



Stretching VMware clusters across distances with EMC's Vplex - the ultimate in High Availability.

VMware TechTalk Live

Yury Magalif, Principal Architect – Cloud Computing
March 11, 2014

What is CDI?

- **Value Added Integrator,**
- **Major partners - VMware, EMC, Cisco, HP**
- **19 years in business**
- **\$256 million, 200 employees, 500+ clients in NYC**
- **Offices in NJ, NYC, Charlotte, Atlanta, Boston, & now Philadelphia**
- **#1 EMC Partner NY Metro, Top 5 EMC Nationally**
- **#1 VCE Vblock Partner, NY Metro**

Customers Want Metro Availability

High Availability

ACROSS DATA CENTERS



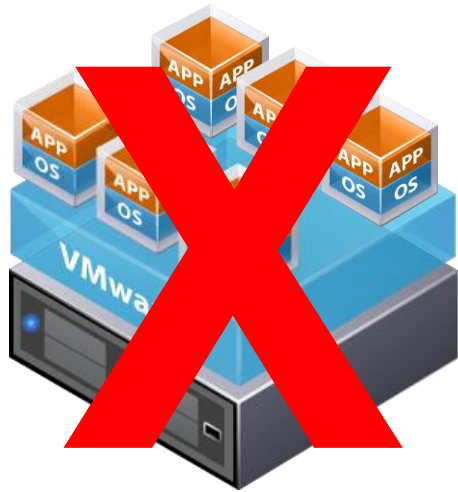
