layer. It uses its processing capabilities to transparently reorder packets and place them in the correct sequence in the host memory, ensuring that adaptive routing's out-of-order delivery is invisible to the application. This is critical for maintaining predictable performance in AI workloads, particularly for GPU-to- GPU communication in Spectrum-X networks.
Exact Extract from NVIDIA Documentation:
"The Spectrum-4 switches are responsible for selecting the least-congested port for data transmission on a per- packet basis. As different packets of the same flow travel through different paths of the network, they may arrive out of order to their destination. The BlueField-3 SuperNIC transforms any out-of-order data at the RoCE transport layer, transparently delivering in-order data to the application."
-NVIDIA Technical Blog: Turbocharging Generative AI Workloads with NVIDIA Spectrum-X Networking Platform This extract confirms that option A, the SuperNIC (specifically the BlueField-3 SuperNIC), is the correct answer. The SuperNIC's role in reordering packets ensures that the adaptive routing implemented by Spectrum-4 switches does not compromise application performance, maintaining high effective bandwidth and low tail latency for AI workloads.

NEW QUESTION # 55
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