

EXAM BLUEPRINT GUIDE

# Nutanix Certified Master Multicloud Infrastructure (NCM-MCI) 6.5 Exam



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### Disclaimer:

The Nutanix Certified Master - Multicloud Infrastructure (NCM-MCI) 6.5 Exam Blueprint Guide provides an overview of the objectives that must be mastered to achieve the NCM-MCI 6 credential. Nutanix does not offer any guarantees that this guide will ensure a candidate's success in achieving the NCM-MCI 6 certification. All information in this guide is subject to change at any time at the sole discretion of Nutanix.

# 1. Exam

## 1.1 Purpose of Exam

The Nutanix Certified Master - Multicloud Infrastructure (NCM-MCI) 6.5 exam will measure a candidate's ability to analyze, evaluate, and optimize platform performance, configuration, and health. Successful candidates demonstrate mastery of these skills and abilities.

The exam will also validate the candidate's ability to remediate and evolve the platform to be in compliance with business requirements.

## 1.2 Number of Questions

The NCM-MCI 6.5 exam consists of 16 to 20 scenarios that are performed in a live Nutanix multi-cluster environment.

## 1.3 Pricing

The cost for the NCM-MCI 6.5 exam is \$299 USD.

## 1.4 Passing Score

The passing score for this exam is 3000, using a scaled scoring method. The scale is from 1000-6000. Scaled scores are calculated using a mathematical formula that considers a variety of factors, including the number and type of exam questions included in a specific version of the exam.

Because this combination may vary in different versions of the same examination, scaled scores provide a fair score for everyone based on the version of the exam taken.

## 1.5 How Objectives Relate to Questions on the Exam

Objectives summarize what the test is designed to measure. Objectives are developed by Exam Developers and Subject Matter Experts based on identified tasks that relate to the job of deploying and administering a Nutanix AOS 6.5 / Prism Central 2022.6 environment.

Once the initial development process is complete, these objectives are verified using an external group of individuals in the actual job role. Finally, a number of questions is determined for each objective, which relates directly to the criticality of the task in the job role.

## 1.6 Languages

The exam is available in English.

## 1.7 Time Limit

The time limit for the exam is 180 minutes.

## 1.8 Scheduling and Taking the Exam

This exam is delivered via remote proctoring or in-person at select test centers.

If you select remote proctoring, after registering for the exam and providing valid identification, you will receive information on how to take the exam from your location using a web browser. Because the exam is remote proctored, you will be provided with a locked down, monitored, secure exam experience.

If you select in-person testing, you will be able to select a test center near you. On the day of the exam, you will need to arrive at the test center 15 minutes prior to the exam start time with a valid government-issued ID.

## 1.9 Certification Tracks

The NCM-MCI 6.5 exam is a core component of the Nutanix Multicloud Infrastructure track. The certification requires that candidates hold any non-expired NCP or NCM-level certification. Passing this exam results in achieving the NCM-MCI 6 certification.

The certification requires a passing score on the exam. While it is not required that you attend a course, Nutanix provides training that covers the objectives on the exam. Details on the recommended training course are provided in [Section 4](#).

## 1.10 Retake Policy

If a candidate fails an exam on the first attempt, he or she is allowed two additional attempts. There is a seven-day waiting period between attempts. Like the first attempt, these are paid for individually and Nutanix recommends that you allow sufficient time between attempts to be properly prepared and to maximize your chances for success.

Please note: After three attempts, you will be unable to take the exam for 60 days, after which you can email [university.nutanix.com](mailto:university.nutanix.com) and request that your attempts are reset. Nutanix recommends you utilize the time to thoroughly review this guide and the related references and/or take the recommended training for this exam.

## 1.11 Exam Security

Nutanix reserves the right to refuse certifying a candidate who violates exam security policies. This includes copying and redistribution of exam material, using any type of study material during the exam itself, attempting to photograph exam items and taking an exam using a false identity. Your identity is captured as part of the exam registration process and must be validated before you will be allowed to take the exam.

