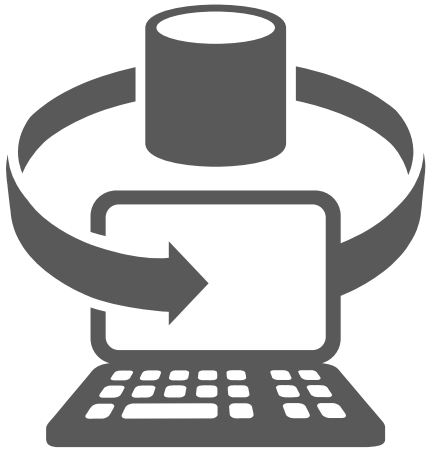
Microsoft Azure: Infrastructure as a Service (IaaS)

Module 1: Microsoft Azure Overview

Section 1: Cloud Computing Introduction

Prerequisites

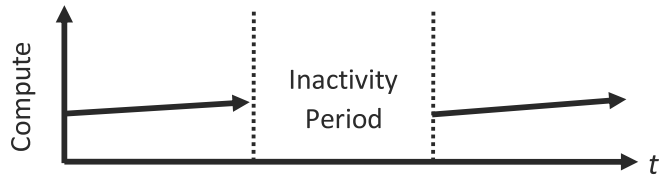
- Windows 7, Windows 8, Windows Server 2008 R2 and Windows Server 2012
- Microsoft Azure PowerShell
- Microsoft Azure account



What is the Cloud?

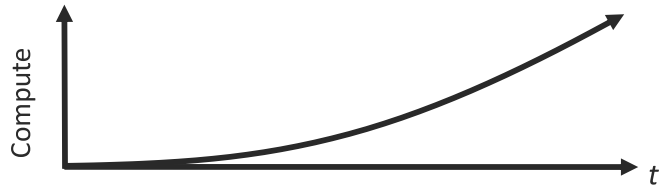
- An approach to computing that is about Internet scaling and connecting to a variety of devices and endpoints

Cloud Computing Patterns



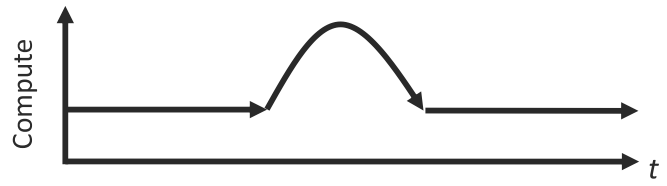
On and Off

On and off workloads (e.g. batch job)
Over provisioned capacity is wasted
Time to market can be cumbersome



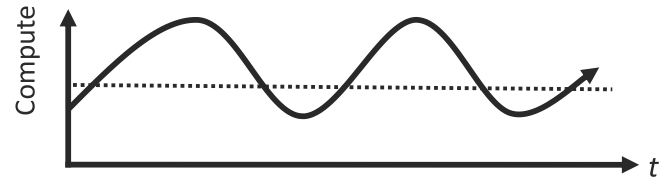
Growing Fast

Successful services needs to grow/scale
Keeping up with growth is a big IT challenge
Cannot provision hardware fast enough



Unpredictable Bursting

Unexpected/unplanned peak in demand
Sudden spike impacts performance
Cannot over provision for extreme cases



Predictable Bursting

Services with micro seasonality trends
Peaks due to periodic increased demand
IT complexity and wasted capacity

