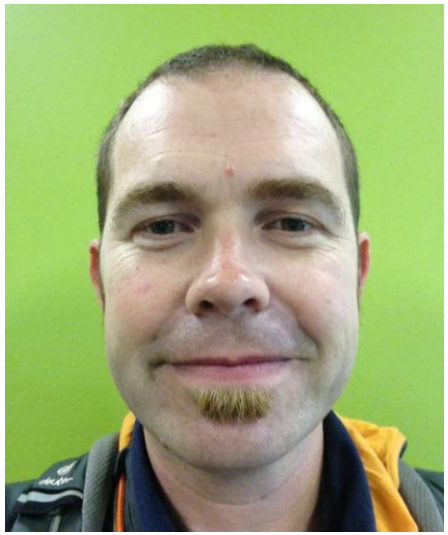
QUESTnet

Building a Cloud Architecture – Server/Storage Combined

Who am I?



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- Senior Systems Engineer, Nutanix (Booth #24)
- Blog: blog.rack.org.au
- Twitter: @cswaters1
- Podcasts: apacvirtual.com & vexpert.me/vCatchup

Experience

- 16 years in ICT
- Data Centre Focused (Compute/Storage/Network)
- Worked in Customer, Integrator and Vendor Spaces
- Lead Melbourne VMware User Group

Discussion Agenda

Building a Cloud Architecture

1. What's holding back Enterprise IT from doing it?

1. How are Google/Yahoo/Facebook doing it?

2. What benefits do Nutanix bring to it?

What's holding back Enterprise IT from doing it?

…is storage the real challenge?

COST

"Storage accounts for up to 60% of the cost of my virtualization deployment."

- VMware Customers at VMworld 2012

COMPLEXITY

"Provisioning storage, deploying tiered storage solutions, and completing backups on time are all major challenges."

- Forrester Survey on Storage for Virtual Servers, Q4 2012

PERFORMANCE

"Maintaining high performance while scaling is a top 3 storage challenge."

- Forrester Survey on Storage for Virtual Servers, Q4 2012

How are Google/Yahoo/Facebook doing it?

3 Key Components of Building a Cloud Architecture:

1. Commodity x86 Hardware

1. Direct Attached Storage

1. Software Defined Storage (Distributed File System).

“Abstract or separate underlying hardware from Software (Virtualisation anyone?).”

Nutanix Virtual Computing Platform

Compute/Storage Combined

NUTANIX

4 Independent Compute/Storage Nodes

Compute

4 commodity x86 compute nodes
8 Intel CPUs (up to 64 cores)
Up to 1TB of RAM
Dual 10Gbit & Dual 1Gbit Ethernet