## 1.12 Recertification

Once you have passed the Nutanix Certified Master – Multicloud Infrastructure 6.5 exam and achieved the NCM-MCI 6 certification, it will remain valid for two years.

To maintain your certification status, you must either renew your existing certification or take an equivalent NCM-level exam within another certification track.

## 1.13 Benefits of Certification

- Digital badge from Credly that you can share on social media
- Points on Nutanix Xtribe that you can redeem for prizes (only available for Nutanix customers)
- Access to the Certification store at <http://store.nutanix.com> for shirts, mugs, and more
- Opportunity to participate as a SME to develop future exams
- Discount on attending Nutanix .NEXT

## 2. Intended Audience

A candidate taking the NCM-MCI 6.5 exam has approximately 3-5 years of holistic IT infrastructure experience and 2-3 years of Nutanix virtualization experience.

Successful candidates are typically senior IT staff new to Nutanix, Senior NOC/SOC escalation engineers and operators, and Tier 2/3 support personnel who able to analyze business objectives and requirements, configure platforms to support stated business requirements, and have a high degree of familiarity with API calls and CLI functionalities.

Finally, the successful candidate should be able to analyze and implement business continuity plans and security policies.

# 3. Objectives Covered in the NCM-MCI 6.5 Exam

## 3.1 Introduction

It is recommended that candidates have the knowledge and skills necessary to deploy, administer and troubleshoot a Nutanix AOS environment before attempting the NCM-MCI 6.5 exam. It is also recommended that the candidate complete the training course described in [Section 4](#) prior to taking the exam.

For the NCM-MCI 6 certification, candidates will be tested on the following software versions:

- AOS: version 6.5
- Prism Central: version pc2022.6

## 3.2 Objectives

Prior to taking this exam, candidates should understand each of the following objectives. Each objective is listed below; along with related tools the candidate should have experience with, and related documentation that contains information relevant to the objective. Please note that some documentation requires access via the Support Portal. Information on creating an account for use with the Support Portal can be found [here](#).

All objectives may also be referenced in other product documentation not specifically highlighted below. The candidate should be familiar with all relevant product documentation or have the equivalent skills.

### Section 1 – Analyze and Optimize Storage Performance

Objective 1.1: Analyze and optimize storage settings

Knowledge

- Evaluate business critical apps' storage settings
- Optimize high intensity workloads
- Outline data storage efficiencies
- Recommend workloads for erasure coding, compression and deduplication

References

- [Creating a Storage Container](#)
- [Storage Management \(Prism Element\)](#)
- [Storage Management \(Prism Central\)](#)

- [Prism Web Console](#)
- [Nutanix Erasure Coding](#)
- [Microsoft SQL Server on Nutanix](#)

## Objective 1.2: Evaluate competing workload requirements

### Knowledge

- Compare configuration to best practice
- Evaluate impact of configuration variance
- Implement optimal configuration for the competing workloads

### References

- [Prism Configuration Maximums](#)
- [Capacity Reservation Best Practices](#)
- [Configuring VM-VM Anti-Affinity Policy](#)
- [Live vDisk Migration Across Storage Containers](#)
- [Flash Mode for Virtual Machines, Disks, and Volume Groups](#)
- [Enabling Load Balancing of vDisks in a Volume Group](#)
- [Citrix Virtual Apps and Desktops on Nutanix](#)
- [Microsoft SQL Server on Nutanix](#)

## Objective 1.3: Outline storage internals (I/O)

### Knowledge

- Distinguish AOS storage data pathing
- Determine how a system responds to failures
- Evaluate benefits of different storage tech
- Implement optimal configuration for storage efficiency

### References

- [AHV Turbo](#)
- [Enabling RSS Virtio-Net Multi-Queue](#)
- [Curator CLI Display Reports](#)



## Section 2 – Analyze and Optimize Network Performance

### Objective 2.1: Analyze/Optimize overlay networking

#### Knowledge

- Analyze network overlay requirements
- Configure efficient VPCs
- Prepare AOS for overlay networking

