Azure Introduction

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Agenda

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What is Azure

- Microsoft Azure (formerly called as Windows Azure prior to 3rd April 2014) falls primarily under the category of the **PaaS** service model of cloud computing, freeing the developer from having to worry about things like managing networks, purchasing hardware and provisioning servers.

- It is a comprehensive **suite** of cloud products that allow users to create **enterprise-class applications** without having to build their **own Infrastructure**.

- Azure is an **OS** for the data center of Microsoft Cloud

  - Handles resource management, provisioning and monitoring

  - Manages application lifecycle

  - Allows developer to concentrate on business logic

Why Azure

- Has qualities of a well architected application:

    - Availability

    - Reliability

    - Maintainability

- Microsoft Azure allows for immediate **Provisioning and de-provisioning** – pay only for what you use

- One can quickly **scale up and scale out**, also back down when load subsides

- Has **Autoscaling** capabilities based on CPU usage percentage and Recurring schedule.

- **Load balancing** is built-in

- Provides Geo-redundancy

- Microsoft has already invested in redundancy, failover, caching, storage, authorization etc. and we can leverage it inexpensively

What Azure Provides

- It enables you to quickly create, build, deploy and manage **web application and services** across a **global network** of Microsoft datacenters.

- Common building blocks for distributed applications

- Reliable queuing, simple structured and unstructured storage

- Application services like access control, caching, connectivity etc…

Facts about Azure Data Centers

- Azure is available in 140 countries, including China, and supports 10 languages and 24 currencies, all backed by Microsoft's **$30 billion** (USD) investment in global datacenter infrastructure.

- Azure is currently available in 54 regions around the world

- Up to 1.6 Pbps of bandwidth in a region

- Azure maintains a global presence to help customers and partners meet their global of providing applications close to their user base. Storage of data can be restricted to a single geography, region or country.

- With Locally Redundant Storage (LRS), data is stored locally within the user's primary region. With Geo Redundant Storage (GRS), data is stored in a secondary region 250+ miles from the primary region but within the same geography.

Benefits of Azure

- Developers don't have to create VMs or use Remote Desktop (RDP) to log into each one and install the application. They just hit a button (or pretty close to it), and the tools provided by Microsoft **provision** the VMs and then deploy and install the application on them.

- Azure provides the flexibility to quickly set up development and test configurations. These can be scripted, giving you the ability to spin up a development or test environment, do the testing, and spin it back down. **This keeps the cost very low and maintenance is almost nonexistent**.

- New architectural options for developing High Performance, Scalability, redundantly available, reliable applications for all – **small and large** organizations.

- In addition to MS.NET, it also supports languages such as **Java, Ruby, Node.js, PHP, Python** and standard internet protocols such as HTTP, HTTPS, TCP, UDP etc.
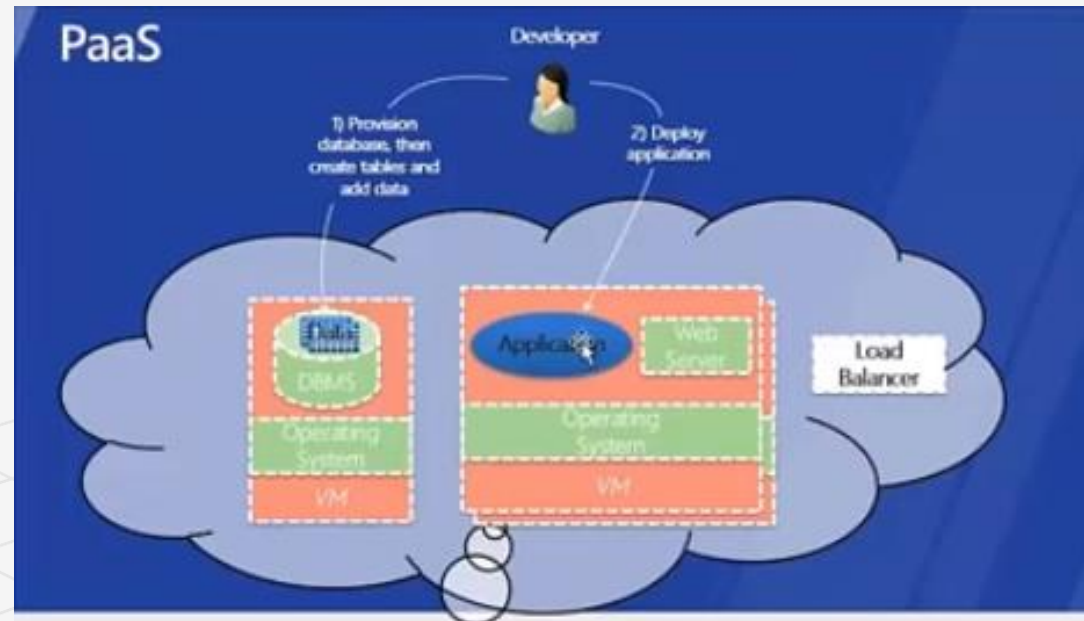
Azure Hosting Models

