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## **SCHOOL OF COMPUTER APPILICATION**

**Amazon Web Services Product or Services Categories**

**&**

**Microsoft Azure Services Product or Services Categories**

**SUBMITTED TO LOVELY PROFESSIONL UNIVERSITY**

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# **Cloud Computing Service Models**

## **Software as a Service (SaaS)**

The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through either a thin client interface, such as a web browser (e.g., web-based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.

## **Platform as a Service (PaaS)**

The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly configuration settings for the application-hosting environment.

## **Infrastructure as a Service (IaaS)**

The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, and deployed applications; and possibly limited control of select networking components (e.g., host firewalls).

# **Amazon Web Services Product or Services Categories**

## **Software as a Service (SaaS)**

### **Alexa for Business**

Alexa for Business is a service that enables organizations and employees to use Alexa to get more work done. With Alexa for Business, employees can use Alexa as their intelligent assistant to be more productive in meeting rooms, at their desks, and even with the Alexa devices they already have at home.

### **Amazon Chime**

Amazon Chime is a new communications service that transforms meetings and video calls with a secure, easy-to-use application that you can trust. With Amazon Chime, you can conduct online meetings, connect with video conferencing, call, chat, and share content easily, both inside and outside your organization. Amazon Chime is available on any device, and your meetings and conversations are always synchronized so that you can stay connected.

### **Amazon WorkMail**

Amazon WorkMail is a secure, managed business email and calendar service with support for existing desktop and mobile email client applications. Amazon WorkMail gives users the ability to seamlessly access their email, contacts, and calendars using the client application of their choice, including Microsoft Outlook, native iOS and Android email applications, any client application supporting the IMAP protocol, or directly through a web browser. You can integrate Amazon WorkMail with your existing corporate directory, use email journaling to meet compliance requirements, and control both the keys that encrypt your data and the location in which your data is stored. You can also set up interoperability with Microsoft Exchange Server, and programmatically manage users, groups, and resources using the Amazon WorkMail SDK.

### **AWS CodeStar**

AWS CodeStar is a cloud-based service for creating, managing, and working with software development projects on AWS. You can quickly develop, build, and deploy applications on AWS with an AWS CodeStar project. An AWS CodeStar project creates and integrates AWS services for your project development toolchain. Depending on your choice of AWS CodeStar project template, that toolchain might include source control, build, deployment, virtual servers or serverless resources, and more. AWS CodeStar also manages the permissions required for project users (called team members). By adding users as team members to an AWS CodeStar project, project owners can quickly and simply grant each team member role-appropriate access to a project and its resources.

## **Platform as a Service (PaaS)**

### **AWS Lambda**

AWS Lambda is an event-driven, serverless computing platform provided by Amazon as a part of the Amazon Web Services. It is a computing service that runs code in response to events and automatically manages the computing resources required by that code. It was introduced in November 2014

### **Amazon Elastic Compute Cloud(EC2)**

Amazon Elastic Compute Cloud (EC2) forms a central part of Amazon cloud-computing platform, Amazon Web Services (AWS), by allowing users to rent virtual computers on which to run their own computer applications. EC2 encourages scalable deployment of applications by providing a web service through which a user can boot an Amazon Machine Image (AMI) to configure a virtual machine, which Amazon calls an "instance", containing any software desired. A user can create, launch, and terminate server-instances as needed, paying by the second for active servers – hence the term "elastic". EC2 provides users with control over the geographical location of instances that allows for latency optimization and high levels of redundancy.

### **AWS Elastic Beanstalk**

AWS Elastic Beanstalk is a cloud deployment and provisioning service that automates the process of getting applications set up on the Amazon Web Services (AWS) infrastructure.

To use the service, developers just have to upload their applications. Provisioning, load balancing, auto scaling, and application health monitoring are all automatically handled. Elastic Beanstalk supports Web apps written in Java, Node.js, PHP, Python, Ruby, and .NET, among other languages and Web development stacks. An open architecture means that applications not written for the Web can also be deployed on the Elastic Beanstalk.

### **AWS Serverless Application Repository**

The AWS Serverless Application Repository is a managed repository for serverless applications. It enables teams, organizations, and individual developers to store and share reusable applications, and easily assemble and deploy serverless architectures in powerful new ways. Using the Serverless Application Repository, you don't need to clone, build, package, or publish source code to AWS before deploying it. Instead, you can use pre-built applications from the Serverless Application Repository in your serverless architectures, helping you and your teams reduce duplicated work, ensure organizational best practices, and get to market faster. Integration with AWS Identity and Access Management (IAM) provides resource-level control of each application, enabling you to publicly share applications with everyone or privately share them with specific AWS accounts. To share an application you've built, publish it to the AWS Serverless Application Repository.

