

# Cloud Computing

Microsoft Azure

# Agenda

- Brief Recap
- Azure Deployment Models – ASM and ARM
- Hands-on Activities on Azure cloud
  - Create and access a virtual machine
  - Deploying an application to Azure cloud and app service
  - Working with Azure SQL database
  - Working with Redis Cache on Azure
  - Content Delivery Network
- Azure Calculator

# Recap

- Why Cloud computing
- Cloud Deployment Models
- Cloud Service Models
- Architecture and Design Concepts
  - High Availability
  - Disaster Recovery
  - Multi Tenancy

# Azure infrastructure provisioning models or deployment models

- Azure Service Management or Classic (ASM)
- Azure Resource Manager (ARM)



# Azure Deployment models

## ASM

- It is old model
- Works on old portal with backward compatibility on new portal
- Primarily originated from PaaS mindset, e.g. Cloud Service based approach
- Does not work very well on customized scenarios and non .NET environments
- Deployments can be done by portal, SDKs and REST APIs
- Not recommended from Microsoft for any future development

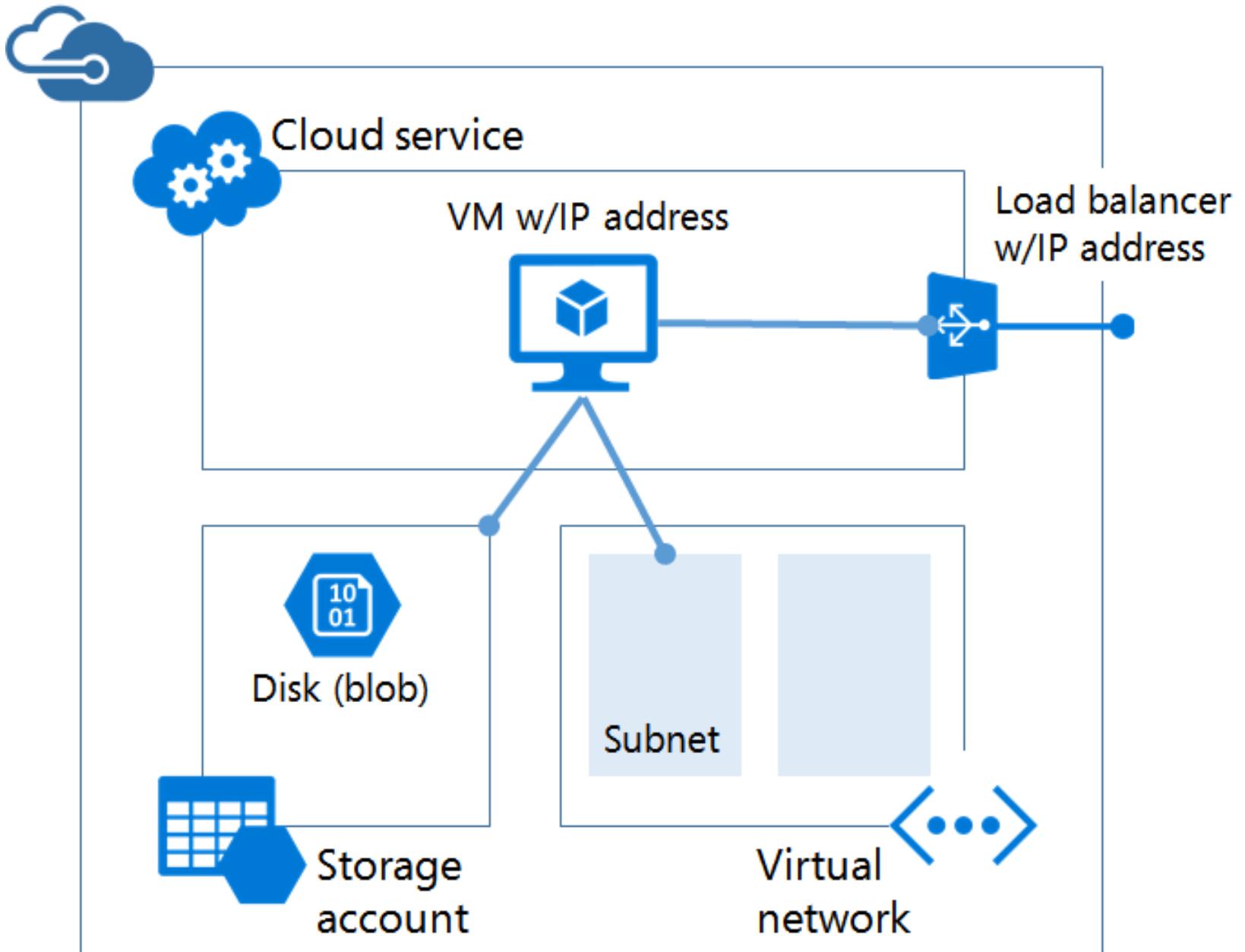
## ARM

- It is a new model
- Works only on new portal
- Redesign to allow IaaS based mindset
  - compute, storage, networking all as distinguished components
- Works in all scenarios regardless of technologies
- Deployments can be done via
  - new portal, SDKs, REST APIs and JSON templates
- Recommended for all future development

# ASM or Classic

- Cloud service that acts as a container for hosting virtual machines
  - Virtual machines are automatically provided with a network interface card (NIC) and an IP address assigned by Azure.
  - The cloud service contains an external load balancer instance, a public IP address, and default endpoints to allow remote desktop and remote PowerShell and Secure Shell (SSH) traffic.
- A storage account that stores the VHDs for a virtual machine
  - It includes the operating system, temporary, and additional data disks.
- An optional virtual network that acts as an additional container, in which you can create a sub-netted structure and designate the subnet on which the virtual machine is located (network).

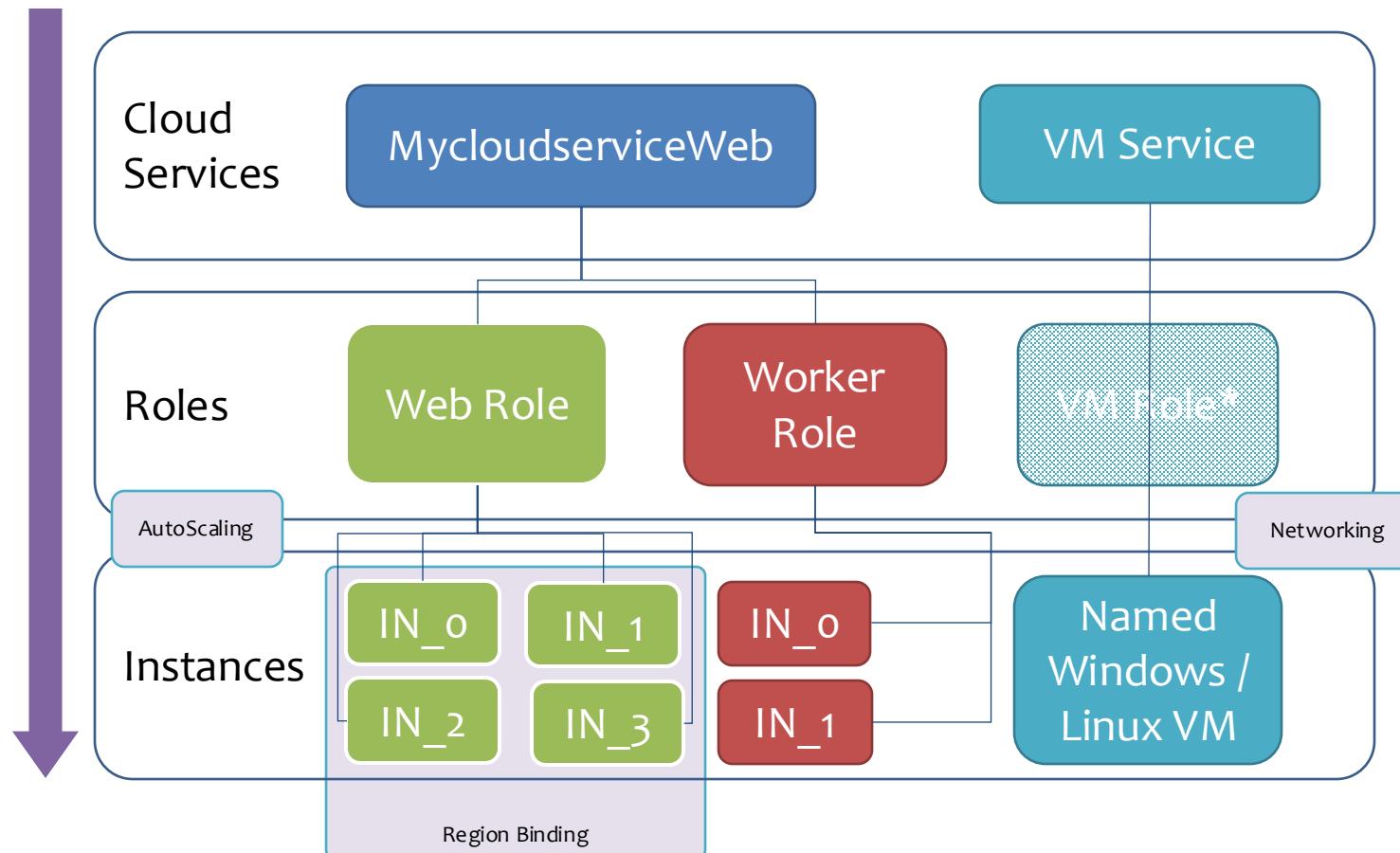
# ASM



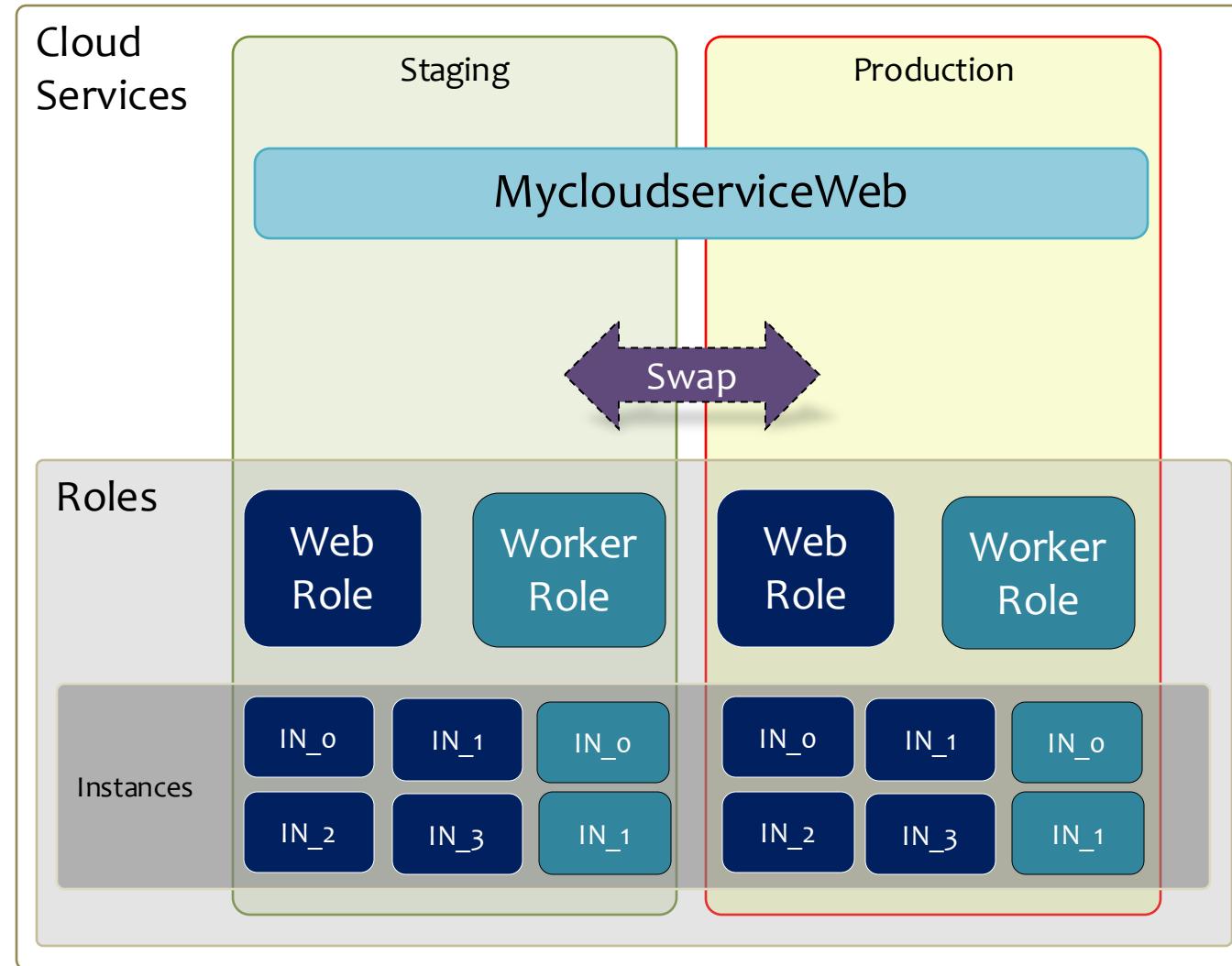
# Cloud Service Topology: Roles vs Instances

- Role is a logical boundary of virtual machine.
- A role can have multiple virtual machines in it.
- All VMs created must have a role associated.
- A role provides following functionalities as OOB feature:
  - AutoScaling
  - Inter VM networking
  - Region binding
- There are 3 roles
  - Web role
  - Worker role
  - VM role (now deprecated)

