National Cloud Technologists Association

NCTA-Certified CloudMASTER (NCM) Exam NCM-110

Exam Information

Candidate Eligibility:

The *NCTA-Certified CloudMASTER* (NCM) 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 Technologies, NCTA Cloud Operations, or NCTA Cloud Architecture 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 NCM-110 exam time, the National Cloud Technologists Association (NCTA) strongly recommends you first possess the knowledge, skills, and abilities to do the following:

- Identify the benefits of cloud computing
- Plan cloud adoption
- Address barriers to cloud implementation
- Assess various cloud solution options
- Determine the technical requirements for your cloud needs
- Determine database requirements
- Evaluate and select an appropriate Service Level Agreement (SLA)
- Select and implement both free and paid Software-as-a-Service (SaaS) solutions based on requirements and needs
- Plan for cloud service migration
- Select SaaS solutions that are appropriate for small, medium, and large organizations
- Integrate SaaS solutions
- Select Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS) solutions based on requirements and needs
- 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
- Secure cloud-based data and user access to cloud services
- Plan and execute a phased cloud migration
- Design scalable cloud solutions
- Plan for and implement business continuity and disaster recovery programs
- Prepare your organization for cloud migration
- Prepare and present cloud migration plans to organizational leaders

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

- *NCTA Cloud Technologies*
- *NCTA Cloud Operations*
- *NCTA Cloud Architecture*

Exam Specifications

Number of Items: 89

Passing Score: 54 out of 89 (60%)

Duration: 130 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 and IT leaders who are ultimately responsible for all aspects of cloud planning, design, and implementation within their organizations. The ideal candidate with have five or more years of experience evaluating, selecting, implementing, administering, and securing a variety of cloud-based services in active organizational environments. The successful

candidate will also have extensive expertise with both cloud-only and hybrid solutions, and will have the ability to monitor a variety of cloud systems on an ongoing basis to maintain secure cloud environments and to optimize implementations.

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

Domain	% of Examination
1.0 Cloud Computing Concepts and Benefits	6%
2.0 Cloud Service Models	9%
3.0 Cloud Adoption Planning	5%
4.0 Cloud Service Migration	2%
5.0 SaaS Solutions	6%
6.0 PaaS and IaaS Solutions	9%
7.0 Cloud Service Implementation	4%
8.0 Cloud Application Deployment and Management	12%
9.0 Cloud Website and Web Service Deployment and Management	15%
10.0 Virtual Machines and Cloud Servers	3%
11.0 Security and Compliance	2%
12.0 Cloud Implementation Preparation	6%
13.0 Organizational Requirements and Cloud Service Options	12%
14.0 Feature and Component Selection	3%
15.0 Cloud Service Licensing	3%
16.0 Cloud Scalability	2%
17.0 Cloud Service Continuity, Security, and Recovery	1%
Total	**100%**

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: **[For a more detailed listing of specific tools, topics, skills, and concepts covered in the NCM-110 exam, you can review the blueprints for the NCT-110, NCO-110, and NCA-110 exams here. The NCM-110 exam is a capstone certification based on the knowledge, skills, and abilities tested for in the other component exams.]**

Domain 1: Cloud Computing Concepts and Benefits

1.1 Translate cloud computing benefits to business needs
- **Cloud computing principles**
- **Organizational benefits and uses**

1.2 Analyze business trends in cloud computing
- **Application technologies**
- **Pay-per-use**
- **Grid computing**
- **Policy-based scaling**
- **Expense off-loading**

Domain 2: Cloud Service Models

2.1 Identify service models and implementations
- **Cloud computing service models**
- **Common implementations**
- **Service providers**

2.2 Identify cloud provider benefits and challenges
- **Economy of scale**
- **Optimization**
- **Resource availability**
- **Responsibility for security**
- **Down time**

Domain 3: Cloud Adoption Planning

3.1 Plan cloud access and management
- **SLAs**
- **User groups and needs**
- **Data access**
- **Infrastructure management**

3.2 Plan cloud provisioning

- **Multitenancy**
- **Provisioning requirements**
- **Utilization models**

3.3 Select end-user cloud technologies

- **Native applications**
- **Web applications**

3.4 Address barriers to cloud Implementation

- **Cloud-implementation concerns and challenges**

Domain 4: Cloud Service Migration

4.1 Plan domain name integration with cloud services

- **Web access and DNS**

4.2 Plan to migrate email to the cloud

- **Data loss mitigation**
- **Mail flow**
- **Directories**
- **Migration options**

Domain 5: SaaS Solutions

5.1 Evaluate SaaS solutions

- **Free SaaS solutions**
- **Paid SaaS solutions**

5.2 Select SaaS solutions for small organizations

- **Small organizational needs**
- **Benefits to smaller organizations**

5.3 Select SaaS solutions for medium and large organizations

- **Large organizational needs**
- **Large organizational requirements**

5.4 Implement SaaS solutions

- **SaaS models**
- **SaaS requirements**
- **Provider considerations**
- **Business needs for SaaS integration**

