

# Windows Azure vs Amazon AWS





# About me

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## ➤ Cloud Service Models

- IaaS vs PaaS

## ➤ Overview of the Application

## ➤ Web Application

- Solutions
- Azure Web Roles vs Amazon Elastic Beanstalk

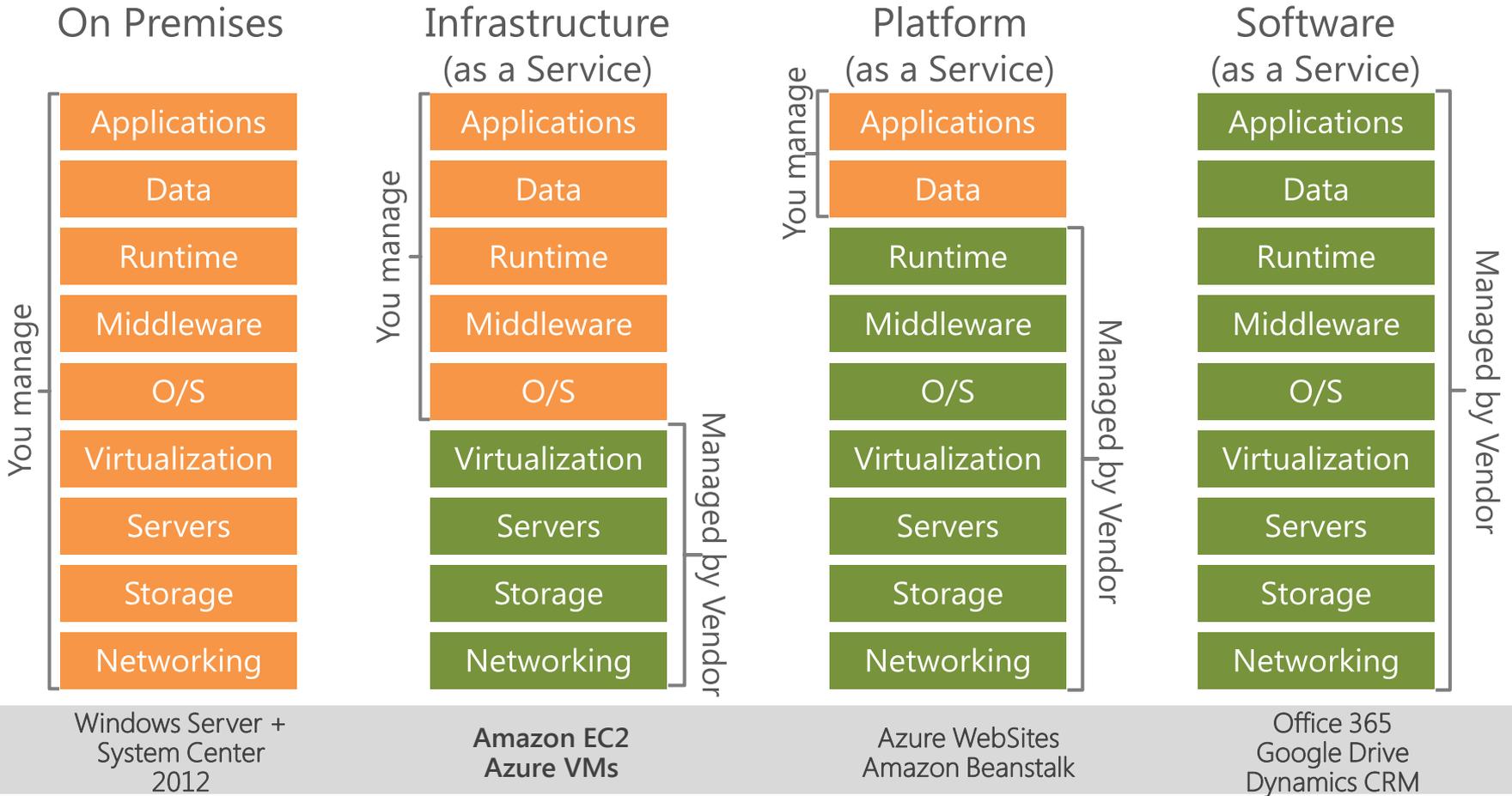
## ➤ Storage

- Solutions
- Azure SQL vs Amazon RDS

## ➤ Conclusion

# Cloud Overview

## Cloud Service Models



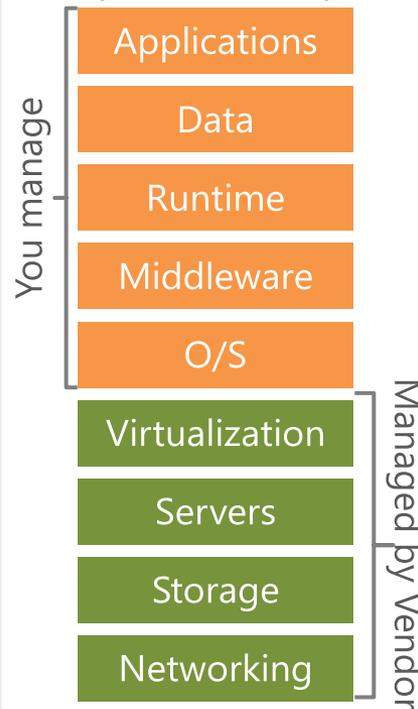
# Cloud Service Models - IaaS vs PaaS

## IaaS

- Vendor provides the Infrastructure:
  - Network
  - Storage
  - Compute Resources
- Customer manages software on top of hardware: OS and up.
- Top Vendor: **Amazon AWS**
- Since 2006

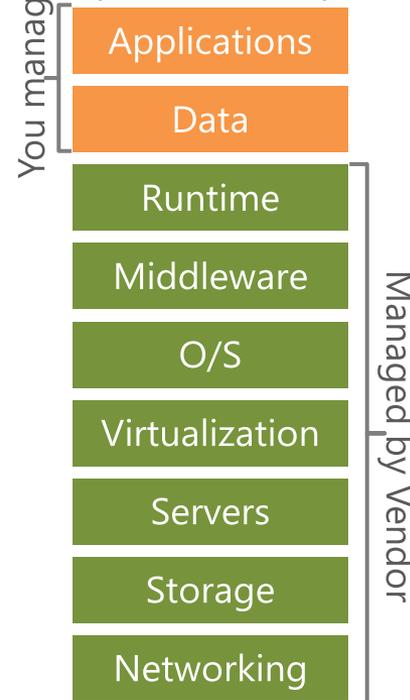
**109B\$**

### Infrastructure (as a Service)



Amazon EC2  
Azure VMs

### Platform (as a Service)



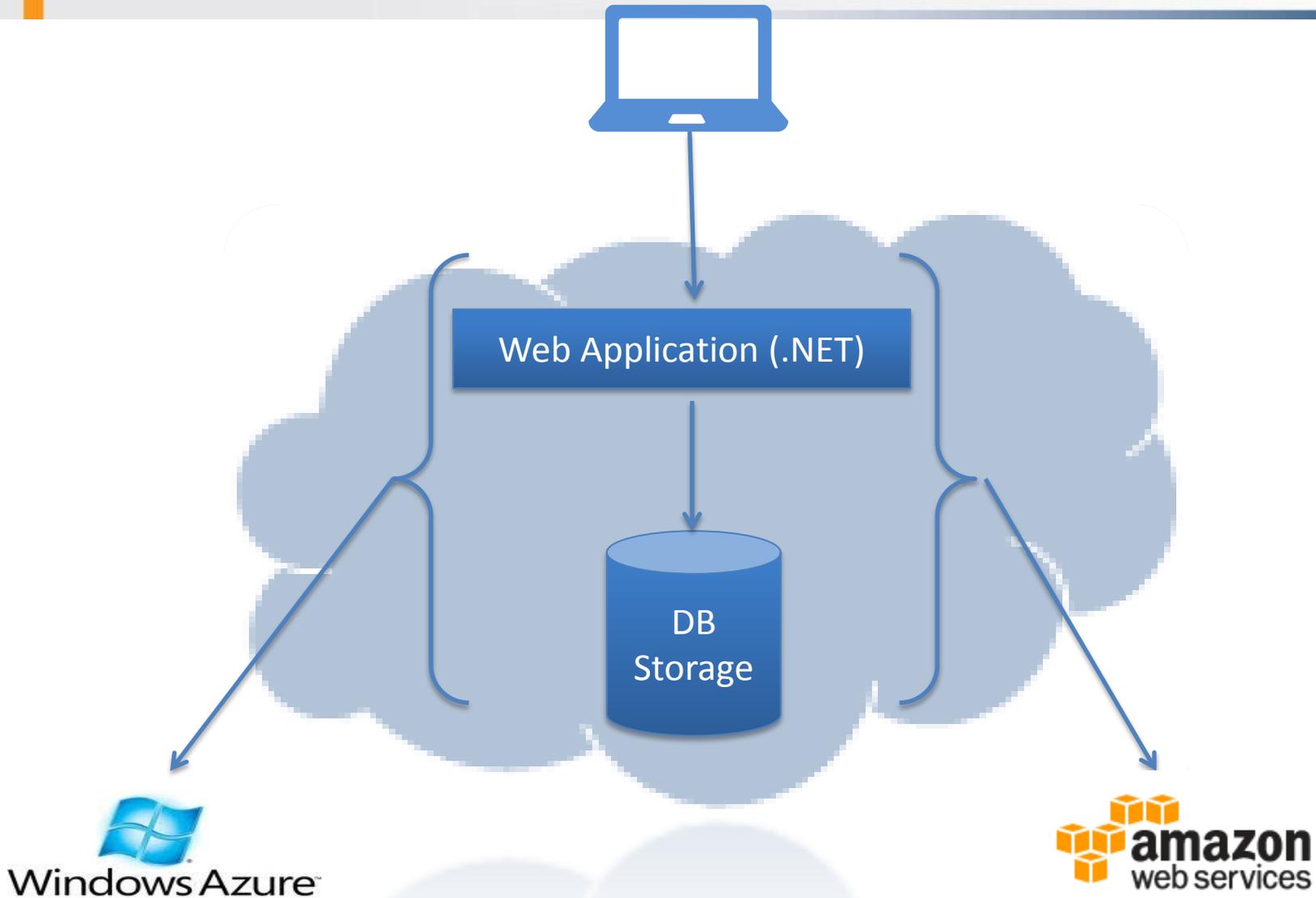
Azure Websites  
Amazon Beanstalk

## PaaS

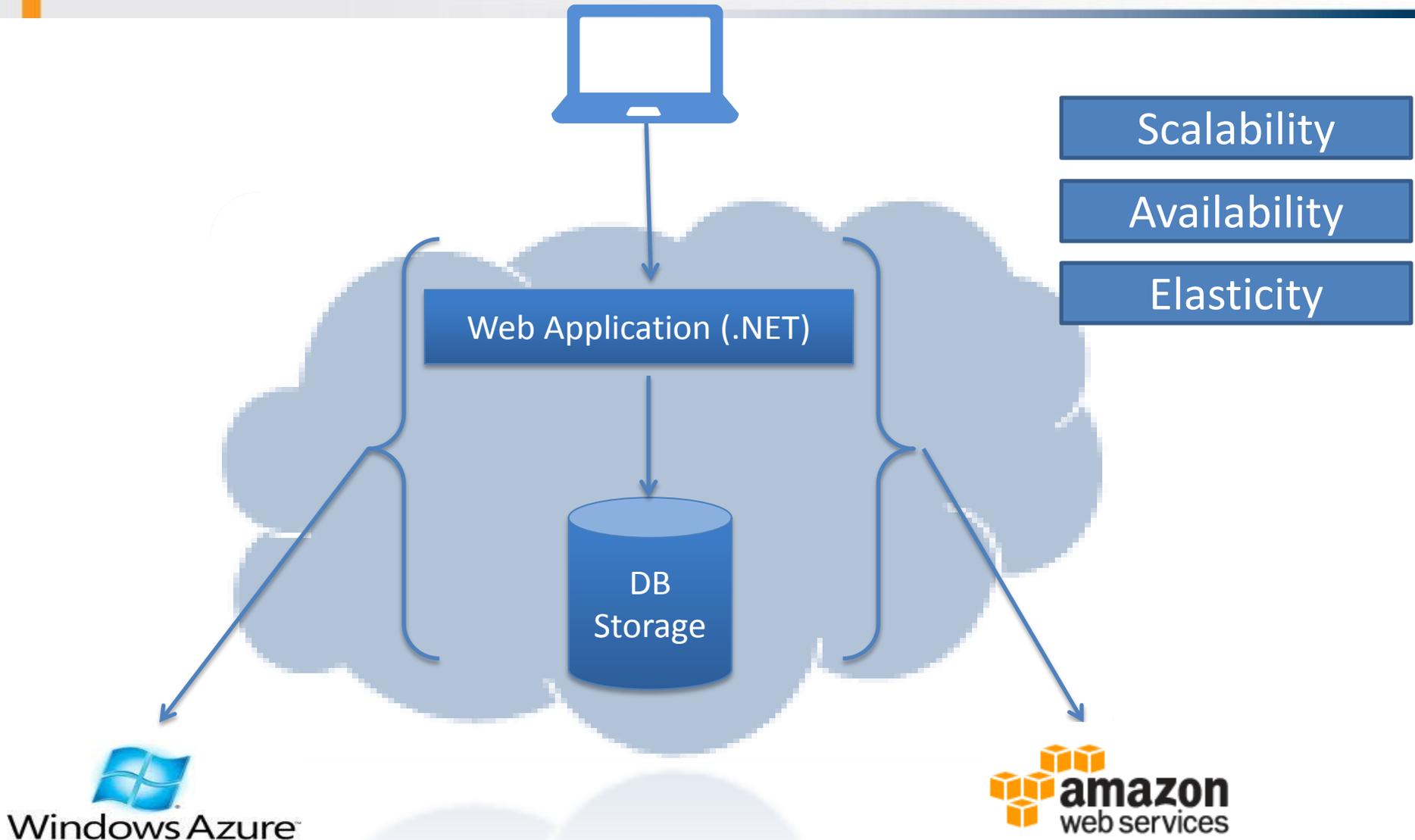
- Vendor provides:
  - The Infrastructure
  - And, the Application Development Platform which includes: OS, Database, IIS,...
- Customer only manages the application.
- Top Vendor: **[Windows Azure]**
- Since 2010

**1.2B\$**

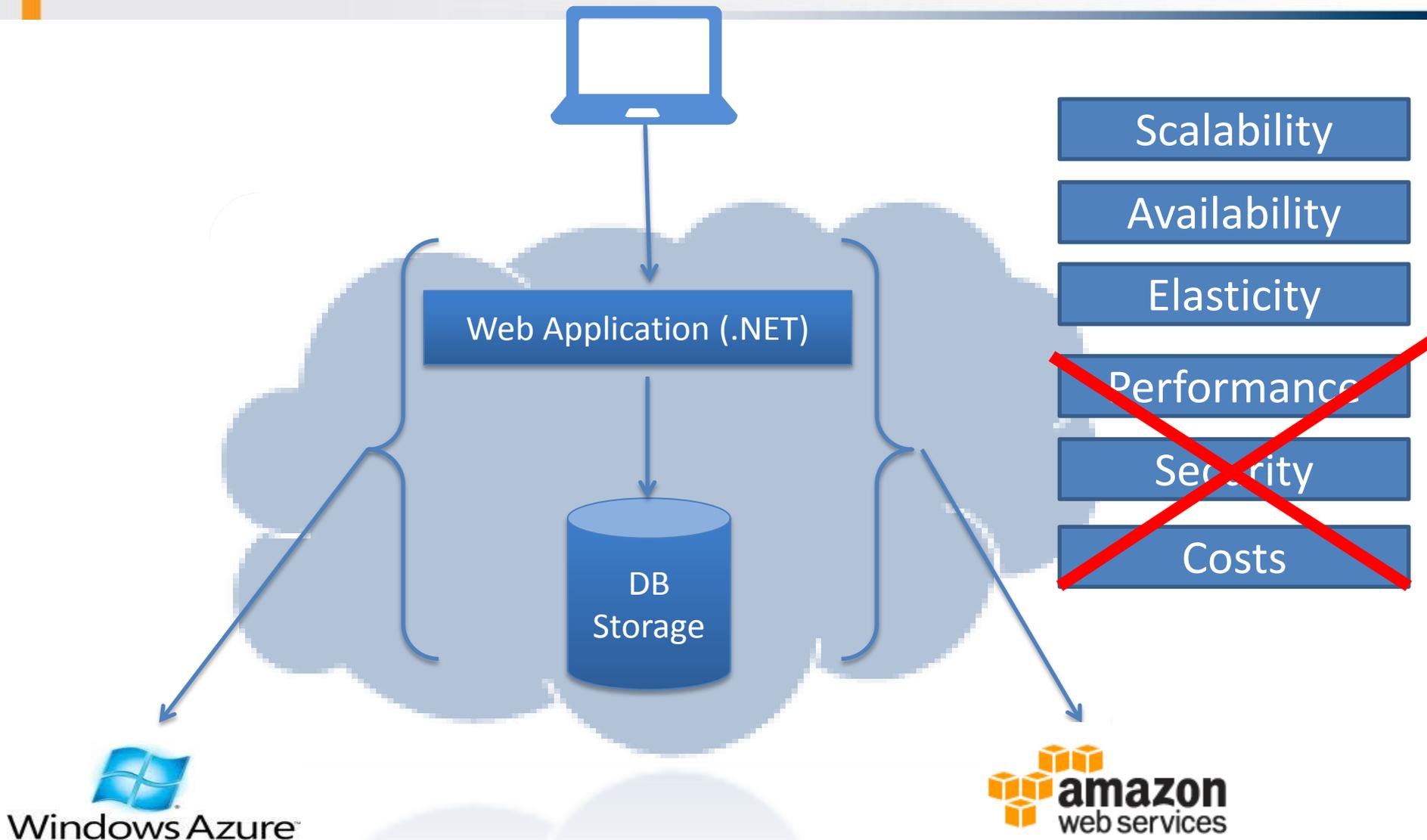
# Overview of the Application



# Overview of the Application



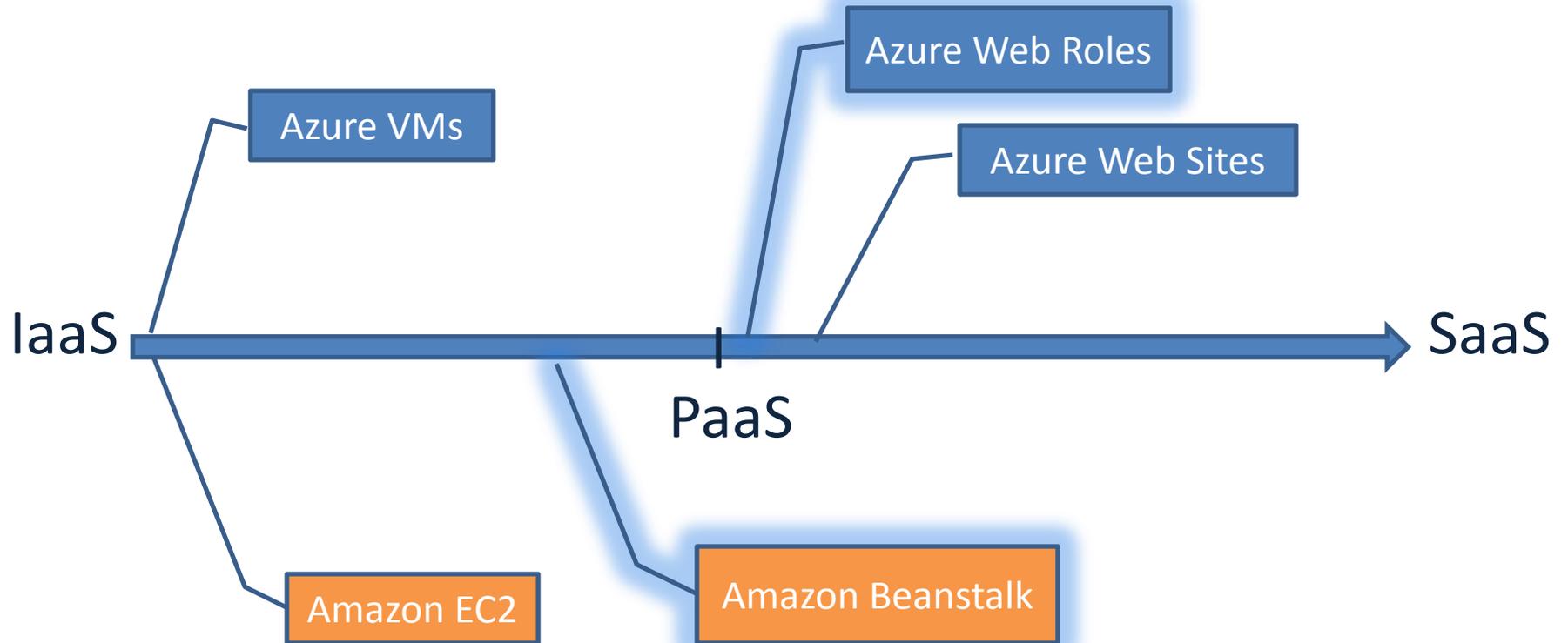
# Overview of the Application



## Possible Solutions

	Azure	Amazon
<b>IaaS</b>	<ul style="list-style-type: none"><li>• Azure Virtual Machines</li></ul>	<ul style="list-style-type: none"><li>• Amazon EC2 (Elastic Compute 2)</li></ul>
<b>PaaS</b>	<ul style="list-style-type: none"><li>• Web Roles</li><li>• Web Sites (<b>Preview</b>)</li></ul>	<ul style="list-style-type: none"><li>• Elastic Beanstalk (<b>Beta</b>)</li></ul>

# Web Application



# Azure Web Roles

VS

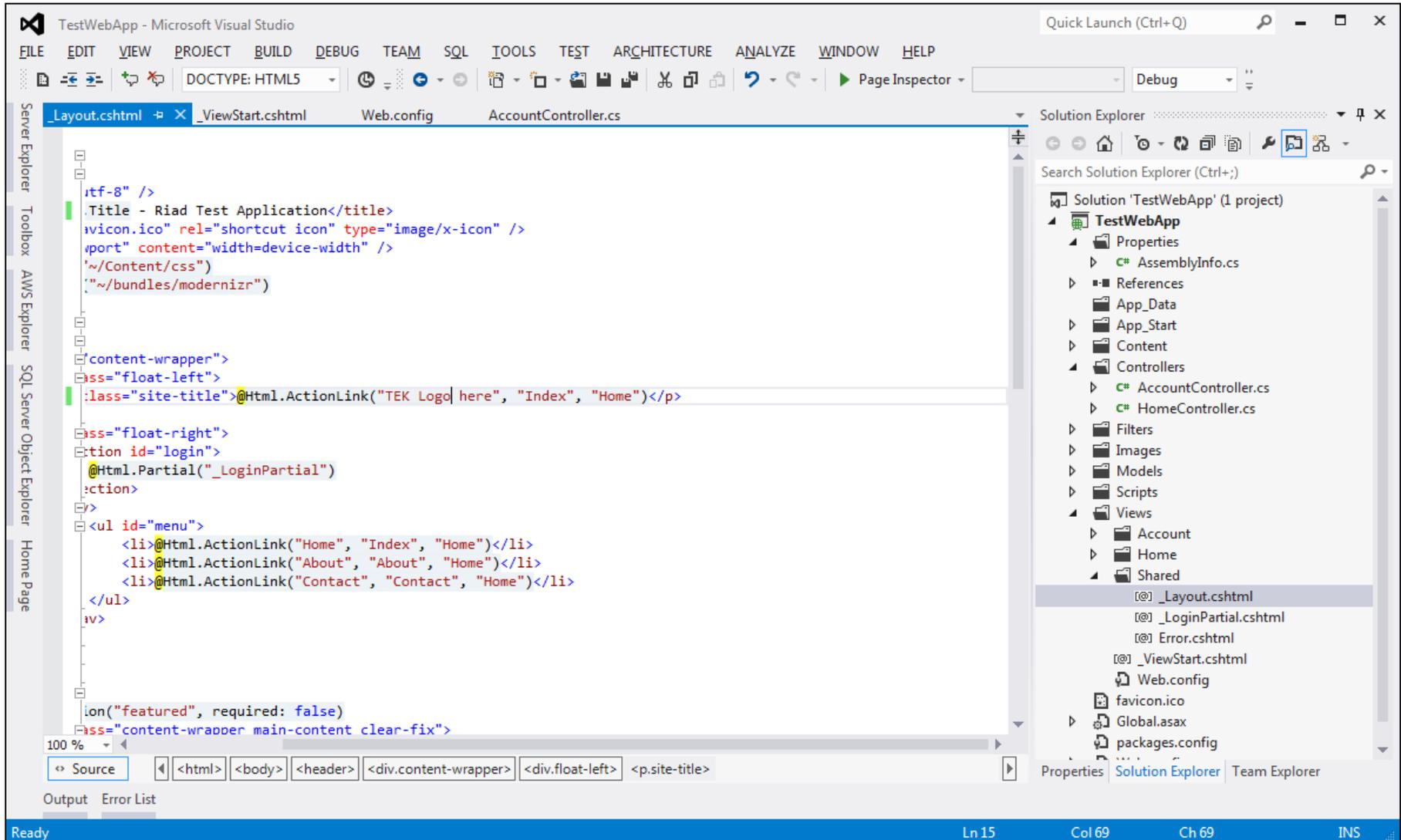
# Amazon Elastic Beanstalk

# Web Application -

## Azure Web Role

**DEMO**

# Web Application - Azure Web Role



TestWebApp - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

DOCTYPE: HTML5 Page Inspector Debug

```
<!-- @if (Request.IsAjaxRequest()) return; -->
<html lang="en" -->
  <head>
    <meta charset="utf-8" />
    <title> Riad Test Application</title>
    <link rel="shortcut icon" type="image/x-icon" />
    <meta content="width=device-width" />
    <link href="@~/Content/css/" />
    <link href="@~/bundles/modernizr" />
  </head>
  <body>
    <div class="content-wrapper">
      <div class="float-left">
        <p class="site-title">@Html.ActionLink("TEK Logo here", "Index", "Home")</p>
      </div>
      <div class="float-right">
        <div id="login">
          @Html.Partial("_LoginPartial")
        </div>
      </div>
      <ul id="menu">
        <li>@Html.ActionLink("Home", "Index", "Home")</li>
        <li>@Html.ActionLink("About", "About", "Home")</li>
        <li>@Html.ActionLink("Contact", "Contact", "Home")</li>
      </ul>
    </div>
    <div class="featured">
      @Html.Partial("_Featured")
    </div>
  </body>
</html>
```

Solution Explorer: Search Solution Explorer (Ctrl+;)

- Solution 'TestWebApp' (1 project)
- TestWebApp
  - Properties
  - AssemblyInfo.cs
  - References
  - App\_Data
  - App\_Start
  - Content
  - Controllers
    - AccountController.cs
    - HomeController.cs
  - Filters
  - Images
  - Models
  - Scripts
  - Views
    - Account
    - Home
    - Shared
      - \_Layout.cshtml
      - \_LoginPartial.cshtml
      - Error.cshtml
      - \_ViewStart.cshtml
  - Web.config
  - favicon.ico
  - Global.asax
  - packages.config

Properties Solution Explorer Team Explorer

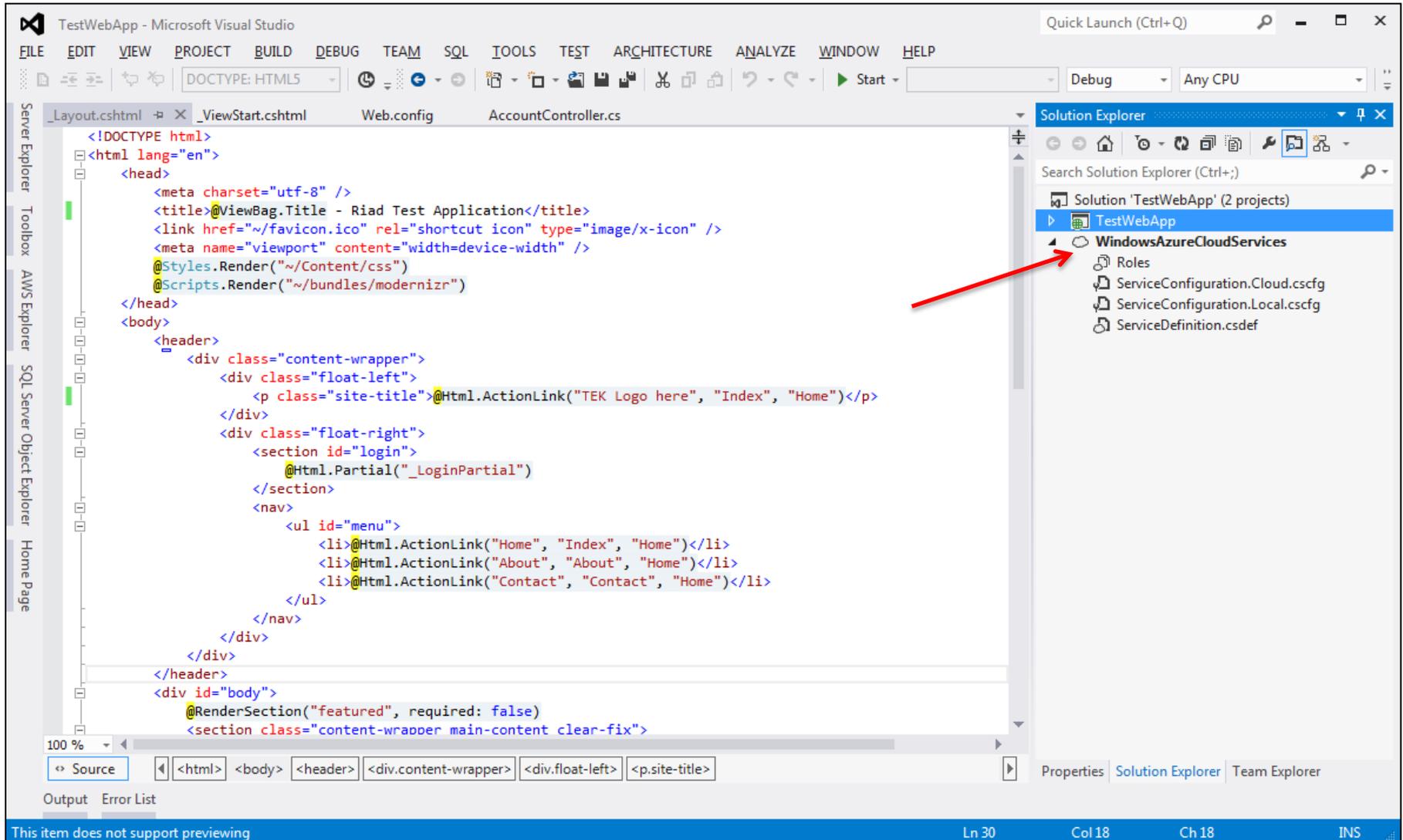
Ready Ln 15 Col 69 Ch 69 INS



# Web Application - Azure Web Role

The screenshot displays the Visual Studio environment with the 'New Windows Azure Cloud Service' dialog box open. The dialog is titled 'New Windows Azure Cloud Service' and is divided into two panes. The left pane, titled '.NET Framework 4.5 roles:', lists several role types: Visual C#, ASP.NET Web Role (selected), ASP.NET MVC 4 Web Role, ASP.NET MVC 3 Web Role, WCF Service Web Role, Worker Role, Cache Worker Role, and Worker Role with Service Bus Queue. The right pane, titled 'Windows Azure Cloud Service solution:', is currently empty. A blue callout box with the text 'Do not add roles' is positioned over the right pane of the dialog. The background shows the Visual Studio interface with the 'TestWebApp' project open in Solution Explorer, displaying a file tree with folders like Properties, References, App\_Data, App\_Start, Content, Controllers, Models, Scripts, Views, Account, Home, and Shared, and files like \_Layout.cshtml, \_LoginPartial.cshtml, Error.cshtml, \_ViewStart.cshtml, Web.config, favicon.ico, Global.asax, and packages.config. The code editor shows HTML code for a page layout.

