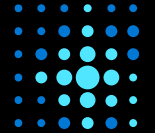


# Azure Training Day

## Migrating .NET applications to Azure



# Migrate to Azure Web Apps

Part 5 of 5 in the Migrate web apps to Azure series

# About us...

**Joe Healy**

 Prin Cloud Solution Architect

For questions or help with this series

[MSUSDev@Microsoft.com](mailto:MSUSDev@Microsoft.com)

For the lab guides and sample code

<https://github.com/MSUSDEV/Migrating-web-apps-to-Azure>

# Workshop Agenda – Hands On Labs

## Learn by doing...

- **Module 2: Running Azure Infrastructure and execute Lift & Shift Migrations**
  - *Lab 1: Deploy an Azure VM Infrastructure using ARM-Templates*
- **Module 3: Performing proper assessments to smooth Azure Migrations**
  - *Lab 2: Using Azure assessment tools*
- **Module 4: Why and how migrating databases to Azure PaaS**
  - *Lab 3: Migrating SQL Databases to Azure using Database Migration Assistant*
- **Module 5: Migrating to Azure App Services – Azure Web Apps (.NET) You are here**
  - *Lab 4: Publishing application source code to Azure Web Apps using Visual Studio 2019*

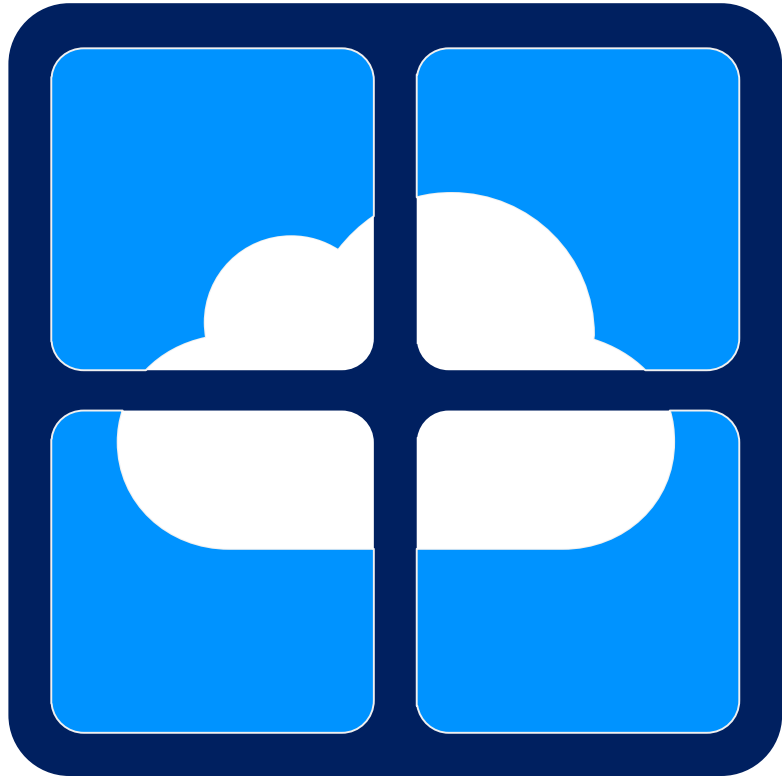
# Key Objectives

## What you will learn in this section

- Introduction to Azure Web Apps
- Deploying Azure Web Apps
- Azure Web Apps Enterprise features
- Web App Migration Scenarios
- Intro to Azure Web Apps for Containers

# Azure Web Apps: Introduction

# Azure Application Services



A cloud app platform for delivering **modern enterprise apps** across cloud and mobile devices.

Delivered as an **integrated offering that delivers features and capabilities** from a number of existing Azure services