Disaster Recovery

OPERATIONAL AND

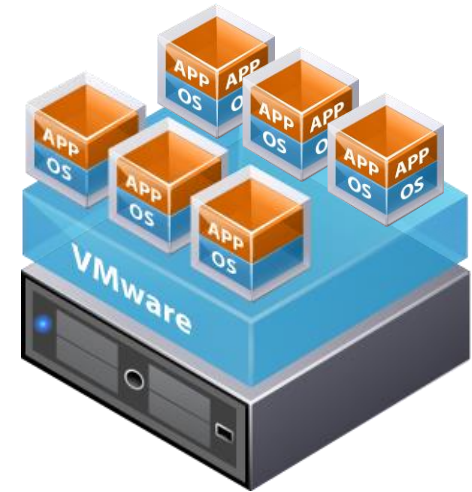
3RD SITE RECOVERY

**How was Disaster
Avoidance &
Recovery Done
BEFORE Stretched
Clusters?**

Disaster Avoidance & Recovery – Host



VMs move using
VMotion or HA



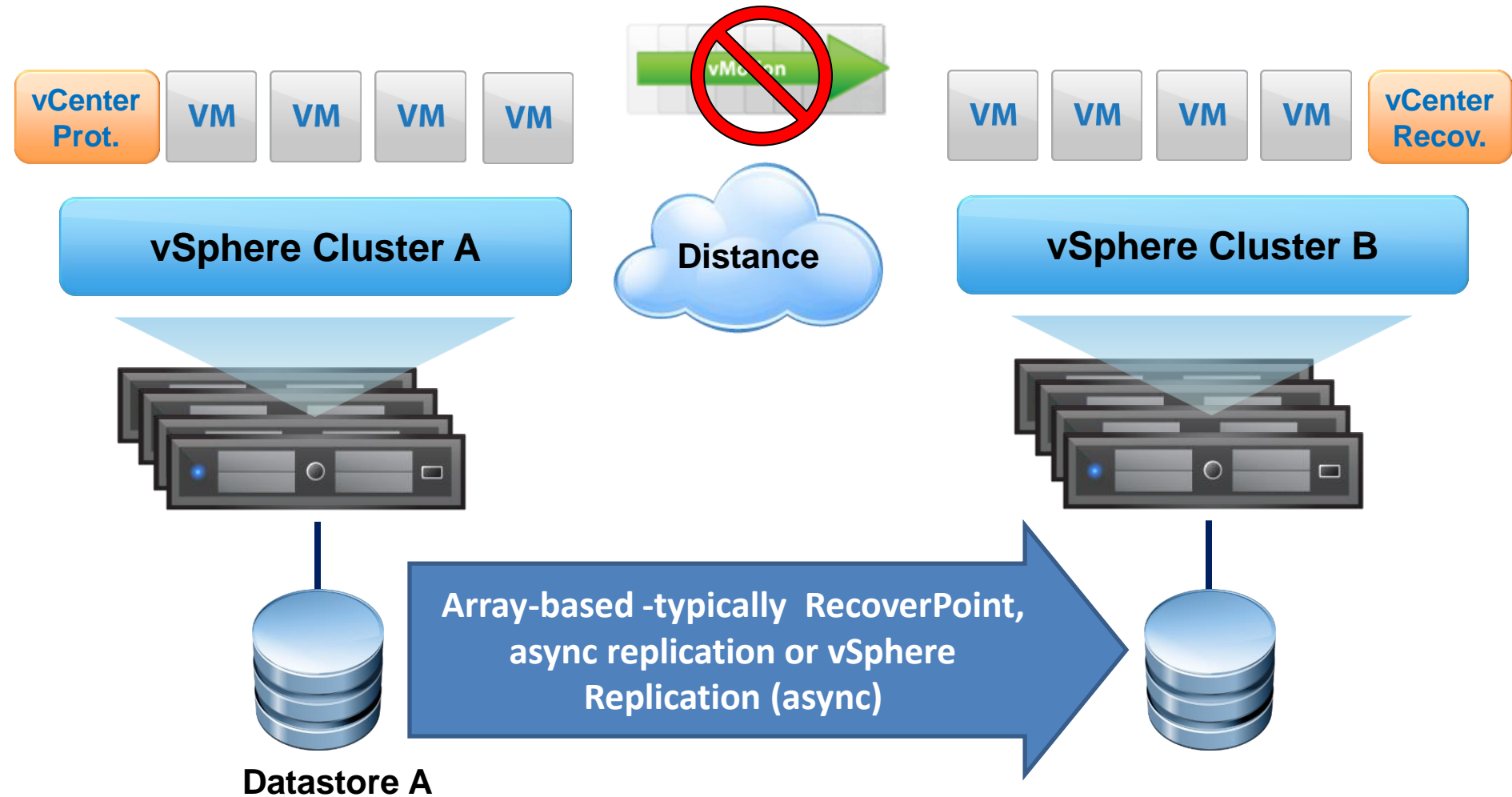
- **Move VMs using VMotion to Avoid**
- **VMs restart using HA to Recover**

Disaster Avoidance & Recovery – Site



- **Move VMs using SRM to Avoid**
- **VMs restart using SRM to Recover**

Traditional Site Recovery Manager



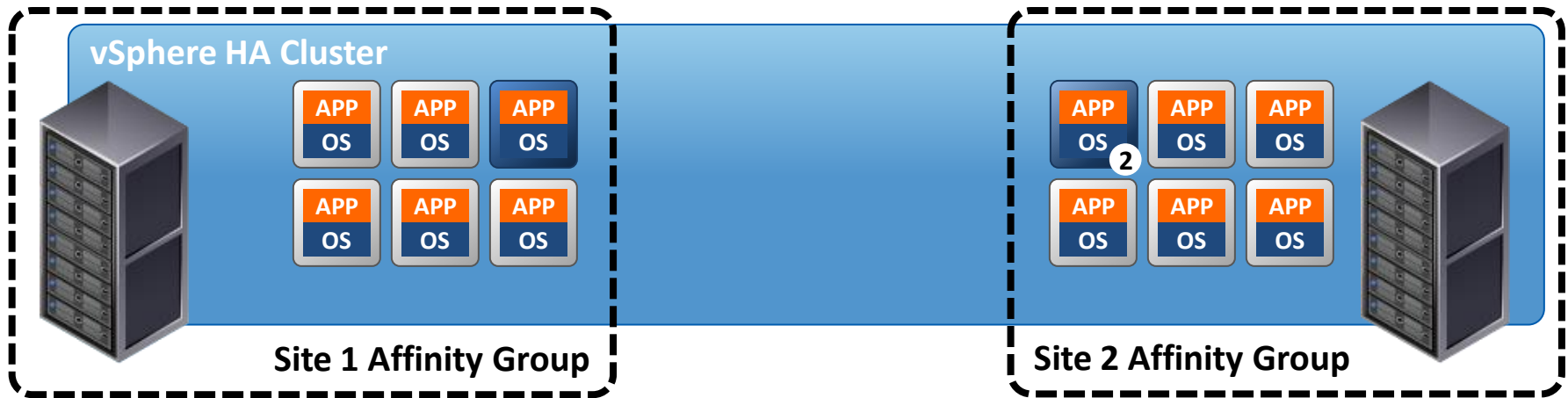
How is Disaster Avoidance & Recovery Done WITH Stretched Clusters?

