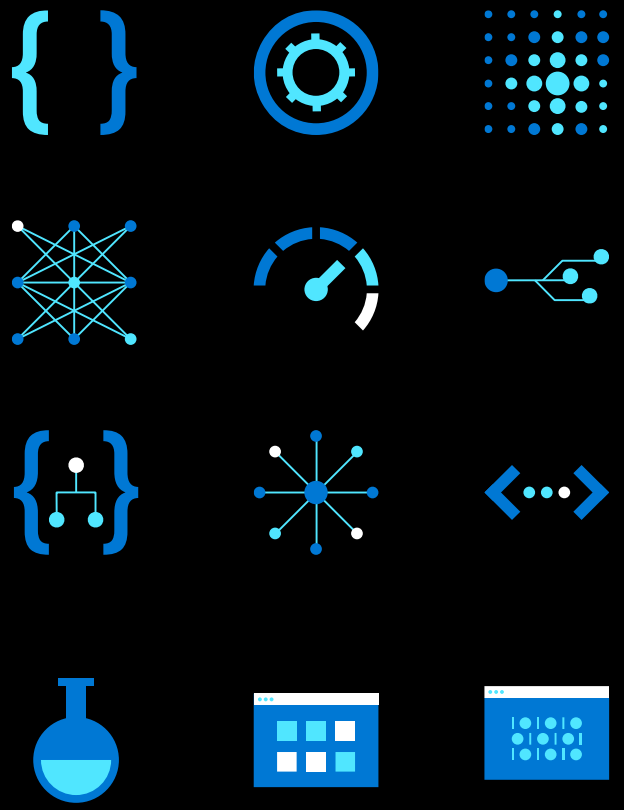
Microsoft Azure

Azure Training Day

Migrating .NET applications to Azure



Microsoft

Azure

Migrate to Azure Web Apps

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

MSUSDev@Microsoft.com

Oct 2019

About us...

Ted Malone

Prin Cloud Solution Architect

For questions or help with this series
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*