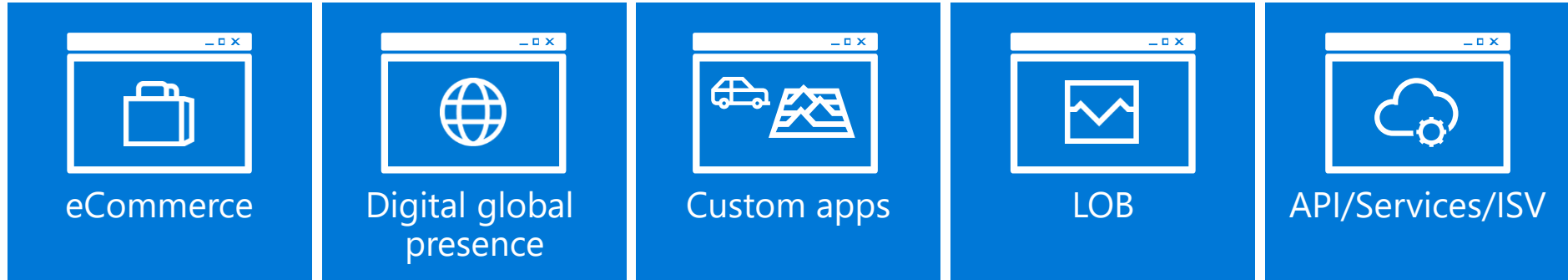
Enterprise  
Grade Apps

Fully  
Managed  
Platform

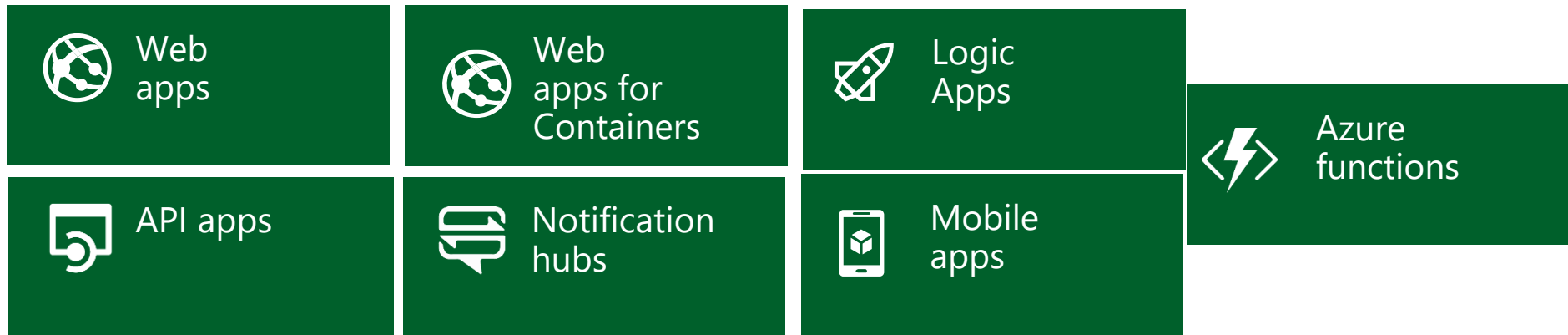
High  
Productivity  
Development

# An end to end Application Platform

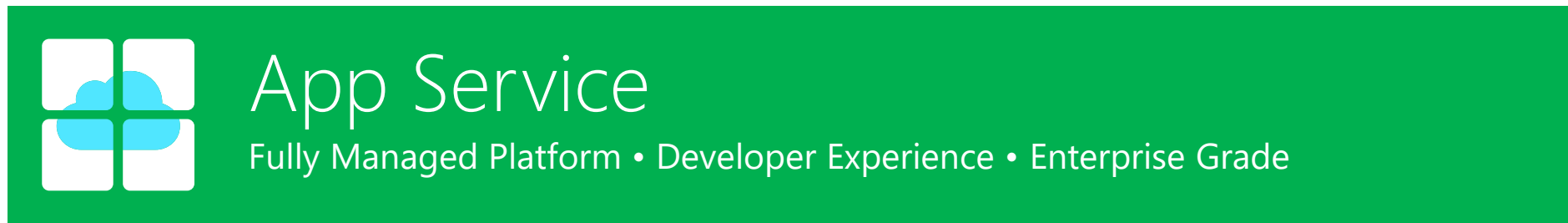
## Apps



## Services



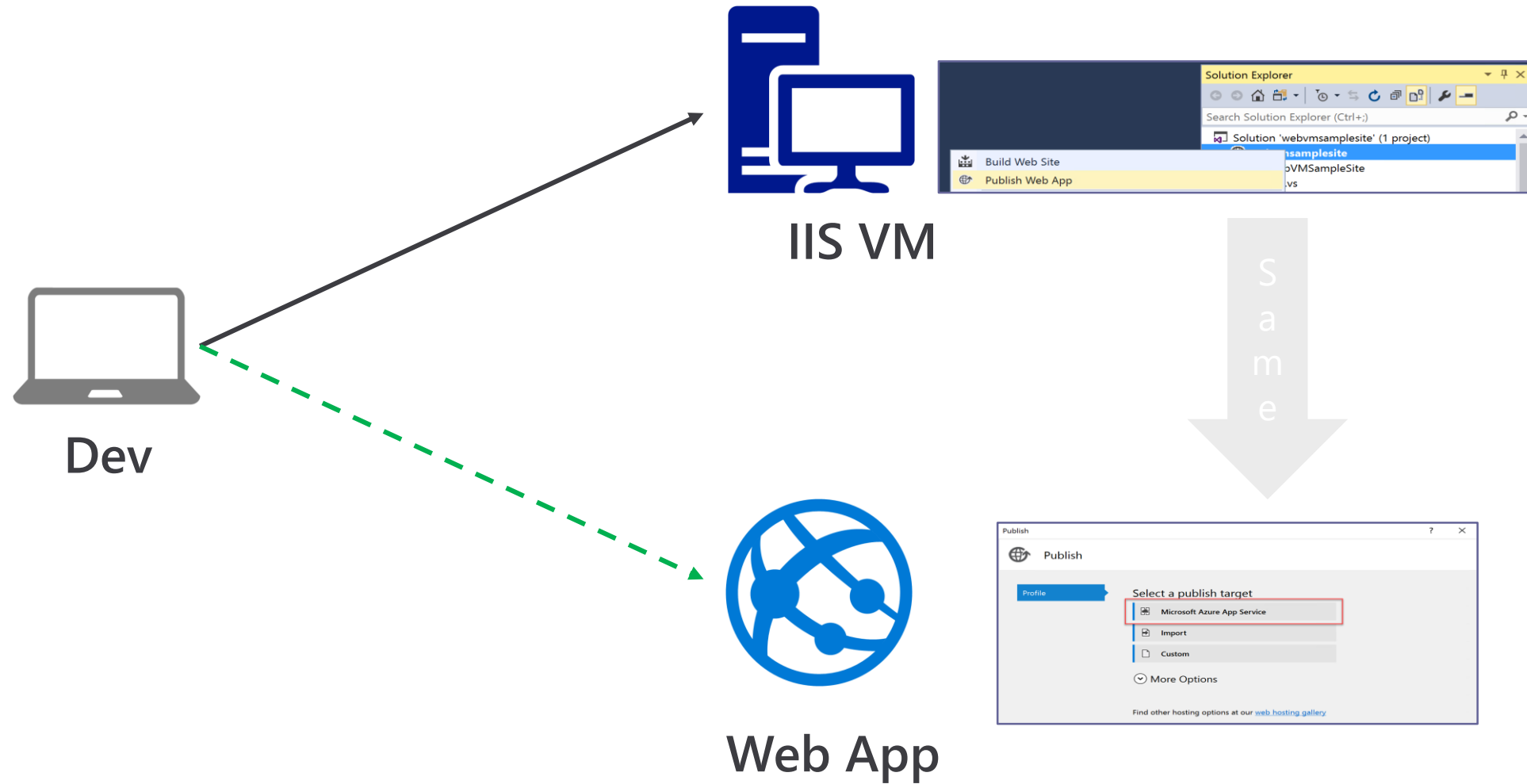
## Platform





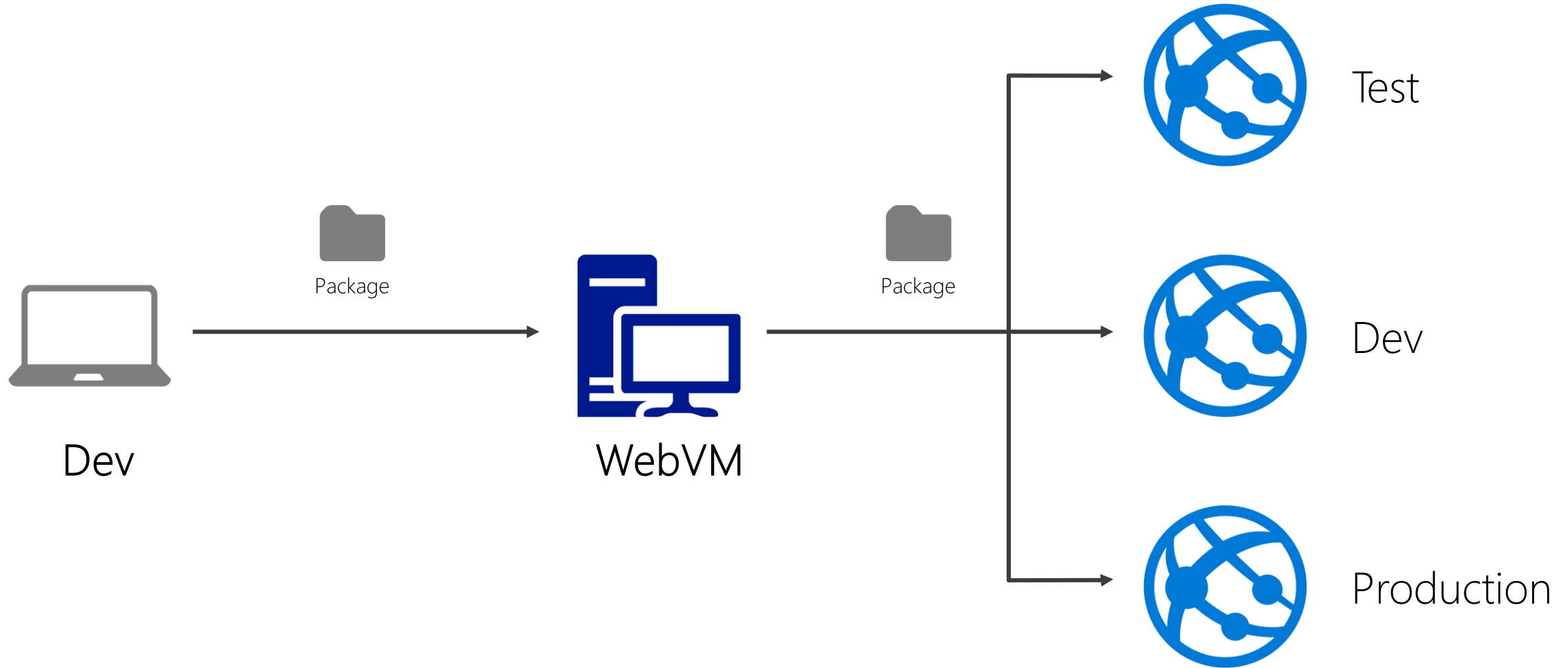
# Deploying Code Directly to an Azure Web App

Developer's experience is not changing at all!