# Cloud Service Topology

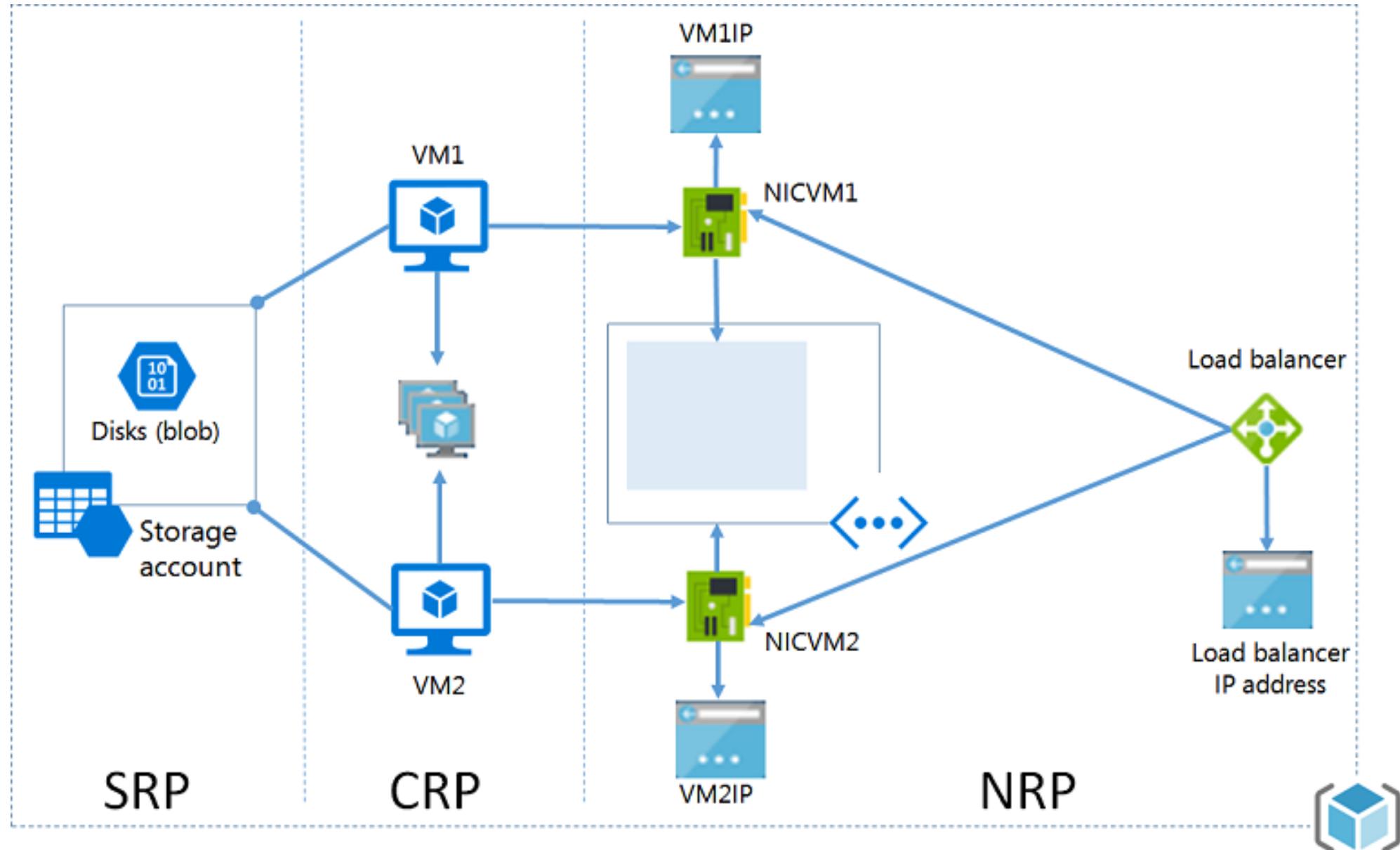


# Cloud Service Topology



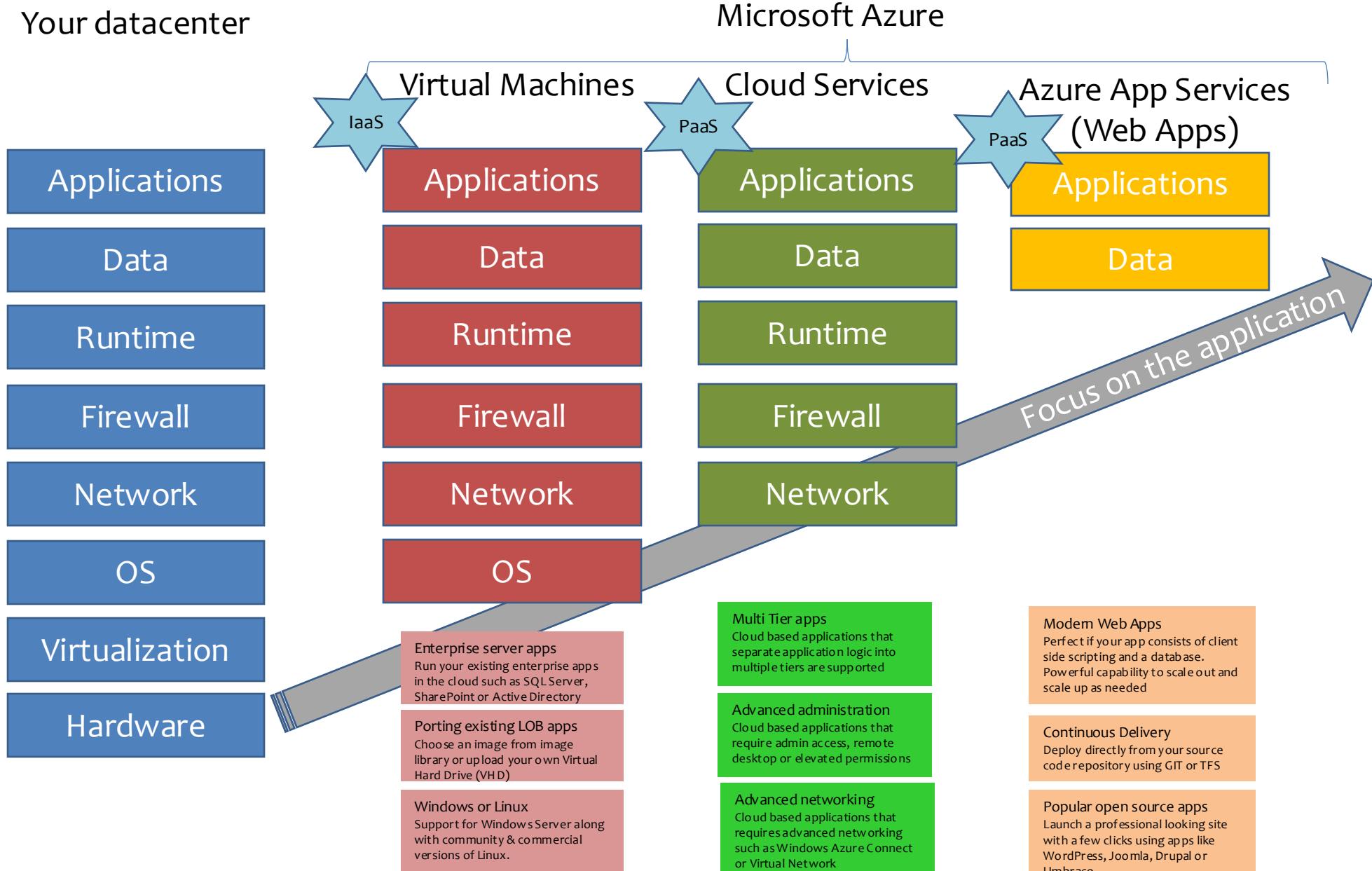
- **Compute** - Supports instances of virtual machines and optional availability sets.
- **Storage** - Supports required storage accounts that store the VHDs for virtual machines, including their operating system and additional data disks.
- **Network** - Supports required NICs, virtual machine IP addresses, and subnets within virtual networks and optional load balancers, load balancer IP addresses, and Network Security Groups.

# ARM



# Azure VM vs Cloud Services vs App Services

Your datacenter





# Cloud Computing

Part – II

Demo and Hands on Activities

Lets create a

**Virtual Machine**

# Azure Virtual Machine

The screenshot shows the Azure portal interface. On the left, the 'New' blade is open, displaying various service categories like Marketplace, Marketplaces, and Featured Apps. The 'Virtual Machines' category is selected. In the center, the 'Virtual Machines' section of the Marketplace is shown, featuring the 'Windows Server 2012 R2 Datacenter' image. The image details are as follows:

**Windows Server 2012 R2 Datacenter**  
Microsoft

At the heart of the Microsoft Cloud OS vision, Windows Server 2012 R2 brings Microsoft's experience delivering global-scale cloud services into your infrastructure. The virtual machine (VM) offers enterprise-class performance, flexibility for your applications and excellent economics for your datacenter and hybrid cloud environment. This image includes Windows Server 2012 R2 Update (KB2919355).

[Learn more](#) [Documentation](#) [Pricing details](#)

**PUBLISHER** Microsoft

**USEFUL LINKS**

**Select a deployment model** [Resource Manager](#)

**Create**

**Virtual Machines**

**FEATURED APPS**

- Windows Server 2012 R2 Datacenter** Enterprise-class solutions that are simple to develop, cost-effective.
- Ubuntu Server 14.04 LTS** Ubuntu Server delivers the best value scale-out performance available.
- SQL Server 2014 Enterprise on Windows Server 2012 R2** Enterprise version of SQL Server 2014 for transactional data
- SharePoint 2013 HA Farm** Deploy a SharePoint server farm in Azure with the click of a button.
- Dynamics AX 2012 R3 (preview)** Microsoft Dynamics AX is the Microsoft ERP solution designed for enterprises.
- RemoteApp** Deploy Windows client apps in the cloud, run on any device
- Batch Service** Azure Batch provides job scheduling and resource management for HPC applications.
- Cloud service** Deploy highly-available, infinitely-scalable applications and APIs.

**RECENT**

- Windows 7 Enterprise N SP1 (x64)** Microsoft
- Batch Service** Microsoft
- Data Factory** Microsoft
- Resource group** Microsoft

**Marketplace**

**See all**

# Azure Virtual Machine

Create virtual machine

**Basics**

- 1 Basics Configure basic settings
- 2 Size Choose virtual machine size
- 3 Settings Configure optional features
- 4 Summary Windows Server 2012 R2 Datacen...

\* Name: jaipurpoc1 ✓

\* User name: jaipuruser ✓

\* Password: \*\*\*\*\* ✓

\* Confirm password: \*\*\*\*\* ✓

Subscription: Visual Studio Professional with MSDN

\* Resource group: Create new Use existing

jaipurRG ✓

Location: East US

**OK**

Create virtual machine

**Choose a size**  
Browse the available sizes and their features

8 Cores	0.25 Cores	1 Core
56 GB 16 Data disks 16x500 Max IOPS	0.75 GB 1 Data disk 1x300 Max IOPS	1.75 GB 2 Data disks 2x300 Max IOPS
<b>Load balancing</b>		
<b>Auto scale</b>		
34,869.98 INR/MONTH (ESTIMATED)	804.69 INR/MONTH (ESTIMATED)	1,967.02 INR/MONTH (ESTIMATED)
<b>A2 Basic</b> 2 Cores 3.5 GB 4 Data disks 4x300 Max IOPS	<b>A3 Basic</b> 4 Cores 7 GB 8 Data disks 8x300 Max IOPS	<b>A4 Basic</b> 8 Cores 14 GB 16 Data disks 16x300 Max IOPS
3,934.05 INR/MONTH (ESTIMATED)	7,868.10 INR/MONTH (ESTIMATED)	15,736.20 INR/MONTH (ESTIMATED)
<b>DS5_V2 Standard</b> 16 Cores 56 GB 32	<b>DS14_V2 Standard</b> 16 Cores 112 GB 32	<b>DS15_V2 Standard</b> 20 Cores 140 GB 40

**Select**

Create virtual machine

**Settings**

- 1 Basics Done
- 2 Size Done
- 3 Settings Configure optional features
- 4 Summary Windows Server 2012 R2 Datacen...

