



# A Business Overview of Software Defined Flash

Kevin Powell  
Business Line Program Director  
IBM FlashSystem

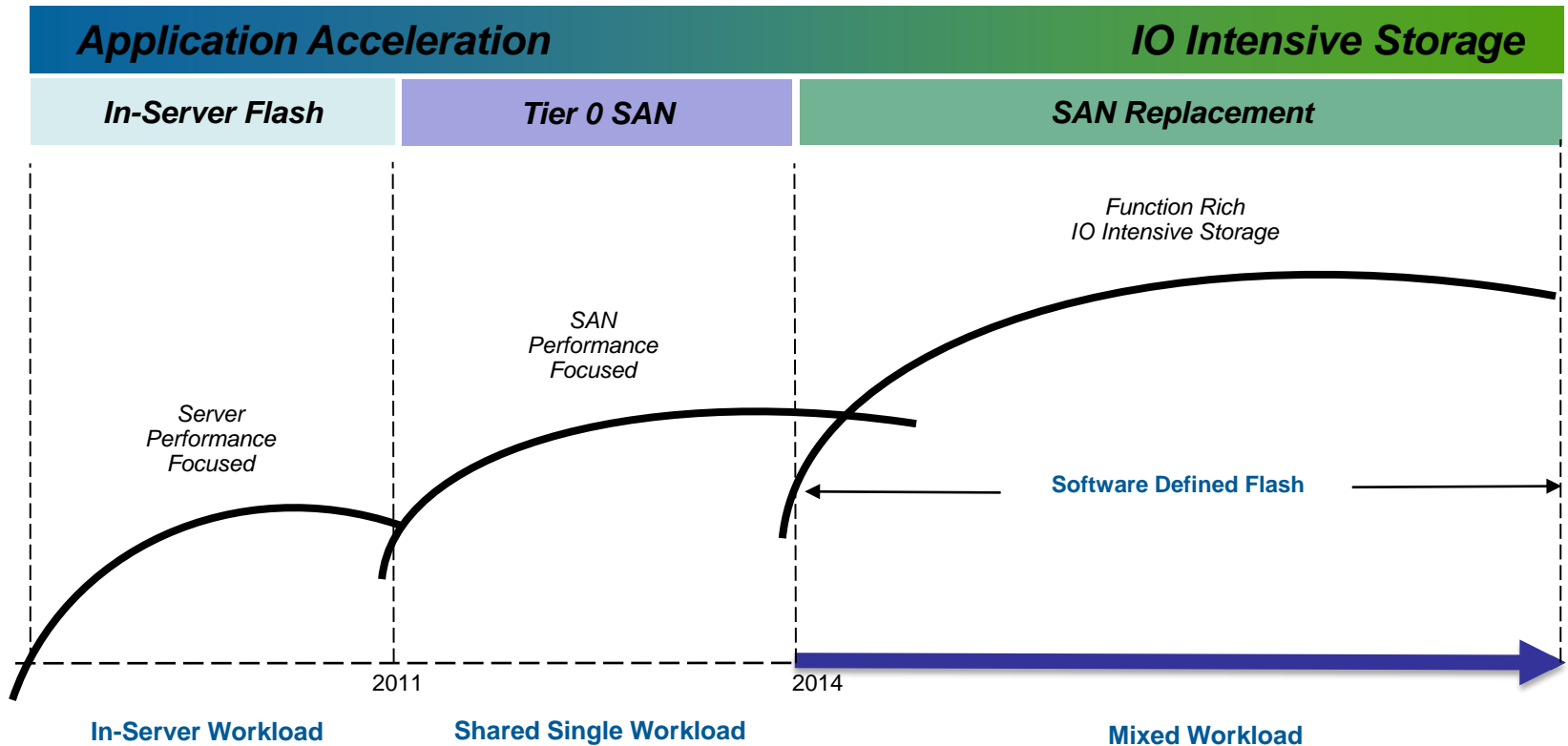
“Due to the proliferation of devices and the infusion of technology into all things and processes, the world is generating more than 2.5 billion gigabytes of data every day...”





