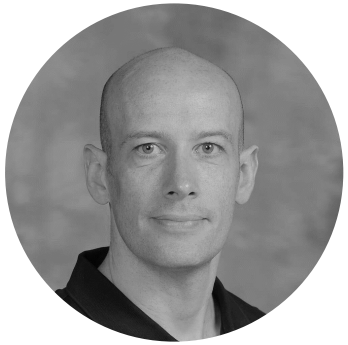
Understanding and Using Azure Storage Proposal

INTRODUCTION TO AZURE STORAGE



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Course Overview

Understand the types of storage available in Azure and how they can be utilized

How storage is used by Azure IaaS VMs

Managing Azure Storage

Utilizing StorSimple with Azure Storage

Module Overview

The importance of storage in Azure

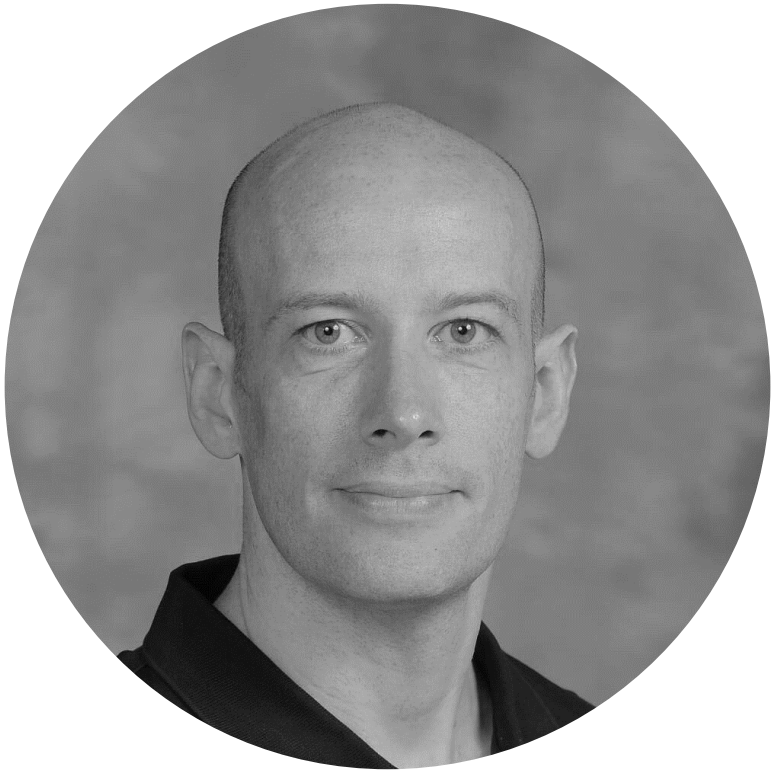
Types of Azure storage and accounts

Azure regions

Types of storage resiliency

Services offered through Azure storage

Who Am I?



Working with Microsoft and Windows for over 20 years

Started NTFAQ.COM and have written 8 books related to Windows, virtualization and the cloud

Present at many industry conferences

Why This Is Important

Storage is the most important aspect of any system

Storage is the foundation of your Azure deployment and the key to availability of services

Without fully understanding the types of storage and how its offered your architecture will be sub-optimal and possibly even completely flawed

