

# Microsoft Azure

AZURE PORTAL OVERVIEW AND GENERAL BEST PRACTICES

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#GlobalAzure



# We're Here to Talk About

- ▶ Cloud computing
- ▶ Microsoft Azure basics
- ▶ How to use the Azure portal
- ▶ Managing resources
  - ▶ Portal
  - ▶ CLI
  - ▶ PowerShell
- ▶ Best practices
- ▶ Resources to facilitate learning

# Katie Novotny

## A little about me

Dev(sec)Ops | Automation | Cloudie | Application Development |  
Not-so-Big Data | Power BI

- ▶ *DDI*: [ddiworld.com/](http://ddiworld.com/)
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# Flow of Conversation

- ▶ Overview of Cloud Computing and Azure
- ▶ Azure Portal Demos
- ▶ Best Practices / Tips
- ▶ Q&A

*Feel free to put your hand up and ask questions  
along the way!*

Tell me about cloud computing 🌤️



# Cloud Computing

- ▶ Delivery of hosted services over the internet
  - ▶ As opposed to using a local machine
  - ▶ Resources are often virtualized
- ▶ Pay on a usage basis
- ▶ Email, store pictures, watch videos
- ▶ Common terms:
  - ▶ Deployment Models
  - ▶ Types of Cloud Services

# Deployment Models

## Public Cloud

- Offered over public network and available to anyone for purchase
- Microsoft Azure, AWS

## Private Cloud

- Infrastructure and resources operated solely for a single organization
- Private network
- Can be hosted by third party (Rackspace, Sunguard) or on-prem

## Hybrid Cloud

- Combination of public and private clouds bound together
- DB servers on-prem, web app in cloud

# Types of Cloud Services:

## Cloud Computing Stack

### IaaS

- Base Layer
- User will purchase, install, configure, and manage, including update, your own software/OS
- Examples:
  - VM/VM Scale Sets, Containers, Hard Drive (Storage), Network, Load Balancers
  - VM with SQL Server installed
- Usage:
  - Data Analysis, research, high computing needs, IT

### PaaS

- IaaS plus operating system, programming language execution environment, database, web server, etc.
- User manages data and applications, provider manages everything else
- Examples:
  - Azure SQL Server, HDInsight, App Services, Functions
- Usage:
  - Develop apps, developers

### SaaS

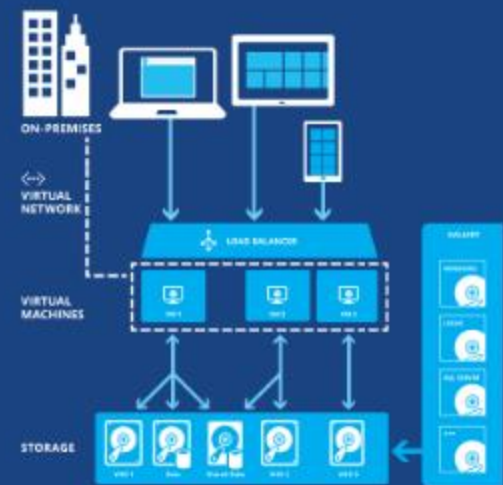
- Cloud based applications offered over the internet
- Examples:
  - Google Apps, Office 365
- Usage:
  - Consumers



This is great stuff! Now, what can  
you tell me about Azure? 🧐

## Virtual Machines

Web and cloud-based building blocks. Get full control over a virtual machine with virtual hardware, install and run software provided by you. Configure multiple machines with different roles to create complex solutions. VMs are ideal for running legacy applications, and are the easiest way to move existing workloads to the cloud.