Cloud Computing

IaaS

Infrastructure as a Service

Host

PaaS

Platform as a Service

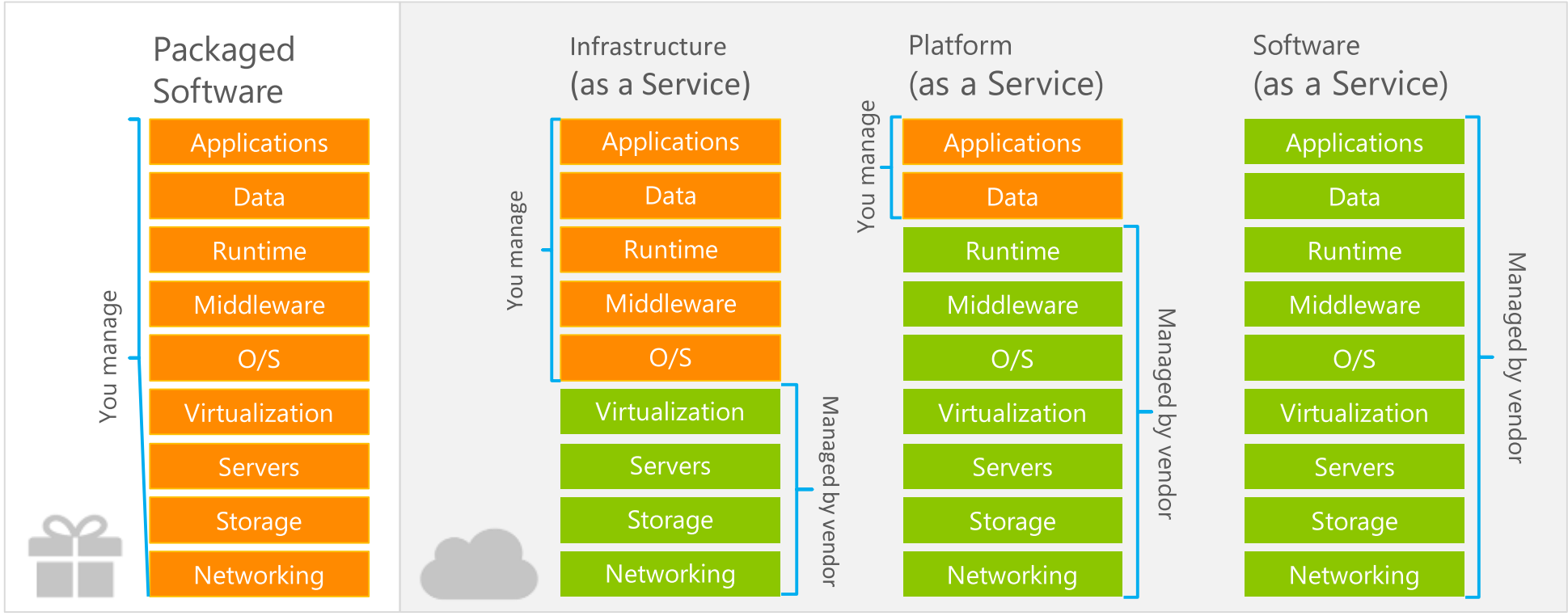
Build

SaaS

Software as a Service

Consume

Cloud Computing (continued)



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Section 2: Microsoft Azure

Global Footprint

20 Regions Worldwide

How are Microsoft Azure Charges Incurred?

- Pay only for what you use*
- VMs (IaaS and web/worker role) usage is by the minute
  - Previous usage rounded up to one hour
- VMs (IaaS only) that are stopped in Microsoft Azure, only storage charges apply

*Microsoft Azure Enterprise Agreement (EA) billing process differs

Microsoft Azure Compute

App Service

Cloud Services

Virtual Machines (VMs - IaaS)

Microsoft Azure App Service

- App Service – fully managed platform in Azure for web, mobile and integration scenarios. This includes
  - Web Apps – Enterprise grade web applications
  - Mobile Apps *(preview)* - Build native and cross platform apps for iOS, Android, and Windows apps or cross-platform Xamarin or Cordova (Phonegap) apps
  - API Apps *(preview)* – API apps in Azure App Service are used to develop, publish, manage, and monetize APIs.
  - Logic Apps *(preview)* - Allows developers to design workflows that articulate intent via a trigger and series of steps, each invoking an App Service API app

