

Future Datacenter

Žaneta Findrik Nöthig
Presales Manager

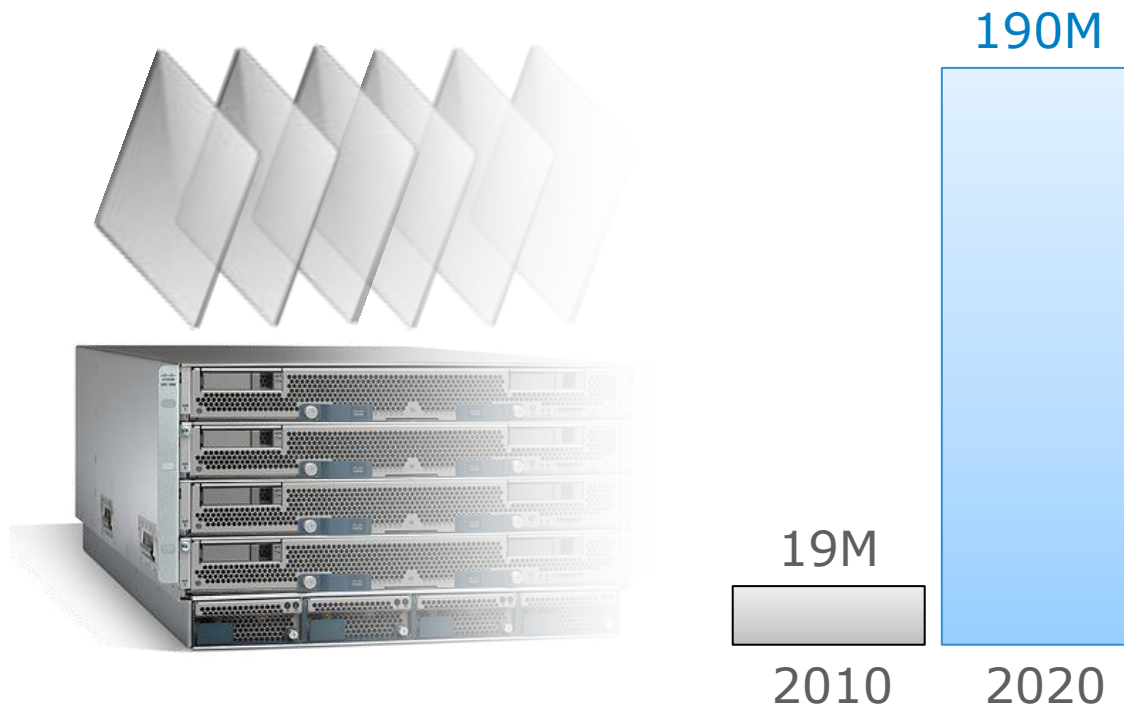
David Hanáček
vSpecialist Technical Lead

Agenda

- EMC Strategy & Vision
- Why EMC is #1 for VMware
- Business Continuity / Disaster Recovery with VPLEX demo
- **Note:** Please prepair your business cards for Sacher cake draw

EMC's Strategy & Vision

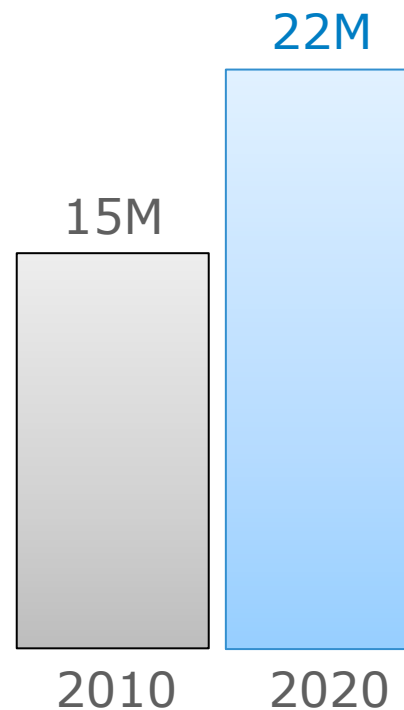
In This Decade...



SERVER VOLUMES
WILL INCREASE
1000%

Server Volume Increase Source: 2011 IDC Digital Universe Study

All Of This Will Happen While...