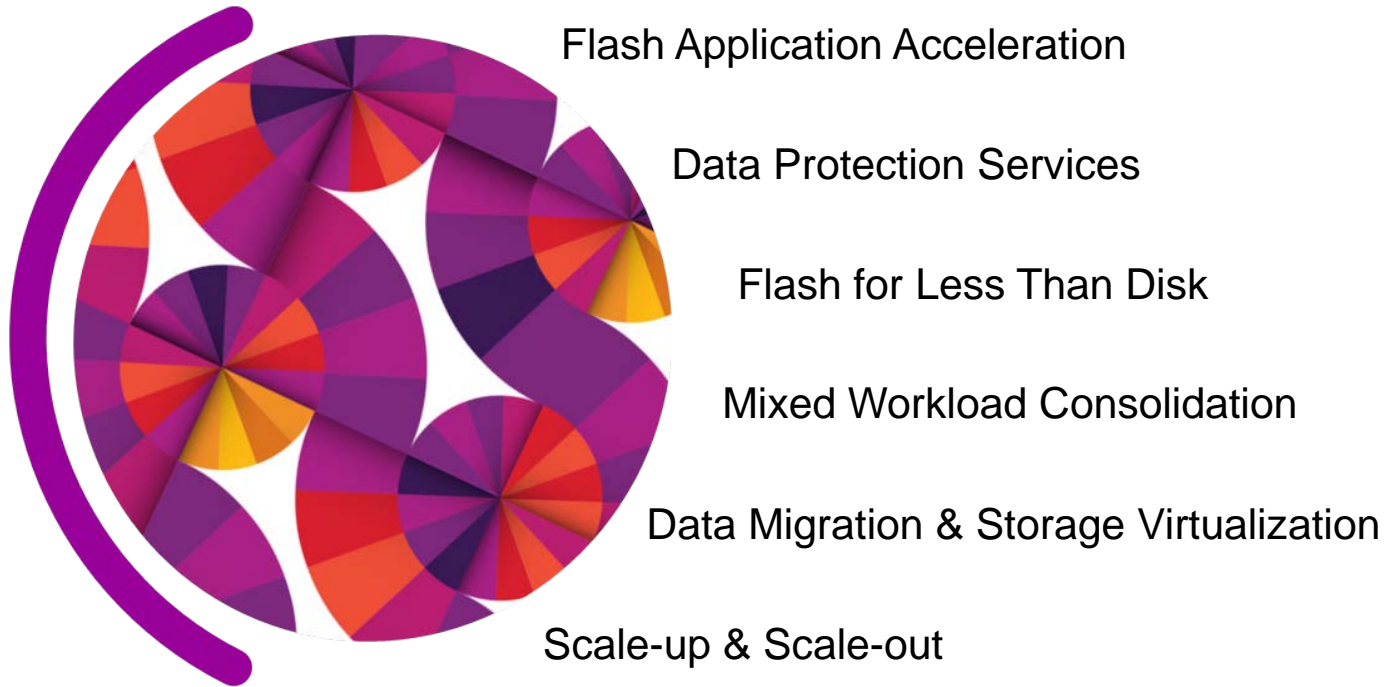
# All Flash Array Market Transformation

\$1.6B AFA Market Opportunity (2016)



- All Flash Array revenue in 2013 was ~\$670M with IBM leading the pack @ 25% market share
- The flash array market is expected to grow at a CAGR of 58.5% and reach \$1.6 billion by 2016 (IDC)