Azure includes many services in cloud computing platform. Let's talk about a few of them:

- Azure provides different hosting models for running applications. Each one provides a different set of services, so which one you choose depends on exactly what you're trying to do:

- **Virtual Machines**

- **App Service**

Virtual Machines

- Customized Windows and Linux VMs with complete control of the OS

- Azure Virtual Machine enables you to create a **server in the cloud** that you can control and manage, customize the VHD settings of the VM, create multiple VMs and load balance traffic between them.

- The virtual machine provides a robust platform for developing or migrating your application solutions or even to connect virtual machines to other Azure cloud services running web roles and worker roles.

App Services

- Azure App Service is a single service that includes all of the existing capabilities (from classic portal) of Azure websites, Azure Mobile Services, and Azure Biztalk Services, while adding new capabilities.

App Service allows you to host the following app types:

1. **Web Apps**: Create and deploy mission-critical web apps that scale your business. Supports .NET, Java, PHP, Node.js and Python.

2. **Mobile Apps**: With the Mobile Apps feature of Azure App Service, it's easy to rapidly build engaging cross-platform and native apps for ios, Android, Windows, or Mac; store app data in the cloud or on-premises, authenticate users, send push notifications or have your custom backend logic in C# or Node.js

3. **API Apps**: API Apps let you take your new and existing APIs and automatically generate SDKs for a variety of languages, including C#, Java, JavaScript and more-empowering your business to easily use your APIs for web, mobile and desktop applications.

4. **Logic Apps**: The Logic Apps feature of Azure App Service helps keep your marketing and analytics SaaS apps in sync. Extend business processes in minutes. Boost sales productivity by reducing data entry.

Cloud Services

- It is Microsoft's Platform as a Service (PaaS) environment used to create scalable, reliable and low admin applications and services. The applications are built with the roles. A role represents a single component built with manages code, which runs in the Azure environment in a virtual machine (instance).

- Supports not only web based deployments, but also multi-tier architectures where you might have a combination of front ends, middle tiers, as well as virtual machines running as part of your solution.

- Supports automated application management, so it is really easy to deploy, scale out, isolate and recover from any type of hardware failure.

