GAME OF THRONES™

Software-Defined Flash Storage and Server-Based Infrastructure Rule the Day

Shaun Walsh
Vice President of Corporate Marketing
QLogic Corporation

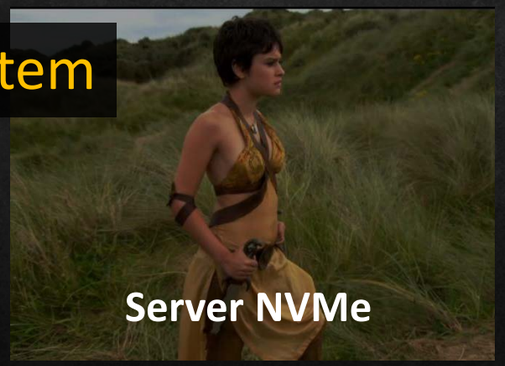

"When you play the
Game of Thrones
You win or you die
there is no middle ground."
-Cersei Lannister

The Heirs to the Storage Kingdom

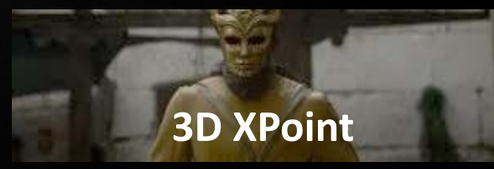
QLOGIC

Architecture

System



NV Memory



Who Will Rule the Day

QLOGIC

Hardware Defined Storage

Software Defined Storage

All system and memory technologies will serve these families

Eventually one will rule

Hardware Defined Storage

Storage Array Controller (proprietary, firmware-resident, media management + object, file and/or block logical storage management software)

Software Defined Storage

x86 Server (Apps for media management + object, file and/or block logical storage management)