**Storage**  
Disk type: Standard Premium (SSD)

\* Storage account: (new) jaipurr3839

**Network**

\* Virtual network: (new) jaipurRG

\* Subnet: default (10.7.0.0/24)

\* Public IP address: (new) jaipurpoc1

\* Network security group: (new) jaipurpoc1

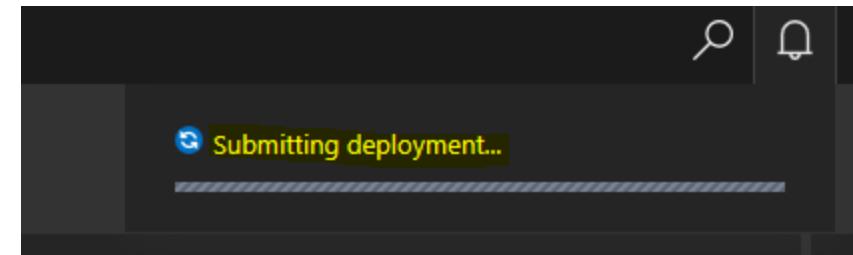
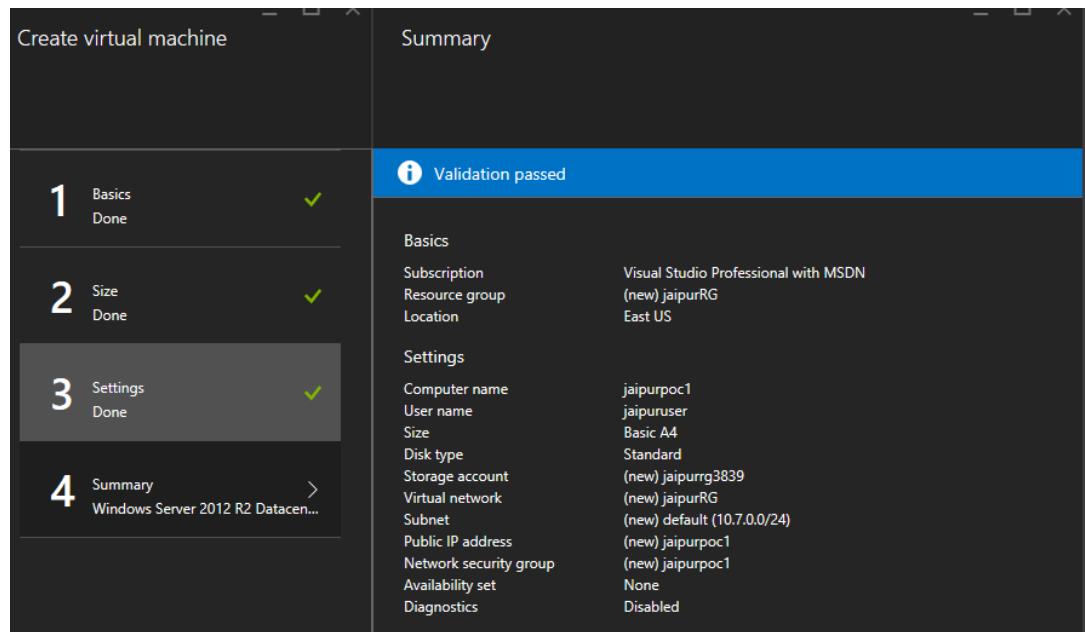
**Extensions**  
Extensions: No extensions

**Monitoring**  
Diagnostics: Disabled Enabled

**Availability**  
\* Availability set: None

**OK**

# Azure Virtual Machine





Server Manager

Server Manager &gt; Dashboard

Manage Tools View Help

Dashboard

Local Server

All Servers

File and Storage Services &gt;

## WELCOME TO SERVER MANAGER

## 1 Configure this local server

- 2 Add roles and features
- 3 Add other servers to manage
- 4 Create a server group
- 5 Connect this server to cloud services

Hide

## ROLES AND SERVER GROUPS

## System Information

File Edit View Help

## System Summary

Hardware Resources

Components

Software Environment

Item	Value
OS Name	Microsoft Windows Server 2016 Datacenter Technical Preview 5
Version	10.0.14300 Build 14300
Other OS Description	Not Available
OS Manufacturer	Microsoft Corporation
System Name	WIN16TP5MB
System Manufacturer	Microsoft Corporation
System Model	Virtual Machine
System Type	x64-based PC
System SKU	Unsupported
Processor	Intel(R) Xeon(R) CPU E5-2673 v3 @ 2.40GHz, 2394 Mhz, 4 Core(s), 8 Logical Processor(s)
BIOS Version/Date	American Megatrends Inc. 090006, 5/23/2012
SMBIOS Version	2.3
BIOS Mode	Legacy
BaseBoard Manufacturer	Microsoft Corporation
BaseBoard Model	Not Available
BaseBoard Name	Base Board

Find what:

 Search selected category only Search category names only

Find

Close Find

Windows Server 2016 Datacenter Technical Preview 5  
Evaluation copy. Build 14300.rs1\_release\_svc160415-2143Make sure you **stop** the VM from portal and delete it if not required.

Do not shut it down from RDP or SSH.

9:28 AM  
6/22/2016

# Now.. Lets get into some coding

Deploy an application on Azure cloud service

# Azure environment setup for Java

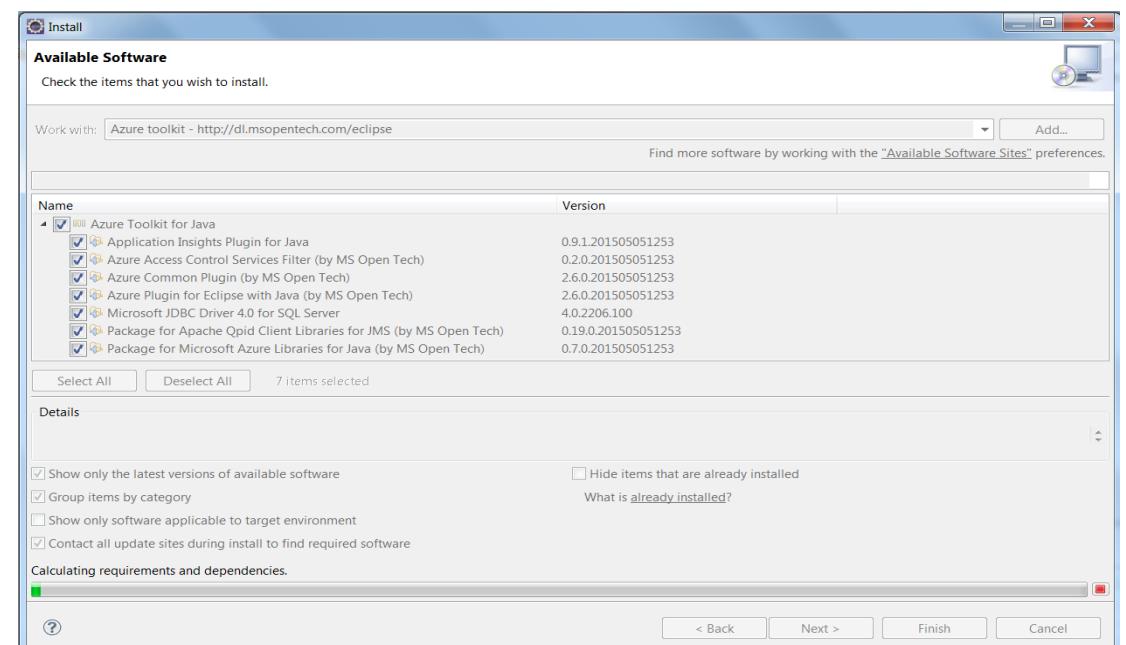
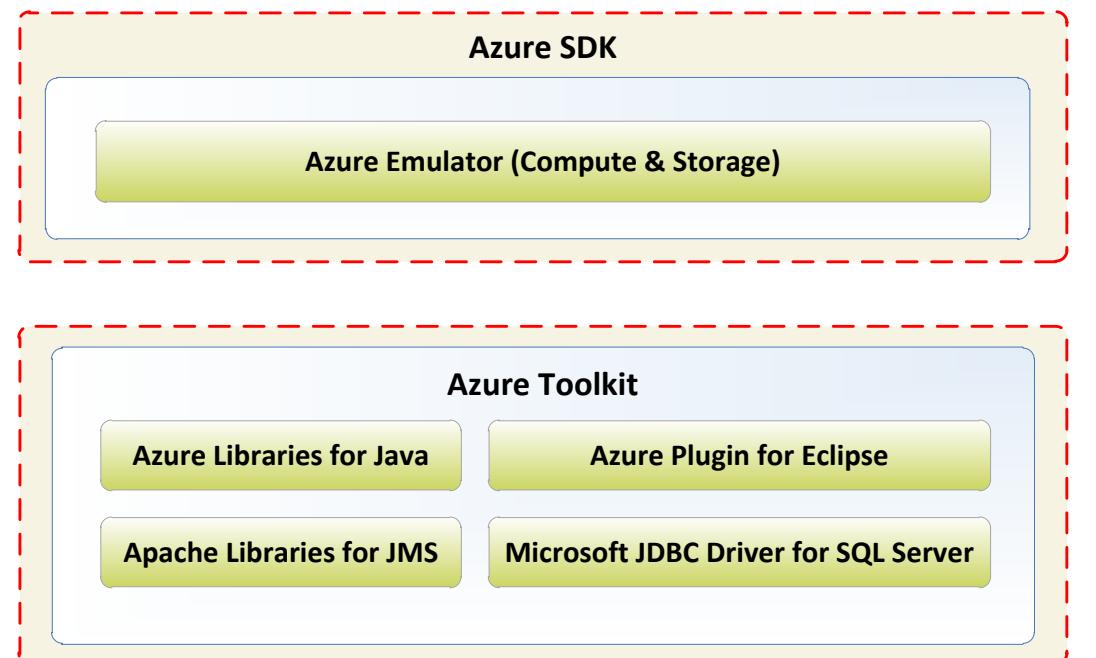
First install Azure SDK by using Web Platform Installer (WPI)

<http://go.microsoft.com/fwlink/?LinkId=252838>

Then install Azure Toolkit for Eclipse

<https://msdn.microsoft.com/en-us/library/azure/hh690946.aspx>

Azure Plugin contains Windows Azure project creation wizard & utility scripts.



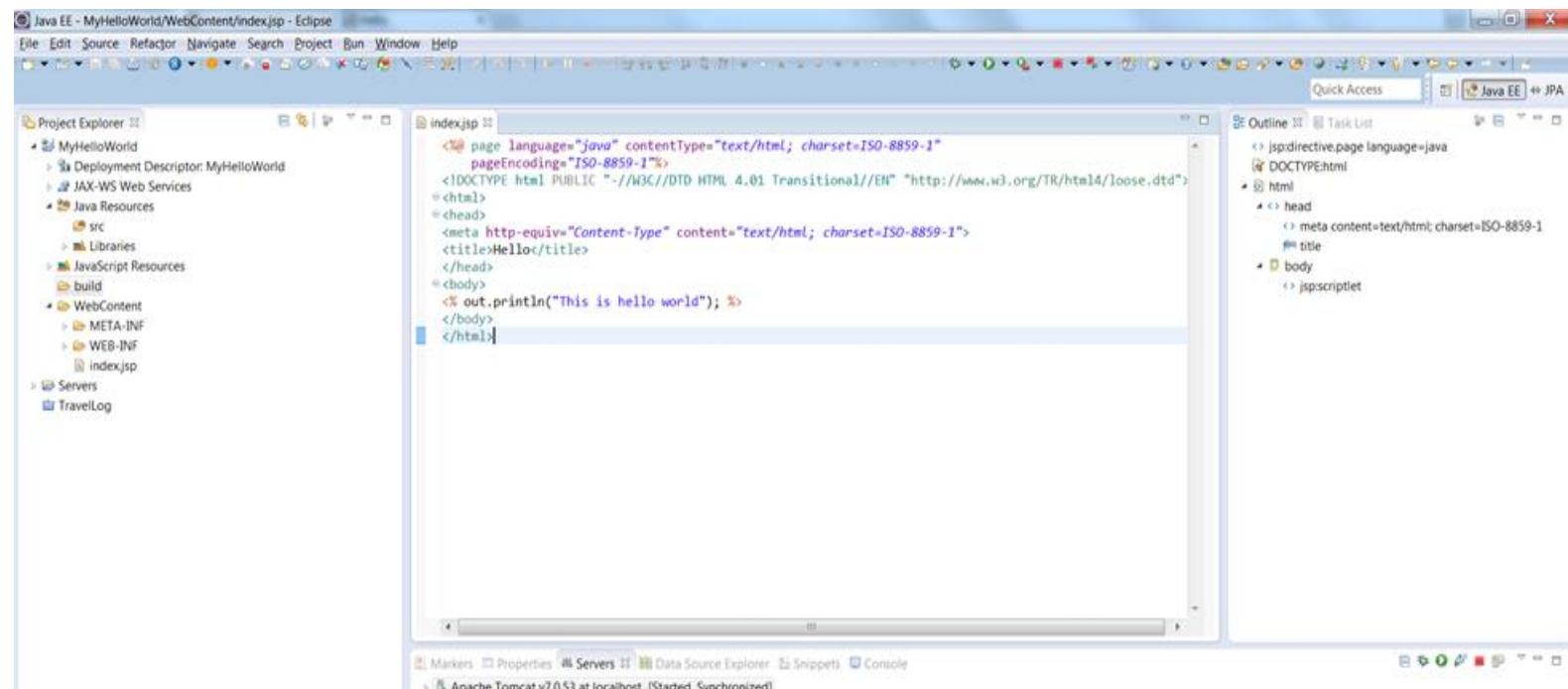
Deploy Java App on Azure Cloud Service (as Worker Role)

# Deploy Java App as Azure Cloud Service

Create a Dynamic Web Project  
(named MyHelloWorld) and add a JSP file  
(index.jsp)

Update the JSP file with sample code to  
print “This is hello world”

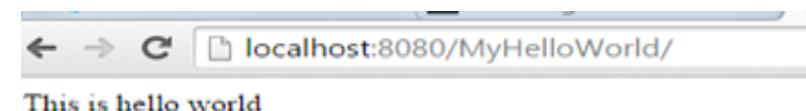
Run it locally and verify the output:



The screenshot shows the Eclipse IDE interface with the title "Java EE - MyHelloWorld/WebContent/index.jsp - Eclipse". The Project Explorer view on the left shows a project named "MyHelloWorld" containing "Deployment Descriptor: MyHelloWorld", "JAX-WS Web Services", "Java Resources" (with "src", "Libraries", "JavaScript Resources", "build", and "WebContent" subfolders), "META-INF", "WEB-INF", and "index.jsp". The "Servers" view shows "TravelLog". The main editor window displays the "index.jsp" file with the following content:

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Hello</title>
</head>
<body>
<% out.println("This is hello world"); %>
</body>
</html>
```

The Outline view on the right shows the structure of the JSP file, including the jsp:directive.page, DOCTYPE, head, meta, title, body, and jsp:scriptlet sections.

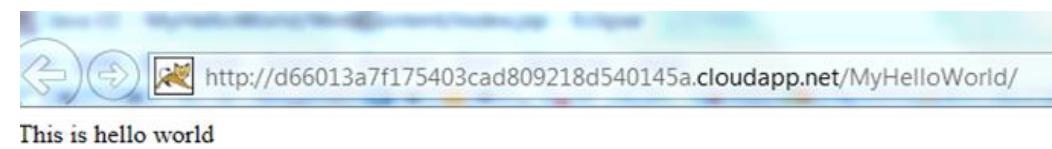
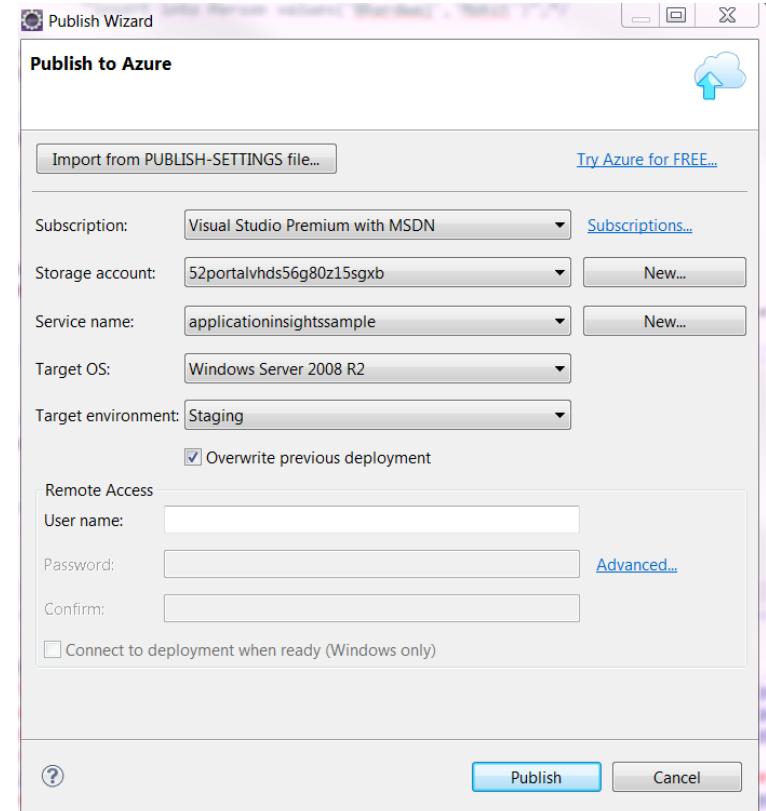
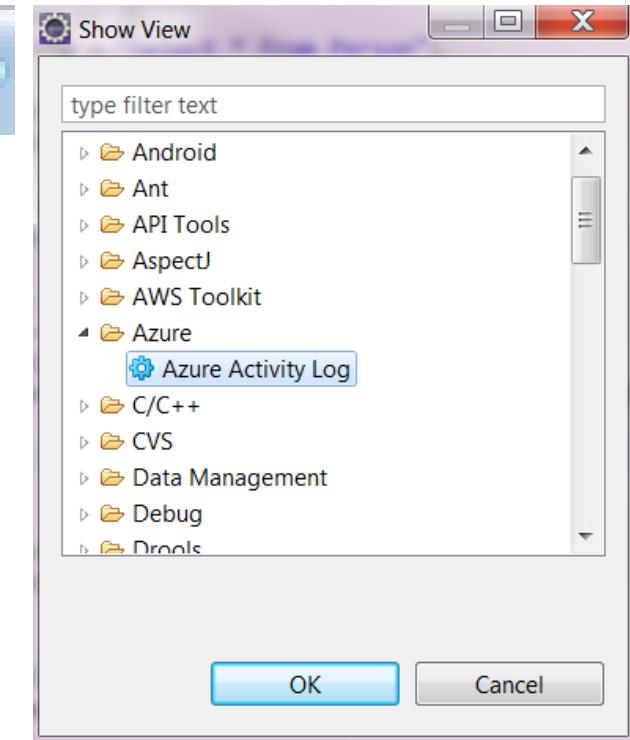


# Deploy Java App as Azure Cloud Service

Select the project and on Eclipse toolbar, click “**Publish as Cloud Service**” button or choose from right click menu -> Azure -> Publish to Azure option.

In the Publish to Azure dialog:

- For the first time, **Import Subscription Information** by clicking on **Download Publish Settings file**.
- Then using **Browse** button, select the downloaded subscription file.
- You may change the storage account, service name, target OS and other options.
- Click OK
- See the status using **Azure Activity Log**
- Once published on cloud, you can open the public URL and see the application in working.



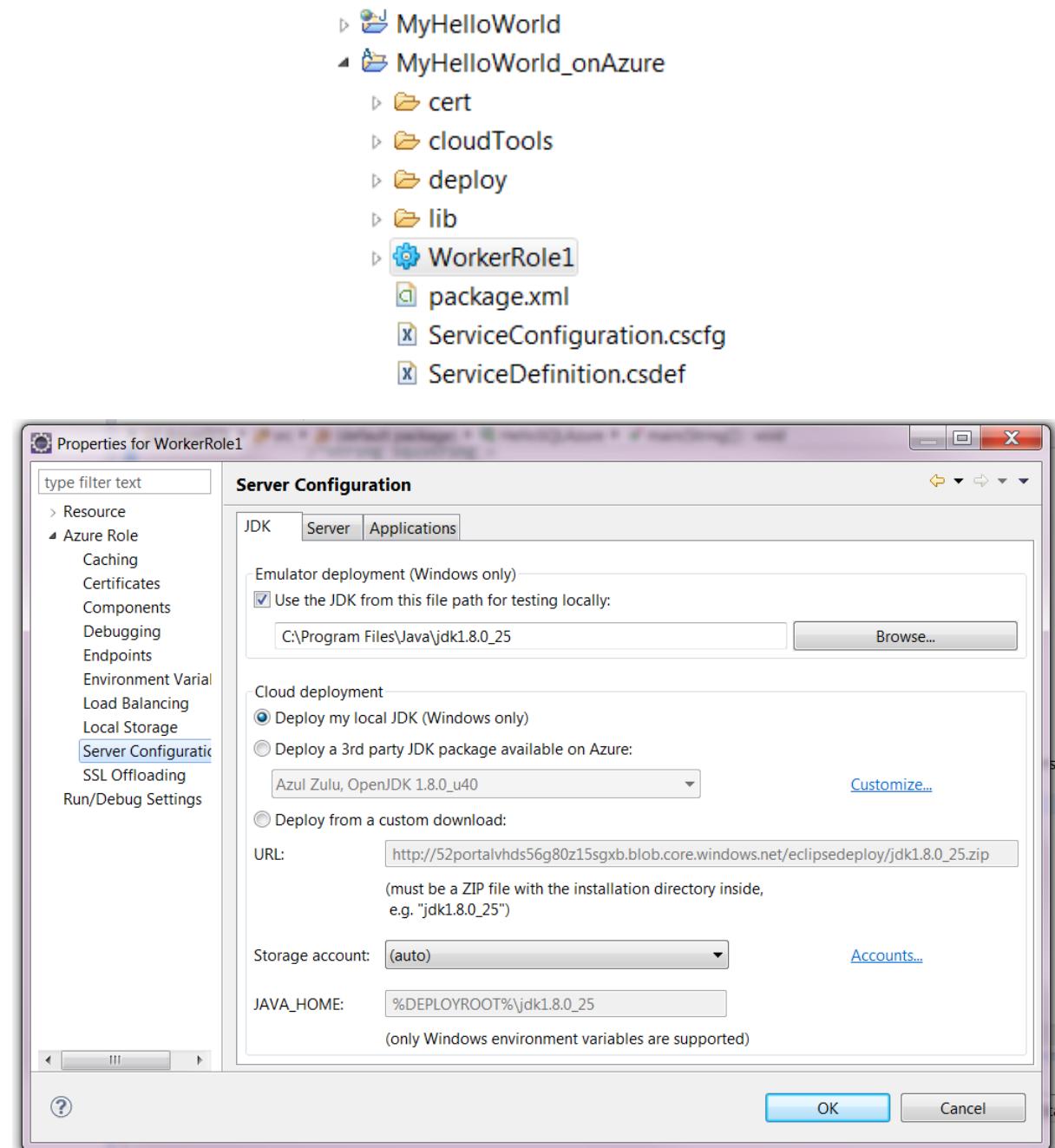
# Deploy Java App as Azure Cloud Service

## Learnings:

To deploy one or more Java applications, an Azure Deployment Project is needed.

To change the JDK or settings of the project:

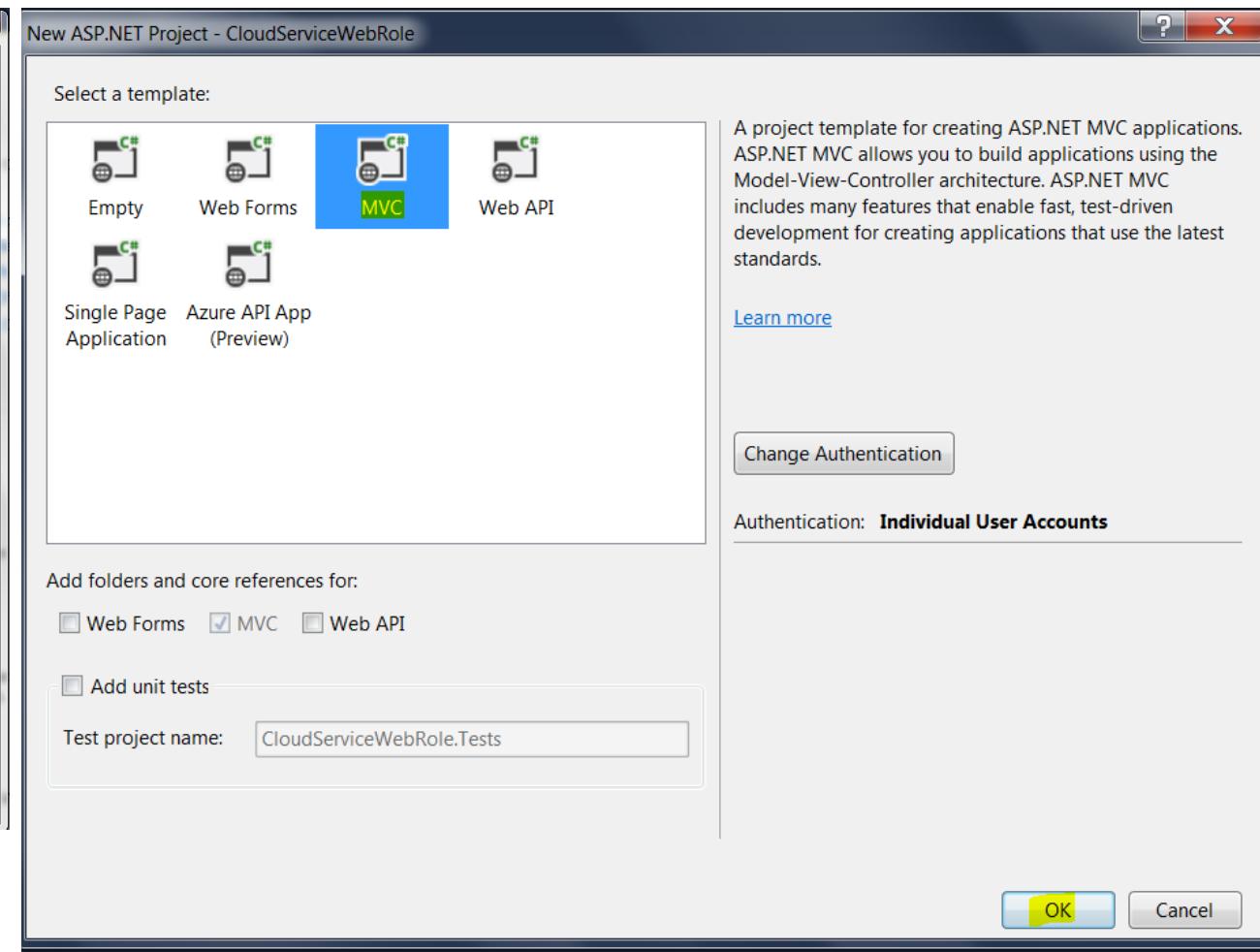
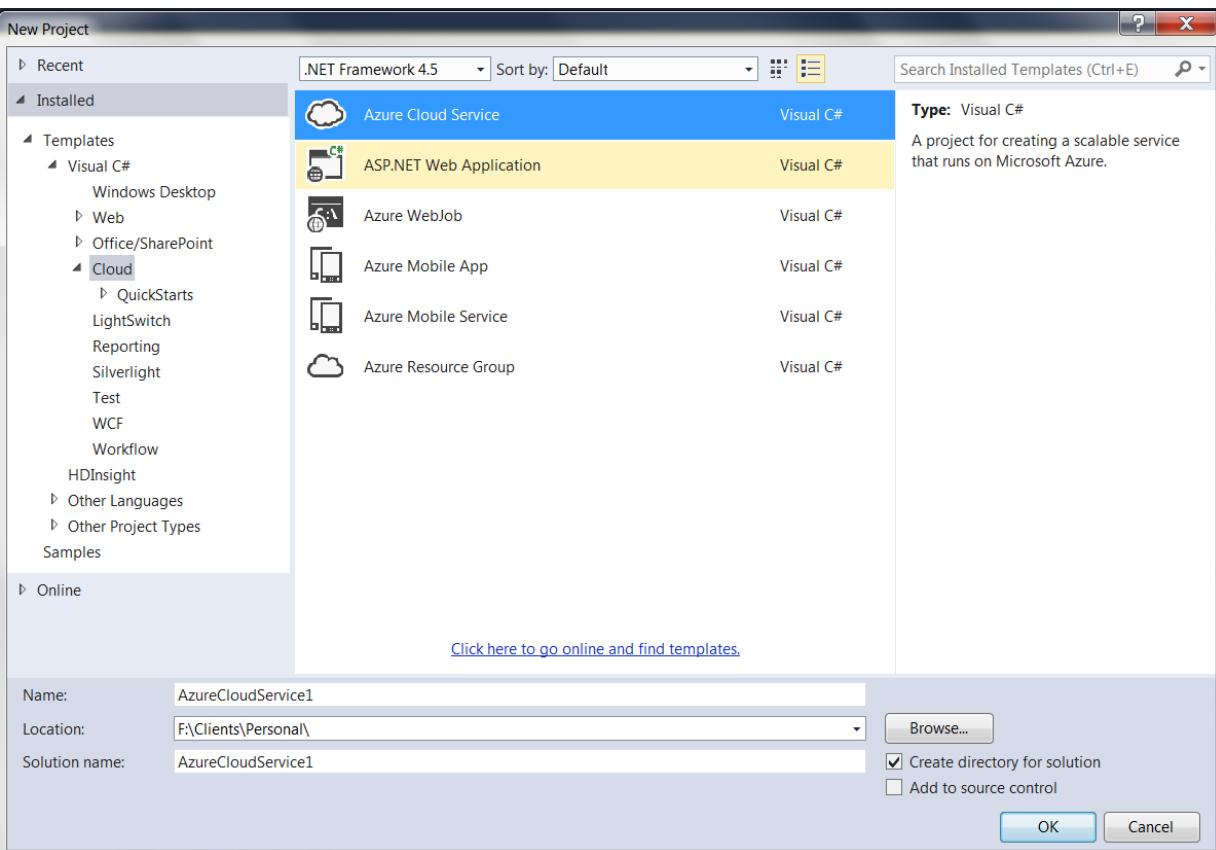
- Expand the Azure Wrapper Project
- Right click WorkerRole1
- Expand the Azure submenu
- Click Server Configuration



# .NET Implementation

## Cloud Service (Web Role)

# Cloud service



# Cloud service

Publish Azure Application

**Microsoft Azure Publish Settings**

Sign in

Settings

Summary

Common Settings Advanced Settings

Cloud Service: MBTestCloudService (Central US)

Environment: Staging

Build configuration: Debug

Service configuration: Cloud

Enable Remote Desktop for all roles [Settings...](#)

Enable Web Deploy for all web roles (requires Remote Desktop)

Online privacy statement < Previous Next > Publish Cancel

New Microsoft Azure Cloud Service

Microsoft Azure Tools - v2.6 .NET Framework 4.5 roles:

- Visual Basic
- Visual C#
  - ASP.NET Web Role** Service with a web user interface
  - WCF Service Web Role** Web role for WCF services
  - Worker Role** Background processing service
  - Cache Worker Role** Background processing service that hosts...
  - Worker Role with Service Bus Queue** Worker role processing messages from a...
  - Visual F#**

Microsoft Azure Cloud Service solution:

- C# **CloudServiceWebRole** ASP.NET Web Role

OK Cancel