# Web Application - Azure Web Role



The screenshot displays the Microsoft Visual Studio IDE for a project named 'TestWebApp'. The main editor window shows the HTML file '\_ViewStart.cshtml' with the following content:

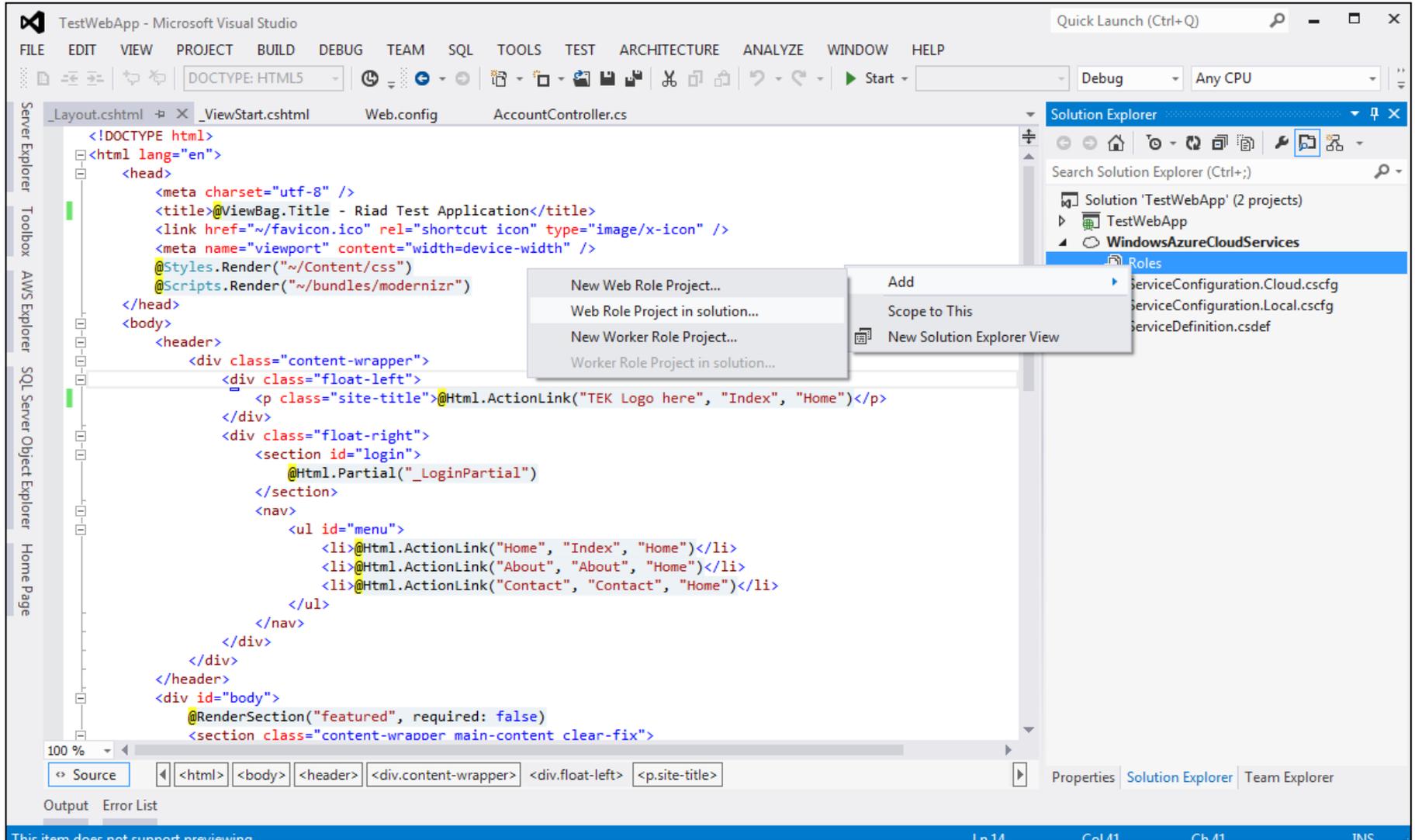
```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <title>@ViewBag.Title - Riad Test Application</title>
    <link href="~/favicon.ico" rel="shortcut icon" type="image/x-icon" />
    <meta name="viewport" content="width=device-width" />
    @Styles.Render("~/Content/css")
    @Scripts.Render("~/bundles/modernizr")
  </head>
  <body>
    <header>
      <div class="content-wrapper">
        <div class="float-left">
          <p class="site-title">@Html.ActionLink("TEK Logo here", "Index", "Home")</p>
        </div>
        <div class="float-right">
          <section id="login">
            @Html.Partial("_LoginPartial")
          </section>
          <nav>
            <ul id="menu">
              <li>@Html.ActionLink("Home", "Index", "Home")</li>
              <li>@Html.ActionLink("About", "About", "Home")</li>
              <li>@Html.ActionLink("Contact", "Contact", "Home")</li>
            </ul>
          </nav>
        </div>
      </div>
    </header>
    <div id="body">
      @RenderSection("featured", required: false)
      <section class="content-wrapper main-content clear-fix">
```

The Solution Explorer on the right side of the IDE shows the project structure for 'TestWebApp'. A red arrow points to the 'WindowsAzureCloudServices' folder, which contains the following files:

- Roles
- ServiceConfiguration.Cloud.cscfg
- ServiceConfiguration.Local.cscfg
- ServiceDefinition.csdef

The status bar at the bottom of the IDE indicates the current position: Ln 30, Col 18, Ch 18, INS.

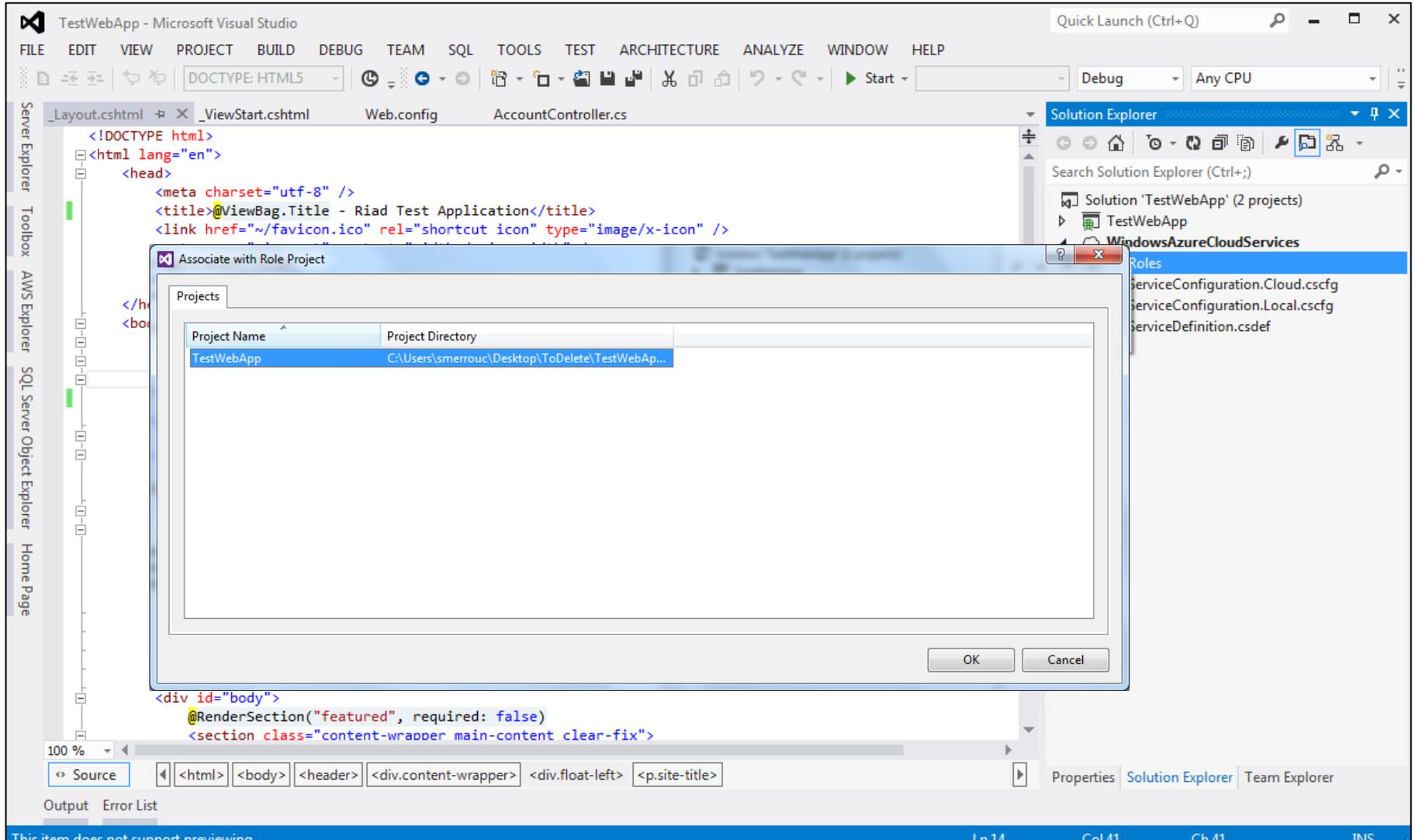
# Web Application - Azure Web Role



The screenshot displays the Microsoft Visual Studio IDE with the following components:

- Menu Bar:** FILE, EDIT, VIEW, PROJECT, BUILD, DEBUG, TEAM, SQL, TOOLS, TEST, ARCHITECTURE, ANALYZE, WINDOW, HELP.
- Toolbar:** Includes icons for undo, redo, save, and a 'Start' button. The current configuration is 'Debug' on 'Any CPU'.
- Code Editor:** Shows the HTML file `_ViewStart.cshtml`. The code includes a DOCTYPE declaration, a head section with meta tags for charset, title, and viewport, and a body section with a header and a main content area. A context menu is open over the code, listing options: 'New Web Role Project...', 'Web Role Project in solution...', 'New Worker Role Project...', and 'Worker Role Project in solution...'. A secondary menu is also visible with options: 'Add', 'Scope to This', and 'New Solution Explorer View'.
- Solution Explorer:** Shows a solution named 'TestWebApp' containing two projects: 'TestWebApp' and 'WindowsAzureCloudServices'. The 'Roles' folder is expanded, showing files like `ServiceConfiguration.Cloud.cscfg`, `ServiceConfiguration.Local.cscfg`, and `ServiceDefinition.csdef`.
- Navigation:** The breadcrumb at the bottom reads: `<html>` `<body>` `<header>` `<div.content-wrapper>` `<div.float-left>` `<p.site-title>`.

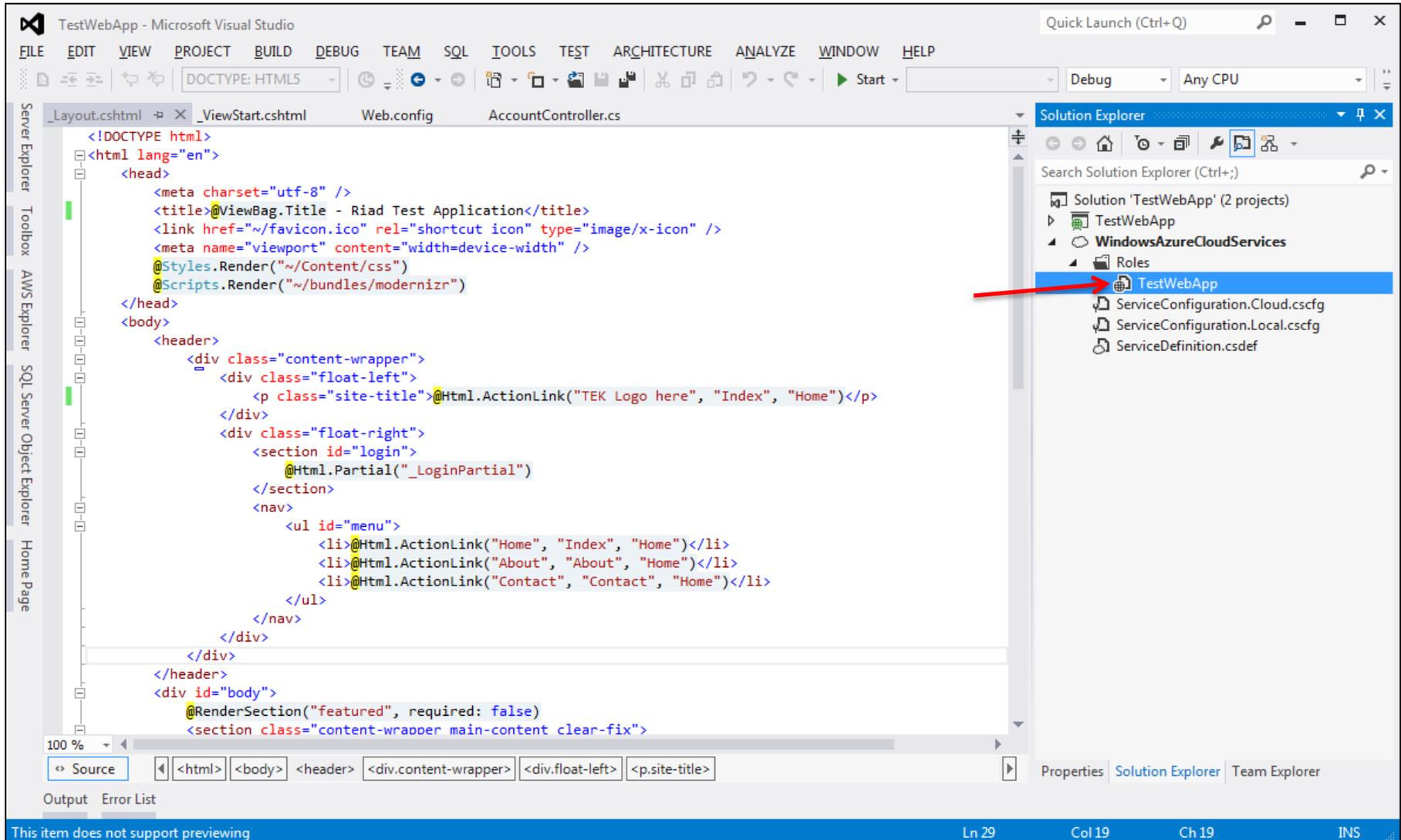
# Web Application - Azure Web Role



The screenshot shows the Microsoft Visual Studio IDE with a web application project named 'TestWebApp' open. The main editor displays the HTML code for a page, including a head section with meta tags and a body section with a featured section. A dialog box titled 'Associate with Role Project' is overlaid on the editor. The dialog has a 'Projects' tab and a table with two columns: 'Project Name' and 'Project Directory'. The table contains one entry: 'TestWebApp' with the directory path 'C:\Users\smerrouc\Desktop\ToDelete\TestWebAp...'. The 'OK' button is highlighted. The Solution Explorer on the right shows the project structure, including 'Roles' and 'WindowsAzureCloudServices' folders. The status bar at the bottom indicates 'Ln 14, Col 41, Ch 41, INS'.

Project Name	Project Directory
TestWebApp	C:\Users\smerrouc\Desktop\ToDelete\TestWebAp...

# Web Application - Azure Web Role



The screenshot displays the Microsoft Visual Studio IDE with the following components:

- Editor:** Shows the code for `_ViewStart.cshtml`. The code includes a DOCTYPE declaration, HTML lang attribute, and a head section with meta tags for charset, title, and viewport. It also features Razor helpers for rendering styles and scripts, and a body section with a header and a main content area.
- Solution Explorer:** Located on the right, it shows the project structure for 'TestWebApp' (2 projects) under 'WindowsAzureCloudServices'. A red arrow points to the 'TestWebApp' folder, which contains files like `ServiceConfiguration.Cloud.cscfg`, `ServiceConfiguration.Local.cscfg`, and `ServiceDefinition.csdef`.
- Navigation:** The breadcrumb at the bottom indicates the current path: `<html> <body> <header> <div.content-wrapper> <div.float-left> <p.site-title>`.
- Status Bar:** Shows 'Ln 29', 'Col 19', 'Ch 19', and 'INS'.

# Web Application - Azure Web Role

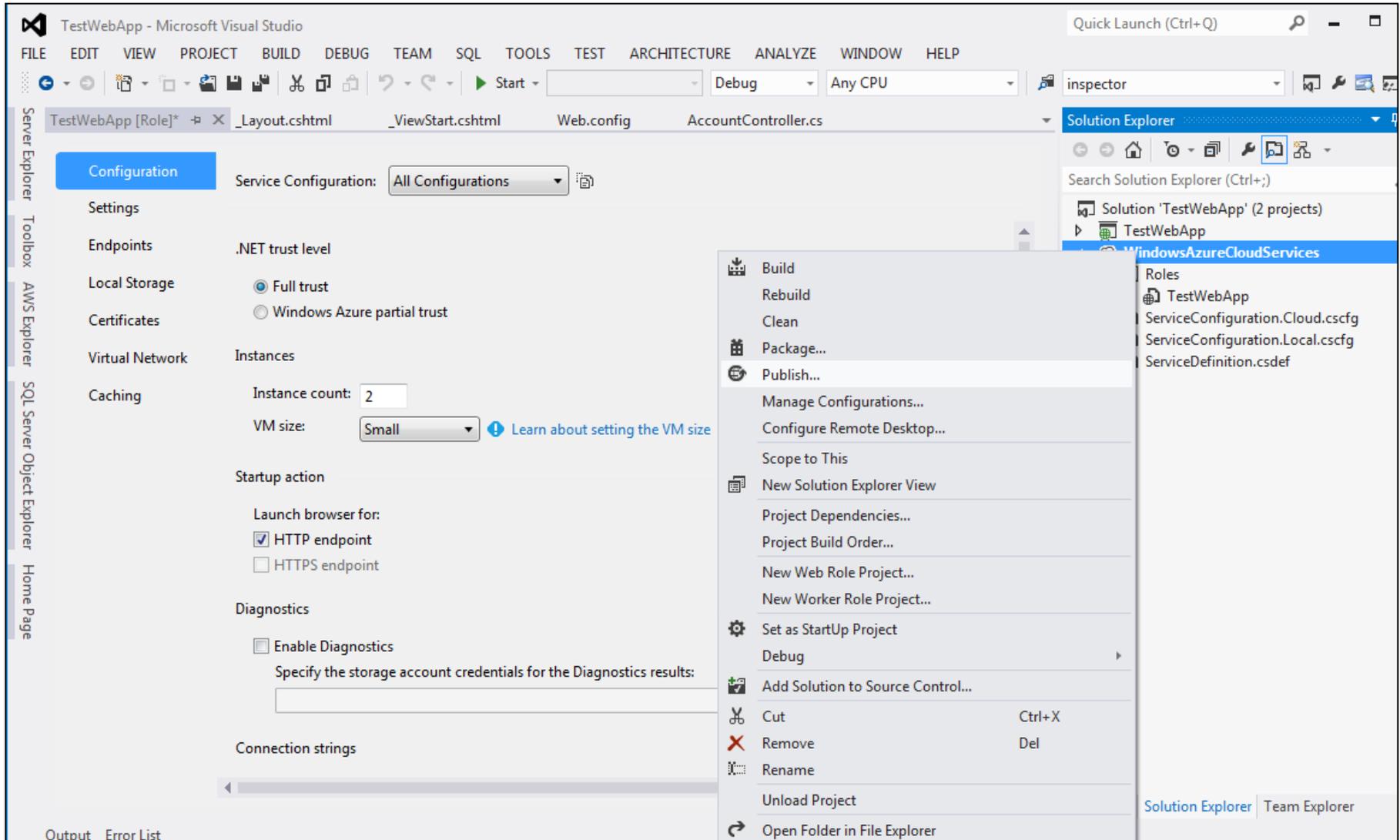
The screenshot shows the Visual Studio interface for configuring an Azure Web Role. The 'Configuration' pane is active, displaying the following settings:

- Service Configuration: All Configurations
- .NET trust level: Full trust
- Instance count: 2
- VM size: Small (dropdown menu is open showing options: Extra large, Large, Medium, Small, Extra small)
- Startup action: (empty)
- Launch browser: (checked)
- HTTP endpoint: (checked)
- HTTPS endpoint: (unchecked)
- Enable Diagnostics: (unchecked)

A blue callout box contains the following performance metrics:

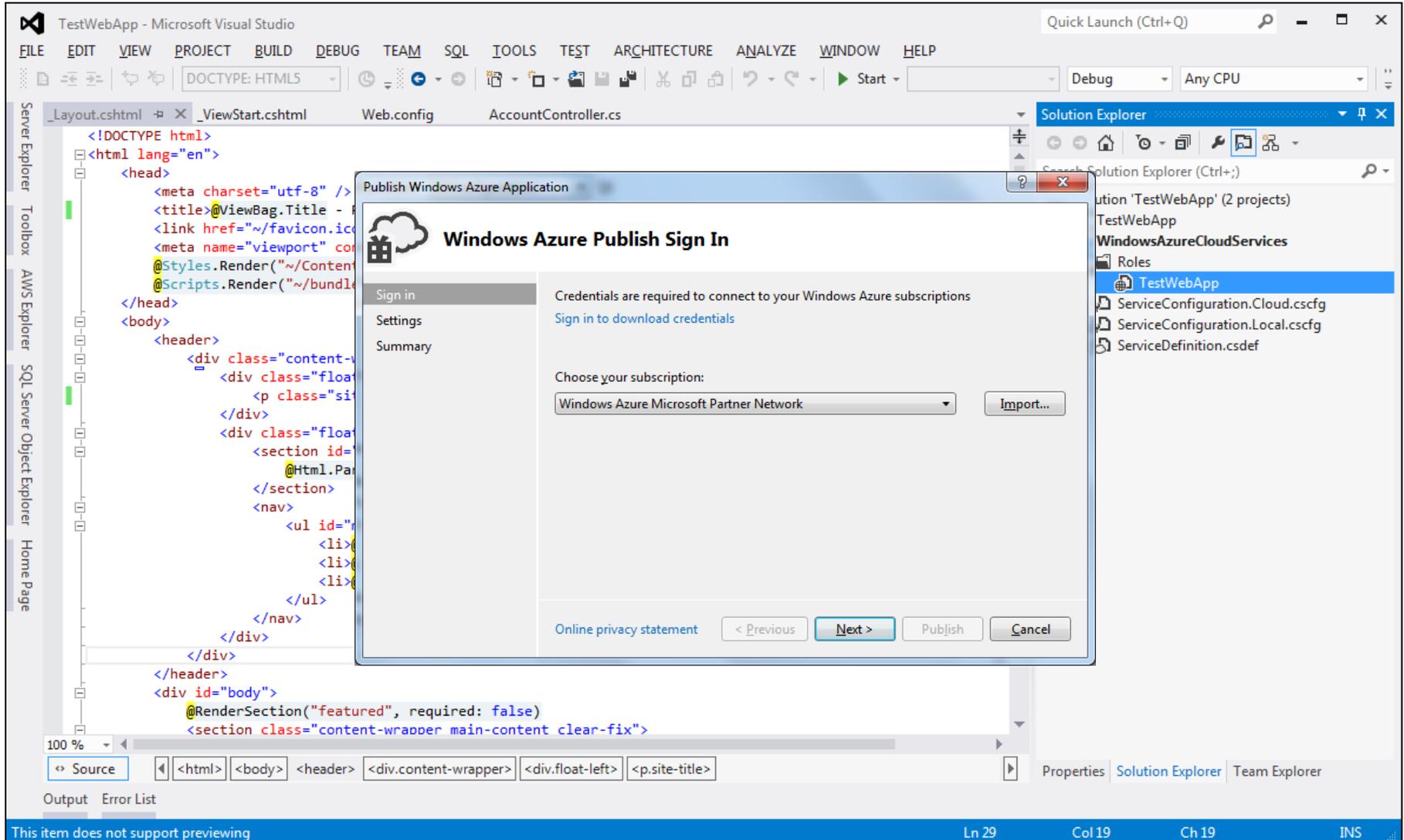
- CPU Cores: between “shared” to 8 cores
- Bandwidth: between 5 to 800 Mbps
- Network is “shared” except for Extra large Role
- Memory: between 768MB to 14GB

# Web Application - Azure Web Role



The screenshot shows the Microsoft Visual Studio interface for a project named 'TestWebApp'. The main window displays the 'Configuration' tab for the 'TestWebApp [Role]\*' project. The 'Service Configuration' is set to 'All Configurations'. Under the '.NET trust level' section, 'Full trust' is selected. The 'Instances' section shows 'Instance count' set to 2 and 'VM size' set to 'Small'. The 'Startup action' section has 'Launch browser for:' checked for 'HTTP endpoint'. The 'Diagnostics' section has 'Enable Diagnostics' unchecked. The 'Connection strings' section is empty. A context menu is open over the 'TestWebApp' project in the Solution Explorer, listing actions such as 'Build', 'Rebuild', 'Clean', 'Package...', 'Publish...', 'Manage Configurations...', 'Configure Remote Desktop...', 'Scope to This', 'New Solution Explorer View', 'Project Dependencies...', 'Project Build Order...', 'New Web Role Project...', 'New Worker Role Project...', 'Set as StartUp Project', 'Debug', 'Add Solution to Source Control...', 'Cut', 'Remove', 'Rename', 'Unload Project', and 'Open Folder in File Explorer'. The Solution Explorer on the right shows the project structure, including 'Roles', 'TestWebApp', 'ServiceConfiguration.Cloud.cscfg', 'ServiceConfiguration.Local.cscfg', and 'ServiceDefinition.csdef'. The bottom of the window shows the 'Output' and 'Error List' tabs.

# Web Application - Azure Web Role



TestWebApp - Microsoft Visual Studio

Quick Launch (Ctrl+Q)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

DOCTYPE: HTML5

Start - Debug Any CPU

Layout.cshtml \_ViewStart.cshtml Web.config AccountController.cs

Solution Explorer

TestWebApp (2 projects)  
TestWebApp  
WindowsAzureCloudServices  
Roles  
TestWebApp  
ServiceConfiguration.Cloud.cscfg  
ServiceConfiguration.Local.cscfg  
ServiceDefinition.csdef

**Publish Windows Azure Application**

**Windows Azure Publish Sign In**

Sign in | Settings | Summary

Credentials are required to connect to your Windows Azure subscriptions  
Sign in to download credentials

Choose your subscription:  
Windows Azure Microsoft Partner Network Import...

Online privacy statement < Previous Next > Publish Cancel

```
<!DOCTYPE html>  
<html lang="en">  
  <head>  
    <meta charset="utf-8" />  
    <title>@ViewBag.Title -</title>  
    <link href="~/favicon.ico" />  
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />  
    @Styles.Render("~/Content/css")  
    @Scripts.Render("~/bundles/jquery")  
  </head>  
  <body>  
    <header>  
      <div class="content-wrapper">  
        <div class="float-left">  
          <p class="site-title"></p>  
        </div>  
        <div class="float-right">  
          <section id="main-content">  
            @Html.Partial("~/Views/Shared/_Page.cshtml")  
          </section>  
          <nav>  
            <ul id="list-group">  
              <li></li>  
              <li></li>  
              <li></li>  
            </ul>  
          </nav>  
        </div>  
      </div>  
    </header>  
    <div id="body">  
      @RenderSection("featured", required: false)  
      <section class="content-wrapper main-content clear-fix"></section>  
    </div>  
  </body>  
</html>
```

100 %

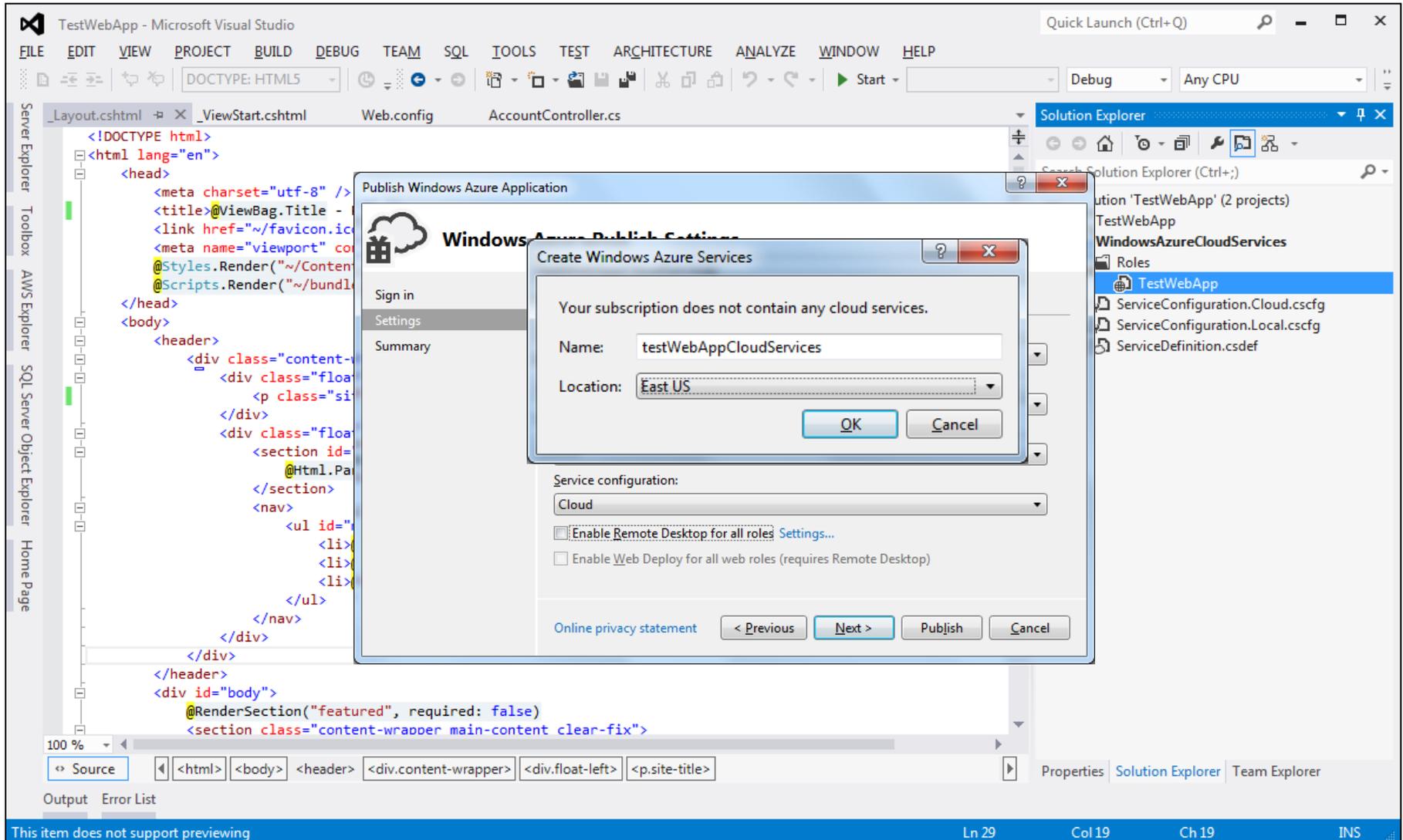
Source <html> <body> <header> <div.content-wrapper> <div.float-left> <p.site-title>

Output Error List

Properties Solution Explorer Team Explorer

This item does not support previewing Ln 29 Col 19 Ch 19 INS

# Web Application - Azure Web Role



The screenshot shows the Visual Studio IDE with the 'Publish Windows Azure Application' dialog box open. The 'Create Windows Azure Services' sub-dialog is active, displaying an error message: "Your subscription does not contain any cloud services." The 'Name' field is set to "testWebAppCloudServices" and the 'Location' is set to "East US". The 'Service configuration' dropdown is set to "Cloud". There are checkboxes for "Enable Remote Desktop for all roles" and "Enable Web Deploy for all web roles (requires Remote Desktop)". The background shows the code editor with HTML and ASP.NET code.