VMware High Availability



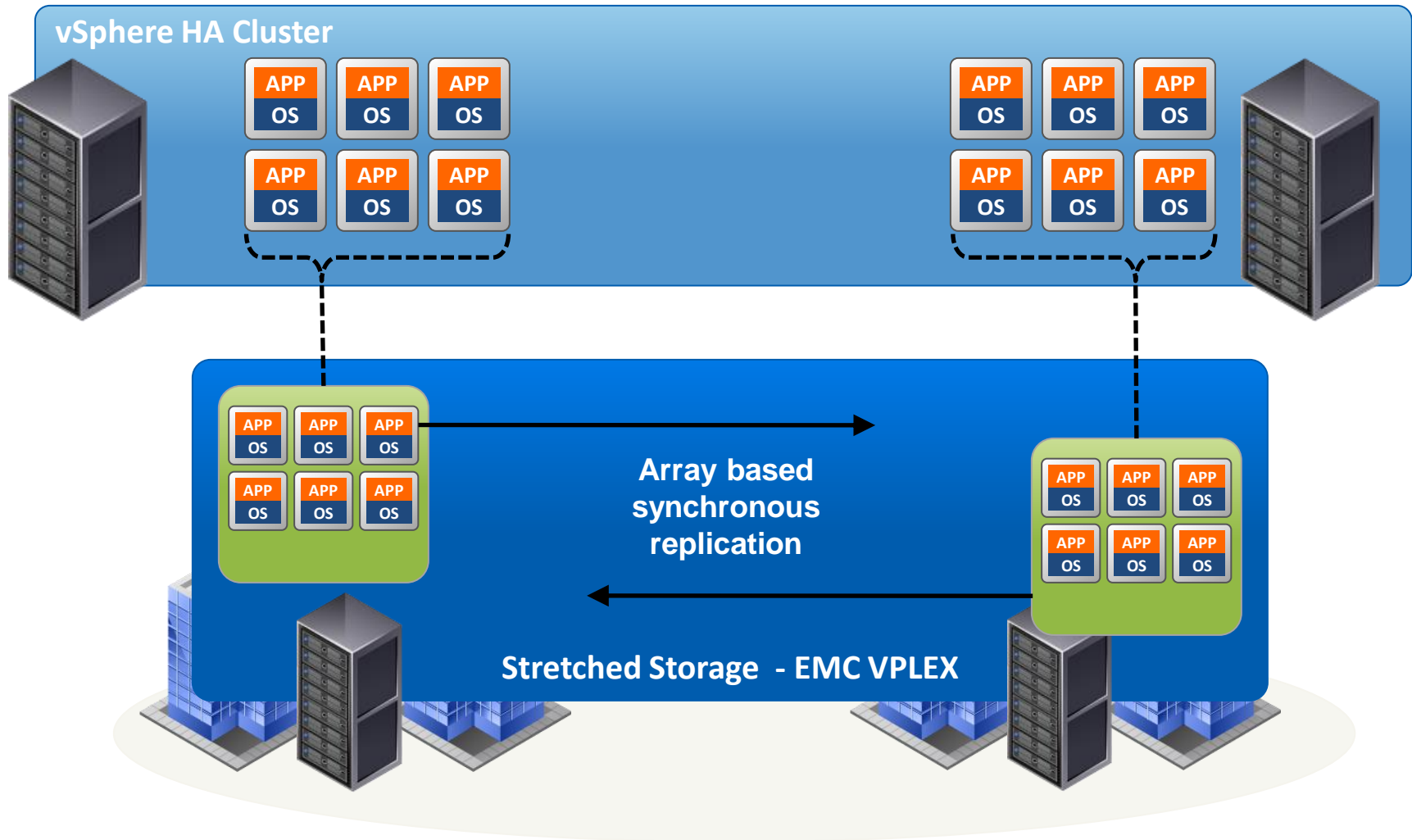
- VMware High Availability
 - Extended between distributed parts of the same virtual datacenter
 - Automatic rapid recovery from host failures
 - No complex clustering software in the VM

