



# NCTA-Certified CloudOps Specialist (NCO) Exam NCO-110

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## Exam Information

### Candidate Eligibility:

The *NCTA-Certified CloudOps Specialist* (NCO) exam requires no application fee, supporting documentation, nor other eligibility verification measures for you to be eligible to take the exam. Simply purchase an exam voucher [here](#), then Logical Operations will send you an email containing the information you need to register to take the exam through Pearson VUE. You can also purchase a voucher directly through Pearson VUE. If your voucher came bundled with your NCTA Cloud Operations training program, you will receive registration information from your training provider. Once you have obtained your voucher information, you can register for an exam time [here](#). By redeeming your exam voucher, you agree to our [Candidate Agreement](#).

### Exam Prerequisites

While there are no formal prerequisites to register for and schedule an NCO-110 exam time, the National Cloud Technologists Association (NCTA) strongly recommends you first possess the knowledge, skills, and abilities to do the following:

- Plan a cloud service implementation
- Deploy a cloud application with DigitalOcean, Amazon Web Services, or Heroku
- Deploy websites and applications with Microsoft Azure
- Implement Azure Cloud Services and virtual machines
- Manage Azure applications with Visual Studio
- Deploy applications to Opscode Chef
- Identify the benefits and components of Puppet
- Implement Rackspace cloud servers
- Import data from and export data to cloud services
- Manage security and compliance in cloud solutions
- Plan and execute a phased cloud migration

You can obtain this level of skill and knowledge by taking the following Logical Operations (LO) course, which is available through training providers located around the world:

- *NCTA Cloud Operations*

## Exam Specifications

**Number of Items:** 32

**Passing Score:** 20 out of 32 (60%)

**Duration:** 55 minutes (**Note:** Published exam times include the 5 minutes you are allotted for reading and signing the Candidate Agreement and the 5 minutes you are allotted for the Pearson VUE testing system tutorial.)

**Exam Options:** In person at Pearson VUE test centers

**Item Formats:** Multiple Choice/Multiple Response/True-False

## Exam Description

### Target Candidate:

This exam is intended for system administrators or cloud technologists who are responsible for advanced-level tasks associated with evaluating, deploying, and administering cloud services. Candidates should have a minimum of three to five years of experience evaluating and selecting PaaS solutions and deploying applications to the cloud; and maintaining, securing, and optimizing cloud solutions to achieve optimal total cost of ownership and return on investment.

To ensure exam candidates possess the aforementioned knowledge, skills, and abilities, the *NCTA-Certified CloudOps Specialist* exam will test them on the following objective domains with the following weightings:

Domain	% of Examination
<b>1.0 Cloud Service Implementation</b>	9%
<b>2.0 Cloud Application Deployment and Management</b>	34%
<b>3.0 Cloud Website and Web Service Deployment and Management</b>	41%
<b>4.0 Virtual Machines and Cloud Servers</b>	10%
<b>5.0 Security and Compliance</b>	6%
<b>Total</b>	<b>100%</b>

The information that follows is meant to help you prepare for your NCTA certification exam. This information does not represent an exhaustive list of all the concepts and skills that you may be tested on during your exam. The exam domains, identified previously and included in the objectives listing, represent the large content areas covered in the exam. The objectives within those domains represent the specific tasks associated with the job role(s) being tested. The information beyond the domains and objectives is meant to provide examples of the types of concepts, tools, skills, and abilities that relate to the corresponding domains and objectives. All of this information represents the industry-expert analysis of the job role(s) related to the certification and does not necessarily correlate one-to-one with the content covered in your training program or on your exam. The NCTA strongly recommends that you independently study to familiarize yourself with any concept identified here that was not explicitly covered in your training program or products.

## **Objectives:**

### **Domain 1: Cloud Service Implementation**

#### **1.1. Identify common cloud concepts and service models**

- **Core concepts**
  - **Service models**
  - **NIST principles**
  - **Application technologies (native vs. web)**
- **Service models**
  - **SaaS**
  - **PaaS**
  - **IaaS**
- **Implementation models**
  - **Public**
  - **Private**
  - **Hybrid**
- **Service providers**
  - **Microsoft Azure**
  - **Amazon Web Services**
  - **Opscode Chef**
  - **DigitalOcean**
  - **Heroku**
  - **Puppet**
  - **Rackspace**

#### **1.2. Identify administrative and business requirements for cloud services**

- **Business requirements**
  - **Operational benefits**

- Legal and regulatory requirements
  - Service/cost optimization
  - Performance metrics
  - Local/cloud integration
  - Risk assessment
  - SLAs
  - **Business trends**
    - Virtualization
    - Pay-per-use
    - Grid computing
  - **Cloud computing trends**
    - BYOD
    - Big data
    - Identity management and protection
  - **Administrator roles**
    - IT vs. business-focused
  - **End-user roles and requirements**
    - Data needs
    - User permissions
    - Incident management/issue tracking
- 1.3. Determine hardware, software, and network requirements**
- **Deployment planning**
    - Phased deployment
  - **Hardware requirements**
    - Storage
    - Memory
    - Load balancing
    - Traffic
  - **Software requirements**
    - End-user apps
    - OSs
    - Coding frameworks
    - Web servers
    - Legacy software migration
  - **Software updates/upgrades**
  - **Network topologies**
  - **Geographical footprint**
- 1.4. Plan automation and configuration management**
- **Benefits of automation**
  - **Remote management**
  - **IPMI**
  - **Puppet**