Microsoft Azure Cloud Services

- Role – a configuration passed to Azure to tell Azure how many machines of which size and configuration to build for you
  - Web Role – Virtual machine with IIS installed
  - Worker Role – Virtual machine without IIS installed
  - Ability to mix together multiple role configurations within a single Cloud Service
- Package – Source code binaries are packaged and sent with the configuration file to Azure
- Highly scalable – can exceed number of machines capability of App Service Web Apps
- Allows RDP into individual VMs
- Cloud Services are also used to contain IaaS virtual machines *(V1- Classic)*

High Level view of Virtual Machine Services

- Compute resources
  - Virtual Machines
  - VM Extensions
- Storage Resources
  - Blobs, tables, queues and Files functionality
  - Storage accounts (blobs) – Standard & Premium Storage
- Networking Resources
  - Virtual networks
  - Network interface cards (NICs)
  - Load balancers
  - IP addresses
  - Network Security Groups

Managing Azure Deployments

Azure Service Manager (ASM)

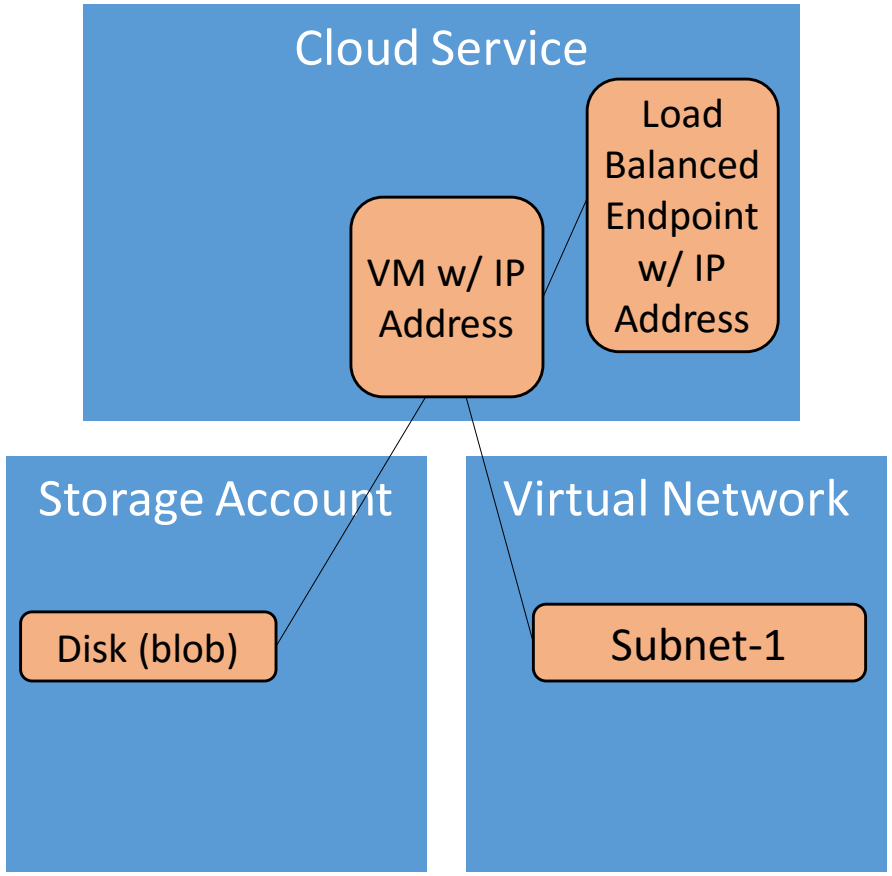
- Traditional way to deploy and manage applications hosted in Azure
- Azure Portal https://manage.windowsazure.com
- PowerShell / CLI (default mode)
- REST API

Azure Resource Manager (ARM)