WORLDWIDE IT STAFFING
WILL INCREASE
LESS THAN 50%
IN THIS DECADE

WW IT Staffing Rate of Increase Source : 2011 IDC Digital Universe Study



IT as a Service

Summit

Business Production

Base Camp 2

IT Production

Base Camp 1



Pack the Right Equipment

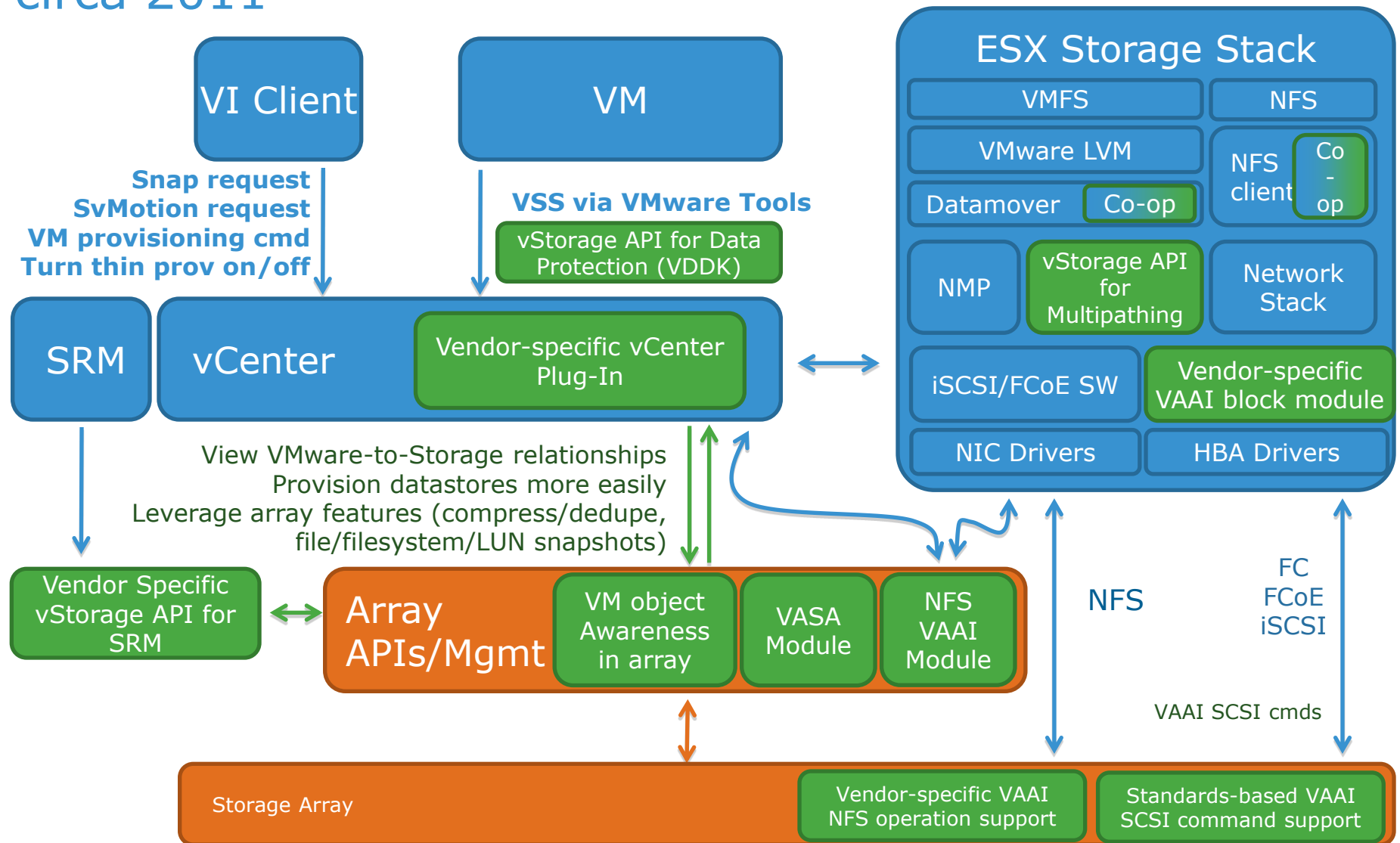
Tools
Practices
Technologies



EMC VMware Integration

"Where Does Integration Happen?"

