

Leveraging VMWare ESX in Disaster Recovery Solutions

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VMWORLD 2006

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	Documentum
Citrix	SQL
Active Directory	IIS

METHODOLOGY

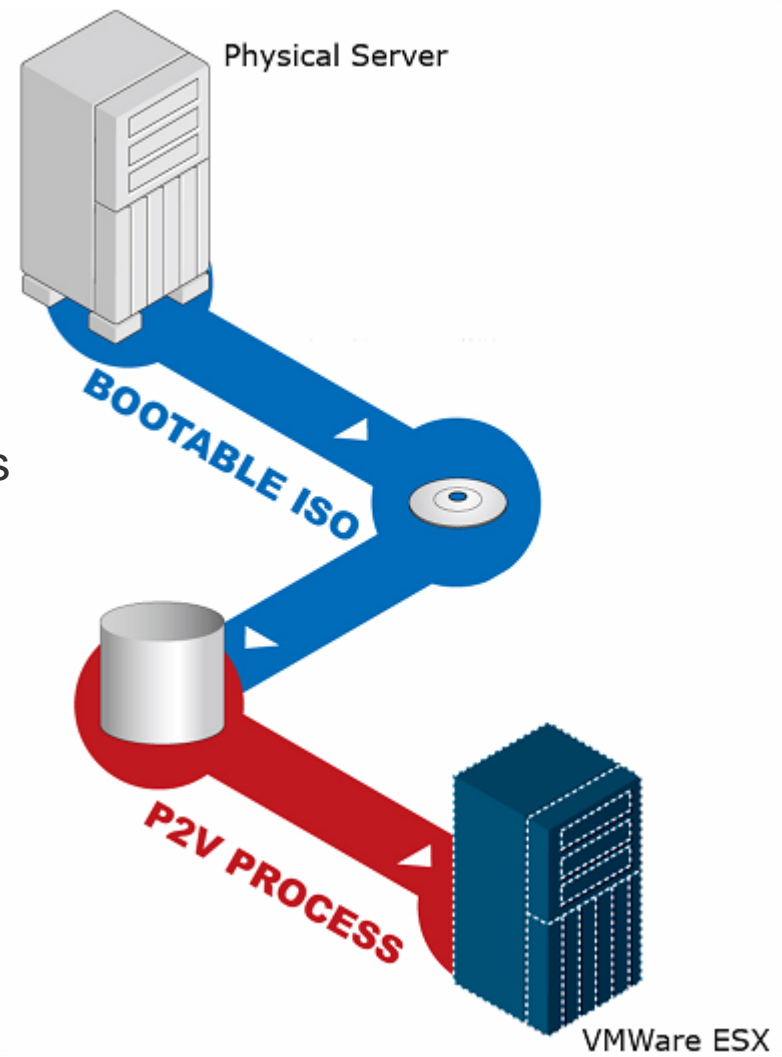
Hand Build Each Physical Server
Install Application Environment
Restore Data from Tape

