

Course Brochure

WINDOWS AZURE

Overview

• This is an introduction to cloud computing and specifically Microsoft's public cloud offering in Windows Azure. Windows Azure has been described by Microsoft as an operating system for "the cloud". In this, you explore this new cloud operating system and learn how to write, deploy and monitor .NET applications in Azure. This is designed for .NET developers with Web application experience that are exploring developing new applications or porting existing applications to Windows Azure.

Pre-requisites

• Experience with Visual Studio 2008 or better is required. Knowledge and experience in a .NET language (C# or VB) is required.

Applications

COURSE CONTENTS

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Module 1: Introduction to Cloud Computing

- ❖ What is Cloud?
- ❖ Cloud Architecture
- ❖ Cloud benefits
- ❖ Types of cloud
- ❖ Importance of IAAS, PAAS, SAAS
- ❖ Real world example of cloud usage
- ❖ Trends in cloud computing

After completing this module, students will be able to:

- Understand the different types of cloud computing offerings.
- Understand the benefits of using the cloud.
- Trends in the industry

Module 2: Cloud pre-requisites (optional)

- ❖ OOPS Concept
- ❖ Inheritance
- ❖ Distributed fabric layer
- ❖ Static Classes

Module 3: Introduction to Windows Azure (PAAS)

- ❖ Windows Azure Overview
- ❖ Windows Azure Architecture
- ❖ Components of Azure :
 - Windows Azure Compute
 - SQL Azure
 - The App Fabric



Fabric Controller

After completing this module, students will be able to:

- Understand the pieces of the Windows Azure platform.
- Understand how Azure functions
- Role of Fabric Controller.

Module 4: Windows Azure Web role

- ❖ Windows Azure Web Role
- ❖ Creating a cloud website using web role
- ❖ Configuring Web role
- ❖ Understanding Dev Fabric
- ❖ Multi-instance role running in Dev Fabric
- ❖ Debugging applications in Dev Fabric
- ❖ Admin : Create a hosted service through Azure portal
- ❖ Admin : Deploying the created application on the REAL WINDOWS AZURE CLOUD
- ❖ Admin : Changing the configuration at runtime
- ❖ Admin : Managing the hosted services
- ❖ Admin : Upgrading the Hosted Services

After completing this module, students will be able to:

- Create website on Azure using ASP.NET applications.
- Dynamically configure a Windows Azure cloud application through the Azure Portal.
- Configure and manage the Web roles.

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Module 5: Windows Azure worker role

- ❖ Windows Azure worker Role
- ❖ Creating a Worker role
- ❖ Configuration of worker role
- ❖ Communications between Worker role and Webrole
- ❖ Difference between worker role and web role
- ❖ Debugging in the dev fabric
- ❖ Limitations of the dev Fabric

After completing this module, students will be able to:

- Differentiate between web role and worker role.
- Create role to role communications in Windows Azure.

Module 6: Windows Azure Storage

- ❖ Admin : Configuring the storage account
- ❖ Admin : Explore the storage account settings
- ❖ Accessing queues using Azure Client library
- ❖ Programming using queues
- ❖ Exploring the queue API's
- ❖ Communication between webrole and worker role using queues
- ❖ Limitations of the queues
- ❖ Advantages of using queues
- ❖ Blob Storage

- ❖ Programming with Blobs using Azure Client library
- ❖ Tables
- ❖ Create and use tables in Windows Azure.
- ❖ Design entities that are stored in table storage.
- ❖ Use case of queue, table and blob storage.

After completing this module, students will be able to:

- Setup Windows Azure message queue.
- Create a Windows Azure Storage Account.
- Use the Windows Azure Client library to access Windows Azure storage.
- Access blob data from Windows Azure or on-premise applications.

Module 7 : Design patterns in cloud

- ❖ Cloud programming guidelines
- ❖ Cloud Designing guidelines
- ❖ Layered pattern
- ❖ Idem potency problem
- ❖ The Map Reduce Pattern

After completing this module, students will be able to:

- Design applications for the cloud
- Understand different patterns on the cloud.

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Module 8: SQL Azure

- ❖ SQL Azure Architectures
- ❖ Features of SQL azure
- ❖ Admin : Provisioning the Database server on cloud
- ❖ Admin : Provisioning the Database on cloud
- ❖ Admin : Security Features on SQL Azure Database on cloud
- ❖ Admin : Creating tables on SQL Azure Database
- ❖ Programming using SQL azure
- ❖ Limitations of SQL Azure

After completing this module, students will be able to:

- Make design decisions between table storage and SQL Azure.
- Determine the cost of storing data in Windows Azure.
- Setup SQL Azure databases through the Developer Portal.

Module 9: Windows App fabric

- ❖ Access Control Service(ACS)
- ❖ Admin :Configuring ACS
- ❖ Admin: Identity providers.
- ❖ Service Bus features
- ❖ Admin: Provisioning Service bus namespace.
- ❖ Need for service bus and ACS

After completing this module, students will be able to:

- **Understand federated services .**
- **Configure ACS Understand Service Bus**
- **Provision Service Bus**

Module 10: Cloud Security

- ❖ Security Concerns on cloud
- ❖ Comparison of security on cloud to premise at Hardware layer
- ❖ Comparison of security on cloud to premise at operating system layer
- ❖ Application Security on the cloud
- ❖ Services to enhance cloud security

After completing this module, students will be able to:

- Understand Security on the cloud
- Understand the Security features on cloud.

Module 11: Enhancing Performance of application on cloud

- ❖ App fabric Caching Architecture
- ❖ Admin : Provisioning the cache
- ❖ Admin : Upgrading the cache
- ❖ Admin : Cache security using the ACS
- ❖ Exploring API's of app fabric caching
- ❖ Performance improvement using cache

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After completing this module, students will be able to:

- Configure and maintain cache.
- Enhance the performance of the distributed application using App fabric caching.

Module 12: Cloud Migration Scenarios

- ❖ Cloud Migration requirements
- ❖ How to Migrate applications to cloud

Migration Case 1 : An ASP.NET application with multiple load-balanced instances that share state stored in SQL Server.

Migration Case 2 : An ASP.NET application with multiple instances that maintains per-instance state and relies on sticky sessions.

Migration Case 3 : A Silverlight or Windows Presentation Foundation (WPF) client that accesses WCF services running in a middle tier.

Migration Case 4 : An application with a single instance running on Windows Server that maintains state on its own machine.

Migration Case 5 : A Visual Basic 6 application that directly accesses a SQL Server database, i.e., a traditional client/server application.

After completing this module, students will be able to:

- Migrate any application on the cloud
- Suggest the changes required to move the application to the cloud.