Module 1

Introduction to Microsoft Azure

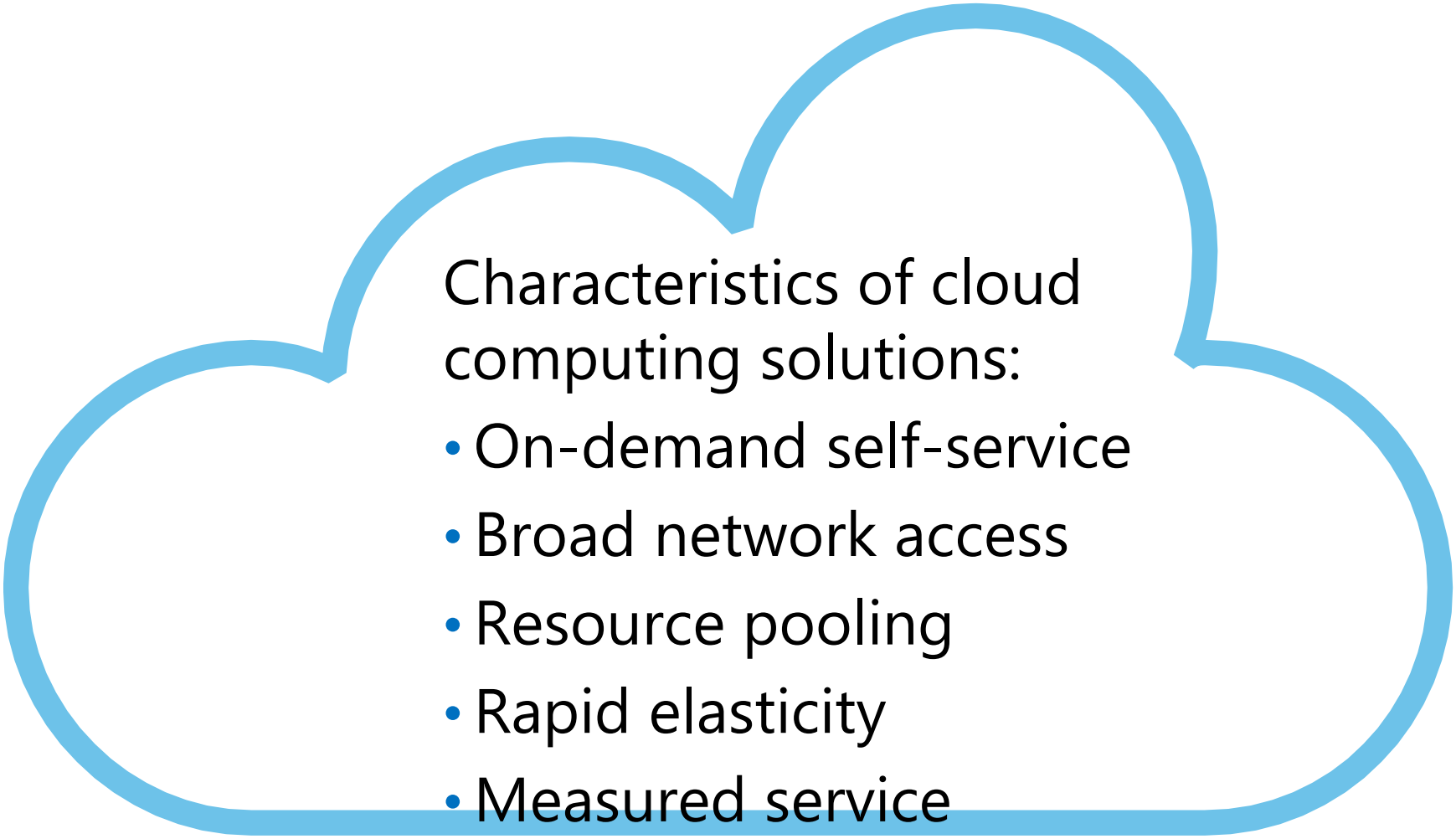
Module Overview

- Cloud technology overview
- Overview of Azure
- Managing Azure with the Azure portal
- Overview of Azure deployment models
- Managing and monitoring Azure resources