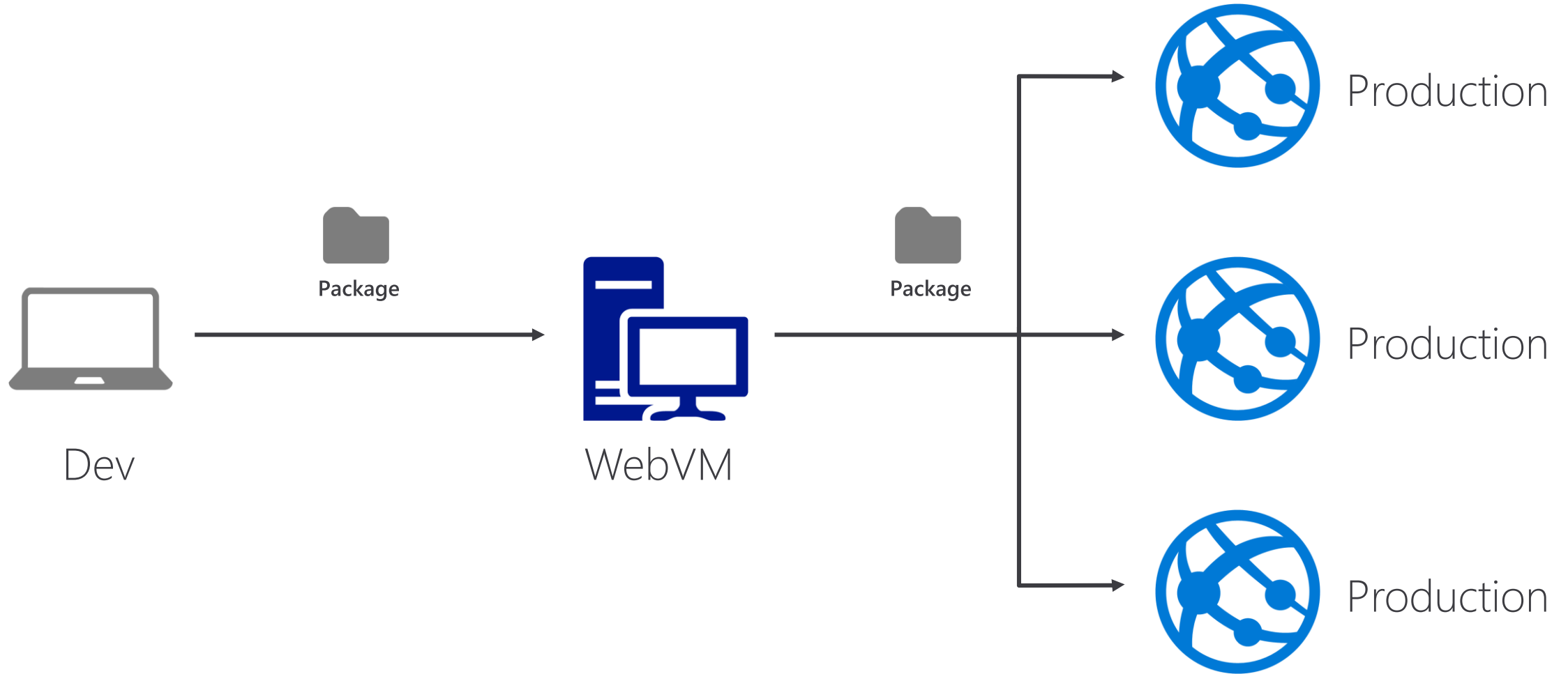
# Deploying a Package to an Azure Web App

Similarly, push source code to multiple instances



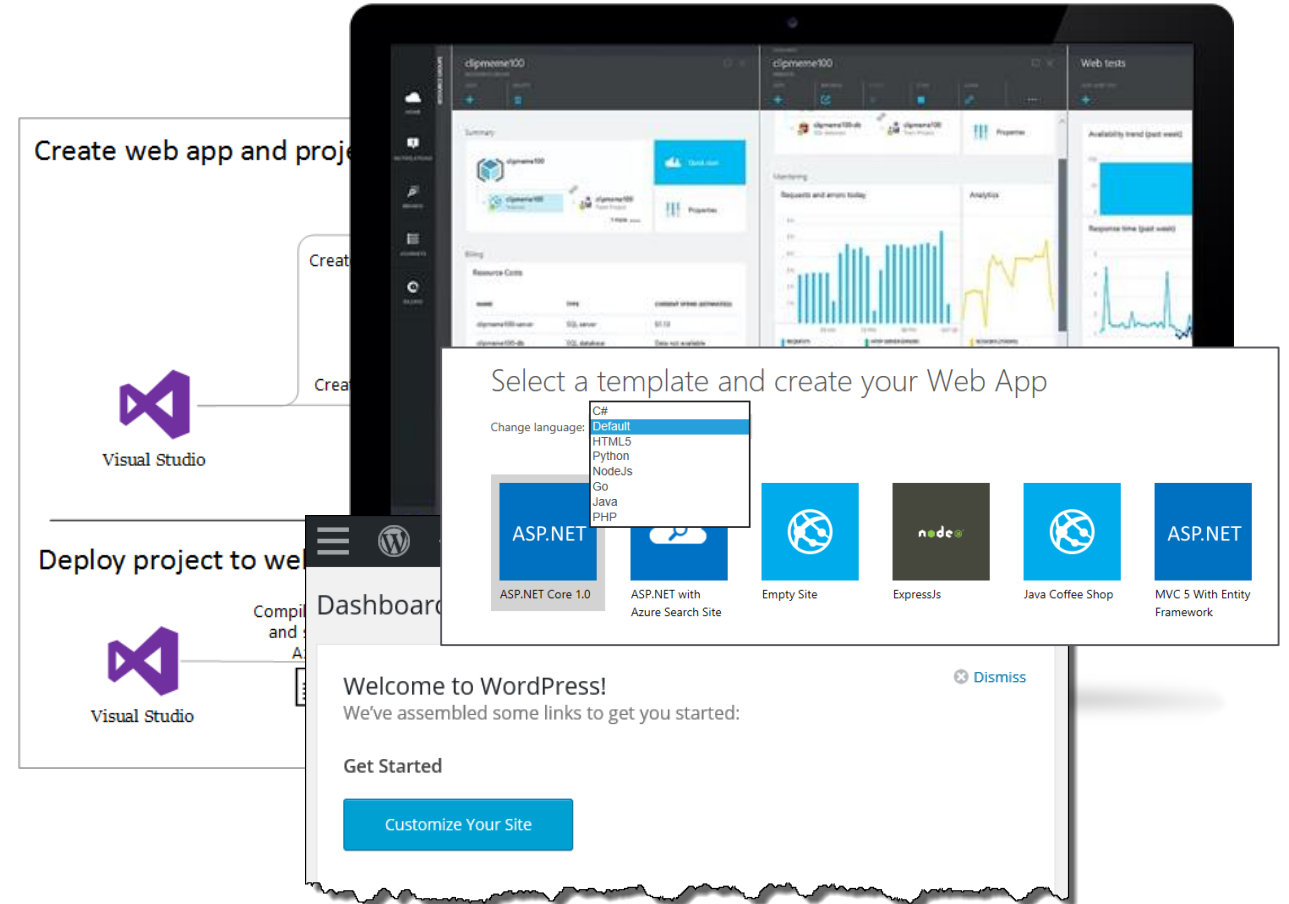
# Deploying a Package to an Azure Web App

Similarly, push source code to multiple instances



# Supported Languages & Tools

Web Apps can be developed in virtually any development language and any toolset, including **.NET, PHP, Node.js, Python, Java, Marketplace extensions**. Web App development is built into Visual Studio 2015 and up for supported languages.