VMware VM Host Affinity

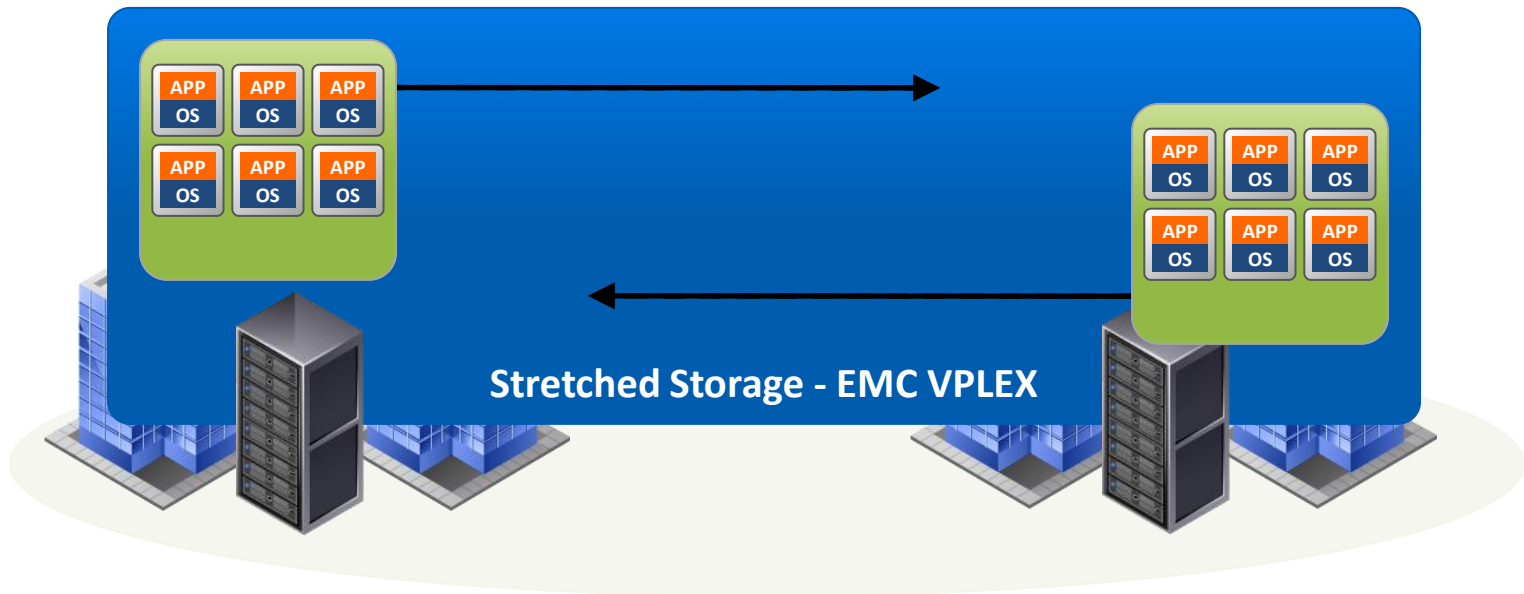
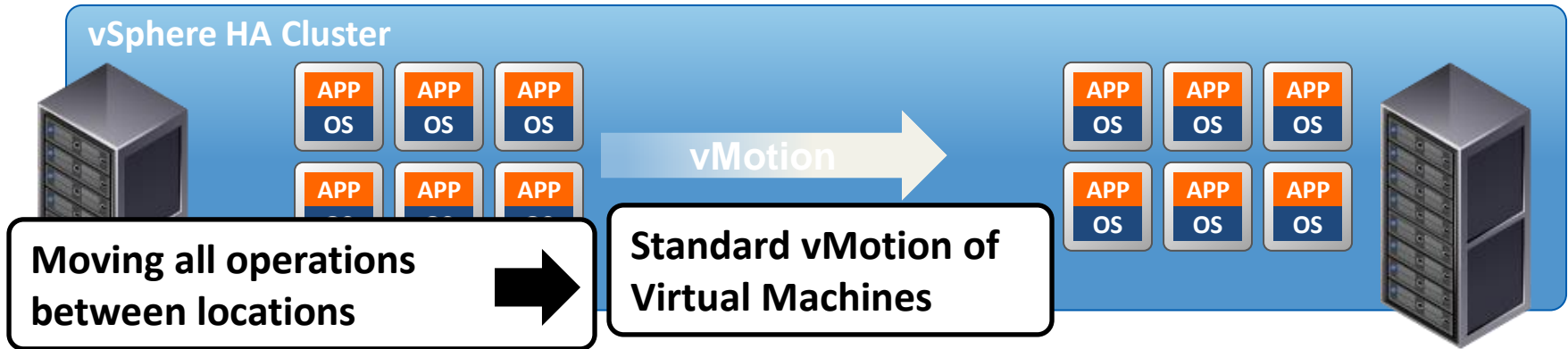