circa 2011



EMC VNX Unified Storage

10 GBps



1 x VNX



4X
PRIOR
RECORD

VMware
workload
bandwidth

10 GBps

2,8 GBps

3 x CX4

4 Node ESXi 5 Cluster
Single VNX7500 (FCoE)

After

Before

EMC²

1.000.000

EMC VMAX

1 x VMAX



4X
MORE

VMware
workload
I/O

1 million IOPS

**Single ESXi 5 server
Single EMC VMAX**

360.000

3 x CX4

After

Before



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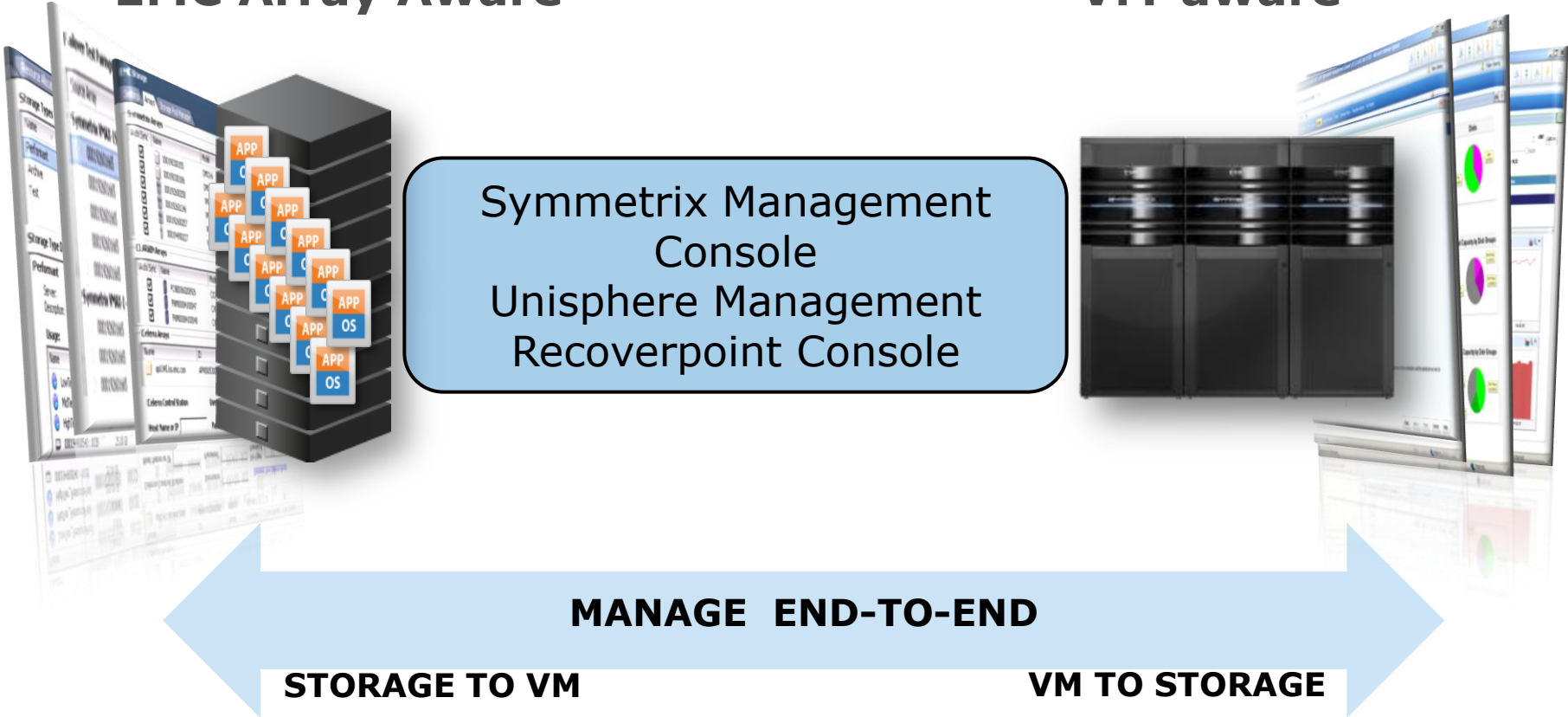
Management



Management Simplicity

**EMC VSI Makes vCenter
“EMC Array Aware”**

**EMC Arrays Natively Are
“VM-aware”**



The diagram illustrates the management simplicity of EMC storage. On the left, a stack of server racks is shown with several application icons (APP, OS) floating above them. On the right, a stack of server racks is shown with several application icons (APP, OS) floating above them. In the center, a blue rounded rectangle contains the text: Symmetrix Management Console, Unisphere Management Console, and Recoverpoint Console. Below this, a large blue arrow points from left to right, labeled 'MANAGE END-TO-END'. Under the left side of the arrow is the text 'STORAGE TO VM', and under the right side is the text 'VM TO STORAGE'.

Symmetrix Management Console
Unisphere Management Console
Recoverpoint Console

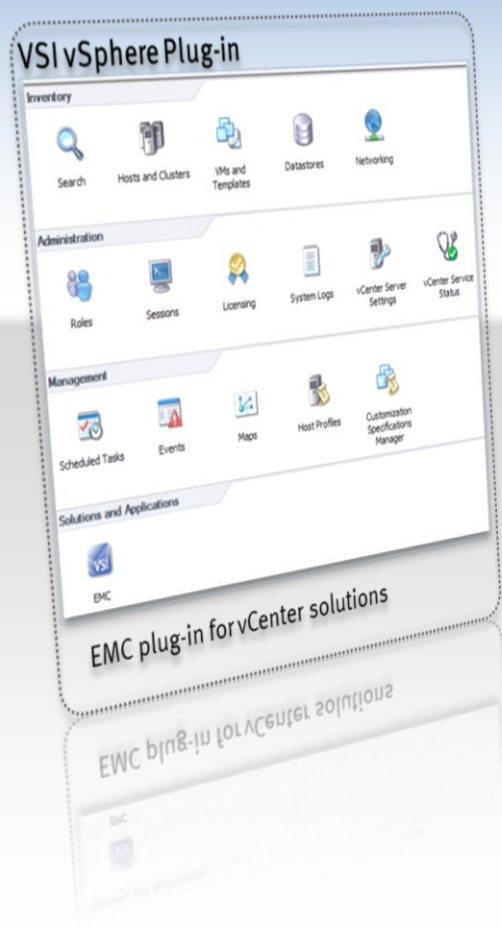
MANAGE END-TO-END

STORAGE TO VM

VM TO STORAGE

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EMC Virtual Storage InMotion 5.2



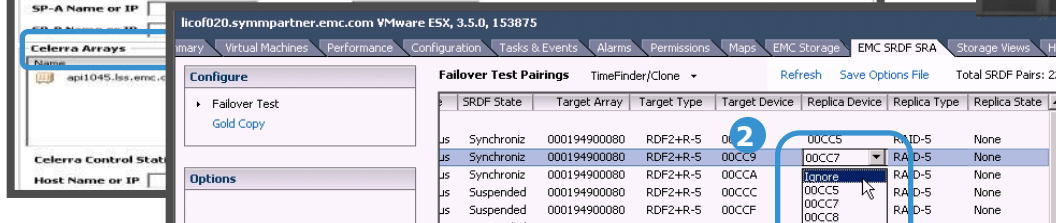
Free !