OBSTACLES

Manual Process
Dependency on Documentation
Multiple Skill Sets

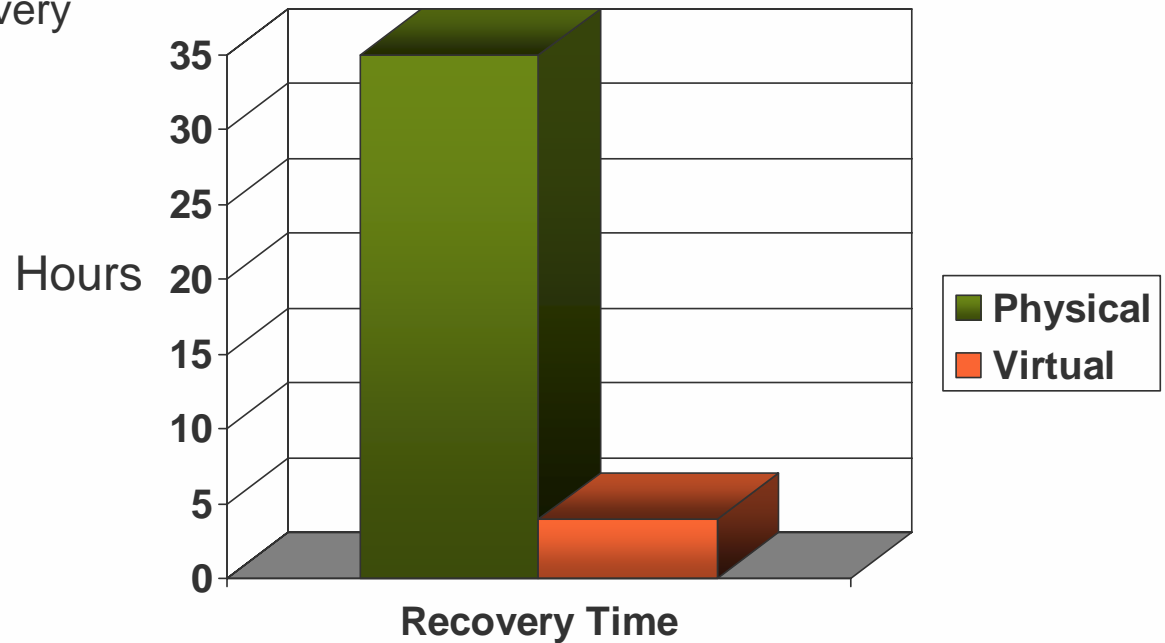
Case Study #1: Acme Health Services

- 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



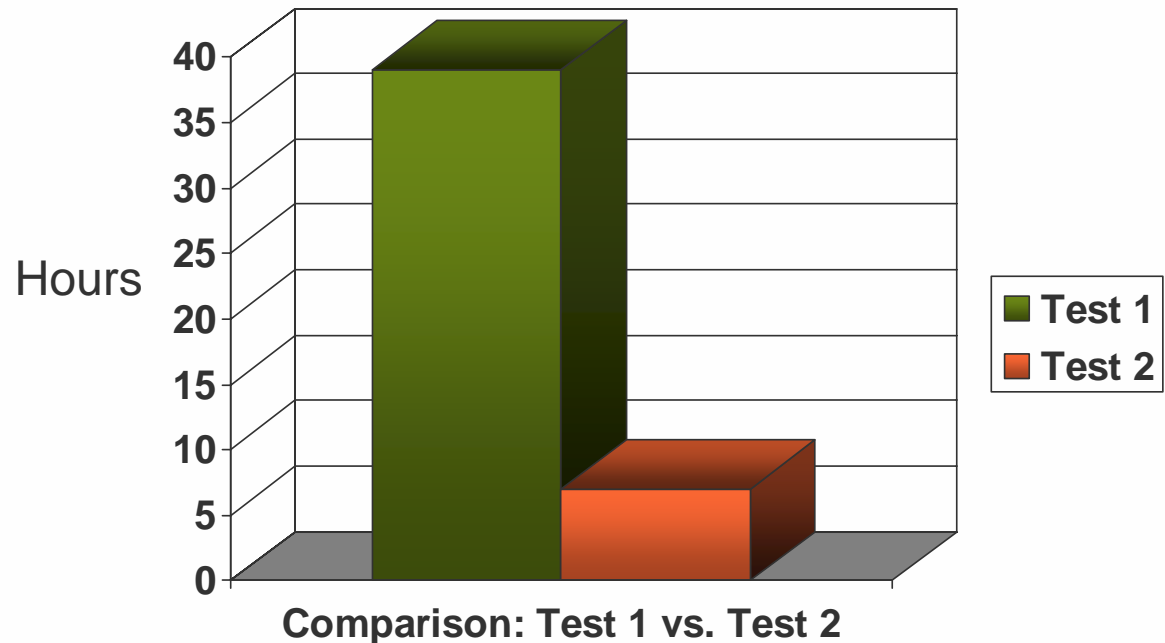
Case Study #1: Acme Health Services

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

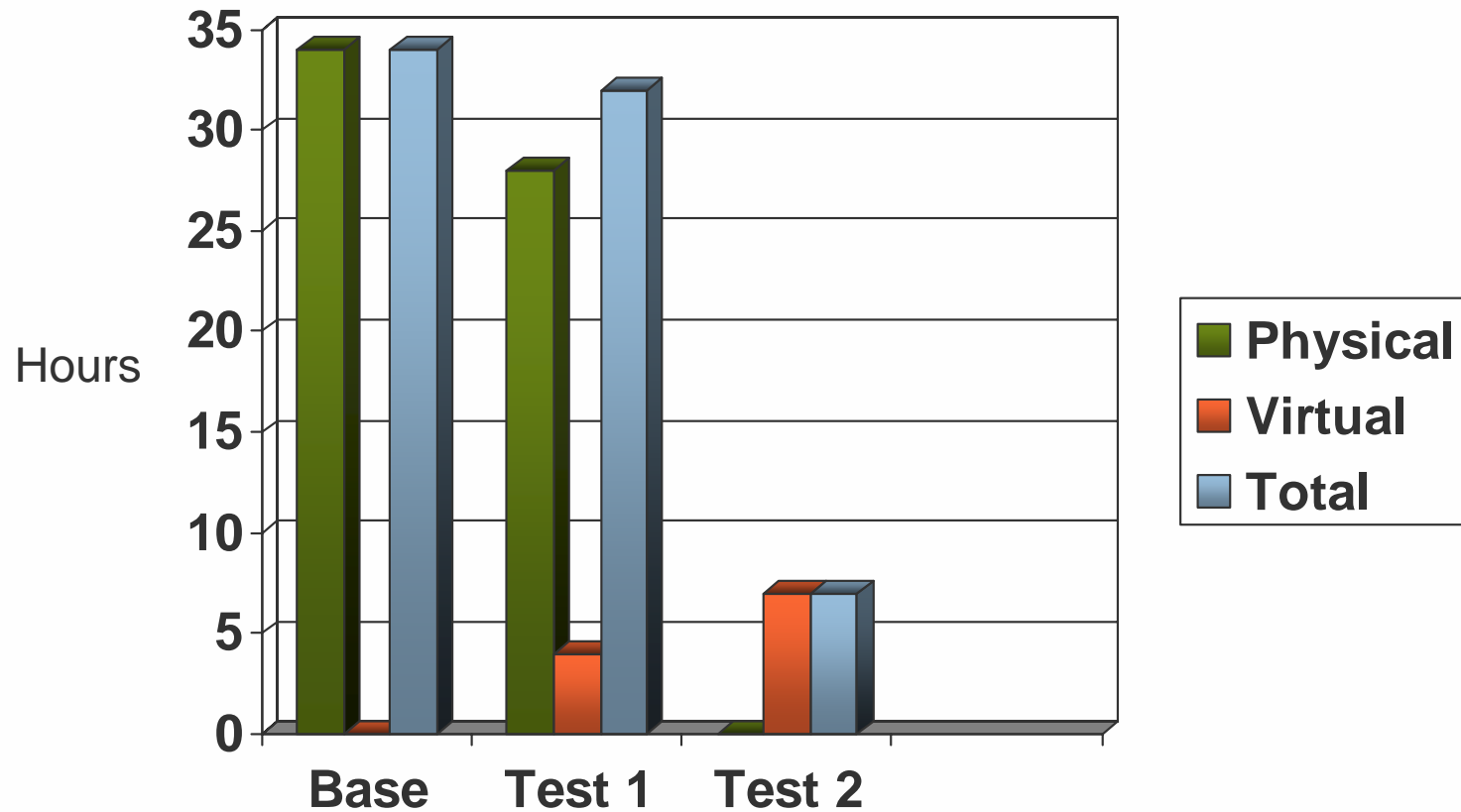


Case Study #1: Acme Health Services

- Disaster Recovery Test #2
 - Complete Virtualized Recovery
 - ESXRanger for Recovery
 - Decreased Footprint
 - Decreased Cost