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <title>@ViewBag.Title -</title>
    <link href="~/favicon.ic
    <meta name="viewport" co
    @Styles.Render("~/Conten
    @Scripts.Render("~/bundl
  </head>
  <body>
    <header>
      <div class="content-wr
        <div class="float-
          <p class="si
        </div>
        <div class="float-
          <section id=
            @Html.Pa
          </section>
          <nav>
            <ul id="
              <li>
              <li>
              <li>
            </ul>
          </nav>
        </div>
      </header>
      <div id="body">
        @RenderSection("featured", required: false)
        <section class="content-wrapper main-content clear-fix">
```

# Web Application - Azure Web Role

TestWebApp - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

DOCTYPE: HTML5 Start Debug Any CPU

Layout.cshtml ViewStart.cshtml Web.config AccountController.cs

Server Explorer Toolbox AWS Explorer SQL Server Object Explorer Home Page

Publish Windows Azure Application

Windows Azure Publish Settings

Sign in Settings Summary

Common Settings Advanced Settings

Cloud Service: testWebAppCloudServices (East US)

Environment: Staging

Build configuration: Release

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

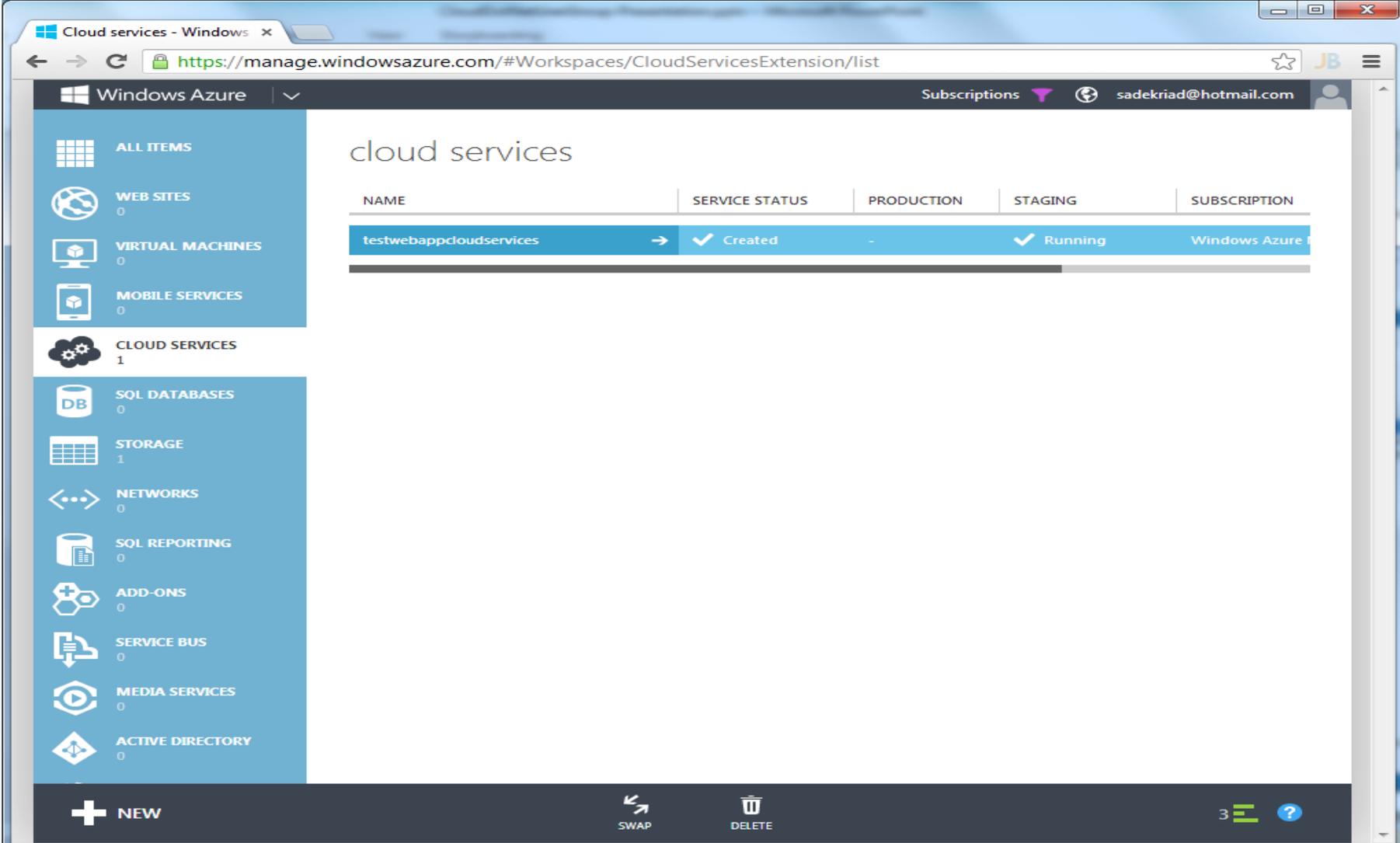
Select: Staging or Production

100 % Source <html> <body> <header> <div.content-wrapper> <div.float-left> <p.site-title>

Output Error List Properties Solution Explorer Team Explorer

This item does not support previewing Ln 29 Col 19 Ch 19 INS

# Web Application - Azure Web Role

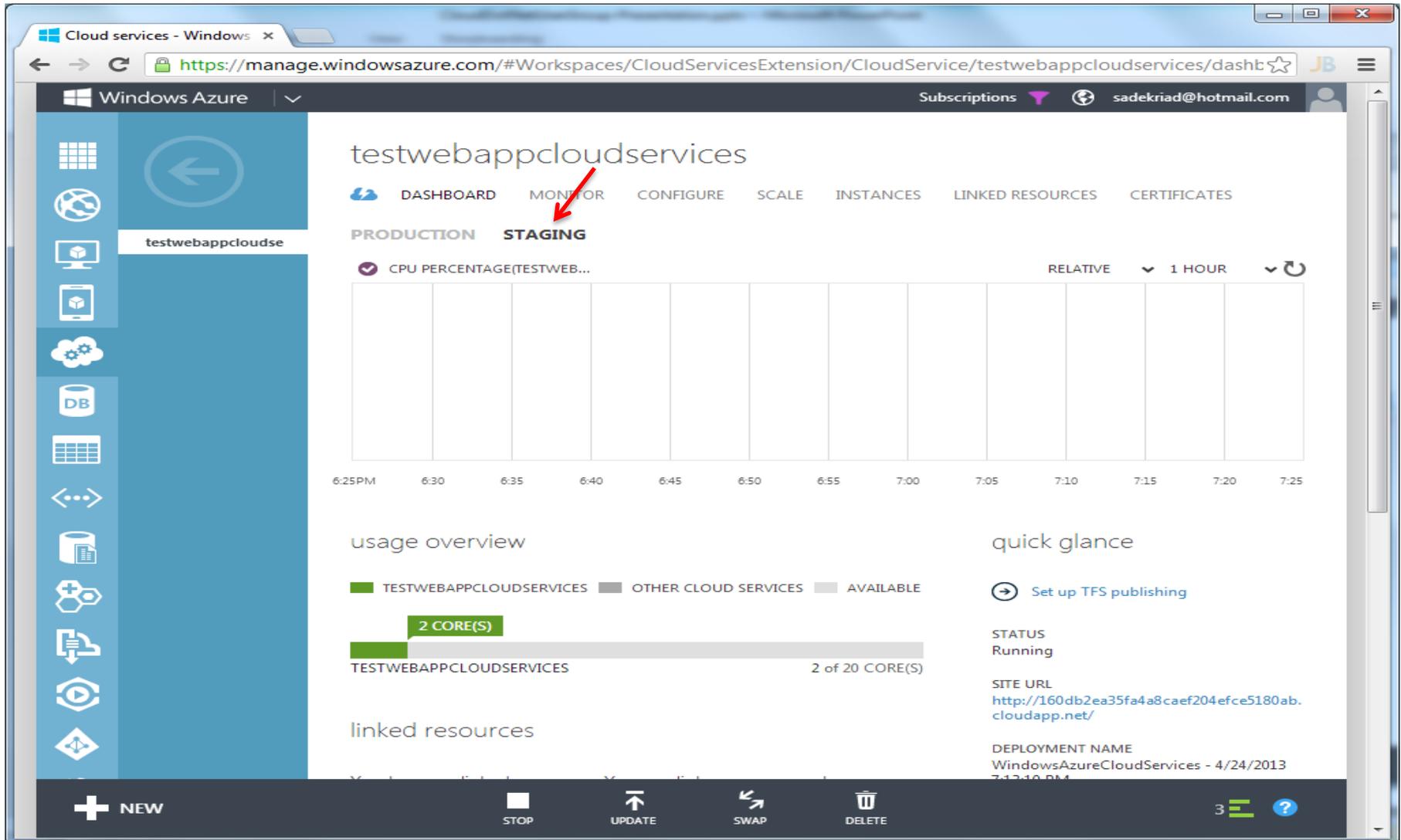


The screenshot shows the Windows Azure management console in a browser window. The address bar displays the URL <https://manage.windowsazure.com/#Workspaces/CloudServicesExtension/list>. The page title is "cloud services". On the left, a navigation pane lists various service categories: ALL ITEMS, WEB SITES (0), VIRTUAL MACHINES (0), MOBILE SERVICES (0), CLOUD SERVICES (1), SQL DATABASES (0), STORAGE (1), NETWORKS (0), SQL REPORTING (0), ADD-ONS (0), SERVICE BUS (0), MEDIA SERVICES (0), and ACTIVE DIRECTORY (0). The "CLOUD SERVICES" category is selected. The main content area displays a table with the following data:

NAME	SERVICE STATUS	PRODUCTION	STAGING	SUBSCRIPTION
testwebappcloudservices	✓ Created	-	✓ Running	Windows Azure

At the bottom of the console, there are action buttons for "NEW", "SWAP", and "DELETE", along with a notification icon showing "3" items and a help icon.

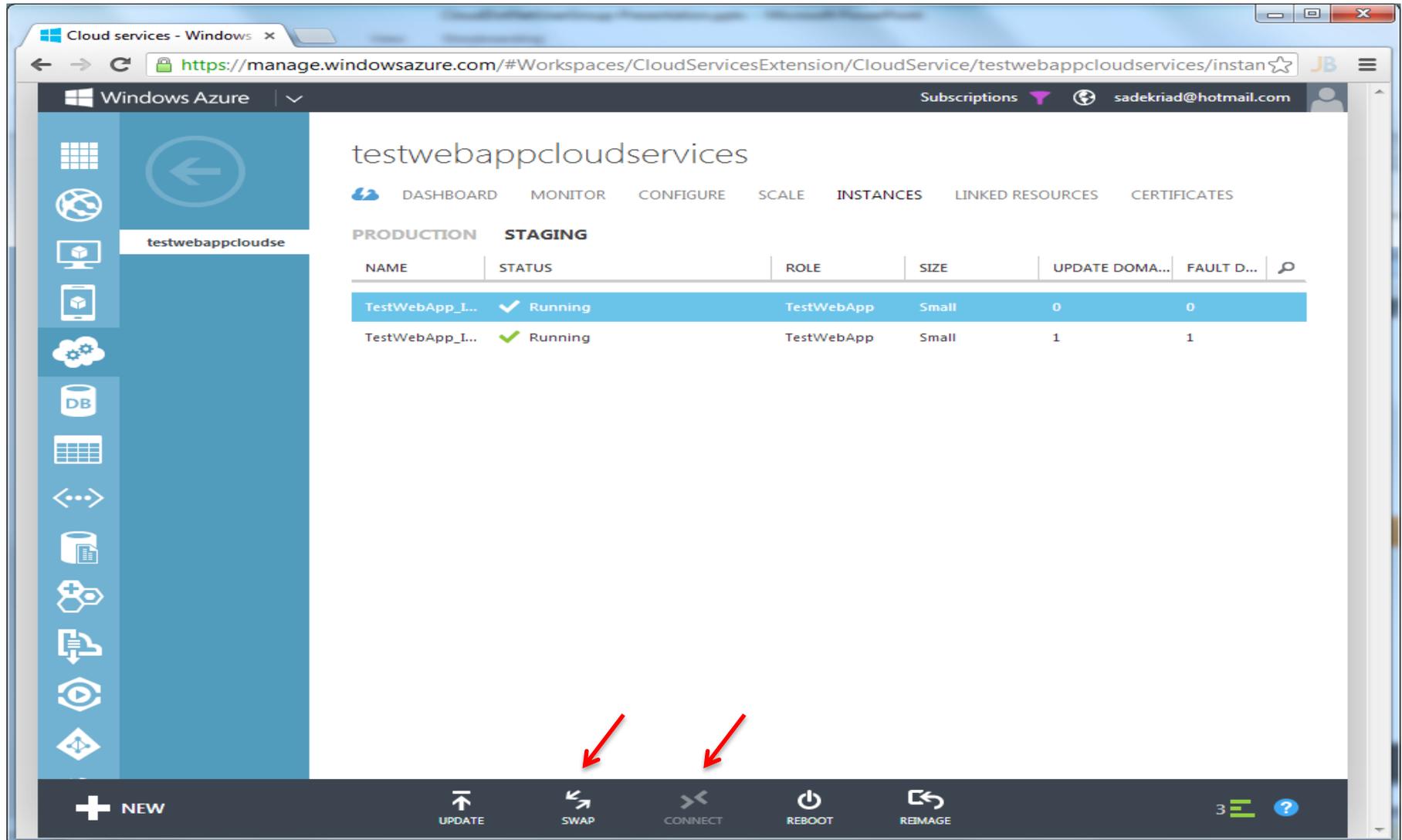
# Web Application - Azure Web Role



The screenshot shows the Azure Management Portal interface for a web application named 'testwebappcloudservices'. The 'MONITOR' tab is selected, indicated by a red arrow. The dashboard displays the following information:

- Navigation:** DASHBOARD, MONITOR, CONFIGURE, SCALE, INSTANCES, LINKED RESOURCES, CERTIFICATES.
- Environment:** PRODUCTION, **STAGING**.
- Monitoring:** CPU PERCENTAGE (TESTWEB...) chart showing usage over time (6:25 PM to 7:25).
- Usage Overview:** A bar chart showing resource usage for TESTWEBAPPCLOUDSERVICES (2 CORE(S)) and OTHER CLOUD SERVICES (2 of 20 CORE(S)).
- Quick Glance:** Set up TFS publishing, STATUS: Running, SITE URL: http://160db2ea35fa4a8caef204efce5180ab.cloudapp.net/, DEPLOYMENT NAME: WindowsAzureCloudServices - 4/24/2013 7:12:10 PM.

# Web Application - Azure Web Role



Cloud services - Windows x

https://manage.windowsazure.com/#Workspaces/CloudServicesExtension/CloudService/testwebappcloudservices/instan

Windows Azure Subscriptions sadekriad@hotmail.com

## testwebappcloudservices

DASHBOARD MONITOR CONFIGURE SCALE INSTANCES LINKED RESOURCES CERTIFICATES

PRODUCTION STAGING

NAME	STATUS	ROLE	SIZE	UPDATE DOMA...	FAULT D...
TestWebApp_I...	✓ Running	TestWebApp	Small	0	0
TestWebApp_I...	✓ Running	TestWebApp	Small	1	1

+ NEW UPDATE SWAP CONNECT REBOOT REIMAGE 3 ?

# Web Application - Azure Web Role

Cloud services - Windows x

https://manage.windowsazure.com/#Workspaces/CloudServicesExtension/CloudService/testwebappcloudservices/dash

Windows Azure Subscriptions sadekriad@hotmail.com

## testwebappcloudservices

DASHBOARD MONITOR CONFIGURE SCALE INSTANCES LINKED RESOURCES CERTIFICATES

**PRODUCTION** STAGING

CPU PERCENTAGE(TESTWEB... RELATIVE 1 HOUR

15.64 %

6:40PM 6:45 6:50 6:55 7:00 7:05 7:10 7:15 7:20 7:25 7:30 7:35 7:40

web endpoint status **PREVIEW**

You have not configured a web endpoint for monitoring. Configure one to get started.

CONFIGURE WEB ENDPOINT MONITORING

usage overview

TESTWEBAPPCLOUDSERVICES OTHER CLOUD SERVICES AVAILABLE

2 CORE(S)

quick glance

Set up TFS publishing

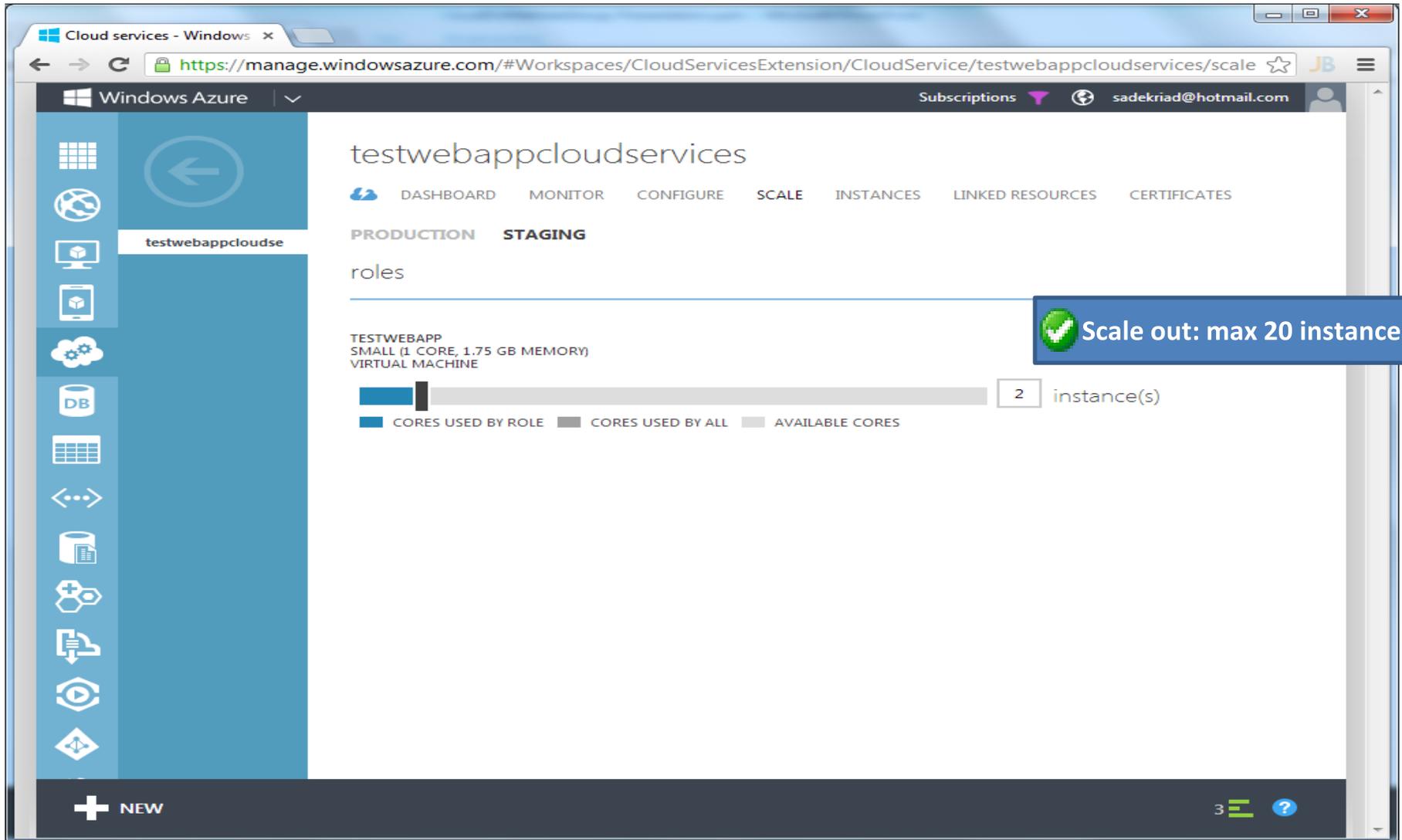
STATUS Running

SITE URL <http://testwebappcloudservices.cloudapp.net/>

DEPLOYMENT NAME WindowsAzureCloudServices - 4/24/2013 7:12:10 PM

NEW STOP UPDATE SWAP DELETE

# Web Application - Azure Web Role



The screenshot shows the Azure Management Portal interface for a web application. The browser address bar displays the URL: <https://manage.windowsazure.com/#Workspaces/CloudServicesExtension/CloudService/testwebappcloudservices/scale>. The page title is "testwebappcloudservices". The navigation menu includes "DASHBOARD", "MONITOR", "CONFIGURE", "SCALE", "INSTANCES", "LINKED RESOURCES", and "CERTIFICATES". The "SCALE" tab is active, showing the "PRODUCTION" environment. The role name is "roles". The role configuration is "TESTWEBAPP SMALL (1 CORE, 1.75 GB MEMORY) VIRTUAL MACHINE". A horizontal bar chart shows the core usage: "CORES USED BY ROLE" (dark blue), "CORES USED BY ALL" (grey), and "AVAILABLE CORES" (light grey). The current scale is set to "2 instance(s)". A blue callout box with a green checkmark icon contains the text "Scale out: max 20 instances".

testwebappcloudservices

DASHBOARD MONITOR CONFIGURE **SCALE** INSTANCES LINKED RESOURCES CERTIFICATES

PRODUCTION **STAGING**

roles

TESTWEBAPP  
SMALL (1 CORE, 1.75 GB MEMORY)  
VIRTUAL MACHINE

2 instance(s)

■ CORES USED BY ROLE ■ CORES USED BY ALL ■ AVAILABLE CORES

Scale out: max 20 instances

# Web Application - Azure Web Role (Summary)

## ➤ Scalability



### Up:

- Instance size
- Requires a new deployment



### Out:

- Easily add more instances in the management console

## ➤ Availability & Disaster Recovery

- 99.90% for single instance
- 99.95% for load balanced instances (2 or more)

## ➤ Elasticity

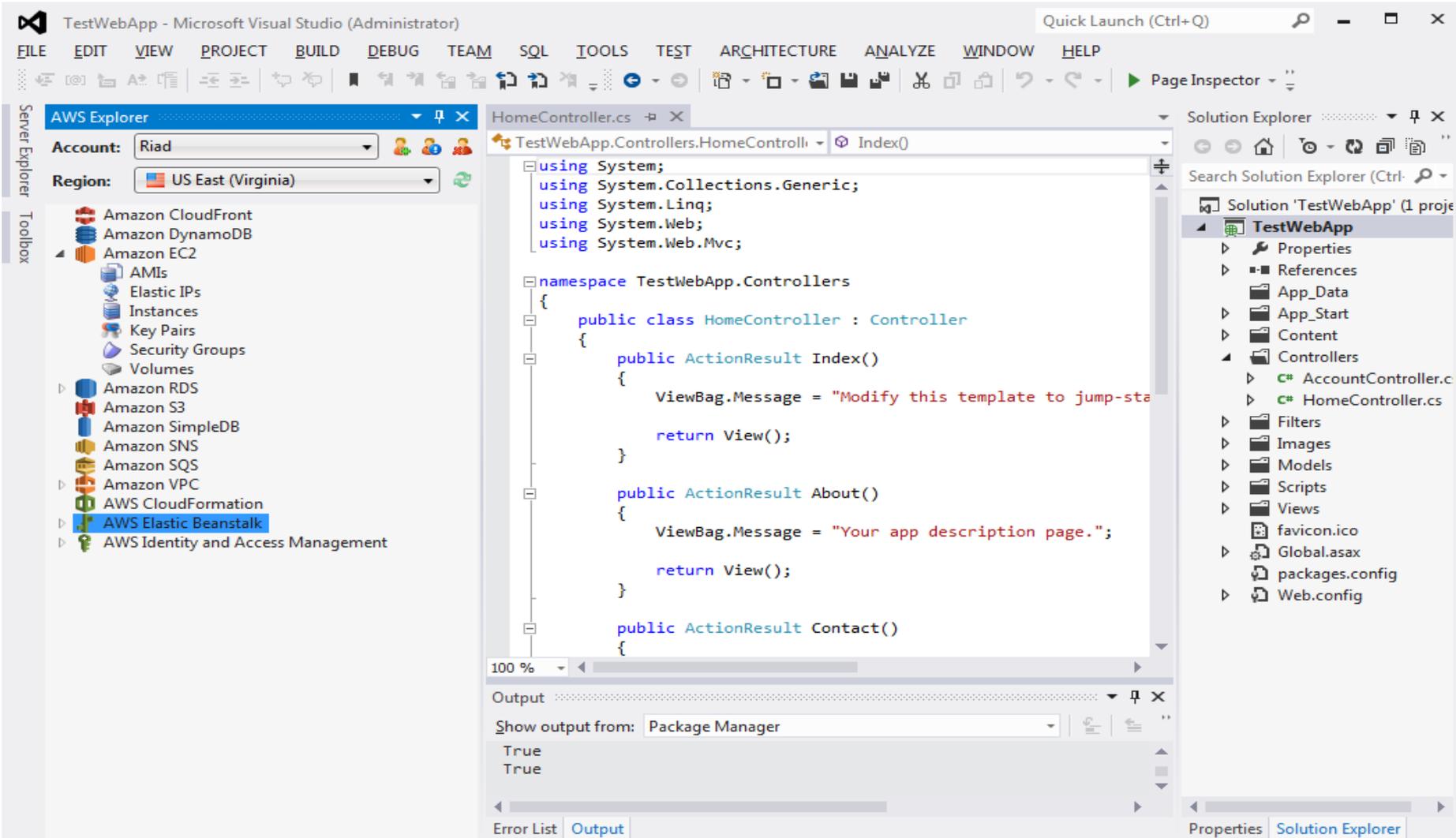


Enterprise Library Auto-scaling Application Block (WASABi)

# Web Application - Amazon Elastic Beanstalk

**DEMO**

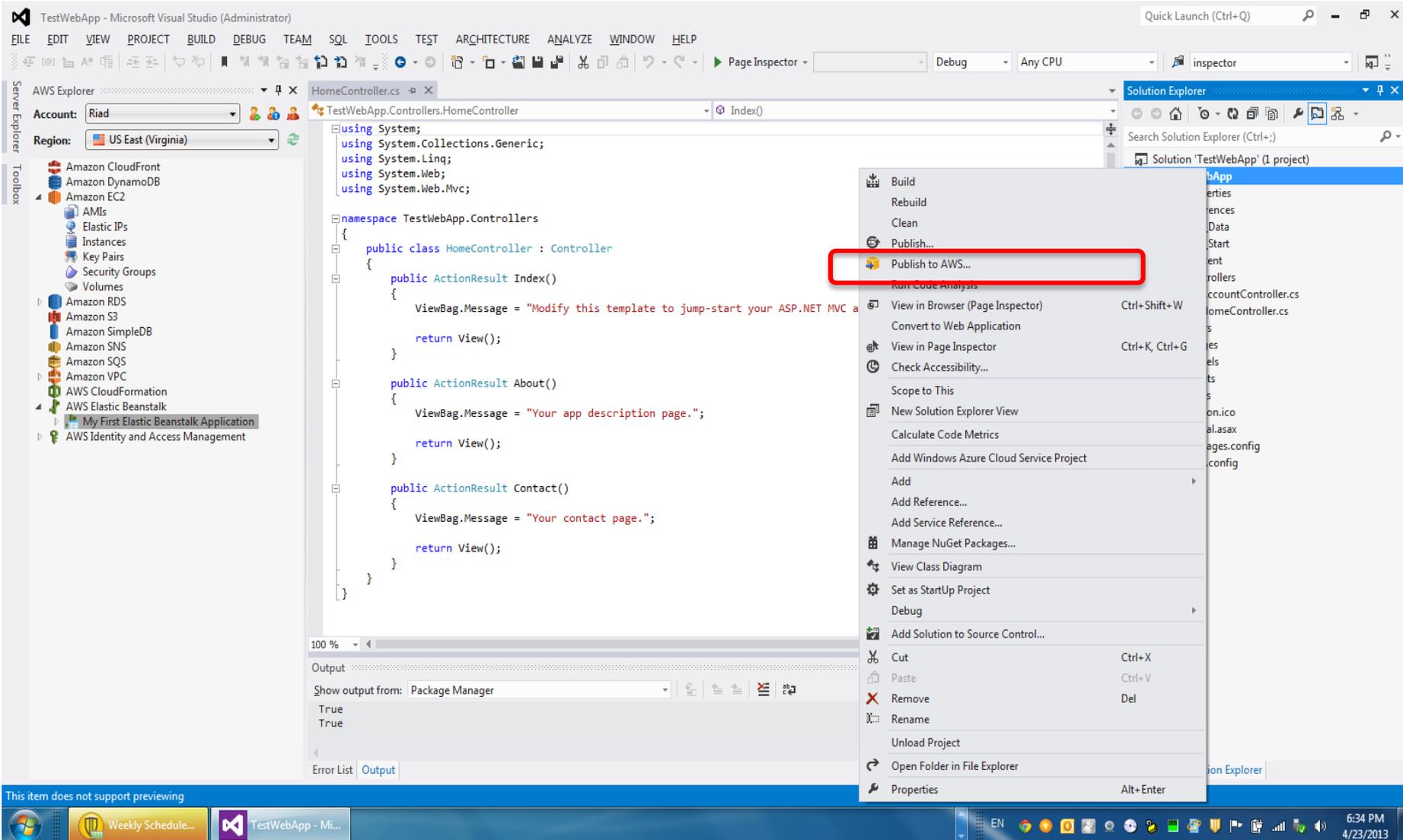
# Web Application - Amazon Elastic Beanstalk



The screenshot displays the Microsoft Visual Studio (Administrator) interface for a project named 'TestWebApp'. The top menu bar includes FILE, EDIT, VIEW, PROJECT, BUILD, DEBUG, TEAM, SQL, TOOLS, TEST, ARCHITECTURE, ANALYZE, WINDOW, and HELP. The toolbar contains various icons for file operations and development tools. The main workspace is divided into several panes:

- AWS Explorer:** Located on the left, it shows the account 'Riad' and region 'US East (Virginia)'. A tree view lists various AWS services, with 'AWS Elastic Beanstalk' highlighted.
- Code Editor:** The central pane shows the source code for 'HomeController.cs'. The code includes using statements for System, System.Collections.Generic, System.Linq, System.Web, and System.Web.Mvc. It defines a namespace 'TestWebApp.Controllers' containing a 'HomeController' class with three methods: 'Index()', 'About()', and 'Contact()'. The 'Index()' method sets 'ViewBag.Message' to 'Modify this template to jump-sta' and returns 'View()'. The 'About()' method sets 'ViewBag.Message' to 'Your app description page.' and returns 'View()'. The 'Contact()' method is currently empty.
- Solution Explorer:** On the right, it shows the project structure for 'TestWebApp', including folders for Properties, References, App\_Data, App\_Start, Content, Controllers, Filters, Images, Models, Scripts, Views, and files like favicon.ico, Global.asax, packages.config, and Web.config.
- Output Window:** At the bottom, it shows the 'Package Manager' output with two lines of 'True'.

# Web Application - Amazon Elastic Beanstalk



The screenshot shows the Microsoft Visual Studio (Administrator) interface. The main window displays the code for `HomeController.cs` in the `TestWebApp.Controllers` namespace. The code includes the following:

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

namespace TestWebApp.Controllers
{
    public class HomeController : Controller
    {
        public ActionResult Index()
        {
            ViewBag.Message = "Modify this template to jump-start your ASP.NET MVC application. To learn more, see http://go.microsoft.com/fwlink/?LinkId=301871";
            return View();
        }

        public ActionResult About()
        {
            ViewBag.Message = "Your app description page.";
            return View();
        }

        public ActionResult Contact()
        {
            ViewBag.Message = "Your contact page.";
            return View();
        }
    }
}
```

The `Output` window at the bottom shows the following text:

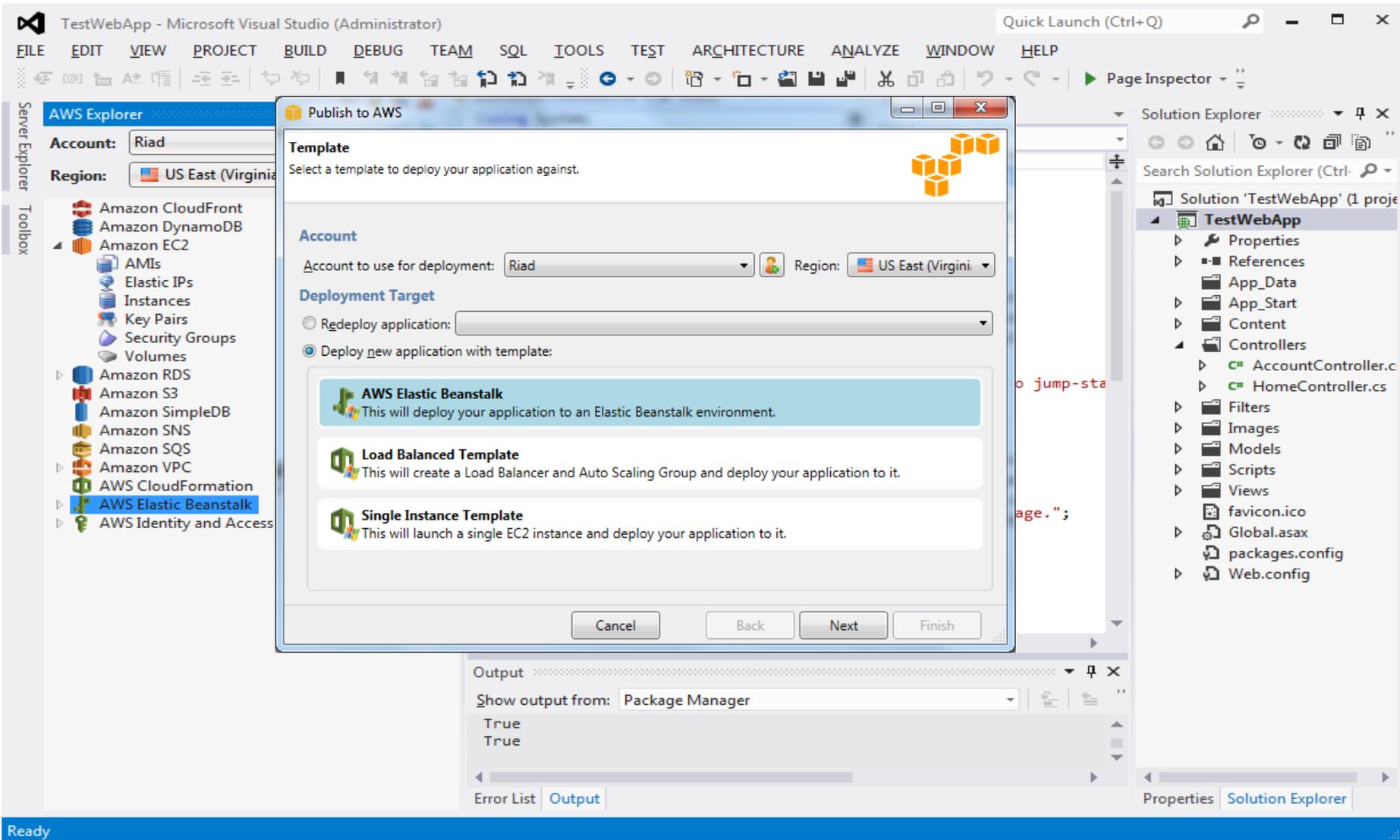
```
Show output from: Package Manager
True
True
```

A context menu is open over the code, with the `Publish to AWS...` option highlighted by a red rectangle. The menu items include:

- Build
- Rebuild
- Clean
- Publish...
- Publish to AWS...
- Run Code Analysis
- View in Browser (Page Inspector) Ctrl+Shift+W
- Convert to Web Application
- View in Page Inspector Ctrl+K, Ctrl+G
- Check Accessibility...
- Scope to This
- New Solution Explorer View
- Calculate Code Metrics
- Add Windows Azure Cloud Service Project
- Add
- Add Reference...
- Add Service Reference...
- Manage NuGet Packages...
- View Class Diagram
- Set as StartUp Project
- Debug
- Add Solution to Source Control...
- Cut Ctrl+X
- Paste Ctrl+V
- Remove Del
- Rename
- Unload Project
- Open Folder in File Explorer
- Properties Alt+Enter

The `AWS Explorer` sidebar on the left shows the account `Riad` and region `US East (Virginia)`. The `Server Explorer` sidebar shows the `AWS Elastic Beanstalk` service, with a sub-entry `My First Elastic Beanstalk Application` selected.

