

V1.0 | JULY 2021



EXAM BLUEPRINT GUIDE

# Nutanix Certified Professional - Database Automation (NCP-DB) 5 Exam

**Author:**

Jeff Hall - Technical Certification Developer  
Jon C. Hall - Sr. Manager, Technical Certification

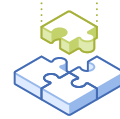
**Contributors:**

Brad Gough - Systems Architect  
Jason Burroughs - Sr. Systems Engineer  
Brendan Quinn - Customer Success Engineer  
Mark Gabryjelski - Sr. Architect  
Todd Burris - Systems Engineer  
Lev Goronshtein - Systems Architect  
Ross Hunt - Lead Engineer  
John Burton - Sr. Staff SRE  
Nick Page - Customer Success Manager  
Michael Silva - Inside Systems Engineer  
Krishna Kapa - Sr. Solutions Architect  
Prakash Nenwani - Portfolio Specialist  
Roger Gibson - Systems Architect  
Lochan Serma - Consulting Architect  
Jeremy Launier - Sr. Director, Product Management  
Venu Vuppalapati - Global Lead, Services Database Practice  
Mandar Surkund - Sr. Database Solutions Architect  
Mehboob Alam - Sr. Solutions Architect  
Drew Rutledge - Solutions Architect  
David Teague - Technical Marketing Engineer  
Andrei Patergin - Systems Architect  
Edward Keiper - Cloud Architect  
Ehab Helmy - Portfolio Specialist  
Daniel Milliron - Portfolio Specialist  
Jim Corder - Instructor  
Joe Garvey - Cloud Architect  
Varun Verma - Database Solutions Architect

**Disclaimer:**

The Nutanix Certified Professional - Database Automation 5 Exam Blueprint Guide provides an overview of the objectives that must be mastered to achieve the NCP-DB 5 credential. Nutanix does not offer any guarantees that this guide will ensure a candidate's success in achieving the NCP-DB 5 Certification. All information in this guide is subject to change at any time at the sole discretion of Nutanix.

<b>1. THE EXAM</b>	
1.1. Purpose of Exam.....	4
1.2. Number of Questions.....	4
1.3. Pricing.....	4
1.4. Passing Score.....	4
1.5. How Objectives Relate to Questions on the Exam.....	4
1.6. Languages.....	4
1.7. Time Limit.....	5
1.8. Scheduling and Taking the Exam.....	5
1.9. Certification Tracks.....	5
1.10. Retake Policy.....	5
1.11. Exam Security.....	5
1.12. Recertification.....	5
<b>2. INTENDED AUDIENCE</b>	
2.1. Intended Audience.....	6
<b>3. OBJECTIVES COVERED IN THE NUTANIX DB 5 EXAM</b>	
3.1. Introduction.....	7
3.2. Objectives.....	7
<b>4. NCP-DB 5 TRAINING RECOMMENDATIONS</b>	
4.1. Course Recommendation.....	18
<b>5. RESOURCES</b>	
5.1. Nutanix Community Edition.....	19
5.2. The Nutanix Next Community.....	19
5.2. Test Drive.....	19



---

# 1. The Exam

---

## 1.1 PURPOSE OF EXAM

The Nutanix Certified Professional - Database Automation 5 exam tests candidates on their skills and abilities to deploy, administer, optimize, and troubleshoot database workloads using Nutanix Era. Successful candidates demonstrate mastery of these skills and abilities.

---

## 1.2 NUMBER OF QUESTIONS

The exam consists of 75 multiple choice and multiple response questions.

---

## 1.3 PRICING

The cost for the NCP-DB 5 exam is \$199 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 navigating and managing a Nutanix Era-managed database 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, Japanese, and Simplified Chinese.

---

## 1.7 TIME LIMIT

The time limit for the exam 120 minutes.

