Benefits of Virtualization

Why Virtualization is Advantageous:

- Portability
- Simplification of Recovery Process
- Decreased Recovery Time
- Successful Recovery to Dissimilar Hardware
Case Study #1: Acme Health Services

ENVIRONMENT
- 500 Servers
  - 450 Physical
  - 50 Virtual

TIER 1 APPS
- webMethods
- Citrix
- Active Directory
- Documentum
- SQL
- IIS

METHODOLOGY
- Hand Build Each Physical Server
- Install Application Environment
- Restore Data from Tape

OBSTACLES
- Manual Process
- Dependency on Documentation
- Multiple Skill Sets
Case Study #1: Acme Health Services

- Ways to Improve
  - Virtualize Tier 1 Servers
  - Backup Virtual Machines
  - Reduce Complexity of Recovery

- Benefits of Improvement
  - Reduction in Downtime to the Business
  - Reduction in Lost Revenue
  - Decrease in Manpower Required
Case Study #1: Acme Health Services

- Disaster Recovery Test #1
  - Virtual Machine Domain Controllers
  - Physical versus Virtual Servers
    - Pitfalls During Physical Recovery
    - Ease of Virtual Recovery

![Graph showing recovery time for physical and virtual servers](image)
Case Study #1: Acme Health Services

- Disaster Recovery Test #2
  - Complete Virtualized Recovery
  - ESXRanger for Recovery
  - Decreased Footprint
  - Decreased Cost
Case Study #1: Acme Health Services

<table>
<thead>
<tr>
<th></th>
<th>Physical</th>
<th>Virtual</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Hours*
Case Study #2: Computershare

ENVIRONMENT
600 Servers
200 Physical
400 Virtual

TIER 1 APPS
Financial Apps
Exchange
Citrix
IIS
SQL
Sharepoint

METHODOLOGY
Split-Sites with Flat Network
Synchronous SAN Replication
Manually Recover ESX Blades

OBSTACLES
Manual Process
Dependency on VMWare Skills
Slow Recovery for Investment
Case Study #2: Computershare
Major Types of Failure

Server

SAN

Site
ESX Server - Recovery

SITE A

ServerA1
ServerA2
ServerA3
ServerA4
ServerA5
ServerA6
ServerA7
ServerA8

SITE B

ServerB1
ServerB2
ServerB3
ServerB4
ServerB5
ServerB6
ServerB7
ServerB8

Restore VMX

VMWORLD 2006
SAN – Online

SITE A

SYNCHRONOUS REPLICATION

ACTIVE

REPLICA

SITE B

Farms
A
B
C
D

Farms
A
B
C
D
SAN - Recovery

SITE A
- Farms: A, B, C, D
  - Failed

SITE B
- Farms: A, B, C, D
  - Active

VMWORLD 2006
SITE A

SYNCHRONOUS REPLICATION

ACTIVE

SITE B

REPLICA

Farms

A
B
C
D

Farms

A
B
C
D

VMWORLD 2006
Site – Recovery

SITE A

Farms
A
B
C
D

FAILED

SITE B

Farms
A
B
C
D

ACTIVE

Restore VMX
Ways to Improve Recovery Process

- Scripting Automation
- Extend Recovery Capacity
Scripting Your Solution

- Dancer’s Shell (DSH)
  - Powerful Wrapper that Allows Multiple SSH Connections
  - Run One Command on Multitude of Servers
  - Group Based
  - Consecutive or Concurrent Execution
Configuring DSH

Download DSH Distribution and Libdshconfig
- dsh_0.25.4-1_i386.deb
- libdshconfig1_0.20.11-1_i386.deb

Install Packages

Create Groups

Establish Secure Key Pairs

Syntax:
- dsh \(-g \) *groupname* \(-M \) \(-r \) ssh \(-c \) *command*

E.G.
- dsh \(-g \) farma \(-M \) \(-r \) ssh \(-c \) service ntpd restart
- dsh \(-g \) farmb -c \(-M \) \(-r \) ssh \(-c \) cos-rescan.sh vmhba1
Scripting Your Solution

- Server Failure
  - Extract VMX Files
  - Register Virtual Machines
  - Power On Virtual Machines
  - Answer Questions
- Execution Time ~30 Seconds

<table>
<thead>
<tr>
<th>SITE A</th>
<th>SITE B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server A1</td>
<td>Server B1</td>
</tr>
<tr>
<td>Server A2</td>
<td>Server B2</td>
</tr>
<tr>
<td>Server A3</td>
<td>Server B3</td>
</tr>
<tr>
<td>Server A4</td>
<td>Server B4</td>
</tr>
<tr>
<td>Server A5</td>
<td>Server B5</td>
</tr>
<tr>
<td>Server A6</td>
<td>Server B6</td>
</tr>
<tr>
<td>Server A7</td>
<td>Server B7</td>
</tr>
<tr>
<td>Server A8</td>
<td>Server B8</td>
</tr>
</tbody>
</table>

Restore VMX
Scripting Your Solution

- **Storage Failure**
  - Rescan both HBAs per Server
  - Execution Time ~2 Minutes
Scripting Your Solution

- Site Failure
  - Rescan HBAs
  - Verify LUN Connectivity
  - Extract VMX Files
  - Register Virtual Machines
  - Power On Virtual Machines
  - Answer Questions
  - Execution Time ~4 Minutes
Case Study #2: Computershare

- Disaster Recovery Test #2
  - Completely Scripted Recovery

Comparison: Test 1 vs. Test 2

Minutes

Comparison: Test 1 vs. Test 2

Test 1

Test 2
Virtual Appliances

- Pre-Built
- Pre-Configured
- Portable
- Self Contained

Ubuntu

Nagios

VMWORLD 2006
Virtual Appliances

- What is Ubuntu?
  - Free
  - Linux Based Operating System
  - Open Source
ESX Recovery Center

- Glade User Interface Builder
## Recovery Center

<table>
<thead>
<tr>
<th>Type of Failure</th>
<th>What has Failed?</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blade Chassis</td>
<td></td>
<td>Registers VMs on complimentary ESX server.</td>
</tr>
<tr>
<td>HP EVA</td>
<td></td>
<td>Rescans all farms to map paths to online EVA.</td>
</tr>
<tr>
<td>Site</td>
<td></td>
<td>Registers VMs on complimentary ESX servers and then rescans entire online site.</td>
</tr>
<tr>
<td>Unregister VMs</td>
<td></td>
<td>Used for cleanup once a failed chassis is back online.</td>
</tr>
</tbody>
</table>

*ESX Recovery Center*

Creator: Jason Langone
Please remember to complete your **session evaluation form** and return it to the room monitors as you exit the session.

The presentation for this session can be downloaded at [http://www.vmware.com/vmtn/vmworld/sessions/](http://www.vmware.com/vmtn/vmworld/sessions/)

Enter the following to download (case-sensitive):

- **Username:** cbv_rep
- **Password:** cbvfor9v9r