Types of Storage

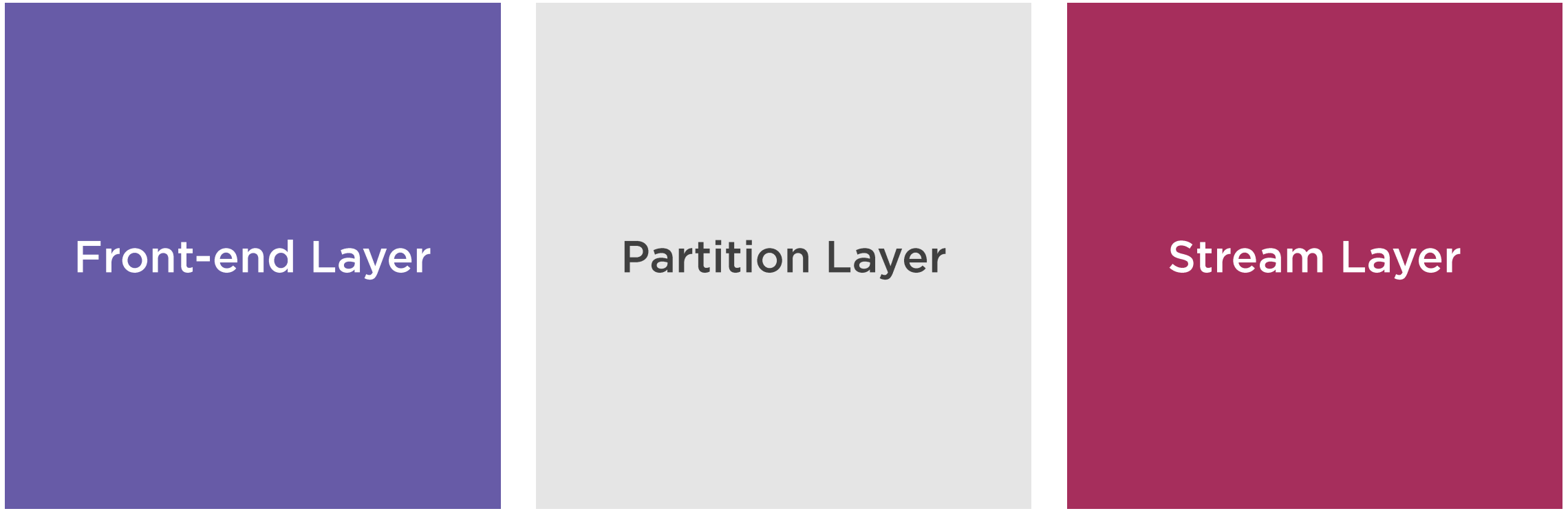
There are many different “types” of “type”

Persistent vs non-persistent	Durability	Resiliency
Performance	Connectivity	File- vs block-based

Each have various pros and cons and are best suited for varying scenarios

Azure Storage

A distributed, custom, 3-tier storage solution



Azure Storage

Deployed as Storage Stamps which consist of a number of racks that are each a fault domain

Data can be replicated in two ways

- Intra-stamp (Stream Layer replication)
- Inter-stamp (Partition Layer replication)

Offerings from Azure Storage

Huge array of storage services

Through the Partition Layer offers different types of data storage and service

- Blobs (in containers as block or page blobs)
- Tables (which have entities with field:value properties similar to NoSQL with no fixed schema)
- Queues (which have messages)
- Files (via SMB shares)

For infrastructure the big focus is on page blobs

Azure Regions

Storage Stamps are deployed to datacenters which live in an Azure Region

An Azure Region has many datacenters that are within a latency boundary

There are Azure Regions throughout the globe and more are added every year

Regions are paired for geo-redundant storage replication

Region Pairings

The list will grow as regions are added but the goal is to have replication partners that are:

100's of miles apart

In the same geo-political boundary

US West	US East
US North	US South
US Central	US East 2
Europe North	Europe West
Asia East	Asia South East
China North	China South
Japan East	Japan West
South Brazil	US South
Australia East	Australia Southeast
Central India (Pune)	South India (Chennai)
South India (Chennai)	Central India (Pune)
West India (Mumbai)	South India (Chennai)
Canada Central	Canada East

A Quick Word on ASM and ARM

There are two types of deployment models in Azure

- Azure Service Manager (ASM), a.k.a *Classic*
- Azure Resource Manager (ARM)

Focus is on ARM as that is the new model for Azure that has support for RBAC, JSON templates, dependencies, tags, granular billing and hybrid consistency via Azure Stack

Cannot mix resources

Where possible use ARM for all deployments

Storage Accounts

Provides a unique namespace through which the contained storage objects are accessed

Has a globally unique name which is part of a DNS name: `<storage account name>.core.windows.net`

Also DNS names for specific types of service like blob and table such as: `<storage account name>.blob.core.windows.net`

Located in a specific region

Account Types

General purpose
(needed for IaaS)

Blob storage

General purpose accounts have a performance type

Blob storage accounts are hot or cold tier

Like all Azure Resource Manager (ARM) resources, storage accounts are in a Resource Group

Storage Account Replication

Four different replication levels which are set at the account level

- Locally-redundant storage (LRS)
- Zone-redundant storage (ZRS)
- Geo-redundant storage (GRS)
- Read-access geo-redundant storage (RA-GRS)

The higher the durability, the higher the cost

It is possible to switch between account types post creation (except for ZRS)

Summary

The importance of storage in Azure

Types of Azure storage and accounts

Azure regions and resiliency

Services offered through Azure storage

Next Up:
Capabilities of storage types