---

## 1.8 SCHEDULING AND TAKING THE EXAM

This exam is delivered via remote proctoring in your home or office, or at a designated testing center. Occasionally, testing at Nutanix events may also be offered. At the start of the registration process, you will be asked to choose remote or in person testing. After registering for the exam, you will receive further information specific to the testing method you chose. Regardless of whether you test remotely or in person, you must provide valid identification and will be provided with a monitored and secure exam experience.

---

## 1.9 CERTIFICATION TRACKS

The Nutanix Certified Professional - Database Automation 5 exam is a core component of the Nutanix Database Management track. Passing this exam results in achieving the NCP-DB 5 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 course and track 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 e-mail [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.

---

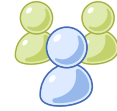
## 1.11 EXAM SECURITY

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 Professional - Database Automation 5 exam and achieved the NCP-DB 5 certification, it will remain valid until Nutanix releases the next version of the certification. At that time, you have one year to upgrade your certification to the new release before it expires.



---

## 2. Intended Audience

---

### 2.1 INTENDED AUDIENCE

A candidate for the Nutanix Certified Professional - Database Automation 5 exam and NCP-DB 5 certification has approximately 1-2 years of Nutanix Database management experience, while also having at least 6 months of Nutanix Era experience. They are typically database administrators, Nutanix technical employees, Nutanix channel partners, Nutanix OEM vendors, and Nutanix customers.

Successful candidates are capable of successfully provisioning, patching, protecting, and cloning Nutanix Era-managed databases. The successful candidate will most likely have taken training courses such as the Nutanix Database Administration (NDBA) course.



---

# 3. Objectives covered in the NCP-DB 5 Exam

---

## 3.1 INTRODUCTION

It is recommended that candidates have the knowledge and skills necessary to deploy, administer, optimize, and troubleshoot database workloads using Nutanix Era before attempting the Nutanix Certified Professional - Database Automation 5. It is also recommended that the candidate complete the training course described in Section 4 prior to taking the exam.

---

## 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 - Describe Nutanix Era Concepts

#### Objective 1.1 - Define database terminology

Knowledge:

- Describe basic Era features
- Describe Time Machine SLAs
- Define Data Access Management (DAM)
- Define provisioning profiles
- Explain Copy Data Management (CDM)
- Identify basic Microsoft SQL and Oracle database terminology

#### References

- [Terminology Reference](#)
- [What's New | Era 2.1](#)
- [Data Access Management \(DAM\)](#)
- [Copy Data Management \(CDM\)](#)
- [One-Click Provisioning](#)
- [Oracle Database Management](#)
- [Oracle RAC Database](#)

#### Objective 1.2 – Describe Era features and benefits

##### Knowledge:

- Describe provisioning
- Describe patching
- Describe cloning
- Describe data protection

#### References

- [Era Overview](#)
- [Era Services](#)
- [Era Profiles](#)
- [Era Dashboard](#)
- [One-Click Provisioning](#)
- [SLA Management](#)
- [Patching a Database Server VM](#)

#### Section 2 – Deploy and Configure a Nutanix Era Solution

#### Objective 2.1 – Deploy an Era VM

##### Knowledge:

- Download, import, and create an Era VM
- Assign a static IP address to an Era VM using the Era Console
- Log onto an Era instance and run the installation wizard

#### References

- [Era Requirements](#)
- [Installing Era \(AHV\)](#)
- [Installing Era \(ESXi\)](#)
- [Assign a Static IP Address to the Era VM](#)
- [Database and Database Server VM Registration Prerequisites](#)
- [Registering a Database Server VM](#)



## Objective 2.2 - Configure an Era instance

### Knowledge:

- Change NTP/DNS settings from the Era server CLI
- Determine the required network firewall ports to support a given Era environment scenario
- Configure network segmentation
- Change the Era language settings
- Configure an SSL certificate
- Deploy Era High Availability (HA)

### References

- [Era Notes and Limitations](#)
- [One-Click Provisioning](#)
- [Era Requirements](#)
- [Welcome to Era Wizard](#)
- [Configuring an SSL Certificate](#)
- [High Availability for Era Repository](#)

