

Question #1 of 10

Question ID: 1175655

Which cloud computing term refers to a feature that allows a provider to dynamically adjust resource allocation, based on demand?

- X **A)** resource pooling
- X **B)** measured service
- ✓ **C)** rapid elasticity
- X **D)** on demand

Explanation

Rapid elasticity is a cloud computing term that refers to a feature that allows a provider to dynamically adjust resource allocation, based on demand. Examples of such resources include CPU allocation, memory, storage, and bandwidth.

Resource pooling allows the provider to service multiple customers using the same resources. This means that the consumers share the physical devices on which they reside. Organizations should research the security implications of such a deployment scenario.

Measured service is a term that applies to paying for services on a per-use basis, such as CPU time, GB of storage, or network bandwidth use. Your cell phone data plan, measured in GB of data transferred per month, could be an example of a measured service.

On demand is a term that refers to a cloud provider's ability to make resources available to clients when needed. Amazon Web Services (AWS) is an example of an on-demand service.

For the A+ exam, you must also understand the following basic cloud concepts:

- SaaS - Software as a Service. Instead of installing software on their computers, users can access the software over the Internet, typically paying a subscription fee for use. An example is Microsoft Office 365.
- IaaS - Infrastructure as a Service. Instead of buying servers, storage, and other hardware components that make up the company's infrastructure, organizations can subscribe to a service over the Internet. The service host maintains the infrastructure components and makes them available on a per-use or subscription basis. An example is Amazon Web Services.
- PaaS - Platform as a Service. The provider makes hardware and software available over the Internet on a per-use or subscription basis. PaaS is often used in application development.
- Public vs. Private vs. Hybrid vs. Community - Public clouds are those that are made available to (typically) anyone that can pay. Private clouds are used by a single organization. Community clouds are for groups of subscribers that

have common usage and requirements. Hybrid clouds are comprised of more than one type of cloud.

Objective:

Virtualization and Cloud Computing

Sub-Objective:

Compare and contrast cloud computing concepts.

References:

What is Cloud Computing? A Tutorial, <http://leverhawk.com/what-is-cloud-computing-tutorial-2012120519>

Infrastructure as a Service (IaaS) definition, <http://searchcloudcomputing.techtarget.com/definition/Infrastructure-as-a-Service-IaaS>

Platform as a Service (PaaS) definition, <http://searchcloudcomputing.techtarget.com/definition/Platform-as-a-Service-PaaS>

Question #2 of 10

Question ID: 1175656

Which term refers to a cloud infrastructure that provides services to many related organizations?

- X **A)** private cloud
- X **B)** hybrid cloud
- X **C)** public cloud
- ✓ **D)** community cloud

Explanation

A community cloud refers to a cloud infrastructure that provides services to many related organizations. As an example, Ohio government agencies could share cloud infrastructure resources to manage data about Ohio citizens. Another example could be an infrastructure to support a retailer and its suppliers.

A public cloud occurs when the cloud infrastructure is shared and available to any organization that can pay.

A private cloud includes the resources of a single organization. It is not shared with others, even if the others are similar.

A hybrid cloud contains elements of both public and private clouds. As an example, some resources may be shared on a public cloud, whereas sensitive or proprietary data may be shared on a private cloud.

For the A+ exam, you must understand private, hybrid, and public clouds, as well as the following basic cloud concepts:

- Measured service - a service that is billed based on the resource usage, such as CPU time, GB of storage, or network bandwidth use. Your cell phone data plan, measured in GB of data transferred per month, could be an example of a measured service.
- SaaS - Software as a Service. Instead of installing software on their computers, users can access the software over the Internet, typically paying a subscription fee for use. An example is Microsoft Office 365.
- IaaS - Infrastructure as a Service. Instead of buying servers, storage, and other hardware components that make up the company's infrastructure, organizations can subscribe to a service over the Internet. The service host maintains the infrastructure components and makes them available on a per-use or subscription basis. An example is Amazon Web Services.
- PaaS - Platform as a Service. The provider makes hardware and software available over the Internet on a per-use or subscription basis. PaaS is often used in application development.
- Rapid Elasticity - allows the provider to quickly scale resources to the need of the subscriber. Examples include increased bandwidth, storage, or memory requirements.
- On-demand - makes the resource available whenever it is desired by the client. Amazon Web Services (AWS) is an example of an on-demand service.
- Resource pooling - makes the resources (SaaS, IaaS, PaaS) available to multiple consumers simultaneously. This means that the consumers share the physical devices on which they reside. Organizations should research the security implications of such a deployment scenario.