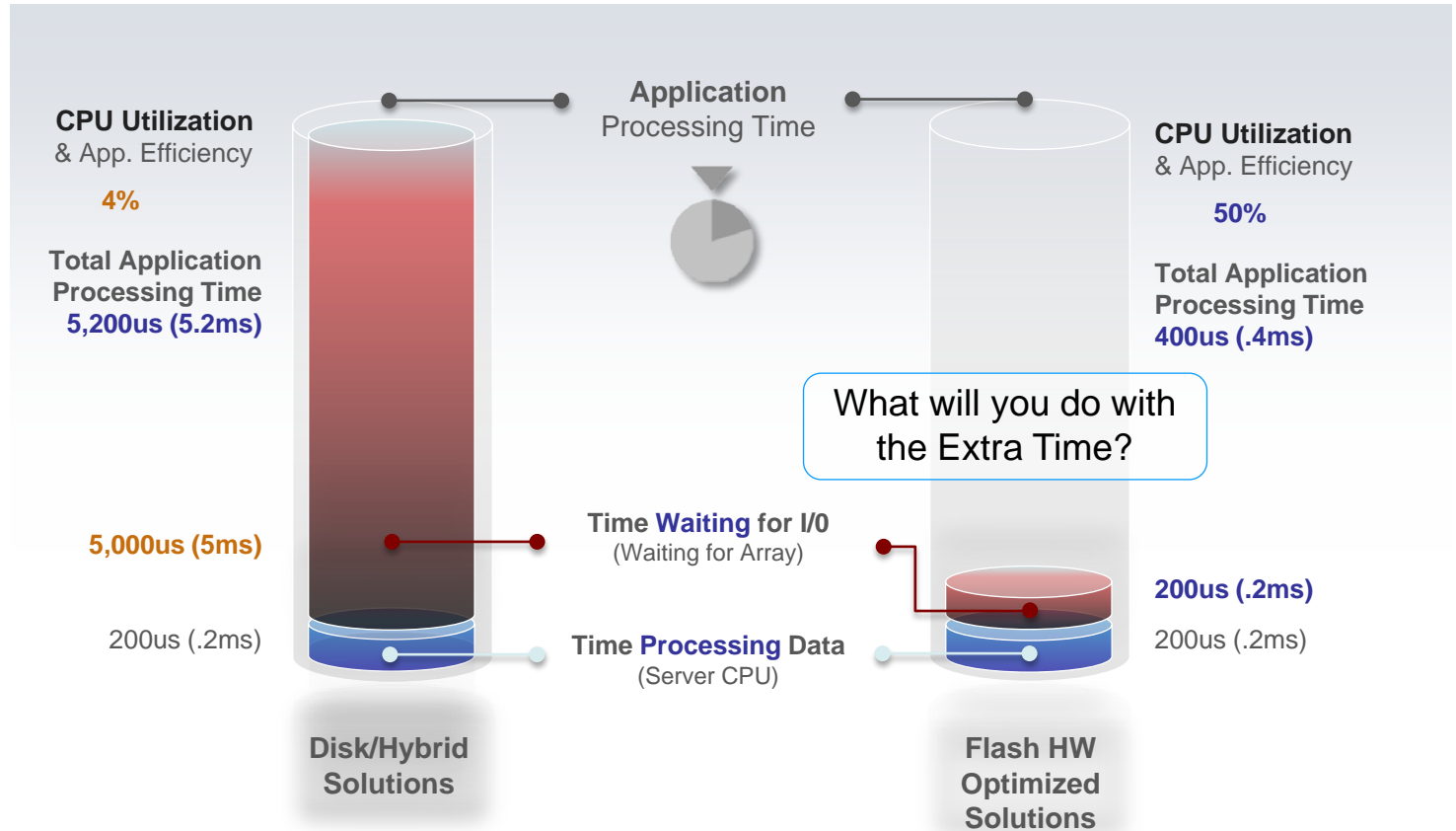
# Software Defined Flash Capabilities



***Overall Drive New Business Opportunities***

# Flash Application Acceleration

Flash  
Application  
Acceleration



# Data Protection Services

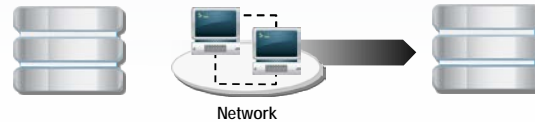


## Copy Services



Eliminate application downtime for backup

## High availability configurations



Enable continuous data availability

## Replication and Disaster Recovery



Validate business continuity strategy



# Flash for Less Than the Cost of Disk

## - Compression for Database and Analytics



**Real-time Compression**

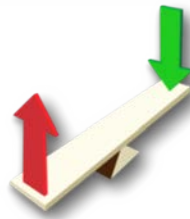


Store up to 5X more data with less flash

**Thin Provisioning**



Purchase only the storage you need



### Tipping Point Economics

- Low latency with high IOPS flash replaces shelves of HDD and enables server consolidation
- Decrease storage TCO with lower space, power and cooling costs



# Flash for Less Than the Cost of Disk

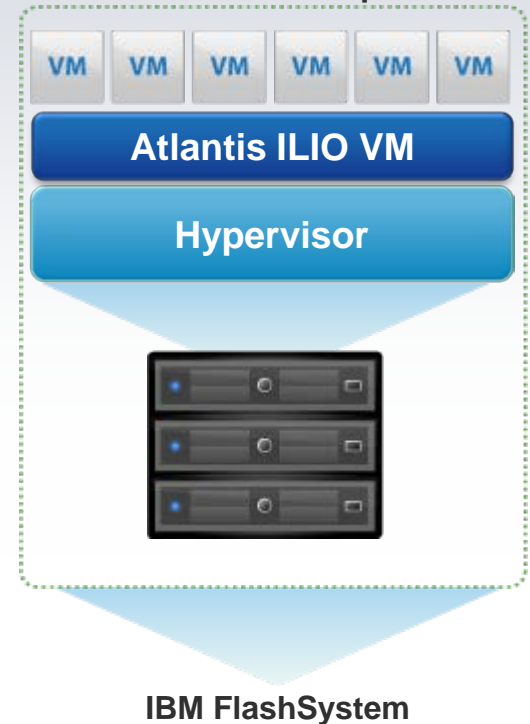
## - Data De-duplication for VDI



- **Cuts CAPEX and OPEX Costs**
  - Up to 20x more users on IBM FlashSystem
- **Better-than-PC User Experience**
  - Faster-than-PC boot time
  - < 1 second app launches
  - Near-instant email/desktop searches
- **Lower project risks**
  - Scales to tens of thousands of virtual desktops
  - Consistent better-than-PC performance
  - No hidden storage costs overruns
- **Fast Provisioning and Better Management at scale**
  - Automated deployment with HA and DR