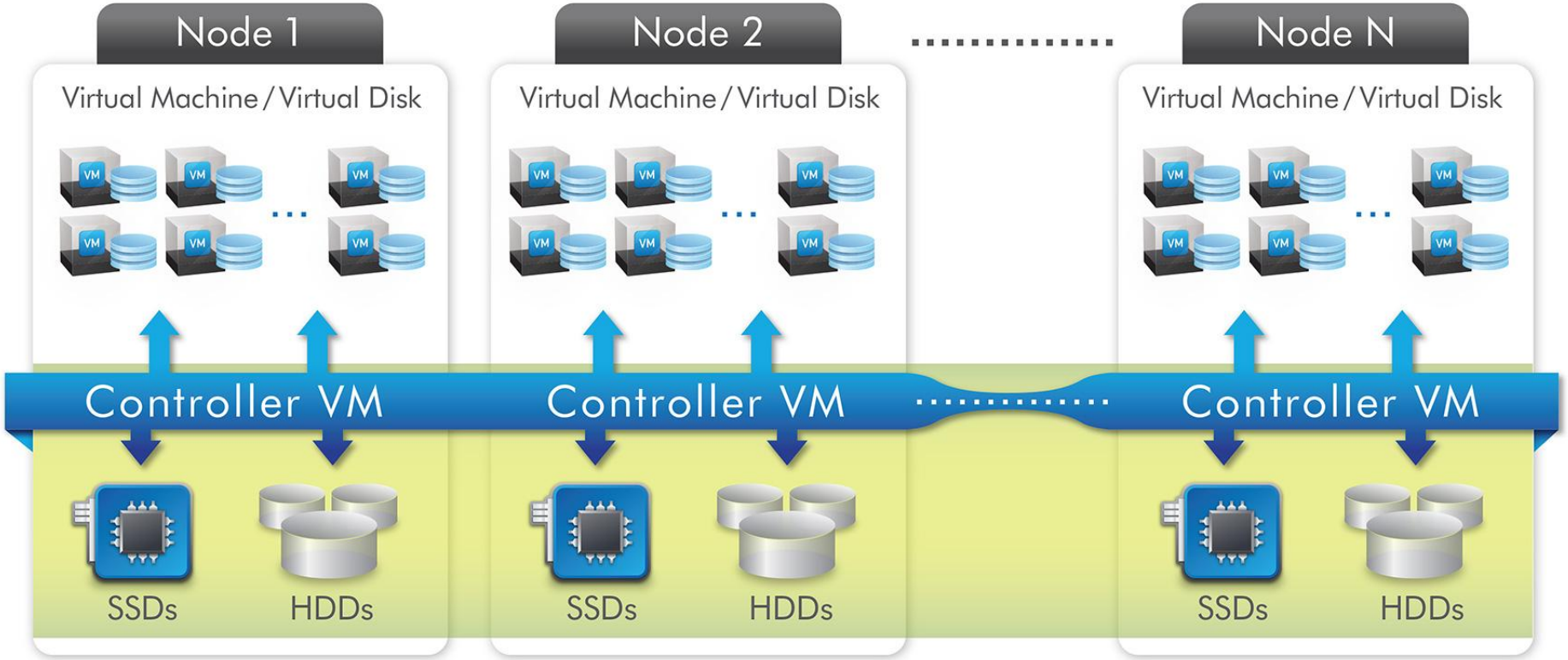
Storage

Direct attached storage
8 400GB SATA SSDs (2 per node)
16 1TB HDDs (4 per node)
4 software defined storage controllers

4 Nodes in 2U

Nutanix Distributed File System (NDFS)

Software Defined Storage



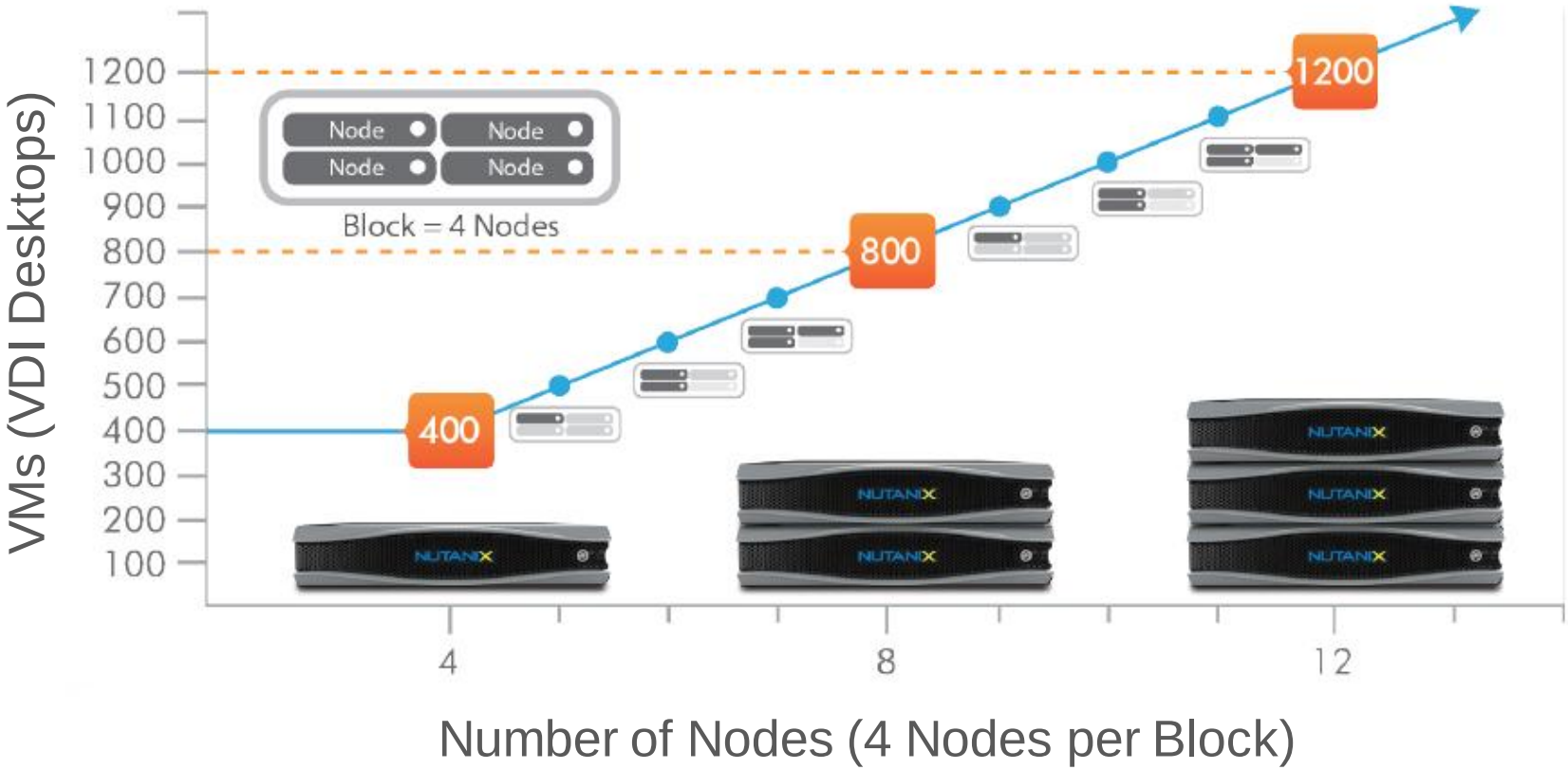
Nutanix Distributed File System is a scalable distributed file system designed for virtualization workloads. Built for enterprise datacenters to enable a turnkey private cloud building block, NDFS delivers *fault tolerance, high performance, scalability* and *reliability* for server and desktop virtual machines.

