ACCELERATING VMWARE HANDS-ON LABS WITH EMC XTREMIO

Joseph Dieckhans
Infrastructure Manager
VMware

Vikram Belapurkar
Solutions Marketing Manager
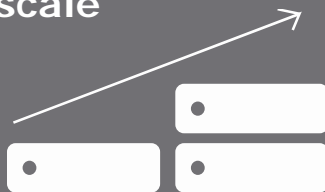EMC XtremIO

EMC²

VIRTUALIZATION: REALITY CHECK

The Promise	The Reality
• 10x lower footprint • Breakthrough performance and lower TCO • Fully virtualized data center • Simpler management	**Complexity grows with scale** **Siloed storage management** **Partial virtualization** **Tier 1 workloads largely physical** **Infrastructure sprawl**

Flash Memory Summit 2015

EMC²

2

COMPLEXITIES OF LARGE SCALE VIRTUALIZED DATA CENTER
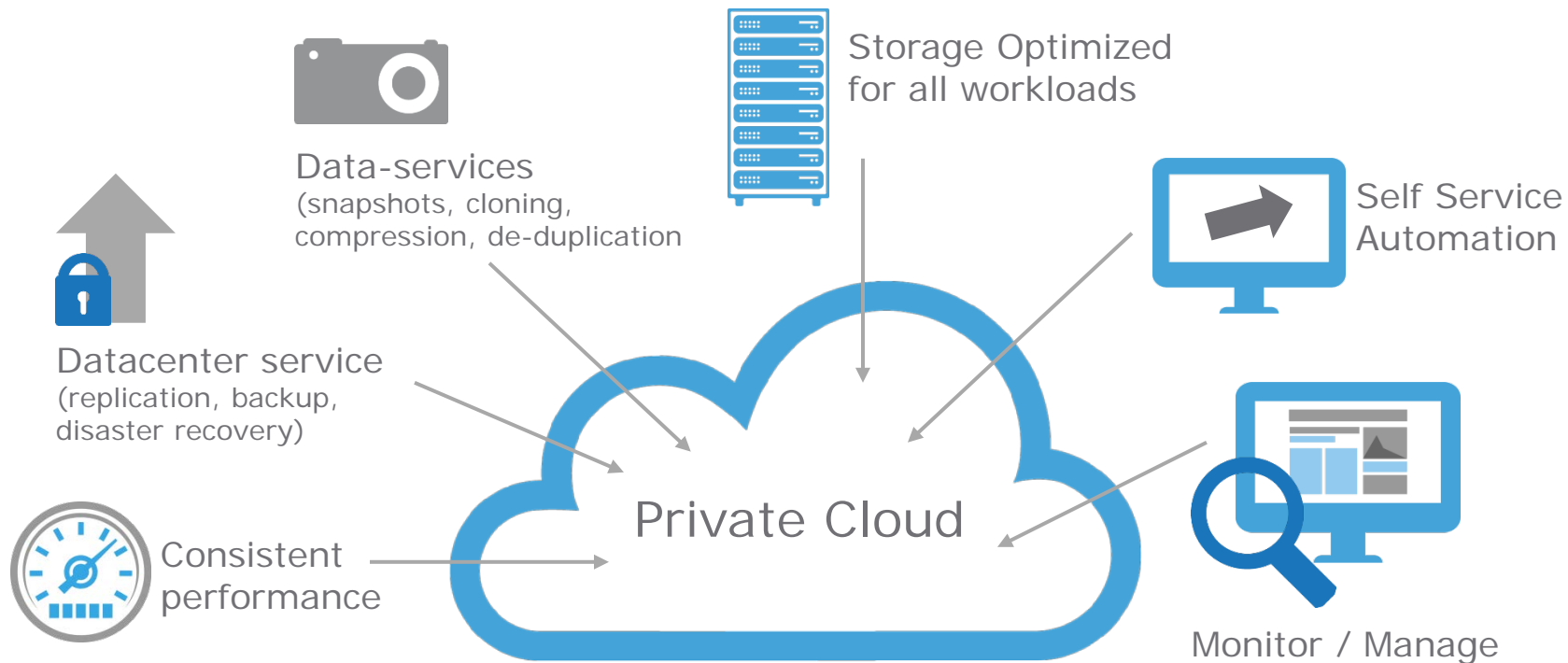
Thousands of VMs
= I/O blender