Lesson 1: Cloud technology overview

- Introduction to cloud computing
- Types of cloud services

Introduction to cloud computing



Introduction to cloud computing

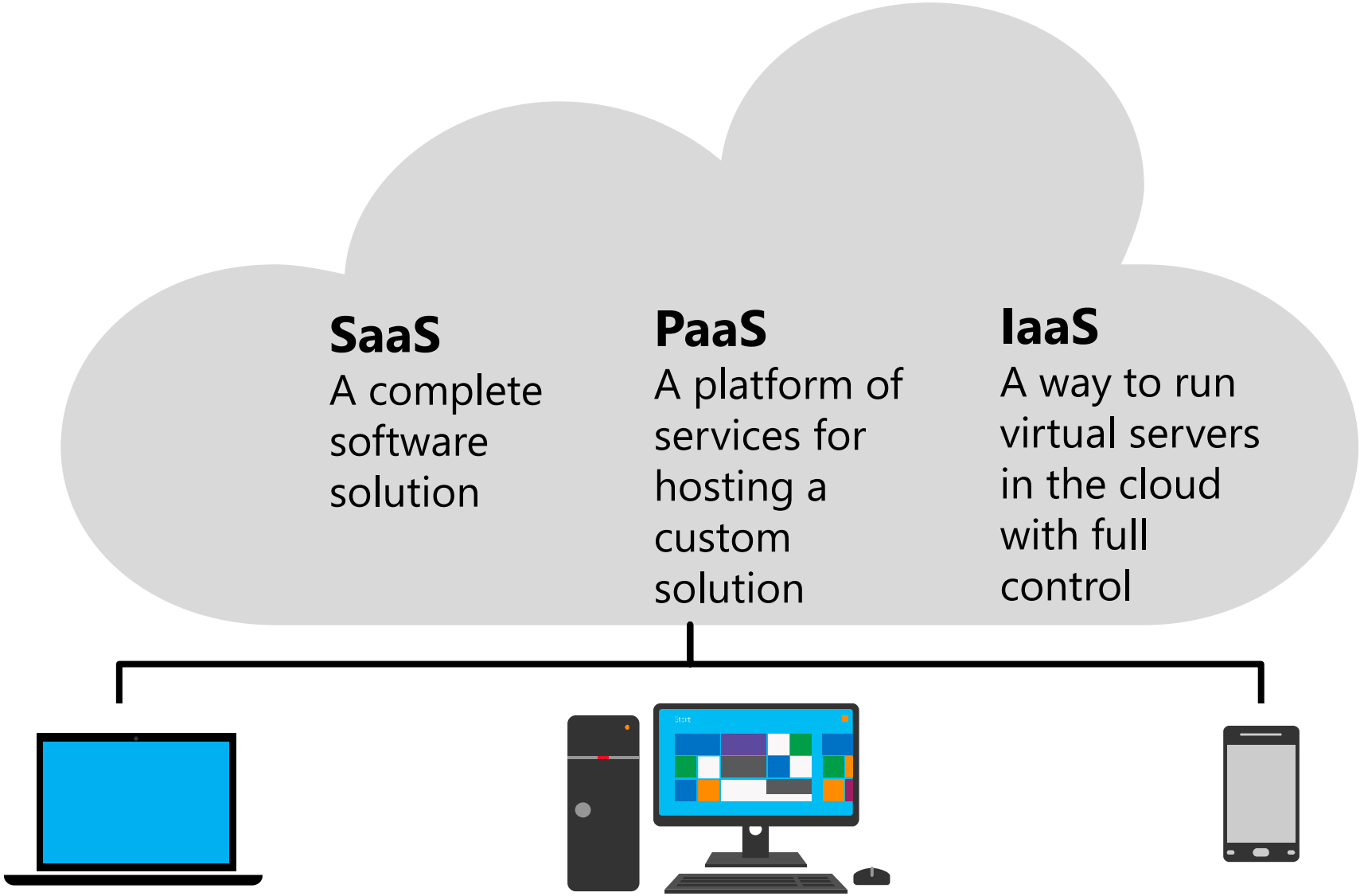
Public, private, and hybrid clouds

A public cloud is an infrastructure, platform, or application service that a cloud service provider delivers for access and consumption by the public

