

IBM Cloud Advocate Study Guide



This study guide will help prepare you for the IBM Cloud Advocate Certification Examination.

What's in the Study Guide

This study guide covers:

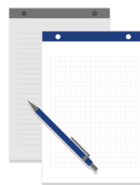
- ❑ ***Cloud Services and Deployment Models***



How to Use this Study Guide



Read the content.



Take notes.



Answer practice questions.

Preparation

Thorough study is essential to a successful outcome on the exam.



- Clear your schedule.
- Find a quiet place to study.
- Focus on the content.



- Open the associated on-line course for reference.
- Locate the study guide.
- Download the study guide.



- Print a copy of the study guide.
- Take notes.

Courses and Objectives

Courses

1. Established Cloud Deployment Models
2. Major Cloud Service Models
3. Emergent Cloud Deployment Models

Objectives

- Define each cloud deployment model
- Compare the cloud deployment models
- Define each cloud service model
- Compare the cloud service models
- Identify emergent cloud deployment models
- Summarize emergent cloud deployment model details



Course 2.1: Major Cloud Service Models

Introduction and Objectives:

In Course 2.1 of the study guide, the subject matter:

- Explores the cloud deployment models.
- Provides information on the similarities and differences of the various cloud deployment models.

Lessons

- Introduction and Objectives
- Cloud Deployment Models
- Course Summary
- Knowledge Check Questions

Objectives

- Define each cloud deployment model
- Compare the cloud deployment models

Course 2.1: Established Cloud Deployment Models

Cloud computing is on-demand access to computing resources over the internet.

Resources include:

- Applications
- Servers (physical and virtual)
- Data storage
- Development tools
- Networking capabilities, and more

A cloud services provider (CSP) hosts and manages compute resources at data centers where customer workloads run.

Workloads run in the cloud environment see increased agility and decreased time and expenses.

They can be moved quickly, easily, and completed in less time.

Cloud Deployment Models

A deployment model describes where an IT infrastructure is deployed. It describes who owns and manages the infrastructure and how the cloud resources and services are provided to users.

The most widely known cloud deployment models are public cloud, private cloud, virtual private cloud, and hybrid cloud.

Course 2.1: Established Cloud Deployment Models

Course 2.1 focuses on the public, private, and hybrid cloud models:

Public Cloud

- Provides access to computing resources for multiple users over the internet.
- Benefits:
 - Reliable because there are many available servers and networks.
 - Users can predict recurring operating expenses by only paying for what is used.
 - Public cloud service provider owns the data centers, hardware, and responsible for all maintenance.

Private Cloud

- Provides a cloud environment for exclusive access by only one organization, on or off premises. Owned, operated, and managed by a 3rd party, the organization, or a combination.
- Benefits:
 - A user has exclusive access to the cloud computing resources.
 - Greater control over resources, data security, and regulatory compliance.
 - Applications and the infrastructure are more easily customized.

Hybrid Cloud

- Provides a combination of a public and private cloud infrastructure in a single flexible infrastructure where workloads can be easily moved between the two environments.
- Benefits:
 - Users can choose either cloud environment, public or private, for each individual application or workload.
 - Sensitive data & applications can be easily separated and run in an on-premises data center.
 - Workloads are easily moved between public and private cloud infrastructure.

2.1: Established Cloud Deployment Models

Check Your Knowledge



Question 1

An organization decides to host applications in a public cloud. Who owns the infrastructure that's used?

- A. Service organizer
- B. Client
- C. Public cloud service provider
- D. Data center manager

➔ **Answer C.** The public cloud service provider owns the infrastructure when an organization decides to host applications in a public cloud.

2.1: Established Cloud Deployment Models

Check Your Knowledge



Question 2

In which cloud deployment does a user have exclusive access to cloud computing services?

- A. Public
- B. Private
- C. Hybrid
- D. Multicloud

➔ **Answer B.** A user has exclusive access to cloud computing services in a private cloud deployment model.

2.1: Established Cloud Deployment Models

Check Your Knowledge



Question 3

Which cloud computing model connects an organization's on-premises private cloud and a third-party public cloud into a single flexible infrastructure for running applications and workloads?

- A. Public
- B. Private
- C. Hybrid
- D. Multicloud

➔ **Answer C.** A hybrid cloud service model connects an organization's on-premises private cloud and a third-party public cloud.

2.1: Established Cloud Deployment Models

Check Your Knowledge



Question 4

Infrastructure that is more easily customized is a benefit of a _____ cloud over a public cloud.

- A. Public
- B. Private
- C. Hybrid
- D. Multicloud

➔ **Answer B.** One of the benefits of a private cloud over a public cloud is the greater ability to customize infrastructure.