Network Interfaces

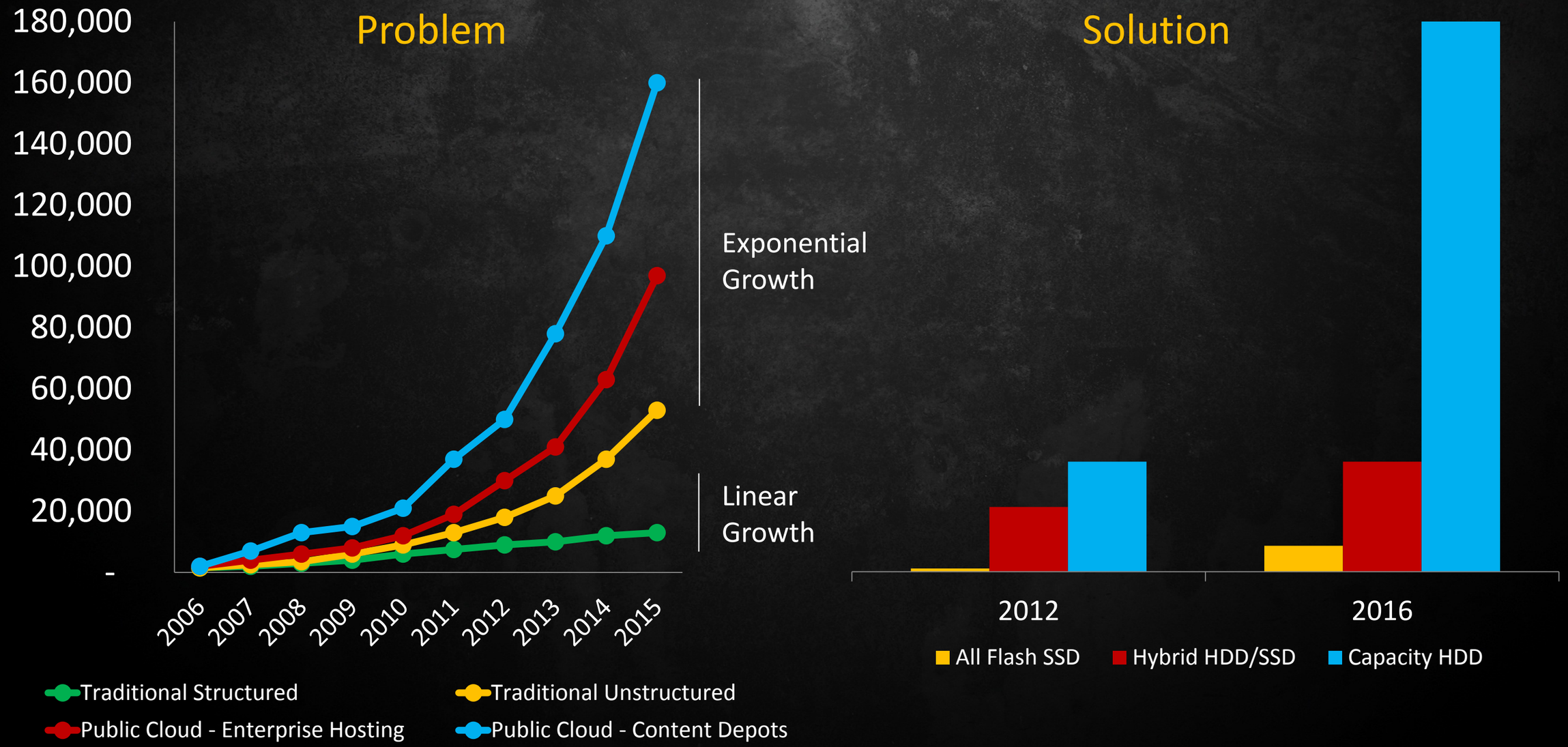
Flash Media

Disk Media

Server Cluster
(storage nodes)

Server Cluster
(management nodes)

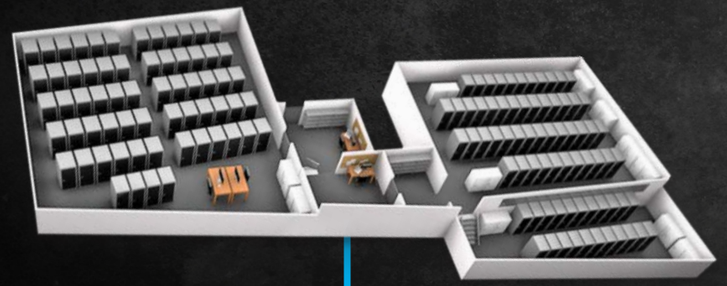
The Catalyst for Change was Bulk Storage



