

JOHN SAVILL'S AZURE MASTER CLASS

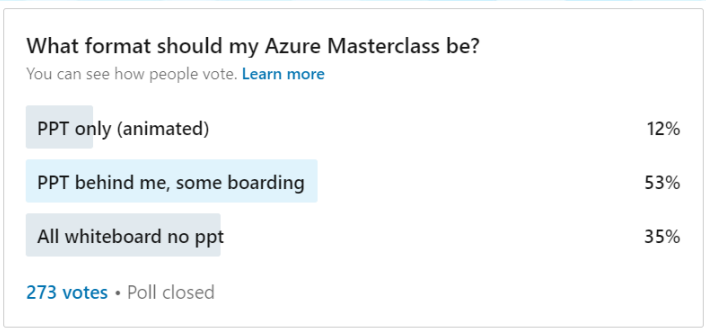


© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

1

FORMAT

- PowerPoint
- Whiteboard
- Demo



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

2

AGENDA

- Cloud and Microsoft Azure 101
- Identity and Governance
- Understanding Options, Cost and Optimization
- Azure Storage and Database Services
- Using Virtual Networks
- Enabling Azure-to-On-Premises Connectivity
- VMs and VM Scale Sets
- Containers and other Compute Services
- Load Balancing and Enabling External Connectivity to Azure Services
- High Availability, Disaster Recovery and Migration with Azure
- Secrets and Keys
- Monitoring and Security
- Infrastructure as Code and DevOps
- Other Key Azure Technologies to Complete your Azure Environment

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

3

SOUP TO NUTS

- Goal is to start from the beginning
- Build in a logical way from nothing to being able to architect and operate Azure environments

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

4

MASTER CLASS EVOLUTION

- Technology changes
- I will update modules over time
- I will add/remove potentially
- I will reference and link to deeper dives
- Make sure to subscribe and set the notification bell to find out about updates and new content
- Use the [playlist](#)
- [GitHub repo](#) for the code linked from playlist

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

5

STAY CURRENT

- I post a [weekly update](#) every Sunday lunchtime
- Less than 15 minutes covering all the previous weeks changes

**AZURE
INFRASTRUCTURE
WEEKLY UPDATE**

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

6

MICROSOFT CERTIFICATION?

- This is not focused on any specific certification
- My focus is to teach you Azure
- However this would help with:



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

7

LETS BEGIN!



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

8



CLOUD AND MICROSOFT AZURE 101

Types of Cloud Service

Microsoft Azure Primer

Types of "as a Service"

Getting access to Azure and types of subscription

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

9

CLOUD SERVICES

- Many types of Cloud Service
- These cloud services can be hosted:
 - Within an organizations own infrastructure, Private Cloud, with full access to all aspects and all responsibility
 - From an external party accessed over the Internet and made available to general public, Public Cloud, e.g. Microsoft Azure, Amazon Web Services. Access only to specific aspects based on the service and responsibility based on type of service
 - Some organizations share an infrastructure which can be thought of as a Community Cloud
 - A combination of clouds brings a Hybrid Cloud solution

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

10

WHAT IS A “CLOUD”

- Many definitions
- US NIST defines 5 critical characteristics to be a cloud
 - On-demand self-service
 - Broad network access
 - Resource pooling
 - Rapid elasticity
 - Measured service
- <http://dx.doi.org/10.6028/NIST.SP.800-145>