Case Study #1: Acme Health Services



Case Study #2: Computershare

ENVIRONMENT

600 Servers
200 Physical
400 Virtual

TIER 1 APPS

Financial Apps	IIS
Exchange	SQL
Citrix	Sharepoint

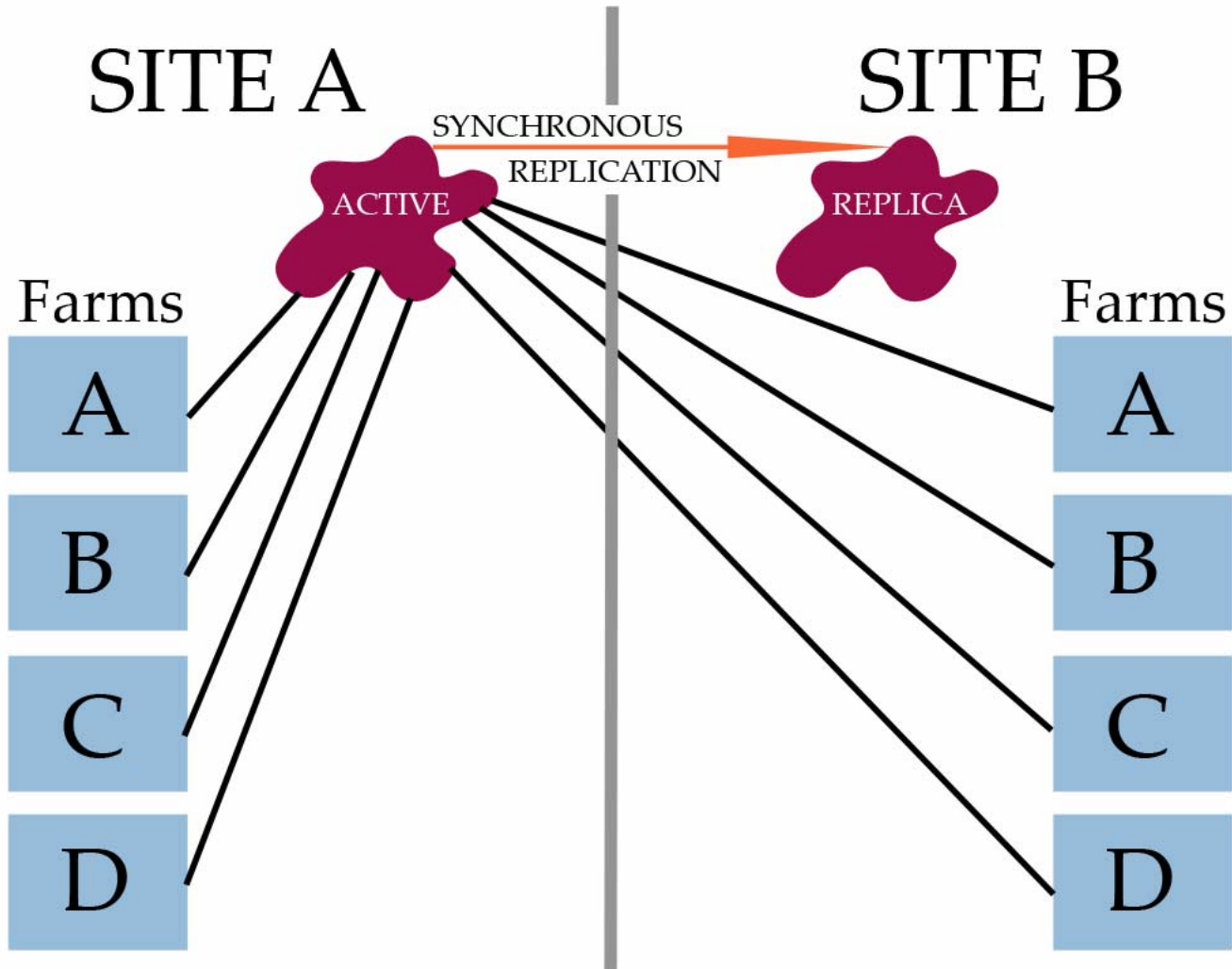
METHODOLOGY