What benefits do Nutanix bring to Building a Cloud Architecture?

1. Linear scale-out pay as you grow architecture

Nutanix Virtual Computing Platform

Linear Scale-out with Pay-as-you-grow



What benefits do Nutanix bring to Building a Cloud Architecture?

1. Linear scale-out pay as you grow architecture

2. Improved Space and Power Efficiency

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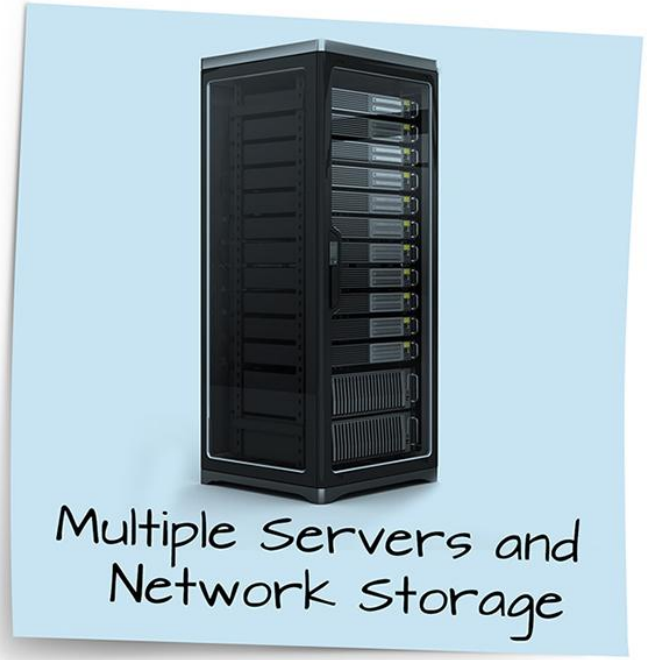
Improved Space and Power Efficiency

Traditional Architecture

- Servers + Storage + Network = **42U**
- Power Consumption **= 6,800W**
- Max VDI users per 2U = **5**



Nutanix Architecture

- 2 Complete Blocks + Network = **5U**
- Power Consumption = **2000W**
- Max VDI users per 2U = **400**

40% - 60% Cost Savings

What benefits do Nutanix bring to Building a Cloud Architecture?

1. Linear scale-out pay as you grow architecture

2. Improved Space and Power Efficiency

3. Architecture that's Designed for Failure

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Designed for Failure

NUTANIX

Seamless HA

- Transparently route traffic to remote controller VM
- Pick and choose VMs that get HA
- Hypervisor continues to communicate with same datastore address
- Reroute to local controller VM once available.

Auto-Pathing

- No support from HW required
- Smart agent monitors controller VM
- Routing rules modified in vSwitch.

HA High availability done right

Auto-pathing

What benefits do Nutanix bring to Building a Cloud Architecture?

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3. Architecture that's Designed for Failure