Enterprise Storage and Network Infrastructure Transforming into Apps

QLOGIC

Hardware Defined Data Centers Today



Servers

Any Hypervisor

Microsoft Hyper-V · Xen · KVM · vmware vSphere

Any Server

Networking

Vendor-Specific SW

NIC · Switch · Router

Vendor-Specific HW

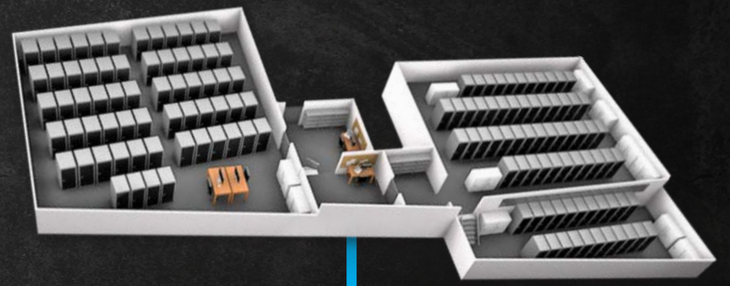
Storage

Vendor-Specific SW

File Storage · Object Storage · Block Storage

Vendor-Specific HW

Software Defined Data Centers in 10 Years



THE OPERATING SYSTEM FOR THE CLOUD

Storage & Networking Apps

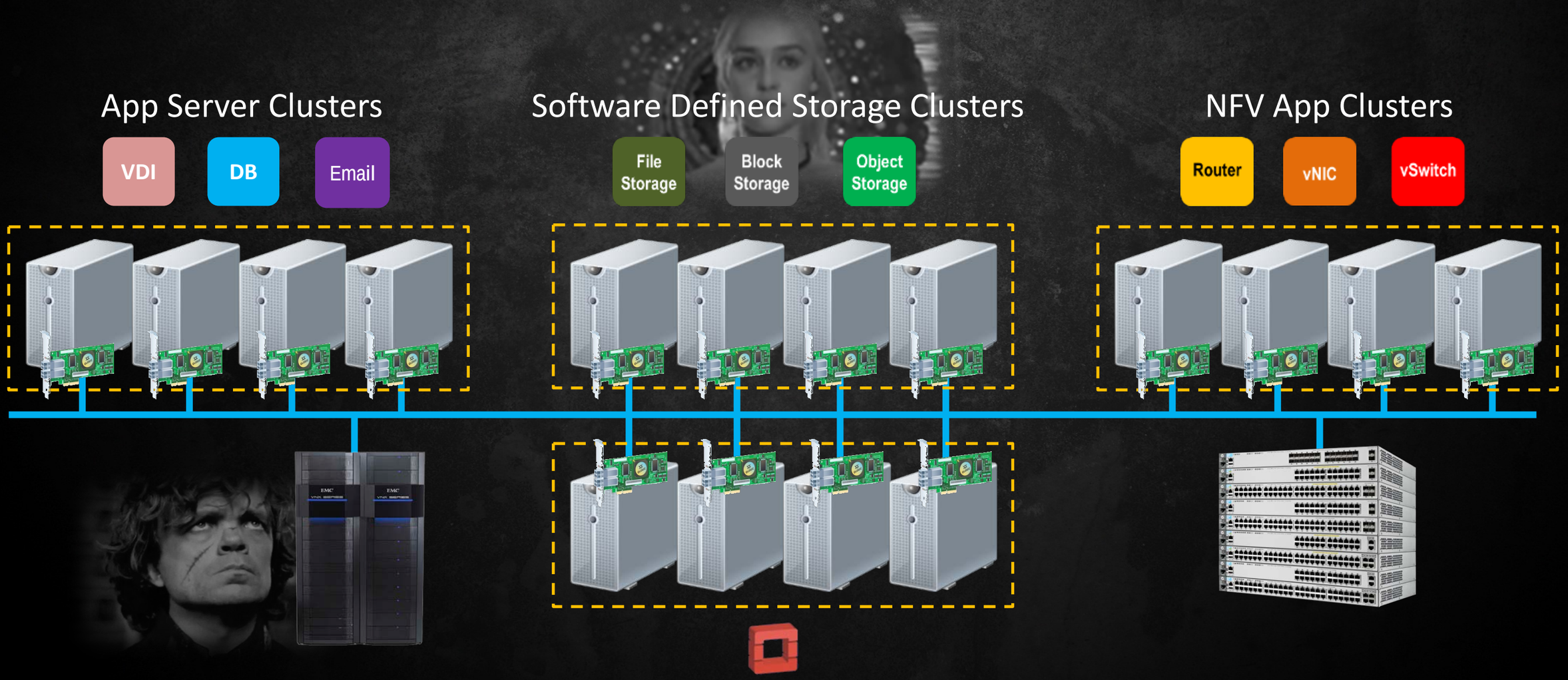
File Storage · Block Storage · Object Storage · Replication · Dedup · Router · vNIC · vSwitch