## Section 3 - Monitor and Report on a Nutanix Era Implementation

### Objective 3.1 - Monitor alerts

#### Knowledge:

- Configure SMTP
- Monitor and clear alerts
- Filter alerts by time range
- Set policies

#### References

- [Era Alerts Dashboard](#)
- [Era Alert Management](#)
- [Era Alert Policies Management](#)
- [Sending Alert Notifications to an Email Recipient](#)

### Objective 3.2 – Monitor storage usage

#### Knowledge:

- Identify database source and clone size
- Monitor database storage efficiency
- Monitor snapshots

#### References

- [Clone Management](#)
- [Database Management](#)
- [Snapshot Management](#)

### Objective 3.3 – Report on database inventory

#### Knowledge:

- Monitor database and clone inventory
- Configure tags
- Identify a profile used by a given database
- Identify a database engine version
- Identify a cluster or VM hosting database

#### References

- [Era Dashboard](#)
- [Era Tags Management](#)
- [SQL Server Database Profiles](#)
- [Oracle Database Profiles](#)

## Section 4 – Operate and Maintain a Nutanix Era Environment

### Objective 4.1 – Apply procedural concepts to register database server VMs and databases

#### Knowledge:

- Verify database registration prerequisites
- Provide OS and database instance credentials
- Select the appropriate cluster
- Discover the instance
- Select one or more databases to register
- Provide credentials to connect to the database
- Determine the appropriate Time Machine policy
  - › SLA selection, schedule selection, select cluster(s) for Time Machine backups

#### References

- [Oracle Database and Database Server VM Registration](#)
- [Registering a SQL Server Failover Cluster Instance Database](#)
- [Registering a SQL Server Database](#)
- [MySQL Database Registration](#)
- [Notes and Limitations](#)
- [Registering an SAP HANA Database Server VM](#)
- [Removing a Database Server VM or Database Server Cluster](#)

#### Objective 4.2 – Apply procedural concepts to provision databases

##### Knowledge:

- Select a database engine
- Select a single instance or cluster
- Select the appropriate profile
- Provide the name and size of a database
- Determine the appropriate Time Machine policy
  - › SLA selection, schedule selection, select cluster(s) for Time Machine backups

#### References

- [Database Server VM Provisioning Prerequisites](#)
- [Era Profiles](#)
- [Provisioning a SQL Server Availability Database](#)
- [Oracle Database Provisioning](#)
- [Removing a Database Server VM or Database Server Cluster](#)
- [Microsoft SQL Server Database Management](#)
- [Oracle Database Management](#)
- [Virtual Hardware Design](#)
- [Editions and Supported Features of SQL Server 2019 \(15.x\)](#)

#### Objective 4.3 – Apply procedural concepts to test and publish database patches

##### Knowledge:

- Create software profile versions
  - › Image-based, incremental package
- Publish software profile versions
- Test patches according to vendor-specific processes

#### References

- [Clone Management](#)
- [SQL Server Database Profiles](#)
- [Creating a Software Profile Version](#)
- [Provisioning a HA PostgreSQL Instance \(Cluster Database\)](#)

#### Objective 4.4 – Describe steps to apply database patches

##### Knowledge:

- Apply a patch immediately
- Run a postscript
  - › Update kernel patches
- Schedule a user patch by date and time

#### References

- [Patching an Oracle Database Server VM](#)
- [Patching a SQL Server Database Server VM](#)
- [Microsoft SQL Server Database Management](#)
- [Updating a Software Profile Version](#)
- [Nutanix Era: One-Click Oracle 19c Patching](#)

#### Objective 4.5 – Upgrade databases

##### Knowledge:

- Upgrade Oracle databases in place
- Upgrade Microsoft SQL databases via cloning

#### References

- [Era Upgrade Management](#)
- [Updating a Database](#)

#### Objective 4.6 – Given a scenario, troubleshoot Era operations

##### Knowledge:

- Analyze alerts
- Review operational logs
- Generate diagnostics bundle
- Analyze failed snapshots
- Analyze failed refresh clones