- VMware Host Affinity
 - Provides a “site affinity” capability
 - Keeps workloads local to storage until failure
 - Keeps primary and secondary FT VMs in appropriate sites

Stretching VMware vSphere Clusters



Planned Datacenter Migration



vSphere Stretched Cluster Considerations

Stretched Cluster w/Vplex Requirements

- 100 km/62 miles
- The maximum round trip latency (RTT) 5 ms.
- Minimum 622 Mbps Vmotion requirements
- The protocol between two VPLEX clusters can be Fibre Channel or IP.
- Layer 2 Stretch (same subnet across both sites) – using classic VLAN or OTV
- No more than 32 hosts in vSphere cluster (per HA)
- Protect vCenter with vCenter Heartbeat

Before failing back, disable DRS rules (uncheck BOTH boxes) to control migration of VMs manually

Stretch Cluster 1 Settings

Cluster Features
VMware HA
Virtual Machine Options
VM Monitoring
VMware DRS
DRS Groups Manager
Rules
Virtual Machine Options
Power Management
Host Options
VMware EVC
Swapfile Location

Use this page to create rules for virtual machines within this cluster. Rules will apply to v... while they are deployed to this cluster and will not be retained if the virtual machines are...

| Name | Type | Defined by |
|---|--------------------|------------|
| <input checked="" type="checkbox"/> Keep VM's on Site B | Run VMs on Hosts | User |
| Site B VMs | Cluster VM Group | |
| SiteB Hosts | Cluster Host Group | |
| <input type="checkbox"/> Site A VM's Should Always... | Run VMs on Hosts | User |
| Site A VMs | Cluster VM Group | |
| SiteA Hosts | Cluster Host Group | |

Disable by unchecking these boxes before bringing primary site back on-line

SRM vs Stretched Cluster

- **Site Recovery Manager with RecoverPoint**
 - **Recovery Point Objective = 15 minutes to around 1 hour**
 - **Recovery Time Objective = 1 hour to a couple of hours**
 - Easy button and workflow for recovery
 - Can build application awareness into workflow
 - Easy button for DR test -- automatic
- **Stretched Cluster with Vplex**
 - **Recovery Point Objective = 0**
 - **Recovery Time Objective = minutes**
 - No scritable workflow of recovery
 - HA does not know where application parts are -- manual
 - No structured DR test – BUT VMotion is easy

What is EMC's Vplex?