Provisioning &
Cloning new VMs

VMotion
Operations

Flash Memory Summit 2015

EMC²

STORAGE REQUIREMENTS FOR PRIVATE CLOUD

Data-services
(snapshots, cloning,
compression, de-duplication)

Storage Optimized
for all workloads

Self Service
Automation

Datacenter service
(replication, backup,
disaster recovery)

Private Cloud

Consistent
performance

Monitor / Manage

Flash Memory Summit 2015

EMC²

VMware's private cloud

#1

Dedicated global team running with VMware IT as a customer with a "Cloud First" policy

75+ person worldwide team with solid experience and part of VMware R&D

24x7 monitoring and global support with VMware certified engineers

220,000 VM Units

Over 220,000 VM Units deployed globally

VMware's Private Cloud

Current availability maintained at 99.9%

Agile	Global	Support	Geo	Management

EMC²

Major Cloud Tenants

Technical Marketing
Hands-on-Labs
For customers

Corporate IT App teams
Moving all IT Test/Dev

GSS – Training
Reference Environments and Customer Reproduction

Management Business Unit
Functional and scale testing of our management products

Education
Extended labs and Self-paced training

Field Ops
VMware Customer Labs, PSO, etc.

VMware's Private Cloud

TechOps
Aggregating smaller cloud environments for various R&D/product teams for Testing purposes

Agile	Global	Support	Geo	Management

Flash Memory Summit 2015

EMC²

OPTIMIZING CLOUD INFRASTRUCTURE WITH XTREMIO

Flash Memory Summit 2015

SIMPLE AGILE HIGH-PERFORMANCE CLOUD

Provision
1000s of VMs
instantaneously

Ensure
performance
at scale

Respond
rapidly

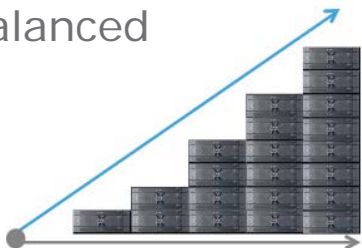**Simplify**
infrastructure

**Build an
Agile
Data
Center**

EMC²

XTREMIO: STORAGE REINVENTED

SCALE-OUT

Consistent &
predictable
Inherently
balanced

DATA SERVICES

Inline all the time

Thin Provisioning

Deduplication

Compression

Flash Data Protection

Encryption

Writeable Snapshots

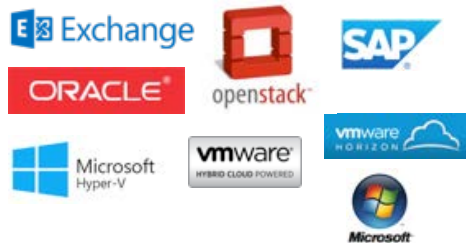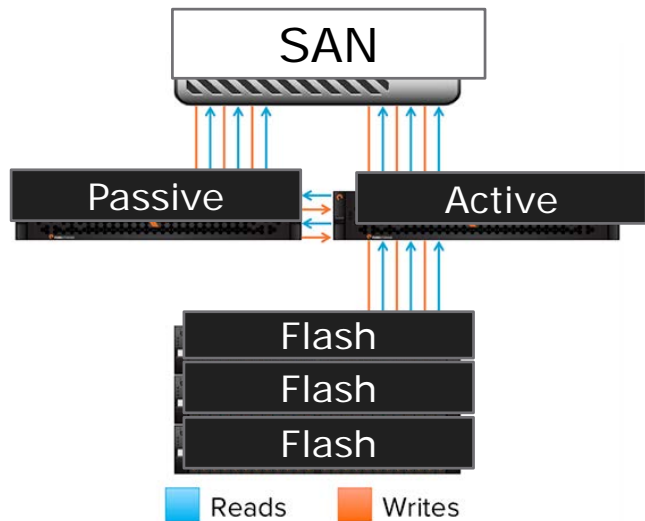## COPY DATA MANAGEMENT