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



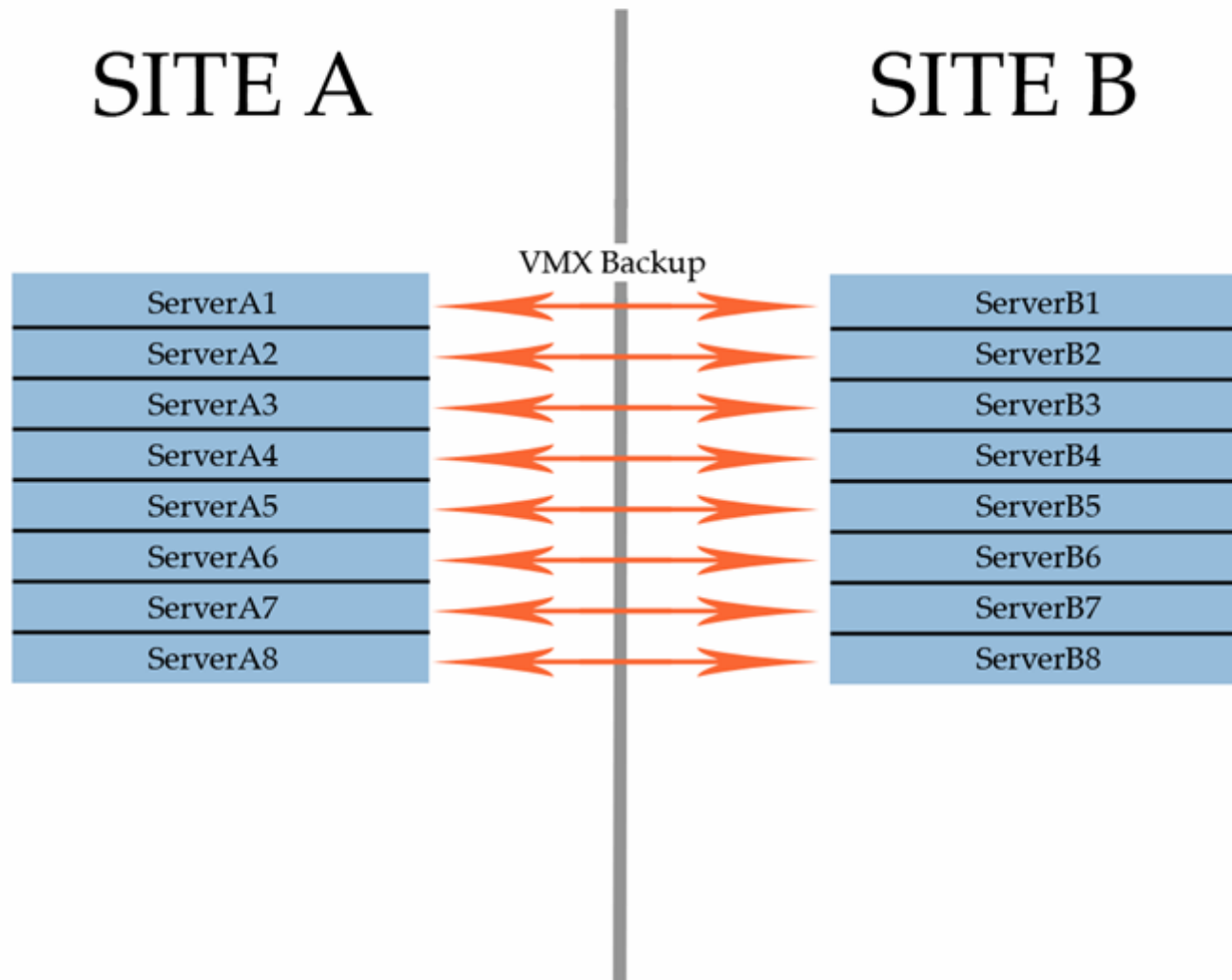
SAN