## **Infrastructure as a Service (IaaS)**

### **Amazon S3**

Amazon S3 or Amazon Simple Storage Service is a service offered by Amazon Web Services (AWS) that provides object storage through a web service interface. Amazon S3 uses the same scalable storage infrastructure that Amazon.com uses to run its global e-commerce network.

Amazon S3 can be employed to store any type of object which allows for uses like storage for Internet applications, backup and recovery, disaster recovery, data archives, data lakes for analytics, and hybrid cloud storage. In its service-level agreement, Amazon S3 guarantees 99.9% monthly uptime, which works out to less than 43 minutes of downtime per month.

### **Amazon DynamoDB**

Amazon DynamoDB is a fully managed proprietary NoSQL database service that supports key-value and document data structures and is offered by Amazon.com as part of the Amazon Web Services portfolio. DynamoDB exposes a similar data model to and derives its name from Dynamo, but has a different underlying implementation. Dynamo had a multi-master design requiring the client to resolve version conflicts and DynamoDB uses synchronous replication across multiple datacenters for high durability and availability. DynamoDB was announced by Amazon CTO Werner Vogels on January 18, 2012 and is presented as an evolution of Amazon SimpleDB solution.

### **AWS Auto Scaling**

AWS Auto Scaling monitors your applications and automatically adjusts capacity to maintain steady, predictable performance at the lowest possible cost. Using AWS Auto Scaling, it's easy to setup application scaling for multiple resources across multiple services in minutes. The service provides a simple, powerful user interface that lets you build scaling plans for resources including Amazon EC2 instances and Spot Fleets, Amazon ECS tasks, Amazon DynamoDB tables and indexes, and Amazon Aurora Replicas. AWS Auto Scaling makes scaling simple with recommendations that allow you to optimize performance, costs, or balance between them. If you're already using Amazon EC2 Auto Scaling to dynamically scale your Amazon EC2 instances, you can now combine it with AWS Auto Scaling to scale additional resources for other AWS services. With AWS Auto Scaling, your applications always have the right resources at the right time.

### **AWS Direct Connect**

AWS Direct Connect is a cloud service solution that makes it easy to establish a dedicated network connection from your premises to AWS. Using AWS Direct Connect, you can establish private connectivity between AWS and your datacenter, office, or colocation environment, which in many cases can reduce your network costs, increase bandwidth throughput, and provide a more consistent network experience than Internet-based connections.

## **Microsoft Azure Services Product or Services Categories**

### **Software as a Service (SaaS)**

#### **CloudGuard**

Check Point CloudGuard IaaS (formerly vSEC) delivers advanced, multi-layered threat prevention to protect customer assets in Azure from malware and sophisticated threats. As a Microsoft Azure certified solution, CloudGuard IaaS enables you to easily and seamlessly secure your workloads while providing secure connectivity across your cloud and on-premises environments.

Designed for the dynamic security requirements of cloud deployments, CloudGuard IaaS provides advanced threat protections to inspect traffic entering and leaving private subnets of customer VNETs. Fully integrated security features include: Firewall, IPS, Application Control, IPsec VPN, Antivirus, Anti-Bot, and SandBlast sandboxing technology.

#### **BigID Data Mapper One Click for Azure**

Build blockchain applications with confidence leveraging simplified deployment and operations, built-in consortium management, and an open and extensible design with Microsoft Azure Blockchain Service—a fully-managed ledger service. Let Microsoft manage the infrastructure, governance, and scaling for you. Deploy your ledger and benefit from insights into node health, lifecycle management and Azure service integrations. Add and remove member nodes with a few clicks and rest easy knowing that you can reconfigure anytime. Optimize a network for cross-organizational transactions with permissions management and automated policy enforcement. Scale your consortium on a trusted, open cloud platform that empowers you to integrate with various input and output sources.