Server Hypervisors

Microsoft Hyper-V · Xen · vmware vSphere · KVM

Servers

Servers Host Business and Infrastructure Apps



Open Source SW and HW Driving Down Costs

QLOGIC

open source initiative

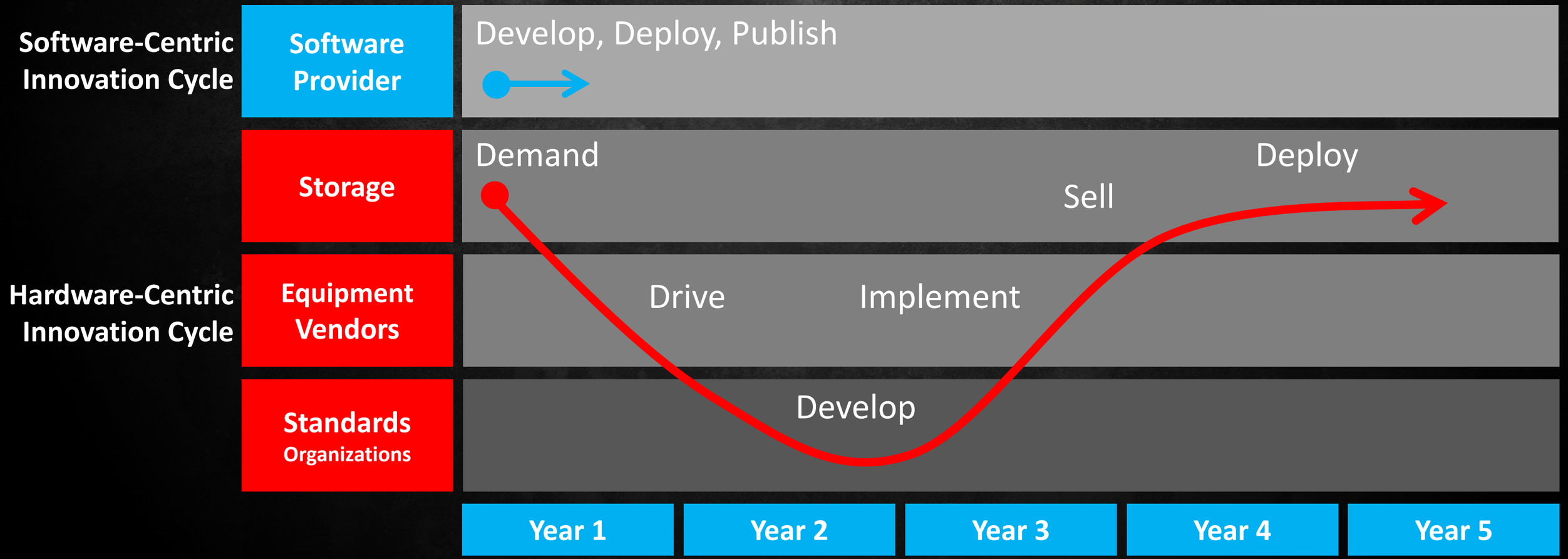
OPEN Compute Project