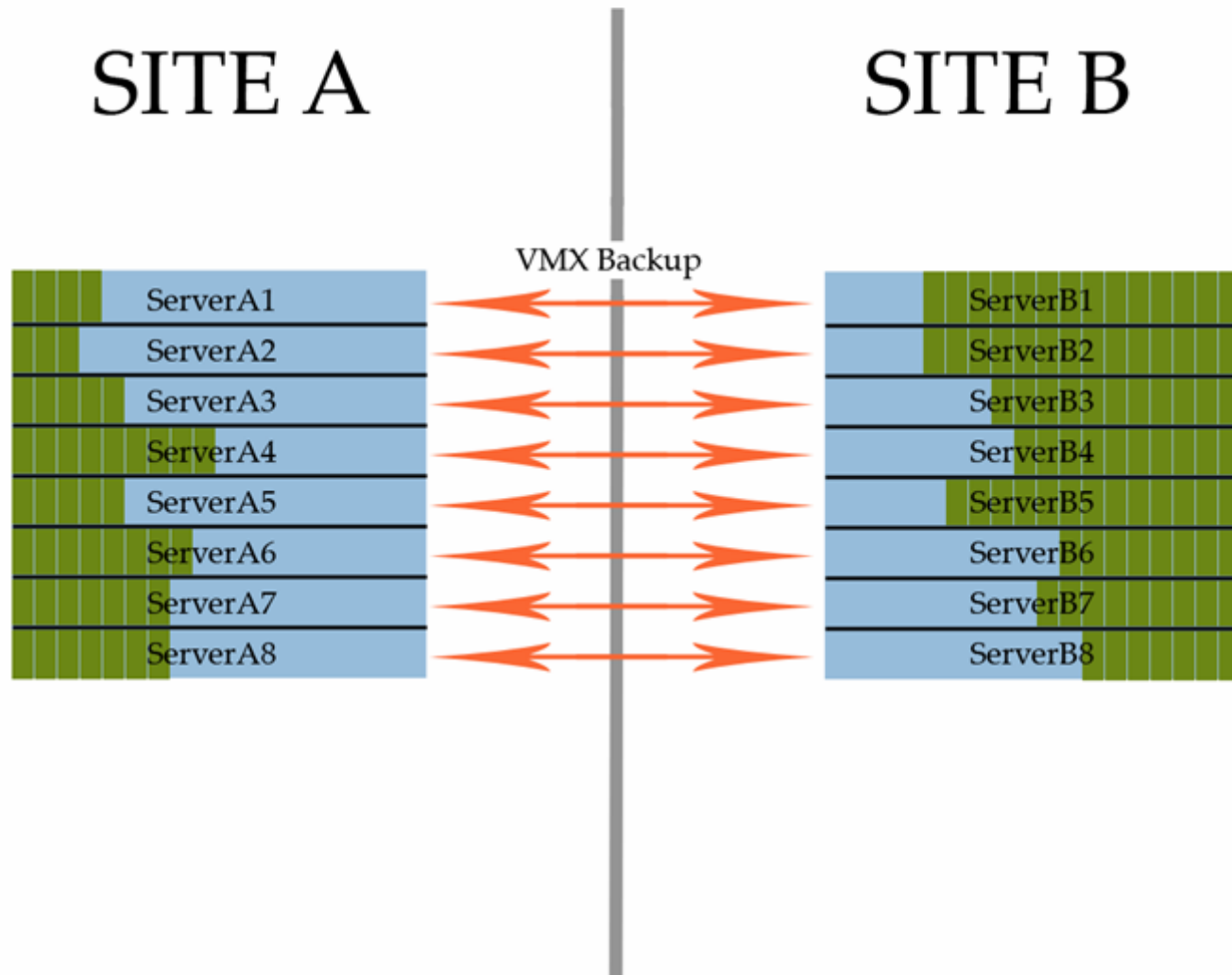
Site



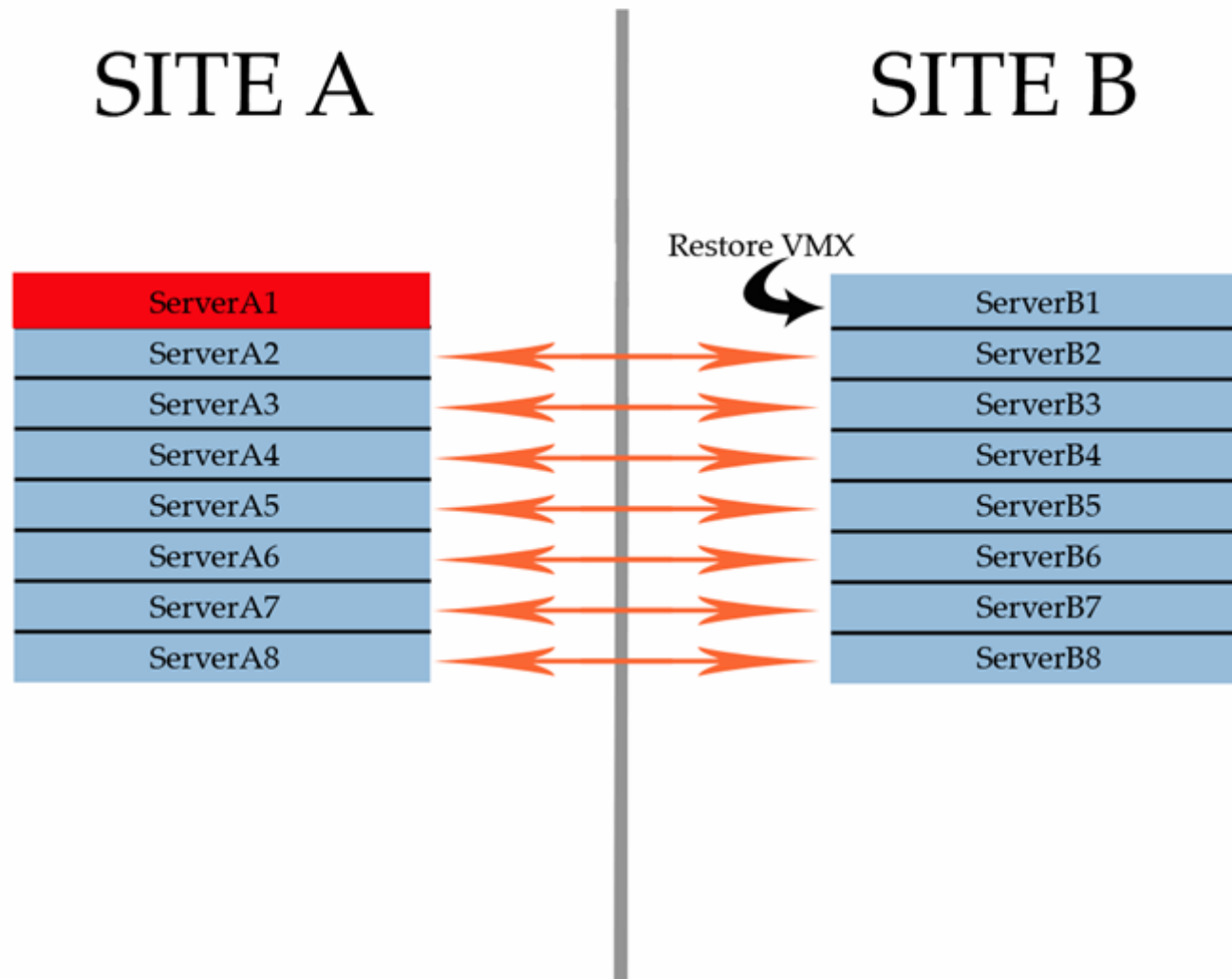
ESX Server - Online



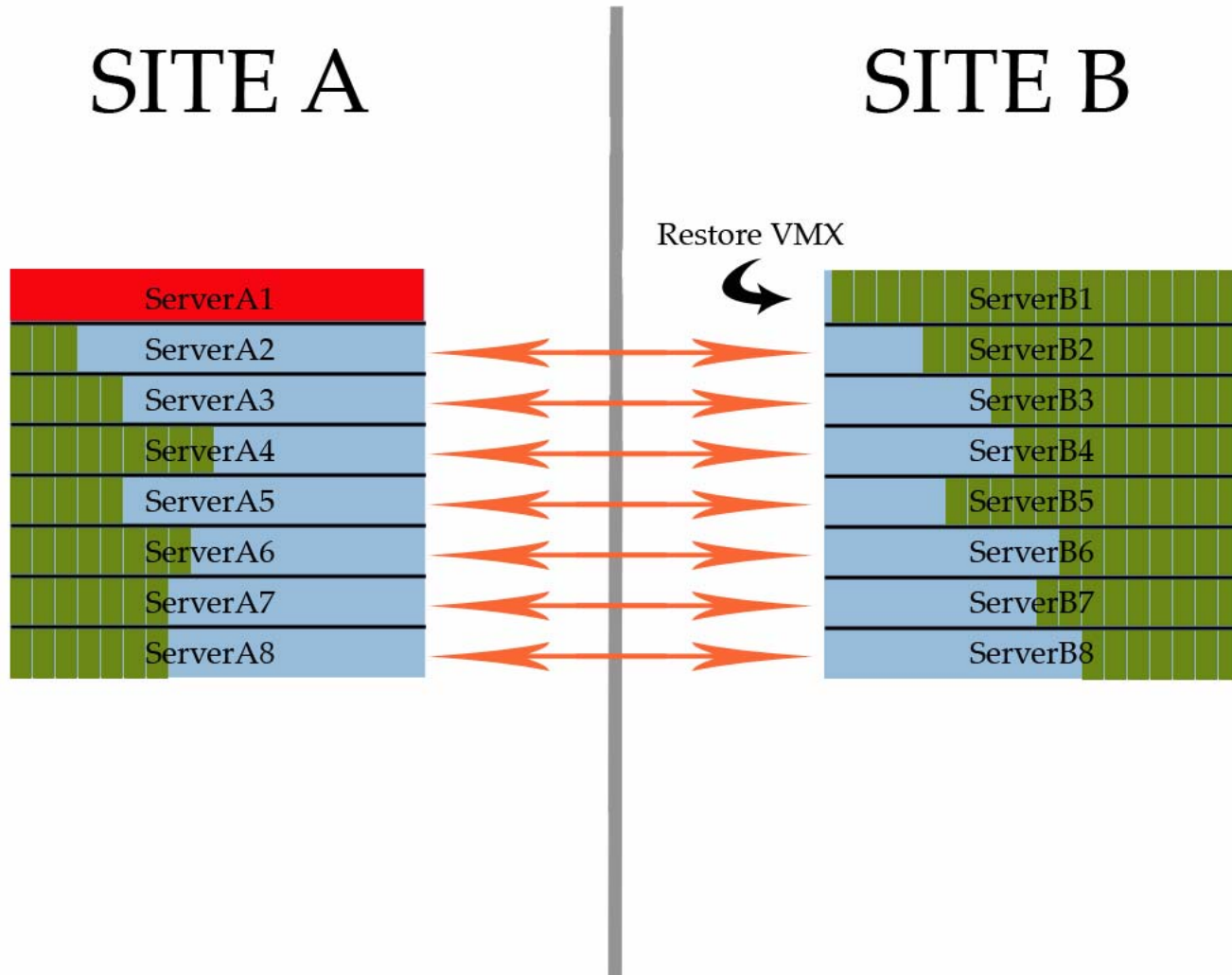