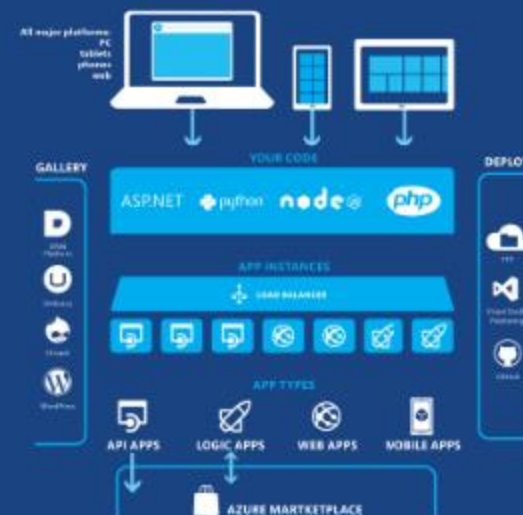
## Cloud Services

Build, deploy, and manage thousands of instances of your VMs. The service automatically scales your VMs as needed with system updates. You configure the VMs as a template, and scale out as many copies as needed. Two types of VMs, worker roles and web roles, are available for creating and managing your applications. The web role is already a custom role with its own virtual hardware configuration.



## App Service

Azure App Service is a high productivity solution for developers who need to create enterprise-grade web and mobile app experiences. App Service provides a complete platform as a service solution that enables you to deploy and instantly scale applications in the cloud and seamlessly integrate them with on-premise resources and third-party applications.



Microsoft Azure is a flexible, open, and secure public cloud built for business. Access a broad collection of integrated services that accommodate many languages and operating systems. Use world-class tools to accelerate a wide variety of app development and delivery capabilities.

Free trial!

Use \$200 credit to try any combination of Azure resources:

[aka.ms/TryAzure](https://aka.ms/TryAzure)

Search [azure.microsoft.com](https://azure.microsoft.com), MSDN, or TechNet for keywords found in this poster.

## Catalog of Services

### COMPUTE

<b>Virtual Machines</b> Get full control over a virtual machine in the cloud and manage it as your business requires.	<b>Cloud Services</b> Managed virtual machines with automatic scaling and update capabilities.	<b>Service Fabric</b> Build highly available, reliable services and distributed applications composed of microservices.	<b>Batch</b> For running large-scale parallel and high-performance computing (HPC) applications.	<b>Scheduler</b> Create jobs that run reliably on a schedule or respond to events to trigger any type of action.	<b>Remote App</b> Access Windows apps from any device and any location that has an Internet connection.
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### WEB & MOBILE

<b>Web Apps</b> Managed web platforms, get started for free and scale as you grow your web applications.	<b>Mobile Apps</b> Accelerate mobile app development with built-in tools and support for cross-device platforms.	<b>API Apps</b> Create and manage your API endpoints for your services and applications.	<b>Logic Apps</b> Build workflow-driven processes by linking your own custom APIs with on-premise and cloud services.	<b>API Management</b> Publish and manage APIs to developers, partners, and employees securely and at scale.	<b>Notification Hubs</b> Deliver millions of messages from your mobile apps from any application, anywhere.
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### STORAGE & BACKUP

<b>Storage Blobs &amp; Files</b> Store binary application data and web content - store for decades and shared virtual disks for VMs.	<b>Backup</b> Managed service that handles backup/recovery of Microsoft Azure and on-premise workloads.	<b>Import / Export</b> Import/export data between on-premise data centers and Azure storage.	<b>Site Recovery</b> Cross-region replication and recovery of VMware-based virtual machines.	<b>SterSimple</b> Automate policy-driven backup and recovery of on-premise primary storage for backup and disaster recovery.	<b>SQL Database</b> Managed relational database service with high availability and scalable performance levels.
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### HYBRID INTEGRATION

<b>Storage Queues</b> Simple message queue for applications to decouple architecture for scale out.	<b>BizTalk Services</b> Build and manage integration (B2B) solutions in the cloud.	<b>Hybrid Connections</b> Connect apps in Azure with on-premise resources without a VPN or dedicated line.	<b>Service Bus</b> Managing request-reply, publish-subscribe, and other scenarios in cloud connectivity solutions.
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### MANAGEMENT

<b>Automation</b> Run PowerShell scripts to automate frequent, long-running, complex Azure tasks.	<b>Portal</b> Web-based experience to manage, control, and monitor all Azure services.	<b>Key Vault</b> Safeguard and control keys and secrets in cloud-scale hardware security modules.	<b>Operational Insights</b> Monitor and troubleshoot on-premise IT infrastructure without using instrumented code.
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### NETWORKING