VSI and vCenter: Discover, View and Provision EMC Storage

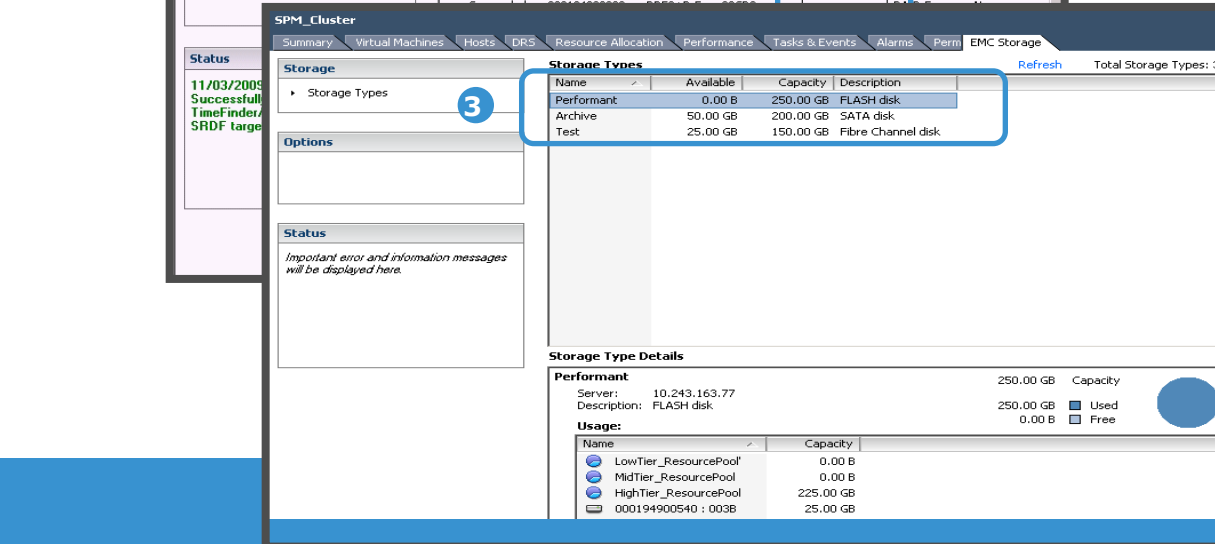
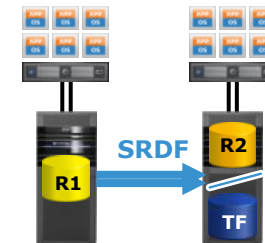
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1 Discover and View Symmetrix, CLARiiON And Celerra Arrays



2 Define Device Pairs For Recovery testing



3 Provision Storage As a Resource



VAAI

Hardware-Accelerated Copy

- Without API

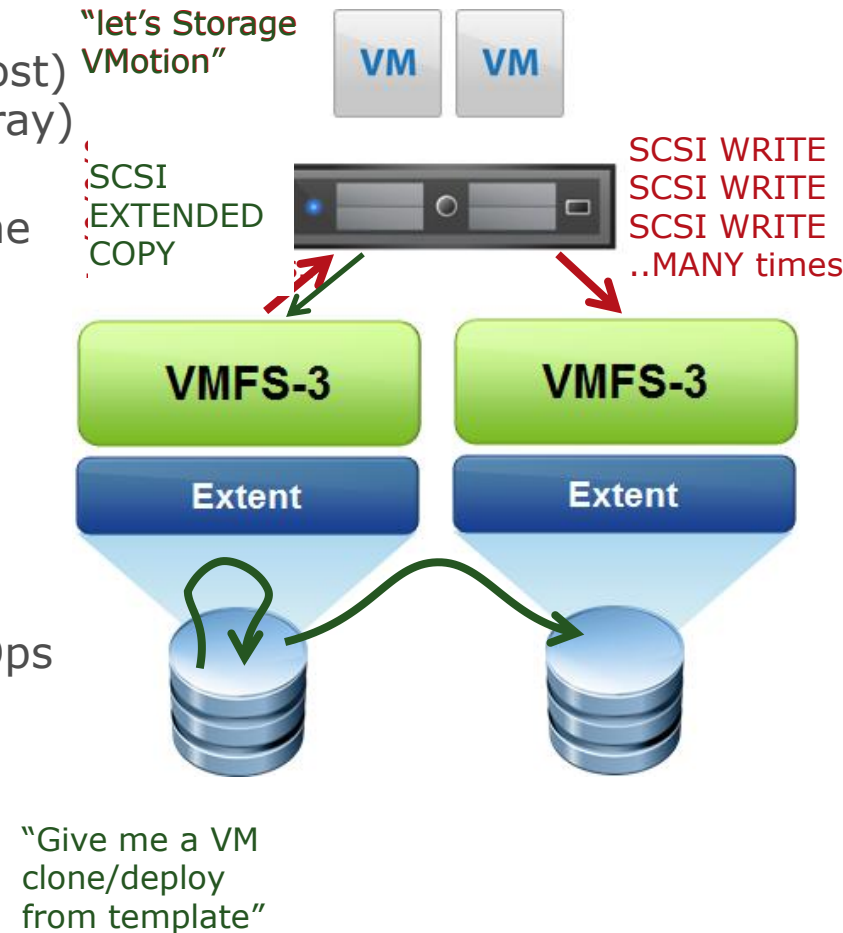
- SCSI Read (Data moved from array to host)
- SCSI Write (Data moved from host to array)
- Repeat
- Huge periods of large VMFS level IO, done via millions of small block operations