# Web Application - Amazon Elastic Beanstalk



TestWebApp - Microsoft Visual Studio (Administrator)

Quick Launch (Ctrl+Q)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Page Inspector

**AWS Explorer**

Account: Riad

Region: US East (Virginia)

- Amazon CloudFront
- Amazon DynamoDB
- Amazon EC2
  - AMIs
  - Elastic IPs
  - Instances
  - Key Pairs
  - Security Groups
  - Volumes
- Amazon RDS
- Amazon S3
- Amazon SimpleDB
- Amazon SNS
- Amazon SQS
- Amazon VPC
- AWS CloudFormation
- AWS Elastic Beanstalk**
- AWS Identity and Access

**Publish to AWS**

Template

Select a template to deploy your application against.

Account

Account to use for deployment: Riad Region: US East (Virginia)

Deployment Target

Redeploy application:

Deploy new application with template:

- AWS Elastic Beanstalk**  
This will deploy your application to an Elastic Beanstalk environment.
- Load Balanced Template**  
This will create a Load Balancer and Auto Scaling Group and deploy your application to it.
- Single Instance Template**  
This will launch a single EC2 instance and deploy your application to it.

Cancel Back Next Finish

Output

Show output from: Package Manager

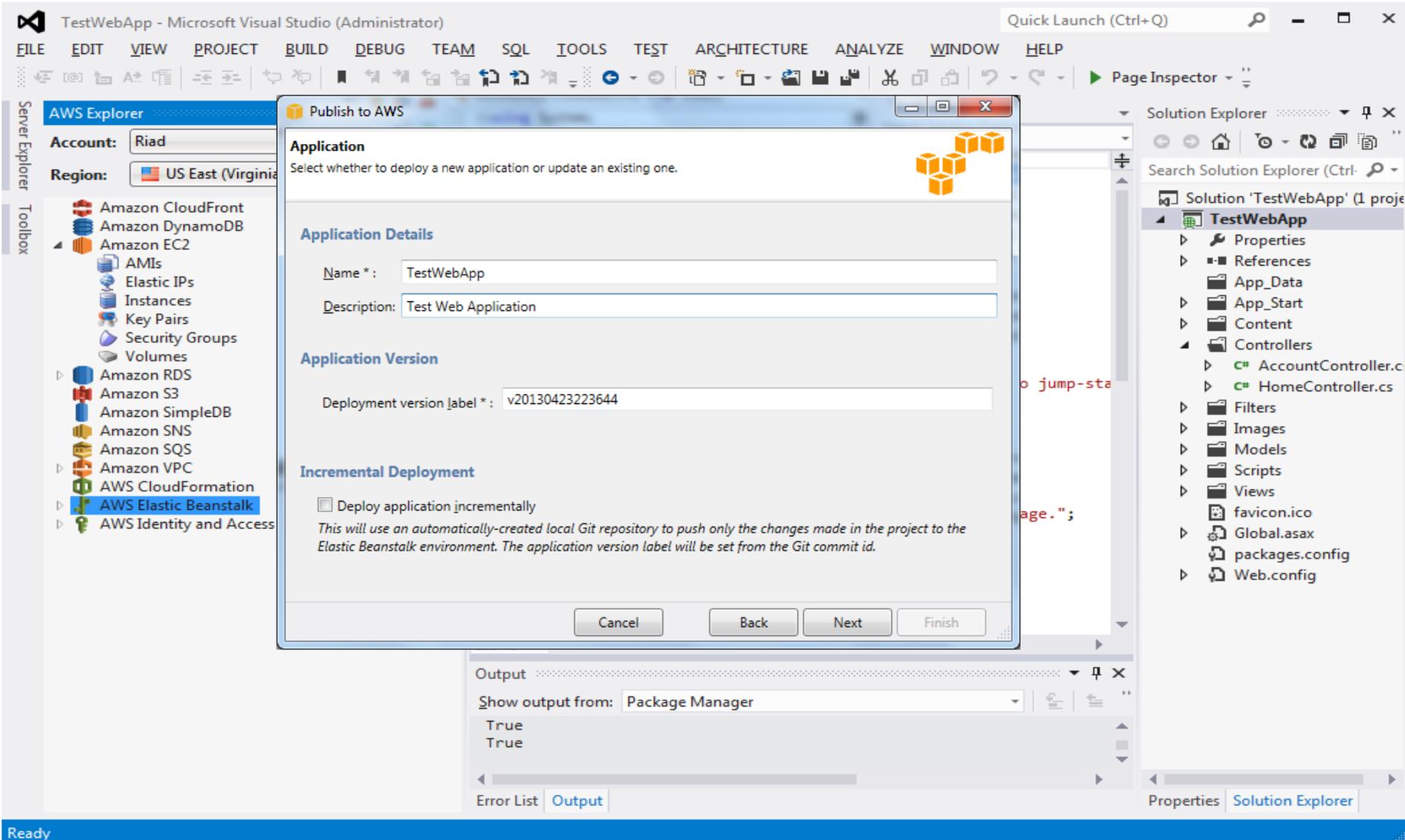
True

True

Properties Solution Explorer

Ready

# Web Application - Amazon Elastic Beanstalk



TestWebApp - Microsoft Visual Studio (Administrator)

Quick Launch (Ctrl+Q)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Page Inspector

Server Explorer

Toolbox

AWS Explorer

Account: Riad

Region: US East (Virginia)

Amazon CloudFront

Amazon DynamoDB

Amazon EC2

AMIs

Elastic IPs

Instances

Key Pairs

Security Groups

Volumes

Amazon RDS

Amazon S3

Amazon SimpleDB

Amazon SNS

Amazon SQS

Amazon VPC

AWS CloudFormation

**AWS Elastic Beanstalk**

AWS Identity and Access

Publish to AWS

Application

Select whether to deploy a new application or update an existing one.

Application Details

Name \*: TestWebApp

Description: Test Web Application

Application Version

Deployment version label \*: v20130423223644

Incremental Deployment

Deploy application incrementally

*This will use an automatically-created local Git repository to push only the changes made in the project to the Elastic Beanstalk environment. The application version label will be set from the Git commit id.*

Cancel Back Next Finish

Output

Show output from: Package Manager

True

True

Error List Output

Properties Solution Explorer

Solution Explorer

Search Solution Explorer (Ctrl+Q)

Solution 'TestWebApp' (1 project)

TestWebApp

- Properties
- References
- App\_Data
- App\_Start
- Content
- Controllers
  - AccountController.cs
  - HomeController.cs
- Filters
- Images
- Models
- Scripts
- Views
- favicon.ico
- Global.asax
- packages.config
- Web.config

# Web Application - Amazon Elastic Beanstalk

Environment

Select or define an environment in which the application will run.

Create a new environment for the application:

Name \*: testWebApp-QA

Description: QA Environment

Environment URL:

http:// testWebApp-QA .elasticbeanstalk.com

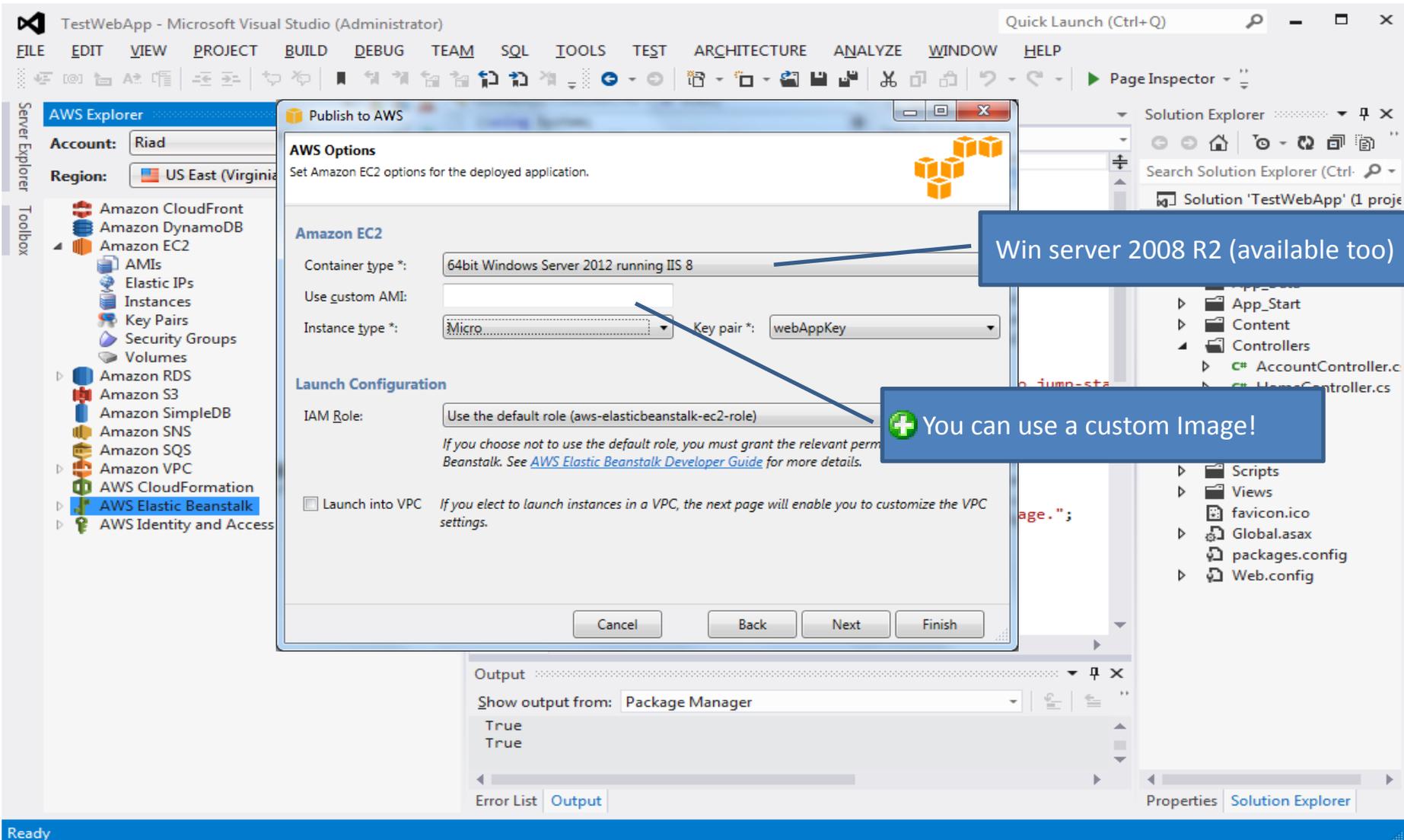
✓ The requested URL is available

Use an existing environment:

Cancel Back Next Finish

For one application we can have multiple environments: DEV, QA, UAT...

# Web Application - Amazon Elastic Beanstalk



TestWebApp - Microsoft Visual Studio (Administrator)

Quick Launch (Ctrl+Q)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Page Inspector

Server Explorer

Toolbox

AWS Explorer

Account: Riad

Region: US East (Virginia)

Amazon CloudFront

Amazon DynamoDB

Amazon EC2

AMIs

Elastic IPs

Instances

Key Pairs

Security Groups

Volumes

Amazon RDS

Amazon S3

Amazon SimpleDB

Amazon SNS

Amazon SQS

Amazon VPC

AWS CloudFormation

AWS Elastic Beanstalk

AWS Identity and Access

Publish to AWS

AWS Options

Set Amazon EC2 options for the deployed application.

Amazon EC2

Container type \*: 64bit Windows Server 2012 running IIS 8

Use custom AMI:

Instance type \*: Micro

Key pair \*: webAppKey

Launch Configuration

IAM Role: Use the default role (aws-elasticbeanstalk-ec2-role)

If you choose not to use the default role, you must grant the relevant permissions to the role. See [AWS Elastic Beanstalk Developer Guide](#) for more details.

Launch into VPC If you elect to launch instances in a VPC, the next page will enable you to customize the VPC settings.

Cancel Back Next Finish

Win server 2008 R2 (available too)

+ You can use a custom Image!

Solution Explorer

Search Solution Explorer (Ctrl+)

Solution 'TestWebApp' (1 project)

App\_Start

Content

Controllers

AccountController.c

HomeController.cs

Scripts

Views

favicon.ico

Global.asax

packages.config

Web.config

Output

Show output from: Package Manager

True

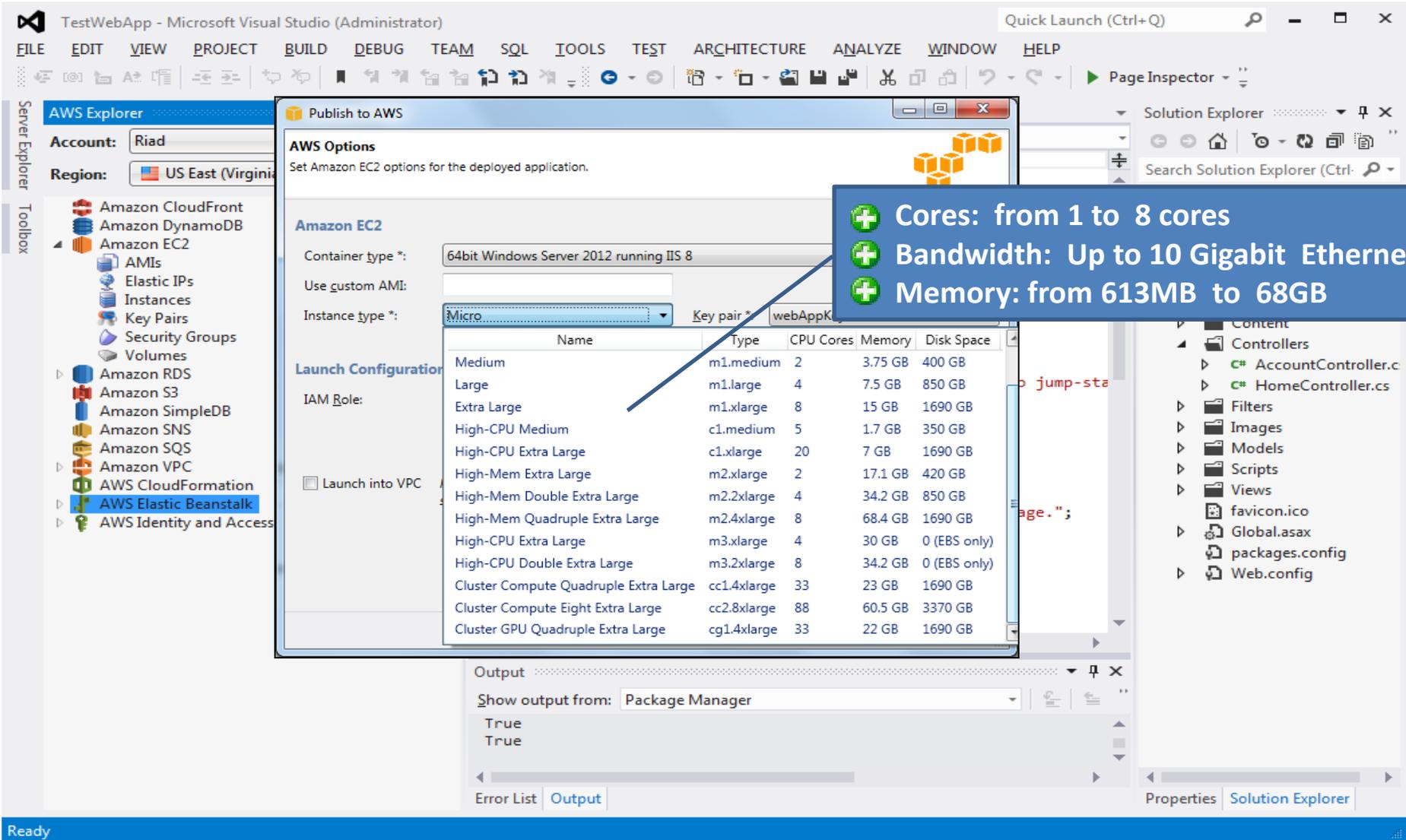
True

Error List Output

Properties Solution Explorer

Ready

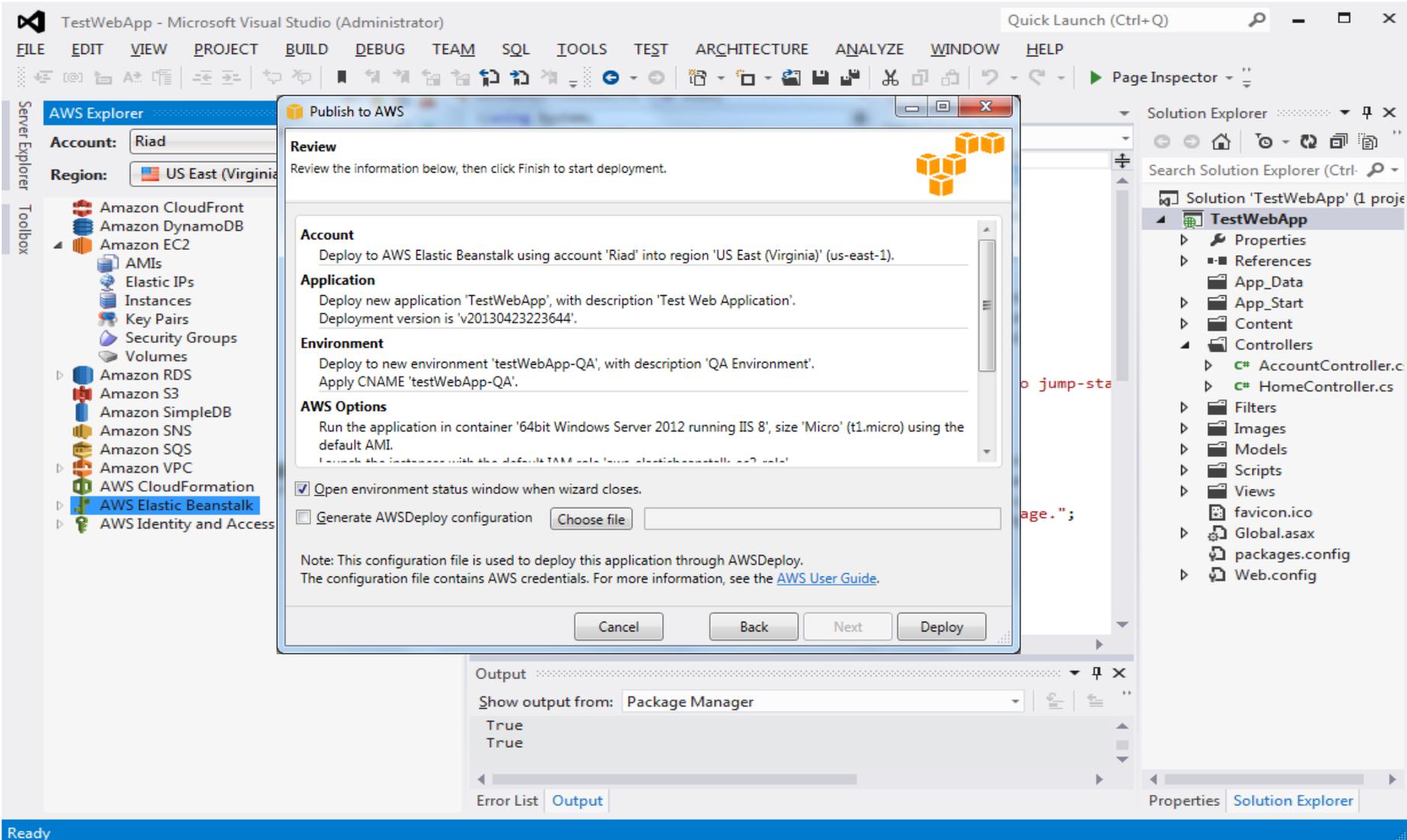
# Web Application - Amazon Elastic Beanstalk



**+** Cores: from 1 to 8 cores  
**+** Bandwidth: Up to 10 Gigabit Ethernet  
**+** Memory: from 613MB to 68GB

Name	Type	CPU Cores	Memory	Disk Space
Medium	m1.medium	2	3.75 GB	400 GB
Large	m1.large	4	7.5 GB	850 GB
Extra Large	m1.xlarge	8	15 GB	1690 GB
High-CPU Medium	c1.medium	5	1.7 GB	350 GB
High-CPU Extra Large	c1.xlarge	20	7 GB	1690 GB
High-Mem Extra Large	m2.xlarge	2	17.1 GB	420 GB
High-Mem Double Extra Large	m2.2xlarge	4	34.2 GB	850 GB
High-Mem Quadruple Extra Large	m2.4xlarge	8	68.4 GB	1690 GB
High-CPU Extra Large	m3.xlarge	4	30 GB	0 (EBS only)
High-CPU Double Extra Large	m3.2xlarge	8	34.2 GB	0 (EBS only)
Cluster Compute Quadruple Extra Large	cc1.4xlarge	33	23 GB	1690 GB
Cluster Compute Eight Extra Large	cc2.8xlarge	88	60.5 GB	3370 GB
Cluster GPU Quadruple Extra Large	cg1.4xlarge	33	22 GB	1690 GB

# Web Application - Amazon Elastic Beanstalk



TestWebApp - Microsoft Visual Studio (Administrator)

Quick Launch (Ctrl+Q)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Page Inspector

**AWS Explorer**

Account: Riad

Region: US East (Virginia)

- Amazon CloudFront
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- Amazon EC2
- AMIs
- Elastic IPs
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- Key Pairs
- Security Groups
- Volumes
- Amazon RDS
- Amazon S3
- Amazon SimpleDB
- Amazon SNS
- Amazon SQS
- Amazon VPC
- AWS CloudFormation
- AWS Elastic Beanstalk**
- AWS Identity and Access

**Publish to AWS**

**Review**

Review the information below, then click Finish to start deployment.

**Account**  
Deploy to AWS Elastic Beanstalk using account 'Riad' into region 'US East (Virginia)' (us-east-1).

**Application**  
Deploy new application 'TestWebApp', with description 'Test Web Application'.  
Deployment version is 'v20130423223644'.

**Environment**  
Deploy to new environment 'testWebApp-QA', with description 'QA Environment'.  
Apply CNAME 'testWebApp-QA'.

**AWS Options**  
Run the application in container '64bit Windows Server 2012 running IIS 8', size 'Micro' (t1.micro) using the default AMI.  
Launch the instances with the default IAM role name elasticbeanstalk-ec2-role

Open environment status window when wizard closes.

Generate AWSDeploy configuration

Note: This configuration file is used to deploy this application through AWSDeploy.  
The configuration file contains AWS credentials. For more information, see the [AWS User Guide](#).

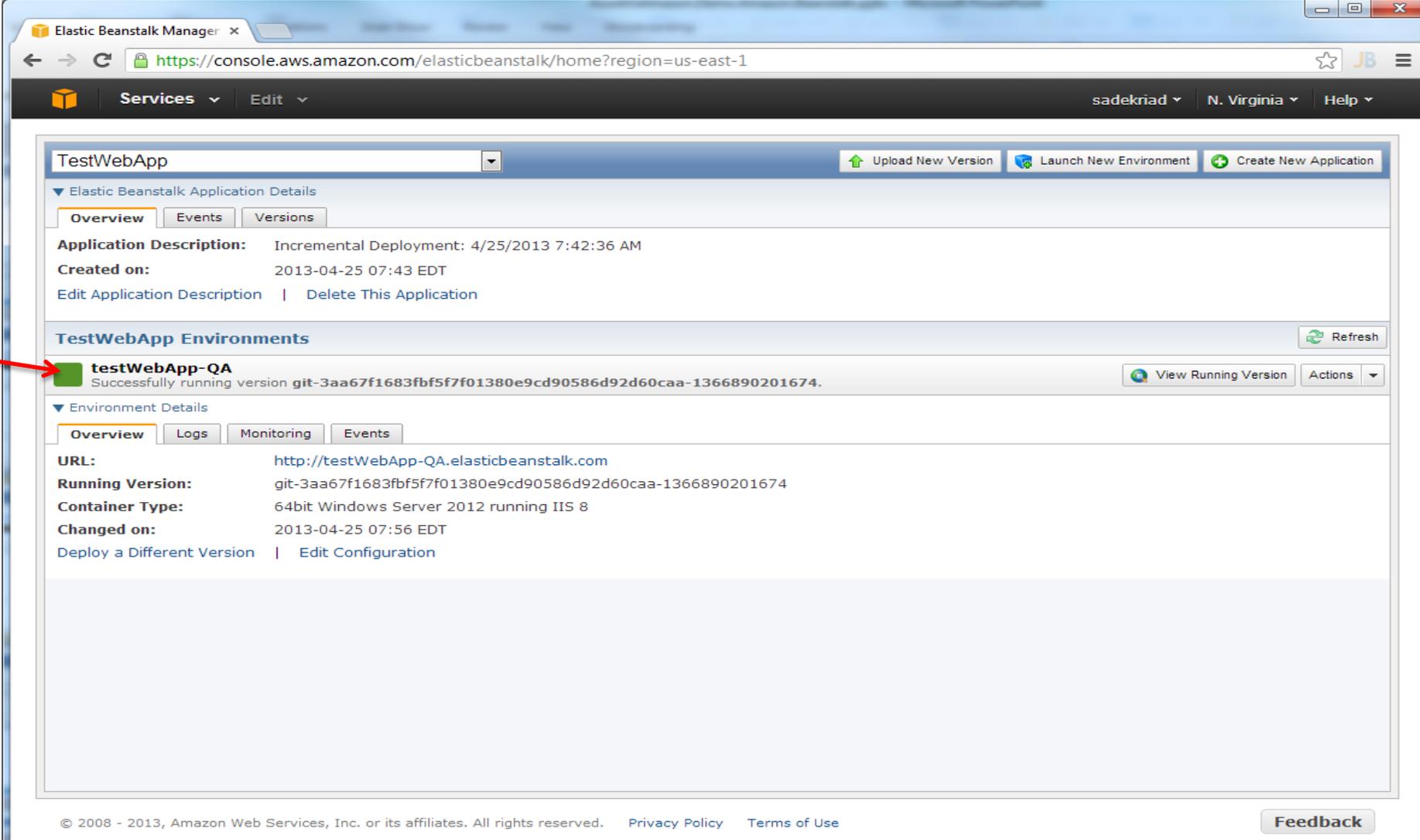
Output

Show output from: Package Manager

True  
True

Properties Solution Explorer

# Web Application - Amazon Elastic Beanstalk



The screenshot displays the Amazon Elastic Beanstalk console interface. At the top, the browser address bar shows the URL <https://console.aws.amazon.com/elasticbeanstalk/home?region=us-east-1>. The navigation bar includes 'Services' and 'Edit' menus, and the user's name 'sadekriad' and region 'N. Virginia' are visible.