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

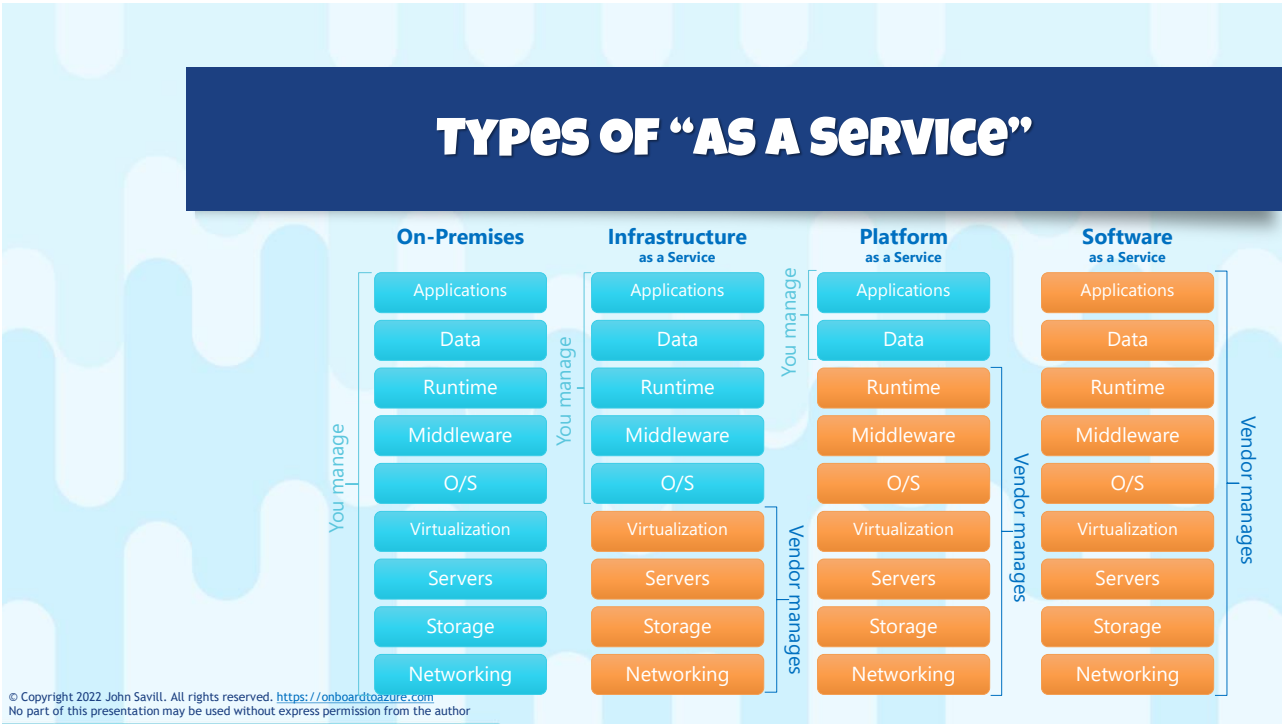
11

TYPES OF “AS A SERVICE”



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

12



13

IMPORTANT POINT

In a real public cloud
you are not putting
in an order for
servers to be racked!

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

14

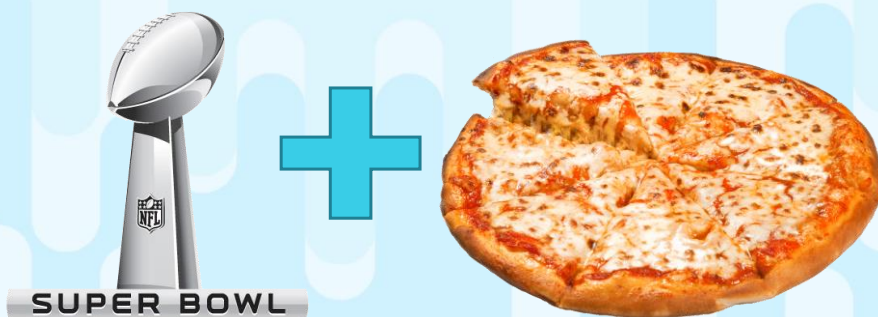
WHEN TO USE PUBLIC CLOUD SOLUTIONS

- There is no definite right or wrong answer
- Shift responsibility and focus on what matters to the business
- Different organizations have different priorities and can operate services/datacenters at different price points and [environment impact](#)
- Requirements for resiliency or proximity not possible or practical on-premises
- The key point is that Public Cloud solutions charge you based on consumption
 - If I consume 100 TB of storage I pay for 100 TB and not the 500 TB I may need in the future
 - If a virtual machine runs for 12 hours a month I pay for the 12 hours it is running only
- The fact you pay only when its needed means Public Cloud fits a number of key scenarios perfectly