### 1.5. Determine support and resource needs

- **Support resource types**
  - **Technical**
  - **Organizational**

## Domain 2: Cloud Application Deployment and Management

### 2.1. Identify cloud application considerations

- **Local file systems**
- **Cookies**
- **HTTP sessions**
- **Port use**

### 2.2. Identify common cloud app languages and frameworks

- **.NET**
- **Ruby on Rails**
- **Java**
- **PHP**
- **Python**

### 2.3. Deploy apps to specific platforms

- **DigitalOcean app deployment**
  - **Droplets**
  - **DigitalOcean APIs**
  - **One-click apps**
    - **Mumble**
    - **Drupal**
    - **WordPress**
- **Heroku app deployment**
  - **Dynos/Dyno management**
    - **Slugs**
    - **Buildpacks**
  - **Ephemeral File System**
  - **Command line logging**
  - **Heroku routing**
  - **GitHub integration**
  - **Heroku Toolbelt**
  - **Git Bash**
- **Azure app deployment**
  - **Azure App Services**
    - **Azure Active Directory**
    - **Caching**
    - **CDN**

- Queues
  - Media Services
- Azure Compute Emulator
- Azure Marketplace
- Azure Management Portal
- Azure vs. Visual Studio/WebMatrix
- Publish profiles
- Opscode Chef app deployment
  - Nodes
    - Cloud-based
    - Physical
    - Virtual
    - Network
  - Chef implementation components
    - Recipe
    - Cookbook
    - Run List
    - Data bag
  - The Chef usage model
  - Ohai
  - Knife

### Domain 3: Cloud Website and Web Service Deployment and Management

#### 3.1. Identify web deployment methods

- Web Deploy
- Kudu
- FTP/FTPS
- TFS

#### 3.2. Deploy websites and web services to specific platforms

- Azure web deployment
  - Azure Resource Manager
  - Azure Storage
  - Azure databases
    - SQL
    - NoSQL
  - Azure cloud services
    - Roles
    - Cloud service requirements
  - Traffic Manager
  - Failover/failback

- Management certificates
- **AWS deployment**
  - **AWS service types**
    - Network
    - Compute
    - Database
    - Storage/content delivery
    - Performance monitoring
  - **AWS deployment options**
    - CodeDeploy
    - Elastic Beanstalk
    - CodePipeline
    - CloudFormation
    - OpsWorks

### **3.3. Manage Azure Services/AWS with Chef**

- Knife Azure
- Azure command trees
- OpsWorks
  - Stacks and layers
  - Recipes and lifecycle events
  - Instances

## **Domain 4: Virtual Machines and Cloud Servers**

### **4.1. Implement VMs on Azure**

- Windows/Linux
- Azure Stack
- Azure virtual networks

### **4.2. Implement Rackspace Cloud Servers**

- OpenStack
- OpenStack principles
  - Simple and scalable
  - Apache 2.0 licensing
  - Hypervisor support
  - Open standards
  - Open design process
- OpenStack offerings
  - Compute
  - Object Storage
  - Imaging
  - Network

- **Rackspace Cloud**
- **Rackspace Cloud services**
  - **Databases**
  - **Sites**
  - **Servers**
  - **Files**
  - **Private Cloud**

## **Domain 5: Security and Compliance**

### **5.1. Identify common cloud security issues**

- **User group security ownership**
  - **End-user**
  - **Cloud operator**
  - **Service provider**
- **Threat types**
  - **Abuse/nefarious actors**
  - **Malicious behavior (insider)**
  - **Third-party technical failures**
  - **Hackers**
  - **Data loss**
- **Security vulnerabilities**
  - **Operating systems**
  - **Hypervisors**
  - **Load balancers**
  - **Hardware**
  - **Software/systems**

### **5.2. Implement and manage cloud security solutions**

- **SSH**
  - **Public/private keys**
- **Layered security**
  - **Controls and tools**
    - **WatchGuard**
    - **McAfee**
    - **Trustwave**
    - **Cisco**
  - **Defense in depth**

### **5.3. Manage cloud solution compliance**

- **Compliance types**
  - **Legal/legislative**
    - **HIPAA**



- SOX
- FISMA
- PCI-DSS
- Self-imposed
- Compliance tools and specifications
  - GRC
  - AWS Config
  - Google security model
    - CloudAudit

## Continuing Education Requirements

The *NCTA-Certified CloudOps Specialist* (NCO) certification is valid for three years from the time the certification is granted. You must re-take the most up-to-date version of the exam prior to the three-year period's end to maintain a continuously valid certification.

To view the NCTA Candidate Agreement, click [here](#).

Then purchase a voucher to take the exam by clicking [here](#).