A private cloud is a privately owned and managed cloud that offers benefits similar to those of a public cloud, but is designed and secured for use by a single organization

A hybrid cloud is a technology that binds two separate clouds—public and private—together for the specific purpose of obtaining resources from both

Types of cloud services



Lesson 2: Overview of Azure

- Understanding Azure datacenters
- Understanding the Azure service model
- Locating Azure-related information and resources
- Demonstration: Locating Azure-related resources
- Understanding Azure services
- Understanding Azure compute-hosting options
- Azure deployment models
- Azure management tools

Understanding Azure datacenters

Azure datacenters are located in the following geographic areas

Americas	Europe	Asia Pacific
• Central US • East US • East US 2 • North Central US • South Central US • West Central US • West US • West US2 • US Gov Arizona • US Gov Iowa • US Gov Texas • US Gov Virginia • Canada Central • Canada East • Brazil South	• France Central • France South • Germany Central • Germany Northeast • North Europe • West Europe • UK South • UK West	• Australia East • Australia Southeast • China East • China North • Central India • South India • West India • Japan East • Japan West • Korea Central • Korea South • East Asia • Southeast Asia

Understanding Azure datacenters

- Global presence
- Managed by Microsoft
- Modular architecture:
  - Clusters of thousands of servers in pluggable units
  - Full power redundancy and contingency
  - High-speed, redundant intra-datacenter networks
  - High-speed inter-datacenter and Internet connectivity
  - Triple-redundant data storage and geo-replication
- Highly efficient power and water usage
- Distributed management service
- Paired with another Azure region in the same geographical area

Understanding the Azure service model

- Azure is a pay-per-use, multitenant service
- Organized into accounts and subscriptions:
  - Accounts:
    - Billing and reporting functionality
    - Container of subscriptions
    - Managed by the Account Administrator
    - Accessible via the Account portal
  - Subscriptions:
    - Billing and administrative boundary
    - Container of resources (subject to quotas)
    - Managed by the Service Administrator and Co-Administrators, and via delegation through RBAC
    - Accessible via the Azure portal