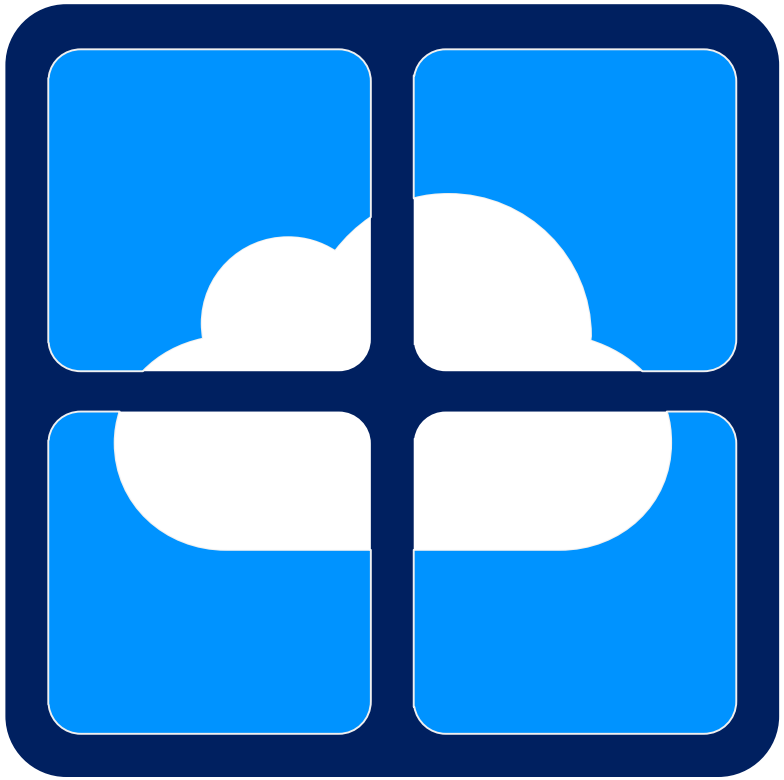
Key Objectives

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

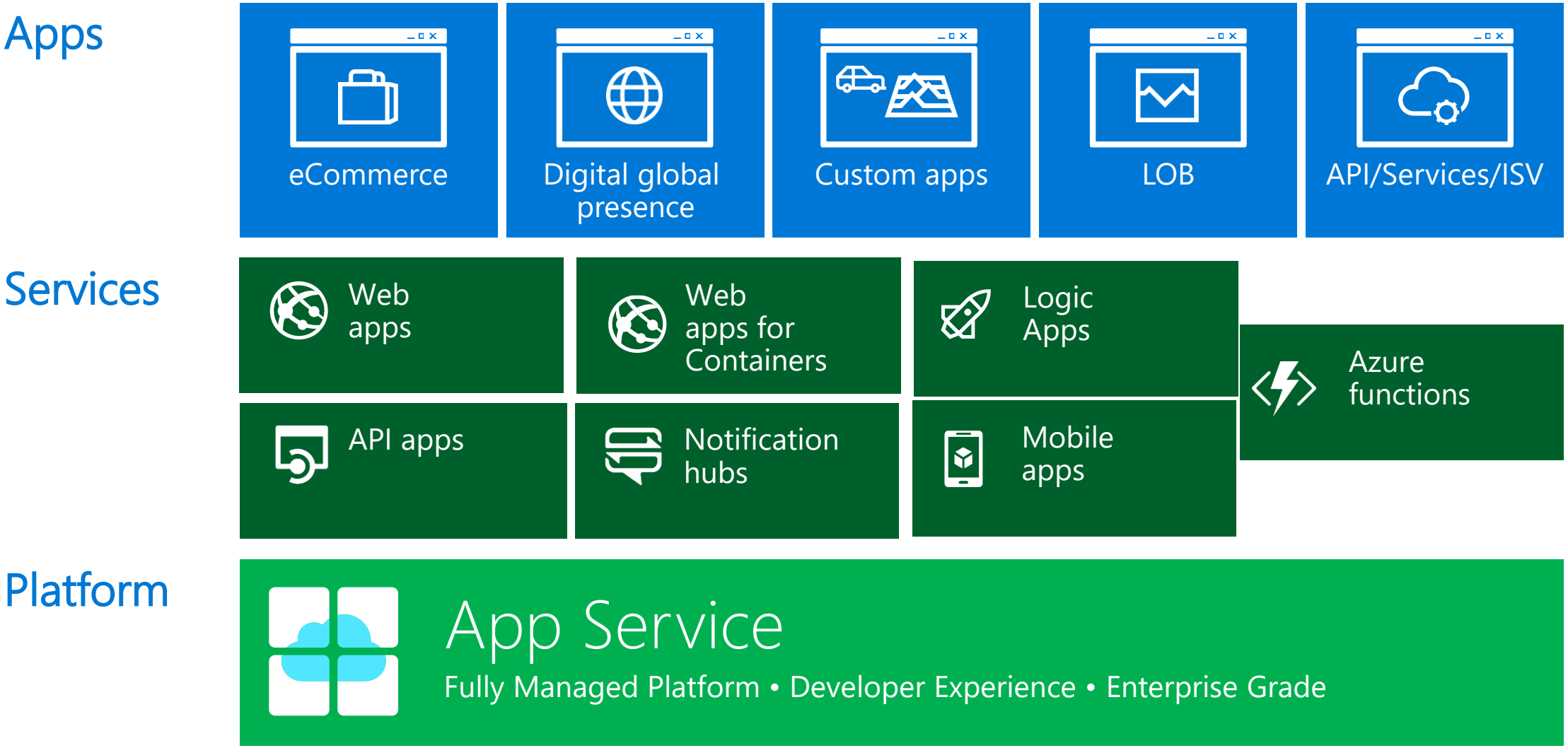
Azure Application Services



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

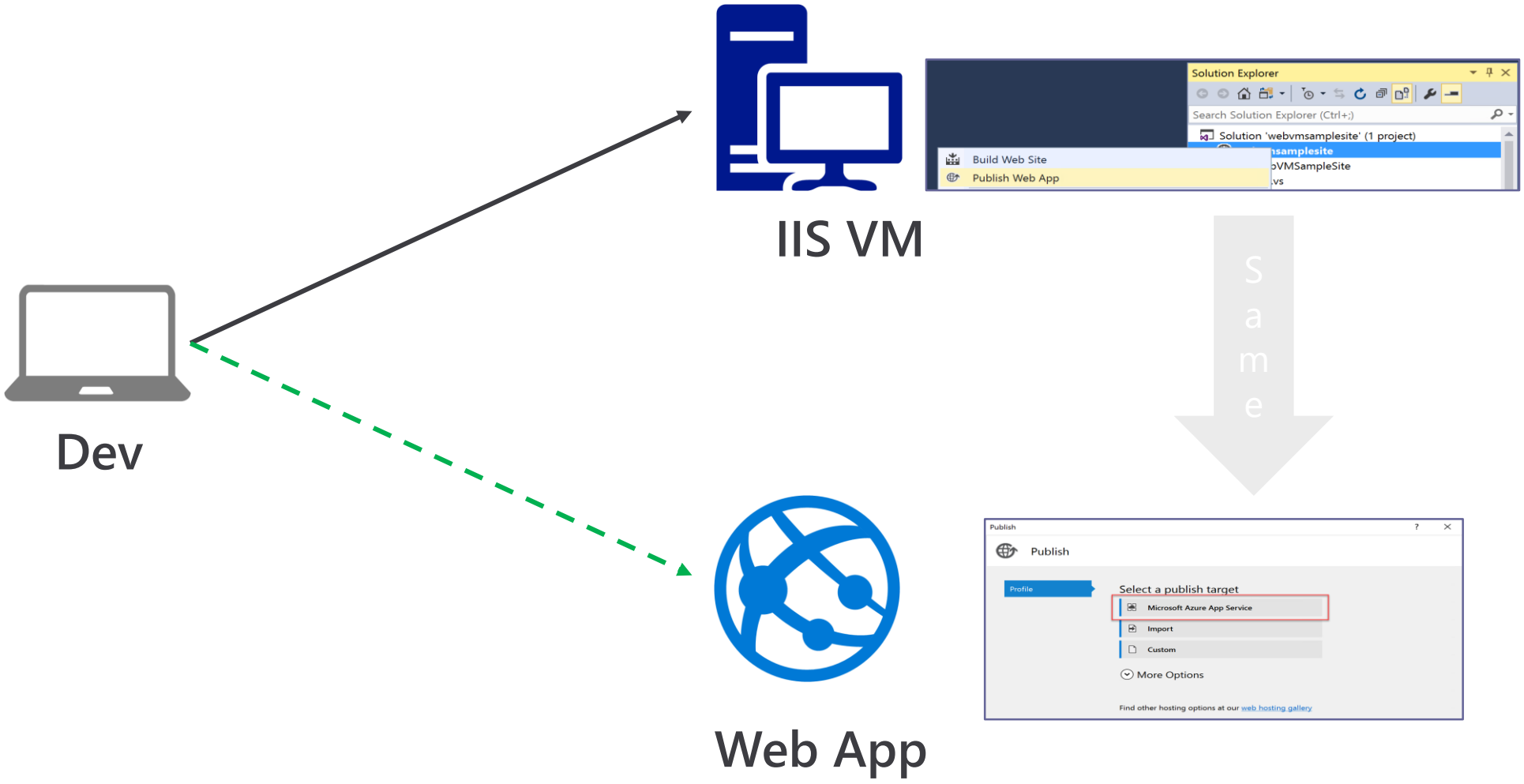