# Deploying an Azure Web App from Visual Studio 201x

# Azure Web Apps Killing Features

## Why migrating workloads to Azure PaaS?

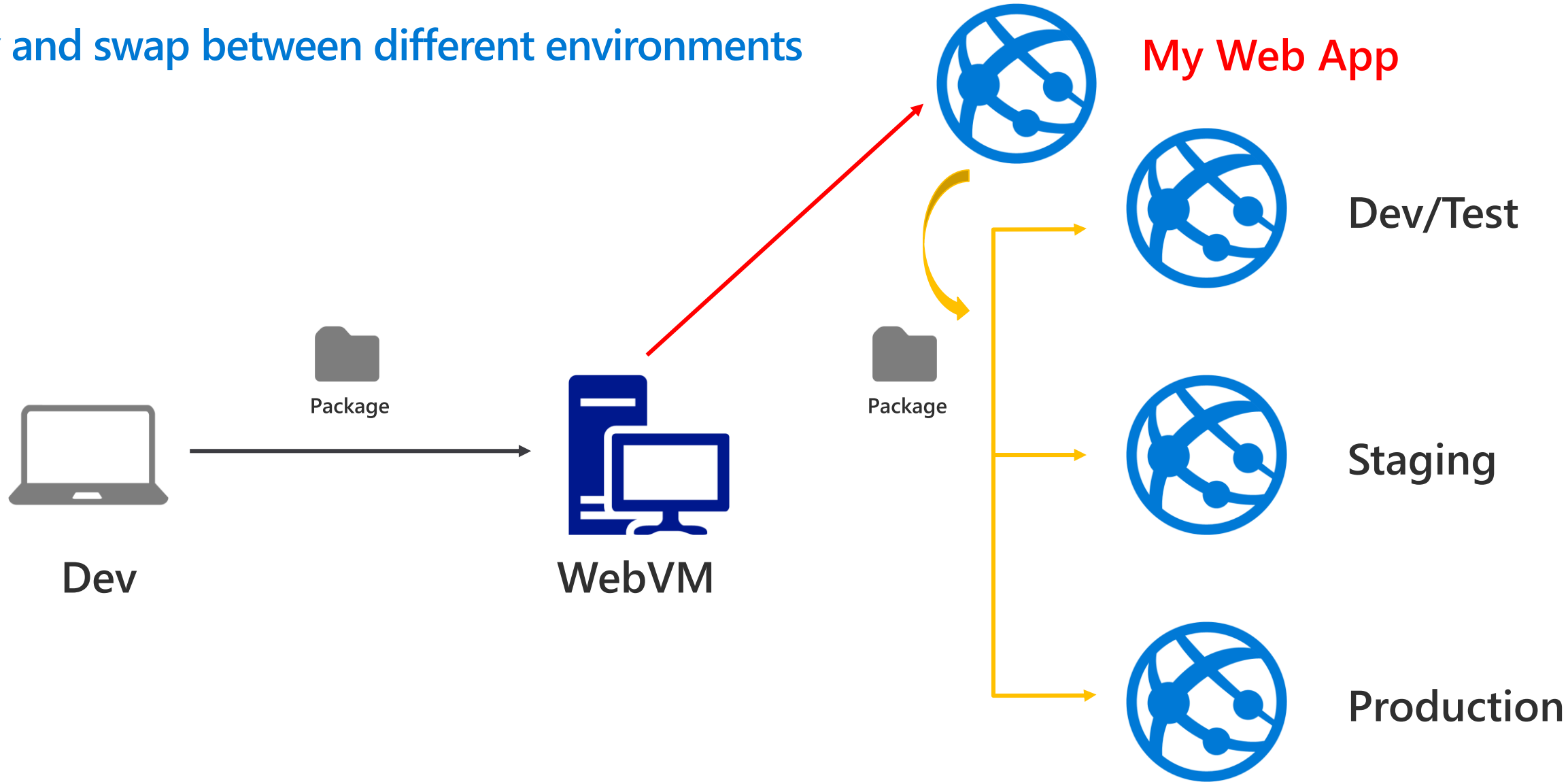
- Azure Web Jobs
- Deployment Slots
- Auto Scaling
- SSL
- Custom Domains
- Scale out
- Different Pricing Tiers
- Integrated Backup
- App Insights
- ...

# Azure Web Jobs

- Host and schedule lightweight job on an existing website
- Triggered once, by schedule or run continuously
- Supporting:
  - `batch (.exe/.cmd/.bat)`
  - `bash (.sh)`
  - `javascript (.js as node.js)`
  - `php (.php)`
  - `python (.py)`
- Dashboard Experience