Objective:

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Sub-Objective:

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Question #3 of 10

Question ID: 1175661

You are responsible for managing the virtual computers on your network. Which guideline is important when managing virtual computers?

- ✓ **A)** Isolate the host computer and each virtual computer from each other.

- X **B)** Implement a firewall only on the host computer.
- X **C)** Install and update the antivirus program only on the host computer.
- X **D)** Update the operating system and applications only on the host computer.

Explanation

You should isolate the host computer and each virtual computer from each other.

None of the other statements is correct when managing virtual computers. You should update the operating system and application on the host computer and all virtual computers. You should implement a firewall on the host computer and all virtual computers. You should install and update the antivirus program on the host computer and all virtual computers.

Virtual computers allow you to use a single physical computer to host multiple operating systems environments. The main purpose of virtual machines is to better utilize resources. To the end user, the virtual machines appear as a physical computer. However, when implementing virtualization, you need to keep the following in mind:

- Resource requirements - Depending on which environments you want to create, you will have specific hardware requirements. The hardware in the physical machine must provide at least the minimum requirements for each of the operating system and applications that it will host. In addition, virtualization software will be needed. It is recommended that you use MUCH more than the hardware minimums to ensure that your virtualization environment operates at optimum levels. Also, the limitations of the virtual machines are enforced by the limitations of the physical computers.
- Emulator requirements - Some emulators require specialized motherboards or BIOS versions. This is referred to as hardware-assisted virtualization. Emulators that require hardware assistance can dynamically allocate memory and CPU resources.
- Security requirements - All virtual machines have the same security requirements as the physical computer. Security updates, patches, and all service packs should be kept up-to-date on ALL virtual machines, not just the host computer. In addition, each virtual machine will need anti-virus and anti-malware software.
- Network requirements - Each virtual machine may need network access. Network administrators will need to decide if each virtual machine gets its own IP address or if each machine will use the same IP address with a different port.
- Hypervisor - This is the management software that allows a physical computer to host multiple virtual machines. While there are many options available, each organization will have to decide which option is best based on their organization's requirements, performance needs, and cost constraints.

Objective:

Virtualization and Cloud Computing

Sub-Objective:

Given a scenario, set up and configure client-side virtualization.

References:

Question #4 of 10

Question ID: 1175662

You are responsible for managing a host computer that hosts several Windows 8.1 virtual computers. You need to install the latest patches for the operating system. Where should you install the patches?

- ✓ **A)** on both the host computer and all Window 8.1 virtual computers
- X **B)** on each Windows 8.1 virtual computer only
- X **C)** on the host computer only
- X **D)** on the physical computer only

Explanation

You should install the patches on both the host computer and all Windows 8.1 virtual computers. Virtual machines can be compromised just like a physical computer.

You should not install the patches on the host computer only, on each Windows 8.1 virtual computer only, or on the physical computer only. Because virtual machines can be compromised just like a physical computer, you should ensure that the patches are installed on both the host computer and each Windows 8.1 virtual computer.

Virtual computers allow you to use a single physical computer to host multiple operating systems environments. The main purpose of virtual machines is to better utilize resources. To the end user, the virtual machines appear as a physical computer. However, when implementing virtualization, you need to keep the following in mind:

- Resource requirements - Depending on which environments you want to create, you will have specific hardware requirements. The hardware in the physical machine must provide at least the minimum requirements for each of the operating system and applications that it will host. In addition, virtualization software will be needed. It is recommended that you use MUCH more than the hardware minimums to ensure that your virtualization environment operates at optimum levels. Also, the limitations of the virtual machines are enforced by the limitations of the physical computers.
- Emulator requirements - Some emulators require specialized motherboards or BIOS versions. This is referred to as hardware-assisted virtualization. Emulators that require hardware assistance can dynamically allocate memory and CPU resources.
- Security requirements - All virtual machines have the same security requirements as the physical computer. Security updates, patches, and all service packs should be kept up-to-date on ALL virtual machines, not just the host computer. In addition, each virtual machine will need anti-virus and anti-malware software.
- Network requirements - Each virtual machine may need network access. Network administrators will need to decide if each virtual machine gets its own IP address or if each machine will use the same IP address with a

different port.