openstack

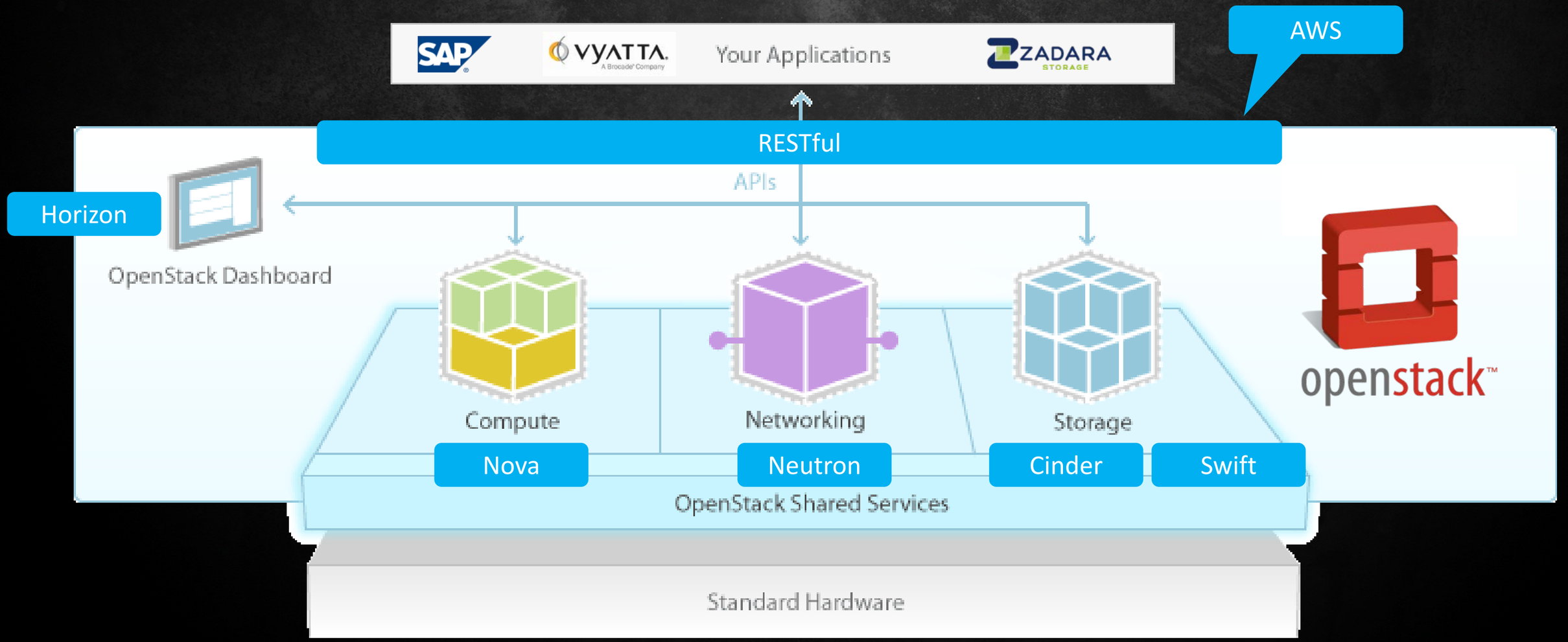
OPNFV

ceph

Innovation Accelerates



Open Interfaces Unchain the Software Defined Kingdom



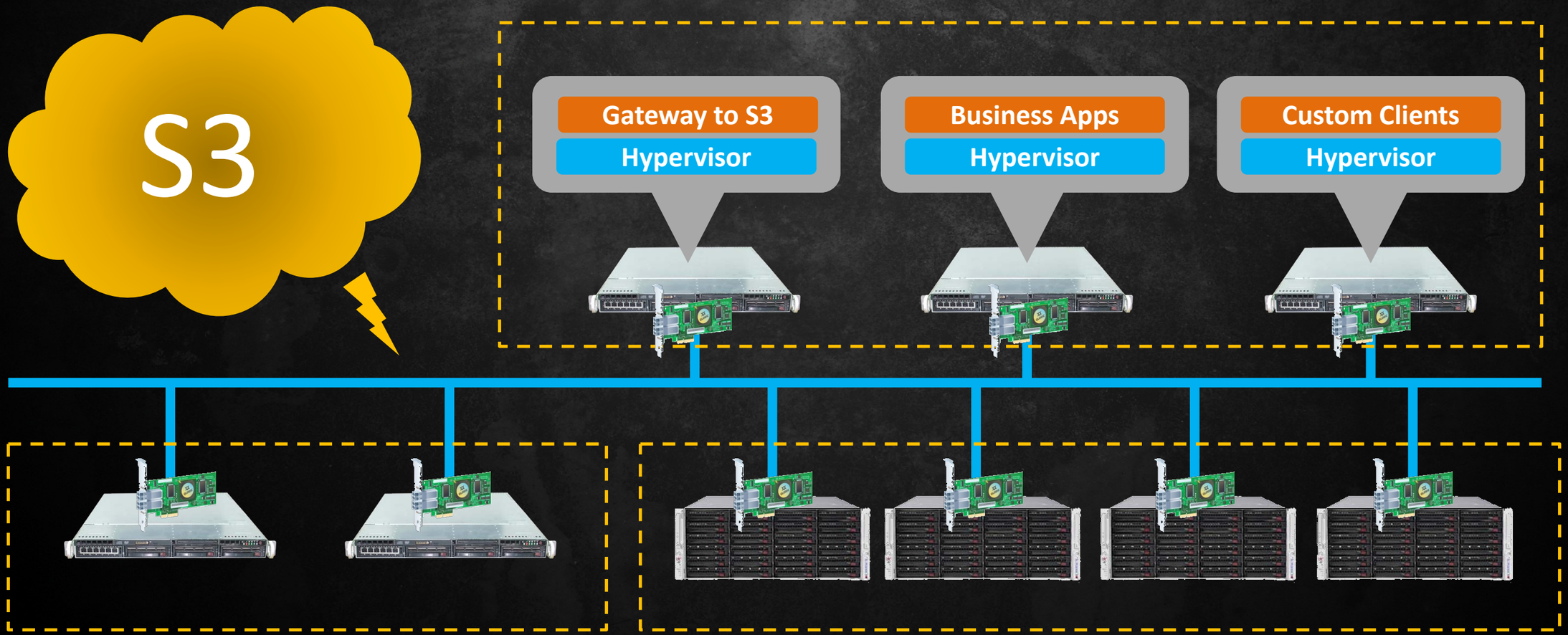
Let’s Build a Software Defined Storage System & Compare