Delivered as an **integrated offering that delivers features and capabilities** from a number of existing Azure services

An end to end Application Platform



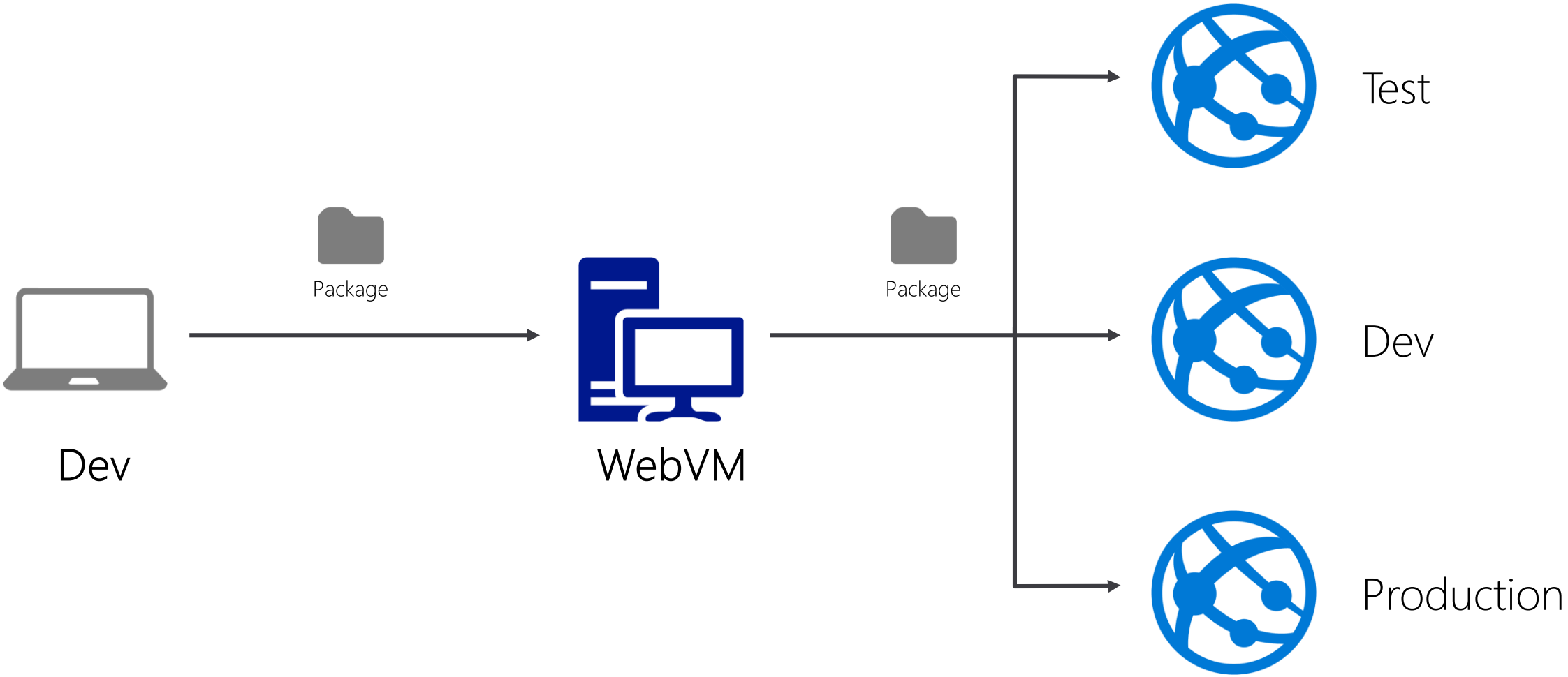
Deploying Code Directly to an Azure Web App

