Microsoft Azure Essentials

Azure Essentials Track Summary

Azure for AWS Professionals

Learn how Amazon’s cloud services (AWS) translate to Azure across architecture, computing, storage, data, management and monitoring.

If you are an AWS professional, your knowledge on the AWS platform will make it easier to get started with Azure. We’ll explain how key fundamentals of AWS can translate to Azure.

AZURE ARCHITECTURE

Like AWS, the Azure architecture gives you the flexibility to build solutions for both Windows and Linux. Both platforms also have a rich marketplace that supports a growing 3rd party ecosystem of applications and solutions.

Some key differences when compared to AWS include the concept of Accounts and Subscriptions in Azure. In Azure the account owner can delegate the task of managing subscriptions to application owners – which is important when the person paying the bills is not the person responsible for managing the technology. Also, with Azure, you can deploy Azure services in your datacenter using Azure Stack. Azure also supports first-party hybrid integration between your cloud and on-premises solutions.

Pricing of services is also somewhat different. AWS provides billing by the hour, however, in Azure you pay for compute by the minute. And where on-demand performance is not a priority, and you might choose to use Spot Instances, in Azure, the closest option is low priority Virtual Machines (VM) in Azure Batch.

COMPUTE

Compute options are very similar between AWS and Azure. You will find a similar range of on-demand Virtual Machine sizes in Azure to the EC2 instances in AWS, although you will notice some differences in the RAM, CPU, and storage options. Just as you would create AWS Instances in the AWS Management Console, you can create Azure VMs
directly through the Azure portal, using APIs, or via the Azure Command Line Interface for Windows or Linux.

In both AWS and Azure you use Auto Scaling to scale your application or service dynamically. Azure uses VM Scale Sets to add or remove VMs automatically, based on the metrics and thresholds you set. And where in AWS you have CloudFormation, you can use Azure Resource Manager templates to define your service or application architectures for multi-tiered workloads.

If you work with Containers, in AWS you are probably working with the EC2 Container Service. In Azure, you’ll want to use the Azure Container Service (ACS). Azure supports both Linux and Windows Containers, and a range of orchestration options, including Kubernetes, Mesosphere DC/OS, and Docker Swarm. Additionally, Azure Container Services offer an easier way to run containerized applications. Azure Container Instances let you rapidly create and launch containerized applications, without any overhead, and with an easily scriptable set of commands.

To build and deploy serverless applications in AWS you would be working with AWS Lamda, the API Gateway, and other services. In Azure you can accomplish the same with Azure Functions and other platform services including Azure Logic Apps to model and automate your process workflows visually, and Azure's database-as-a-services offerings. Finally, Azure Service Fabric, provides a runtime and services to build distributed, scalable, microservices-based applications.

**STORAGE**

Beyond Compute, a persistent data store is at the heart of many applications, and Azure offers a range of storage options. If you work with S3 in AWS, in Azure you will use Blob storage. Like S3, you can use Blob storage for large amounts of unstructured data either for private access or to share publicly. In AWS, you also have the option of cool storage using S3 Standard IA, and Glacier for archival cold storage. In Azure this maps to Azure Storage-Standard Cool, and Azure Archival-Storage.

**DATABASE**

The database offerings available through AWS and Azure are similar, though there are important differences. Compared to Amazon RDS relational database options, in Azure you have the choice of SQL Database, Azure Database for mySQL, and for PostgreSQL.

To create non-relational databases, Azure provides Cosmos DB. Cosmos DB is similar to DynamoDB in AWS with additional functionality, including SQL querying of unstructured data, low latency, and Geo-replication.

For traditional data warehousing, as provided in AWS with Redshift, Azure offers SQL Data Warehouse. Like Redshift, SQL Data Warehouse, is a fast, fully managed, petabyte-scale data warehouse.

If you are using Amazon EMR for big data analytics, including Hadoop, in Azure you would use HDInsights, which is a fully managed Hadoop offering. Azure Data Lake Store, additionally, allows you to store massive structured or unstructured datasets, enabling analysis of all your data in one place.

**MANAGING AND MONITORING SECTION**

In AWS, you might start with the AWS management console and leverage CloudWatch, CloudTrail, X-ray and multiple third-party solutions. In Azure, the Azure Portal, gives you a consistent control panel from which to manage security, identity, Apps and resources. For custom troubleshooting, you can also use Azure Cloud Shell, which supports both BASH for Linux and PowerShell for Windows from the browser.

Through the portal you can monitor metrics, logs, health and events of your application as well as VM utilization and other performance metrics. You customize the Azure portal to build your own management dashboards and set up alerts to other devices and incident management systems. Also, where in AWS you might then use a 3rd party analytics engine like Splunk, on Azure, you can continue to use these, or use Azure's built in Azure Log Analytics and Azure Application Insights. These monitor...
App telemetry and use machine learning to provide deeper insights and diagnostics into your applications and workloads over their entire app lifecycle. Lastly, if you use AWS Trusted Advisor for proactive resource optimization, you can take advantage of Azure Advisor at no additional cost.

We hope that this brief summary helps you to understand how to apply your existing AWS skillset when working with Azure.

Azure for AWS Professionals

Demo Topics

**COMPUTE AND BILLING**

You’ll find a range of virtual machine (VM) sizes in Azure that compare to the offering of Amazon Elastic Compute Cloud (Amazon EC2) instances in AWS. Most of the differences are in the configurations of RAM, CPU, and storage capabilities. One key difference is in the billing. AWS bills your VMs by the hour, while Microsoft bills your VMs by the minute.

**CONTAINERS**

In the Containers space, AWS has the Amazon EC2 Container Service and Azure has the Azure Container Service. AWS recently announced support for Windows containers, but Azure has been running both Linux and Windows containers for a long time now. Azure also supports a range of orchestration options, including Kubernetes, Mesosphere, DC/OS, and Docker Swarm. In addition, Azure container instances let you rapidly create and launch containerized applications without overhead and with an easily scriptable set of commands. In both cases, there are container registries as well as storage in Docker-formatted images.

**STORAGE**

In AWS, you can work with Amazon Simple Storage Service (Amazon S3), while in Azure you work with Blob storage. For solutions like Amazon S3 and Amazon Glacier, Azure provides cool and archival storage tiers. A typical Azure storage account consists of Blob, Disk, File, Queue, and Table storage.

**AZURE STACK**

With the Microsoft Cloud, you can run Azure in your organization’s data center. We’re not talking about something that functionally resembles Azure but actually running Azure in your data center. What does that mean? Those things that your organization doesn’t want in the public cloud you can now put into Azure locally. You have the ability to aggregate CPUs, storage, and networking, and you can allocate resources as needed.
ADDITIONAL RESOURCES

Here are some helpful links for deeper and hands-on learning:

MICROSOFT MECHANICS

Hybrid infrastructure Automation with Azure Resource Manager Templates

An Overview of Azure Monitor

Application Insights – Live telemetry across the app lifecycle

Protection via Azure Security Center: Detection and response review

Azure Stack integrated systems – how to bring Azure to your data center

HANDS-ON LABS

Self-paced Labs