Instant & high
performance
Writable
No capacity
overhead

APPLICATION & ECOSYSTEM

Integration &
automation

Exchange

ORACLE

openstack

SAP

Microsoft Hyper-V

vmware HYBRID CLOUD POWERED

vmware HORIZON

Microsoft

EMC²

SCALE UP

XTREMIO SCALE OUT

SAN

Passive   Active

Flash

Flash

Flash

Reads   Writes

16 Active Controllers

Controller 14

Controller 13

Controller 10

Controller 9

Controller 6

Controller 5

Controller 2

Controller 1

Controller 16

Controller 15

Controller 12

Controller 11

Controller 8

Controller 7

Controller 4

Controller 3

2M Iops

150K Iops

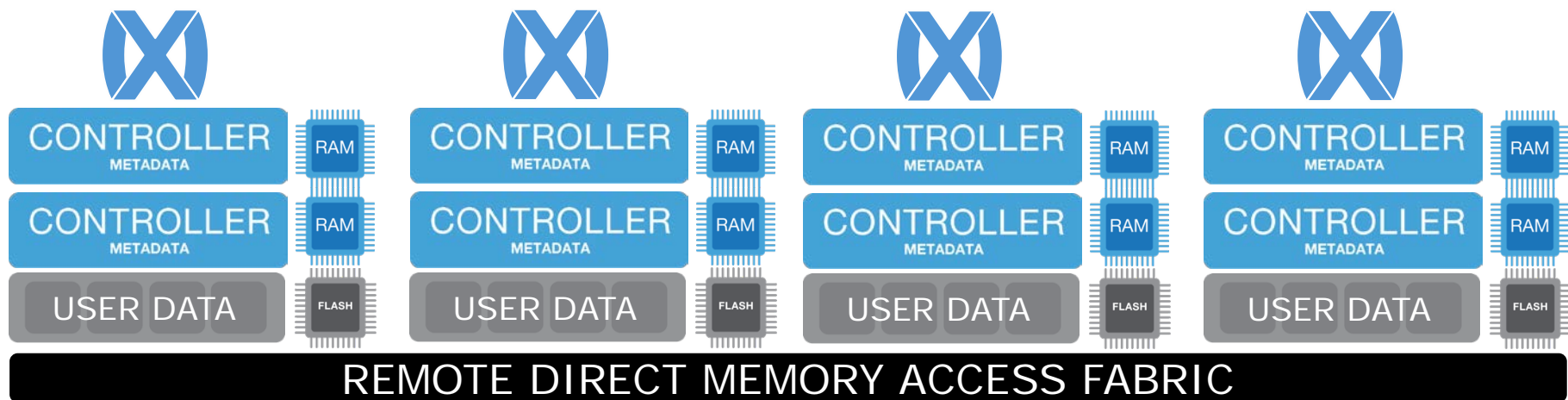Flash Memory Summit 2015

EMC²