## References

- [Multi-Cluster Management](#)
- [Troubleshooting a Cluster Account Password](#)
- [Troubleshooting an Era Registration Due to Unmounted Container](#)
- [Troubleshooting Era Database Provisioned from the OOB Template](#)
- [Era Network Management](#)
- [Updating a Software Profile Version](#)

## Section 5 – Protect a Nutanix Era Implementation Using Time Machine

### Objective 5.1 – Create, delete, and modify SLA retention policies

#### Knowledge:

- Determine the appropriate number of snapshots
- Determine schedule retention policies
  - › Continuous, snapshot
- Create a custom SLA
- Determine storage requirements based on policy
- Manage SLAs for multiple clusters

#### References

- [SLA Management](#)
- [Database Log Management](#)
- [Managing Database Log Backups in Era](#)
- [Era 2.0 FAQs](#)
- [Setting Alert Retention](#)

### Objective 5.2 – Given business requirements, perform a database clone

#### Knowledge:

- Determine the business requirements for clones
- Configure the refresh schedule
- Configure the removal schedule
- Authorize existing VMs
- Configure pre-create and post-create scripts
- Determine the target VM for cloning
- Create a clone from a manual snapshot

#### References

- [SQL Server Database Clone](#)
- [Oracle Database Clone](#)
- [Authorizing Database Server VMs](#)
- [Era Time Machine Management](#)

Objective 5.3 – Apply procedural concepts to restore source databases

#### Knowledge:

- Restore a source database from a snapshot
- Restore a source database to a point in time

#### References

- [Restoring a SQL Server Database](#)
- [Restoring an Oracle Database](#)
- [Oracle Database Management](#)
- [Era Time Machine Management](#)

Objective 5.4 – Refresh clones

#### Knowledge:

- Manage the refresh schedule
- Manage the removal schedule
- Execute the manual clone refresh

#### References

- [Refreshing Database Clones \(Manual\)](#)
- [Removing a Database Clone \(Manual\)](#)

Objective 5.5 – Apply policies to back up databases

#### Knowledge:

- Apply an appropriate SLA
- Apply an appropriate Data Access Management (DAM) policy
- Create a manual snapshot

#### References

- [SLA Management](#)
- [Data Access Management \(DAM\)](#)
- [Built-In SLAs](#)
- [Creating Snapshots \(Manual\)](#)

## Section 6 – Administer a Nutanix Era Cluster Environment

### Objective 6.1 – Manage Era profiles

#### Knowledge:

- Create a software profile
- Create a compute profile
- Create a network profile
- Create database parameters
- Create a Windows domain
- Manage the profile status
  - › Published, unpublished, and deprecated
- Identify Out of the Box (OOB) software profiles

#### References

- [Era Profiles](#)
- [Creating a Software Profile Version](#)
- [Creating a Compute Profile](#)
- [Creating a SQL Server Network Profile](#)
- [Creating a Windows Domain Profile](#)
- [Creating a Database Parameter Profile](#)
- [Updating a Software Profile Version](#)

### Objective 6.2 – Perform Era software updates

#### Knowledge:

- Perform an update of Era
- Update a dark site

#### References

- [Era Upgrade Management](#)
- [Upgrading Era \(Offline Upgrade\)](#)

### Objective 6.3 – Apply procedural concepts to add Nutanix clusters to Era

#### Knowledge:

- Verify the prerequisites to add a Nutanix cluster to Era
  - › Versions, network connectivity, credentials, IP address, etc.
- Register a Nutanix cluster to Era
- Enable an Era multicluster environment
- Configure storage containers

#### References

- [Enabling Era Multi-Cluster](#)
- [Registering a Nutanix Cluster with Era](#)

#### Objective 6.4 – Manage networks in Era

##### Knowledge:

- Create an Era-managed network
  - › Static IP pool, subnet, etc.
- Determine when to use an Era-managed network
  - › Network profile configurations
- Add a VLAN