The main content area is titled 'TestWebApp' and includes three action buttons: 'Upload New Version', 'Launch New Environment', and 'Create New Application'. Below this, the 'Elastic Beanstalk Application Details' section is shown with tabs for 'Overview', 'Events', and 'Versions'. The 'Overview' tab is active, displaying the following information:

- Application Description:** Incremental Deployment: 4/25/2013 7:42:36 AM
- Created on:** 2013-04-25 07:43 EDT
- Links: [Edit Application Description](#) | [Delete This Application](#)

The 'TestWebApp Environments' section features a 'Refresh' button and a list of environments. A red arrow points to the 'testWebApp-QA' environment, which is highlighted with a green status icon. The details for this environment are as follows:

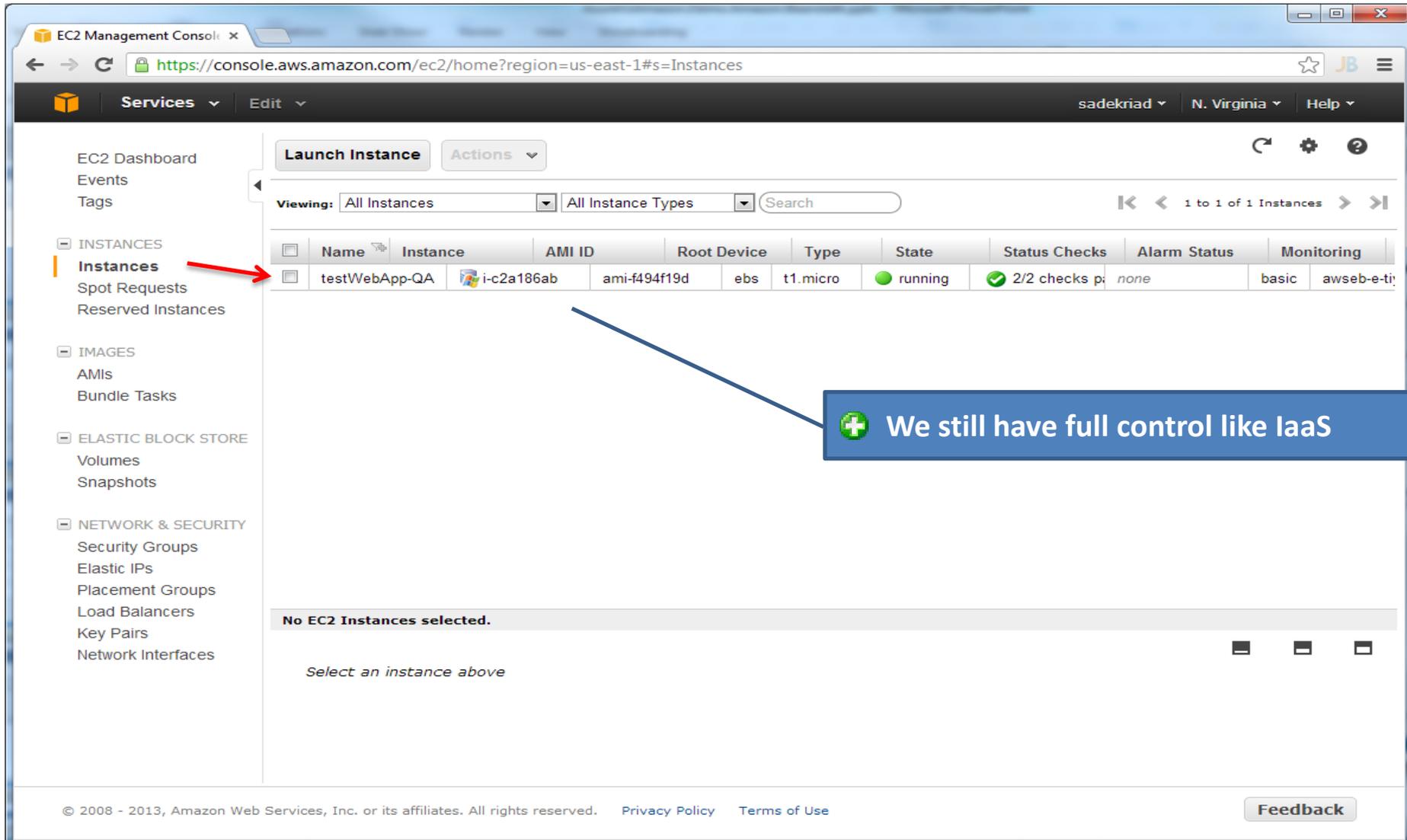
- testWebApp-QA**: Successfully running version `git-3aa67f1683fbf5f7f01380e9cd90586d92d60caa-1366890201674`.
- Buttons: [View Running Version](#) | [Actions](#)

Below the environment list, the 'Environment Details' section is visible with tabs for 'Overview', 'Logs', 'Monitoring', and 'Events'. The 'Overview' tab is active, showing:

- URL:** <http://testWebApp-QA.elasticbeanstalk.com>
- Running Version:** `git-3aa67f1683fbf5f7f01380e9cd90586d92d60caa-1366890201674`
- Container Type:** 64bit Windows Server 2012 running IIS 8
- Changed on:** 2013-04-25 07:56 EDT
- Links: [Deploy a Different Version](#) | [Edit Configuration](#)

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# Web Application - Amazon Elastic Beanstalk



The screenshot shows the AWS Management Console for EC2. The left sidebar contains navigation options: EC2 Dashboard, Events, Tags, INSTANCES (Instances, Spot Requests, Reserved Instances), IMAGES (AMIs, Bundle Tasks), ELASTIC BLOCK STORE (Volumes, Snapshots), and NETWORK & SECURITY (Security Groups, Elastic IPs, Placement Groups, Load Balancers, Key Pairs, Network Interfaces). The main content area shows a table of EC2 instances. A red arrow points to the instance named 'testWebApp-QA'. A blue callout box with a plus sign contains the text 'We still have full control like IaaS'.

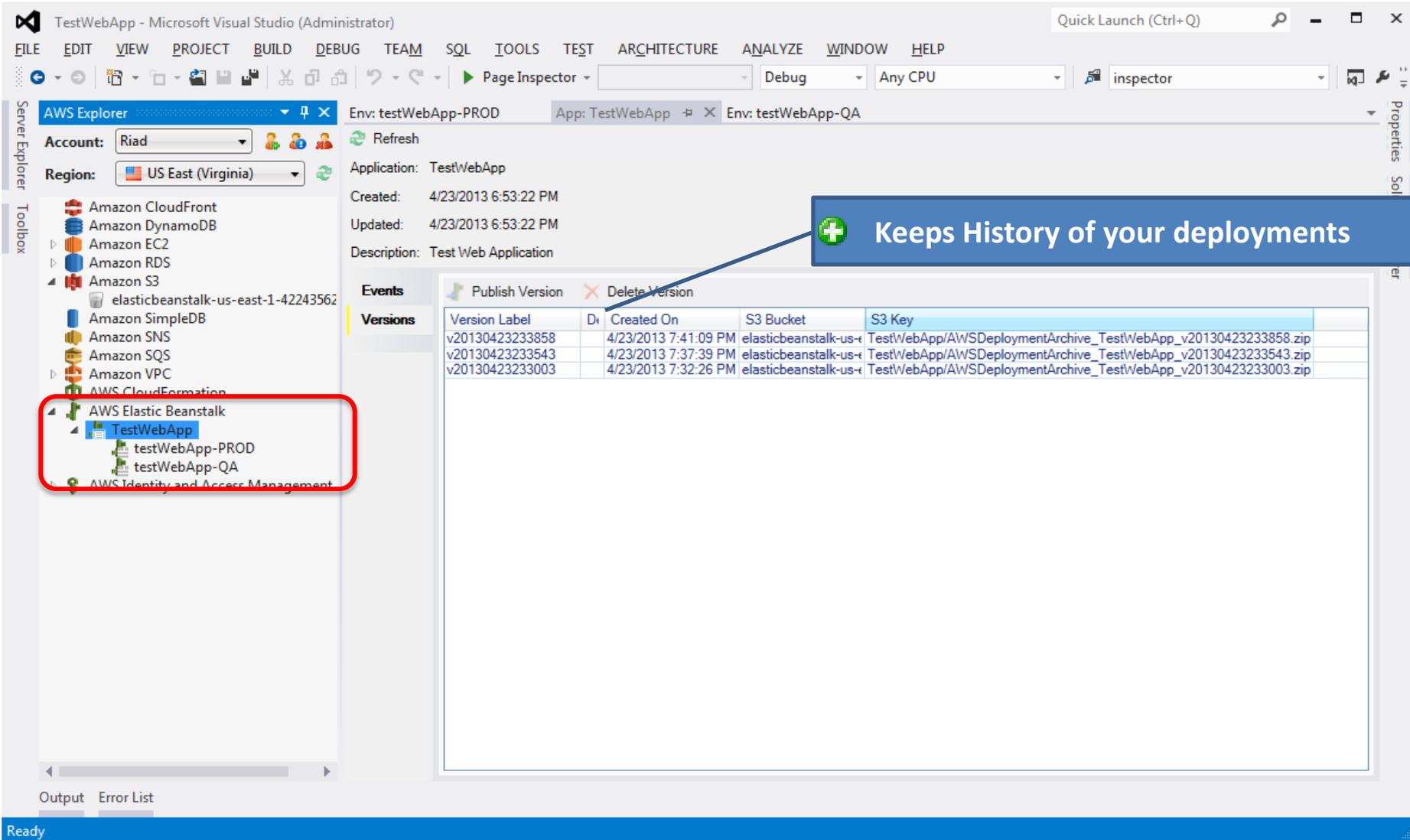
	Name	Instance	AMI ID	Root Device	Type	State	Status Checks	Alarm Status	Monitoring
<input type="checkbox"/>	testWebApp-QA	 i-c2a186ab	ami-f494f19d	ebs	t1.micro	running	2/2 checks p	none	basic awseb-e-ti

No EC2 Instances selected.

Select an instance above

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# Web Application - Amazon Elastic Beanstalk



TestWebApp - Microsoft Visual Studio (Administrator)

Quick Launch (Ctrl+Q)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Page Inspector Debug Any CPU inspector

Server Explorer

AWS Explorer

Account: Riad

Region: US East (Virginia)

Env: testWebApp-PROD App: TestWebApp Env: testWebApp-QA

Refresh

Application: TestWebApp

Created: 4/23/2013 6:53:22 PM

Updated: 4/23/2013 6:53:22 PM

Description: Test Web Application

Events

Publish Version Delete Version

Versions

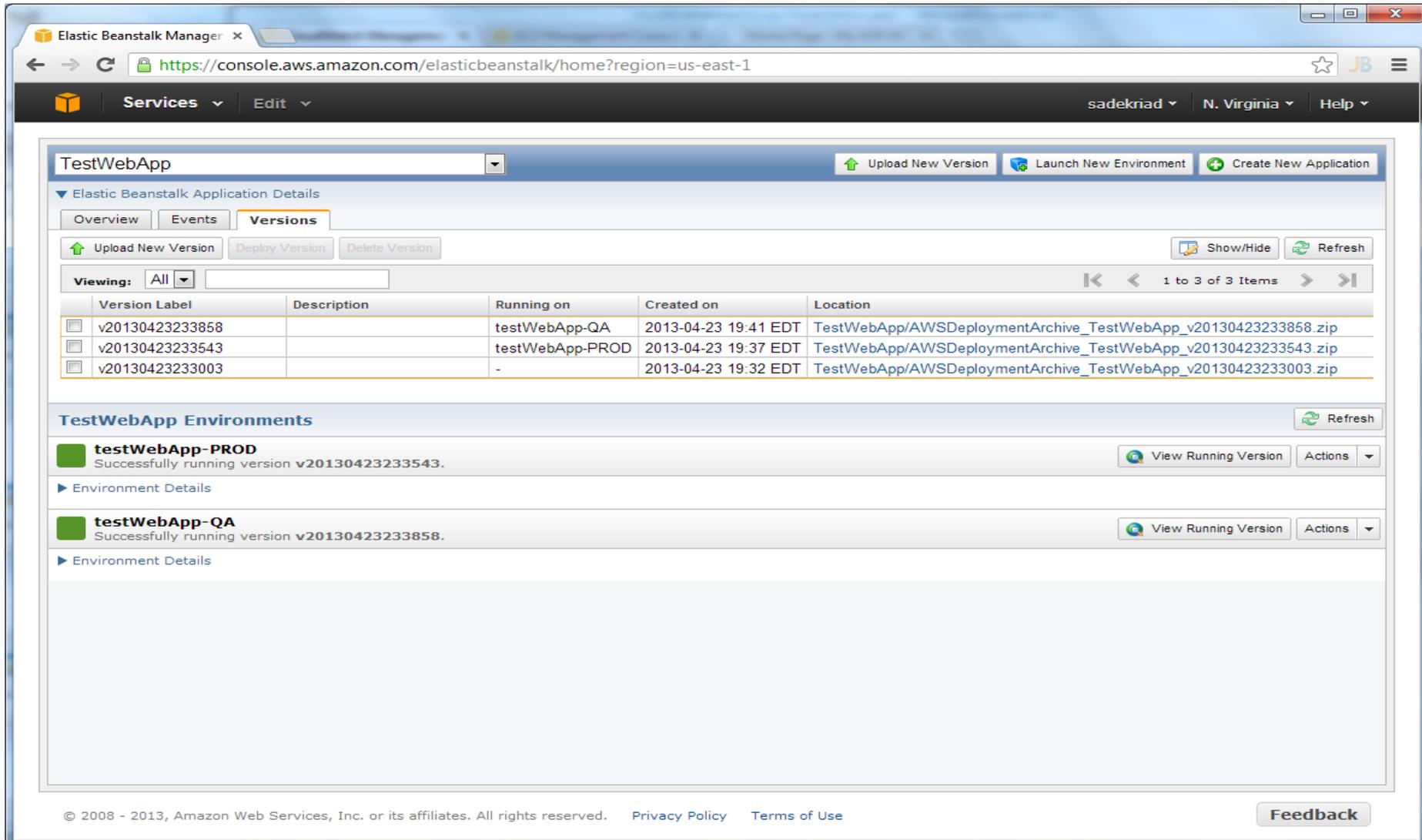
Version Label	Created On	S3 Bucket	S3 Key
v20130423233858	4/23/2013 7:41:09 PM	elasticbeanstalk-us-east-1-42243562	TestWebApp/AWSDeploymentArchive_TestWebApp_v20130423233858.zip
v20130423233543	4/23/2013 7:37:39 PM	elasticbeanstalk-us-east-1-42243562	TestWebApp/AWSDeploymentArchive_TestWebApp_v20130423233543.zip
v20130423233003	4/23/2013 7:32:26 PM	elasticbeanstalk-us-east-1-42243562	TestWebApp/AWSDeploymentArchive_TestWebApp_v20130423233003.zip

Keeps History of your deployments

Output Error List

Ready

# Web Application - Amazon Elastic Beanstalk



The screenshot displays the Amazon Elastic Beanstalk console interface. At the top, the browser address bar shows the URL <https://console.aws.amazon.com/elasticbeanstalk/home?region=us-east-1>. The console header includes the 'Services' and 'Edit' menus, the user name 'sadekriad', the region 'N. Virginia', and a 'Help' link.

The main content area is titled 'TestWebApp' and features three action buttons: 'Upload New Version', 'Launch New Environment', and 'Create New Application'. Below this, the 'Elastic Beanstalk Application Details' section is active, with tabs for 'Overview', 'Events', and 'Versions'. The 'Versions' tab contains sub-actions: 'Upload New Version', 'Deploy Version', and 'Delete Version'. A 'Viewing:' dropdown is set to 'All', and a pagination control shows '1 to 3 of 3 Items'.

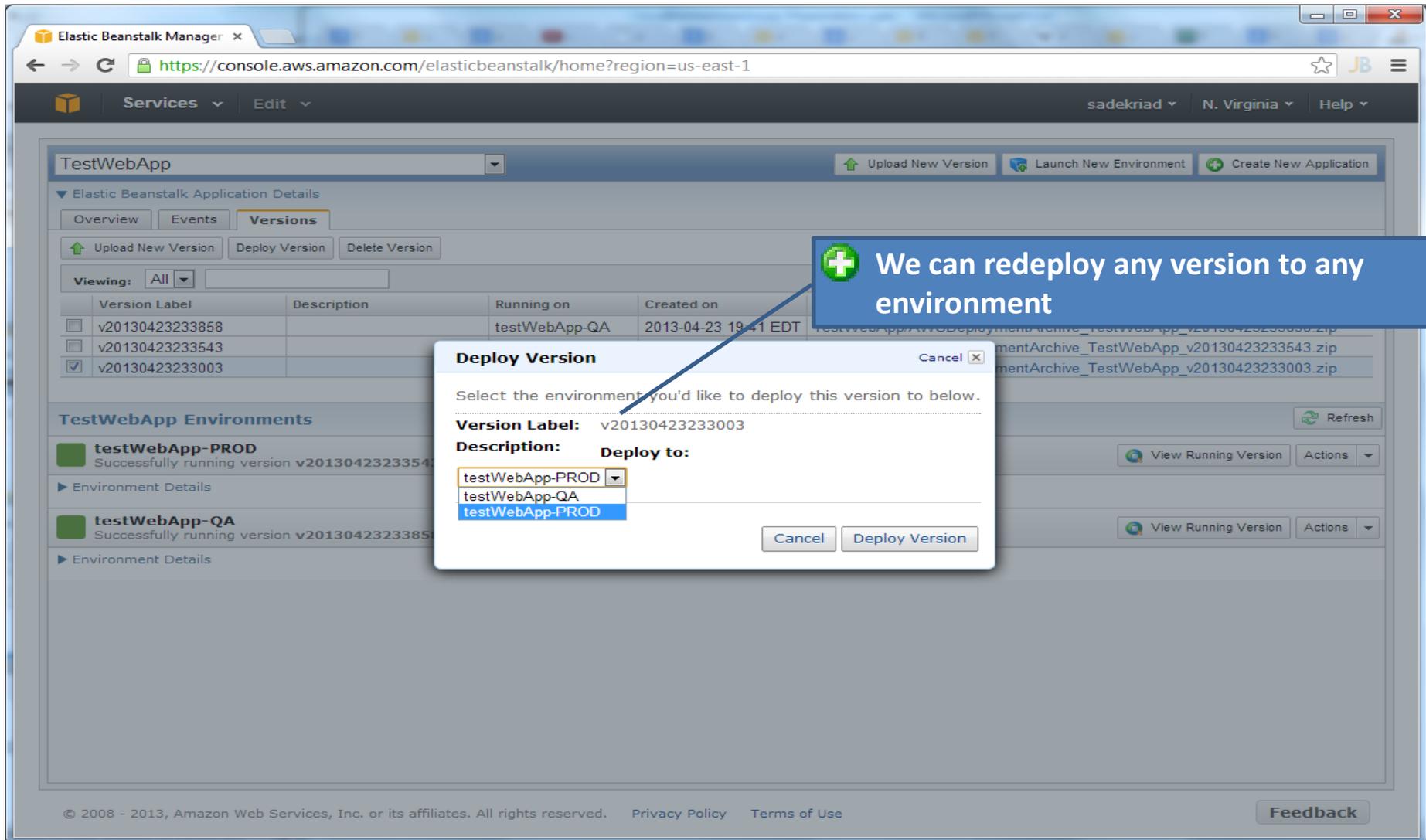
	Version Label	Description	Running on	Created on	Location
<input type="checkbox"/>	v20130423233858		testWebApp-QA	2013-04-23 19:41 EDT	TestWebApp/AWSDeploymentArchive_TestWebApp_v20130423233858.zip
<input type="checkbox"/>	v20130423233543		testWebApp-PROD	2013-04-23 19:37 EDT	TestWebApp/AWSDeploymentArchive_TestWebApp_v20130423233543.zip
<input type="checkbox"/>	v20130423233003		-	2013-04-23 19:32 EDT	TestWebApp/AWSDeploymentArchive_TestWebApp_v20130423233003.zip

Below the table, the 'TestWebApp Environments' section is shown, with a 'Refresh' button. Two environments are listed:

- testWebApp-PROD**: Successfully running version v20130423233543. Includes 'View Running Version' and 'Actions' buttons.
- testWebApp-QA**: Successfully running version v20130423233858. Includes 'View Running Version' and 'Actions' buttons.

Each environment has an 'Environment Details' link. At the bottom of the console, there is a footer with copyright information: '© 2008 - 2013, Amazon Web Services, Inc. or its affiliates. All rights reserved.' and links for 'Privacy Policy' and 'Terms of Use'. A 'Feedback' button is also present in the bottom right corner.

# Web Application - Amazon Elastic Beanstalk



**Deploy Version** [Cancel] [X]

Select the environment you'd like to deploy this version to below.

**Version Label:** v20130423233003

**Description:** Deploy to:

testWebApp-PROD  
testWebApp-QA  
testWebApp-PROD

[Cancel] [Deploy Version]

**+** We can redeploy any version to any environment

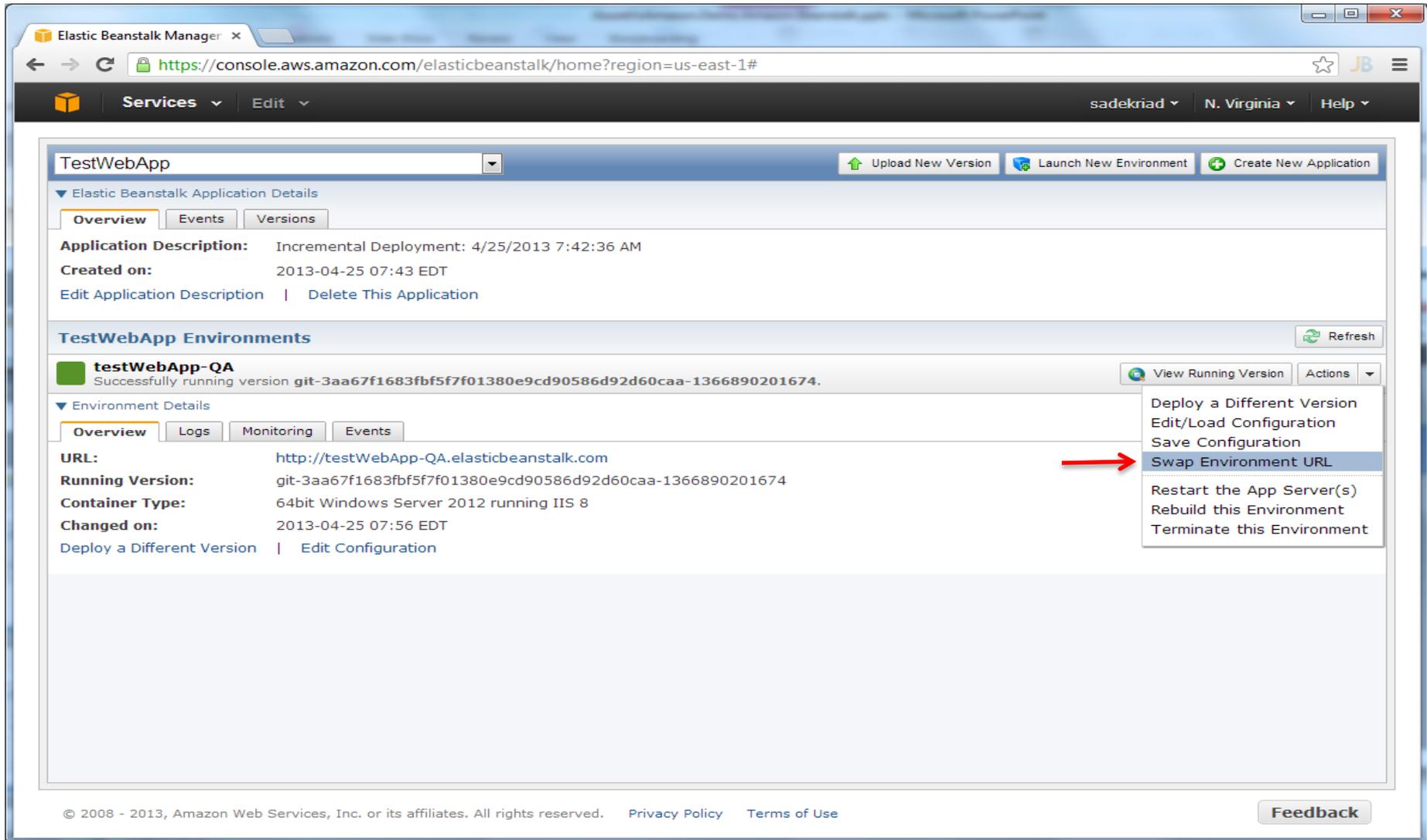
Version Label	Description	Running on	Created on
<input type="checkbox"/> v20130423233858		testWebApp-QA	2013-04-23 19:41 EDT
<input type="checkbox"/> v20130423233543			
<input checked="" type="checkbox"/> v20130423233003			

testWebApp-PROD  
Successfully running version v20130423233543

testWebApp-QA  
Successfully running version v20130423233858

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# Web Application - Amazon Elastic Beanstalk



The screenshot shows the AWS Elastic Beanstalk console interface. At the top, the browser address bar displays `https://console.aws.amazon.com/elasticbeanstalk/home?region=us-east-1#`. The console header includes the user name 'sadekriad', the region 'N. Virginia', and a 'Help' link. The main content area is titled 'TestWebApp' and includes buttons for 'Upload New Version', 'Launch New Environment', and 'Create New Application'. Under 'Elastic Beanstalk Application Details', the 'Overview' tab is active, showing the application description, creation time, and links to edit or delete the application. Below this, the 'TestWebApp Environments' section shows a single environment named 'testWebApp-QA' with a 'Refresh' button. The environment details are expanded, showing the URL, running version, container type, and change time. A red arrow points to the 'Actions' dropdown menu, which is open and displays several options: 'Deploy a Different Version', 'Edit/Load Configuration', 'Save Configuration', 'Swap Environment URL' (highlighted), 'Restart the App Server(s)', 'Rebuild this Environment', and 'Terminate this Environment'. The footer contains copyright information, links to 'Privacy Policy' and 'Terms of Use', and a 'Feedback' button.

# Web Application - Amazon Elastic Beanstalk

TestWebApp - Microsoft Visual Studio (Administrator)

Quick Launch (Ctrl+Q)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Page Inspector | Debug | Any CPU | inspector

Server Explorer: Account: Riad | Region: US East (Virginia)

Env: testWebApp-PROD | App: TestWebApp | Env: testWebApp-QA

Apply Changes | Connect to Instance | Restart App | Rebuild Environment | Terminate | Refresh

URL: <http://testWebApp-QA.elasticbeanstalk.com/>

Application: TestWebApp | Running Version: v20130423233858

Container Type: 64bit Windows Server 2012 running IIS 8 | Created: 4/23/2013 6:53:25 PM

Status: **Environment is healthy** | Updated: 4/23/2013 7:42:26 PM

Events | Monitoring | Resources | **Server** | Load Balancer | Auto Scaling | Notifications | Container | Advanced | Logs

\*EC2 Instance Type: **t1.micro**

\*EC2 Security Group: {"Ref": "AWSEBSecurityGroup"}

\*Existing Key Pair: webAppKey

\*Monitoring Interval: 5 minute

\*AMI ID: ami-f494f19d

Note: \*It may take a few minutes to see changes to these options take effect in your environment.

Easy Scale up

# Web Application - Amazon Elastic Beanstalk

TestWebApp - Microsoft Visual Studio (Administrator)

Quick Launch (Ctrl+Q)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Page Inspector | Debug | Any CPU | inspector

Server Explorer | Env: testWebApp-PROD | App: TestWebApp | Env: testWebApp-QA

Account: Riad | Region: US East (Virginia)

Apply Changes | Connect to Instance | Restart App | Rebuild Environment | Terminate | Refresh

URL: <http://testWebApp-QA.elasticbeanstalk.com/>

Application: TestWebApp | Running Version: v20130423233858

Container Type: 64bit Windows Server 2012 running IIS 8 | Created: 4/23/2013 6:53:25 PM

Status: **Environment is healthy** | Updated: 4/23/2013 7:42:26 PM

**Events**

**Monitoring**

**Resources**

**Server**

**Load Balancer**

**Auto Scaling**

**Notifications**

**Container**

**Advanced**

**Logs**

These settings allow you to control the behavior of your environment's load balancer.

HTTP Listener Port: 80

HTTPS Listener Port: OFF

SSL Certificate ID: [ ]

These settings allow you to configure how Elastic Beanstalk determines whether an EC2 instance is healthy or not.

Application Health Check: /

Health Check Interval (seconds): 30 (5 - 300)

Health Check Timeout (seconds): 5 (2 - 60)

Healthy Check Count Threshold: 3 (2 - 10)

Unhealthy Check Count Threshold: 5 (2 - 10)

These settings allow you to control how your load balancer handles session cookies.

Enable Session Stickiness

Cookie Expiration Period (seconds): 0 (0 - 1000000)

Ability to configure the Load Balancer

Ready | Output | Error List | INS

# Web Application - Amazon Elastic Beanstalk

TestWebApp - Microsoft Visual Studio (Administrator)

Quick Launch (Ctrl+Q)

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Page Inspector | Debug | Any CPU | inspector

Server Explorer: AWS Explorer | Account: Riad | Region: US East (Virginia)

Env: testWebApp-PROD | App: TestWebApp | Env: testWebApp-QA

Apply Changes | Connect to Instance | Restart App | Rebuild Environment | Terminate | Refresh

URL: <http://testWebApp-QA.elasticbeanstalk.com/>

Application: TestWebApp | Running Version: v20130423233858

Container Type: 64bit Windows Server 2012 running IIS 8 | Created: 4/23/2013 6:53:25 PM

Status: **Environment is healthy** | Updated: 4/23/2013 9:01:13 PM

**Auto Scaling**

Auto-scaling automatically launches or terminates EC2 instances based on defined metrics and thresholds called triggers. Auto-scaling will also launch a new EC2 instance in the event of a failure. These settings allow you to control auto-scaling behavior.

Minimum Instance Count:	<input type="text" value="1"/>	(1 - 10000)
Maximum Instance Count:	<input type="text" value="4"/>	(1 - 10000)
Availability Zones:	<input type="text" value="Any"/>	
Scaling Cooldown Time (seconds):	<input type="text" value="360"/>	(0 - 10000)
Trigger Measurement:	<input type="text" value="CPUUtilization"/>	
Trigger Statistic:	<input type="text" value="Average"/>	
Unit of Measurement:	<input type="text" value="Percent"/>	
Measurement Period (minutes):	<input type="text" value="5"/>	(1 - 600)
Breach Duration (minutes):	<input type="text" value="5"/>	(1 - 600)
Upper Threshold:	<input type="text" value="90"/>	(0 - 20000000)
Upper Breach Scalcement Increment:	<input type="text" value="1"/>	
Lower Threshold:	<input type="text" value="70"/>	(0 - 20000000)
Lower Breach Scalcement Increment:	<input type="text" value="-1"/>	

Ready | INS

# Web Application - Amazon Elastic Beanstalk (Summary)

## ➤ Scalability



### Up:

- Instance size (management console)



### Out:

- Easily add more instances (management console / Auto-Scaling pane)

## ➤ Availability & Disaster Recovery

- 99.95% for single instance

## ➤ Elasticity

- Easy (in management console)



Use CloudWatch + Command line procedure for advanced settings

## Azure Web Roles vs Amazon Elastic Beanstalk

### ➤ Azure Web Roles

- ✓ Simpler & focus on application
- ⚠ Less Control



### ➤ Amazon Beanstalk:

- ✓ More Features
- ✓ More Control
- ✓ Supports larger Compute & Memory needs





## Possible Solutions

**Azure**

**Amazon**

**IaaS**

Azure Virtual Machines

Amazon EC2  
(Elastic Cloud Compute)

---

**PaaS**

Azure SQL Database

Amazon RDS



# Azure SQL

vs

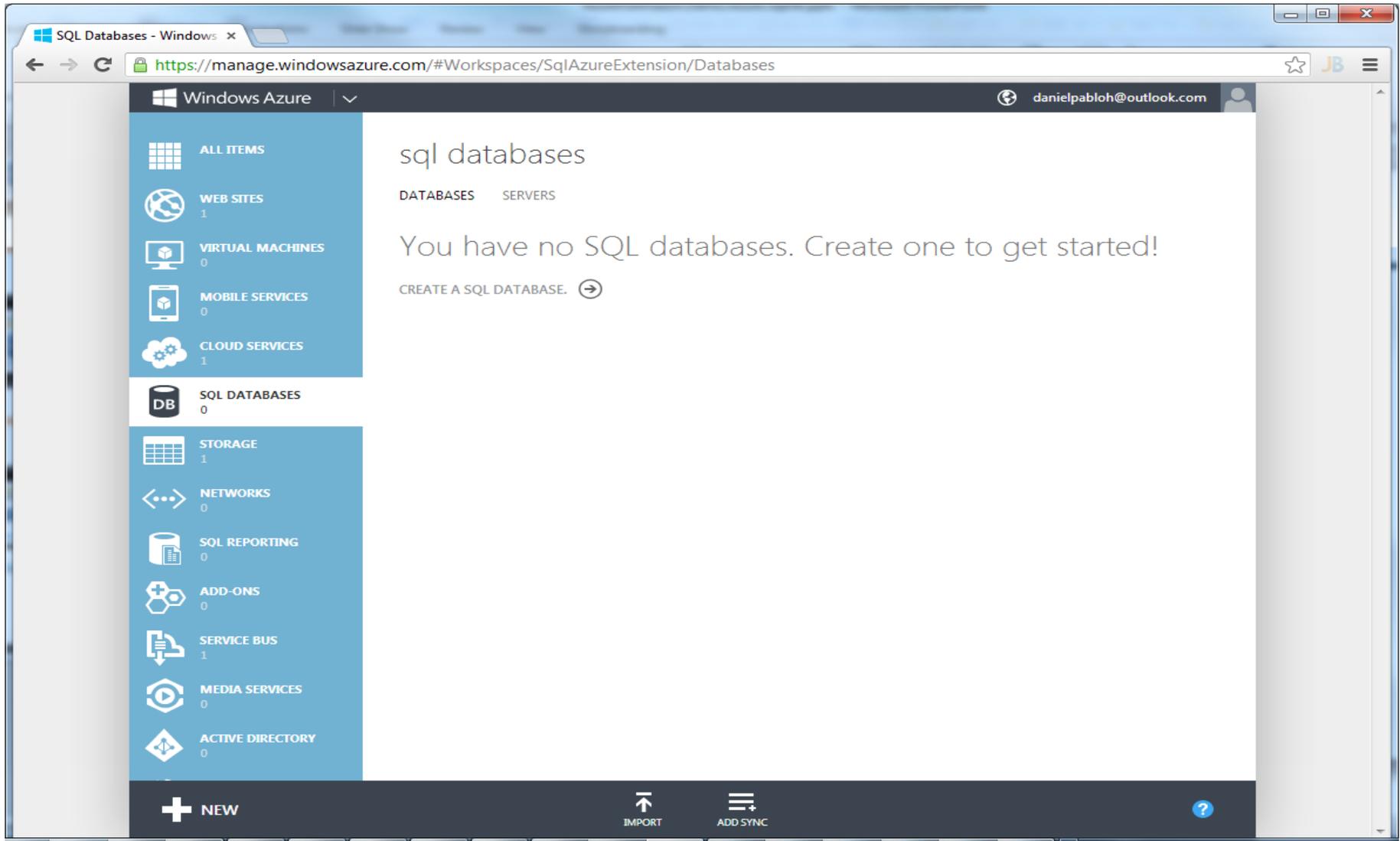
# Amazon RDS

# Storage - Azure SQL



**DEMO**

# Storage - Azure SQL



The screenshot shows the Windows Azure portal interface. The browser address bar displays <https://manage.windowsazure.com/#Workspaces/SqlAzureExtension/Databases>. The page title is "sql databases". Below the title, there are tabs for "DATABASES" and "SERVERS". The main content area contains the message: "You have no SQL databases. Create one to get started!" and a button labeled "CREATE A SQL DATABASE." with a right-pointing arrow icon. The left sidebar lists various Azure services with their counts: ALL ITEMS, WEB SITES (1), VIRTUAL MACHINES (0), MOBILE SERVICES (0), CLOUD SERVICES (1), SQL DATABASES (0), STORAGE (1), NETWORKS (0), SQL REPORTING (0), ADD-ONS (0), SERVICE BUS (1), MEDIA SERVICES (0), and ACTIVE DIRECTORY (0). The bottom navigation bar includes a "NEW" button, an "IMPORT" button, an "ADD SYNC" button, and a help icon.

