

## 50466A Windows Azure Solutions with Microsoft Visual Studio 2010

Days of Training: 3

### Overview

This class 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 class, you explore this new cloud operating system and learn how to write, deploy and monitor .NET applications in Azure.

### Prerequisites

Before attending this course, students must have:

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

### Module 1: Cloud Computing

- Define cloud computing.
- Learn the benefits of cloud computing.
- Understand the different types of cloud computing services.
- Explore where computing clouds might exist.
- Hear about potential concerns with cloud computing.
- Learn where cloud computing can and cannot be applied.
- Place Windows Azure in light of general cloud computing.
- Know how Windows Azure compares to other cloud environments.
- Lab : Windows Azure Account Setup (Optional)**
- Understand how to create a Windows Azure account.
- Explore the types of Windows Azure accounts.
- Learn how to access and use the Windows Azure Developer Portal.
- Examine the Windows Azure Developer Portal.

### Module 2: Windows Azure Architecture

- See a simple Windows Azure application.
- Learn about the Microsoft data centers.
- Explore the hardware, servers and virtualization (the Fabric) that host cloud applications and data.
- Understand the role of the Fabric Controller in managing the Windows Azure cloud.
- Know the general architecture and components of the Windows Azure Platform.
- Understand the tools used to create and deploy Windows Azure services and data stores.
- Lab : Introduction to Windows Azure**
- Explore your first Windows Azure project in Visual Studio.
- See how to test a cloud application in Visual Studio.
- Learn how to publish a cloud application.
- Examine the process of deploying an application via the Developer Portal.
- Learn how to remove a service from the cloud.

### Module 3: Windows Azure Web Roles

- Explore the purpose of Windows Azure Web roles.
  - Understand how to create Web roles in a cloud service project.
  - See how to configure a Web role.
  - Learn how to test Web roles run in the Dev Fabric.
  - Start exploring the Windows Azure API.
  - Lab : Building a Web Role**
  - Create a Cloud Application using Windows Azure Tools for Visual Studio.
  - Explore the Web role project.
  - Configure a Web role project.
  - See a multi-instance role running in Dev Fabric.
  - Modify the application to use a custom configuration setting.
  - Optionally, see a Web role cloud project deployed to Windows Azure.
- After completing this module, students will be able to:
- Explore migrating ASP.NET applications to Windows Azure.
  - Build a simple Windows Azure cloud application.
  - Dynamically configure a Windows Azure cloud application through the Developer Portal.
  - Determine the costs of running an application in Windows Azure.
- Lab : Advanced Topics

### Module 4: Local Storage

- Examine Windows Azure local storage.
- See how local storage differs from normal server file systems.
- Learn how to configure local storage.
- Understand the limitations of local storage and where/when to use it.
- Explore the API to access local storage.
- Learn about Windows Azure Drive (formerly X-Drive).
- Lab : Using Local Storage**
- Configure a Web Role to have local storage.
- Alter the Web role code to read and write to local storage.
- Explore the relationship of local storage to roles and role instances.
- Explore how to clean local storage on role instance recycling.
- Optionally, deploy the local storage using cloud project to the Windows Azure cloud.

## 50466A Windows Azure Solutions with Microsoft Visual Studio 2010

Days of Training: 5

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### Module 5: Windows Azure Storage and Queues

- Understand the purpose of Windows Azure Storage.
- Learn how to create a Windows Azure Storage account.
- Explore Windows Azure Storage costs.
- Understand Dev Storage, how to use it, and how it is different from Windows Azure Storage.
- See how to access Windows Azure Storage using both the REST API and the Storage Client Library.
- Examine Windows Azure Storage Queues.

• Learn how to get messages in and out of Windows Azure Queues.

#### Lab : Learning Windows Azure Storage and Queues

- Use a Web role to create a queue and add messages to the queue.
- Learn how to add another Web role to your cloud service project.
- Use a Web role to read and display messages in the queue.
- Observe the difference between getting and peeking at messages in a queue.
- Optionally, see how to create a Storage Account service.
- Optionally, examine how to create an Affinity Group.
- Optionally, learn where to find storage account URLs and access keys.
- Optionally, deploy the cloud service project to the Windows Azure cloud.
- Explore Windows Azure Storage with external utilities.

### Module 6: Blob Storage

- Understand the rationale for using blob storage.
  - Explore how to access blob storage with both the Storage Client and REST API.
  - Examine blob storage containers and how they are used to organize and control access to blobs.
  - Learn about the different types of blobs: block and page blobs.
- #### Lab : Using Blob Storage
- Use a Web role to create a blob container and set permissions on the container.
  - Learn how to upload blobs into a container.
  - Use a Web role to retrieve a blob by its name (reference).
  - Work with blob metadata.
  - Explore the REST API used to access blob storage.

### Module 7: Table Storage

- Explore Windows Azure Storage's structural data service.
  - Understand the reason for table storage.
  - Examine the differences between table storage and traditional relational databases (as exhibited by SQL Azure).
  - Learn how to access table storage with both the Storage Client and REST API.
  - Understand entities as they relate to table storage.
  - Examine how to save and retrieve entities in table storage.
  - See how to use table storage for session management in Windows Azure Web applications.
- #### Lab : Using Table Storage
- Define an entity class.
  - Build a TableServiceContext object to negotiate data in and out of table storage.
  - Learn how to save entity data to table storage.
  - Explore queries to fetch entity data from table storage.

### Module 8: Worker Roles

- Explore the purpose of Windows Azure worker roles.
  - Understand how to create worker roles in a cloud service project.
  - See how to configure a worker role.
  - Learn how to test worker roles run in the Dev Fabric.
  - Learn how to use Windows Azure Storage queues and messages to communicate with worker roles.
  - Explore how to setup worker role endpoints.
  - Learn how to communicate with worker role internal and input endpoints.
- #### Lab : Building a Worker Role
- Create a worker role and add it to your cloud project.
  - Explore the contents of a worker role project.
  - Configure a worker role to monitor a queue for messages.
  - Re-explore the use of queue storage in role-to-role communications.
  - Re-explore table storage.

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### Module 10: Diagnostics and Logging

- Learn how to accomplish debugging and logging in Windows Azure.
- Examine Windows Azure Diagnostic Service.

- Understand the role of the MonAgentHost process in the diagnostic service.
- Learn how to configure the diagnostic service.

- See how to transfer diagnostic data to Windows Azure Storage.

#### Lab : Using Table Storage

- See how Visual Studio cloud templates provide default diagnostic monitoring setup.

- Add trace statements to cloud code.

- Learn how to schedule diagnostic data to be transferred to Windows Azure Storage.

- Learn how to perform an on-demand transfer of diagnostic data to storage.

After completing this module, students will be able to:

- Design and build logging and debugging needs into their applications.

- Use Windows Azure Diagnostic Services to capture log/diagnostic data.

- Transfer data from Windows Azure to specified storage.