# Azure Web App Deployment Slots

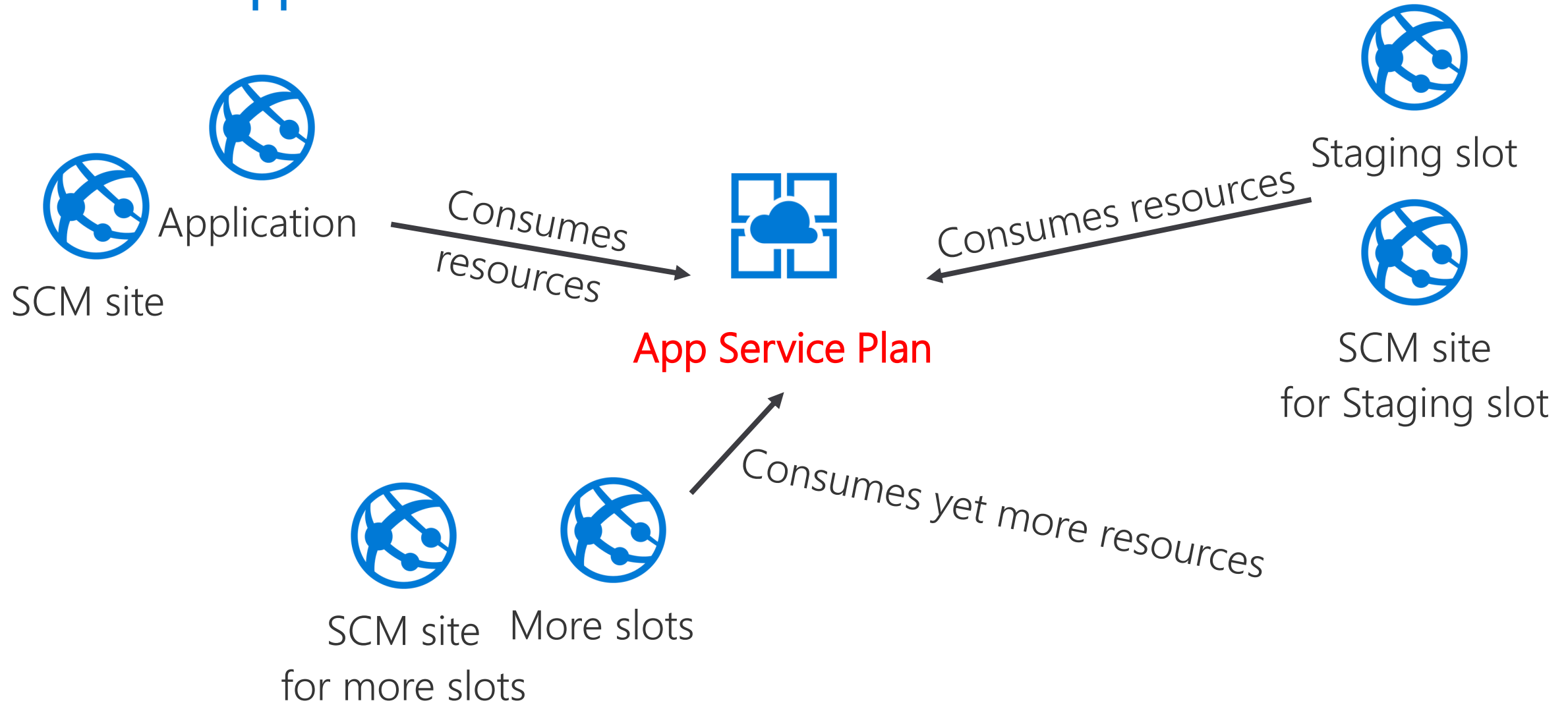
Deploy and swap between different environments





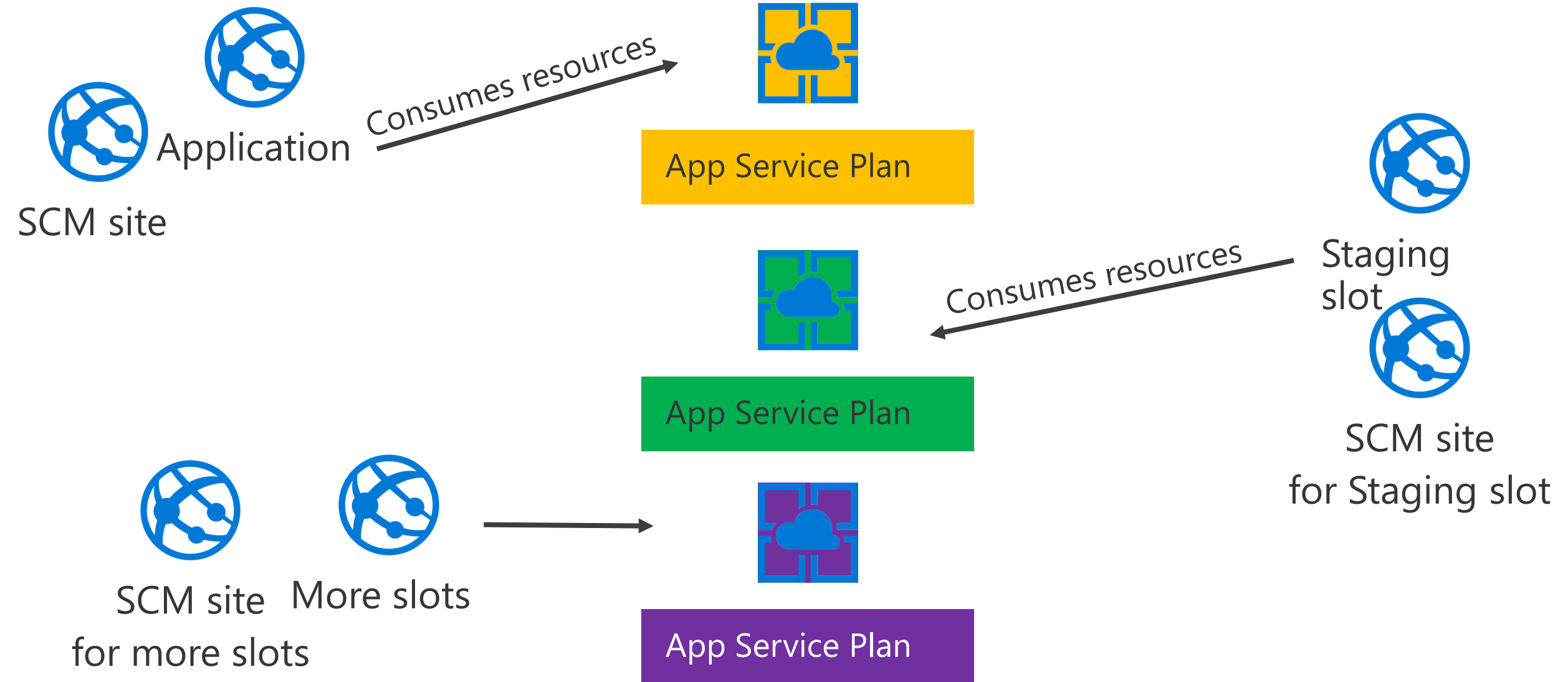
# Deployment Slot Resource Usage

By default, Deployment Slots point to the same App Service Plan as the source Web App