# Storage - Azure SQL

The screenshot shows the Azure portal interface for creating a new SQL database. A modal dialog titled "NEW SQL DATABASE - CUSTOM CREATE" is open, displaying the "Specify database settings" form. The form includes the following fields and options:

- NAME:** testDB
- EDITION:** WEB (selected), BUSINESS (highlighted)
- LIMIT DATABASE SIZE (MAX SIZE):** 10 GB (selected). A blue callout box next to this field indicates "Max 150 GB".
- COLLATION:** SQL\_Latin1\_General\_CP1\_CI\_AS
- SERVER:** New SQL database server

The background shows the "sql databases" page in the Azure portal, with a sidebar containing navigation options like "ALL ITEMS", "WEB SITES", "VIRTUAL MACHINES", "MOBILE SERVICES", "CLOUD SERVICES", "SQL DATABASES", "STORAGE", "NETWORKS", "SQL REPORTING", "ADD-ONS", "SERVICE BUS", "MEDIA SERVICES", and "ACTIVE DIRECTORY". The bottom of the screen shows the "NEW", "IMPORT", and "ADD SYNC" buttons.

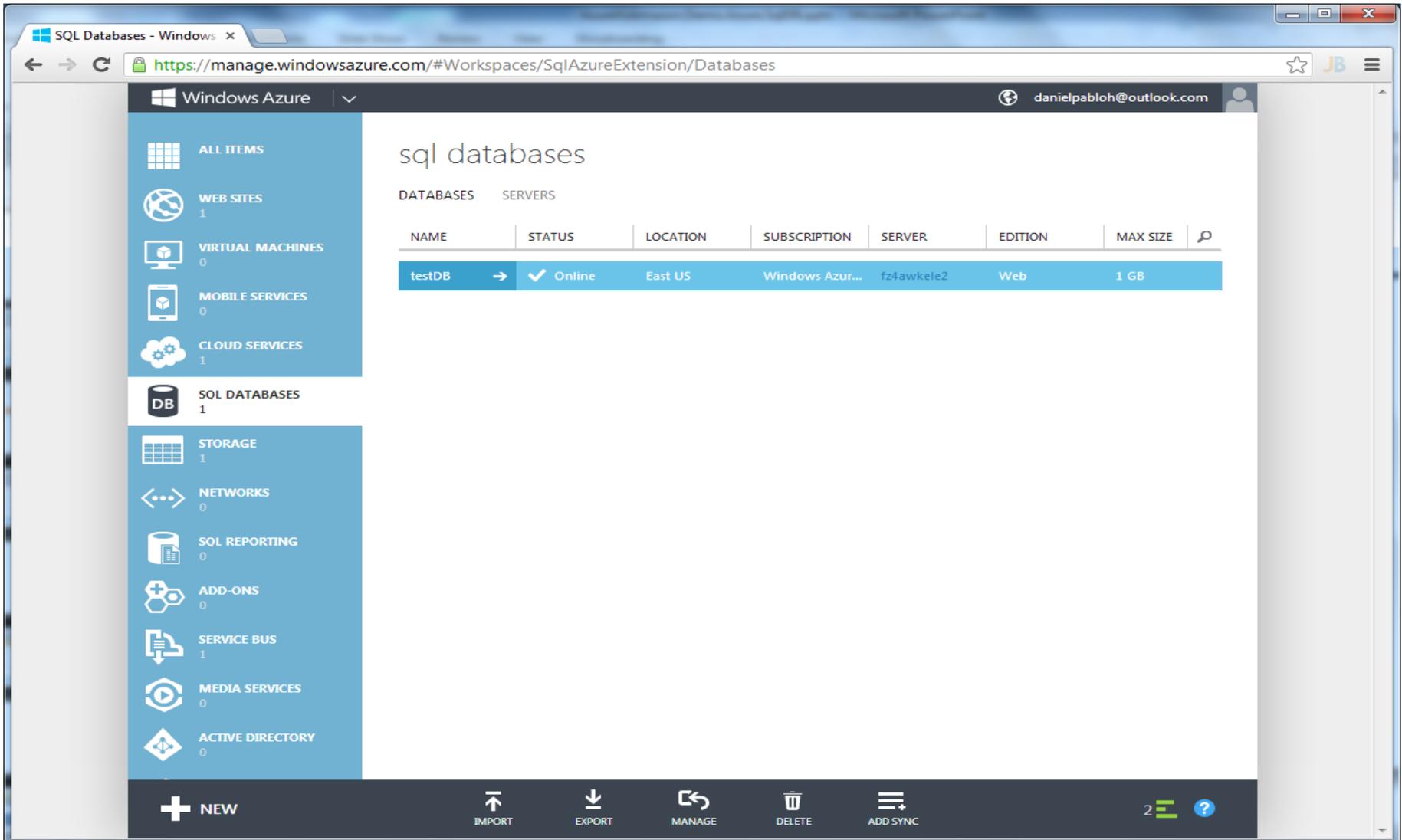
# Storage - Azure SQL

The screenshot shows the Azure portal interface for creating a new SQL database. A modal dialog box titled "NEW SQL DATABASE - CUSTOM CREATE" is open, displaying the "SQL database server settings" form. The form includes the following fields and options:

- LOGIN NAME:** A text input field containing "Riad".
- LOGIN PASSWORD:** A password input field with masked characters ".....".
- CONFIRM PASSWORD:** A password input field with masked characters ".....".
- REGION:** A dropdown menu currently set to "East US".
- ALLOW WINDOWS AZURE SERVICES TO ACCESS THE SERVER:** A checked checkbox.

Navigation buttons for back and confirm are visible at the bottom right of the dialog. The background shows the Azure portal navigation pane with categories like "ALL ITEMS", "WEB SITES", "VIRTUAL MACHINES", "MOBILE SERVICES", "CLOUD SERVICES", "SQL DATABASES", "STORAGE", "NETWORKS", "SQL REPORTS", "ADD-ONS", "SERVICE BUS", "MEDIA SERVICES", and "ACTIVE DIRECTORY".

# Storage - Azure SQL



Windows Azure

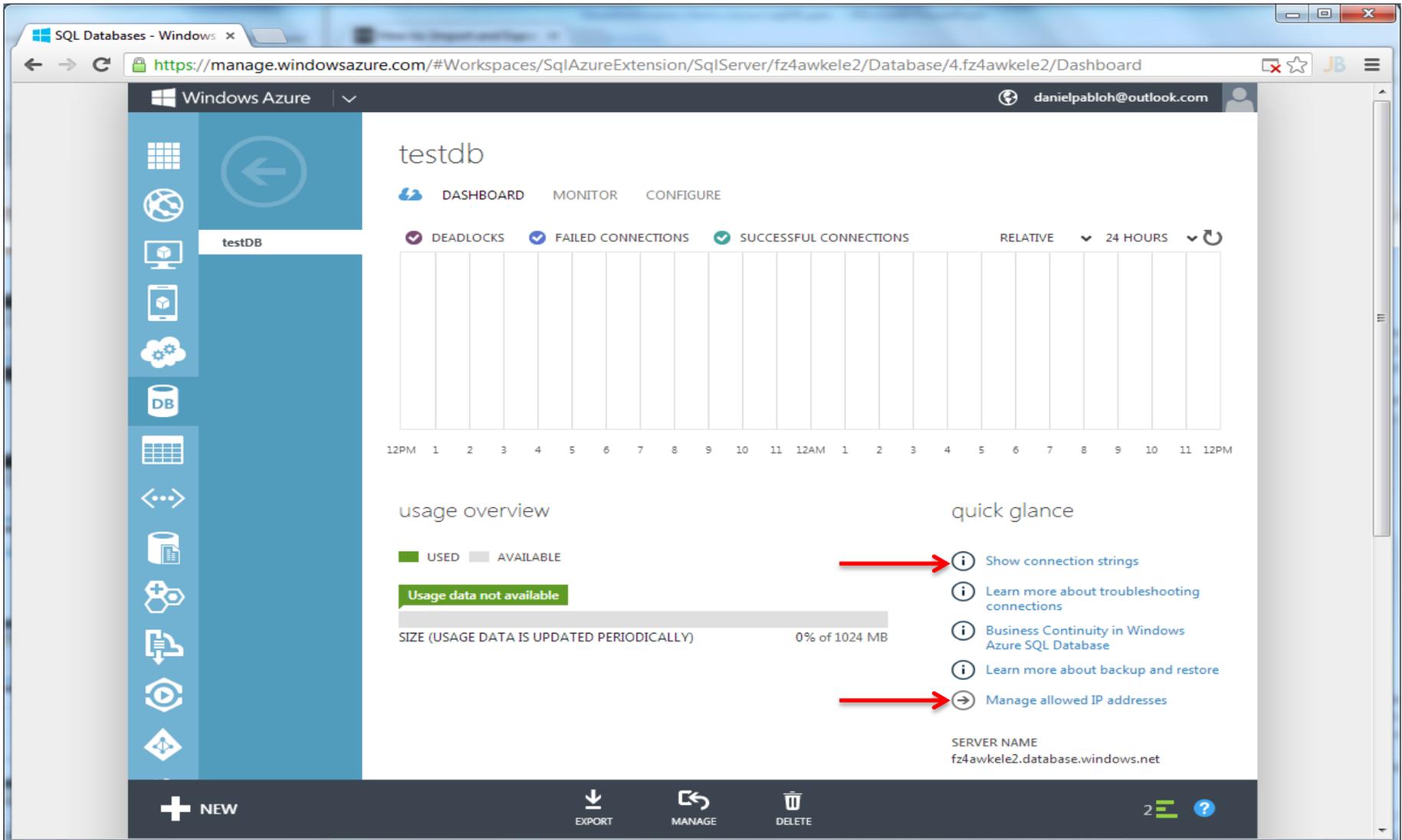
sql databases

DATABASES SERVERS

NAME	STATUS	LOCATION	SUBSCRIPTION	SERVER	EDITION	MAX SIZE
testDB	✓ Online	East US	Windows Azur...	fz4awkele2	Web	1 GB

NEW IMPORT EXPORT MANAGE DELETE ADD SYNC

# Storage - Azure SQL

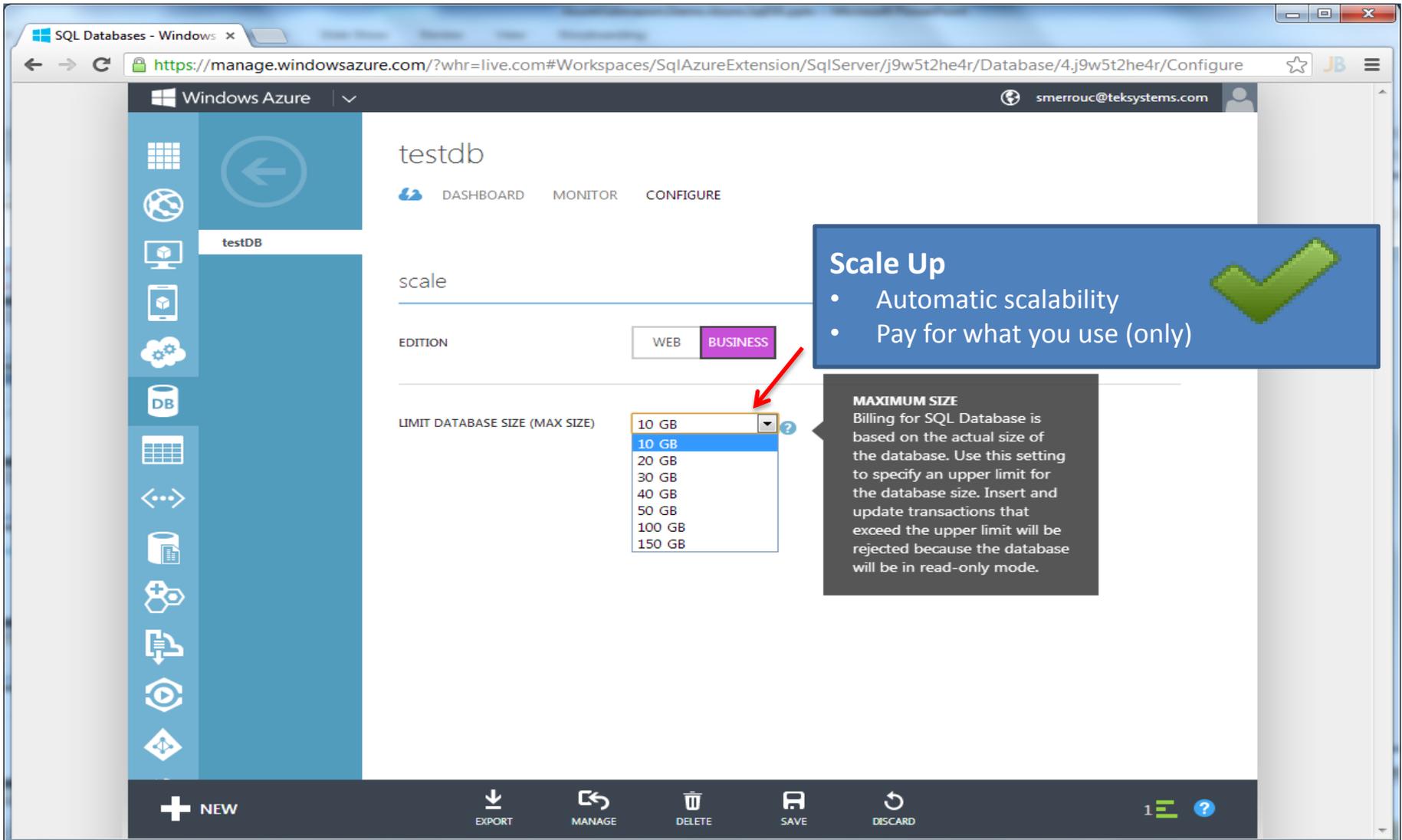


The screenshot shows the Azure SQL Database dashboard for a server named 'testdb'. The interface includes a left-hand navigation menu with icons for various database management tasks. The main content area is divided into several sections:

- Navigation:** DASHBOARD, MONITOR, CONFIGURE
- Connection Status:** DEADLOCKS (checked), FAILED CONNECTIONS (checked), SUCCESSFUL CONNECTIONS (checked). Includes filters for 'RELATIVE' and '24 HOURS'.
- Usage Overview:** A bar chart showing 'USED' (green) and 'AVAILABLE' (grey) space. The text indicates 'Usage data not available' and 'SIZE (USAGE DATA IS UPDATED PERIODICALLY) 0% of 1024 MB'.
- Quick Glance:** A list of informational links:
  - Show connection strings (highlighted with a red arrow)
  - Learn more about troubleshooting connections
  - Business Continuity in Windows Azure SQL Database
  - Learn more about backup and restore
  - Manage allowed IP addresses (highlighted with a red arrow)
- Server Information:** SERVER NAME: fz4awke2.database.windows.net

The bottom of the dashboard features a dark navigation bar with buttons for 'NEW', 'EXPORT', 'MANAGE', and 'DELETE', along with a notification icon showing '2' items and a help icon.

# Storage - Azure SQL



testdb

DASHBOARD MONITOR CONFIGURE

scale

EDITION WEB BUSINESS

LIMIT DATABASE SIZE (MAX SIZE)

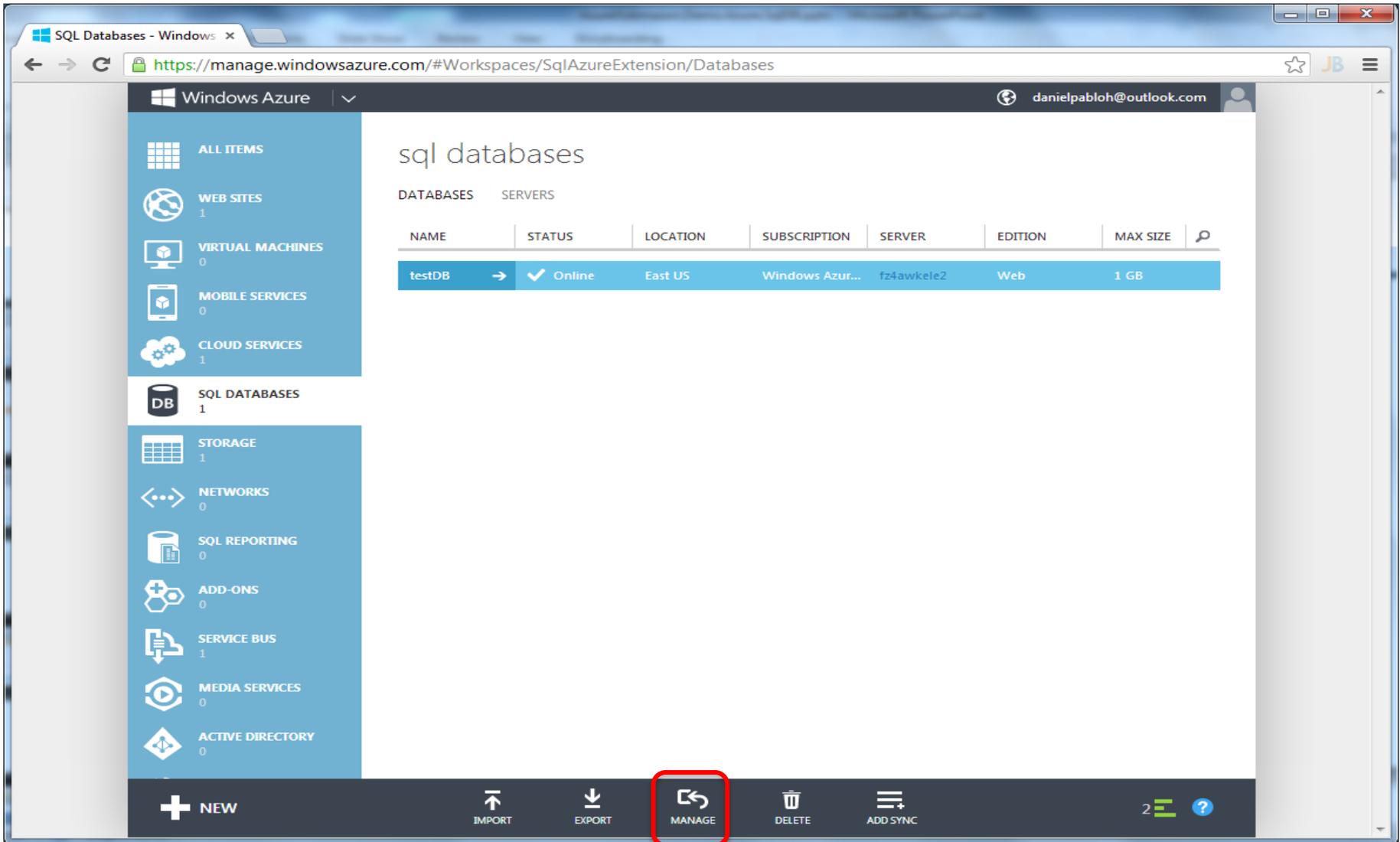
- 10 GB
- 10 GB
- 20 GB
- 30 GB
- 40 GB
- 50 GB
- 100 GB
- 150 GB

**Scale Up**

- Automatic scalability
- Pay for what you use (only)

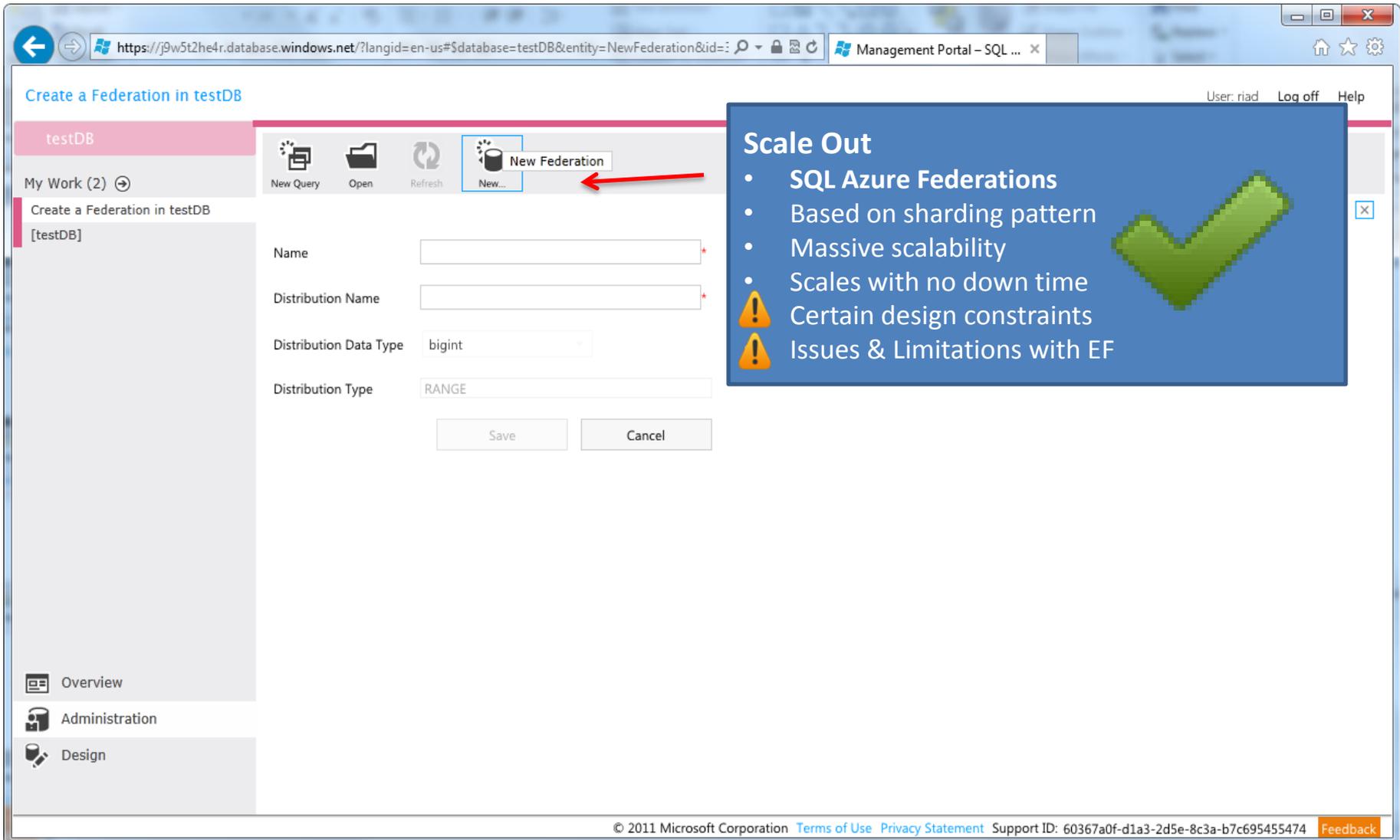
**MAXIMUM SIZE**  
Billing for SQL Database is based on the actual size of the database. Use this setting to specify an upper limit for the database size. Insert and update transactions that exceed the upper limit will be rejected because the database will be in read-only mode.

# Storage - Azure SQL



The screenshot shows the Azure portal interface for managing SQL databases. The left sidebar contains a navigation menu with categories like ALL ITEMS, WEB SITES, VIRTUAL MACHINES, MOBILE SERVICES, CLOUD SERVICES, SQL DATABASES, STORAGE, NETWORKS, SQL REPORTING, ADD-ONS, SERVICE BUS, MEDIA SERVICES, and ACTIVE DIRECTORY. The main content area displays 'sql databases' with tabs for 'DATABASES' and 'SERVERS'. A table lists the databases, with one entry 'testDB' shown. The bottom navigation bar includes buttons for NEW, IMPORT, EXPORT, MANAGE (highlighted with a red square), DELETE, and ADD SYNC.

NAME	STATUS	LOCATION	SUBSCRIPTION	SERVER	EDITION	MAX SIZE
testDB	✓ Online	East US	Windows Azur...	fz4awkele2	Web	1 GB



https://j9w5t2he4r.database.windows.net/?langid=en-us#&database=testDB&entity=NewFederation&id=: Management Portal - SQL ... x

Create a Federation in testDB

testDB

My Work (2) →

Create a Federation in testDB

[testDB]

New Query Open Refresh **New Federation** New...

Name

Distribution Name

Distribution Data Type

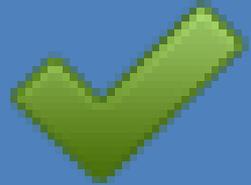
Distribution Type

Save Cancel

User: riad Log off Help

### Scale Out

- SQL Azure Federations
- Based on sharding pattern
- Massive scalability
- Scales with no down time
-  Certain design constraints
-  Issues & Limitations with EF



# Storage - Azure SQL

SQL Databases - Windows x

https://manage.windowsazure.com/#Workspaces/SqlAzureExtension/Databases

Windows Azure

sql databases

DATABASES SERVERS

NAME	STATUS	LOCATION	SUBSCRIPTION	SERVER	EDITION	MAX SIZE
testDB	✓ Online	East US	Windows Azur...	fz4awkele2	Web	1 GB

**Import / Export:**

- Creates a .BACPAC file
- Does not guarantee consistency!
- Needs to be combined with DB Copy

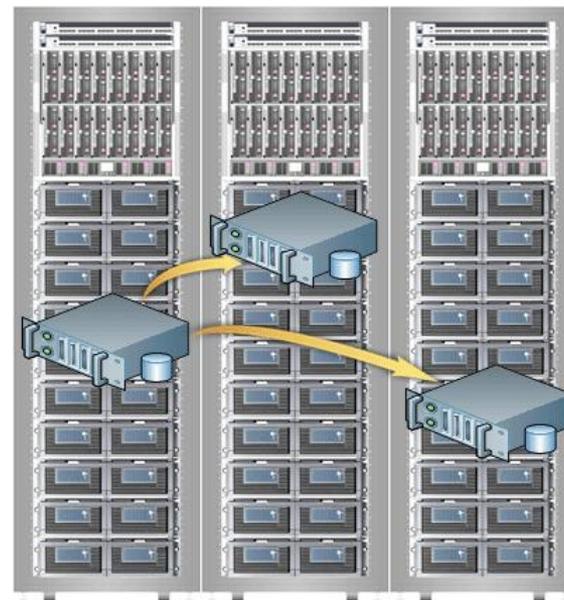
NEW IMPORT EXPORT MANAGE DELETE ADD SYNC

### ➤ Scalability

- ✘ **Up:** No control on instance type (Host)
- ✓ **Up:** DB size (Automatic scaling)
- ✓ **Out:** SQL Azure Federations

### ➤ Availability & Disaster Recovery

- ✓ **2 “Standby” Replicas**
  - Same Data Center
  - 1 Synchronous and 1 Asynchronous
- ✓ **99.9% Monthly Availability**
- ✓ **Internal daily backups (Azure)**
  - Min 14 days retention
  - Every 5 minutes: Backup the Log
- ⚠ **Import & Export functionality**

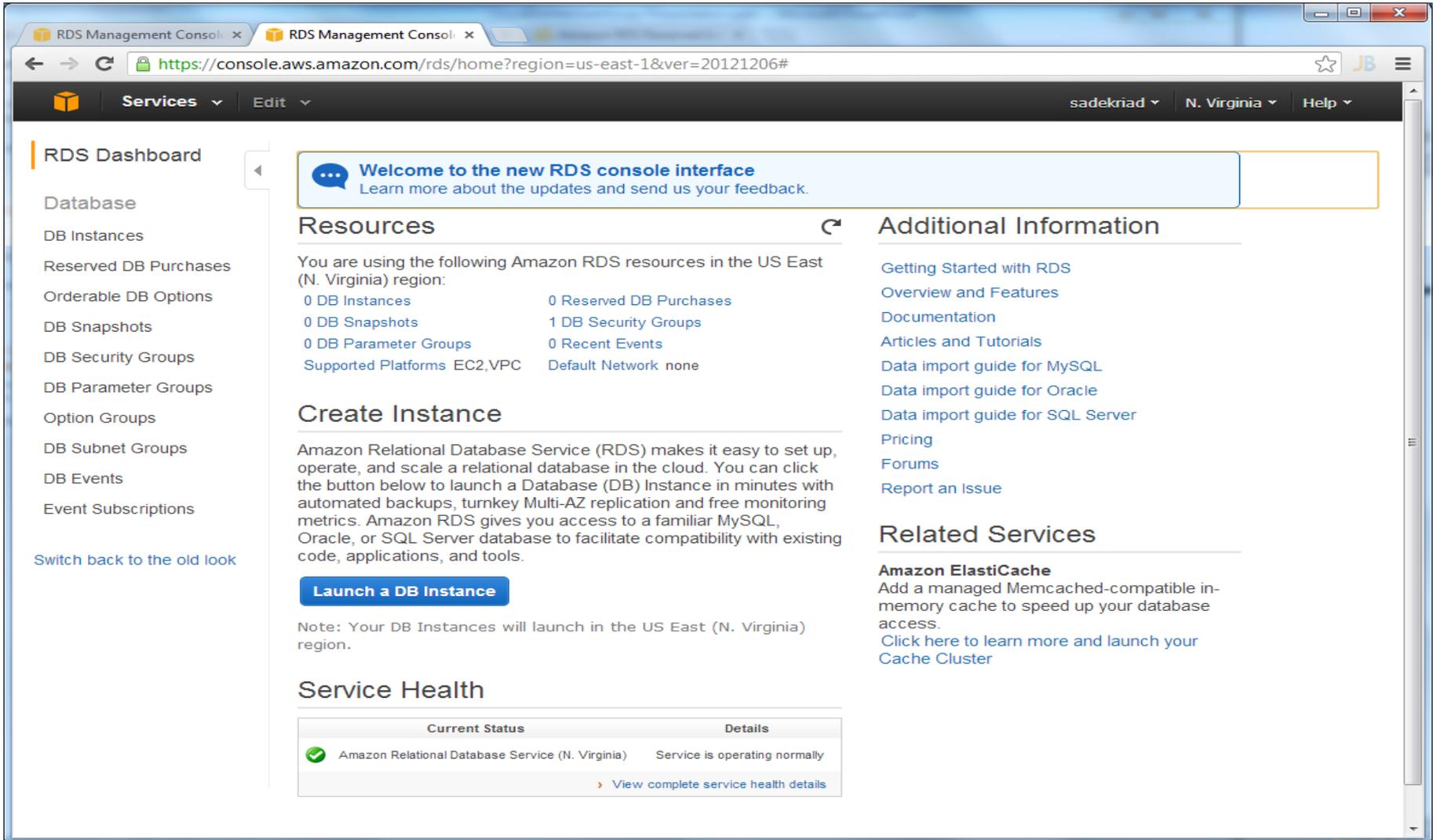


# Storage - Amazon RDS



**DEMO**

# Storage - Amazon RDS



The screenshot shows the Amazon RDS Management Console interface. The browser address bar displays <https://console.aws.amazon.com/rds/home?region=us-east-1&ver=20121206#>. The navigation bar includes 'Services', 'Edit', and user information 'sadekriad', 'N. Virginia', and 'Help'. A left-hand navigation menu lists categories like 'RDS Dashboard', 'Database', 'DB Instances', 'Reserved DB Purchases', 'Orderable DB Options', 'DB Snapshots', 'DB Security Groups', 'DB Parameter Groups', 'Option Groups', 'DB Subnet Groups', 'DB Events', and 'Event Subscriptions'. A 'Switch back to the old look' link is also present.