- With API

- SCSI Extended Copy (Data moved within array)
- Repeat
- Order of magnitude reduction in IO operations
- Order of magnitude reduction in array IOps

- Use Cases

- Storage VMotion
- VM Creation from Template



Growing list of VAAI hardware offloads

- vSphere 5
 - For Block Storage
 - Thin Provision Stun
 - Space Reclaim
 - For NAS storage
 - Full Clone
 - Extended Stats
 - Space Reservation



EMC Backup & Recovery.

Next Generation Technology.
Integrated Solutions.
Fast, Efficient, Cost-Effective.

EMC Avamar

The Best Way To Backup VMware



Architected For Fast VMware Backup.
Unique 'Changed Block' Recovery.
vSphere 5 & vCloud Director Ready.
Data Domain Integration.



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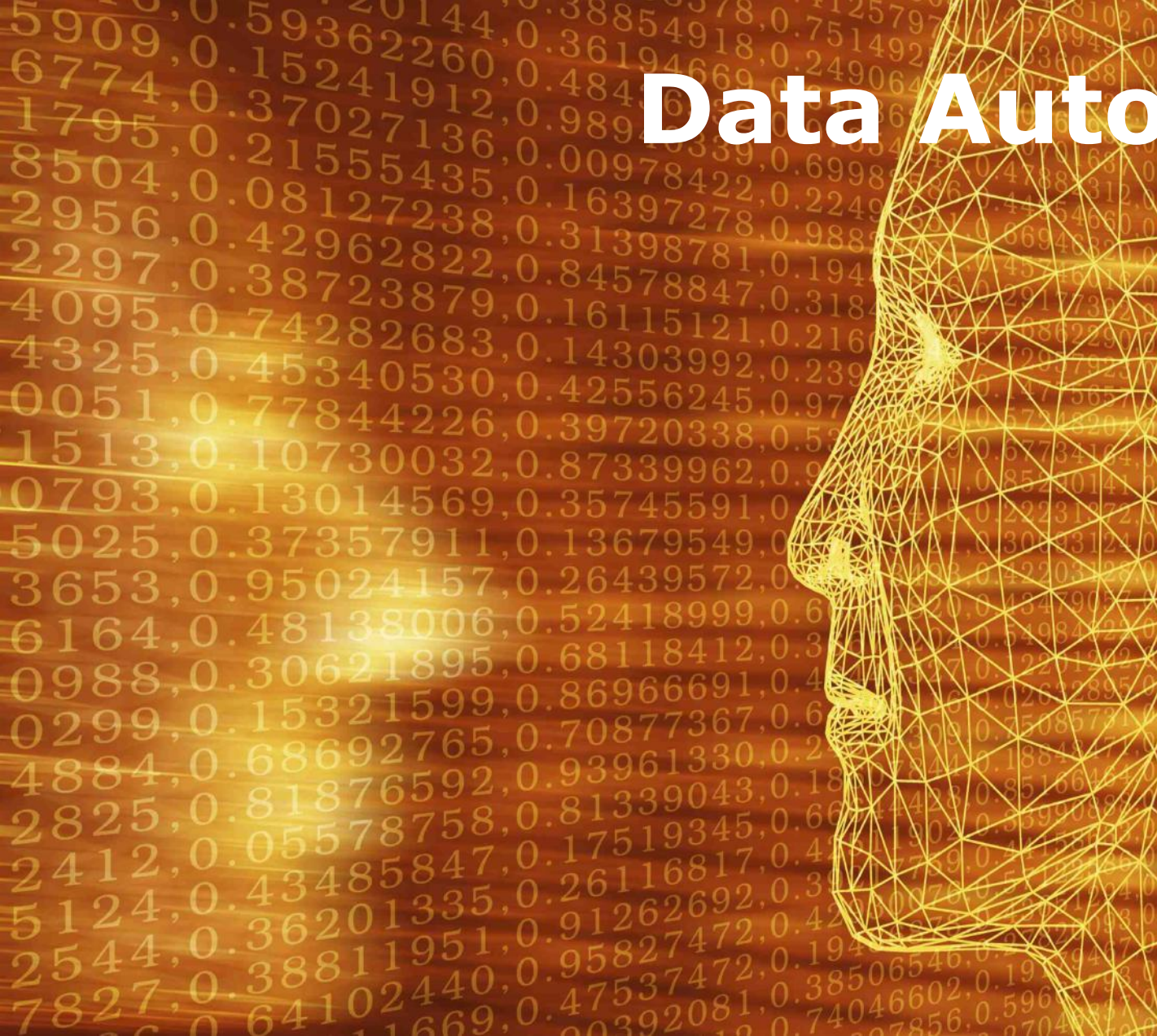


Health Quest.



100% Elimination of Tape.
90% Reduction in Backup Window.
\$1M Saved, Reinvested in VMware.