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

15

PUBLIC CLOUD EXAMPLE



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

16

OTHER GREAT SCENARIOS



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

17

KEY SCENARIOS I see

- Test and development
- Disaster Recovery
- DMZ scenarios
- Special projects
- Many organizations are just “all in”

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

18

Azure Services

Security & Management

- Security Center
- Portal
- Azure Active Directory
- Azure AD B2C
- Multi-Factor Authentication
- Automation
- Scheduler
- Key Vault
- Storage Marketplace
- VM Image Gallery & VM Depot

Platform Services

Media & CDN

- Media Services
- Media Analytics
- Content Delivery Network

Integration

- API Management
- IoT Hub
- Logic Apps
- Service Bus

Compute Services

- Container Service
- VM Scale Sets
- Batch
- RemoteApp
- Dev/Test Lab

Application Platform

- Web Apps
- Mobile Apps
- API Apps
- Cloud Services
- Service Fabric
- Application Pools
- Functions

Developer Services

- Visual Studio
- Mobile Engagement
- VS Team Services
- Xamarin
- Application Insights
- Stack Overflow

Data

- SQL Database
- SQL Data Warehouse
- DocumentDB
- SQL Server Stretch Database
- Redis Cache
- Storage Tables
- Azure Search

Intelligence

- Cognitive Services
- Bot Framework
- Cortana

Analytics & IoT

- HDInsight
- Machine Learning
- Stream Analytics
- Data Catalog
- Data Lake Analytics Service
- Data Lake Store
- IoT Hub
- Event Hubs
- Data Factory
- Power BI Embedded

Hybrid Cloud

- Azure AD Health Monitoring
- AD Privileged Identity Management
- Domain Services
- Backup
- Operational Analytics
- Import/Export
- Azure Site Recovery
- Storage

Infrastructure Services

Compute

- Virtual Machines
- Containers

Storage

- Blob
- Queue
- Files
- Disks

Networking

- Virtual Network
- Load Balancer
- DNS
- Express Route
- Traffic Manager
- VPN Gateway
- App Gateway

Datacenter Infrastructure (32 Regions, 24 Online)

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

HOW TO GET AZURE?

- Get a free one-month trial with \$200 credit
 - <http://azure.microsoft.com/pricing/free-trial/>
- Get Azure as part of your existing Visual Studio Enterprise
 - <https://azure.microsoft.com/pricing/member-offers/credit-for-visual-studio-subscribers/>
- Buy Azure as you use it
- Create an Azure agreement with Microsoft which allows creation of different subscriptions and administrators plus reduced rates
- Cloud Service Provider

```
graph TD; EE[Enterprise Enrollment] --> DA[Department A]; EE --> DB[Department B]; DA --> AA[Account A]; DA --> AB[Account B]; DB --> AC[Account C]; AA --> S1[Subscription 1]; AA --> S2[Subscription 2]; AB --> S3[Subscription 3]; AC --> S4[Subscription 4]
```

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

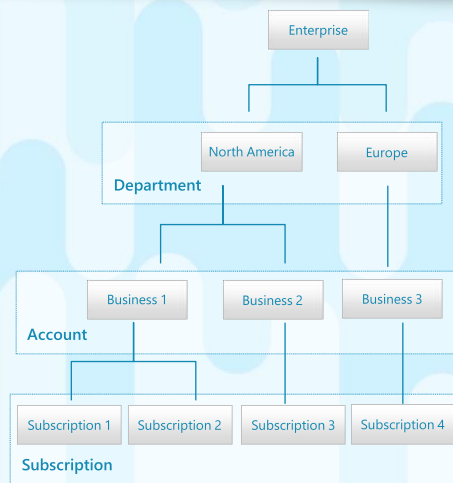
20

Copyright 2022 John Savill

10

ACCOUNT SETUP METHODOLOGY

- Different options for creating accounts including:
 - Functional Teams (Sales, Legal, Marketing)
 - Business Divisions (Windows, Bing)
 - Geographic (North America, Europe)
 - Applications