#### References

- [VPC Management](#)
- [Network Services](#)
- [Flow Networking Overview](#)
- [Prerequisites for Enabling Flow Networking](#)
- [Configuring Virtual Switch for VPC Traffic](#)

### Objective 2.2: Evaluate and optimize physical/virtual networks

#### Knowledge

- Integrate physical networks capabilities with AHV
- Implement Nutanix networking best practices
- Integrate virtual networks capabilities with Hypervisor
  - Load balancing
  - Multiple bridges
  - CVM Networking

#### References

- [Layer 2 Network Management](#)
- [Creating or Updating a Virtual Switch](#)
- [Block Fault Tolerance](#)

## Objective 2.3: Implement advanced network configurations

### Knowledge

- Isolate network traffic
- Configure packet capture
- Improve VM network performance
  - VNIC queues

### References

- [Isolating Service-Specific Traffic](#)
- [Configuring SPAN on an AHV Host](#)
- [Isolating the Backplane Traffic Logically](#)
- [Creating or Updating a Virtual Switch](#)
- [Configuring the Network on an AHV Host](#)
- [Re-Configuring Bonds Across Hosts Manually](#)

## Objective 2.4: Analyze/optimize Flow policies and configurations

### Knowledge

- Differentiate between Flow security policies
- Detect and quarantine infected VMs
- Configure microsegmentation in a Nutanix environment

### References

- [Enabling Microsegmentation](#)
- [Application Security Policy Configuration](#)
- [Isolation Environment Policy Configuration](#)

## Section 3 – Advanced Configuration and Troubleshooting

### Objective 3.1: Execute API calls and CLI functionality

#### Knowledge

- Create and analyze JSON schemas for API calls
- Use CLI commands to extract configuration information from nodes and CVMs.
- Troubleshoot API calls/usage

- VM creation and configuration changes
- Nutanix networking creation and configuration changes

#### References

- [Blackout API Objects](#)
- [Post /VMs](#)
- [How to place CVM and host in maintenance mode](#)

#### Objective 3.2: Configure third-party integrations

##### Knowledge

- Configure SysLog
- Configure GPU support
- Configure external KMS
- Configure third-party SSL

#### References

- [Adding a SAML-based Identity Provider](#)
- [TLS configuration for RSyslog service](#)

#### Objective 3.3: Analyze and configure AOS security posture

##### Knowledge

- Evaluate scenario and determine applicable security technologies
- Analyze RBAC usage scenarios
- Investigate security configuration
- Evaluate data-at-rest encryption (DARE) configuration
- Evaluate and configure IAM/IDP/SAML

#### References

- [Custom Role Management](#)
- [Enabling Microservices Infrastructure](#)
- [Hardening AHV](#)
- [Controlling Remote \(SSH\) Access](#)

### Objective 3.4: Translate business requirements into technical solutions

#### Knowledge

- Verify future capacity needs
- Assess business continuity and disaster recovery plan
- Investigate security needs
- Recommend availability features

#### References

- [Protection and Automated Disaster Recovery](#)
- [Nutanix Karbon Guide Cluster Setup](#)

### Objective 3.5: Given a scenario, configure systems to mitigate risk

#### Knowledge

- Analyze data integrity and availability requirements
- Evaluate user access requirements and roles
- Ensure secure connections
  - SSL certs
  - IAM
- Prevent or recover from ransomware

#### References

- [Modifying Default Passwords](#)
- [Custom Role Management](#)
- [Enabling Data-in-Transit Encryption](#)
- [Affinity Policies for AHV](#)

### Objective 3.6: Troubleshoot Nutanix services

#### Knowledge

- Evaluate cluster health
- Analyze failing subsystems
- Evaluate troubleshooting methodology and logic

#### References

- [NCC Health Check](#)
- [Updating Active Directory fails](#)
- [Changing the IPMI Password for AHV](#)
- [Configuring the Remote Console IP Address](#)
- [General troubleshooting knowledge base article](#)
- [Assigning the Controller VM to a VLAN](#)

## Section 4 – Analyze and Optimize VM Performance

### Objective 4.1: Manipulate VM configuration for resource utilization

#### Knowledge

- Evaluate clusters and identify inefficient VMs
- Perform advanced VM right-sizing
- Use X-Play to optimize VMs