Data Automation



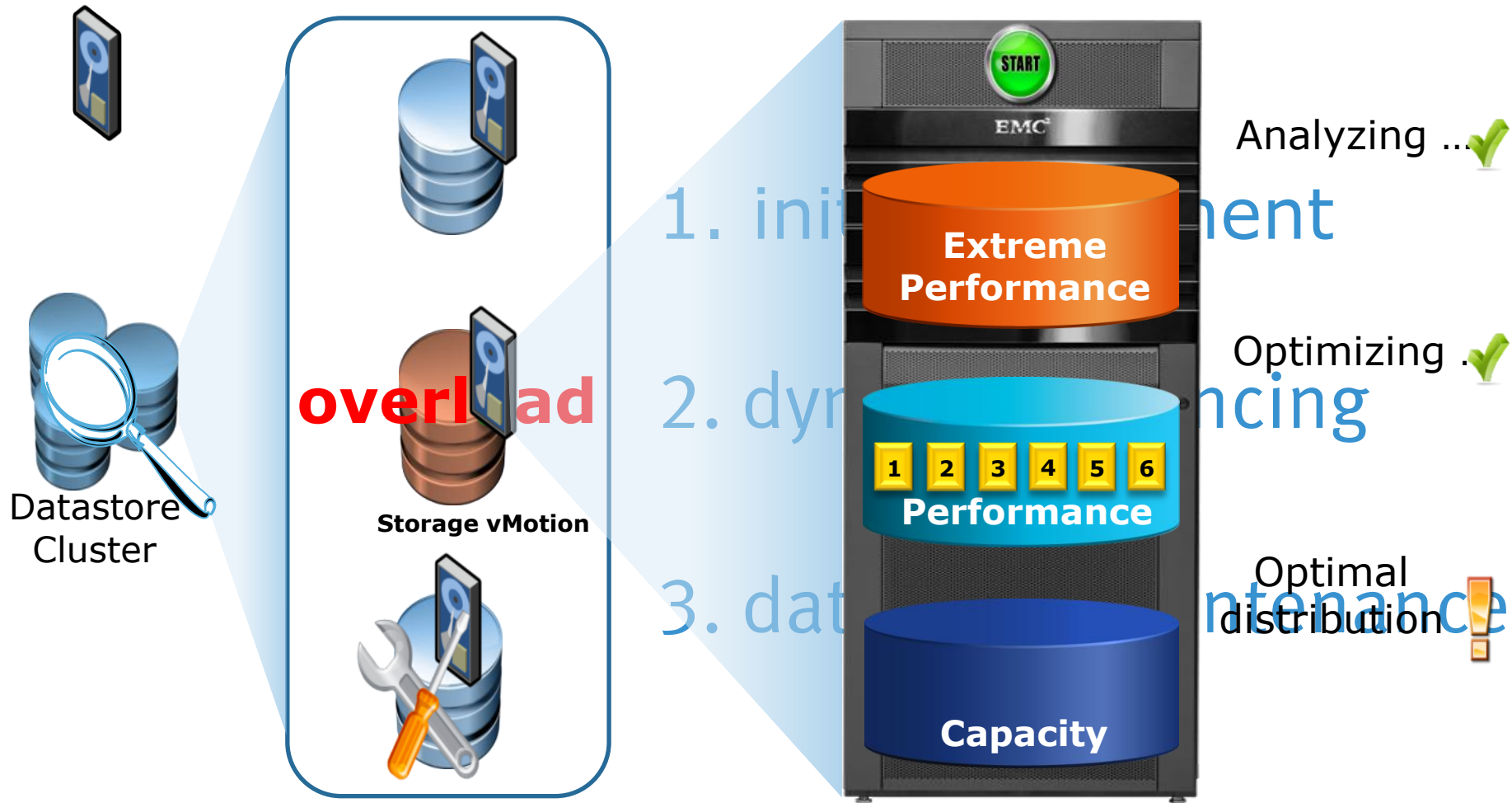
EMC²

vSphere Storage DRS

EMC Fully Automated Storage Tiering

Data Automation

Data Automation



vSphere Storage DRS

EMC Fully Automated

Data Automation

I am an EMC
Array
with
auto tiering
feature !

Delegation
of
storage
related
tasks !

VASA

VAAI

2 xtreme
Performance

1 5
Performance

3 4 6
Capacity

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Business Continuity & Disaster Recovery