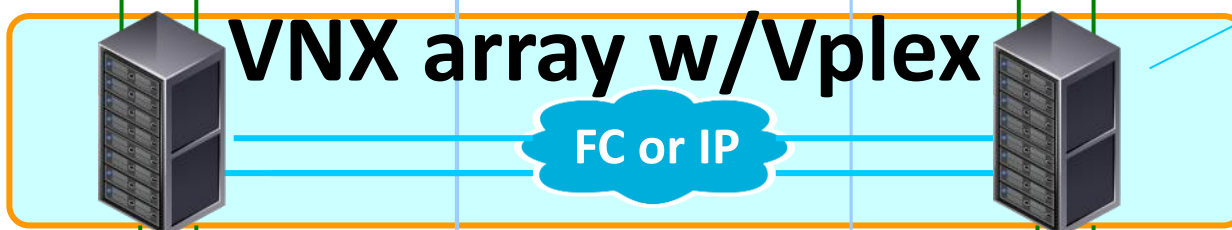
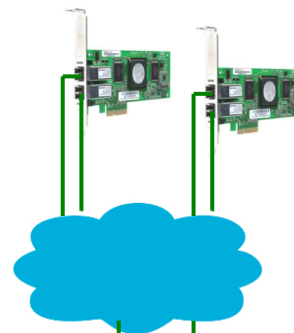
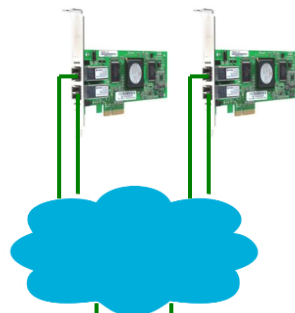
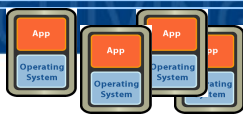


- Uses same hardware as EMC's elite array, the VMAX.
- 3rd site witness recommended, but not required
- Typical network bandwidth generally 3Gb/s to 10Gb/s
- Ethernet recommended, but FC supported
- Capacity based license (recommended)

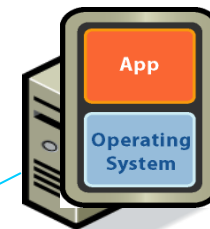
VMs **Site A**

Site B VMs

Site C



Virtual Center



Witness

Non-Uniform Access

NJ Prod

EMC VNX 5500 Prod



NY DR

EMC VNX 5500 DR



VMware vSphere Stretched Cluster
Layer 2 Extended
Classic VLAN or OTV

Vplex Prod

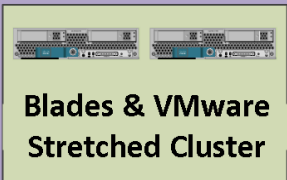


Sync Replication
10Gb

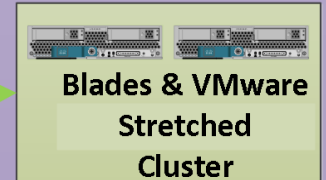
Vplex DR



Blades & VMware
Stretched Cluster



Blades & VMware
Stretched Cluster



LUN X



Vplex Distributed
Volume
LUN A

LUN Y



vCenter
Active



vCenter Heartbeat
Passive Node



EMC Vplex Customer Examples



ALWAYS ON AVAILABILITY



ACTIVE/ACTIVE
DATA CENTERS



70% MORE
UTILIZATION



ONLINE
MIGRATIONS



IMPLEMENTED PRIVATE CLOUD



15%

MORE EFFICIENCY

Katten

Katten Muchin Rosenman LLP

MIGRATED 250 LIVE SYSTEMS



MULTI VENDOR MIGRATIONS



83%

LESS MANAGEMENT

Thank you!

I would like to thank my colleagues Angelo Richichi, Harris Hubbard and Internet personalities Chad Sakac, Vaughn Stewart, Duncan Epping and Lee Dilworth, who's material I used in this presentation.

Twitter Chat

March 12, Wednesday

2 pm to 3 pm EST

Use Hashtag

#CDIVplex

Contact Info & Questions

For inquiries about buying CDI solutions, please contact Kyle.Mullin@cdillc.com & Adam.Jacobs@CDILLC.com

Get the slides in on my work blog:

www.cdillc.com/newsroom/cloud-giraffe

Connect with me on LinkedIn: [Yury Magalif](#)

Twitter:

@YuryMagalif

@CDILLC

Personal Blog: cloud-zebra.com



Technical Questions:

okzebra@gmail.com

yury.magalif@cdillc.com

YouTube:

www.youtube.com/user/ym640