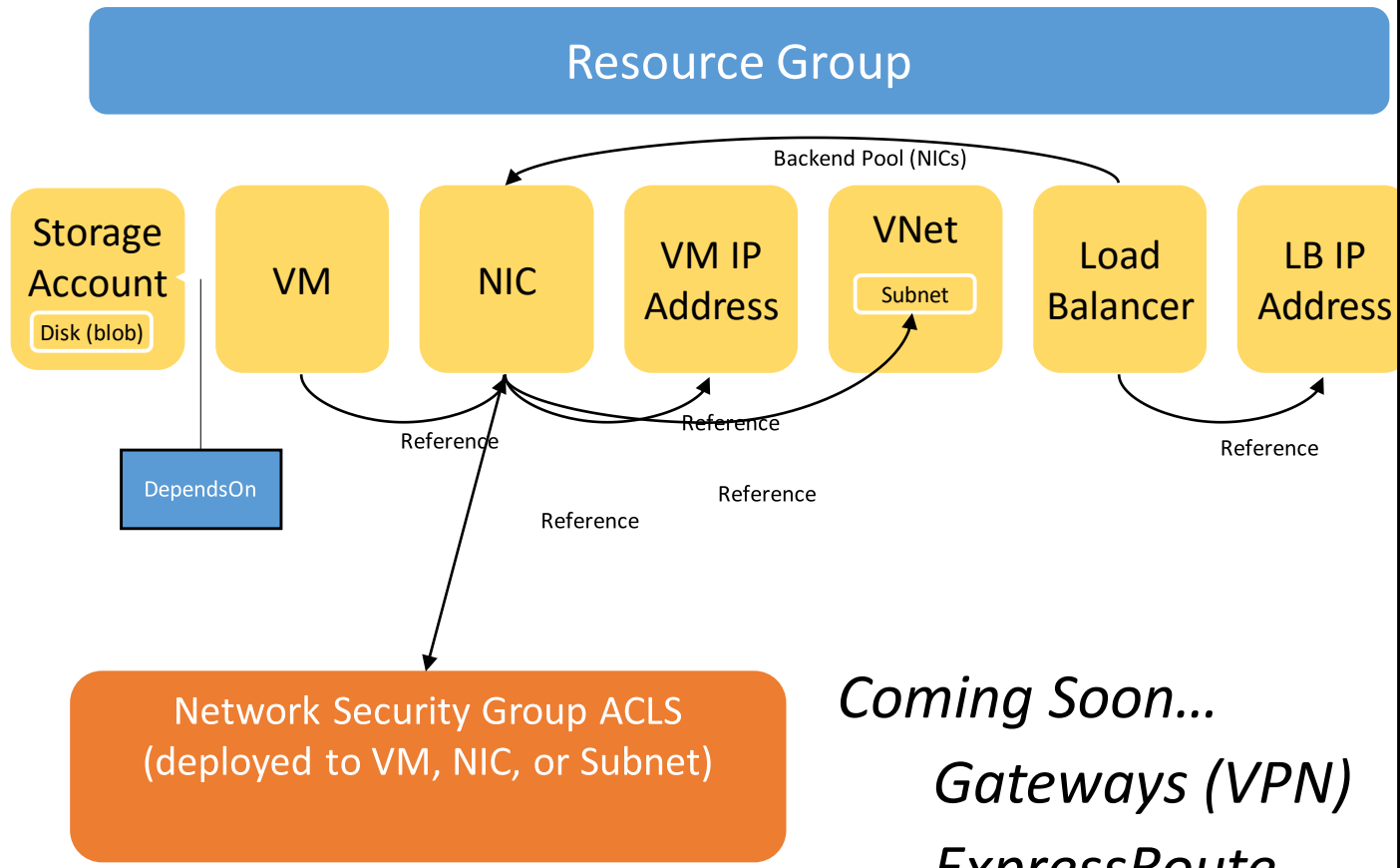
- Modern way to deploy and manage applications hosted in Azure
- Azure Portal https://portal.azure.com
- PowerShell / CLI (ARM mode)
- REST API
- Azure Resource Management Library for .NET

Management models for IaaS

Classic Model (V1)



Resource Manager (V2)



Coming Soon…

Gateways (VPN)

ExpressRoute

Demo: Management Portals


Microsoft