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

21

LIMITS AND QUOTAS

- There are soft limits and hard limits
- Initially subscriptions have fairly low limits to help protect you from over use
- <http://azure.microsoft.com/documentation/articles/azure-subscription-service-limits/>
- You can increase this via Subscription - Usage + quotas - Request Increase
- On your account you can enable or remove spending limits

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

22

RELIABILITY LAYER IN THE CLOUD

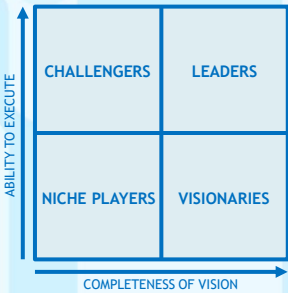
- Reliability in the hardware is what you often implement on-premises
 - Centralized storage (e.g. a SAN)
 - Clusters of hosts
 - Migration of VMs between hosts in planned situations and failover in unplanned
 - Typically single instance of workloads
- Reliability in the software is used in the cloud
 - Distributed, multiple instances of compute and storage
 - VMs typically not migrated during maintenance
- Note Azure datacenter architectures are highly durable and resilient!
- Reliability in the software is the only practical architecture for mega-scale however it does not mean its worse than reliability in the hardware
- You need to factor this as part of your architecture and provide reliability in the application through multiple instances

© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

23

WHY SHOULD YOU USE AZURE?

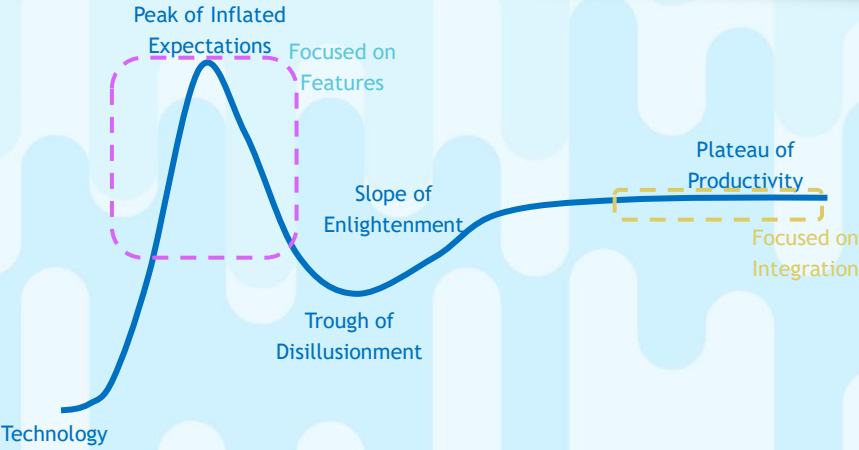
- Gartner has a magic quadrant around many technologies. The magic quadrant are leaders in their vision and ability to execute
- Microsoft is in the leader magic quadrant for many services, e.g.:
 - Cloud Infrastructure and Platform Services
 - Access Management
 - Cloud DBMS
 - Cloud AI Developer services
 - Multiple security offerings
 -
- Microsoft can provide a hybrid solution



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

24

BUT WHAT ABOUT FEATURE X?



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

25

WHAT DOES THIS mean?

- Azure is really one of the few realistic big guys in this space
- The billions of dollars needed to be available geographically available and commit to the scale limit those who can truly play in this space
- Everyone else will likely be niche players
- You are betting on a good horse 😊
- If Azure does become self-aware it will treat you well as an early adopter



© Copyright 2022 John Savill. All rights reserved. <https://onboardtoazure.com>
No part of this presentation may be used without express permission from the author

26