

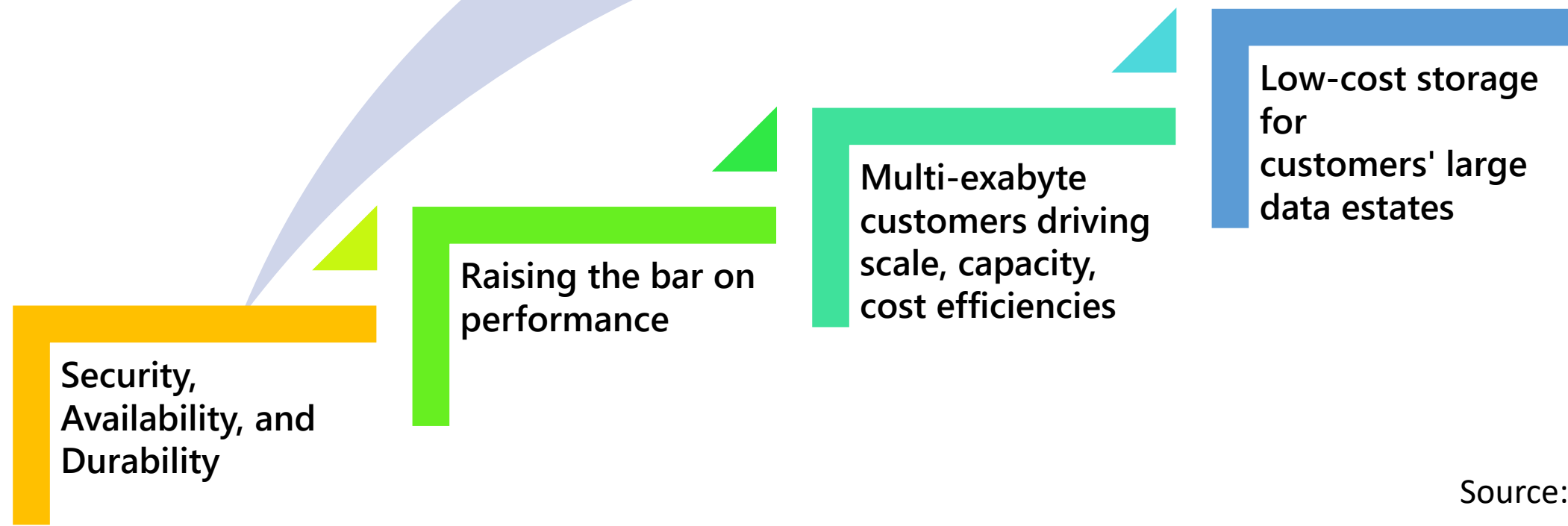
# Flash in Cloud Storage

Presenter:

Swapna Yasarapu

Microsoft Corporation

# 175 ZB Storage by 2025



# Azure Storage portfolio

Durable, highly available, massively scalable

## Block storage

### Services

Azure Disk Storage  
Azure Elastic SAN

### Unique capabilities

Ultra Disk and Premium SSD v2  
Azure Elastic SAN  
Shared disks

## Object storage

### Services

Azure Blob  
Data Lake Storage

### Unique capabilities

Premium Blob  
Multi-protocol access (e.g. NFS, HDFS)  
Azure Managed Lustre

## File storage

### Services

Azure Files  
Azure NetApp Files

### Unique capabilities

Native NetApp File Storage  
Azure File Sync

### Capacity

100s of trillions of objects across  
many exabytes of data

### Throughput

> 300 Tbps average  
(> 100 exabytes per month)