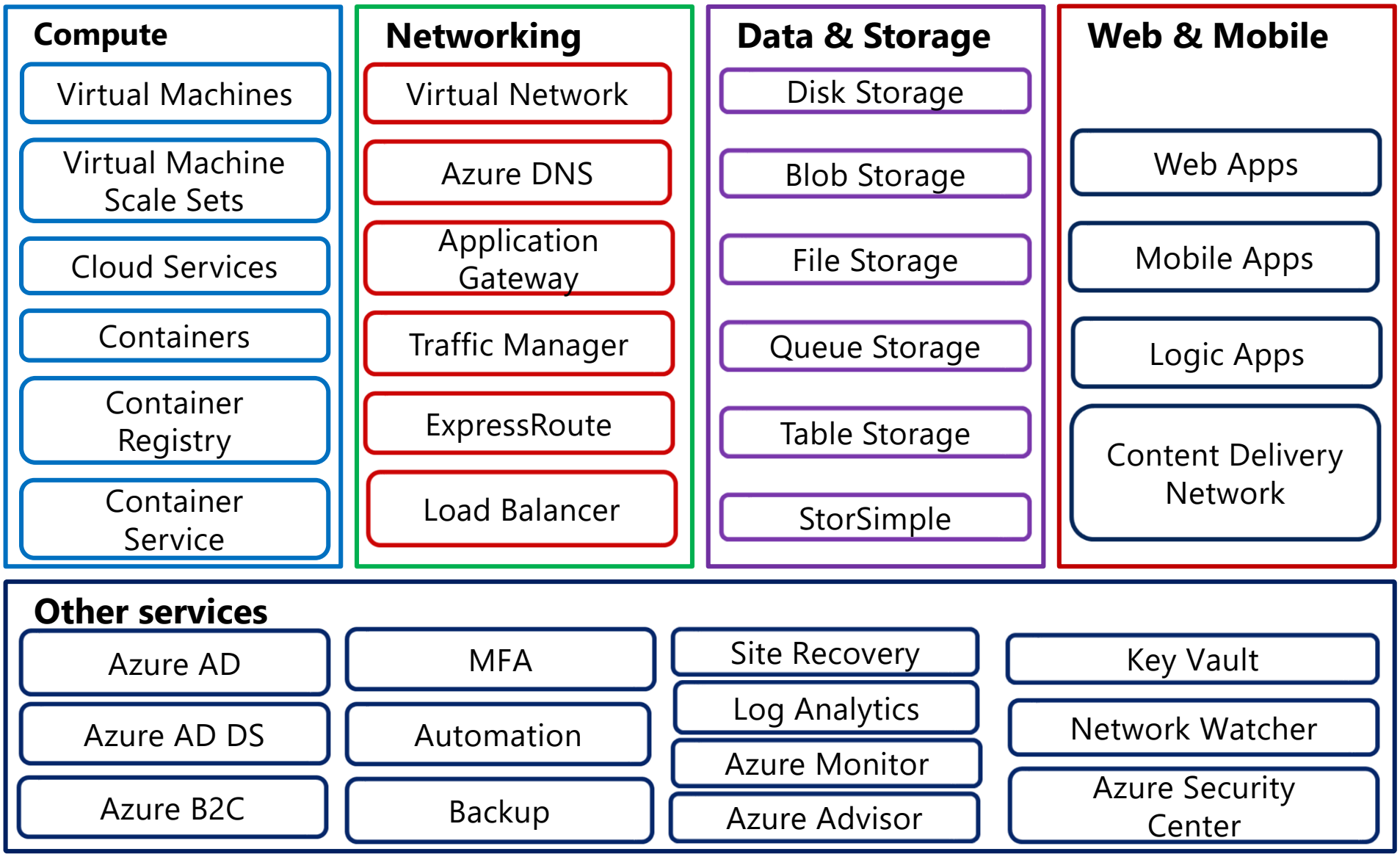
Azure billing and pricing

- The purchase options are:
  - Pay-As-You-Go
  - Microsoft reseller
  - Enterprise Agreement
- The support options are:
  - Developer
  - Standard
  - Professional Direct
  - Premier
- Azure pricing:
  - Per-minute compute charges
  - Estimate available via Azure pricing calculator

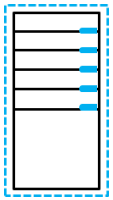
Locating Azure-related information and resources

- Azure Marketplace: certified, open source, and community images, apps, and services
- GitHub: APIs, SDKs, and open source projects
- Azure Trust Center: information and guidance around security, privacy, and compliance
- Microsoft Docs: the most comprehensive online library providing information about Azure