ESX Server – Resource Planning



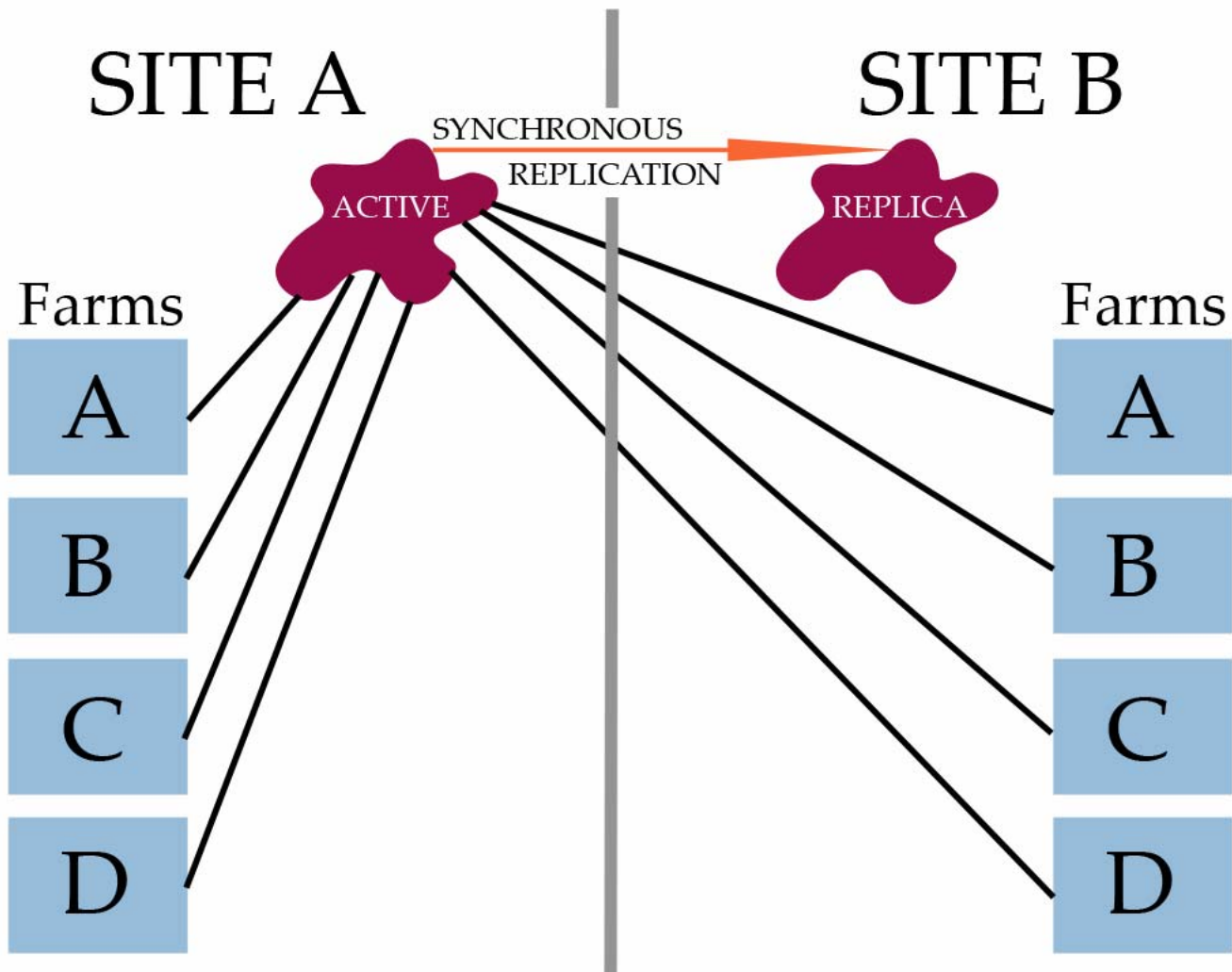
ESX Server - Failure