# Deployment Slot Resource Usage

Best Practice: Allocate a different App Service Plan for each Deployment Slot

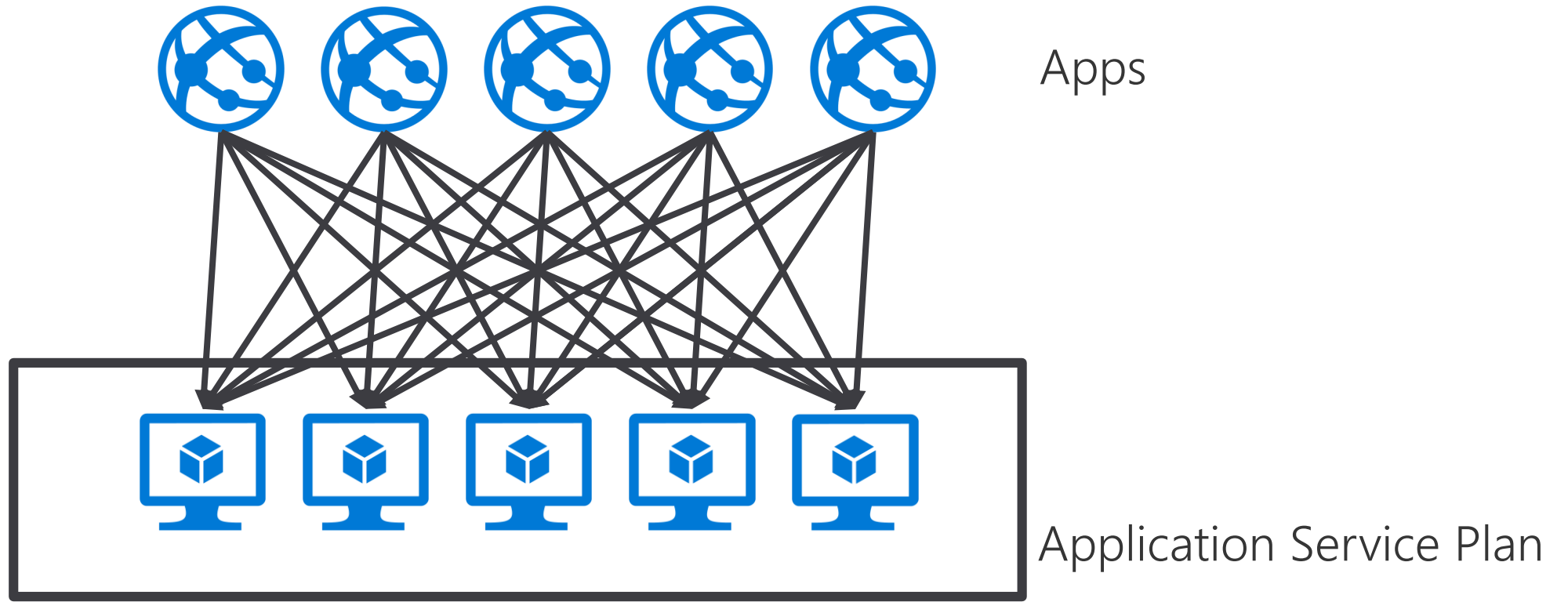


# Demo

## Web App Deployment Slots

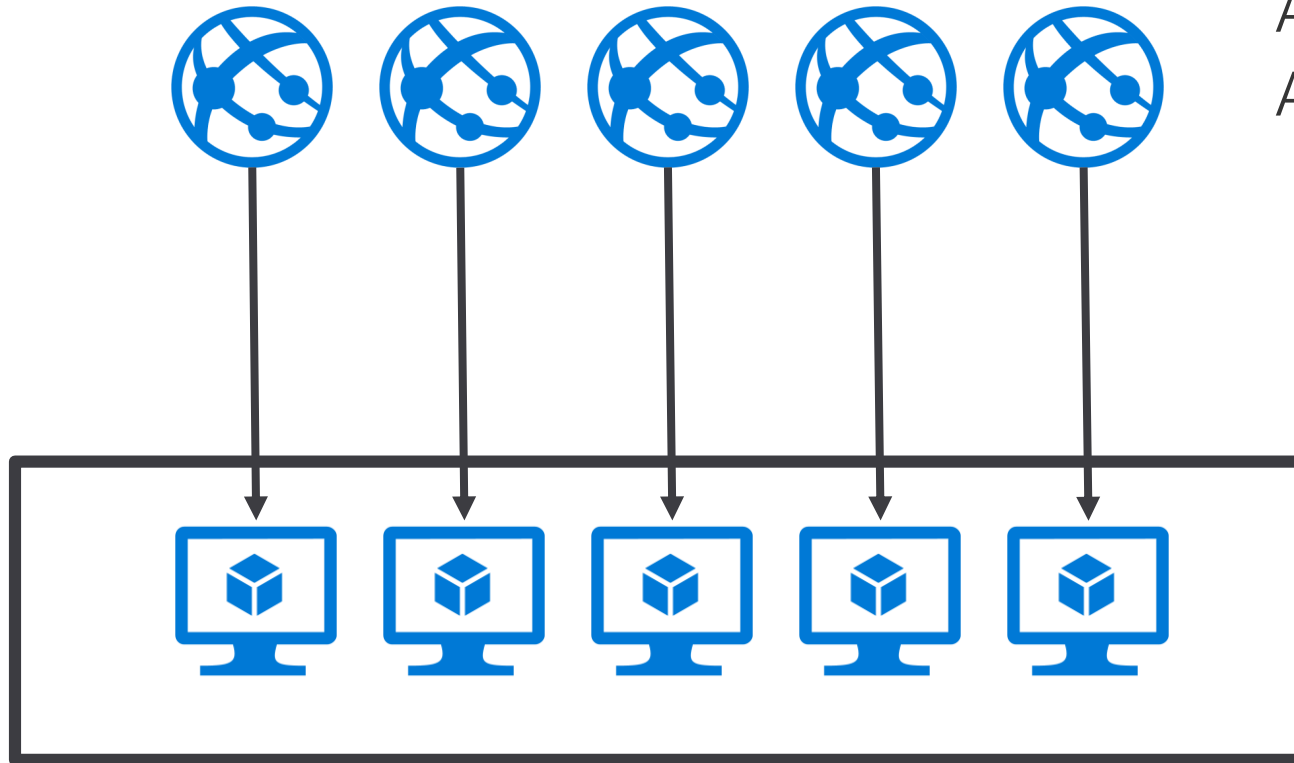
# Per Site Scaling

By default: every app runs on every worker in an application service plan.



# Per Site Scaling

New setting from  
Resources.azure.com



## Example Per Site Scaling

App #1: max of 1 instances

App #2: max of 2 instances

App #3: max of 5 instances

App #4: max of 10 instances

App #5: max of 25 instances

Application Service Plan

# Azure App Service Plan: The new Pv2 Plan

## Guaranteeing you can scale into Pv2:

- Create a new Resource Group (RG)
- Create a new app + app service plan in the new RG
- using your desired region
- Select a Pv2 plan when creating app service plan
- Then scale down to a lower pricing tier

You will always be able to scale back up in the future to Pv2

azure cli syntax:

```
az group create --location northeurope --name MyRG
```

```
az appservice plan create --resource-group MyRG --name MyAppServicePlan --sku P1V2
```

# Demo

## Web App Scaling / Autoscaling

# Azure Web Apps: ASE



# App Service Environment (ASE)

ASE is a deployment of the Azure App Service into a subnet of a customer's Azure Virtual Network

ASE provides:

- Network isolation for apps
- Larger scale than multi-tenant
- More powerful hosts
- Ability to work with all VPN types