Block, File and Object Storage

ceph

x86 Server with High Storage Capacity

250TB of Bulk Storage Growing 25% Per Year



2-node Monitor Cluster

4-node OSD Cluster: 105 HDDs and 630TB

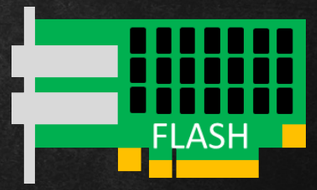
Flash Inside Servers Allows SDS Apps to Address I/O Intensive Applications

QLOGIC

Tier 0
(Hot Data)

DIMM

Tier 1
(Active Data)



PCIe Adapter

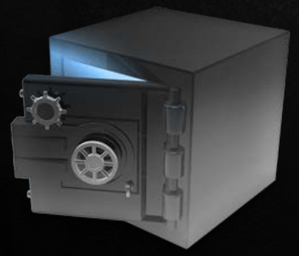
SAS/SATA Modules

Tier 2
(Less Active Data)

Performance Optimized Disk

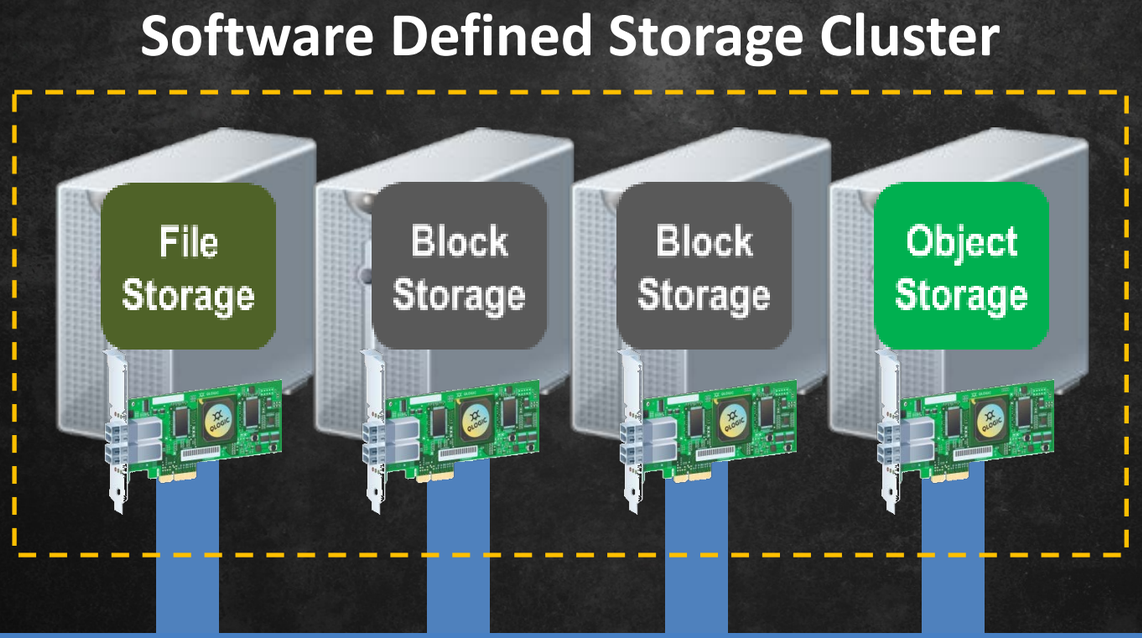
Capacity Optimized Disk

Tier 3
(Cold Data)