#### References

- [Creating Playbooks using Triggers](#)
- [Creating a New Dashboard](#)
- [Creating a New Report](#)
- [AHV Turbo Technology](#)

## Objective 4.2: Interpret VM, node, and cluster metrics

### Knowledge

- Analyze VM and application-specific metrics
  - Latency
  - Traffic
  - Errors
- Create and evaluate alerts and analysis charts

### References

- [Creating an Entity Chart](#)
- [Creating a Metric Chart](#)
- [Advanced NUMA Configuration Options in AHV](#)
- [CPU Configuration](#)

## Section 5 – Ensure Business Continuity

### Objective 5.1: Analyze BCDR plans for compliance with business objectives

### Knowledge

- Evaluate protected workloads
- Assess protection policies & recovery plans
- Evaluate protection domain configuration
- Evaluate replication technology
- Verify CVM configuration

### References

- [Protection Strategies](#)
- [Snapshots](#)



## Objective 5.2: Evaluate BCDR plans for specific workloads

### Knowledge

- Validate workload recovery
  - RTO
  - Networking
  - Supporting infrastructure
- Determine technical limitations on a BCDR plan
  - Storage-heavy nodes
  - Bandwidth
  - Latency

### References

- [Restoration of Protected Entities](#)
- [Protection Strategies](#)
- [Snapshots](#)

## 4. NCM-MCI 6.5 Training Recommendations

### 4.1 Course Recommendation

Nutanix offers a course that provides training on the objectives tested for in the exam. More information on this course, including delivery methods and pricing, can be found at [nutanix.com/training](https://nutanix.com/training).

The course details are as follows

The **Nutanix® Advanced Administration and Performance Management (AAPM)** course will provide a deep dive for the experienced Nutanix administrator that will give a rich, nuanced understanding of the Nutanix platform, and will help get the most from the deployed Nutanix solutions.

AAPM is divided into six major sections, each focused on performance improvements and advanced administration techniques for different aspects of your clusters:

- **Storage:** Take a deep dive into AOS storage services, different aspects of Acropolis Distributed Storage, storage optimization, and storage best practices for application workloads.
- **Networks:** Learn how to optimize physical and virtual workloads, as well as how to implement Flow Virtual Networking and Virtual Private Clouds (VPCs).
- **VMs:** Learn about sizing the CVM and Prism Central VMs, alternate methods of VM provisioning (such as via CLI), how to work with GPUs, and how to improve VM storage and network performance.
- **Security:** Understand important features such as authentication, RBAC, IAM, and encryption. Learn how to use essential security products, such as Flow Security Central and Flow Network Security.
- **Analyzing Problems:** Explore ways to monitor and identify health issues, network performance, VM performance, and cluster performance.
- **Business Continuity and Disaster Recovery:** Learn about Nutanix data backup, web-scale data protection, protection from ransomware, self service restore, and third-party integrations. You will also learn how to use protection domains and Nutanix Leap for disaster recovery.

This course is available online or instructor-led. More information including schedules and how to register can be found at [www.nutanix.com/university](https://www.nutanix.com/university).

The material provided in the course covers a majority of the objectives (approximately 80%) that appear on the NCM-MCI 6.5 exam and is recommended for individuals who want to gain a good understanding of these objectives. Please note that additional exposure to a Nutanix environment is highly recommended.



## 5. Resources

### 5.1 Nutanix Community Edition

The Nutanix Community Edition is a free product that allows you to deploy a Nutanix Enterprise Cloud. To download the software and build your own environment for exam preparation, click [here](#).

### 5.2 Test Drive

You can also take a 2-hour Hyperconverged Test Drive, which utilizes the Nutanix Community Edition, by clicking [here](#).

### 5.3 The Nutanix Next Community

The Nutanix Next Community is a social interaction site where professionals can connect with cloud builders from around the world, learn from IT Pros in the industry and share experiences. The community maintains an area focused on the NCP certification, which is located [here](#).

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