- Hypervisor - This is the management software that allows a physical computer to host multiple virtual machines. While there are many options available, each organization will have to decide which option is best based on their organization's requirements, performance needs, and cost constraints.

Objective:

Virtualization and Cloud Computing

Sub-Objective:

Given a scenario, set up and configure client-side virtualization.

References:

Virtualization and Security: Overcoming the Risks,

<https://www.datacenterknowledge.com/archives/2015/03/09/virtualization-security-overcoming-risks>

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Question ID: 1175660

You are responsible for managing your company's virtualization environment. Which feature should NOT be allowed on a virtualization host?

- X **A)** implementing a firewall
- X **B)** monitoring the event logs
- ✓ **C)** browsing the Internet
- X **D)** implementing IPsec

Explanation

You should not allow browsing the Internet on a virtualization host. This can present a possible security breach through the introduction of spyware or malware. Anything that affects a virtualization host also affects all virtual computers on the host. Virtual servers have the same information security requirements as physical servers.

You should implement IPsec, implement a firewall, and monitor the event logs of a virtualization host. IPsec helps by encrypting data as it transmits across the network. Firewalls prevent unauthorized access to a physical or virtual computer. Event logs help administrators to detect when security breaches have occurred or are being attempted.

Keep in mind that all virtual machines and their host computers have the same security requirements as any other system. You will need to implement the same controls on them as for a physical machine, including antimalware, ACLs, and firewalls, to fully protect them.

Objective:

Virtualization and Cloud Computing

Sub-Objective:

Given a scenario, set up and configure client-side virtualization.

References:

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Question #6 of 10

Question ID: 1175659

What is the term for an application that is accessed over the Internet as opposed to being installed on a local device?

- ✓ **A) SaaS**
- X **B) PaaS**
- X **C) Resource Pooling**
- X **D) IaaS**

Explanation

Software as a Service (SaaS) is the term for an application that is accessed over the Internet as opposed to being installed on a local device. Instead of installing software on their computers, users can access the software over the internet, typically paying a subscription fee for use. An example of this is Microsoft Office 365.

Infrastructure as a Service (IaaS) is a cloud deployment model that makes infrastructure components (servers, storage, and other hardware) available on a per-user or subscription basis. The service host maintains the infrastructure components and makes them available on a per-use or subscription basis. An example is Amazon Web Services.

Platform as a Service (PaaS) is a cloud deployment model that makes hardware and software available on a per-user or subscription basis. PaaS is often used in application development.

Resource pooling makes SaaS, IaaS, and PaaS available to multiple consumers simultaneously.

For the A+ exam, you must understand SaaS, IaaS, PaaS, and resource pooling, as well as the following basic cloud concepts:

- Public vs. Private vs. Hybrid vs. Community - Public clouds are those that are made available to (typically) anyone that can pay. Private clouds are used by a single organization. Community clouds are for groups of subscribers that have common usage and requirements. Hybrid clouds are comprised of more than one type of cloud.
- Rapid elasticity - allows the provider to quickly scale resources to the need of the subscriber. Examples include increased bandwidth, storage, or memory requirements.

- On-demand - makes the resource available whenever it is desired by the client. Amazon Web Services (AWS) is an example of an on-demand service.
- Resource pooling - makes the resources (SaaS, IaaS, PaaS) available to multiple consumers simultaneously. This means that the consumers share the physical devices on which they reside. Organizations should research the security implications of such a deployment scenario.
- Measured service - a service that is billed based on the resource usage, such as CPU time, GB of storage, or network bandwidth use. Your cell phone data plan, measured in GB of data transferred per month, could be an example of a measured service.

Objective:

Virtualization and Cloud Computing

Sub-Objective:

Compare and contrast cloud computing concepts.