<b>Virtual Network</b> Provision and manage VMs in Azure and securely link to your on-premise IT infrastructure.	<b>Express Route</b> Connect on-premise and cloud applications directly through dedicated, low-latency links.	<b>Traffic Manager</b> Load balance incoming global traffic across multiple services running in multiple datacenters.
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### ANALYTICS

<b>HDInsight</b> Big data platform based on Apache Hadoop ecosystem that integrates easily with Microsoft Office.	<b>Machine Learning</b> Make intelligent decisions with complex data using predictive analytics.	<b>Stream Analytics</b> Process data streams to use them for the most critical decisions.
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### IDENTITY & ACCESS

<b>Active Directory</b> Managed identity management for cloud applications and on-premise servers.	<b>Multi-Factor Authentication</b> Safeguard access to data and apps with additional physical layer of security controls.
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### MEDIA & CDN

<b>Media Services</b> Range of services that support video on-demand and live streaming workflows.	<b>CDN</b> Cache content for your apps in Content Delivery Network (CDN) or 100s of edge locations in Microsoft Azure.
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# Azure Basics

- ▶ Compute
  - ▶ Platform to execute applications
  - ▶ VM, App Service, Functions
- ▶ Data Management/Storage
  - ▶ Azure SQL Server, DocumentDB, SMB, Blob, Table
- ▶ Networking
  - ▶ Virtual Networks, ExpressRoute, Traffic Manager, CDN

SHOW ME THE MONEY! 🐙



# Best Practices/ Tips and Tricks

- ▶ Names are very important
  - ▶ Environment-ProductName-Purpose-AzureEntity-DataCenter
    - ▶ Prod-CRM-UI-Web-EastUS2
    - ▶ prodcrmstreastus2
    - ▶ Might need a numbering system based on scenario
- ▶ App service plan
  - ▶ Represents a set of features and capacity that you can share across multiple apps
  - ▶ Shared Infrastructure per environment
    - ▶ Prod-SharedInfrastructure-RG-EastUS2
  - ▶ Must be S1 Instances to use CNAMEs



# Best Practices/ Tips and Tricks cont.

- ▶ SQL Server Firewall rule: Dynamic IPs will get you
  - ▶ Working from home
  - ▶ SQL Server itself, watch any internal monitoring
- ▶ SQL Server users
  - ▶ No parity between Azure and on prem – watch role creation
  - ▶ Georeplicated secondary – back create user on Master from target DB
- ▶ App Services
  - ▶ Use Connection String to hid secrets
  - ▶ Key Vault

# Best Practices/ Tips and Tricks cont.

- ▶ Tags on all resources
  - ▶ Billing
  - ▶ Schedule deletes of old resources
- ▶ Locks on Resource Groups
  - ▶ Prevent accidental deletion
- ▶ Set up Service Principal for automation
  - ▶ Allows non-interactive login
  - ▶ Service Account
- ▶ No CNAMEs on Storage accounts

# Resources

- ▶ Azure Overview: <https://docs.microsoft.com/en-us/azure/fundamentals-introduction-to-azure>
- ▶ Architecture and best practice for setting up and configuring cloud architectures: <https://docs.microsoft.com/en-us/azure/architecture/>
- ▶ Azure Resource Explorer: <https://resources.azure.com/>
- ▶ Videos: [Friday.azure.com](https://friday.azure.com)
- ▶ AzCopy command line utility: <https://docs.microsoft.com/en-us/azure/storage/storage-use-azcopy>
- ▶ Azure Data Movement Library: <https://docs.microsoft.com/en-us/azure/storage/storage-use-data-movement-library>

# Resources

- ▶ Tags: <https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags>
- ▶ Azure Datacenter IP Ranges: <https://www.microsoft.com/en-us/download/details.aspx?id=41653>
- ▶ Resource Manager/ARM Template:
  - ▶ <https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-overview>
  - ▶ <https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-template-deploy>
  - ▶ <https://docs.microsoft.com/en-us/azure/azure-resource-manager/vs-azure-tools-resource-groups-deployment-projects-create-deploy>
- ▶ Create Usage and Billing Power BI Report:  
<https://github.com/Microsoft/AzureUsageAndBillingPortal>



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