The image displays two windows from the Microsoft Azure Tools interface. The left window, titled 'Publish Azure Application', shows the 'Microsoft Azure Publish Settings' dialog. It includes fields for 'Cloud Service' (set to 'MBTestCloudService (Central US)'), 'Environment' (set to 'Staging'), 'Build configuration' (set to 'Debug'), and 'Service configuration' (set to 'Cloud'). There are also checkboxes for enabling Remote Desktop and Web Deploy. The right window, titled 'New Microsoft Azure Cloud Service', shows a list of '.NET Framework 4.5 roles'. The 'ASP.NET Web Role' is highlighted with a yellow box. Other listed roles include Visual Basic, Visual C#, WCF Service Web Role, Worker Role, Cache Worker Role, Worker Role with Service Bus Queue, and Visual F#. To the right of the role list, a 'Microsoft Azure Cloud Service solution' pane shows a single role named 'CloudServiceWebRole' under the 'ASP.NET Web Role' category. Both windows have standard Windows-style toolbars at the top.

# Cloud service

Publish Azure Application

**Microsoft Azure Publish Sign In**

Signed in as: mohit.bhardwaj01@outlook.com

Choose your subscription:

Visual Studio Professional with MSDN (mohit.bhardwaj01@outlook.com)

Sign in    Settings    Summary

Online privacy statement    < Previous    Next >    Publish    Cancel

Publish Azure Application

**Microsoft Azure Publish Settings**

Sign in    Common Settings    Advanced Settings

Deployment label: AzureCloudService1  
 Append current date and time

Storage account: mbcdnstorage (Central US)  
 Delete deployment on failure  
 Deployment update [Settings...](#)  
 Enable profiling [Settings...](#)  
 Enable Remote Debugger for all roles

Online privacy statement    < Previous    Next >    Publish    Cancel

Microsoft Azure Activity Log

Deployment    Storage    Log Requests    Virtual Machines    Extensions    Remove all completed

Description

Deploying to mbtestcloudservice - Staging

Staging    Validation warnings    View warnings  
Web app URL    Pending  
Deployment ID  
Open in Server Explorer

History

12:57:28 - Warning: There are package validation warnings.  
12:57:29 - Applying Diagnostics extension.

# Cloud service

**mbtestcloudservice**

DASHBOARD MONITOR CONFIGURE SCALE INSTANCES LINKED RESOURCES CERTIFICATES

Your cloud service has been created!  
Here are a few options to get you started:  
 Skip Quick Start the next time I visit

Get the tools Install a Windows Azure SDK  
Deployment settings New production deployment New staging deployment  
Integrate source control Set up publishing with Visual Studio Online