# Azure App Service Environment services



=



## Web apps

Web apps that scale with your business



## Mobile apps

Build mobile apps for any device



## Functions

Serverless event based development accelerator



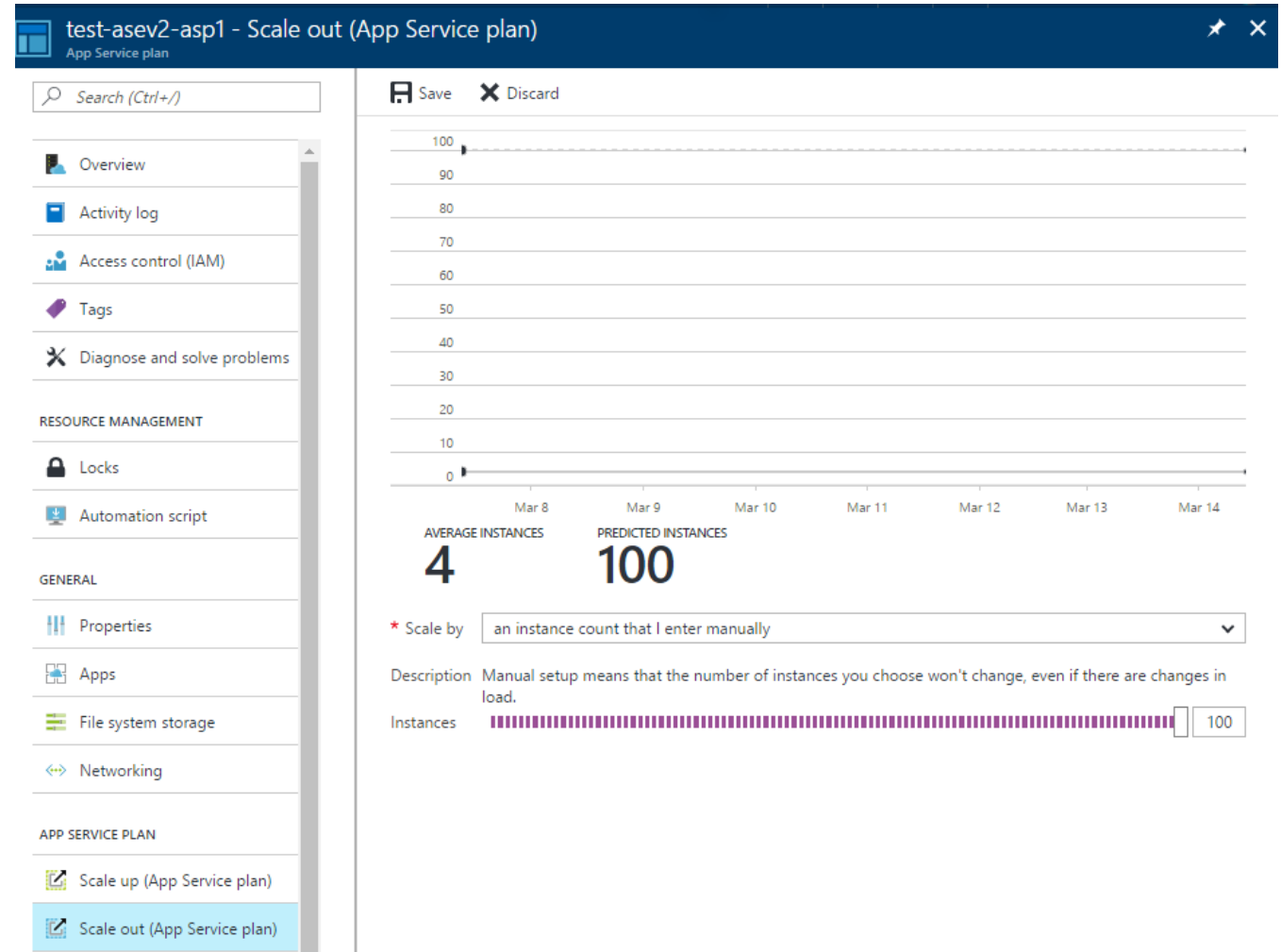
## API apps

Easily build and consume APIs in the cloud

# Scaling out App Service plans (ASPs) in ASE

In ASE you can scale to 100 ASP instances  
That can be:

- 1 ASP with 100 instances,
- 100 ASPs with 1 instance each,
- or anything in between.



# Isolated – Pricing plan just for ASE apps

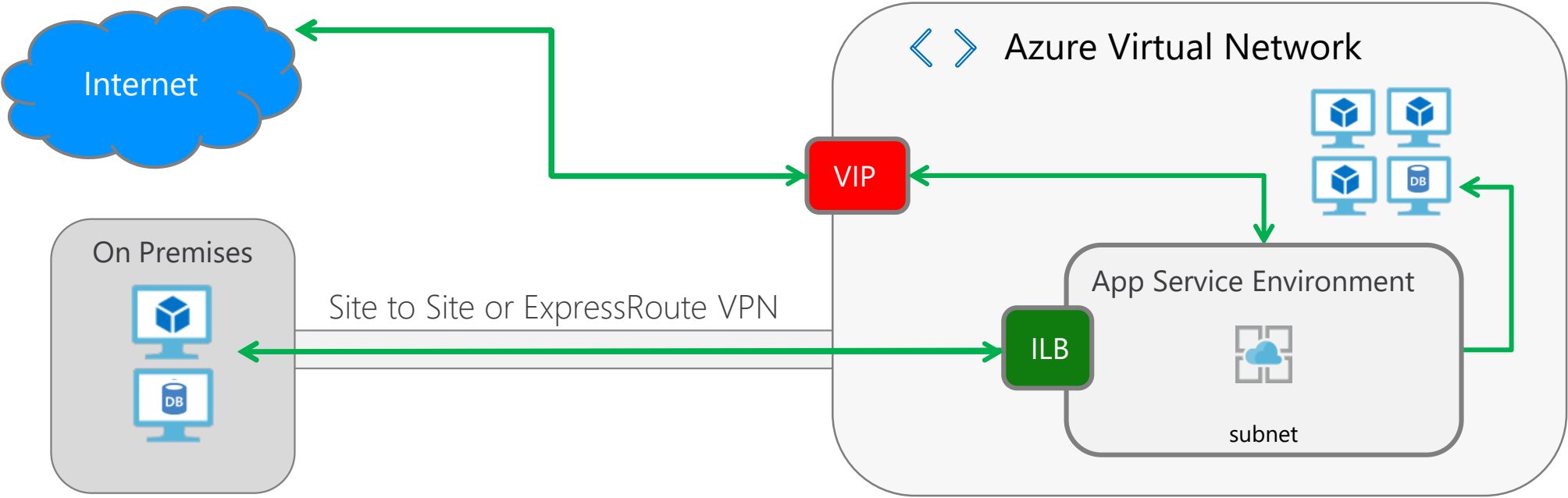
- One fee for the ASE plus Isolated App Service plan fees
- ASE ownership fee does not change with the size of the ASE and covers all infrastructure including automatically scaled components
- ASP fees let you pay for what you use
- Prices vary between regions

The screenshot shows the Azure portal interface for an App Service Environment (ASE) named 'test-asev2-asp1'. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, and sections for Resource Management, General, and App Service Plan. The main area displays the 'Choose Your Scale Size' window, which offers three pricing plans for the ASE:

Plan	Configuration	Price (USD/MONTH PER INSTANCE)
I1 Isolated	1 Core, 3.5 GB RAM, Dv2 series workers, Single tenant system, Network isolated, Private app access, 1 TB Storage, Up to 100 instances	USD/MONTH (PER INSTANCE)
I2 Isolated	2 Core, 7 GB RAM, Dv2 series workers, Single tenant system, Network isolated, Private app access, 1 TB Storage, Up to 100 instances	USD/MONTH (PER INSTANCE)
I3 Isolated	4 Core, 14 GB RAM, Dv2 series workers, Single tenant system, Network isolated, Private app access, 1 TB Storage, Up to 100 instances	USD/MONTH (PER INSTANCE)

# ASE – High Level Network Overview

An ASE is a deployment of the Azure App Service into a subnet in a customer's Azure Virtual Network



# Azure Web Apps for Containers

# Web App now supports running Containers

## Bring your code



## Bring your container



Web App for Containers

- ✓ Deploy to Azure in seconds
- ✓ Scale easily on demand
- ✓ Designed for your agile web development needs