2.1: Established Cloud Deployment Models

Check Your Knowledge



Question 5

The ability to avoid capital expenditures upfront and only pay for what is used is a benefit of a _____ cloud over a private cloud.

- A. Public
- B. Community
- C. Hybrid
- D. Multicloud

➔ **Answer A.** In a public cloud, organizations are to only pay for what is used and can avoid capital expenditures upfront.

2.1: Established Cloud Deployment Models

Check Your Knowledge



Question 6

Lifting and shifting some but not all existing on-premises workloads to public cloud infrastructure is a use case that works with which cloud deployment model?

- A. Public
- B. Private
- C. Hybrid
- D. Multicloud

➔ **Answer C.** A hybrid deployment model allows lift and shift capabilities from some existing on-premises workloads to a virtualized public cloud infrastructure.

2.1: Established Cloud Deployment Models

Check Your Knowledge



Question 7

Improving _____ and time to value are some of the primary benefits that cloud computing does better than on-premises IT.

- A. Agility
- B. Redundancy
- C. Latency
- D. Reliability

➔ **Answer A.** Improving agility and time to value are some of the primary benefits that cloud computing does better than on-premises IT.



Course 2.2: Major Cloud Service Models

Introduction and Objectives:

In Course 2.2 of the study guide, the subject matter:

- Explores the core components of the cloud service models.
- Highlights Information as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

Lessons

- Introduction and Objectives
- Major Cloud Service Models
- Course Summary
- Knowledge Check Questions

Objectives

- Define each cloud service model
- Compare the cloud service models



Course 2.2: Major Cloud Service Models

SaaS, PaaS, and IaaS are the major cloud service models.

Organizations often use more than one cloud service model at once. They are very cost effective for customers because there is no need to buy or maintain IT resources in their own data center.

SaaS (Software-as-a-Service)

- Ready to use infrastructure and software application that are centrally hosted and licensed on a subscription basis.
- Apps can be accessed over the internet on any device with a browser.
- Easy to add additional users and storage.

Use Cases: Most personal or employee productivity applications (email, document management, online collaboration tools)

PaaS (Platform-as-a-Service)

- Ready to use environment, where customers build, test, run, and update apps quickly and inexpensively.
- Cloud provider manages the entire platform.
- Additional compute, storage, and networking capacity can be purchased quickly and used immediately.

Use Cases: Migration of existing applications to the cloud, a hybrid cloud strategy

IaaS (Infrastructure-as-a-Service)

- Provides on-demand access to physical computing resources, such as servers, storage, networking, and data center space without need to manage or operate.
- Users can provision, test, and scale resources quickly.

Use Cases: Backup/recovery of on-premises workloads, dev and test environments, customer facing websites, data storage and analytics

2.2: Major Cloud Service Models Check Your Knowledge



Question 1

Designed for developers, which cloud computing service is a ready-to-use environment?

- A. PaaS (Platform-as-a-Service)
- B. IaaS (Infrastructure-as-a-Service)
- C. SaaS (Software-as-a-Service)

➔ **Answer A.** PaaS is a cloud computing service model that provides developers with a ready-to-use environment.

2.2: Major Cloud Service Models

Check Your Knowledge



Question 2

In this cloud service model, the cloud provider manages the entire platform, including operating systems, development tools, and databases.

- A. PaaS (Platform-as-a-Service)
- B. IaaS (Infrastructure-as-a-Service)
- C. SaaS (Software-as-a-Service)

➔ **Answer A.** In a PaaS, the cloud provider manages the entire platform. Customers do not have direct control over changes.

2.2: Major Cloud Service Models

Check Your Knowledge



Question 3

Which cloud service model charges for user access to an application via a subscription, off-loading day-to-day management tasks to a third-party vendor?

- A. PaaS (Platform-as-a-Service)
- B. IaaS (Infrastructure-as-a-Service)
- C. SaaS (Software-as-a-Service)

➔ **Answer C.** SaaS charges for user access to an application via a subscription.

2.2: Major Cloud Service Models

Check Your Knowledge



Question 4

Which cloud service model has the cloud provider only manage the physical resources, data centers, network, and overall platform security?

- A. PaaS (Platform-as-a-Service)
- B. IaaS (Infrastructure-as-a-Service)
- C. SaaS (Software-as-a-Service)

➔ **Answer B.** IaaS provides on-demand access to physical computing resources, such as servers, storage, networking, and data center space without need to manage or operate.



Course 2.3: Emergent Cloud Deployment Models

Introduction and Objectives:

In Course 2.3 of the study guide, the subject matter:

- Explores emergent cloud deployment.
- Provides information on distributed cloud and multicloud models.