**Welcome to the new RDS console interface**  
Learn more about the updates and send us your feedback.

### Resources

You are using the following Amazon RDS resources in the US East (N. Virginia) region:

0 DB Instances	0 Reserved DB Purchases
0 DB Snapshots	1 DB Security Groups
0 DB Parameter Groups	0 Recent Events
Supported Platforms EC2,VPC	Default Network none

### Create Instance

Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale a relational database in the cloud. You can click the button below to launch a Database (DB) Instance in minutes with automated backups, turnkey Multi-AZ replication and free monitoring metrics. Amazon RDS gives you access to a familiar MySQL, Oracle, or SQL Server database to facilitate compatibility with existing code, applications, and tools.

[Launch a DB Instance](#)

Note: Your DB Instances will launch in the US East (N. Virginia) region.

### Service Health

Current Status	Details
 Amazon Relational Database Service (N. Virginia)	Service is operating normally

[View complete service health details](#)

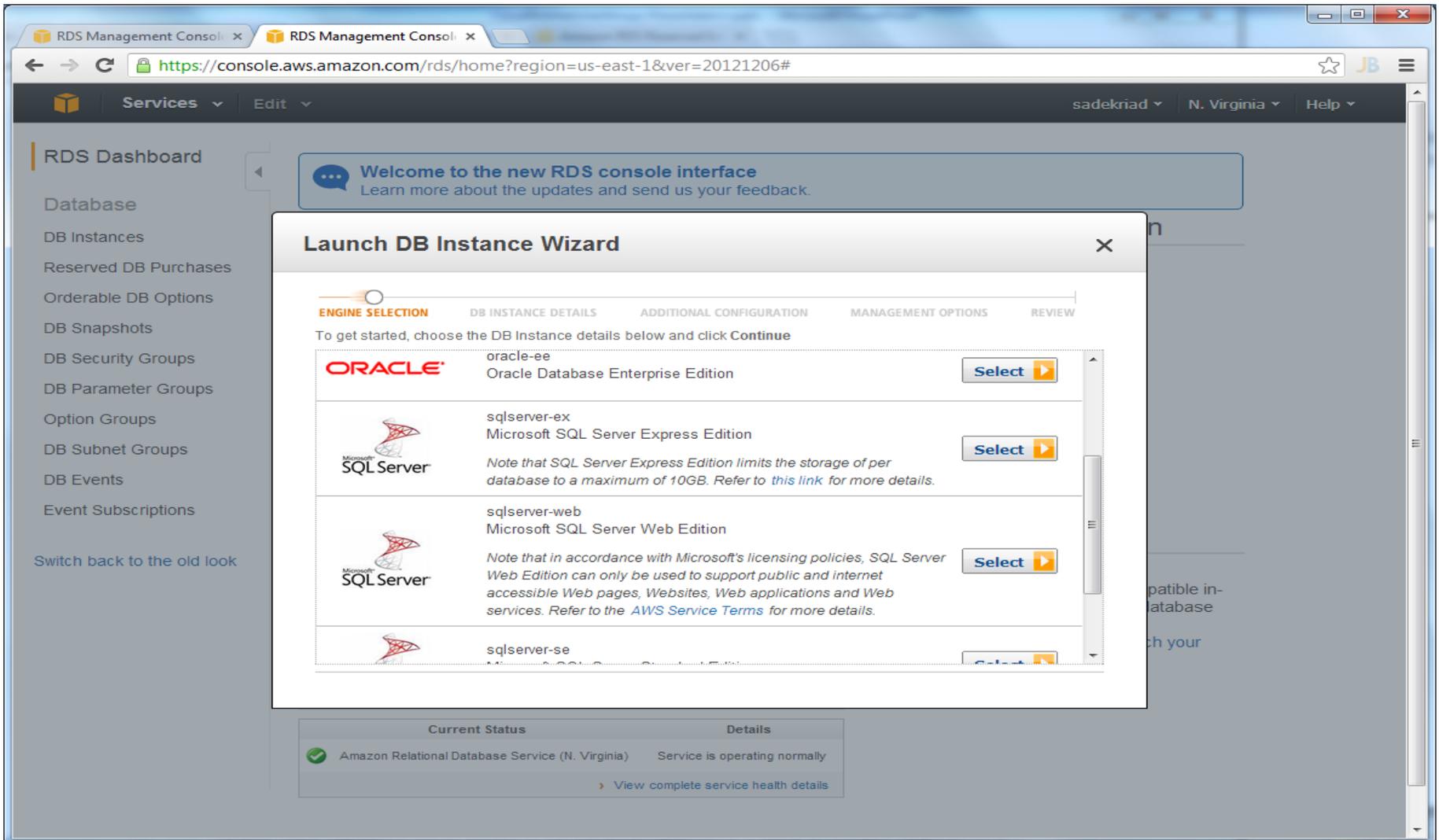
### Additional Information

- Getting Started with RDS
- Overview and Features
- Documentation
- Articles and Tutorials
- Data import guide for MySQL
- Data import guide for Oracle
- Data import guide for SQL Server
- Pricing
- Forums
- Report an Issue

### Related Services

**Amazon ElastiCache**  
Add a managed Memcached-compatible in-memory cache to speed up your database access.  
[Click here to learn more and launch your Cache Cluster](#)

# Storage - Amazon RDS

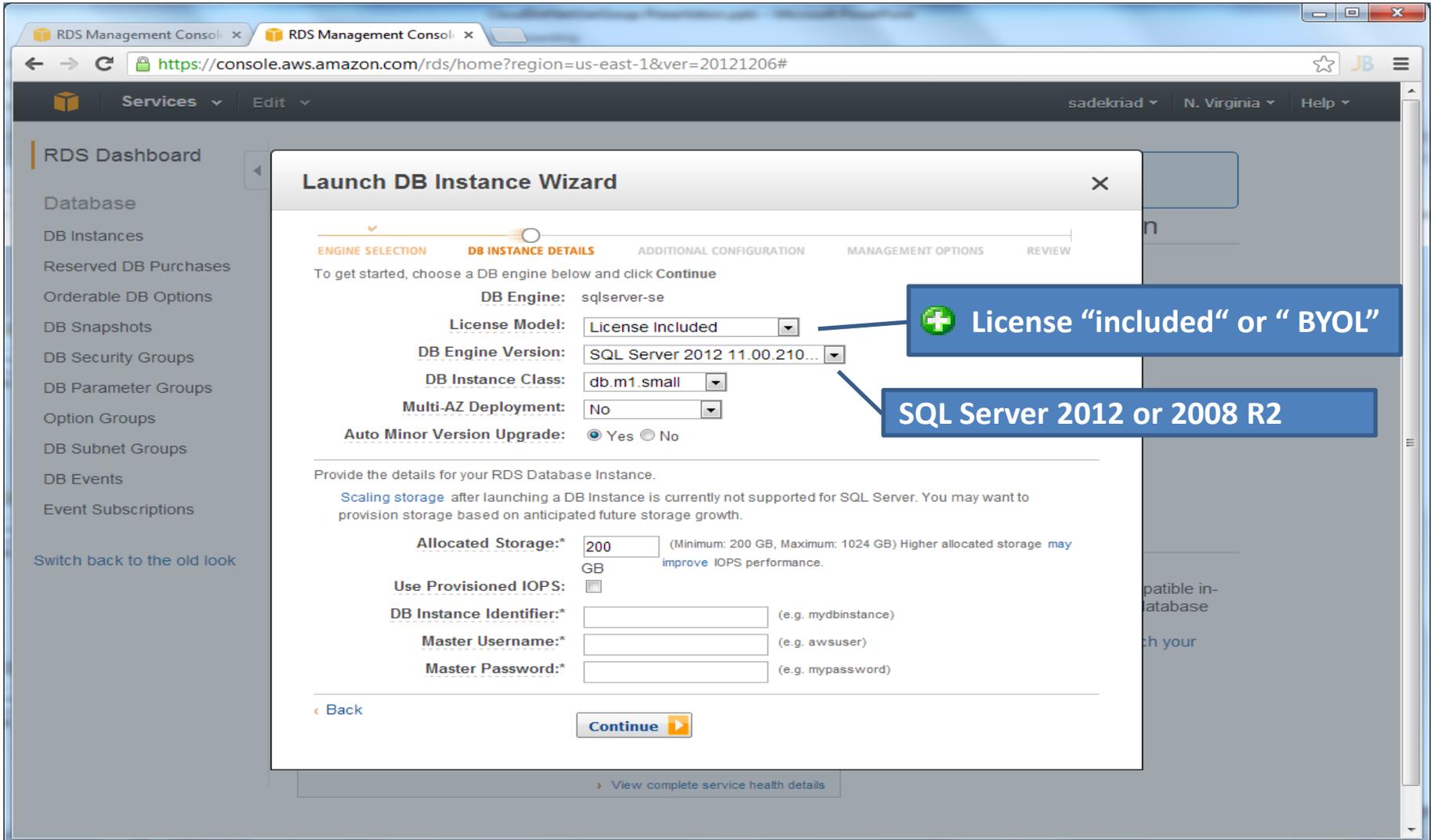


The screenshot displays the Amazon RDS Management Console interface. The browser address bar shows the URL <https://console.aws.amazon.com/rds/home?region=us-east-1&ver=20121206#>. The console header includes the 'Services' menu, the user name 'sadekriad', the region 'N. Virginia', and a 'Help' link. A navigation sidebar on the left lists various RDS services such as 'RDS Dashboard', 'Database', 'DB Instances', and 'DB Security Groups'. A central notification banner reads 'Welcome to the new RDS console interface'. The main content area is dominated by the 'Launch DB Instance Wizard' dialog box, which is currently on the 'ENGINE SELECTION' step. This wizard offers four database engine options, each with a 'Select' button:

- ORACLE®** oracle-ee: Oracle Database Enterprise Edition
- Microsoft SQL Server** sqlserver-ex: Microsoft SQL Server Express Edition. Note: *Note that SQL Server Express Edition limits the storage of per database to a maximum of 10GB. Refer to [this link](#) for more details.*
- Microsoft SQL Server** sqlserver-web: Microsoft SQL Server Web Edition. Note: *Note that in accordance with Microsoft's licensing policies, SQL Server Web Edition can only be used to support public and internet accessible Web pages, Websites, Web applications and Web services. Refer to the [AWS Service Terms](#) for more details.*
- Microsoft SQL Server** sqlserver-se: Microsoft SQL Server Standard Edition

At the bottom of the console, a 'Current Status' section shows that 'Amazon Relational Database Service (N. Virginia)' is operating normally, with a link to 'View complete service health details'.

# Storage - Amazon RDS



The screenshot shows the Amazon RDS Management Console interface. The main content is the "Launch DB Instance Wizard" dialog box, which is currently on the "DB INSTANCE DETAILS" step. The wizard has five steps: ENGINE SELECTION, DB INSTANCE DETAILS, ADDITIONAL CONFIGURATION, MANAGEMENT OPTIONS, and REVIEW. The "DB Engine" is set to "sqlserver-se". The "License Model" is set to "License Included", which is highlighted by a blue callout box with a green plus icon and the text "License 'included' or 'BYOL'". The "DB Engine Version" is set to "SQL Server 2012 11.00.210...", also highlighted by a blue callout box with the text "SQL Server 2012 or 2008 R2". Other settings include "DB Instance Class" set to "db.m1.small", "Multi-AZ Deployment" set to "No", and "Auto Minor Version Upgrade" set to "Yes". Below the configuration fields, there is a section for "Provide the details for your RDS Database Instance." with a note about "Scaling storage" for SQL Server. The "Allocated Storage" is set to "200 GB". There are input fields for "DB Instance Identifier", "Master Username", and "Master Password". At the bottom of the wizard, there is a "Back" link and a "Continue" button with a right-pointing arrow.

RDS Management Console x RDS Management Console x

https://console.aws.amazon.com/rds/home?region=us-east-1&ver=20121206#

Services Edit sadekriad N. Virginia Help

RDS Dashboard

Database

DB Instances

Reserved DB Purchases

Orderable DB Options

DB Snapshots

DB Security Groups

DB Parameter Groups

Option Groups

DB Subnet Groups

DB Events

Event Subscriptions

Switch back to the old look

### Launch DB Instance Wizard

ENGINE SELECTION **DB INSTANCE DETAILS** ADDITIONAL CONFIGURATION MANAGEMENT OPTIONS REVIEW

To get started, choose a DB engine below and click **Continue**

**DB Engine:** sqlserver-se

**License Model:** License Included 

**DB Engine Version:** SQL Server 2012 11.00.210... 

**DB Instance Class:** db.m1.small

**Multi-AZ Deployment:** No

**Auto Minor Version Upgrade:**  Yes  No

Provide the details for your RDS Database Instance.

[Scaling storage](#) after launching a DB Instance is currently not supported for SQL Server. You may want to provision storage based on anticipated future storage growth.

**Allocated Storage:**\* 200 GB (Minimum: 200 GB, Maximum: 1024 GB) Higher allocated storage may improve IOPS performance.

**Use Provisioned IOPS:**

**DB Instance Identifier:**\*  (e.g. mydbinstance)

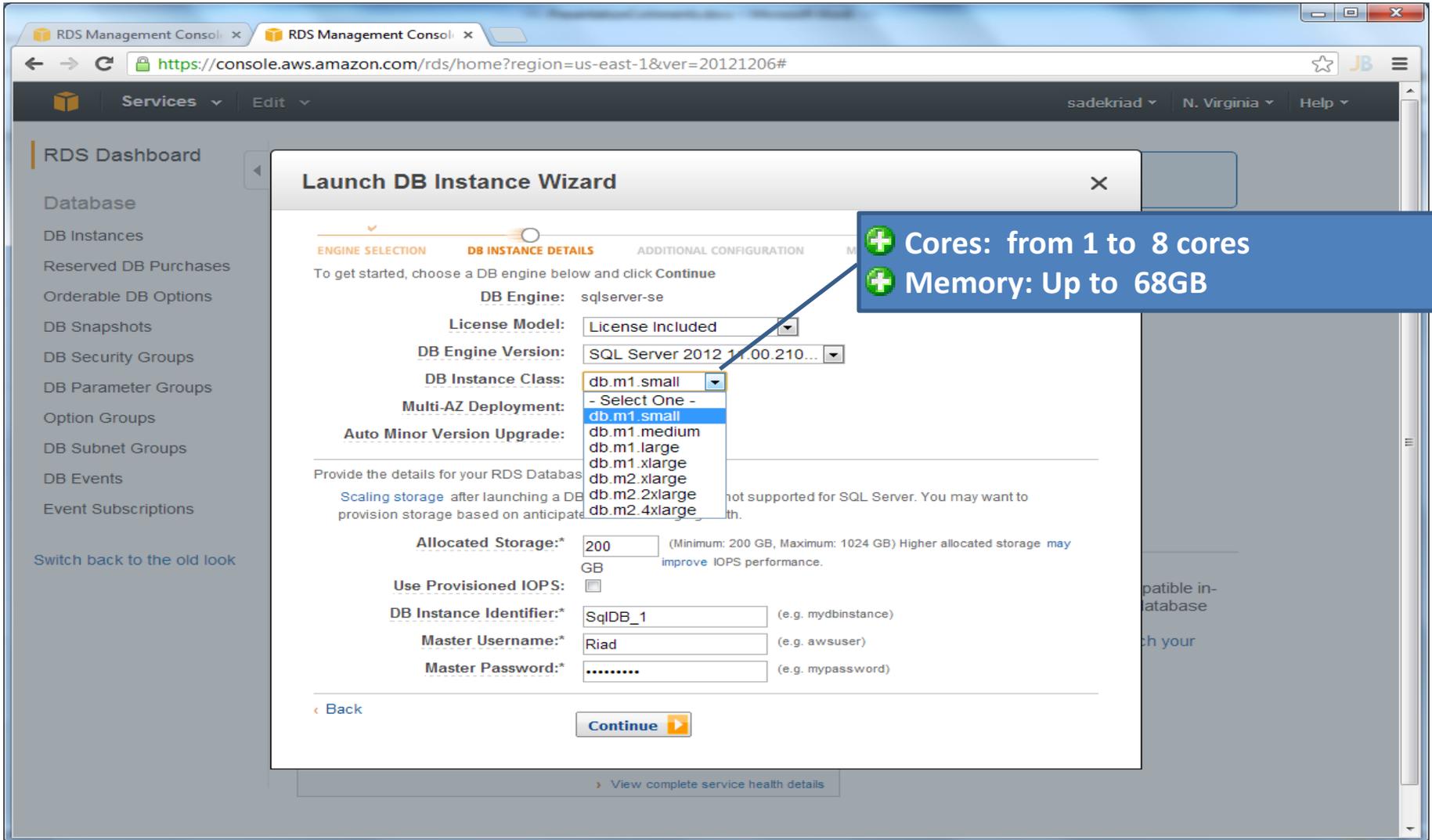
**Master Username:**\*  (e.g. awsuser)

**Master Password:**\*  (e.g. mypassword)

[Back](#) **Continue** 

[View complete service health details](#)

# Storage - Amazon RDS



The screenshot shows the Amazon RDS Management Console with the "Launch DB Instance Wizard" open. The wizard is in the "DB INSTANCE DETAILS" step. The "DB Instance Class" dropdown menu is open, showing options: db.m1.small, db.m1.medium, db.m1.large, db.m1.xlarge, db.m2.xlarge, and db.m2.4xlarge. A blue callout box with a green plus sign icon points to the dropdown menu and contains the text: "Cores: from 1 to 8 cores" and "Memory: Up to 68GB".

**Launch DB Instance Wizard**

**ENGINE SELECTION** **DB INSTANCE DETAILS** **ADDITIONAL CONFIGURATION**

To get started, choose a DB engine below and click **Continue**

**DB Engine:** sqlserver-se

**License Model:** License Included

**DB Engine Version:** SQL Server 2012 11.00.210...

**DB Instance Class:** db.m1.small

**Multi-AZ Deployment:** - Select One -

**Auto Minor Version Upgrade:**

Provide the details for your RDS Database

[Scaling storage](#) after launching a DB instance. Provision storage based on anticipated growth. db.m2.4xlarge is not supported for SQL Server. You may want to use db.m2.xlarge instead.

**Allocated Storage:**\* 200 GB (Minimum: 200 GB, Maximum: 1024 GB) Higher allocated storage may improve IOPS performance.

**Use Provisioned IOPS:**

**DB Instance Identifier:**\* SqlDB\_1 (e.g. mydbinstance)

**Master Username:**\* Riad (e.g. awsuser)

**Master Password:**\* ..... (e.g. mypassword)

[Back](#) **Continue**

[View complete service health details](#)

# Storage - Amazon RDS

The screenshot shows the 'Launch DB Instance Wizard' in the Amazon RDS Management Console. The 'DB INSTANCE DETAILS' step is active, showing the following configuration:

- DB Engine: sqlserver-se
- License Model: License Included
- DB Engine Version: SQL Server 2012 11.00.210...
- DB Instance Class: db.m1.small
- Multi-AZ Deployment: No
- Auto Minor Version Upgrade: Yes (selected)

Below the configuration, there is a section for 'Allocated Storage' with a value of 200 GB. A note states: '(Minimum: 200 GB, Maximum: 1024 GB) Higher allocated storage may improve IOPS performance.'

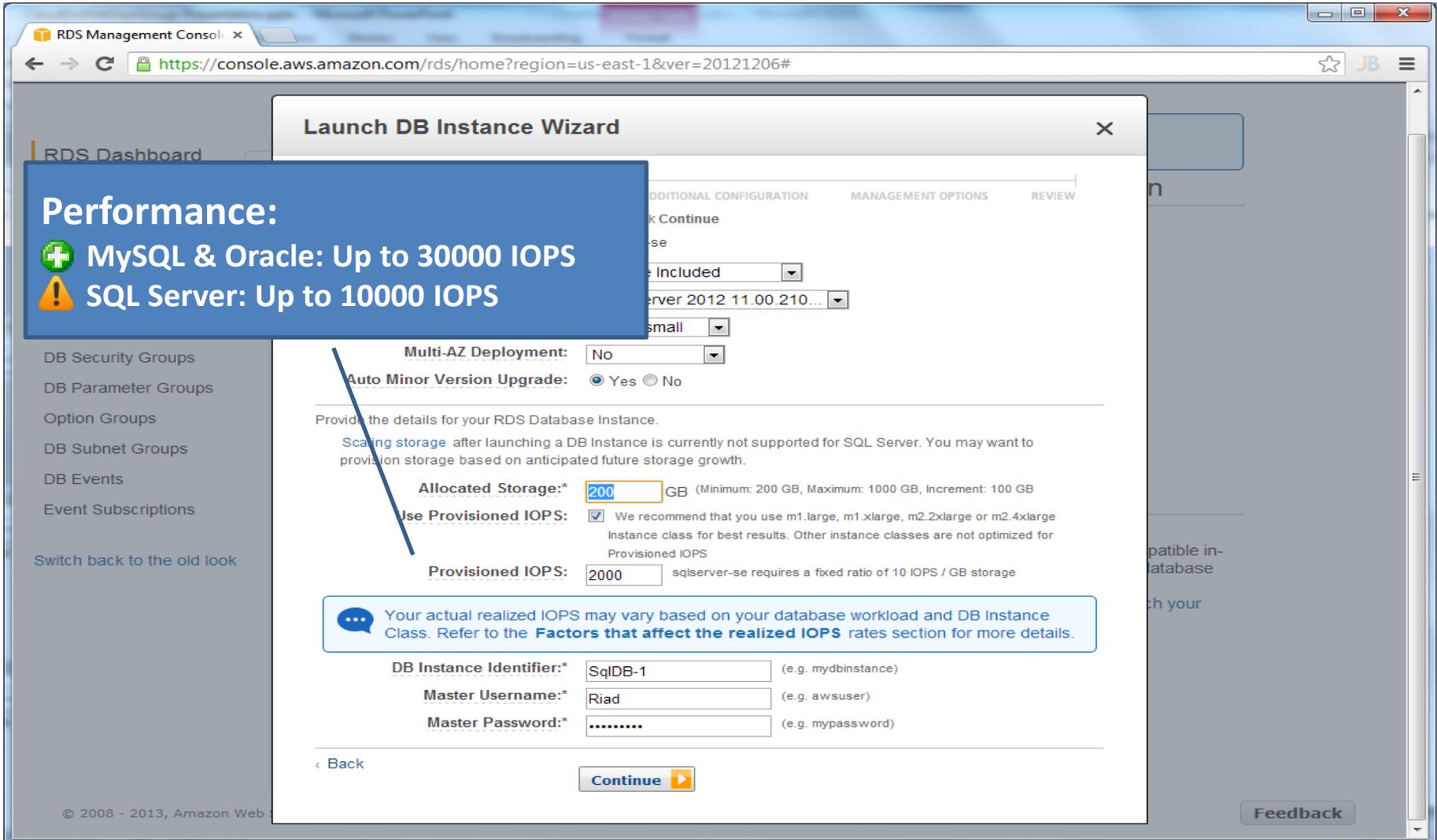
Other fields include 'DB Instance Identifier', 'Master Username', and 'Master Password'.

**Availability:**

- + Creates a "stand-by" replica in another availability zone
- + Synchronous replication
- ✗ Supported only for MySQL & Oracle

**Minimum 200GB!!  
Maximum 1000 GB**

# Storage - Amazon RDS



**Performance:**

- + MySQL & Oracle: Up to 30000 IOPS
- ! SQL Server: Up to 10000 IOPS

**Launch DB Instance Wizard**

Additional Configuration | Management Options | Review

Back Continue

Instance Class:  Included

Engine:  Server 2012 11.00.210...

Multi-AZ Deployment:

Auto Minor Version Upgrade:  Yes  No

Provide the details for your RDS Database Instance.

Scaling storage after launching a DB Instance is currently not supported for SQL Server. You may want to provision storage based on anticipated future storage growth.

Allocated Storage:\*  GB (Minimum: 200 GB, Maximum: 1000 GB, Increment: 100 GB)

Use Provisioned IOPS:  We recommend that you use m1.large, m1.xlarge, m2.2xlarge or m2.4xlarge Instance class for best results. Other instance classes are not optimized for Provisioned IOPS

Provisioned IOPS:  sqlserver-se requires a fixed ratio of 10 IOPS / GB storage

Your actual realized IOPS may vary based on your database workload and DB Instance Class. Refer to the **Factors that affect the realized IOPS** rates section for more details.

DB Instance Identifier:\*  (e.g. mydbinstance)

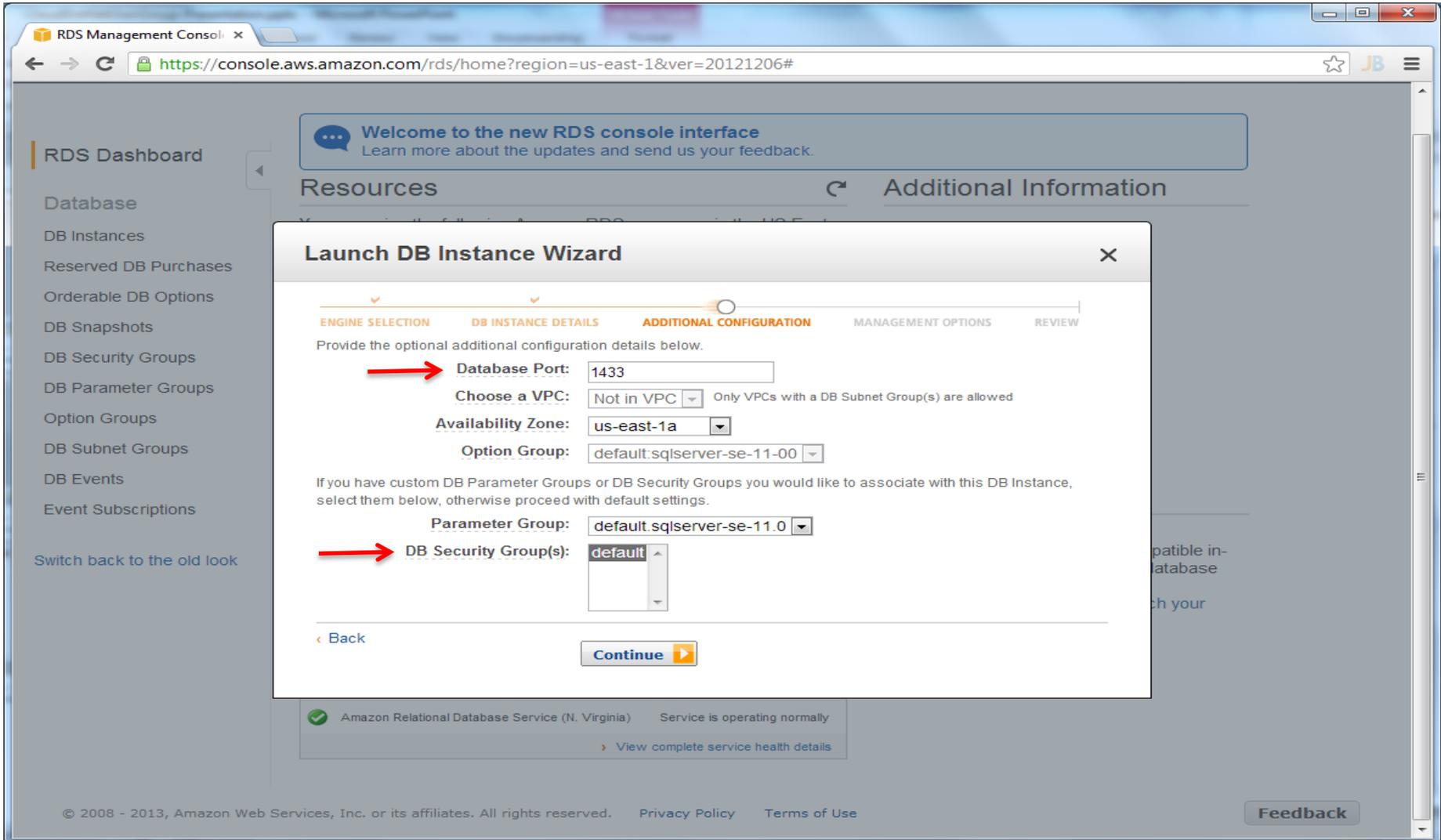
Master Username:\*  (e.g. awsuser)

Master Password:\*  (e.g. mypassword)

Back

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# Storage - Amazon RDS



RDS Management Console

https://console.aws.amazon.com/rds/home?region=us-east-1&ver=20121206#

Welcome to the new RDS console interface  
Learn more about the updates and send us your feedback.

Resources Additional Information

### Launch DB Instance Wizard

ENGINE SELECTION DB INSTANCE DETAILS **ADDITIONAL CONFIGURATION** MANAGEMENT OPTIONS REVIEW

Provide the optional additional configuration details below.

**Database Port:** 1433

**Choose a VPC:** Not in VPC Only VPCs with a DB Subnet Group(s) are allowed

**Availability Zone:** us-east-1a

**Option Group:** default:sqlserver-se-11-00

If you have custom DB Parameter Groups or DB Security Groups you would like to associate with this DB Instance, select them below, otherwise proceed with default settings.

**Parameter Group:** default:sqlserver-se-11.0

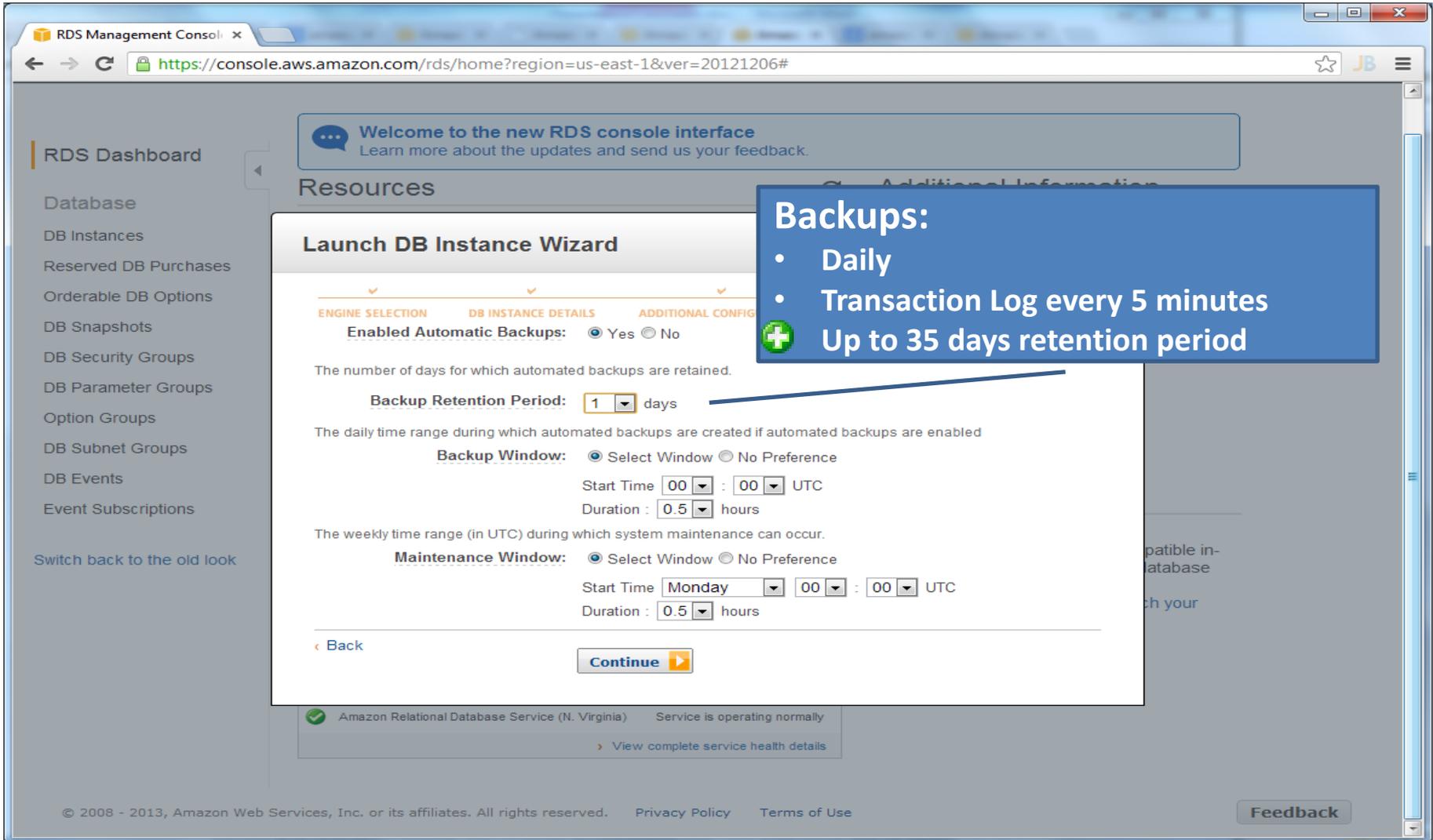
**DB Security Group(s):** default

Back Continue

Amazon Relational Database Service (N. Virginia) Service is operating normally  
[View complete service health details](#)

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# Storage - Amazon RDS



**Backups:**

- Daily
- Transaction Log every 5 minutes
- Up to 35 days retention period

**Launch DB Instance Wizard**

ENGINE SELECTION DB INSTANCE DETAILS ADDITIONAL CONFIGURATION

**Enabled Automatic Backups:**  Yes  No

The number of days for which automated backups are retained.