References:

Infrastructure as a Service (IaaS) definition, <http://searchcloudcomputing.techtarget.com/definition/Infrastructure-as-a-Service-IaaS>

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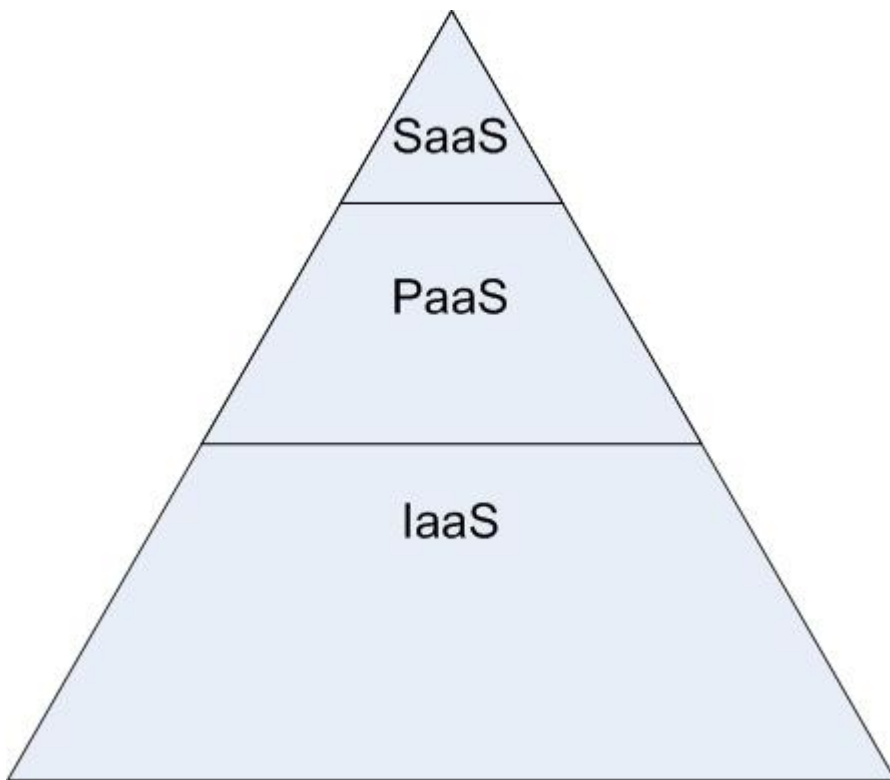
Question ID: 1445538

Which of these terms refers to a foundation service upon which the other two foundation services are built?

- X **A)** PaaS
- X **B)** hybrid cloud
- X **C)** SaaS
- ✓ **D)** IaaS

Explanation

Infrastructure as a Service (IaaS) refers to a foundation service upon which the other two are built, as demonstrated in the following exhibit:



Instead of buying servers, storage, and other hardware components that make up the company's infrastructure, organizations can subscribe to a service over the Internet. The service host maintains the infrastructure components and makes them available on a per-use or subscription basis. An example is Amazon Web Services.

Software as a Service (SaaS) makes software available through the cloud. Instead of installing software on their computers, users can access the software over the Internet, typically paying a subscription fee for use. An example is Microsoft Office 365.

Platform as a Service (PaaS) it makes software development platforms available through the cloud. The provider makes hardware and software available over the Internet on a per-use or subscription basis. PaaS is often used in application development.

A hybrid cloud is comprised of more than one type of cloud, including private clouds, public clouds, and community clouds. Public clouds are those that are made available to (typically) anyone that can pay. Private clouds are used by a single organization. Community clouds are for groups of subscribers that have common usage and requirements. Hybrid clouds are comprised of more than one type of cloud.

For the A+ exam, you must understand SaaS, IaaS, PaaS, and hybrid clouds, as well as the following basic cloud concepts:

- Rapid elasticity - allows the provider to quickly scale resources to the need of the subscriber. Examples include increased bandwidth, storage, or memory requirements.
- On-demand - makes the resource available whenever it is desired by the client. Amazon Web Services (AWS) is an example of an on-demand service.
- Resource pooling - makes the resources (SaaS, IaaS, PaaS) available to multiple consumers simultaneously. This means that the consumers share the physical devices on which they reside. Organizations should research the

security implications of such a deployment scenario.

- Measured service - a service that is billed based on the resource usage, such as CPU time, GB of storage, or network bandwidth use. Your cell phone data plan, measured in GB of data transferred per month, could be an example of a measured service.