Note: Virtual Machines, App Services and Cloud Services can be used separately or combine more than one to create an application.
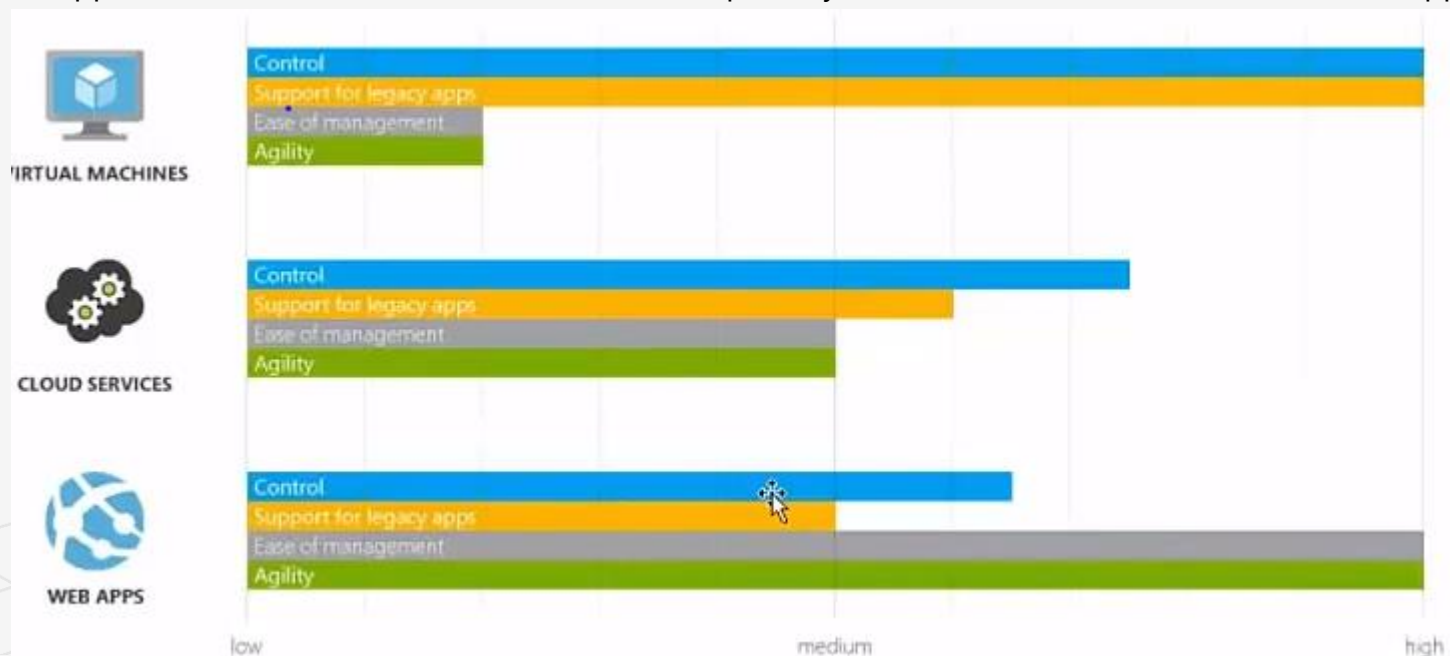
Azure Database Service

SQL Database Service

- SQL Database is a Database-as-a-service (DaaS) offering that makes SQL databases accessible for cloud developers.

- Developers do not have to install setup or manage any database

- It also has full support of TSQL programming languages, programmability support through ADO.NET access, Native ODBC, PHP as well as JDBC.

There are many tools available for migration of databases as well as data to from SQL server and SQL Database.

Storage Service

- Azure Storage is massively scalable, durable and highly available so you can store and process hundreds of **terabytes of data** to support the big data scenarios required by scientific, financial analysis and media applications.

- You can also store **the small amounts** of data required for a small business website.

- Azure Storage currently stores **tens of trillions** of unique customer objects and handles millions of requests per second on average.

A storage account gives you access to the Azure storage data services:

1. **Blob Storage**

2. **Table Storage**

3. **Queue Storage**

4. **File Storage**

Subscribing to Azure

- **Free Trial**: This gives you a $200 credit and a month to try out any combination of resources in Azure. Visit https://azure.Microsoft.com/en-us/free/

- **MSDN Subscriptions**: If you have a MSDN subscription, you get a specific amount in Azure credit each month. For example, if you have a Visual Studio Premium with MSDN subscription you get $100 per month in Azure credit.

- **pay-as-you-go**: With this subscription, you pay for what you use by attaching a credit card or debit card to the account. If you are an organization, you also can be approved for invoicing.

- **Enterprise agreements**: With an enterprise agreement, you commit to using a certain amount of services in Azure over the next year and you pay that amount ahead time.

Questions?

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