Understanding Azure services



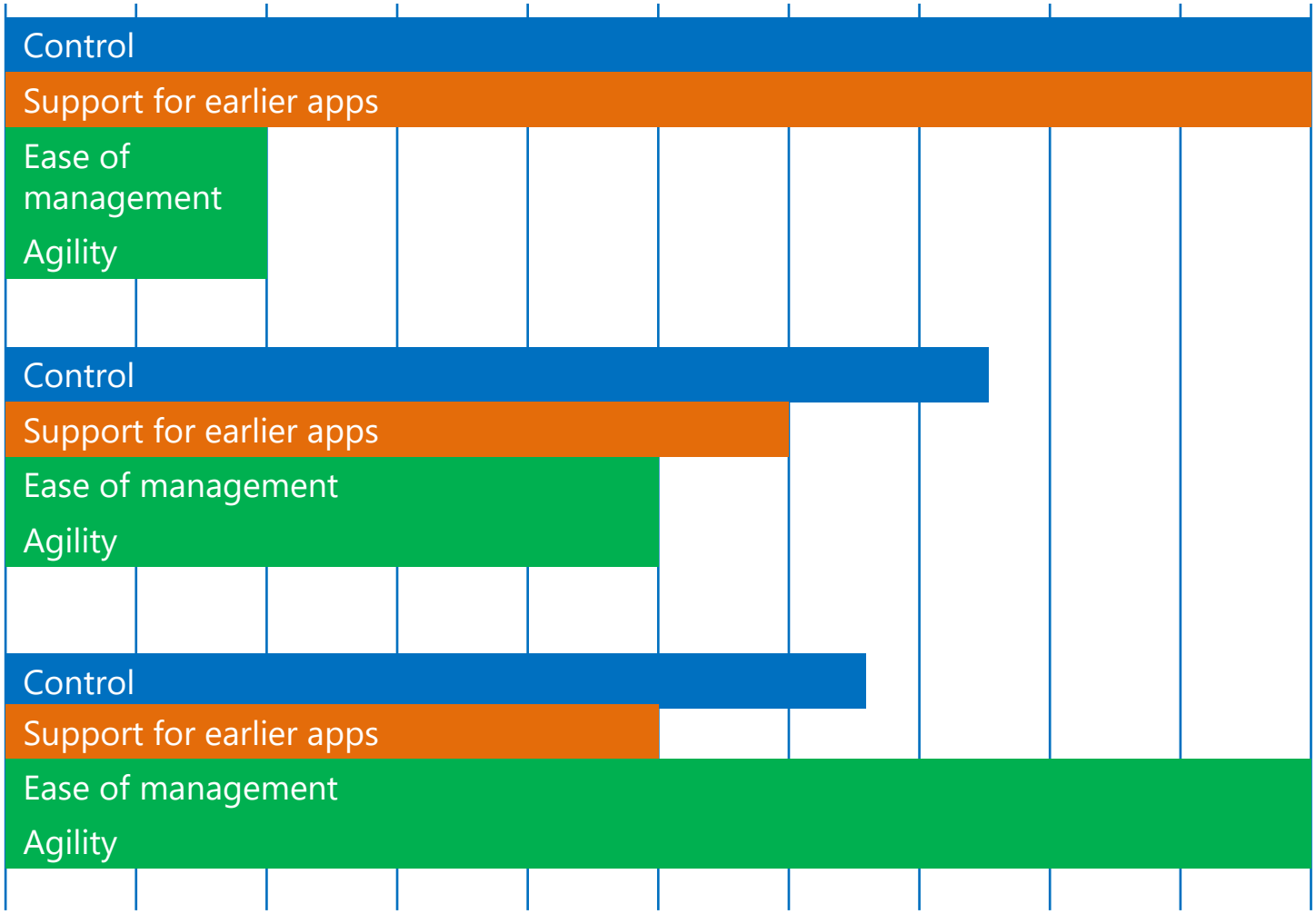
Understanding Azure compute-hosting options



Azure Virtual Machines

Azure Cloud Services

App Service



Azure deployment models

- Deployment models determine underlying API for provisioning and managing Azure services:
  - Classic (Azure Service Management):
    - Available via the Azure classic portal and the Azure portal
  - Azure Resource Manager:
    - Available via the Azure portal
    - Based on the concept of resources and resource groups
    - Strongly recommended for any current and future deployments