Lessons

- Introduction and Objectives
- Distributed Cloud
- Multicloud
- Course Summary
- Check Your Knowledge

Objectives

- Identify emergent cloud deployment models
- Summarize emergent cloud deployment model details



Course 2.3: Emergent Cloud Deployment Models

Distributed Cloud

A cloud computing model that enables users to run public cloud services in multiple locations. Locations can be on premises, in a cloud provider's data center, in third-party, or colocation centers. Everything can be managed in a single control plane.

- Cost effective
- Easier regulatory compliance in the user's country of residence

IBM offers a distributed cloud solution with **IBM Cloud® Satellite**.

Edge Computing

The process of running workloads close to where the data is created. Data does not have to be moved to a central cloud data center for processing and then back to where process automation occurs. As a result, applications can process large amounts of data very quickly, in real time. This model provides low latency to its applications.

Use cases for distributed cloud and edge computing include:

- Internet of Things (IoT) - *Refers to the billions of physical devices around the world that are now connected to the internet, all collecting and sharing data*
- Improve supply chain asset management
- Enhance driver safety



Course 2.3: Emergent Cloud Deployment Models

Multicloud

A cloud computing model that refers to using cloud services from more than one cloud vendor.

- Users have flexibility to choose cloud services from different cloud providers based on their needs. They can choose a combination of pricing, performance, security, and compliance requirements.
- An outage on one cloud may not impact services offered on another cloud.
- There is less exposure to issues that can result from "shadow IT" (the practice of using devices, software, applications, and services without IT department approval) when dealing with licensing, security, and compatibility issues.

In order to maximize multicloud benefits, applications and resources that are run across multiple clouds can be managed from a central location as if they were part of a single cloud.

Many organizations use a hybrid multicloud. They are also likely to run traditional infrastructure too.

A hybrid multicloud provides public and private cloud services from two or more cloud service providers.

Therefore, **multicloud and hybrid cloud are not mutually exclusive**, having similar features.

2.3: Emergent Cloud Deployment Models

Check Your Knowledge



Question 1

What deployment model can IT adopt to avoid Shadow IT?

- A. Private cloud
- B. Multicloud
- C. Edge computing
- D. Distributed cloud

➔ **Answer B.** IT can adopt a multicloud approach to avoid Shadow IT.

2.3: Emergent Cloud Deployment Models

Check Your Knowledge



Question 2

A combination of performance, security, compliance requirement, and pricing are all benefits of adopting a _____ strategy.

- A. Distributed cloud
- B. Private cloud
- C. Multicloud
- D. Public cloud

➔ **Answer C.** A combination of performance, security, compliance requirement, and pricing are all benefits of adopting a multicloud strategy.

2.3: Emergent Cloud Deployment Models

Check Your Knowledge



Question 3

_____ and _____ cloud are not mutually exclusive, having similar features.

- A. Private, Public
- B. Hybrid, Public
- C. Edge computing, Multicloud
- D. Multicloud, Hybrid

➔ **Answer D.** Multicloud and Hybrid cloud are not mutually exclusive. They have similar features.

2.3: Emergent Cloud Deployment Models

Check Your Knowledge



Question 4

Which IBM Cloud offering was designed for clients interested in a distributed cloud strategy?

- A. IBM Cloud Satellite
- B. IBM Cloud Toolchain
- C. IBM Cloud App Connect
- D. IBM Cloud Block Storage

➔ **Answer A.** IBM Cloud Satellite is for clients interested in a distributed cloud strategy.

2.3: Emergent Cloud Deployment Models

Check Your Knowledge



Question 5

Compliance with country-specific data privacy regulations is a benefit for a financial institution using a _____ cloud computing model.

- A. Hybrid
- B. Multicloud
- C. Edge
- D. Distributed



Answer D. A Distributed cloud computing model offers easier compliance with country-specific data privacy regulations.

2.3: Emergent Cloud Deployment Models

Check Your Knowledge



Question 6

_____ computing is a distributed computing model that brings computation and data storage closer to the sources of data.

- A. Perimeter
- B. Edge
- C. Boundary
- D. Fringe

➔ **Answer B.** Edge computing is a distributed computing model that brings computation and data storage closer to the sources of data.

2.3: Emergent Cloud Deployment Models

Check Your Knowledge



Question 7

Why would a distributed and edge computing model be a good choice for a company to improve their efficiency by bringing computation and data storage closer to the sources of data?

- A. To provide low latency to its applications
- B. To provide additional redundancy
- C. To provide weaker resiliency
- D. To provide availability at 99.99%

➔ **Answer A.** Bringing computation and data storage closer to the sources of data provides low latency to its applications.

Acronyms

Acronym	Acronym Expansion
CSP	Cloud services provider
IaaS	Infrastructure-as-a-Service
IoT	Internet of Things
IT	Information Technology
PaaS	Platform-as-a-Service
SaaS	Software-as-a-Service