Microsoft Azure Activity Log

Deployment Storage Log Requests Virtual Machines Extensions Remove all completed

Description Deploying to mbtestcloudservice - Staging

Staging Validation warnings [View warnings](#)

Web app URL <http://f7c29620e82f480a8f8771203b384425.cloudapp.net/>

Deployment ID f7c29620e82f480a8f8771203b384425 [Open in Server Explorer](#)

History

- 12:59:56 - Instance 0 of role CloudServiceWebRole is creating the virtual machine
- 13:01:31 - Instance 0 of role CloudServiceWebRole is starting the virtual machine
- 13:06:19 - Instance 0 of role CloudServiceWebRole is busy  
Details: Starting role... System is initializing. [2015-05-26T07:33:35Z]
- 13:08:24 - Instance 0 of role CloudServiceWebRole is ready
- 13:08:24 - Created web app URL: http://f7c29620e82f480a8f8771203b384425.cloudapp.net/
- 13:08:24 - Complete.

SOURCES CERTIFICATES

RELATIVE 1 HOUR

32.19 %

12:55 1:00 1:05 1:10 1:15 1:20

**ASP.NET on Cloud Service Web Role**

ASP.NET is a free web framework for building great Web sites and Web applications using HTML, CSS and JavaScript.

[Learn more »](#)

# Working with Azure SQL database

# Azure SQL Database

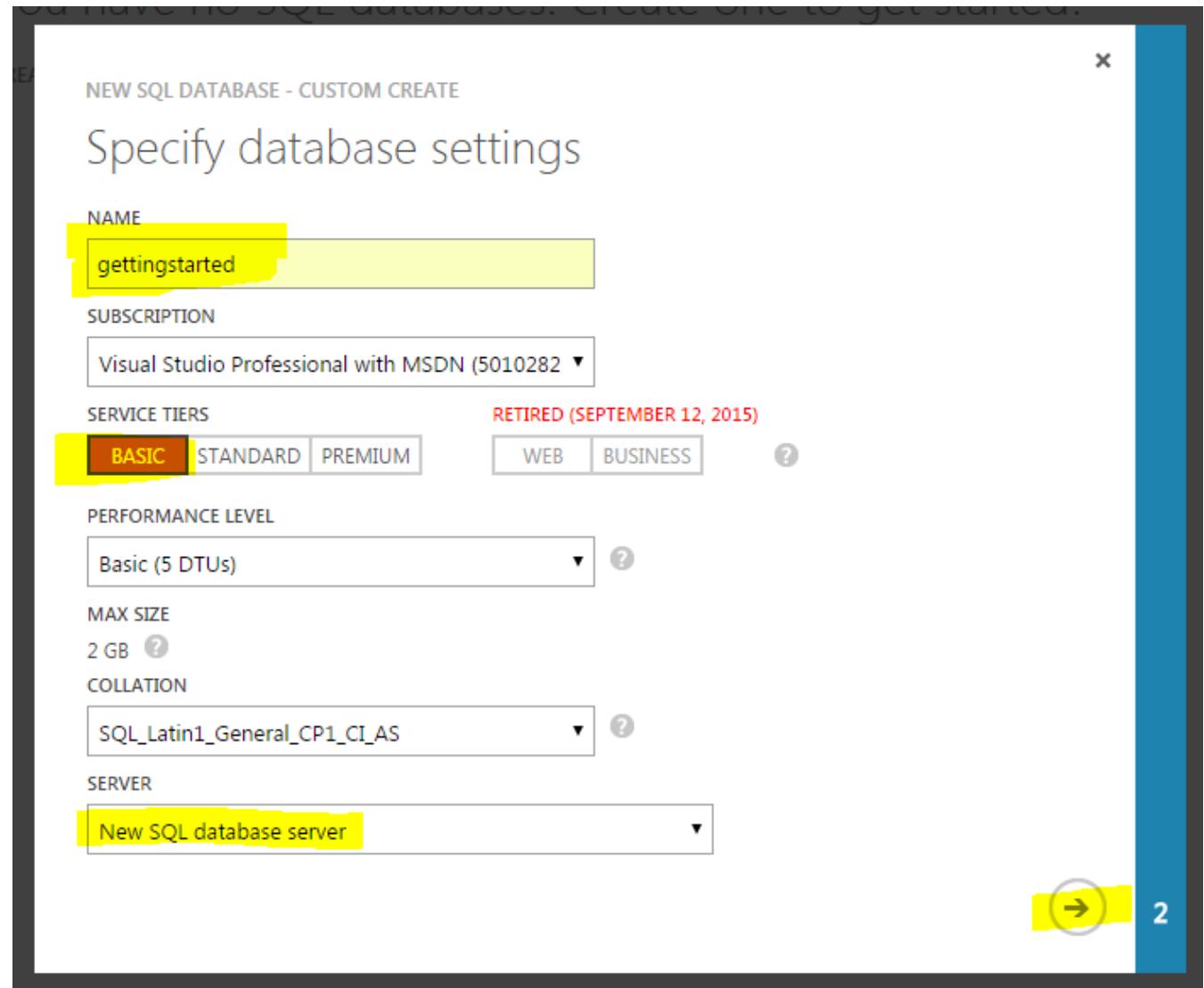
Azure SQL Database is RDBMS for Azure based on SQL Server technology.

Create an Azure SQL Database

Login to Azure Management Portal

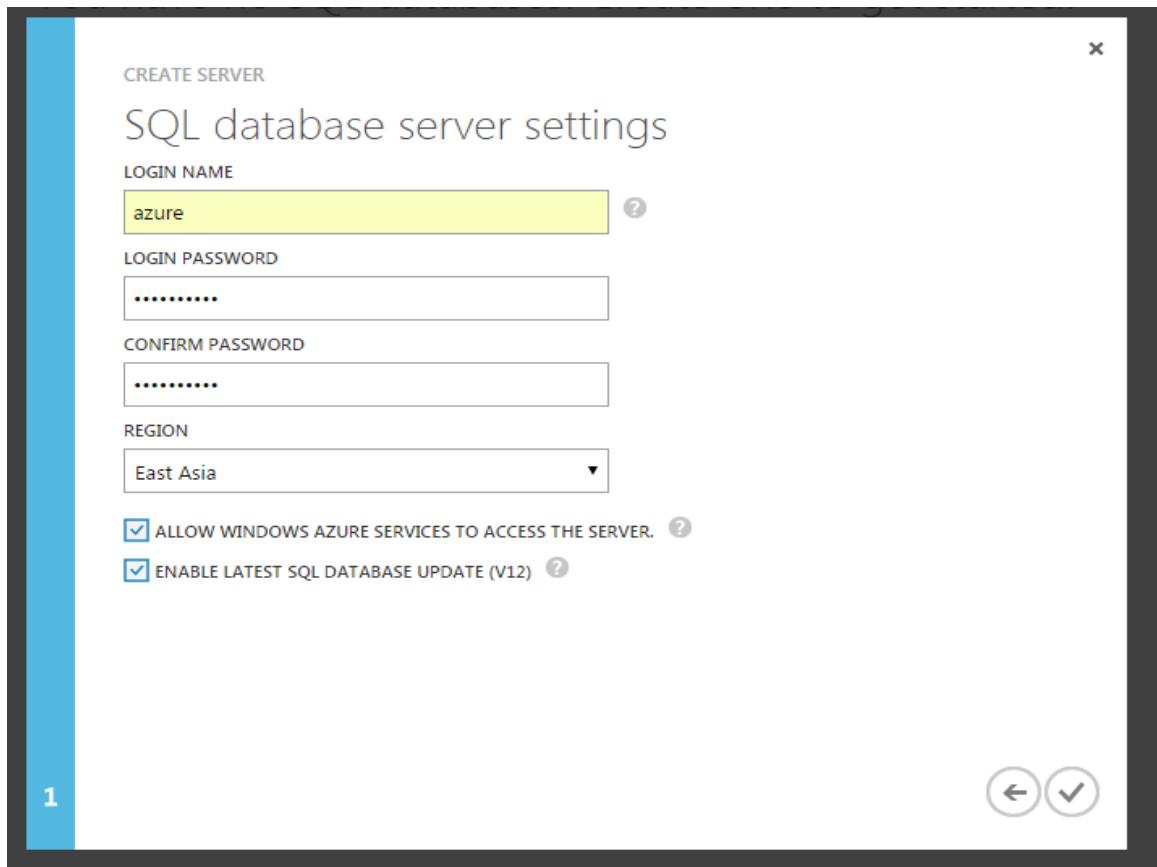
Click **SQL Databases -> Create SQL Database**

Enter database name as “gettingstarted”

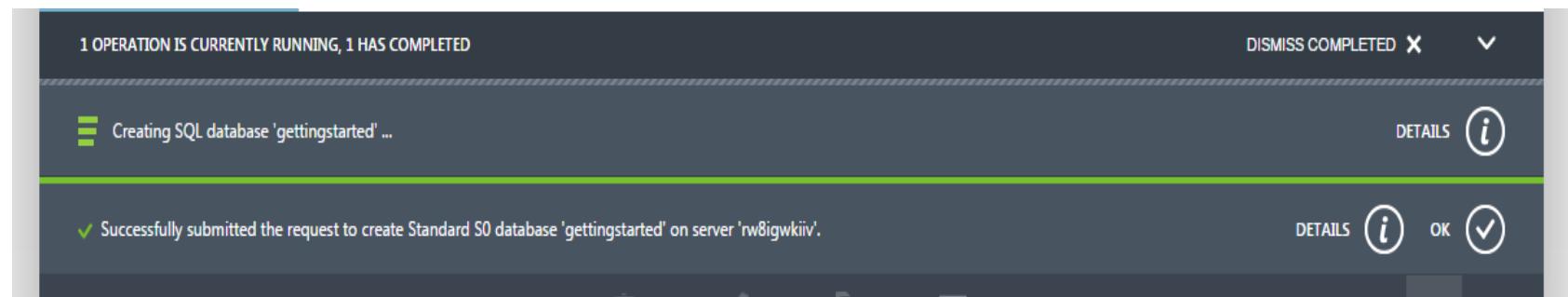


# Azure SQL Database

Update the settings for server: Region, Login name and Password and click on completion button.

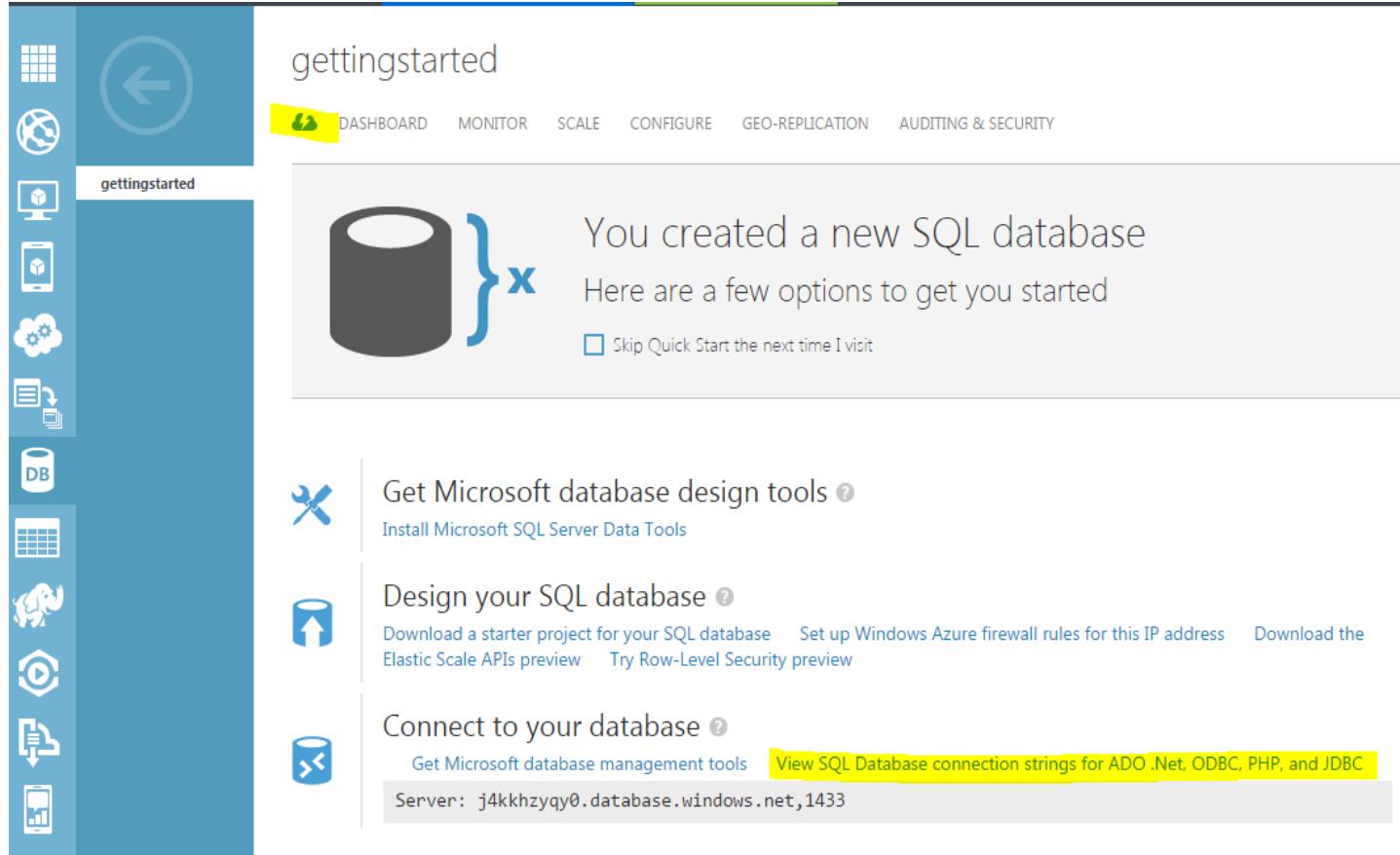


You will see a successful creation notification



# Azure SQL Database

- Copy the connection strings (JDBC option)



gettingstarted

DASHBOARD MONITOR SCALE CONFIGURE GEO-REPLICATION AUDITING & SECURITY

You created a new SQL database

Here are a few options to get you started

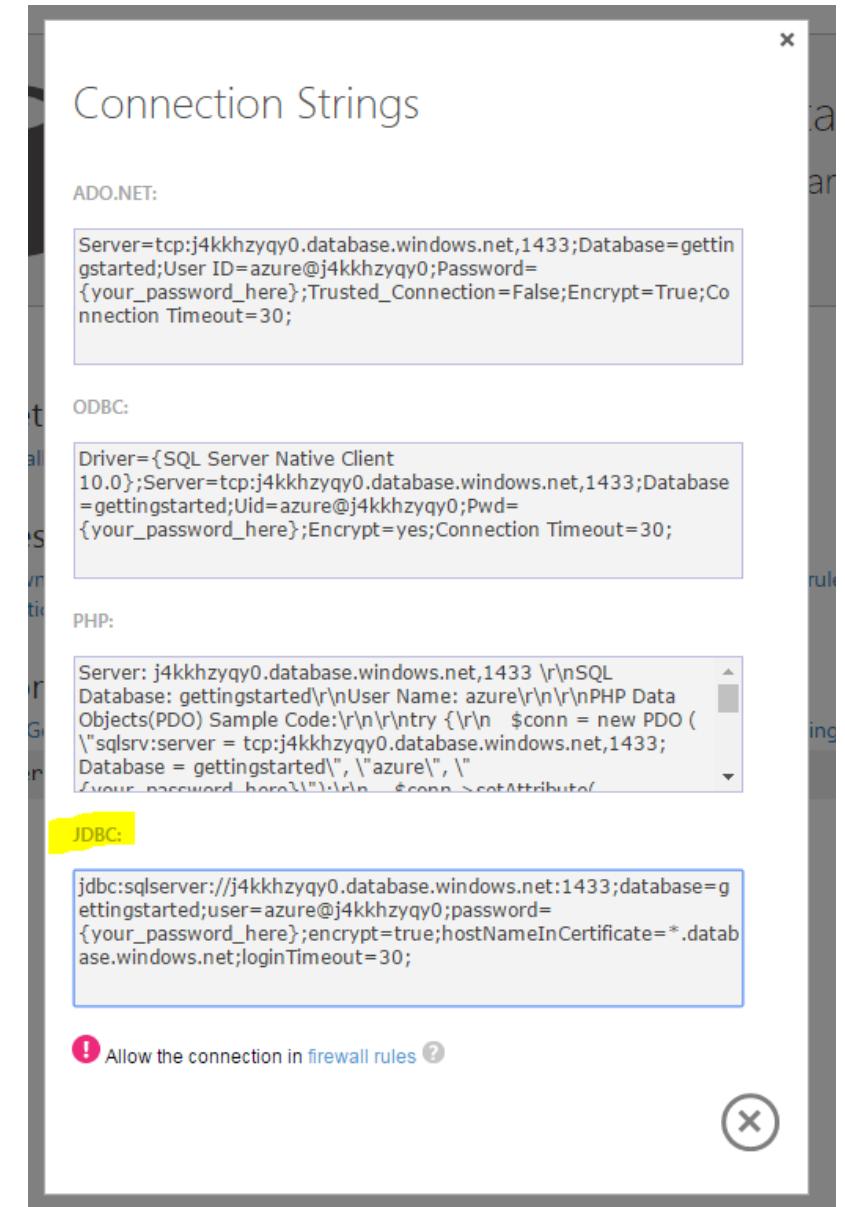
Skip Quick Start the next time I visit

Get Microsoft database design tools [?](#)  
[Install Microsoft SQL Server Data Tools](#)

Design your SQL database [?](#)  
[Download a starter project for your SQL database](#) [Set up Windows Azure firewall rules for this IP address](#) [Download the Elastic Scale APIs preview](#) [Try Row-Level Security preview](#)

Connect to your database [?](#)  
[Get Microsoft database management tools](#) [View SQL Database connection strings for ADO .Net, ODBC, PHP, and JDBC](#)

Server: j4kkhzyqy0.database.windows.net,1433



## Connection Strings

ADO.NET:

```
Server=tcp:j4kkhzyqy0.database.windows.net,1433;Database=gettingstarted;User ID=azure@j4kkhzyqy0;Password={your_password_here};Trusted_Connection=False;Encrypt=True;Connection Timeout=30;
```

ODBC:

```
Driver={SQL Server Native Client 10.0};Server=tcp:j4kkhzyqy0.database.windows.net,1433;Database=gettingstarted;Uid=azure@j4kkhzyqy0;Pwd={your_password_here};Encrypt=yes;Connection Timeout=30;
```

PHP:

```
Server: j4kkhzyqy0.database.windows.net,1433\r\nSQL  
Database: gettingstarted\r\nUser Name: azure\r\n\r\nPHP Data  
Objects(PDO) Sample Code:\r\ntry {\r\n    $conn = new PDO (\r\n        'sqlsrv:server = tcp:j4kkhzyqy0.database.windows.net,1433;'  
        'Database = gettingstarted', "azure", "  
        {your_password_here}\")\r\n    $conn->setAttribute(
```

JDBC:

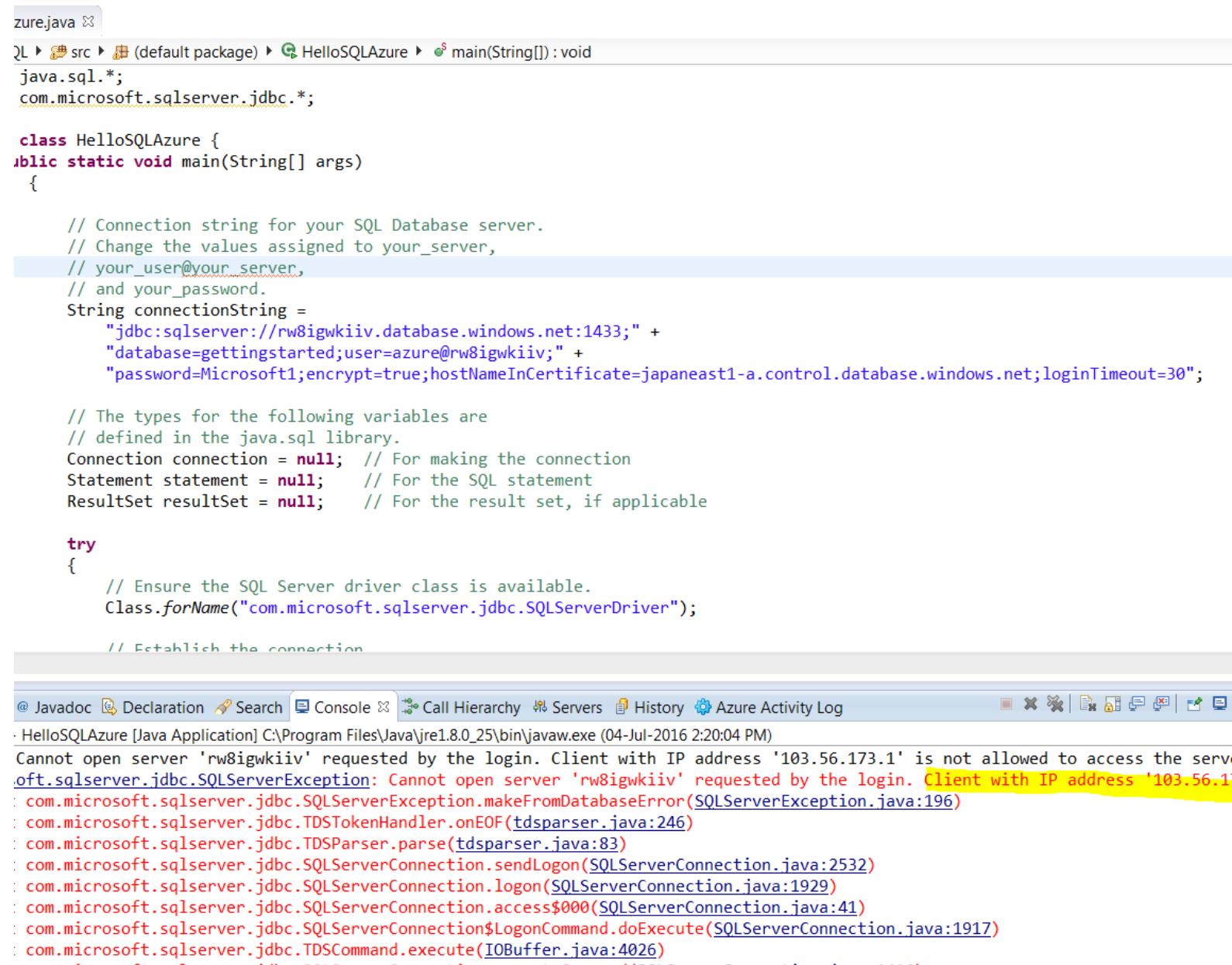
```
jdbc:sqlserver://j4kkhzyqy0.database.windows.net:1433;database=gettingstarted;user=azure@j4kkhzyqy0;password={your_password_here};encrypt=true;hostNameInCertificate=*.database.windows.net;loginTimeout=30;
```

**!** Allow the connection in firewall rules [?](#)

# Use the Azure Db connection String in Java code

## TODO activity

- Create a Java class which creates a table on Azure Cloud
- Insert some records in table
- Query the cloud table and print the result set



The screenshot shows an IDE interface with the following details:

- File Path:** src > (default package) > HelloSQLAzure > main(String[]) : void
- Java Class:** HelloSQLAzure
- Method:** main(String[] args)
- Code Content:**

```

zure.java ✘
QL ▶ src ▶ (default package) ▶ HelloSQLAzure ▶ main(String[]) : void
java.sql.*;
com.microsoft.sqlserver.jdbc.*;

class HelloSQLAzure {
    public static void main(String[] args)
    {

        // Connection string for your SQL Database server.
        // Change the values assigned to your_server,
        // your_user@your_server,
        // and your_password.
        String connectionString =
            "jdbc:sqlserver://rw8igwkiiv.database.windows.net:1433;" +
            "database=gettingstarted;user=azure@rw8igwkiiv;" +
            "password=Microsoft1;encrypt=true;hostNameInCertificate=japaneast1-a.control.database.windows.net;loginTimeout=30";

        // The types for the following variables are
        // defined in the java.sql library.
        Connection connection = null; // For making the connection
        Statement statement = null; // For the SQL statement
        ResultSet resultSet = null; // For the result set, if applicable

        try
        {
            // Ensure the SQL Server driver class is available.
            Class.forName("com.microsoft.sqlserver.jdbc.SQLServerDriver");

            // Establish the connection
        }
    }
}

```
- Console Output:**

```

@ Javadoc Declaration Search Console ✘ Call Hierarchy Servers History Azure Activity Log
HelloSQLAzure [Java Application] C:\Program Files\Java\jre1.8.0_25\bin\javaw.exe (04-Jul-2016 2:20:04 PM)
Cannot open server 'rw8igwkiiv' requested by the login. Client with IP address '103.56.173.1' is not allowed to access the server.
soft.sqlserver.jdbc.SQLServerException: Cannot open server 'rw8igwkiiv' requested by the login. Client with IP address '103.56.173.1' is not allowed to access the server.
: com.microsoft.sqlserver.jdbc.SQLServerException.makeFromDatabaseError(SQLServerException.java:196)
: com.microsoft.sqlserver.jdbc.TDSTokenHandler.onEOF(tdsparser.java:246)
: com.microsoft.sqlserver.jdbc.TDSParser.parse(tdsparser.java:83)
: com.microsoft.sqlserver.jdbc.SQLServerConnection.sendLogon(SQLServerConnection.java:2532)
: com.microsoft.sqlserver.jdbc.SQLServerConnection.logon(SQLServerConnection.java:1929)
: com.microsoft.sqlserver.jdbc.SQLServerConnection.access$000(SQLServerConnection.java:41)
: com.microsoft.sqlserver.jdbc.SQLServerConnection$LogonCommand.doExecute(SQLServerConnection.java:1917)
: com.microsoft.sqlserver.jdbc.TDSCommand.execute(TDBuffer.java:4026)

```

# To allow access to range of IP address

Login to Azure Management Portal

Click **SQL Database** and click **Configure**

Under Allowed IP address, select the **Current Client IP address**

Now re-execute Java code, it works fine!

The screenshot shows the Azure Management Portal interface. In the top left, it says "Microsoft Azure". To the right are buttons for "Check out the new portal" and "CREDIT STATUS". On the far right, there's an email link "vineetyadav01@outlook.com" and a user profile icon.

The main area shows a database named "decisionsql" with a sub-database "rw8igwkiiv" selected. The navigation bar below the database name includes links for DASHBOARD, DATABASES, CONFIGURE, HISTORY, BACKUPS, and AUDITING & SECURITY. The "CONFIGURE" link is highlighted.

Below the navigation bar, the page title is "rw8igwkiiv". Under the heading "allowed ip addresses", there is a section for "CURRENT CLIENT IP ADDRESS" which contains the value "103.56.173.1". To the right of this input field is a button labeled "ADD TO THE ALLOWED IP ADDRESSES." Below this section is a row of three input fields: "RULE NAME", "START IP ADDRESS", and "END IP ADDRESS".

Under the heading "allowed services", there is a section for "WINDOWS AZURE SERVICES" with two radio button options: "YES" (which is selected) and "NO".

# Scaling options on Azure Cloud for SQL Database

Microsoft Azure | [Check out the new portal](#) [CREDIT STATUS](#)

vineetyadav01@outlook.com

gettingstarted

DASHBOARD MONITOR SCALE CONFIGURE GEO-REPLICATION AUDITING & SECURITY

The Service Tier Advisor analyzes historical performance requirements for your database to help you choose an optimal service tier. Try the Service Tier Advisor by visiting the Microsoft Azure portal.

general

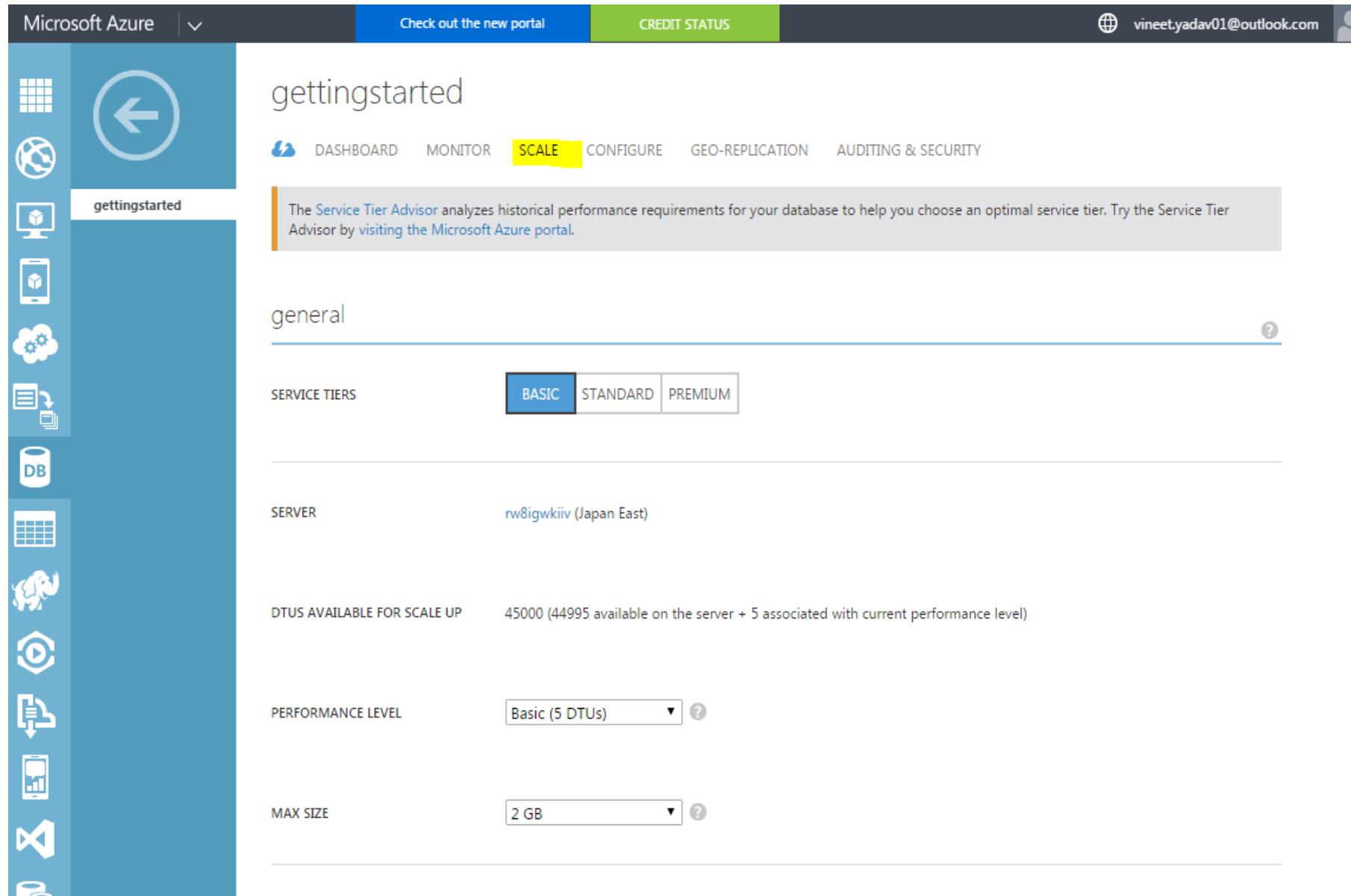
SERVICE TIERS [BASIC](#) STANDARD PREMIUM

SERVER rw8igwkiiv (Japan East)

DTUS AVAILABLE FOR SCALE UP 45000 (44995 available on the server + 5 associated with current performance level)

PERFORMANCE LEVEL Basic (5 DTUs) ?

MAX SIZE 2 GB ?



# Execute code & Monitor the activity on Cloud

HelloSQLAzure.java