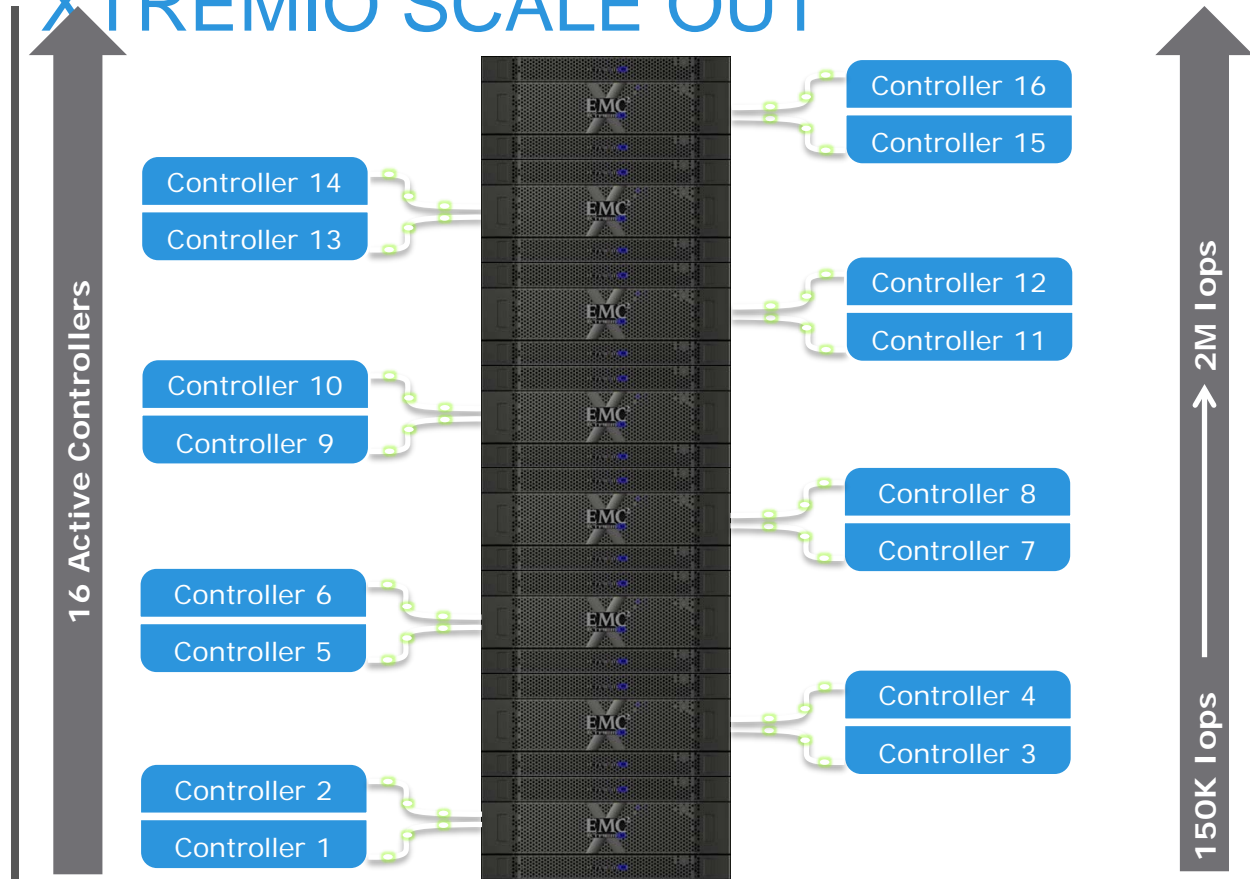
XTREMIO IN-MEMORY METADATA

Granular metadata distributed across controllers in a shared memory fabric
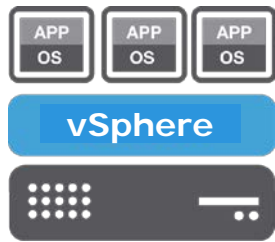
PERFORMANCE
Consistent & predictable
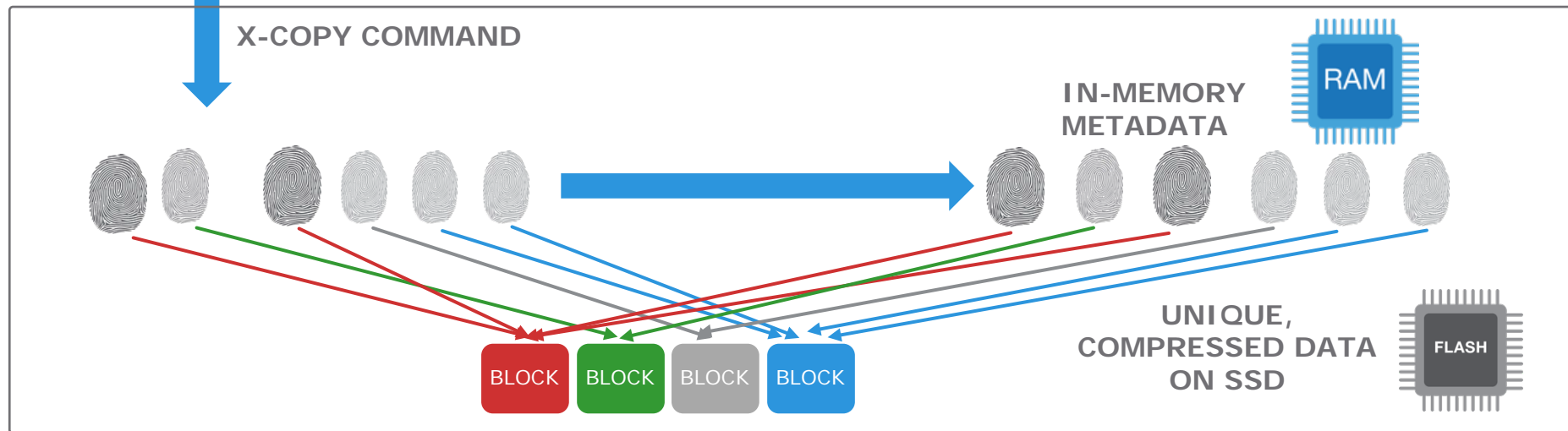
AMAZING
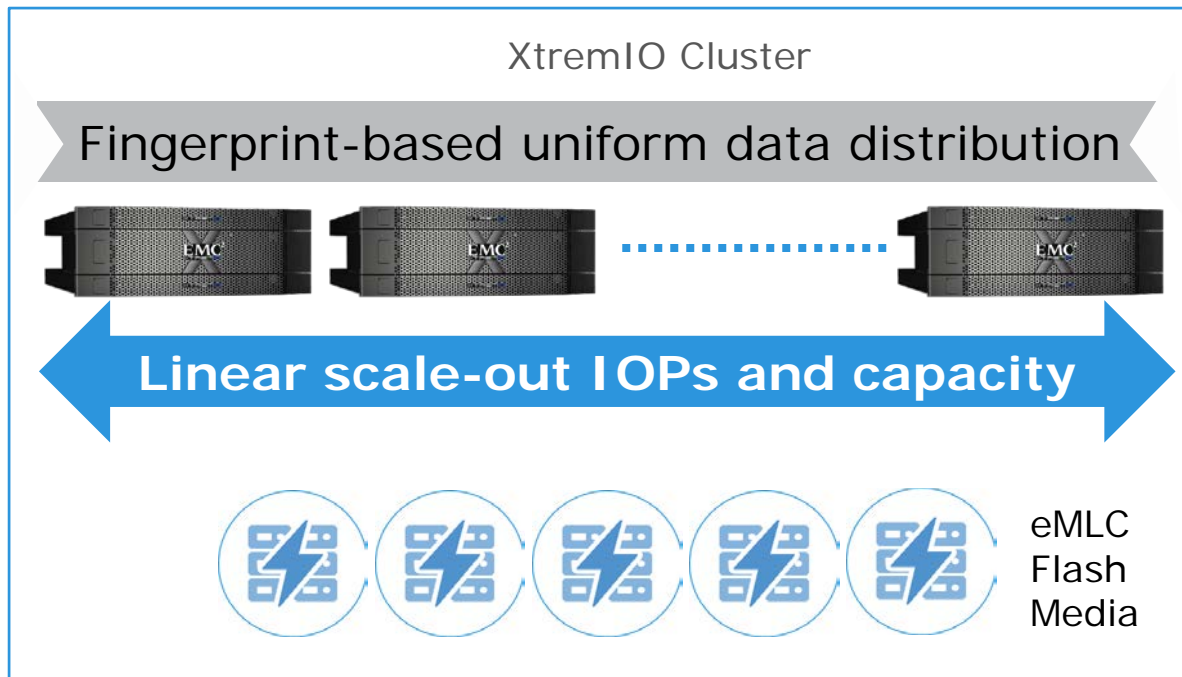Metadata heavy operations