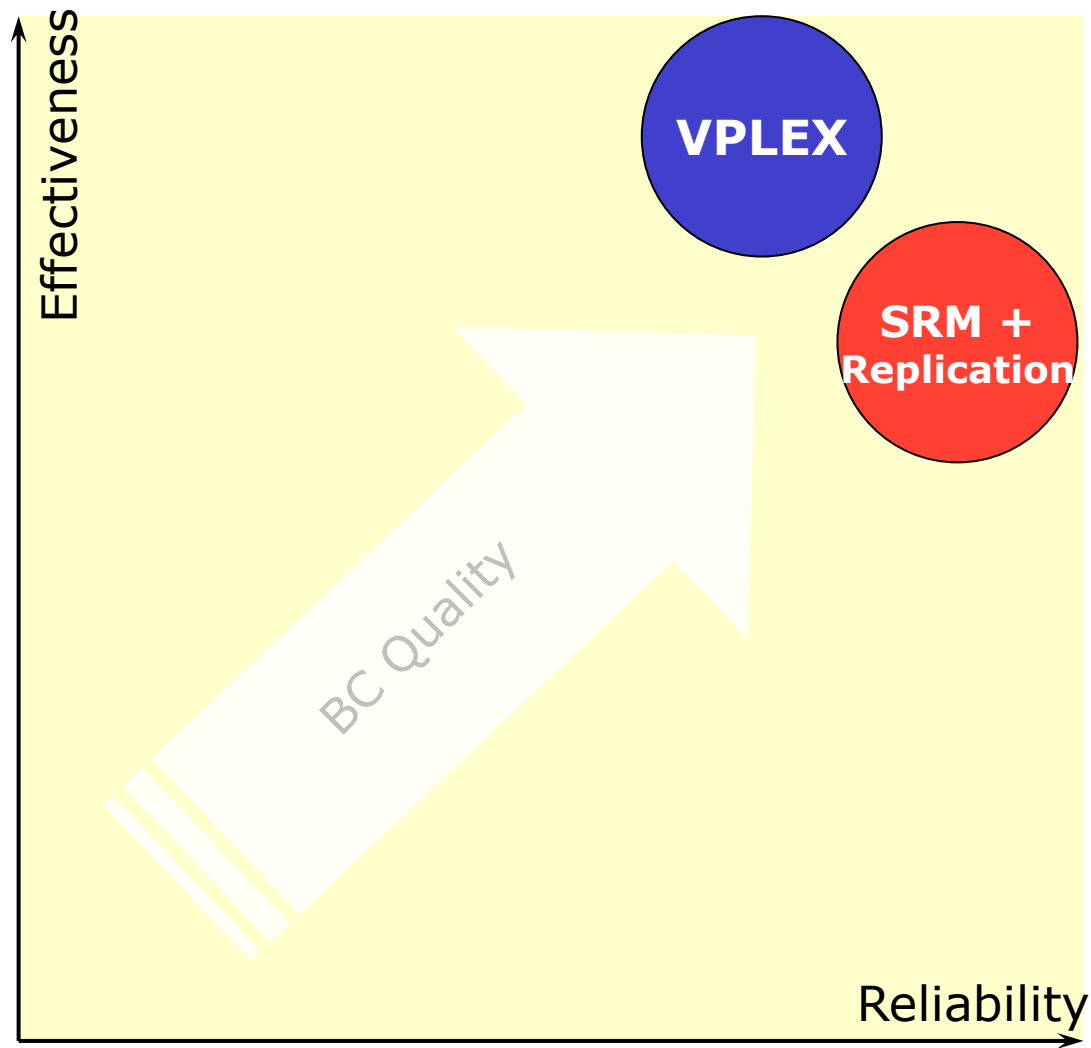
Terminology

- Business Continuity (BC)
 - Objective: Keep the business running @ minimum disruption
 - Method: Provide redundancies, to “contain” the impact of an incident (containment action, “failover”)
 - Technology: [EMC multi-site technologies](#)
 - Special challenge: smoothly reverse the containment action when things are normal again (“failback”)
- Disaster Recovery (DR)
 - Objective: Recover business operation after a crash
 - E.g. when BC provisions have failed
 - Method: Proactive provisions (e.g. backup)
 - Technology: [EMC data protection](#)

Why EMC?

- More than a decade of experience
 - EMC has been in BC/DR business since the early days of Symmetrix and SRDF more than a decade ago
- EMC consulting skills
 - For about a decade, EMC has delivered BCM (BC Management) consulting to customers
 - This expertise is reflected in EMC solution design
- Width of BC/DR offerings
 - EMC has the widest range of proven technologies
 - SRDF, MirrorView, RecoverPoint, VPLEX, ...
 - EMC solutions are holistic and tailored to customer needs

Top Two EMC BC Solutions



What to Choose When

- VPLEX

- Need **top effectiveness** – short RTO and RPO
 - VPLEX solutions are active-active, both sides execute concurrent instances^of an application. BC containment action means redirecting clients from a failed to a surviving instance
 - Regular VMware HA functions (vMotion-based) are applicable – VPLEX facilitates distributed shared storage access
- Easy fallback
 - reverse containment action, return to normal

- SRM + Replication

- Need **top reliability** – risk of non-graceful crash is high
 - VMware SRM (Site Recovery Manager) solutions are active-passive, based on a paradigm of explicit data replication failover. Explicit failover is an „iron curtain“ against remote data corruption.
 - Proven array-array replication features (EMC SRDF, RecoverPoint, ...) are used in combination with SRM.

EMC IT Proven Technology



VPLEX

Business Benefits

- Larger amounts of data moved faster: 800 TB in 3 years vs. 3.3 PB in 18 months
- Non-disruptive migrations and zero application downtime
- Better resource planning and predictive procurement cycles

Challenge

- Migrate to new data center with minimal downtime
- Provide high availability across data centers
- Create an active/active infrastructure

Solution

- 7 VPLEX Locals
- VMware
- VMAX and VNX arrays

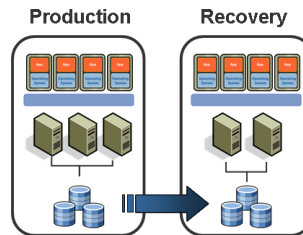
"VPLEX family of products are the underlying enabler of EMC IT's Private Cloud Infrastructure. Utilizing virtualization technologies managing capacity and devices under VPLEX control has resulted in efficient use of resources."