```

HelloSQLAzure.java
1 package AzureSQL;
2
3 import java.sql.Connection;
4 import java.sql.DriverManager;
5 import java.sql.ResultSet;
6 import java.sql.Statement;
7
8 public class HelloSQLAzure {
9     public static void main(String[] args) {
10        Connection connection = null;
11        Statement statement = null;
12        ResultSet resultSet = null;
13
14        try {
15            // Load the JDBC driver
16            Class.forName("com.microsoft.sqlserver.jdbc.SQLServerDriver");
17
18            // Establish the connection
19            connection = DriverManager.getConnection("jdbc:sqlserver://127.0.0.1;databaseName=master", "sa", "P@ssw0rd");
20
21            // Create a SQL query
22            String sqlString =
23                "insert into Person values('Bhardwaj','Mohit')";/*
24
25            // Query SQL query on db.
26            String sqlString = "Select * from Person";
27
28            // Use the connection to create the SQL statement.
29            statement = connection.createStatement();
30
31            // Execute the statement for option 1 & 2
32            //statement.executeUpdate(sqlString);
33
34            // Execute the statement for option 3
35            ResultSet rs = statement.executeQuery(sqlString);
36            while(rs.next()){
37                System.out.println(rs.getInt("PersonID")+" "+rs.getString("LastName")+" "+rs.getString("FirstName"));
38            }
39
40            // Provide a message when processing is complete.
41            System.out.println("Processing complete.");
42
43        } catch (Exception e) {
44            e.printStackTrace();
45        } finally {
46            // Close the resources
47            if (resultSet != null) {
48                try {
49                    resultSet.close();
50                } catch (Exception e) {
51                }
52            }
53            if (statement != null) {
54                try {
55                    statement.close();
56                } catch (Exception e) {
57                }
58            }
59            if (connection != null) {
60                try {
61                    connection.close();
62                } catch (Exception e) {
63                }
64            }
65        }
66    }
67
68    // Exception handling
69    catch (ClassNotFoundException cnfe) {
70    }
71 }

```

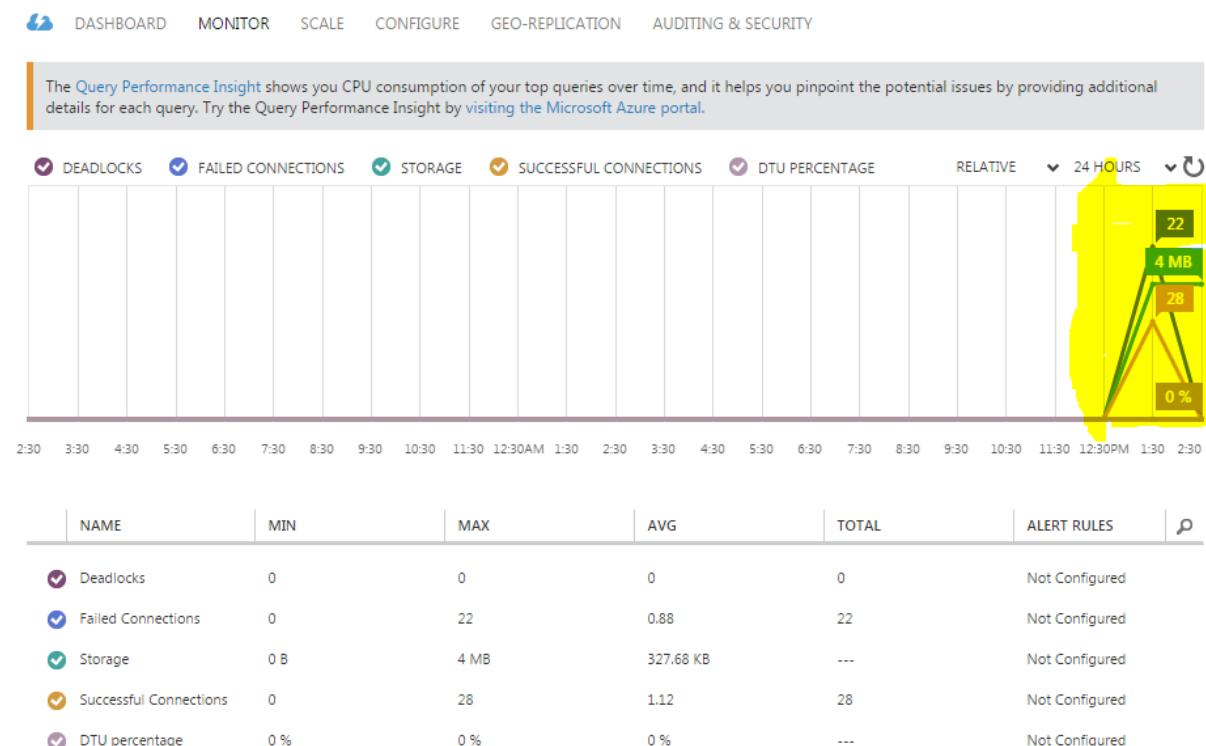
Console

```

1 Balhara Ashish
2 Bhardwaj Mohit
Processing complete.

```

gettingstarted



# Working with Redis Cache on Azure

# Azure Redis Cache

Create a Redis Cache Service and configure it

The screenshot shows the Azure portal interface for managing a Redis Cache service. The URL in the browser is <https://portal.azure.com/#resource/subscriptions/50102825-e2ae-495a-91bd-8f424fc180e7/resourceGroups/cacheResourceGroup/providers/Microsoft.Cache/Redis/dns1>.

**Left Navigation:** Shows the Azure portal sidebar with various service icons.

**Resource Group View:** Shows the 'cacheResourceGroup' resource group with one item: 'dns1' (Redis Cache). It includes settings like 'Subscription name: Visual Studio Professional with MSDN', 'Subscription ID: 50102825-e2ae-495a-91bd-8f424fc180e7', 'Last deployment: 7/4/2016 (Deploying)', and 'Location: Central US'.

**Redis Cache Configuration:** Shows the 'dns1' Redis Cache service with details like 'Host name: dns1.redis.cache.windows.net', 'Status: Running', 'Location: Central US', and 'Subscription: Visual Studio Professional with MSDN'. It also lists 'Ports: Non-SSL port (6379) enabled' and 'Keys: Show access keys...'. The 'Pricing tier' is Standard 1 GB, and the 'Subscription ID' is 50102825-e2ae-495a-91bd-8f424fc180e7. A link to 'New features' (<http://aka.ms/newfeatures>) is provided.

**Metrics and Diagnostics:** Displays four charts: 'Hits and Misses', 'Gets and Sets', 'Connections (1000 max)', and 'Total Commands'. Each chart has a message box stating: 'No available data. If you just configured diagnostics please allow an hour for aggregated data to populate.' The time range for the charts is from 6 PM on Jul 4 to 12 PM on Jul 4.

**Access Ports:** This section is highlighted with a yellow box. It shows two ports: 'NON-SSL PORT' (6379) and 'SSL PORT' (6380). The 'Allow access only via SSL' setting is set to 'Yes' (highlighted with a green box), and the 'NON-SSL PORT' is set to 6379 (highlighted with a yellow box).

**Settings:** A sidebar on the right lists various Redis Cache settings under categories like GENERAL, SCALE, DATA MANAGEMENT, and ADMINISTRATION. The 'Access Ports' setting is highlighted with a blue box.

# Azure Redis Cache via Java Code

Create a Java class file to access the Azure Redis Cache service and populate it.

The screenshot shows an IDE interface with the following details:

- Project Structure:** HelloSQLAzure.java, RedisCache.java
- File:** RedisCache.java
- Code Content:**

```
import redis.clients.jedis.Jedis;
import redis.clients.jedis.JedisShardInfo;

public class RedisCache {
    public static void main( String[] args )
    {
        /* In this line, replace <name> with your cache name: */
        JedisShardInfo shardInfo = new JedisShardInfo("dns1.redis.cache.windows.net", 6379);
        shardInfo.setPassword("0tCliosRQR3yWPPgJphJ5oEymjpAUpyWVOlxCQL/TAw="); /* Use your access key. */
        Jedis jedis = new Jedis(shardInfo);
        jedis.set("foo", "bar");
        String value = jedis.get("foo");
        System.out.println(value);
    }
}
```
- Output Window:** Shows the output of the application execution:

```
<terminated> RedisCache [Java Application] C:\Program Files\Java\jre1.8.0_25\bin\javaw.exe (04-Jul-2016 3:21:30 PM)
bar
```

# Redis Cache

cache

Looking for the new Azure Redis Cache [Create](#)

Need to create an Azure Managed Cache Service [Create](#)

Create

Browse

Compute >

Web + Mobile >

**Data + Storage >**

SQL Database  
Scalable and managed relational database service for modern business-class apps.

Azure DocumentDB  
Scalable and managed NoSQL document database service for modern cloud applications.

Storage  
Enhance existing applications with durable cloud storage, backup, and recovery.

Redis Cache  
Distributed, in-memory Redis Cache service for modern cloud applications

New Redis Cache

DNS name  .redis.cache.windows.net

PRICING TIER Basic: 250 MB

RESOURCE GROUP central-us

SUBSCRIPTION Visual Studio Professional with MS...

LOCATION Central US

If you have configured Azure PowerShell with a certificate for your account then you can skip this step. For more information about connecting Azure PowerShell with your Azure account, see [How to install and configure Azure PowerShell](#).

C#			
csredis			Async (and sync) client for Redis and Sentinel
Nhiredis			A lightweight wrapper around the C client hiredis.
redis-sharp			
redisboost			Thread-safe async Redis client. Offers high performance and simple api
ServiceStack.Redis			This is a fork and improvement of the original C# client written by Miguel De Icaza.
Sider			Minimalistic client for C#.NET 4.0
StackExchange.Redis			This .NET client was developed by Stack Exchange for very high performance needs (replacement to the earlier BookSleeve).
TeamDev Redis Client			Redis Client is based on redis-sharp for the basic communication functions, but it offers some differences.

# Redis Cache

The screenshot shows the Azure portal interface for managing a Redis Cache instance named 'mbcache'. The left sidebar includes icons for NEW, HOME, NOTIFICATIONS, BROWSE, ACTIVE, BILLING, and HELP.

**Essentials** section:

- Resource group: central-us
- Status: Running
- Location: Central US
- Subscription: Visual Studio Professional with MSDN
- Subscription ID: [REDACTED]
- Host name: mbcache.redis.cache.windows.net
- Ports: Non-SSL port (6379) disabled
- Keys: Show access keys...
- Pricing tier: Basic 250 MB
- Monitoring changes... click here! <http://aka.ms/ub>

**Settings** section:

- Properties
- Access keys
- Access Ports
- Diagnostics
- Maxmemory policy
- Users
- Roles
- Tags

**Hits and Misses** and **Gets and Sets** sections both contain a message: "Monitoring may not be enabled. Click here to turn on Diagnostics."

# Redis Cache

```
PM> Install-Package StackExchange.Redis
Installing 'StackExchange.Redis 1.0.450'.
Successfully installed 'StackExchange.Redis 1.0.450'.
Adding 'StackExchange.Redis 1.0.450' to AzureSample1.
Successfully added 'StackExchange.Redis 1.0.450' to AzureSample1.
```

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.Mvc;
using StackExchange.Redis;

namespace AzureSample1.Controllers
{
    public class HomeController : Controller
    {
        public ActionResult Index()
        {
            ConnectionMultiplexer connection = ConnectionMultiplexer.Connect("mbcache.redis.cache.windows.net,ssl=true,password=HtGfrGzHf5M7QzqDmTzCwFzvZcJyLj");
            IDatabase cache = connection.GetDatabase();
            cache.StringSet("key1", "value");
            cache.StringSet("key2", 25);

            // Simple get of data types from the cache
            string key1 = cache.StringGet("key1");
            int key2 = (int)cache.StringGet("key2");
            return View();
        }
    }
}
```

# .NET Implementation

## Content Delivery Network

# CDN

<http://azure.microsoft.com/en-in/documentation/articles/cdn-serve-content-from-cdn-in-your-web-application/>

Server Explorer

- Azure (1 subscriptions)
  - App Service
  - Cloud Services
  - HDInsight
  - Mobile Services
  - Notification Hubs
  - Service Bus
  - SQL Databases
  - Storage
    - (Development)
    - devtestvhdc8a31255feca
    - hortonpoc
    - mbcdnstorage
      - Blobs
      - \$logs
      - cdn
  - Queues
  - Tables

cdn [Container]

Name	Size	Last Modified (UTC)	Content Type	URL
Scality-Infographic.png	678.8 KB	24-05-2015 12:49:18	image/png	<a href="https://mbcdnstorage.blob.core.windows.net/cdn/Scality-Infographic.png">https://mbcdnstorage.blob.core.windows.net/cdn/Scality-Infographic.png</a>

```

<div class="col-md-4">
  <h2>Web Hosting</h2>
  <p>You can easily find a web hosting company that offers the right mix of features and price for your applications.</p>
  <p><a class="btn btn-default" href="http://go.microsoft.com/fwlink/?LinkId=301867">Learn more &raquo;</a></p>
</div>


```

Properties

cdn Blob Container Properties

ETag	"0x8D26436A8514FF3"
Last Modified	24-05-2015 12:45
Name	cdn
Public Read Access	<b>Blob</b>
URL	<a href="https://mbcdnstorage.blob.com">https://mbcdnstorage.blob.com</a>

Scality-Infographic.png

Name	Method	Status	Type	Initiator	Size	Time
Scality-Infographic.png	GET	200	png	<a href="#">Index:69</a>	679 KB	5.20 s

# CDN

<http://azure.microsoft.com/en-in/documentation/articles/cdn-serve-content-from-cdn-in-your-web-application/>

The screenshot shows the Azure portal interface. On the left, the navigation bar includes 'New', 'What's new', 'Resource groups', 'All resources', 'Recent', 'App Services', 'SQL databases', 'Virtual machines (classic)', 'Virtual machines', 'Cloud services (classic)', 'Subscriptions', 'Redis Caches', and 'SQL servers'. The 'Media + CDN' option is highlighted.

The main area displays the 'Media + CDN' blade, which lists 'FEATURED APPS': 'Media Services' (Encode, store, and stream video and audio at scale) and 'CDN' (Enjoy scalable, global distributed edge servers for fast and reliable content delivery).

A separate 'CDN profile' blade is open, showing the configuration for the 'mbcdn' profile:

- Name:** mbcdn
- Subscription:** Visual Studio Professional with MSDN
- Resource group:** Create new (radio button) or Use existing (radio button, selected)
- Resource group location:** mbdf
- Pricing tier:** Standard Akamai

On the right, the Azure storage explorer shows a tree view of storage accounts and blobs:

- Storage:**
  - (Development)
  - devtestvhpsc8a31255feca
  - hortonpoc
  - mbcdnstorage**
    - Blobs:**
      - \$logs
      - cdn**



The screenshot shows the Microsoft Azure Pricing calculator page. At the top, there's a navigation bar with links for Why Azure, Products, Documentation, Pricing (which is highlighted in green), Partners, Blog, Resources, and Support. To the right of the navigation is a "FREE ACCOUNT" button and a search bar. The main heading is "Pricing calculator" with the sub-instruction "Price and configure Azure features for your scenarios". Below this is a large digital calculator graphic displaying the number "01134". A green button labeled "+ Add items" is visible. The central part of the page is a modal dialog for "Virtual Machines". Inside the dialog, settings are shown for REGION: West US, TYPE: Windows, PRICING TIER: Standard, and INSTANCE SIZE: D1. It also shows 1 Virtual Machine used for 744 Hours, resulting in a cost of ₹6,258.71/MO. To the right of the dialog is a summary box titled "Your estimate" showing the currency as Indian Rupee (₹) and the estimated monthly cost as ₹6,258.71. There are buttons for "Purchase options" and "Export estimate".