Objective:

Virtualization and Cloud Computing

Sub-Objective:

Compare and contrast cloud computing concepts.

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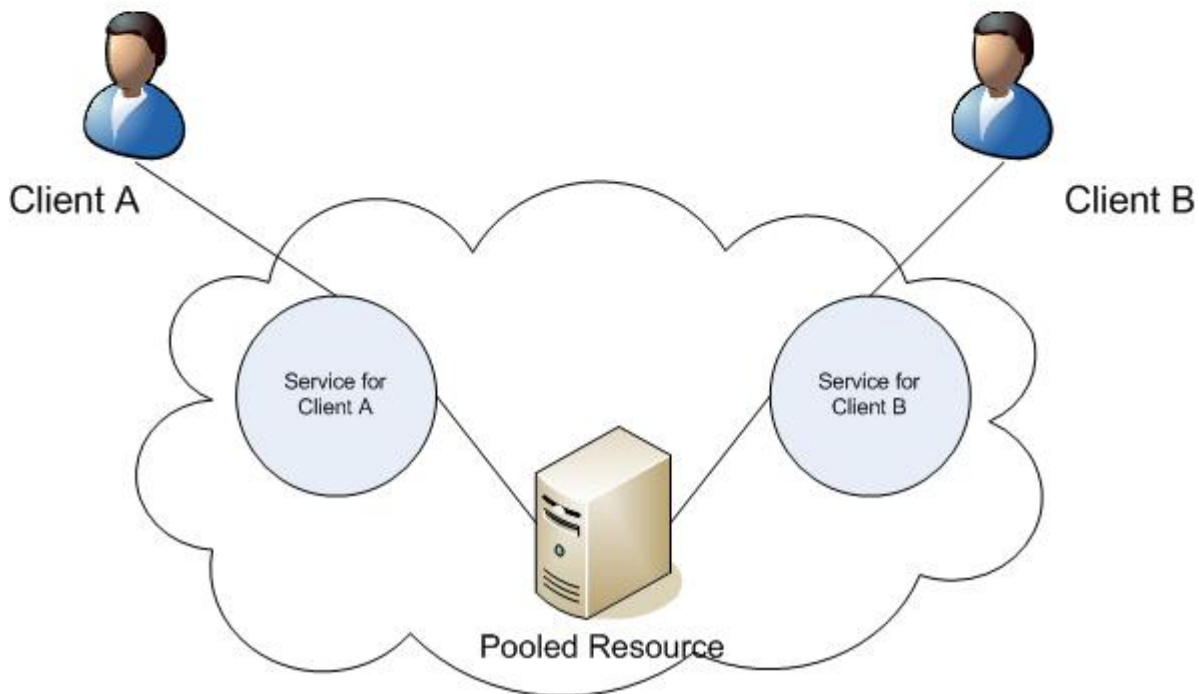
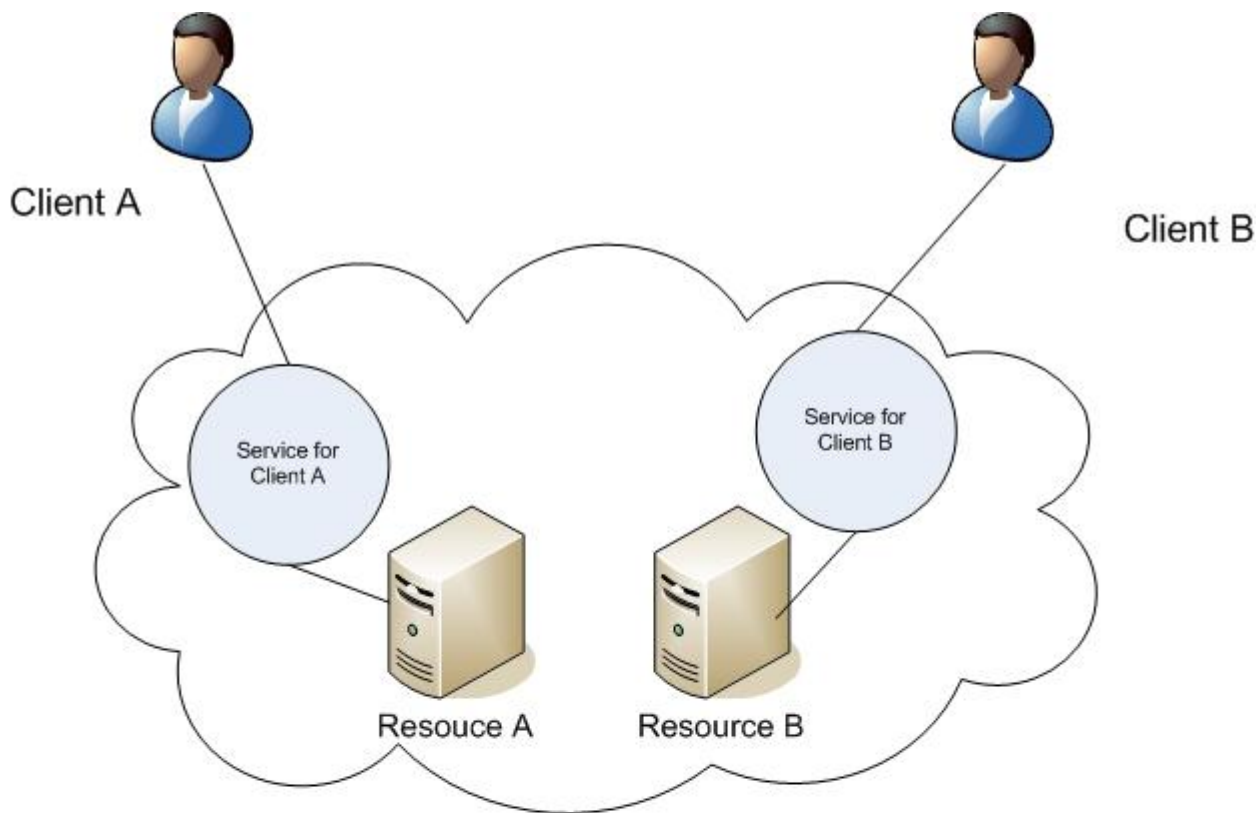
Question ID: 1445537