Developer's experience is not changing at all!



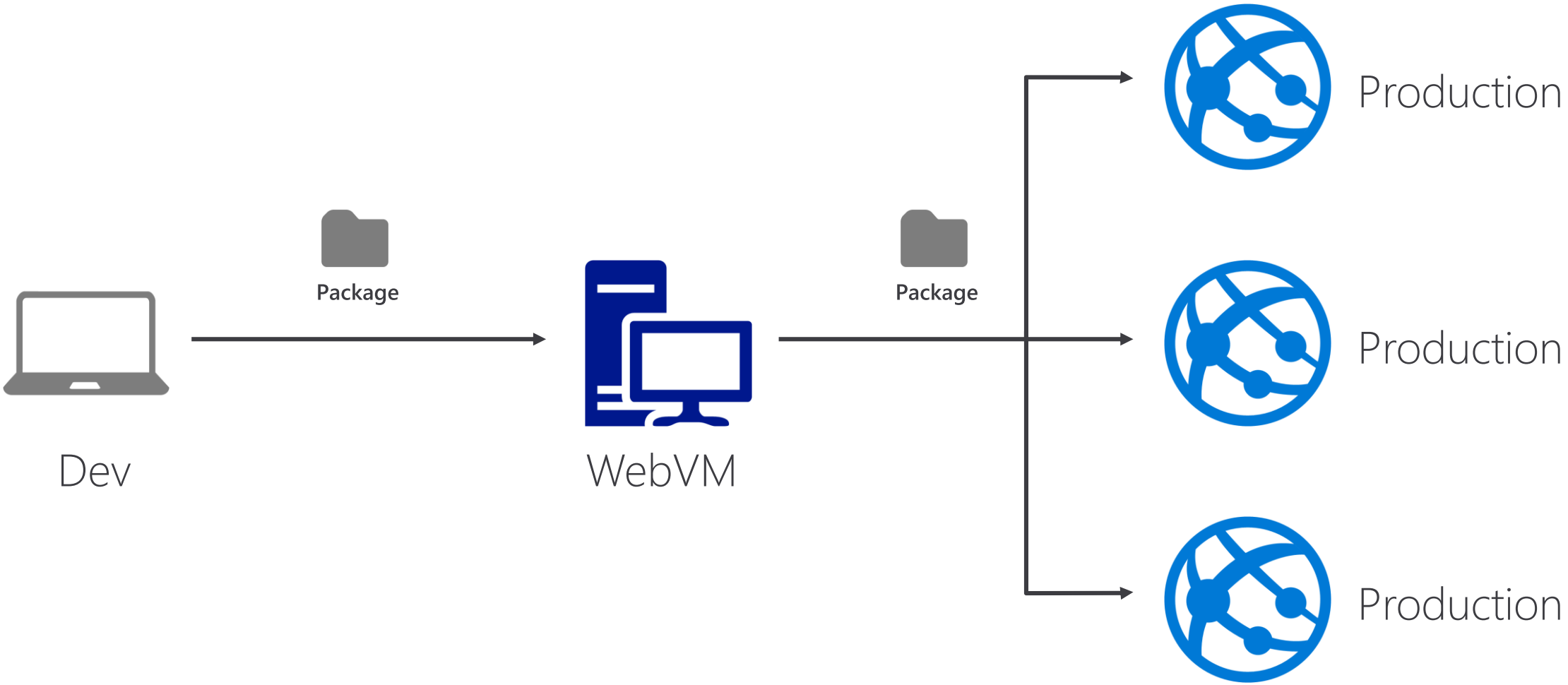
Deploying a Package to an Azure Web App

Similarly, push source code to multiple instances



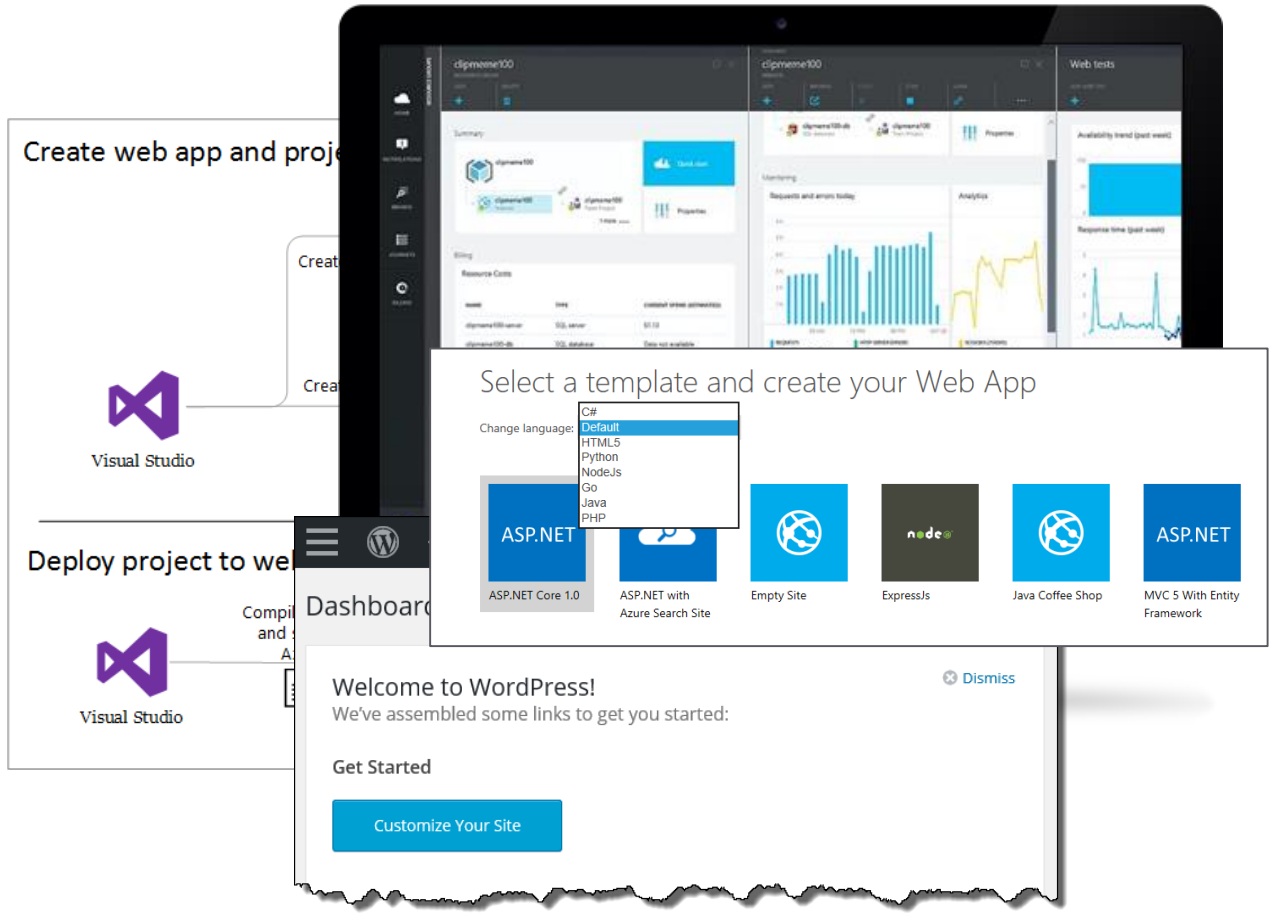
Deploying a Package to an Azure Web App

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?

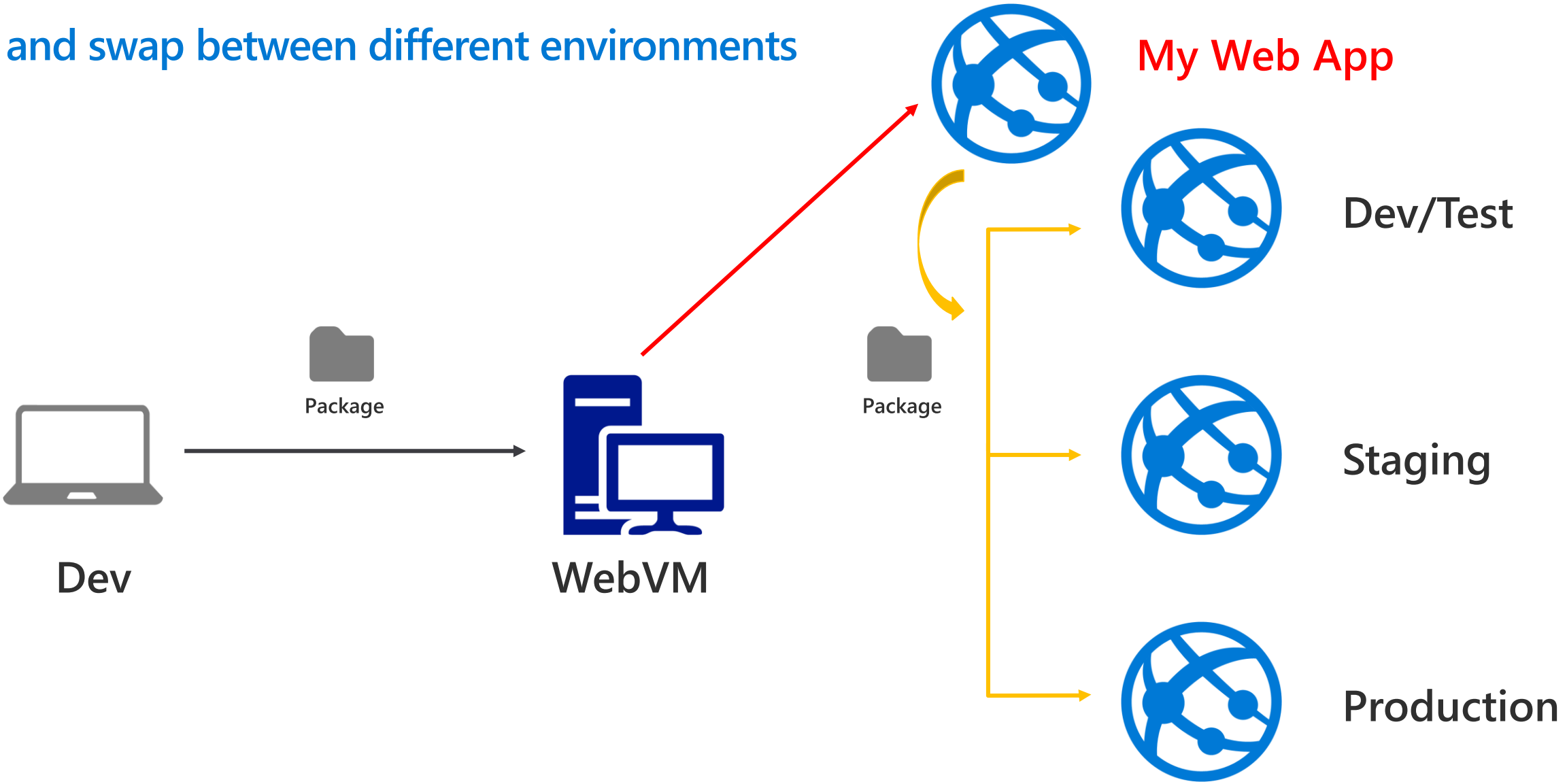
- Azure Web Jobs
- Deployment Slots
- Auto Scaling
- SSL
- Custom Domains
- Scale out
- Different Pricing Tiers
- Integrated Backup
- App Insights
- …