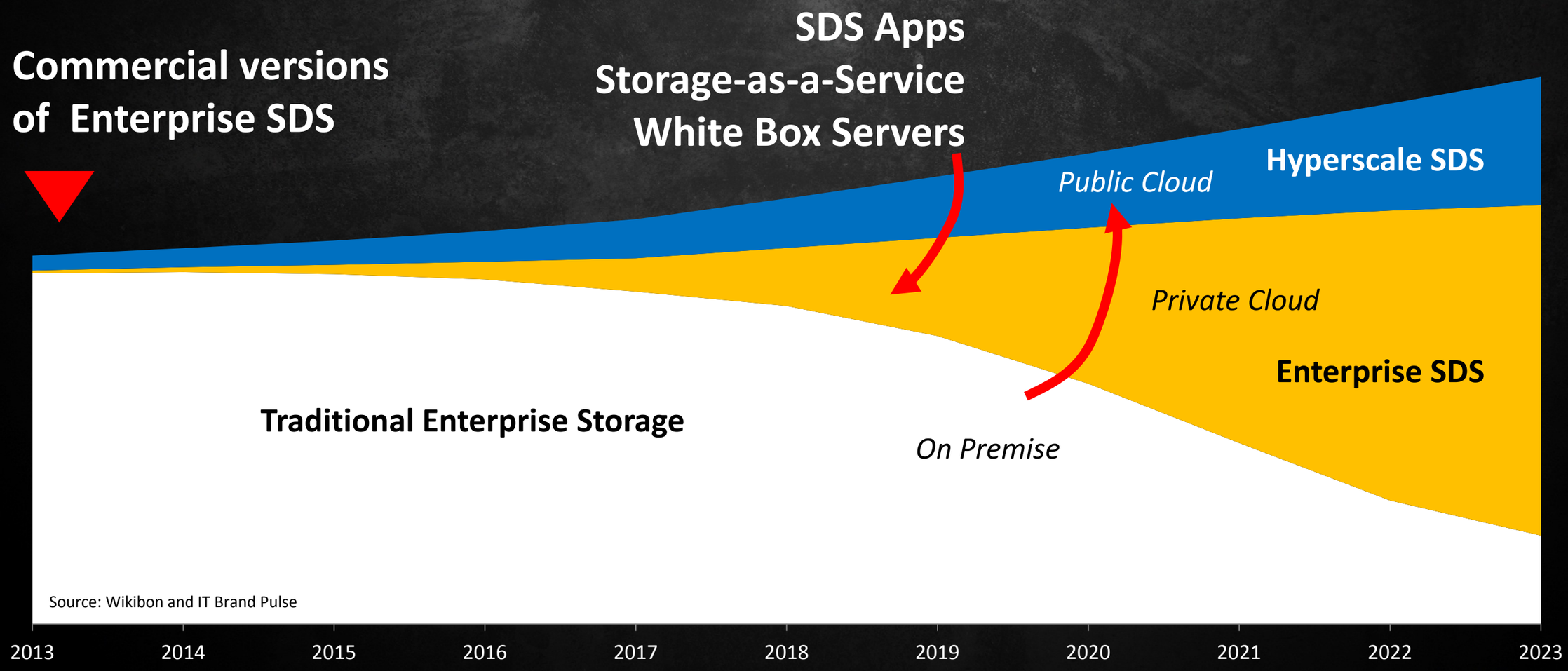
Massive Arrays of Idle Disk

Key Server Networking Enhancements for SDS



Network partitioning (NPAR) to create virtual networks to VMs
iSCSI over RDMA for low-latency NVMe fabrics
SRIOV to bypass vSwitch and accelerate I/O
HW offload of iSCSI, iSER, Geneve, and VXLAN protocol processing
25G, 50G and 10G Ethernet for high bandwidth

Software Define Storage Ascends over 10 Years




25G IS THE NEW 10G

shaun.walsh@qlogic.com