Of the terms below, which is the term for the cloud computing concept that allows the provider to share services with multiple subscribers, as opposed to the subscriber having a dedicated cloud service?

- ✓ **A)** resource pooling
- X **B)** rapid elasticity
- X **C)** measured service
- X **D)** community cloud

Explanation

Resource pooling is the term for the cloud computing concept that allows the provider to share services with multiple subscribers, as opposed to the subscriber having a dedicated cloud service. The following exhibit demonstrates the difference.



Community cloud deals with a cloud-based infrastructure for several customers with common needs.

Rapid elasticity allows the provider to dynamically allocate resources based on demand. Examples include increased bandwidth, storage, or memory requirements.

Measured service is a term that applies to paying for services on a per-use basis, such as CPU time, GB of storage, or network bandwidth use. Your cell phone data plan, measured in GB of data transferred per month, could be an example of a measured service.

For the A+ exam, you must understand the following basic cloud concepts:

- SaaS - Software as a Service. Instead of installing software on their computers, users can access the software over the Internet, typically paying a subscription fee for use. An example is Microsoft Office 365.
- IaaS - Infrastructure as a Service. Instead of buying servers, storage, and other hardware components that make up the company's infrastructure, organizations can subscribe to a service over the Internet. The service host maintains the infrastructure components and makes them available on a per-use or subscription basis. An example is Amazon Web Services.
- PaaS - Platform as a Service. The provider makes hardware and software available over the Internet on a per-use or subscription basis. PaaS is often used in application development.
- Public vs. Private vs. Hybrid vs. Community - Public clouds are those that are made available to (typically) anyone that can pay. Private clouds are used by a single organization. Community clouds are for groups of subscribers that have common usage and requirements. Hybrid clouds are comprised of more than one type of cloud.
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Question #9 of 10

Question ID: 1191964

Which of these cloud services typically provides the hardware and software necessary for application development?

- X A) public cloud
- ✓ B) PaaS

X **C)** IaaS

X **D)** SaaS

Explanation

Platform as a Service (PaaS) typically provides the hardware and software necessary for application development. The provider makes hardware and software available over the Internet on a per-use or subscription basis.