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

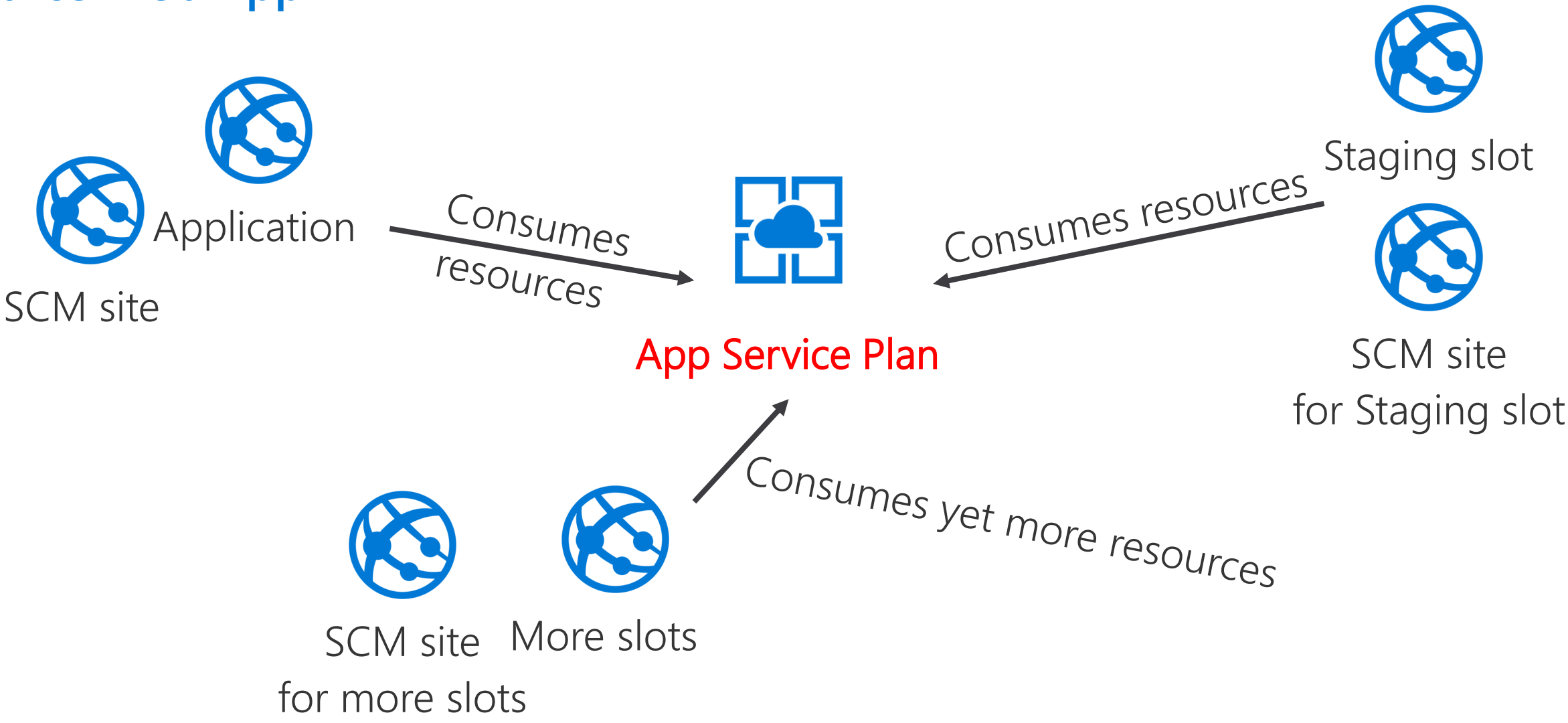
Azure Web App Deployment Slots

Deploy and swap between different environments



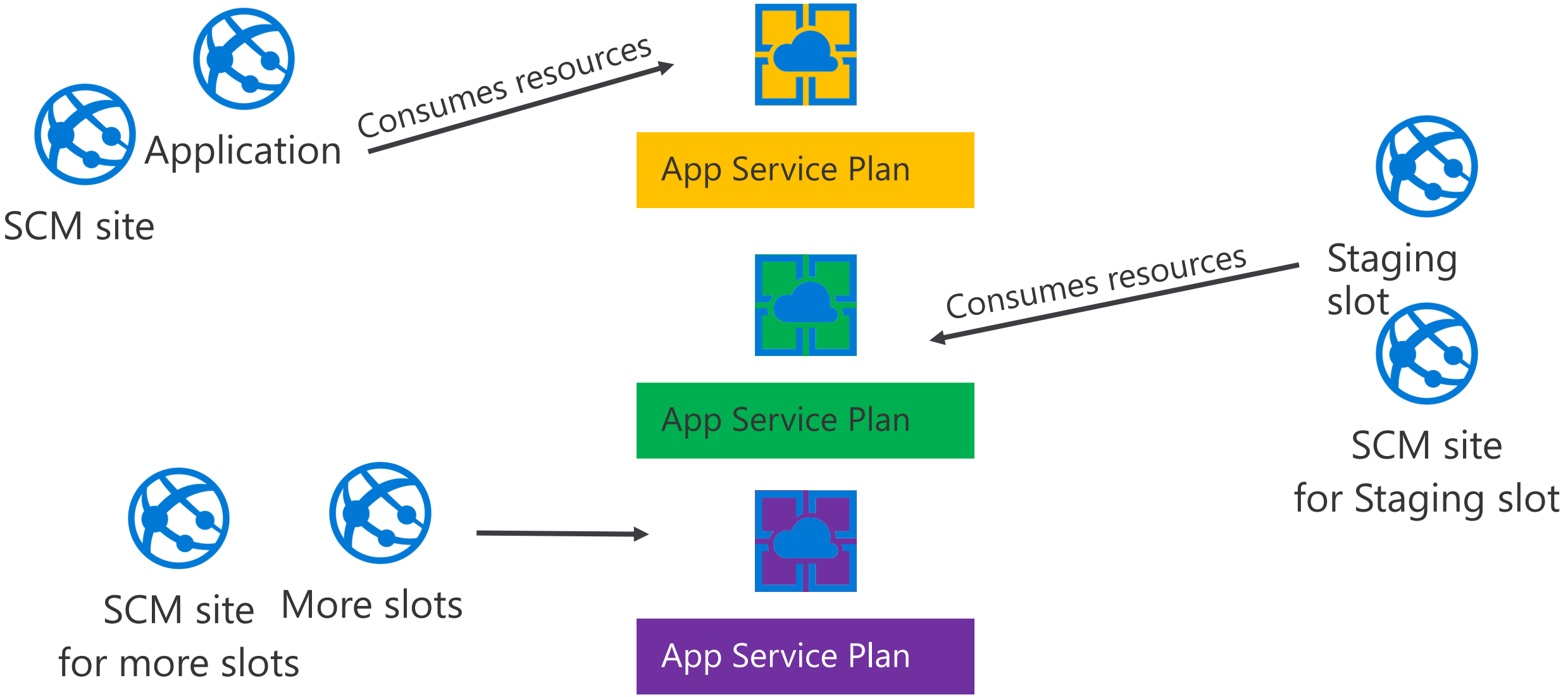
Deployment Slot Resource Usage

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