#### **Clouddockit**

Generate a complete documentation of your Microsoft Azure Subscription

- Automatically generate editable diagrams and documentation of your cloud environments and easily monitor changes;
- All in one tool with Visio & Draw.io diagrams, Word & PDF documents, billing information, data security and full compliance rules;
- Compatible with Microsoft Azure, AWS, Google Cloud Platform as well as on-premises environments with VMware and Hyper-V;
- Created for small to large business with multiple user account options;
- Perfect for consultants with several clients;
- Able to receive emails that contain executive information and changes from previous document generation.

## **Platform as a Service (PaaS)**

### **Web Apps**

Azure App Service Web Apps are essential if you want to host a standard ASP.NET web application. Web Apps are an abstraction of a Web Server like IIS or Tomcat and can run applications that are written in .NET, PHP, Python, Node.js, Java and more. They are very easy to setup and provide you with lots of benefits out-of-the-box, like the fact that by default, they are available 99.95% of the time. No need to worry about downtime. App Services are now available for Windows and Linux both.

### **Mobile Apps**

Azure can also help you when you are creating mobile applications. You can host a backend for your mobile app in Azure App Services Mobile Apps. You can easily connect to this backend using the SDKs for Azure Mobile Apps that are available for IOS, Android, Windows, Xamarin.IOS, Xamarin.Android and Xamarin.Forms.

The mobile backend provides you with some unique benefits. One of them is the ability to do offline sync. This enables a user to continue working with the app if he is offline and sync data back to the backend when he comes online again. Another capability is push notifications. This allows you to send notifications about your app to the user's device. Additionally, Mobile Apps has all of the same capabilities that Web Apps has, like auto-scaling, and high availability.

### **Azure Functions**

Azure App Services Function Apps can host one or more Azure Functions. You use Azure Functions to host small applications, like background jobs or a microservice that only runs for a short period of time.

Azure Functions can be triggered by configurable timers, like on a schedule (every 15 minutes) or by an external service, like when a new Blob is added to Azure Blob Storage. When triggered, the code in the Azure Function can use the value from the trigger, like the Blob that was added. You can also add output bindings to an Azure Function to output a value to an external service, without writing any plumbing. This could, for instance, be a Blob Storage output where you just return a Blob without having to write code to connect to Azure Storage.

### **Azure WebJobs**

Another way to run background tasks is to run them in Azure WebJobs. WebJobs are part of App Services and run inside an App Service like a Web App or a Mobile App. You can write and host code in WebJobs that gets started by a trigger, like a timer (every 15 minutes) or an external service, like a new message in a queue.

WebJobs work similarly to Azure Functions in that they run small pieces of code that can be triggered by outside sources that don't require any plumbing code to set up.

## **Infrastructure as a Service (IaaS)**

### **Azure Virtual Machines (VM)**

Azure Virtual Machines (VM) is one of several types of on-demand, scalable computing resources that Azure offers. Typically, you choose a VM when you need more control over the computing environment than the other choices offer. This article gives you information about what you should consider before you create a VM, how you create it, and how you manage it.

An Azure VM gives you the flexibility of virtualization without having to buy and maintain the physical hardware that runs it. However, you still need to maintain the VM by performing tasks, such as configuring, patching, and installing the software that runs on it.

### **Azure Storage**

Azure Storage is Microsoft's cloud storage solution for modern data storage scenarios. Azure Storage offers a massively scalable object store for data objects, a file system service for the cloud, a messaging store for reliable messaging, and a NoSQL store.

### **Azure Virtual Network (VNet)**

An Azure Virtual Network (VNet) is a representation of your own network in the cloud. It is a logical isolation of the Azure cloud dedicated to your subscription. You can use VNets to provision and manage virtual private networks (VPNs) in Azure and, optionally, link the VNets with other VNets in Azure, or with your on-premises IT infrastructure to create hybrid or cross-premises solutions. Each VNet you create has its own CIDR block, and can be linked to other VNets and on-premises networks as long as the CIDR blocks do not overlap. You also have control of DNS server settings for VNets, and segmentation of the VNet into subnets.

### **Traffic Manager**

Azure Traffic Manager is a DNS-based traffic load balancer that enables you to distribute traffic optimally to services across global Azure regions, while providing high availability and responsiveness.

Traffic Manager uses DNS to direct client requests to the most appropriate service endpoint based on a traffic-routing method and the health of the endpoints. An endpoint is any Internet-facing service hosted inside or outside of Azure. Traffic Manager provides a range of traffic-routing methods and endpoint monitoring options to suit different application needs and automatic failover models. Traffic Manager is resilient to failure, including the failure of an entire Azure region.