Infrastructure as a Service (IaaS) provides various services such as hardware, operating systems, application software, and storage. Instead of buying servers, storage, and other hardware components that make up the company's infrastructure, organizations can subscribe to a service over the Internet. The service host maintains the infrastructure components and makes them available on a per-use or subscription basis. An example is Amazon Web Services.

Software as a Service (SaaS) makes software available through the cloud. Instead of installing software on their computers, users can access the software over the Internet, typically paying a subscription fee for use. An example is Microsoft Office 365.

A public cloud is one that is made available to anyone that can pay. A public cloud can provide PaaS, IaaS, and SaaS services.

For the A+ exam, you must understand the following basic cloud concepts in addition to SaaS, PaaS, and IaaS:

- Public vs. Private vs. Hybrid vs. Community - Public clouds are those that are made available to (typically) anyone that can pay. Private clouds are used by a single organization. Community clouds are for groups of subscribers that have common usage and requirements. Hybrid clouds are comprised of more than one type of cloud.
- Rapid Elasticity - allows the provider to quickly scale resources to the need of the subscriber. Examples include increased bandwidth, storage, or memory requirements.
- On-demand - makes the resource available whenever it is desired by the client. Amazon Web Services (AWS) is an example of an on-demand service.
- Resource pooling - makes the resources (SaaS, IaaS, PaaS) available to multiple consumers simultaneously. This means that the consumers share the physical devices on which they reside. Organizations should research the security implications of such a deployment scenario.
- Measured service - a service that is billed based on the resource usage, such as CPU time, GB of storage, or network bandwidth use. Your cell phone data plan, measured in GB of data transferred per month, could be an example of a measured service.

You also need to understand the following regarding cloud services:

- Metered - Most cloud deployments are a metered service, meaning that they charge the customer based on the customer's usage.
- Off-site email applications - Google Mail is an example of an off-site email application, which allows corporations to issue personnel an email address without having to manage the email servers internally.
- Cloud file storage services - Google Drive is an example of a cloud file storage service. Any such services will allow customers to store their files on a remote cloud so that data can be accessed from the Internet. Most cloud file

storage services include synchronization apps that allow users to synchronize the files between their desktop and the cloud.

- Virtual application streaming/cloud-based applications - Cloud services can include virtual application streaming and cloud-based applications. Giving users access to the applications is as easy as configuring them a cloud account and granting access. Applications do not need to be installed individually on each computer. Applications include applications for cell phones/tablets and applications for laptops/desktops.
- Virtual desktop - A virtual desktop is a virtual machine that a user can access remotely. A virtual network-interface card (NIC) is a software-based NIC that masquerades as a physical NIC using virtualization software.
- Shared resources - Cloud deployments allow resources to be shared. Internal resources are those that are owned by the consumer and integrated into the cloud deployment. External resources are those that are owned by the cloud service provider.

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Question #10 of 10

Question ID: 1175654

Which cloud computing term refers to the availability of a resource as it is needed by the client?

- X **A)** resource pooling
- X **B)** rapid elasticity
- ✓ **C)** on demand
- X **D)** measured service

Explanation

On-demand refers to the availability of a resource as it is needed by the client. Amazon Web Services (AWS) is an example of an on-demand service.

Resource pooling allows the provider to service multiple customers using the same resources. This means that the consumers share the physical devices on which they reside. Organizations should research the security implications of such a deployment scenario.

Rapid elasticity allows the provider to dynamically allocate resources based on demand. Examples include increased bandwidth, storage, or memory requirements.

Measured service is a term that applies to paying for services on a per-use basis, such as CPU time, GB of storage, or network bandwidth use. Your cell phone data plan, measured in GB of data transferred per month, could be an example of a measured service.

For the A+ exam, you must understand the following basic cloud concepts:

- SaaS - Software as a Service. Instead of installing software on their computers, users can access the software over the Internet, typically paying a subscription fee for use. An example is Microsoft Office 365.
- IaaS - Infrastructure as a Service. Instead of buying servers, storage, and other hardware components that make up the company's infrastructure, organizations can subscribe to a service over the Internet. The service host maintains the infrastructure components and makes them available on a per-use or subscription basis. An example is Amazon Web Services.
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