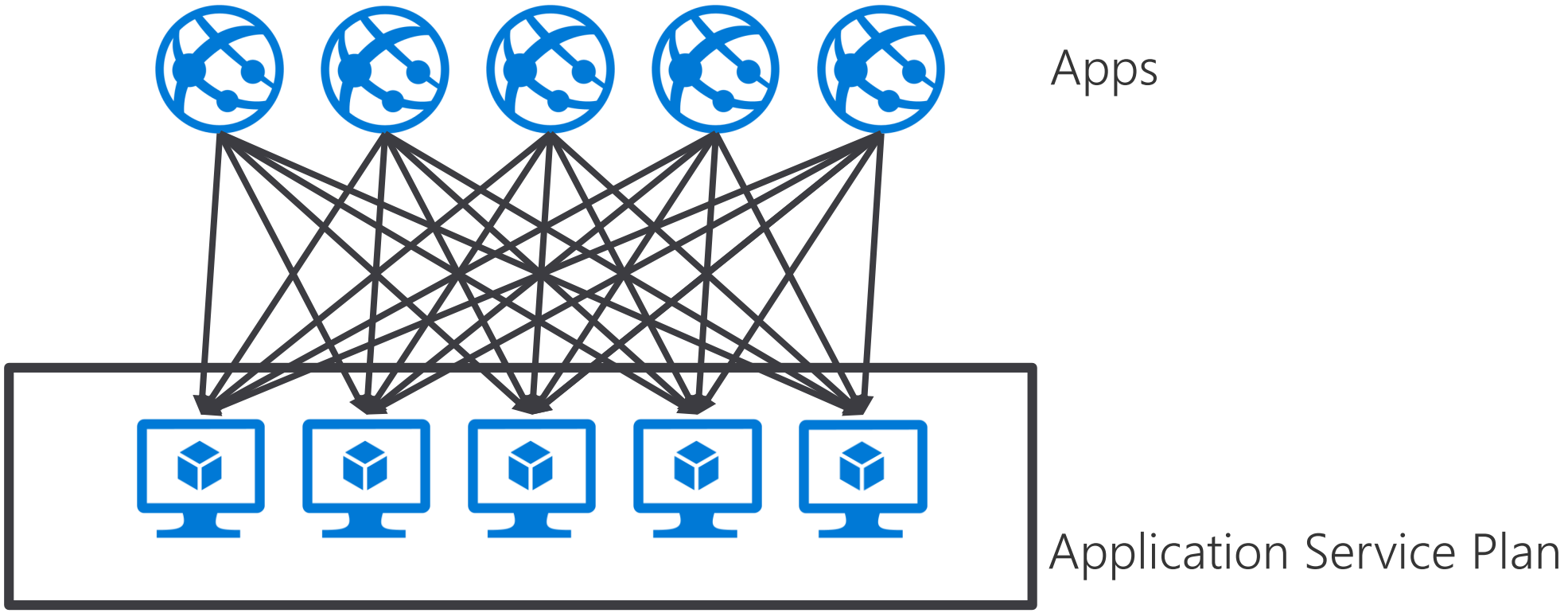


Demo

Web App Deployment Slots

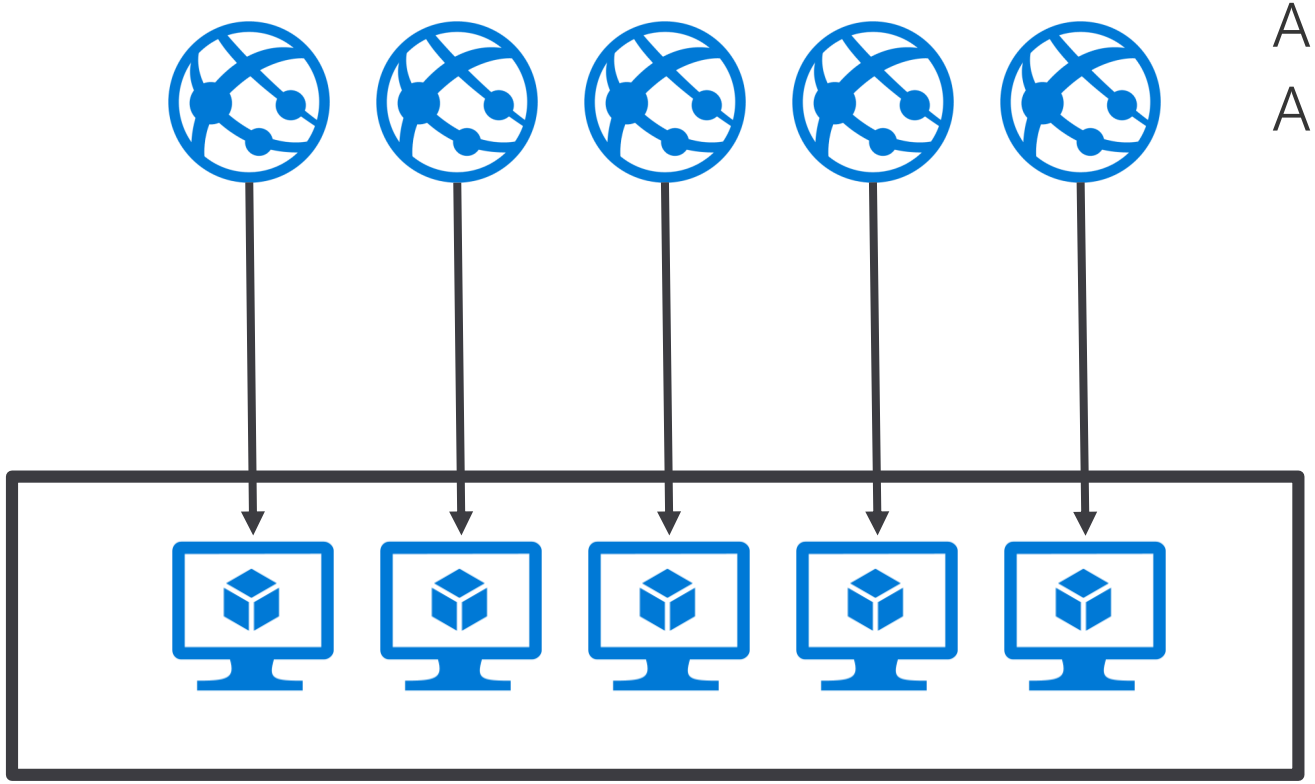
Per Site Scaling

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



Per Site Scaling

New setting from Resources.azure.com



Application Service Plan

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