Mahesh S. Babani, Office of the CIO , EMC IT Proven



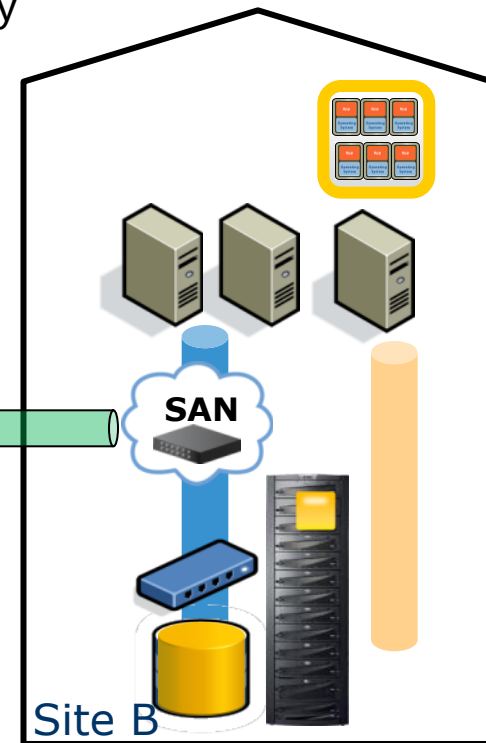
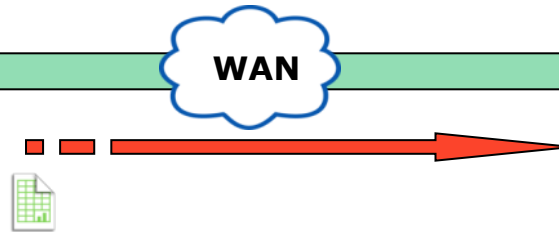
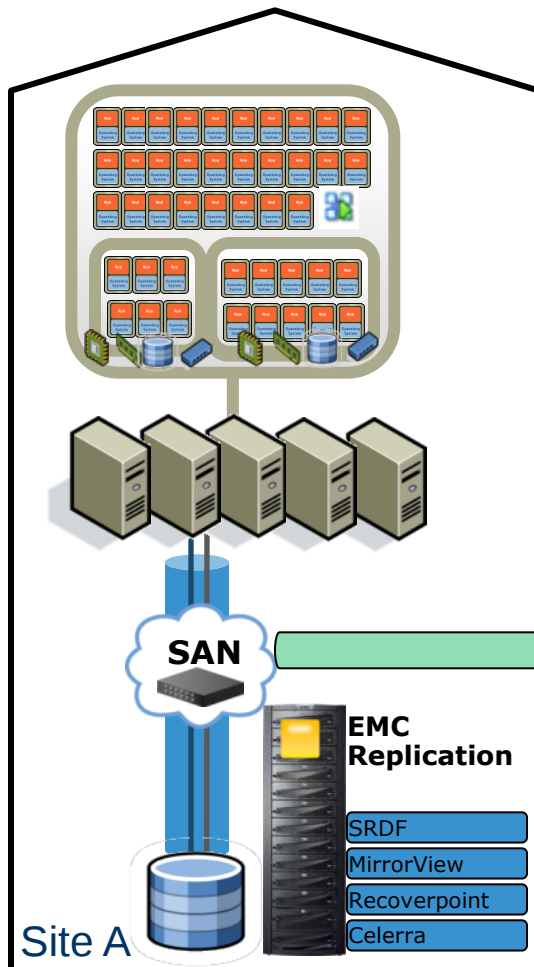
SRM + Replication

VMware vCenter Site Recovery Manager



DR Event!

- VMware integrates with every EMC product, every RPO, every scale
- EMC Adds - Heterogeneous
- EMC Unique WAN Compression = 10x more efficient



DR Test

Yes, BC Procedures Can Fail!

- Robustness issues
- Remote data corruption
- Split brain syndrome
- Human error

So, DR Solution is Also Needed?

- Clones or Snapshots
- Deduplication Backup to Disk (B2D)
- Traditional tape backup
- Check out EMC Data Protection

Where To Go From Here

- Discuss with EMC vSpecialists and Technical Consultants
- vLabs – Hands on EMC products
 - ask your EMC Technical Consultant
- Cloud Readiness Accelerator (CRA)
- EMC BC/DR Consultancy

And What's Your Next Step?

- Store, Backup and Secure – EMC IT Proven
 - <http://www.emc.com/virtualization>
 - <http://www.emc.com/microsites/emc-it-proven/index.htm>
- EMC VMware Blog and Community
 - <http://virtualgeek.typepad.com/>
 - <http://www.emc.com/vmwarecommunity>
- Solutions for MS Exchange, VDI, SAP
 - <http://vce.com/solutions/applications/>
- Trainings
 - Cloud Architect (EMCCA), Data Center Architect (EMCDCA)
 - <http://education.emc.com/CloudCert>

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