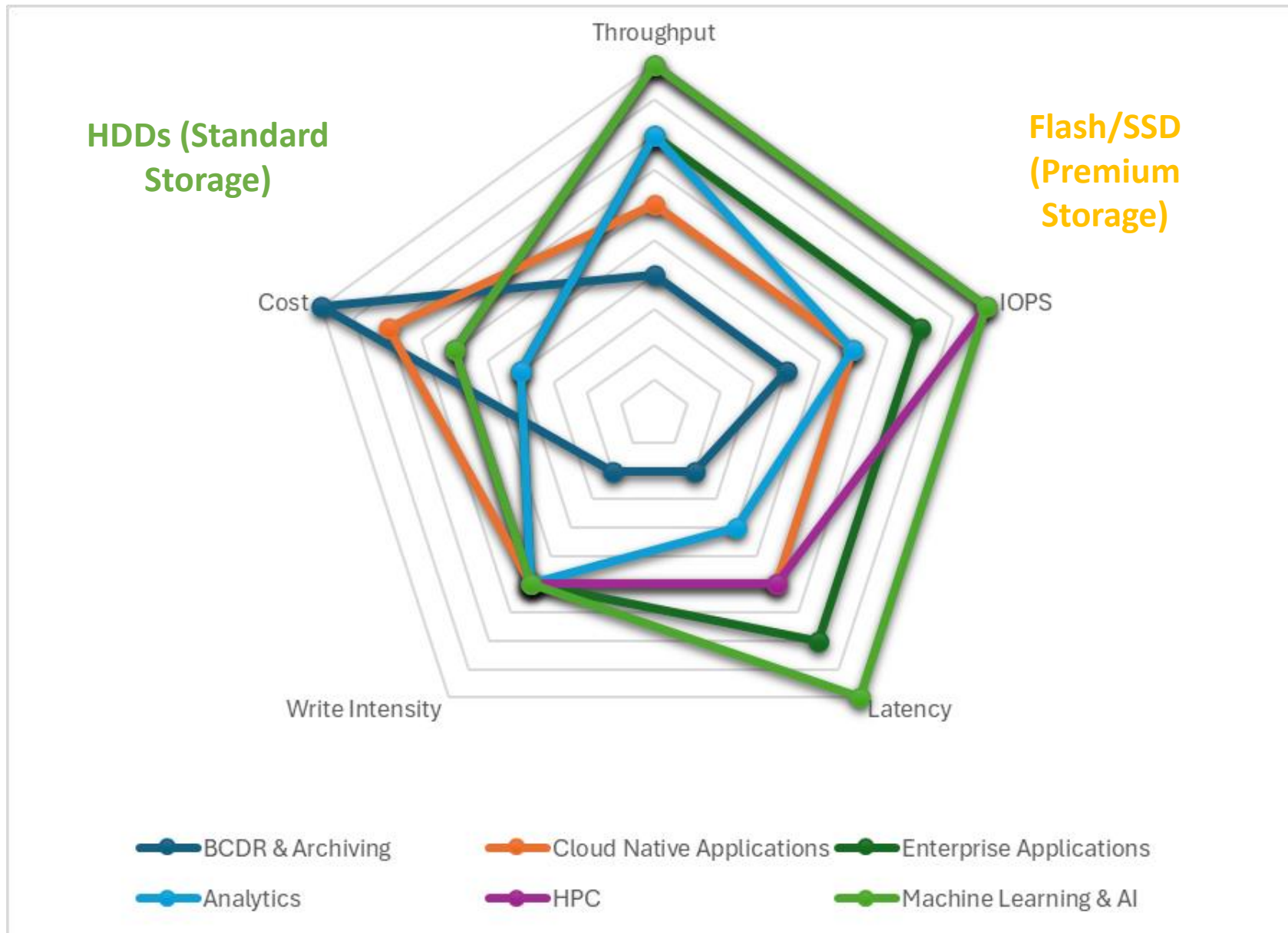
### IOPS

> 400M tps  
(> 1 quadrillion per month)

Flash/SSD (Premium Storage)

HDDs (Standard Storage)

# Applications To Workloads



- BCDR and Archiving
- Cloud Native Applications
- Enterprise Apps
- Analytics
- HPC
- Machine Learning & AI

# Flash/SSDs going forward

Deliver better TCO to grow within incumbent applications

## Power Efficiency

- Grow density, power efficiently, i.e., Lower W/TiB 15TB->30TB->60TB
- Lower Device Idle Power
- Better Power Management for in-field Power/Performance tuning

## On Par or better MBps Per TiB

- Scale throughput while maintaining latency consistency (Mixed Rd-Wr)