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

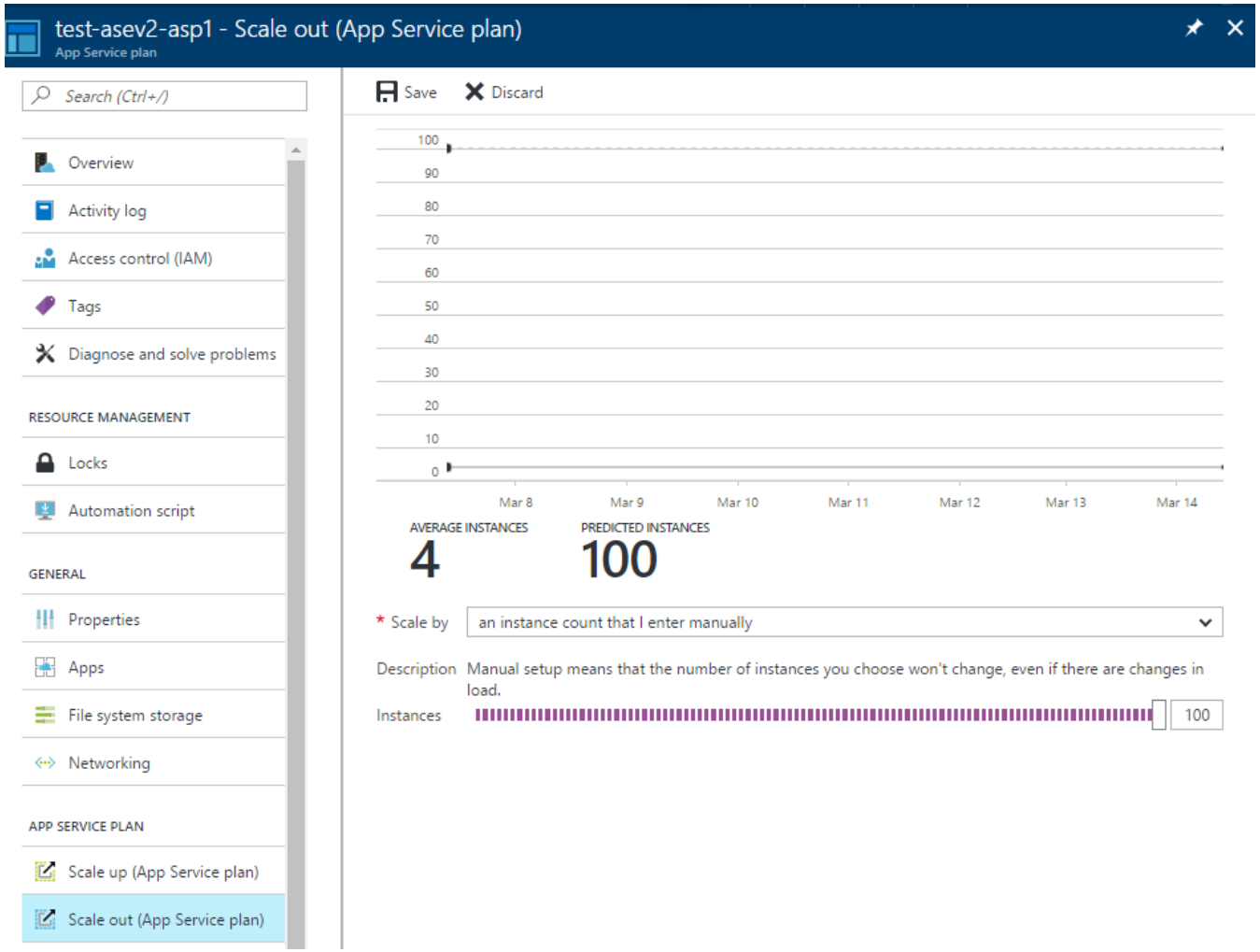
API apps

Easily build and consume APIs in the cloud

Scaling out App Service plans (ASPs) in ASE

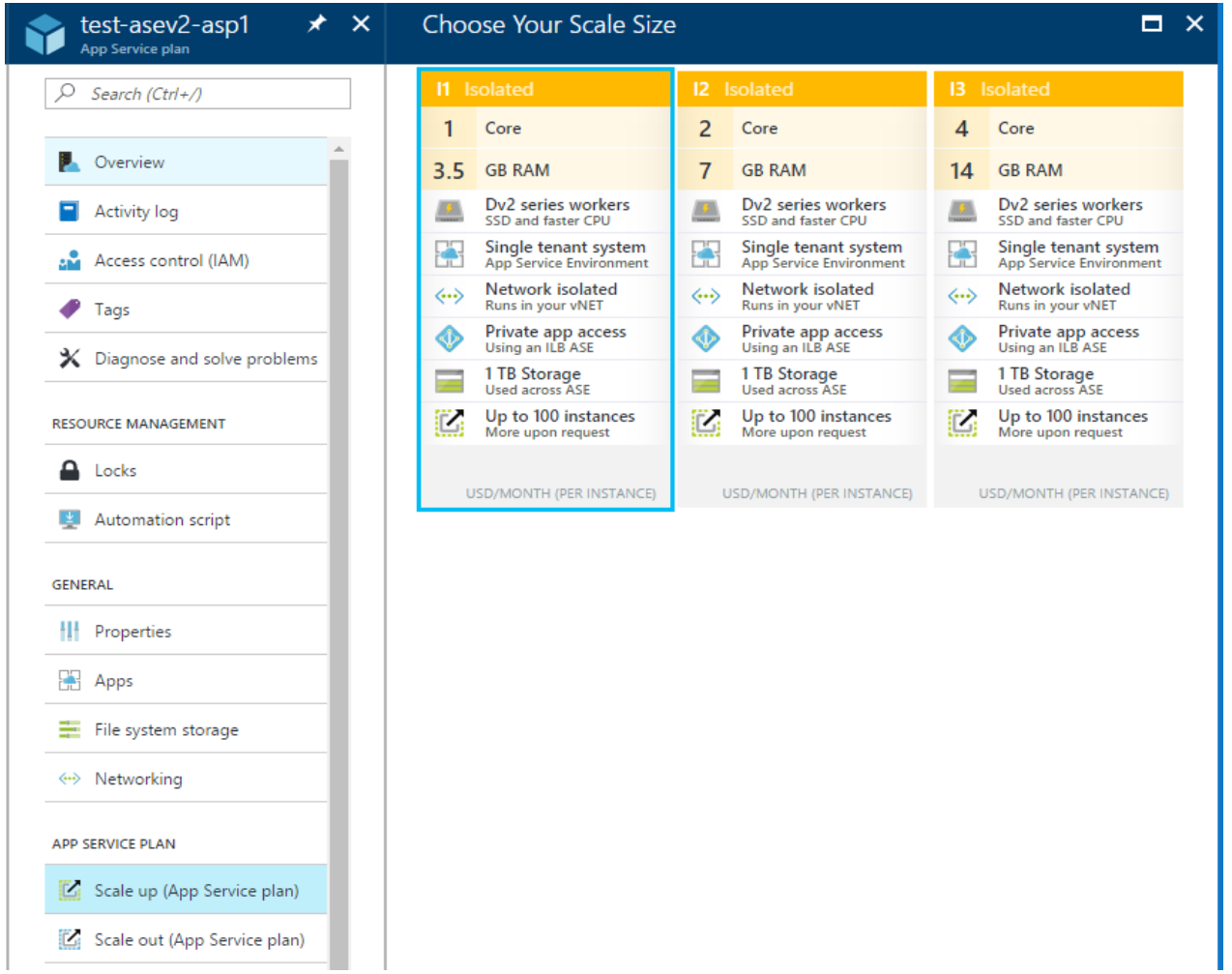
In ASE you can scale to 100 ASP instances
That can be:

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



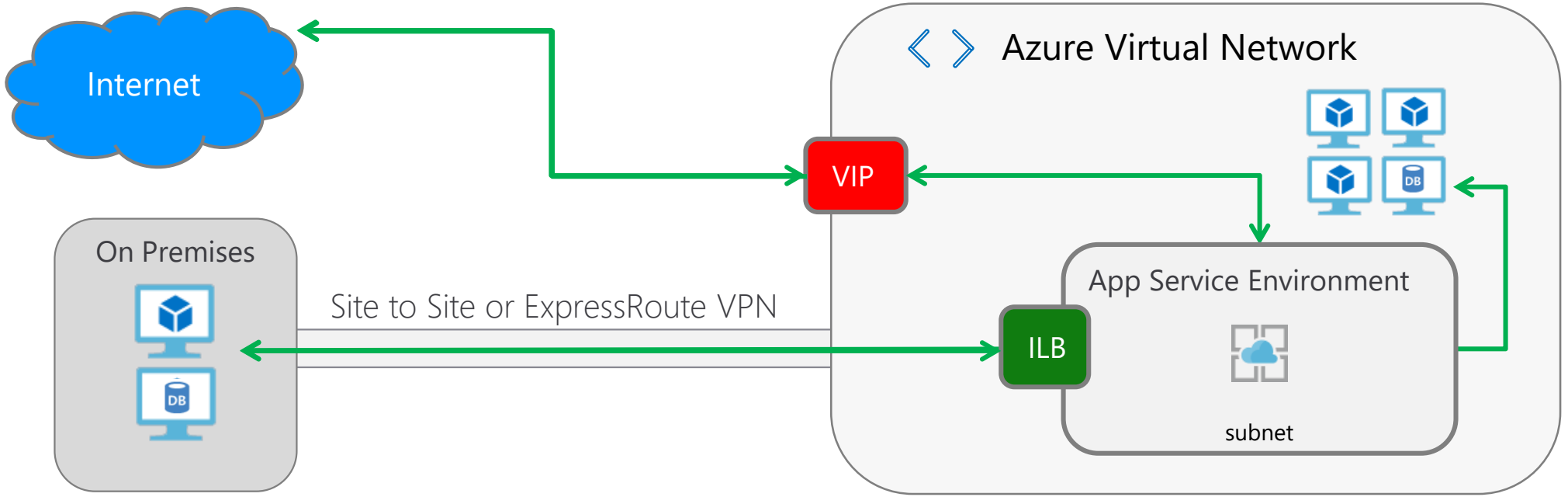
Isolated – Pricing plan just for ASE apps

- 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



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

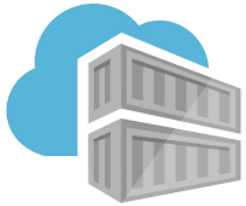
Why running Containers as Azure Web Apps

- 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

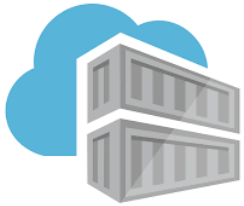
Deploying containers

Azure Pipelines



Private container registry

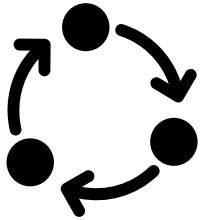
Docker push



Azure Container Registry

Pulls container image

Runnable web app
in Azure App Service



Docker build:

- Docker Hub build
- Docker build on dev machine
- Etc…

Docker Hub

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

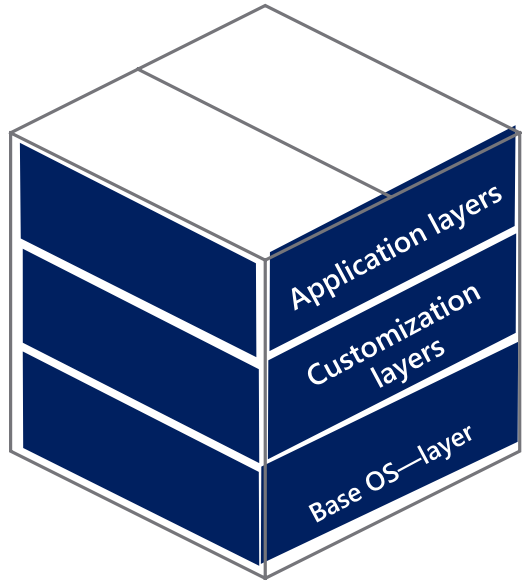
- Smaller containers, higher density of apps, faster pull and start times
- Server Core Containers reduced by over 60% from WS2016LTSC
- Take advantage of improvements not available on WS2016

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

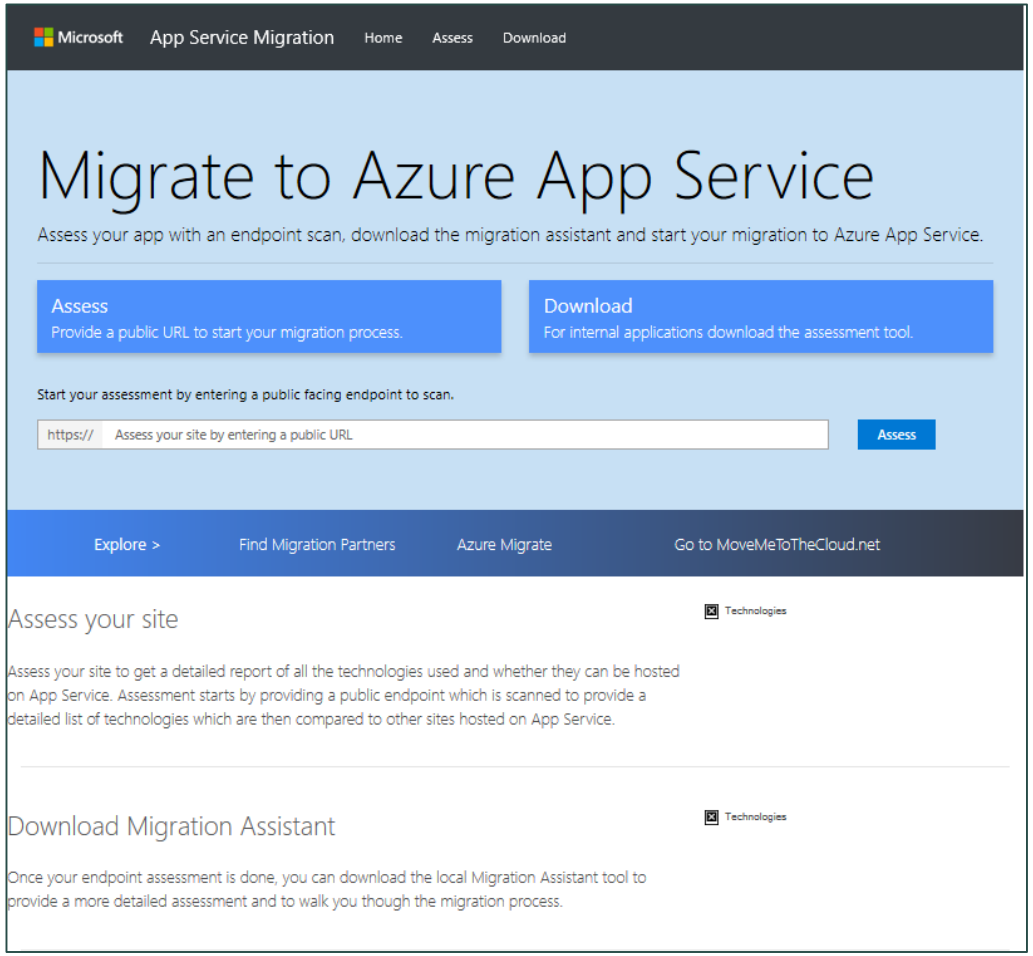
Check your applications for Azure Web App Compatibility, before migrating

- 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.



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…"

Microsoft

Thank You