**Backup Retention Period:** 1 days

The daily time range during which automated backups are created if automated backups are enabled

**Backup Window:**  Select Window  No Preference

Start Time 00 : 00 UTC

Duration : 0.5 hours

The weekly time range (in UTC) during which system maintenance can occur.

**Maintenance Window:**  Select Window  No Preference

Start Time Monday 00 : 00 UTC

Duration : 0.5 hours

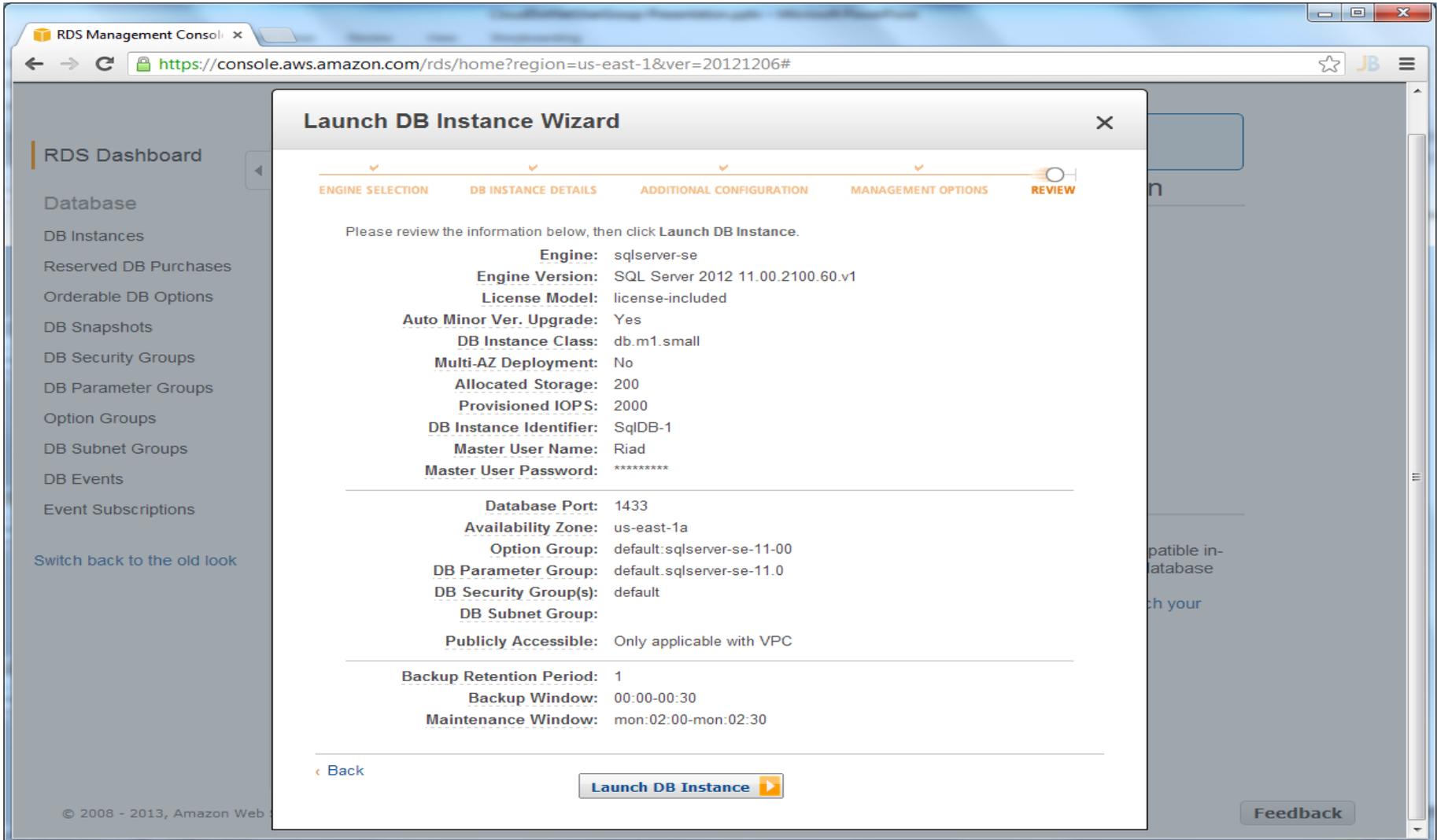
[Back](#) [Continue](#)

Amazon Relational Database Service (N. Virginia) Service is operating normally

[View complete service health details](#)

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# Storage - Amazon RDS



The screenshot shows the AWS RDS Management Console interface. A modal window titled "Launch DB Instance Wizard" is open, displaying the "REVIEW" step of the configuration process. The wizard progress bar shows five steps: ENGINE SELECTION, DB INSTANCE DETAILS, ADDITIONAL CONFIGURATION, MANAGEMENT OPTIONS, and REVIEW (the current step). The main content area contains a list of configuration parameters for the database instance, including engine type, version, license model, instance class, storage, and availability options. A "Launch DB Instance" button is visible at the bottom of the wizard.

**Launch DB Instance Wizard**

ENGINE SELECTION DB INSTANCE DETAILS ADDITIONAL CONFIGURATION MANAGEMENT OPTIONS **REVIEW**

Please review the information below, then click **Launch DB Instance**.

<b>Engine:</b>	sqlserver-se
<b>Engine Version:</b>	SQL Server 2012 11.00.2100.60.v1
<b>License Model:</b>	license-included
<b>Auto Minor Ver. Upgrade:</b>	Yes
<b>DB Instance Class:</b>	db.m1.small
<b>Multi-AZ Deployment:</b>	No
<b>Allocated Storage:</b>	200
<b>Provisioned IOPS:</b>	2000
<b>DB Instance Identifier:</b>	SqlDB-1
<b>Master User Name:</b>	Riad
<b>Master User Password:</b>	*****

---

<b>Database Port:</b>	1433
<b>Availability Zone:</b>	us-east-1a
<b>Option Group:</b>	default:sqlserver-se-11-00
<b>DB Parameter Group:</b>	default.sqlserver-se-11.0
<b>DB Security Group(s):</b>	default
<b>DB Subnet Group:</b>	
<b>Publicly Accessible:</b>	Only applicable with VPC

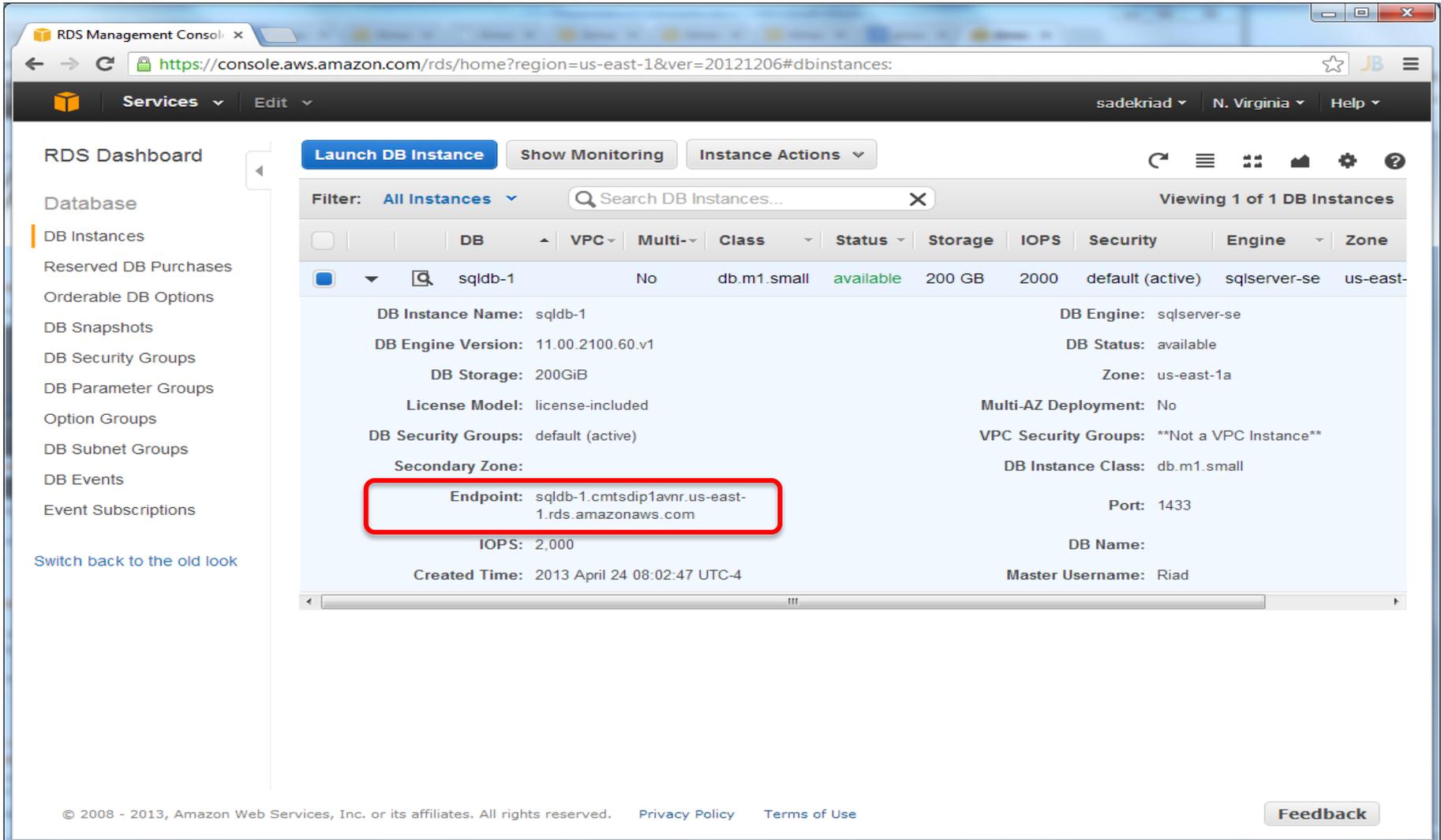
---

<b>Backup Retention Period:</b>	1
<b>Backup Window:</b>	00:00-00:30
<b>Maintenance Window:</b>	mon:02:00-mon:02:30

[Back](#) **Launch DB Instance** [Feedback](#)

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# Storage - Amazon RDS

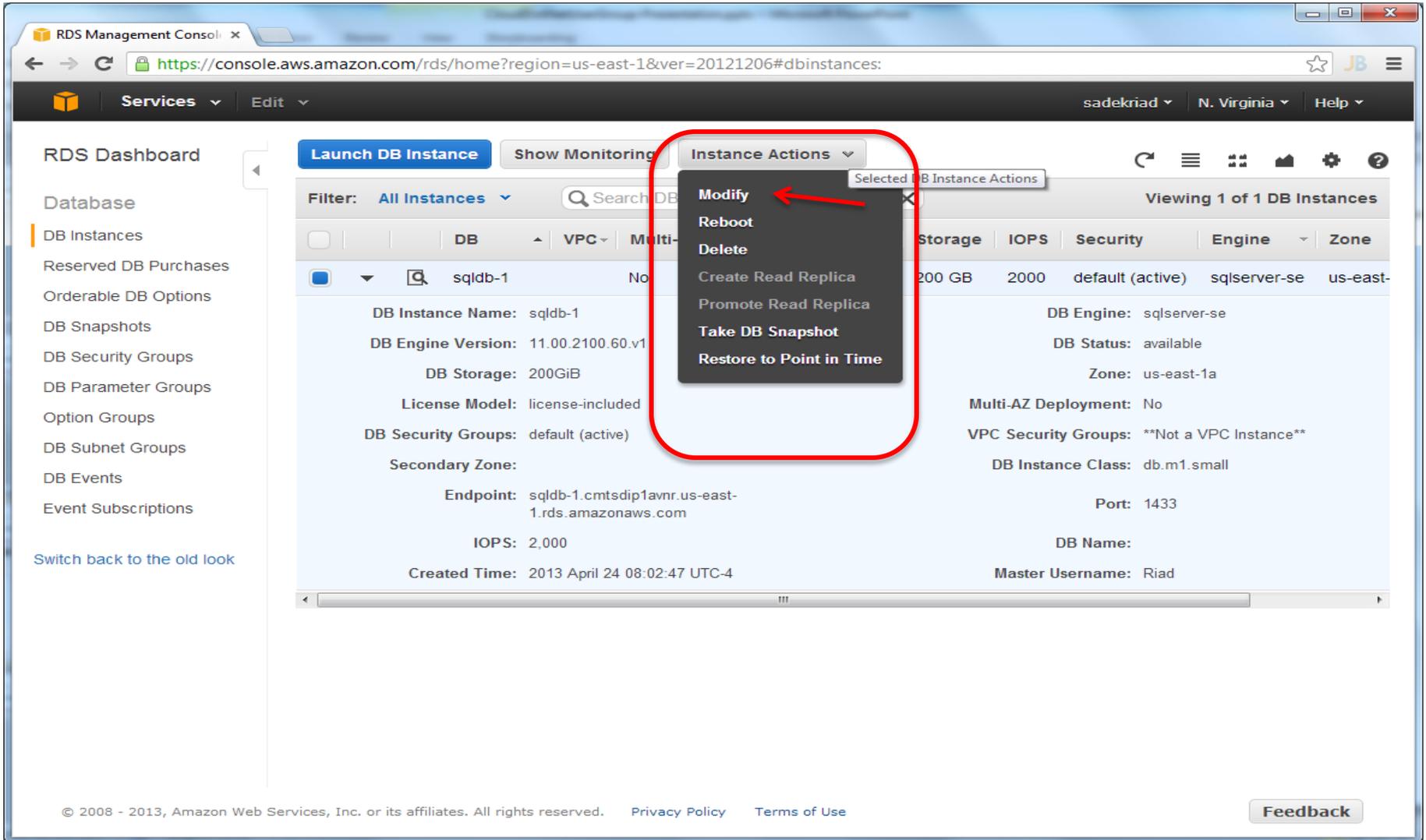


The screenshot shows the Amazon RDS Management Console interface. The left sidebar contains navigation options like 'RDS Dashboard', 'Database', 'DB Instances', etc. The main content area displays the details for a specific DB Instance named 'sqldb-1'. The 'Endpoint' field is highlighted with a red box.

DB	VPC	Multi-	Class	Status	Storage	IOPS	Security	Engine	Zone
sqldb-1	No		db.m1.small	available	200 GB	2000	default (active)	sqlserver-se	us-east-

**DB Instance Name:** sqldb-1  
**DB Engine:** sqlserver-se  
**DB Engine Version:** 11.00.2100.60.v1  
**DB Status:** available  
**DB Storage:** 200GiB  
**Zone:** us-east-1a  
**License Model:** license-included  
**Multi-AZ Deployment:** No  
**DB Security Groups:** default (active)  
**VPC Security Groups:** \*\*Not a VPC Instance\*\*  
**Secondary Zone:**  
**Endpoint:** sqldb-1.cmtsdiip1avn.us-east-1.rds.amazonaws.com  
**Port:** 1433  
**IOPS:** 2,000  
**DB Name:**  
**Created Time:** 2013 April 24 08:02:47 UTC-4  
**Master Username:** Riad

# Storage - Amazon RDS



The screenshot displays the Amazon RDS Management Console interface. The main content area shows a table of DB instances with columns for DB Instance Name, DB Engine, Storage, IOPS, Security, Engine, and Zone. A red box highlights the 'Instance Actions' dropdown menu, which is open and shows the following options: Modify, Reboot, Delete, Create Read Replica, Promote Read Replica, Take DB Snapshot, and Restore to Point in Time. A red arrow points to the 'Modify' option.

**Instance Actions**

- Modify
- Reboot
- Delete
- Create Read Replica
- Promote Read Replica
- Take DB Snapshot
- Restore to Point in Time

**DB Instance Details:**

DB Instance Name:	sqldb-1	DB Engine:	sqlserver-se
DB Engine Version:	11.00.2100.60.v1	DB Status:	available
DB Storage:	200GiB	Zone:	us-east-1a
License Model:	license-included	Multi-AZ Deployment:	No
DB Security Groups:	default (active)	VPC Security Groups:	**Not a VPC Instance**
Secondary Zone:		DB Instance Class:	db.m1.small
Endpoint:	sqldb-1.cmtsdi1avn1.us-east-1.rds.amazonaws.com	Port:	1433
IOPS:	2,000	DB Name:	
Created Time:	2013 April 24 08:02:47 UTC-4	Master Username:	Riad

# Storage - Amazon RDS

**Modify DB Instance: sqldb-1**

DB Instance Identifier: sqldb-1

DB Engine Version: SQL Server 2012 11.00.210

DB Instance Class: db.m1.small

Multi-AZ Deployment: No

Auto Minor Version Upgrade:  Yes  No

Allocated Storage:\* 200 GB sqlserver do

Use Provisioned IOPS:

Provisioned IOPS: 2000

**Scalability**  
**X** Supported only for MySQL & Oracle

**Warning:** Your actual realized IOPS may vary based on your database workload and DB Instance Class. Refer to the [Factors that affect the realized IOPS](#) rates section for more details.

Parameter Group: default.sqlserver-se-11.0

Security Group: default  
mysecuritygroup

Option Group: default.sqlserver-se-11-00

New Master Password: [ ]

Backup Retention Period: 1 days

Backup Window: Start Time 00 : 00 UTC  
Duration : 0.5 hours

Maintenance Window: Start Time Monday 02 : 00 UTC  
Duration : 0.5 hours

Apply Immediately:

**Continue**

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Feedback

# Storage - Amazon RDS

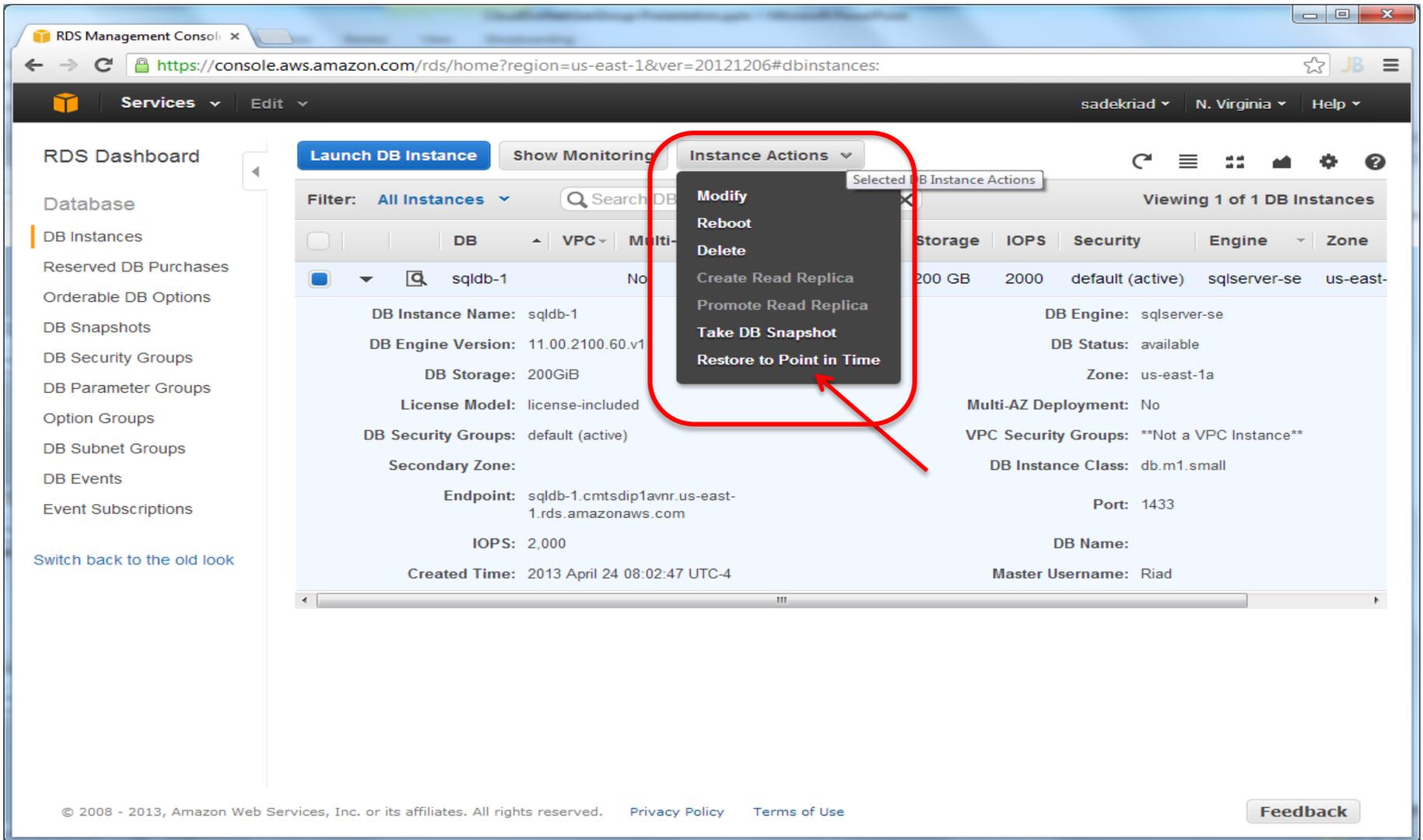
The screenshot shows the Amazon RDS Management Console interface. The 'Instance Actions' dropdown menu is open, showing options: Modify, Reboot, Delete, Create Read Replica, Promote Read Replica, Take DB Snapshot, and Restore to Point in Time. A red box highlights the menu, and a red arrow points to 'Create Read Replica'. Below the menu, the details for the DB instance 'sqldb-1' are visible, including DB Instance Name, DB Engine Version, DB Storage, License Model, DB Security Groups, Secondary Zone, Endpoint, IOPS, and Created Time.

**Scalability: "Read" Replicas**

- Up to 5 replicas
- Asynchronous Replication
- Replication delays are not fixed
- ✗ Supported only by MySQL

Feedback

# Storage - Amazon RDS



The screenshot displays the Amazon RDS Management Console interface. The main content area shows a table of DB instances with one instance, 'sqldb-1', selected. The 'Instance Actions' dropdown menu is open, listing several actions: Modify, Reboot, Delete, Create Read Replica, Promote Read Replica, Take DB Snapshot, and Restore to Point in Time. A red circle highlights the 'Instance Actions' dropdown, and a red arrow points to the 'Restore to Point in Time' option.

**Instance Details:**

- DB Instance Name: sqldb-1
- DB Engine Version: 11.00.2100.60.v1
- DB Storage: 200GiB
- License Model: license-included
- DB Security Groups: default (active)
- Secondary Zone:
- Endpoint: sqldb-1.cmtsdipl1avn.us-east-1.rds.amazonaws.com
- IOPS: 2,000
- Created Time: 2013 April 24 08:02:47 UTC-4

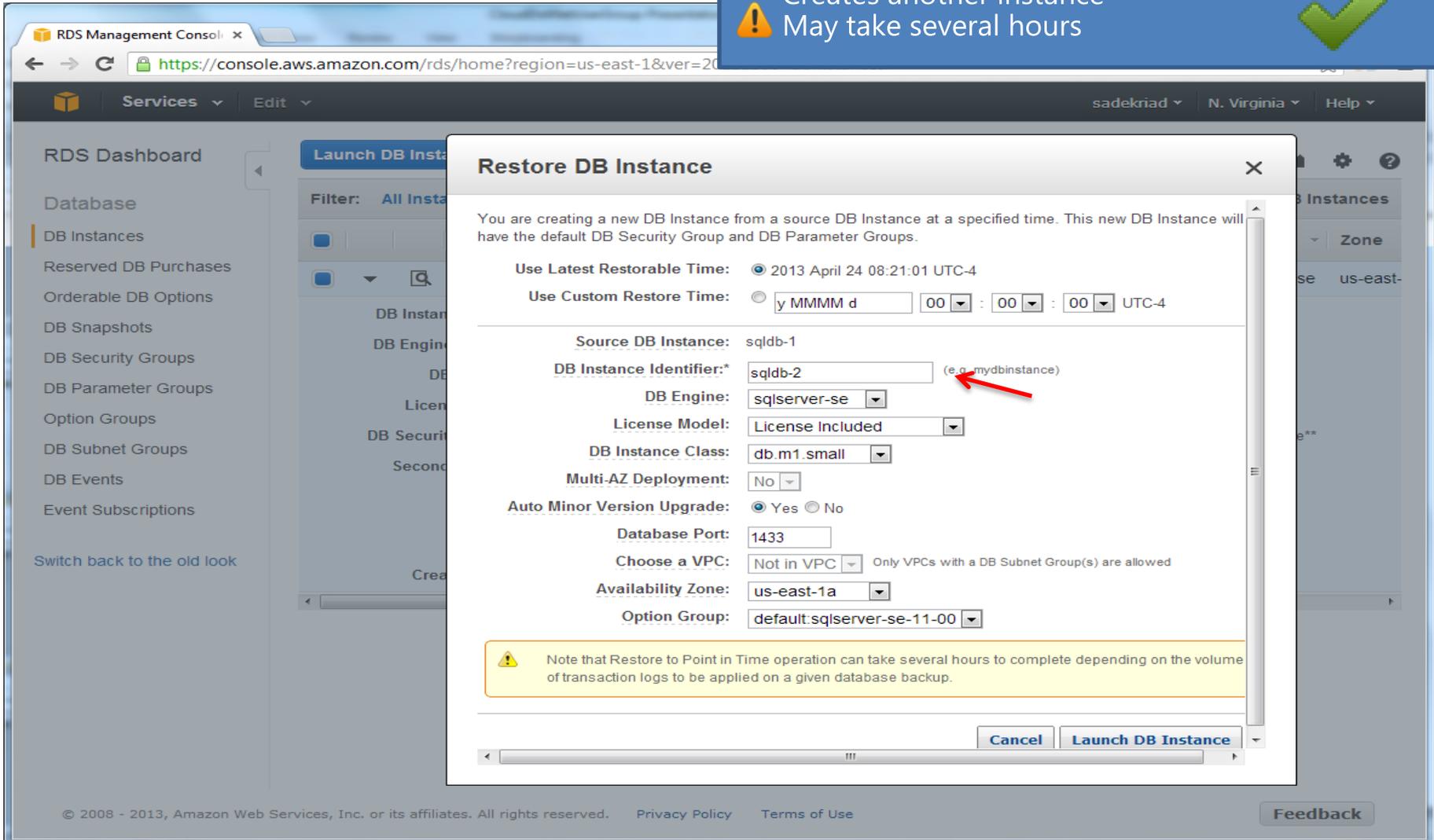
**Instance Configuration:**

- Storage: 200 GB
- IOPS: 2000
- Security: default (active)
- Engine: sqlserver-se
- Zone: us-east-1a
- Multi-AZ Deployment: No
- VPC Security Groups: \*\*Not a VPC Instance\*\*
- DB Instance Class: db.m1.small
- Port: 1433
- DB Name:
- Master Username: Riad

# Storage - Amazon RDS

## Restore to Point in time (to a second)

- Creates another instance
- May take several hours



RDS Management Console

Services Edit

sadekriad N. Virginia Help

### Restore DB Instance

You are creating a new DB Instance from a source DB Instance at a specified time. This new DB Instance will have the default DB Security Group and DB Parameter Groups.

**Use Latest Restorable Time:**  2013 April 24 08:21:01 UTC-4

**Use Custom Restore Time:**  y MMMM d : 00 : 00 : 00 UTC-4

**Source DB Instance:** sqldb-1

**DB Instance Identifier:\*** sqldb-2 (e.g. mydbinstance)

**DB Engine:** sqlserver-se

**License Model:** License Included

**DB Instance Class:** db.m1.small

**Multi-AZ Deployment:** No

**Auto Minor Version Upgrade:**  Yes  No

**Database Port:** 1433

**Choose a VPC:** Not in VPC Only VPCs with a DB Subnet Group(s) are allowed

**Availability Zone:** us-east-1a

**Option Group:** default.sqlserver-se-11-00

**Cancel** **Launch DB Instance**

**Note:** Note that Restore to Point in Time operation can take several hours to complete depending on the volume of transaction logs to be applied on a given database backup.

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# Storage - Amazon RDS (Summary)

## ➤ Scalability

- ✓ **Up:** Instance type (management console)
- ✗ **Up:** Instance size (Not supported for SQL Server)
- ✗ **Out:** “Read” Replicas – MySQL only pane

## ➤ Availability & Disaster Recovery

- ✓ **Automatic Host Replacement**
- ✓ **“Standby” Replicas**
  - Multi-Availability zone (but same Region)
  - Synchronous
  - ✗ No support for SQL Server
- ✓ **Automatic Daily Backup + Manual Restore**
- ✓ **Transaction Log backup every 5 minutes**
- ✓ **DB Snapshots**

## Azure SQL vs Amazon RDS

### ➤ Azure SQL

- ⚠ Only SQL Server (customized)
- ✓ High Availability (99.90%)
- ✓ You pay only for what you use



### ➤ RDS:

- ✓ More Features & Control
- ⚠ Poor Support for MS SQL Server



# Azure vs Amazon AWS

## Even more...

Virtual Machines

Blobs

Azure Tables

Web Roles

Mobile Services

HDInsight

Web Sites

Azure SQL

Media Services

HPC Scheduler

SQL Reporting

MarketPlace

Caching

CDN

Virtual Network

WASABi

Worker Roles

Recovery Services

Traffic Manager

Active Directory

Service Bus

Queues



# Azure vs Amazon AWS

## Even more...

Virtual Machines	Blobs	Azure Tables	
Web Roles	Mobile Services	HDInsight	
Web Sites	Azure SQL	Media Services	
HPC Scheduler	SQL Reporting	MarketPlace	
Caching	CloudFormation	Elastic Beanstalk	Route 53
WASABi	CloudFront	Elastic MapReduce	S3
Traffic Manager	CloudSearch	Elastic Transcoder	SES
Queues	CloudWatch	Glacier	SNS
	Data Pipeline	IAM	SQS
	Direct Connect	OpsWorks	Storage Gateway
	DynamoDB	RDS	SWF
	EC2	Redshift	VPC
	ElastiCache		

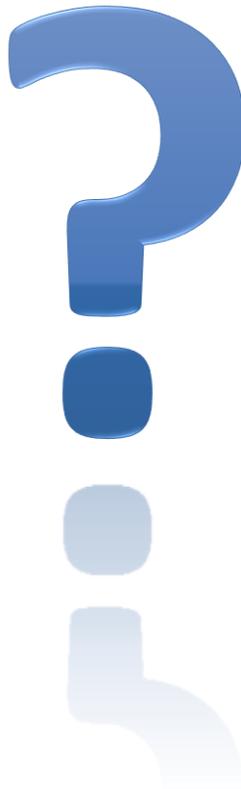


So, which one? It depends...

- More Control → 
- Massive Scalability & Performance → 
- Mobile Apps, Small to medium Apps → 
- Need SQL Server (PaaS) → 

**But remember, things are changing quickly!!**

# Questions



# Windows Azure vs Amazon AWS

Thank you