# Containers as Web Apps - Benefit

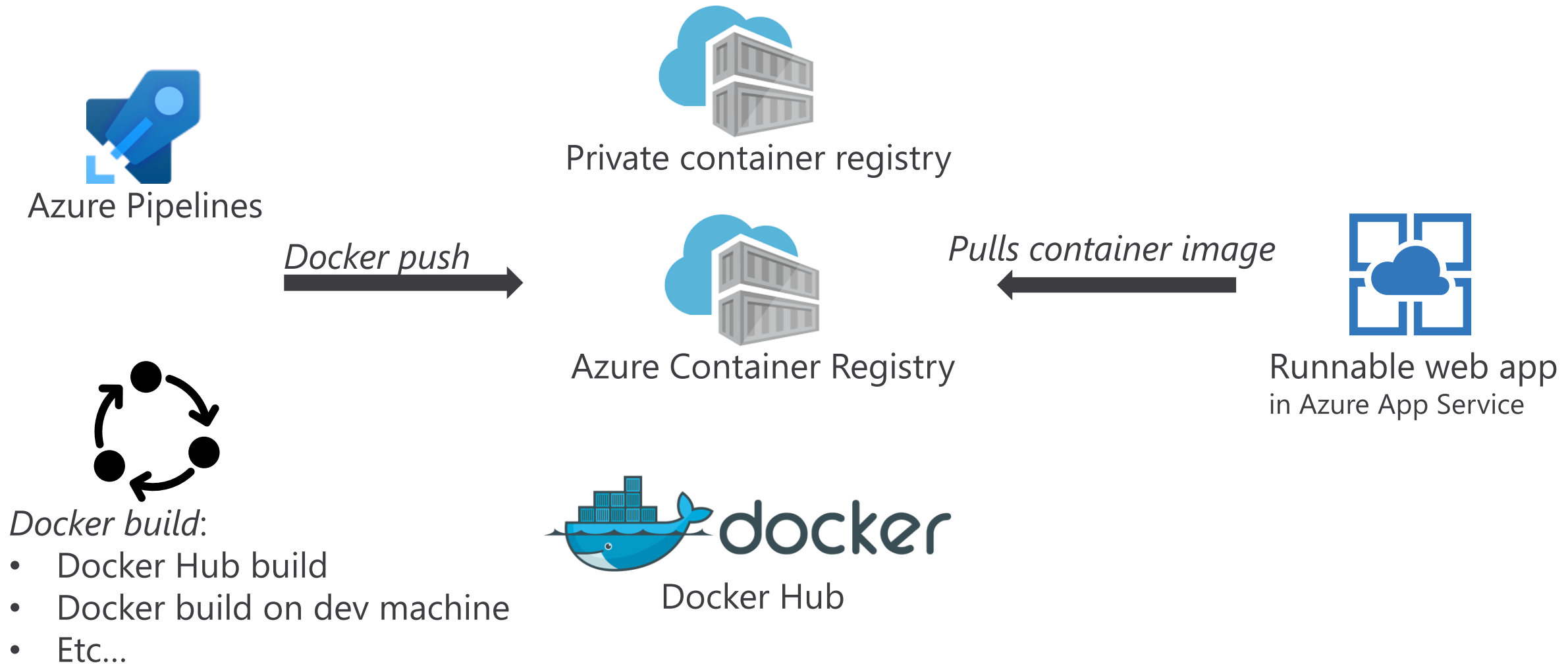
## Why running Containers as Azure Web Apps

- Treat the container as a web app
- **All common Azure Web App features are valid for Containers as well:**
  - Backup
  - Monitoring
  - App Insights
  - App Service Plan (Although the plans are different for containers!)



# Azure App Service: Build and Deploy Options

## Deploying containers



# Web app for containers

## High productivity development



Deployment with ease



CI/CD build and deploy



Testing in production

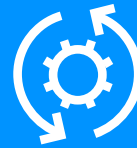


Staged deployment with slots

## Fully managed platform



Built-in auto scale and load balancing



High availability with auto-patching



Monitoring and diagnosis



Backup and recovery

## Enterprise-grade apps



Global data center footprint



Private registry support



AAD integrated



Secure + compliant

# Windows Container Support Public Preview

## Windows Server 2019 Host Support

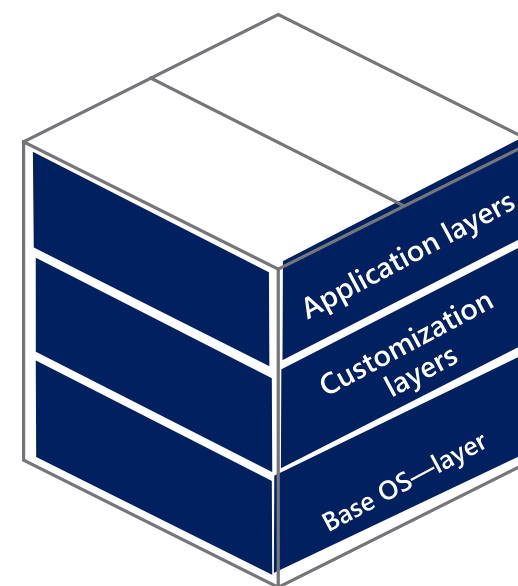
- Smaller containers, higher density of apps, faster pull and start times
- Server Core Containers reduced by over 60% from WS2016LTSC
- Take advantage of improvements not available on WS2016

## Key Scenarios

- Lift and Shift to PaaS
- Applications which have dependencies
- Applications blocked by traditional App Service Sandbox
- Data center migration

## Capabilities

- Available in six regions globally
- PowerShell and CLI Support
- Bring Your Own Storage – Azure Files



# Demo

Azure WebApps for Containers

# App Service Migration

# Azure Web App Migration Assistant

Check your applications for Azure Web App Compatibility, before migrating

- Free tool (Former “Movemetothecloud.net”)
- Runs Assessment of .NET, Node.JS, Java,...
- Also supports running the actual migration from source to Azure Web App

# Application Migration Assistant



## App Service Migration Assistant

Move your ASP.NET App or Site to Azure app service with the help of the Azure App Service Migration Assistant.

A screenshot of the Microsoft App Service Migration website. The header includes the Microsoft logo and navigation links: Home, Assess, and Download. The main heading is "Migrate to Azure App Service" with a subtext: "Assess your app with an endpoint scan, download the migration assistant and start your migration to Azure App Service." There are two main buttons: "Assess" (with subtext "Provide a public URL to start your migration process.") and "Download" (with subtext "For internal applications download the assessment tool."). Below these is a text input field with a placeholder "https://" and a label "Assess your site by entering a public URL". A blue "Assess" button is to the right of the input field. At the bottom, there are links: "Explore >", "Find Migration Partners", "Azure Migrate", and "Go to MoveMeToTheCloud.net". The page also features sections for "Assess your site" and "Download Migration Assistant", each with a "Technologies" icon.

<https://appmigration.microsoft.com/>

## Assess

Quickly and easily determine if a public endpoint is a good candidate for App Service.

## Migrate

Download the tool to do a detailed assessment of your ASP.NET site and then use the tool to quickly and easily migrate your content and config to Azure App Service.

## Optimize

Dedicated migration experience in the portal analyzes your apps and provides detailed configuration guidance.

# Demo

Running Azure Web App Migration using App Service Migration Assistant



# Section Take-Aways

1. Microsoft offers the Microsoft Cloud Adoption Framework, to assist in the end-to-end adoption of Azure public cloud
2. Azure Migrate provides the right tools to help customers from assessment to migration, using Microsoft tools, or integrated with 3rd party tools
3. Azure Migrate = Virtual Machine Assessment + Migration  
Azure Migrate = (SQL) Database Assessment + Migration  
Azure Migrate = App Services Assessment + Migration

# Questions Landing Spot

“...If you want good answers,  
ask better questions...”

© Randy Glasbergen



# Thank You