### FlashSystem for VDI

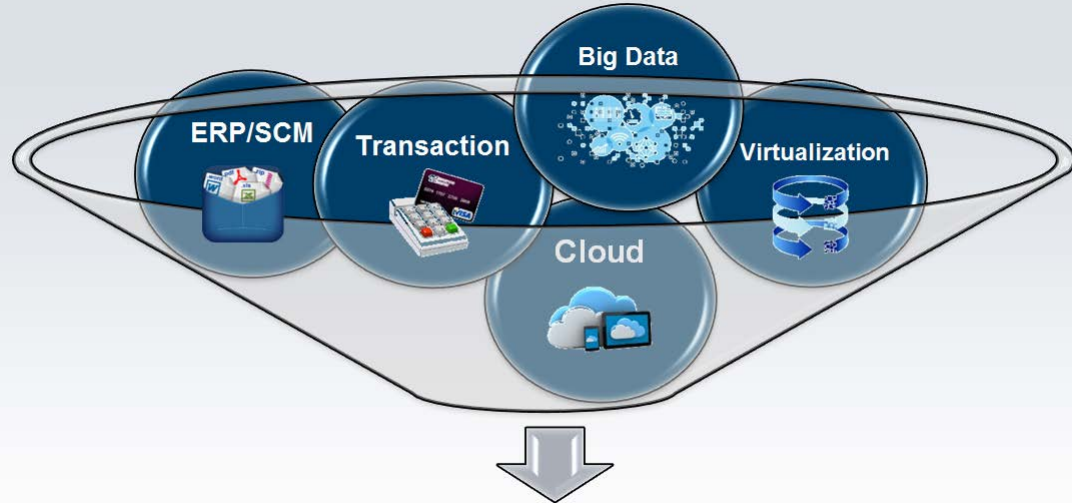
#### Virtual Desktops







# Mixed Workload Consolidation & Application Integration



Area	Integration
Management	<b>vCenter plug-in</b>
Business Continuity	<b>SRA for Site Recovery Manager</b>
Performance	<b>VAAI</b>



# Data Migration & Storage Virtualization



## IBM Easy Tier® flash storage management

Optimized performance at lower overall cost



Preserve your **existing** investment in storage

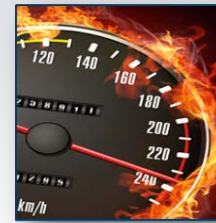
- ✓ Manage
- ✓ Tier
- ✓ Protect
- ✓ Compress with Real-time Compression

# Scalable and Flexible Deployments



Scale-up &  
Scale-out

Grow *capacity* and *performance* as needed



*Performance*



*Capacity*



- Toggle **compression** on specific data sets
- Customize **automated tiering** options on data sets
- Extend **advanced software functions** to third party storage



# Scalable and Flexible Deployments

Maximum Performance – Scaled Out (100% Read, 4 Building Blocks) *	
Latency (4K)	200µs
IOPS (4K)	2,520,000
Bandwidth (128K)	19.2 GB/s

Maximum Performance – Scalable Build Block (100% Read, Cache Miss)	
Latency (4K)	200µs
IOPS (4K)	630,000
Bandwidth (128K)	6.2 GB/s

Maximum Performance – Fixed Build Block (100% Read, Cache Miss)	
Latency (4K)	200µs
IOPS (4K)	526,000
Bandwidth (128K)	6.2 GB/s



Scale-up and Scale-out Configuration



# New IBM FlashSystem V840

IBM Flash has reached the tipping point and is now cheaper than disk.

- A **fully featured** and **scalable** all-flash architecture that performs at up to **2.5M IOPS** with **IBM MicroLatency™** and up to **1.6PB effective capacity**
- Delivers **better acquisition costs** than high performance spinning disk for the same effective capacity while achieving **5x the performance**
- IBM's **Real-time Compression™** technology further extends the **economic value** of **all-flash systems**





# IBM Software Defined Flash

*The perfect recipe for business success*



Drive your **Competitive Advantage**

*Data is the world's newest resource*



Enhance your **Decision Making**

*Move away from the few to the empowered many*



Better understand the **Value of Data**

*As the value of data continues to grow, current systems won't keep pace*



Thank You

[ibm.com/storage/flash](http://ibm.com/storage/flash)