#### References

- [Era Network Management](#)
- [Adding a VLAN to Era](#)
- [Creating a User VM \(UVM\) Network](#)
- [Updating a Static VLAN](#)
- [Adding IP Addresses to a Static VLAN](#)
- [Displaying the Static IP Address Assignment](#)

#### Objective 6.5 – Manage RBAC controls

##### Knowledge:

- Configure authentication
  - › Register the Microsoft Active Directory environment
- Understand access controls and roles
- Create custom roles
- Create and map users and groups
- Share entities

#### References

- [Role-Based Access Control](#)
- [Privileges and Permissions](#)
- [Creating a Role](#)
- [Updating a Role](#)
- [Adding a User](#)
- [Adding, Updating, and Removing a Group](#)
- [Refreshing a Group](#)
- [Configuring Active Directory Access](#)



Objective 6.6 – Identify how to use Era APIs and CLI

Knowledge:

- Identify which automation tools are available
- Download an API
- Leverage a script for manual activity
- Identify how to use the Era CLI
- Identify how to use an API

References

- [Downloading Pre-Requirement Script \(CLI\)](#)
- [Download Pre-Requirement Script \(GUI\)](#)
- [Running Pre-Requirement Script \(Linux\)](#)
- [Downloading the Uninstall Script \(GUI\)](#)



---

# 4. NCP-DB 5 Training Recommendations

---

## 4.1 TRAINING COURSE RECOMMENDATIONS

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 details are as follows:

### Nutanix® Database Administration (NDBA)

The Nutanix Database Administration course teaches the skills needed to install, configure, operate, and manage Nutanix Era.

The NDBA course will explore a number of subjects, including:

- The what, the how, the why, and the benefits of database-as-a-service (DBaaS).
- Important Nutanix Era terms and concepts, like copy data management, time machine, provisioning profiles and data access management.
- Implementing role-based access control (RBAC), including working with built-in and custom roles, and managing users and groups.
- Adding multiple clusters to Nutanix Era, working with Nutanix Guest Tools, and registering a Nutanix cluster with Era.
- Monitoring and investigating issues with Nutanix Era, including alert policies, notifications, and log collection.
- Operations involved in protecting and restoring databases, including creating snapshots, cloning databases, log catch-up operations, refreshing clones, and restoring source databases.