5.5 Evaluate integration options

- **Integration models**
- **Integration points**
- **Security concerns**

- **Integration best practices**

Domain 6: PaaS and IaaS Solutions

6.1 Evaluate PaaS solutions
- **PaaS types**
- **PaaS benefits**
- **PaaS requirements**

6.2 Implement PaaS solutions
- **Solutions for small, medium, and large organizations**
- **Implementation best practices**

6.3 Compare IaaS to traditional infrastructure solutions
- **IaaS benefits**
- **Usage scenarios**

6.4 Identify and select IaaS providers
- **Provider service types**

Domain 7: Cloud Service Implementation

7.1 Identify administrative and business requirements for cloud services
- **Business requirements**
- **Business trends**
- **Cloud computing trends**
- **Administrator roles**
- **End-user roles and requirements**

7.2 Determine hardware, software, and network requirements
- **Deployment planning**
- **Hardware requirements**
- **Software requirements**
- **Software updates/upgrades**
- **Network topologies**
- **Geographical footprint**

7.3 Plan automation and configuration management
- **Benefits of automation**
- **Remote management**
- **IPMI**
- **Puppet**

7.4 Determine support and resource needs
- **Support resource types**

Domain 8: Cloud Application Deployment and Management

8.1 Identify cloud application considerations

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

8.2 Identify common cloud app languages and frameworks

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

8.3 Deploy apps to specific platforms

- **DigitalOcean app deployment**
- **Heroku app deployment**
- **Azure app deployment**
- **Opscode Chef app deployment**

Domain 9: Cloud Website and Web Service Deployment and Management

9.1 Identify web deployment methods

- **Web Deploy**
- **Kudu**
- **FTP/FTPS**
- **TFS**

9.2 Deploy websites and web services to specific platforms

- **Azure web deployment**
- **AWS deployment**

9.3 Manage Azure Services/AWS with Chef

- **Knife Azure**
- **Azure command trees**
- **OpsWorks**

Domain 10: Virtual Machines and Cloud Servers

10.1 Implement VMs on Azure

- **Windows/Linux**

- **Azure Stack**
- **Azure virtual networks**

10.2 Implement Rackspace Cloud Servers

- **OpenStack**
- **OpenStack principles**
- **OpenStack offerings**
- **Rackspace Cloud**
- **Rackspace Cloud services**

Domain 11: Security and Compliance

11.1 Identify common cloud security issues

- **User group security ownership**
- **Threat types**
- **Security vulnerabilities**

11.2 Implement and manage cloud security solutions

- **SSH**
- **Layered security**

11.3 Manage cloud solution compliance

- **Compliance types**
- **Compliance tools and specifications**

Domain 12: Cloud Implementation Preparation

12.1 Prepare the organization for cloud migration

- **Cloud risks**
- **Cloud teams**
- **Documentation**

12.2 Present solutions for organizational approval

- **Present/pitch to organization**
- **TCO**
- **ROI**
- **Case studies**
- **Calls to action**

Domain 13: Organizational Requirements and Cloud Service Options

13.1 Determine your organizational requirements

- **Application requirements**

- **Database requirements**

13.2 Evaluate cloud service features and components

- **Facilities**
- **Cloud compute components**
- **Cloud storage and delivery components**
- **Virtualization software**
- **Cloud management platform components**

Domain 14: Feature and Component Selection

14.1 Select AWS infrastructure components

- **Global data center infrastructure**
- **AWS management and administration**
- **AWS compute components**
- **AWS networking components**
- **AWS storage and content delivery components**
- **AWS management and monitoring**
- **AWS PaaS features**
- **AWS database services**

14.2 Select Rackspace cloud features and components

- **Rackspace cloud database services**
- **Rackspace cloud storage components**
- **Rackspace service monitoring**

14.3 Select Microsoft Azure features and components

- **Azure compute and network components**
- **Azure database services**
- **Azure storage services**
- **Azure app services**
- **Azure monitoring services**

Domain 15: Cloud Service Licensing

15.1 Determine your organization's cloud service licensing requirements

- **Licensing agreement types**

15.2 Evaluate SLAs

- **SLA considerations**
- **SLA types**

Domain 16: Cloud Scalability

16.1 Evaluate cloud service scaling options

- **Scale up vs. scale out**
- **Peak vs. average use**
- **Logical vs. physical upgrades**
- **Scaling considerations**

16.2 Manage compute, memory, and storage resources

- **Compute management**
- **Memory management**
- **Storage management**

16.3 Manage network components

- **Network performance issues**

Domain 17: Cloud Service Continuity, Security, and Recovery

17.1 Implement cloud service continuity and disaster recovery plans

- **DLM phases**
- **ILM**
- **Profile-based data retention policies**
- **Data backup options**
- **Data replication**
- **High availability**
- **System snapshots**
- **Cloning**
- **Business continuity**
- **Disaster recovery**

17.2 Secure data in the cloud

- **Encryption**
- **In-transit data security**
- **At-rest data security**

17.3 Provide secure access to cloud services

- **Perimeter security**
- **User authentication**
  - **Security incidents**

Continuing Education Requirements

The *NCTA-Certified CloudMASTER* (NCM) 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.