# **Exploring Windows Azure Platform**

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Meet the expert: Scott Klein, a Microsoft SQL Azure MVP, has been working with SQL Server for nearly 20 years, working with companies large and small all over the United States. Scott is also a veteran author having written a number of books including Professional SQL Server XML, Professional LINQ, Pro ADO.NET Entity Framework 4.0, and the recently released Pro SQL Azure. Scott is President of the South Florida SQL Server Users Group and the newly formed SQL Azure PASS Virtual Chapter. He speaks frequently at SQL Saturday events and user groups, including several in Europe.

### Runtime: 10:41:14

**Course description:** As everything goes to the cloud it would come to reason the same thing would happen to business applications and data storage. Enter the Microsoft Windows Azure Platform, the Microsoft cloud solution. Using a cloud benefits a company by allowing the usage of the online servers to store and run applications without the expense and man hours needed to maintain the hardware while saving money on licensing costs. This exploring course will cover the many aspects and components of Windows Azure. The course will give you an introduction to Azure, the different types of services that can be hosted in Windows Azure such as web and worker roles, and then move on to the basics of Azures durable storage solution, which include Azure queues, blobs, and tables. Next you will get a full introduction in SQL Azure, the Microsoft cloud-based relational database, and how you can use SQL Azure to store your relational data on the cloud. This will be followed up by discussions including Azure AppFabric, Cloud Computing Patterns & Practices and Diagnostics & Service Management.

## **Course outline:**

### Intro to Cloud Computing

- Introduction
- Non-Cloud View
- Cloud View
- Load Patterns
- This has Happened Before
- Cloud Services
- Introducing Windows Azure
- Azure Platform Data Centers
- Azure Security Layers
- Inherited Defenses
- Azure Platform Appliance
- Anatomy of an Azure Service
- Storage in Windows Azure
- Azure Consumption Prices
- Azure Purchasing Models
- Introductory Account
- Monthly Service Level Agreement
- The Developer Tools
- Demo: Azure Managment Portal
- Summary

#### Roles

- Introduction
- Creating an Azure Account
- Demo: Creating an Account
- Roles and Instances
- Comparison of Role Types

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- Compute Service Roles
   Compute Services Services
- Compute Services Security
   Fabric Controller
- Isolation in Windows Azure
- Service Management Security
  Roles
- What is the Web Role
- Full IIS Overview
- Full IIS Scenario Walkthrough
- Demo: Hello Azure
- Summary
- Summary

# Worker Roles

# Introduction

- Millouuciion
- What is a Worker RoleRole Programming Model
- Worker Role Patterns
- Demo: Worker Role
- What is the VM Role
- VM Role Lifecvcle
- VM Role Common Questions
- Instances
- Instances
- Demo: Prepping the VM
- Demo: Uploading a VM
- Demo: After the Upload
- Summary

#### Testing and Debugging Roles

- Introduction
- Windows Azure

- Service Deployment
- Service Scaling
- Local Emulator
- SDK Emulator Icon
- Compute Emulator UI
- Storage Emulator UI
- SQL Express
- Are we running in the fabric
- Debugging in the Cloud
- Debugging locally
- Support for IntelliTrace
- Looking at Configuration
- Service Definition
- Three Choices to Deploy Code
- Deploying to the Cloud
- Demo: Testing & Debugging
- Roles
- Summary

## Advanced Roles

- Introduction
- Service Model EnhancementsAdmin Access & Startup Tasks
- Remote Desktop
- Remote Desktop Configuration
- Local Storage
- Local Resource Configuration
- Using a Local Resource
- Endpoints
  - Indpoints

- Endpoints Model
- Configuring an Endpoint
- Using Endpoints
- Windows Azure Connect: Intro
- Windows Azure Connect: Roadmap
- Demo: Remote Desktop
- Connections
- Summary

#### **Azure Storage Basics**

Storage Infrastructure

Storage EmulatorStorage Services Security

Using a Library

With Client Library

Connection Strings

How Partitions Scale

**Azure Storage Queues** 

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Object Hierarchy

Partitions

Summary

Introduction

Storage Abstractions

Accessing Storage with REST

· Replication: Behind the Scenes

· Recovery: Behind the Scenes

Windows Azure Storage

Windows Azure Storage

IntroductionWindows Azure Storage

Account

# **Exploring Windows Azure Platform**

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- Tightly Integrated/Loosely Coupled
- What is a queue?
- Messages
- Queue Terminology
- Message Lifecycle
- Working with Queues
- Add a Message
- · Peek a Message
- Get a Message
- Deleting a Message
- Polling
- Back Off Polling
- Queues with Shopping
- Long Queues
- State Directed Queues
- Demo: Azure Storage Queues
- Summary