4. Performance

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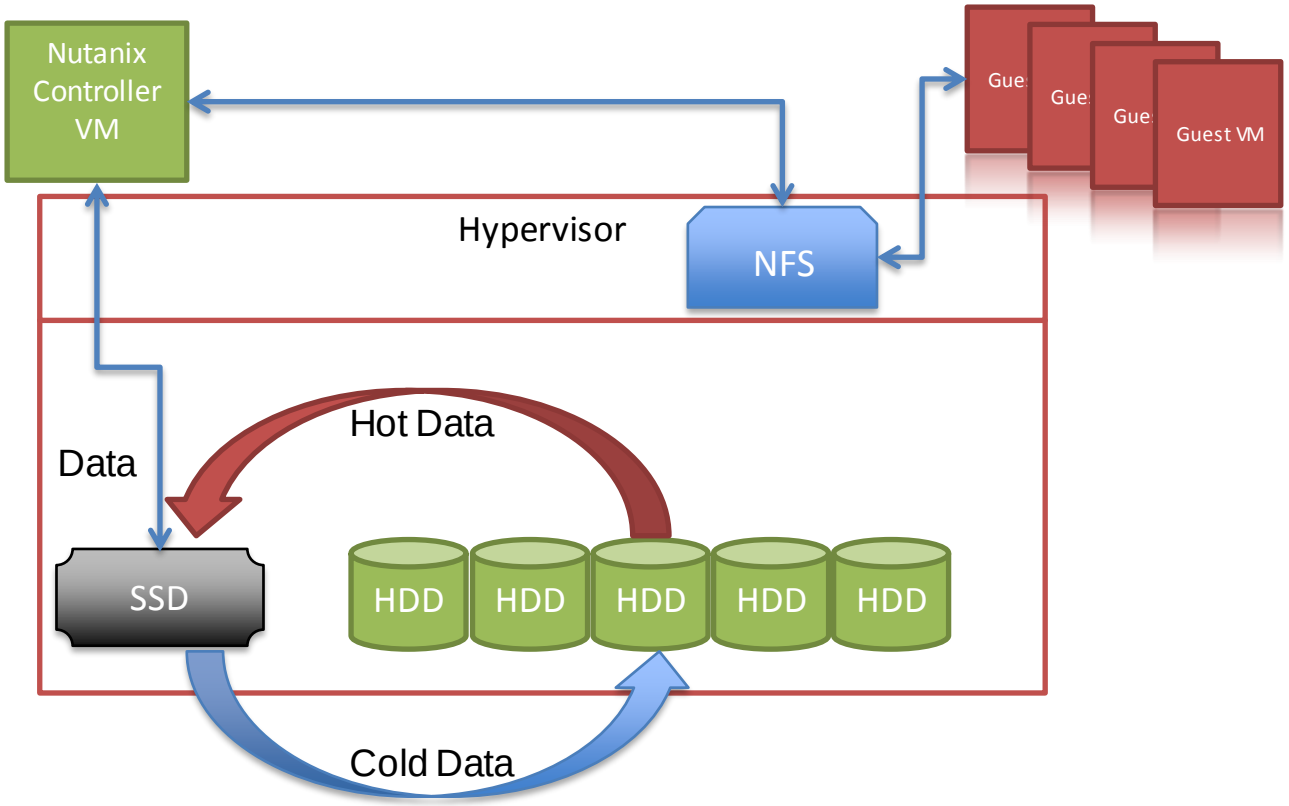
Performance - Heat Optimized Tiering



- Data hits SSD first (configurable)
- Moved off to colder tier by Curator
- Brought back to hot tier depending on access patterns

What benefits do Nutanix bring to Building a Cloud Architecture?

1. Linear scale-out pay as you grow architecture

2. Improved Space and Power Efficiency

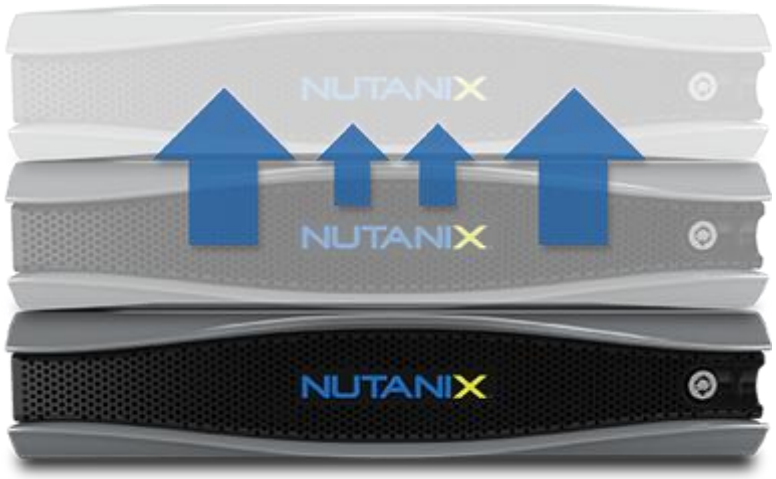
3. Architecture Designed for Failure

4. Performance

5. Reduced Maintenance.

Dynamic Cluster Expansion

Self-discovery with zero downtime



Flexible Clusters

- Add nodes in 2 clicks
- Expand cluster in minutes, not days or weeks

Self discovery

Automatically detects new nodes

Zero cluster downtime

Rolling Upgrades

Zero downtime

NUTANIX

Upgrade SW

with

NO DOWNTIME

Service Continuity

Dynamically utilizes neighboring controller

Data remains available

No impact to end user

Simple. Minimal administrative intervention

Even for large clusters

Thank You

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