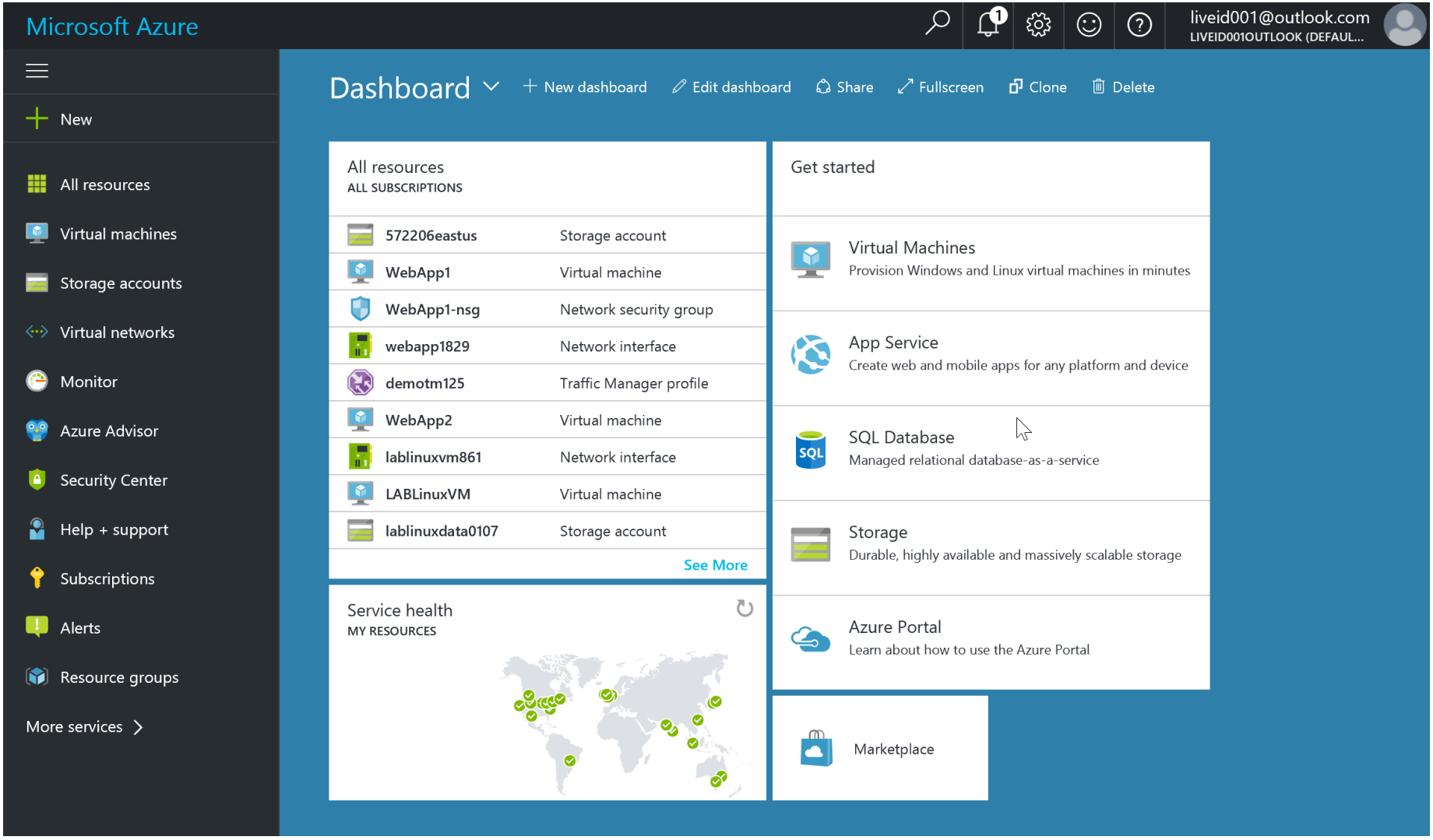
Azure management tools

- Azure portals
- Windows PowerShell
- Azure CLI
- Azure Shell
- Visual Studio

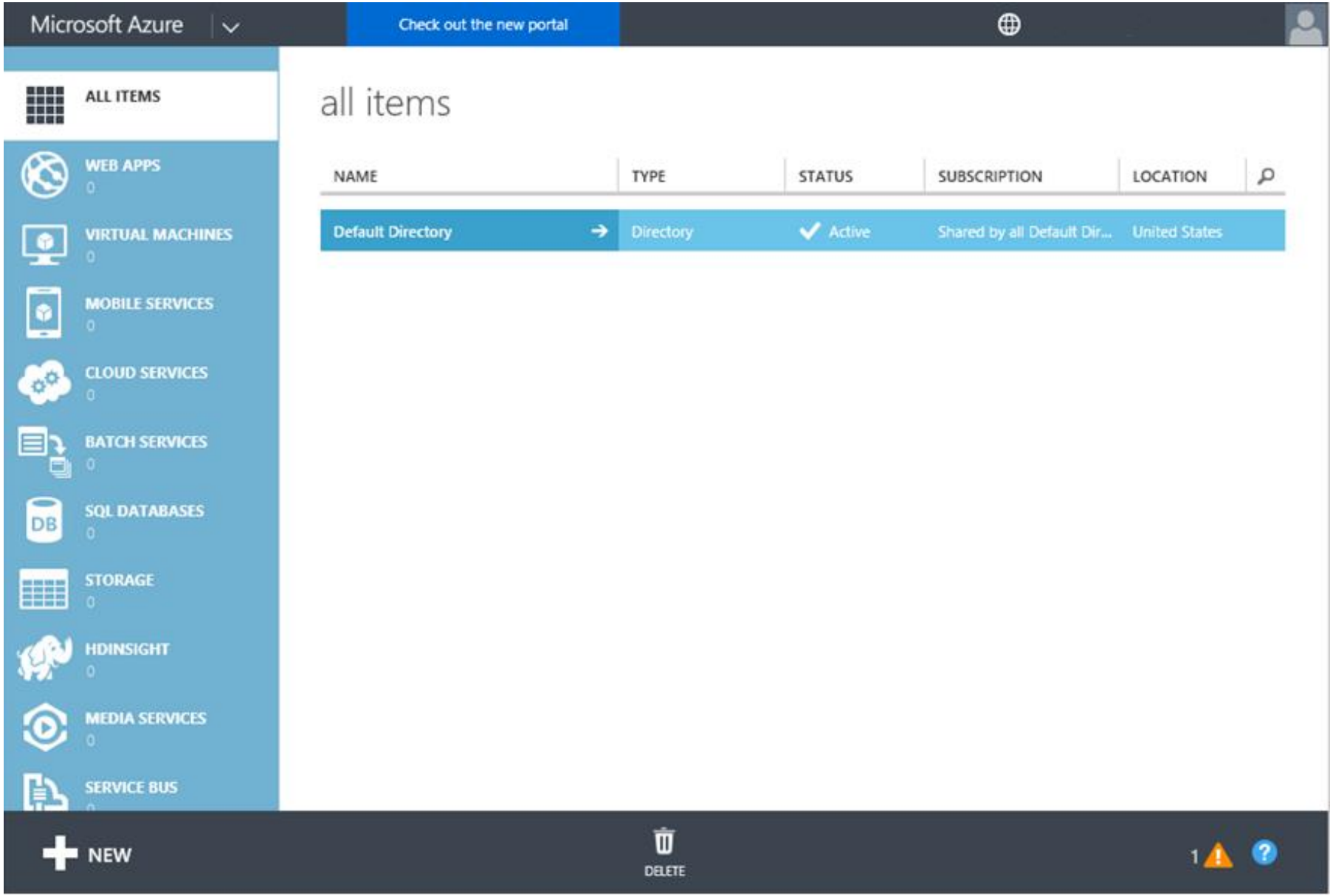
Lesson 3: Managing Azure with the Azure portal

- Using the Azure portal
- Using the Azure classic portal
- Managing account subscriptions with the Azure portals
- Demonstration: Using the Azure portals

Using the Azure portal



Using the Azure classic portal



Managing account subscriptions with the Azure portals

- The **Subscription** and **Billing** blades at https://portal.azure.com
  - View cost by resource and burn rate charts
  - Perform cost analysis
  - View billing information
- The **subscriptions** page at http://account.azure.com/subscriptions
  - Manage payment methods
  - Download usage details
  - Edit subscription details
  - Edit partner information
  - Change subscription address
  - Cancel subscription

Lesson 4: Overview of Azure deployment models

- Core concepts of Azure Resource Manager deployment model
- Managing resources and resource groups
- Azure Resource Manager deployment methodologies

Core concepts of Azure Resource Manager deployment model

Azure Resource Manager core concepts:

- Resources:
  - Individual building blocks of Azure-based solutions
  - Managed by resource providers
- Resource group:
  - Custom collection of resources
  - Typically represents common lifecycle of its resources
  - Commonly used to delegate permissions to its resources
  - Aggregate billing data and auditing events of its resources
  - Each resource belongs to only one resource group
- RBAC
- Tagging
- Templates
- Policies and locks

Managing resources and resource groups

- Resource groups:
  - Serve as logical groupings of resources
  - Support moving resources
- Considerations when moving resources:
  - Azure region must remain the same
  - Source and target resource groups are locked during move
  - For cross-subscription moves:
    - Subscriptions must be associated with the same Azure AD tenant
    - All dependent resources must be moved together
    - The target subscription must be registered for resource providers
  - Not all resources support the move operation