---

## 5. Resources

---

### 5.1 NUTANIX COMMUNITY EDITION

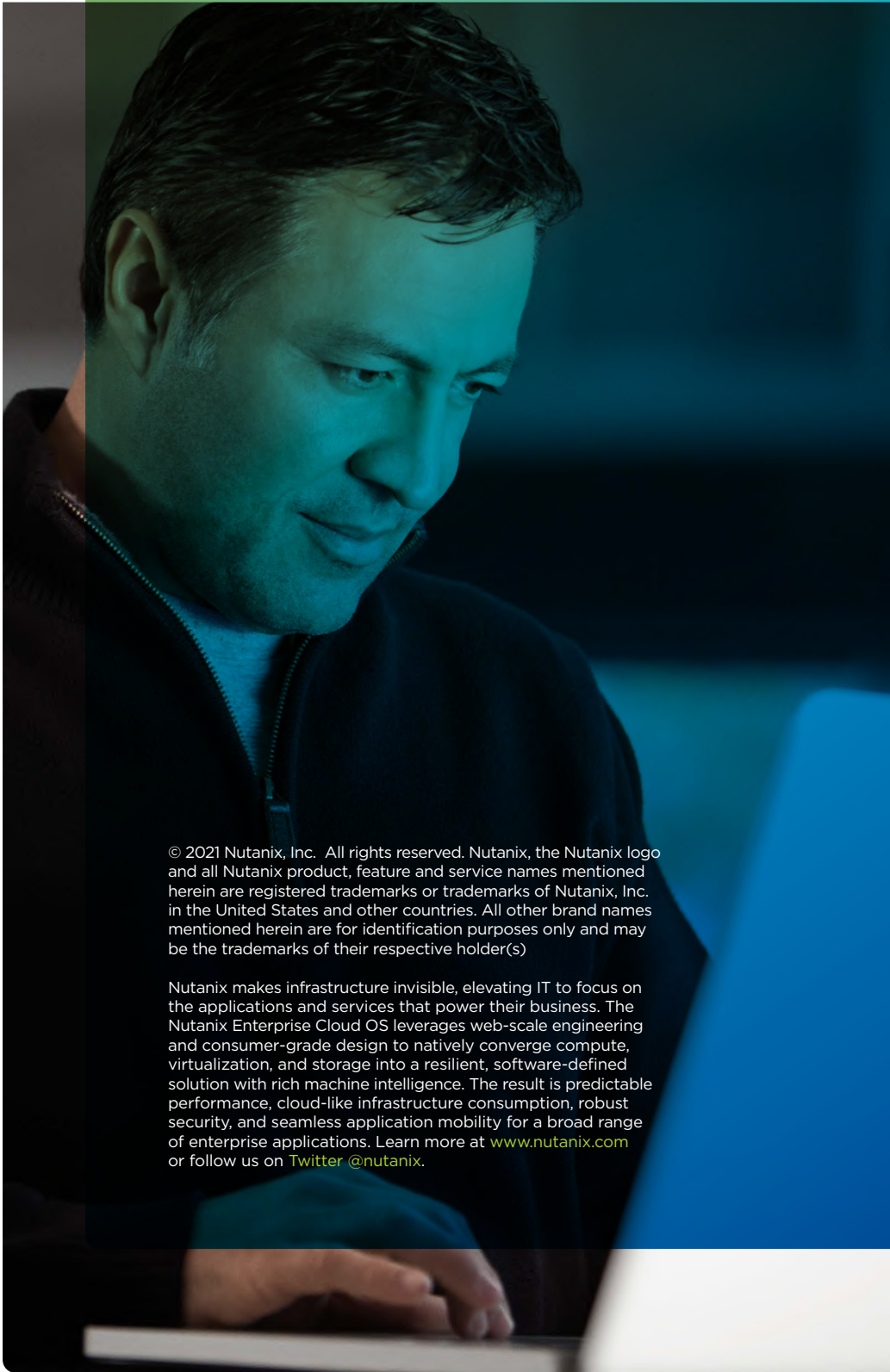
The Nutanix Community Edition is a free product that allows you to deploy a Nutanix Enterprise Cloud. To download the software and build your own environment for exam preparation, [here](#).

### 5.2 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-DB certification, which is located [here](#).

### 5.3 TEST DRIVE

Build your clouds your way in a few clicks and instantly complete all your IT tasks on a unified cloud platform with Test Drive. [Click here](#) to take a Test Drive today.



© 2021 Nutanix, Inc. All rights reserved. Nutanix, the Nutanix logo and all Nutanix product, feature and service names mentioned herein are registered trademarks or trademarks of Nutanix, Inc. in the United States and other countries. All other brand names mentioned herein are for identification purposes only and may be the trademarks of their respective holder(s)

Nutanix makes infrastructure invisible, elevating IT to focus on the applications and services that power their business. The Nutanix Enterprise Cloud OS leverages web-scale engineering and consumer-grade design to natively converge compute, virtualization, and storage into a resilient, software-defined solution with rich machine intelligence. The result is predictable performance, cloud-like infrastructure consumption, robust security, and seamless application mobility for a broad range of enterprise applications. Learn more at [www.nutanix.com](http://www.nutanix.com) or follow us on [Twitter @nutanix](https://twitter.com/nutanix).

**NUTANIX**<sup>™</sup>  
YOUR ENTERPRISE CLOUD

[university@nutanix.com](mailto:university@nutanix.com) | [www.nutanix.com/university](http://www.nutanix.com/university)  
[@nutanixedu](https://twitter.com/nutanixedu)