## Workload Shaping

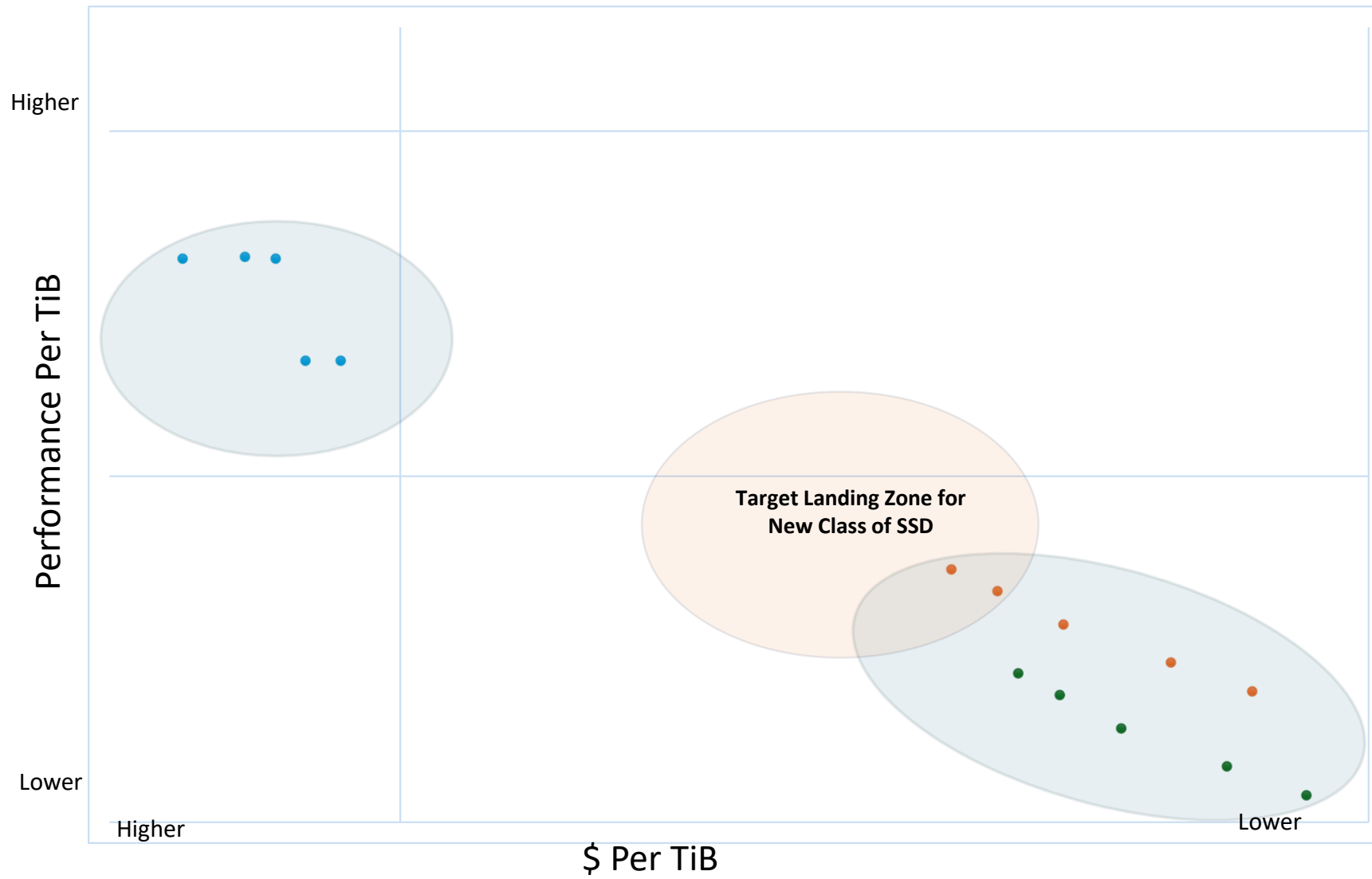
- Reduce E2E WAF with ZNS for density scaling

## Maintain PBW /TiB

- Maintain minimum endurance bar per segment

# New opportunities for SSDs

## Landing Zone



# Questions