## **Azure Storage Tables**

- Introduction
- What is the Table Service
- Required Properties
- WCF Data Services
- Creating a Table
- An Entity in C#
- Inherit or Add Required Fields
- Create a Context Class
- Adding an Entity
- Deleting an Entity
- Batching
- Queries
- · Entity Group Transactions
- Performance
- Guidance
- Costs
- Demo: Table
- Summary

## Azure Storage Blobs

- Introduction
- Need Shared Access
- BLOBs in Azure & Size
- BLOB Addresses
- Containers
- Blob Containers
- Working with Containers
- Working with BLOBs
- Uploading a BLOB
- Downloading a BLOB
- Container & BLOB Metadata

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- Snapshotting
- Two Types of Blobs
- Uploading a Block Blob

Page Blob: Random Read/Write 
 Database Copy

Summary

Introduction

The Cloud

Cloud Scenarios

Determine an ROI

Common Scenarios

Moving to the Cloud

Migration Strategies

Consider a Service Bus

ASP.NET Design Patterns

**Diagnostics & Service** 

· Diagnostics in the Cloud

• Loading the Diagnostic Agent

· Get the Current Configuration

Diagnostics Engine

Write to Trace Output

Remote Configuration

Visualizing the data

Schedule Transers

Service Management API
Deploying Services

Deployment & Management

Demo: Patterns & Scenarios

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MOCP will Notify You

Windows Azure MMC

In-Place Upgrades

Upgrade Domains

How Does it Work

Common PatternsChanging Config

Startups & POCs

Data in Motion

Considerations

Summary

Management

Introduction

Sources

Log Filters

Tools

Summary

Key Questions

Scale

**Patterns and Scenarios** 

• A Strategy for Migrating

SQL Azure Data Sync

· On-Premises to Cloud

Sync End to End Scenarios

· Demo: Copying a Database

• Demo: Syncing Databases

SQL Azure Performance

· Perfromance vs. Scalability

Asynchronous Processing

· Scaling can be challenging

SQL Azure Federations:

• Demo: SQL Azure Performance

· Creating the Schema

• Demo: Testing the App

Motivating Challenges

What is Access Control

Why Use Access Control

Access Control Benefits

Access Control Features

Enabling Hybrid Applications

· What is the Caching Service

Windows Azure App Fabric

· Identity in the Cloud is Hard

Parallel Processing

Scalability Curves

Sharding Pattern

SQL Azure Scalability

• Example: Performance

Symmetry

Summary

Introduction

Performance

Chunky Calls

Lazy Loading

Caching

Sharding

Sharding

Concepts

Querying

Summary

Introduction

AppFabric

OAuth
 SWT

Service Bus

· Relays in the Cloud

Latency Pyramid

Demo: Service Bus

Service Bus Features

Scalability

Approaches

Techniques

• Extending Data

- Shared Access Signatures
- Sample Use
   Content Delivery N
- Content Delivery Network
   (CDN)
- How Does it Work?
- Windows Azure Drives
- How Azure Drives Work
- Failover with Drives
- Guidance
- Demo: Azure Storage Blobs
- Summary

## Drives

- Introduction
- Demo: Azure Drives
- Demo: Adding References
- Demo: Defining Local Resource
- Demo: Asigning a Drive Letter
- Summary
- SQL Azure
- Introduction
- Where's my Stuff?
- History of SQL Server
- A Server is not a Machine
- How it Works
- Set up a Server...
- Demo: SQL Azure
- Demo: SQL Azure
   Demo: SQL Server Managment
- Demo: SQL -
- -

## SQL Azure Considerations

- Introduction
- Considerations
- Connecting to SQL Azure
- SQL Azure Firewall
- SQL Azure Compatability
- SQL Azure Security
- SQL Azure Security Model
- Authorization, Auditing &
- Encryption
- Migration Options
- Demo: Migration
- Demo: SQL Server Integration
- Demo: Application
- Summary

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# Considerations cont'd

Scale-out with SQL Azure

Federations: Concepts
Creating the Schema

- Introduction
- Security Model
  Size Matters

Sharding Pattern