Flash Memory Summit 2015

11

EMC²

SIMPLE, EFFICIENT VM LIFE CYCLE

- Instantly provision 1000s of VMs
- Metadata only operation; no disc IOs
- No storage sprawl

APP OS **APP OS** **APP OS**

vSphere

X-COPY COMMAND

RAM

IN-MEMORY METADATA

UNIQUE, COMPRESSED DATA ON SSD

FLASH

BLOCK **BLOCK** **BLOCK** **BLOCK**

Flash Memory Summit 2015

EMC²

CONSISTENT PERFORMANCE, ALL THE TIME, AT ANY SCALE

XtremIO Cluster

Fingerprint-based uniform data distribution

Linear scale-out IOPs and capacity

eMLC
Flash
Media

- True scale-out architecture for mixed-workloads

- Uniform resource utilization

- Performance at any scale

- No tuning or optimization

Flash Memory Summit 2015

EMC²

SIMPLIFIED INFRASTRUCTURE & LOWER TCO

LOW STORAGE FOOTPRINT

- Global de-duplication
- Inline compression
- Space-efficient copies

INVALUABLE CAPABILITIES

- Simple setup and deployment
- No tuning required
- Multi-cluster management ver
- Open RESTful APIs
- Scalable high-performance replication and DR
- VCE VBLOCK, EMC VSPEX

SIMPLIFIED MANAGEMENT & MONITORING

- VSI plugin
- EMC Storage Integrator for Microsoft
- EMC Storage Analytics
- ViPR software defined storage
- VMware vRealize

EMC²

VMWORLD HANDS ON LABS: THE RESULTS

Flash Memory Summit 2015

VMWARE HANDS ON LABS- THE RESULTS

500+ concurrent users, 4,100 VMs

Short vApp life

High VM churn rate

<500us avg latency

VM COUNT
1,921 CURRENT   100,015 TOTAL
vmworld 2014

vmworld 2014
Wenatchee - XtremIO
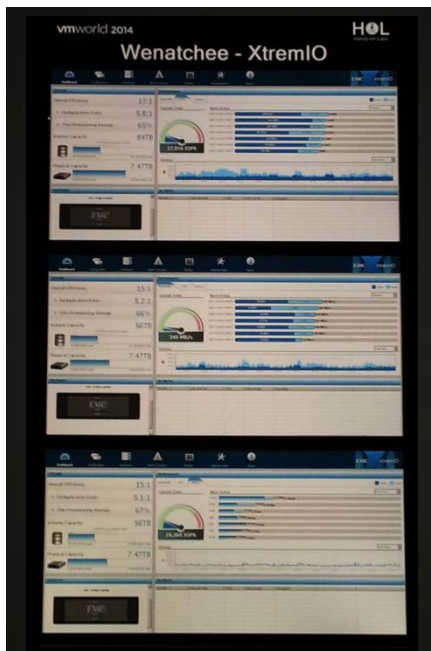
100% SLA

Direct VM Console interaction

Nested Workloads

LAB Count:
10,000+

VMs Provisioned over 4 days:
100,000+

Flash Memory Summit 2015

EMC²

16