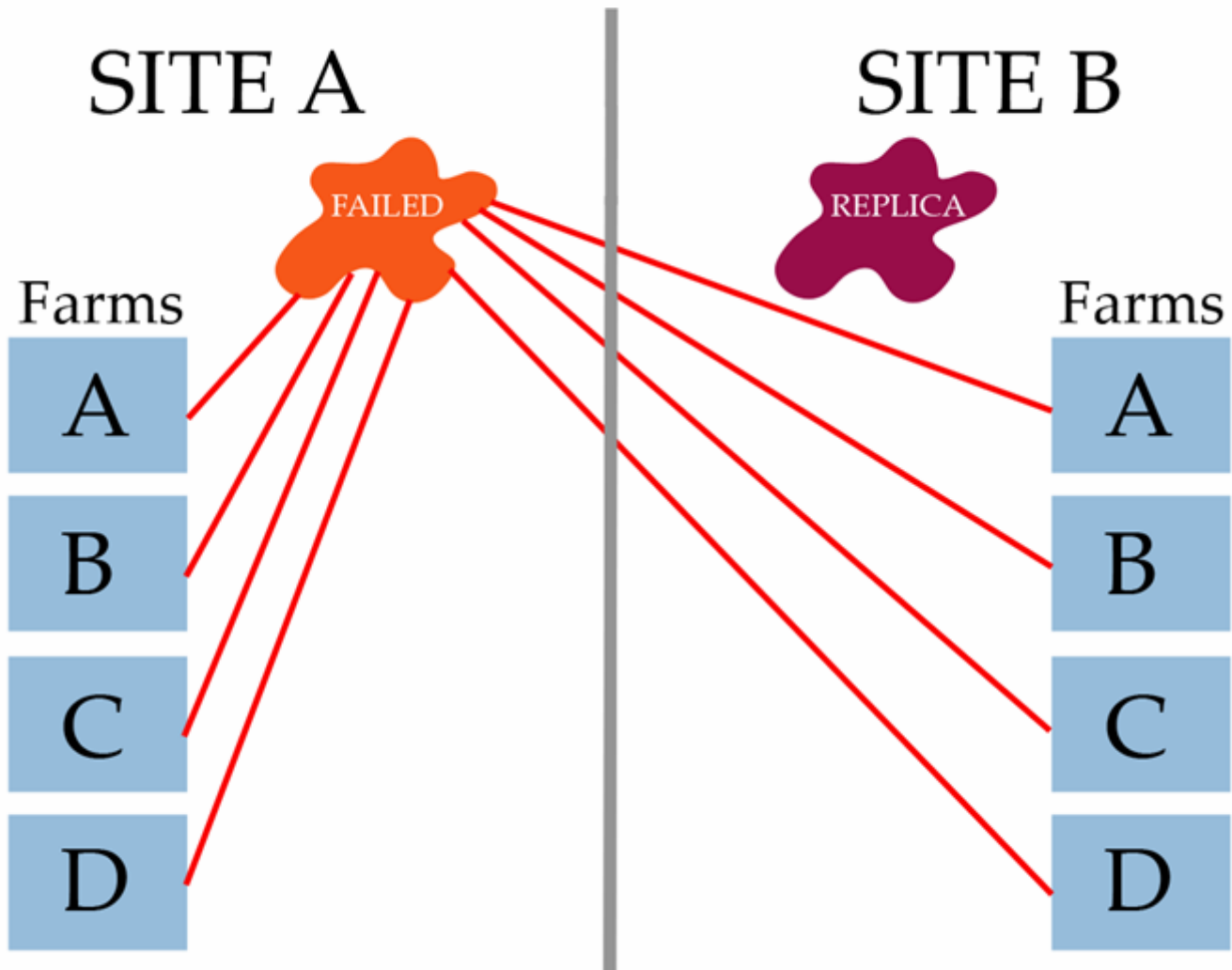
ESX Server - Recovery



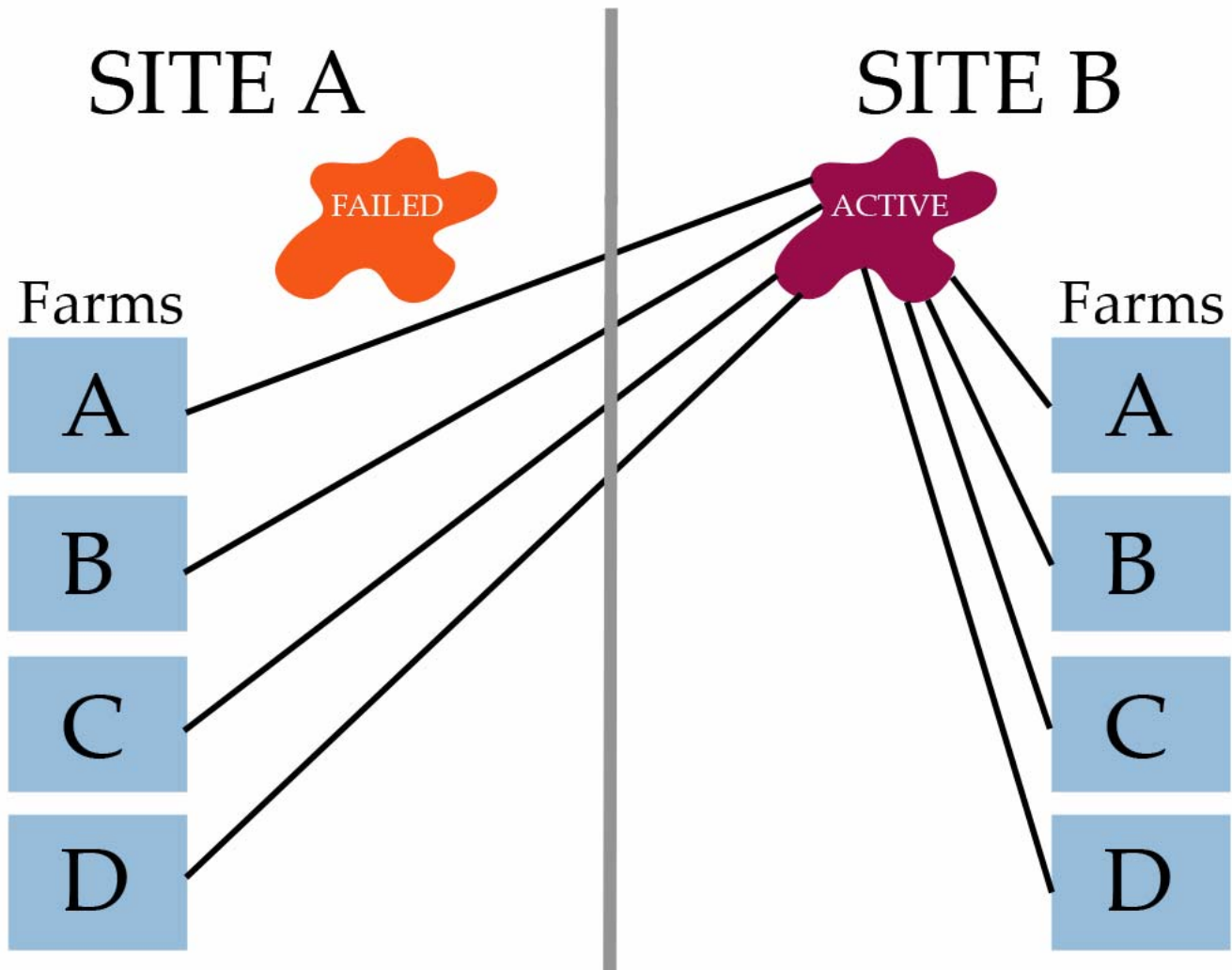
SAN – Online



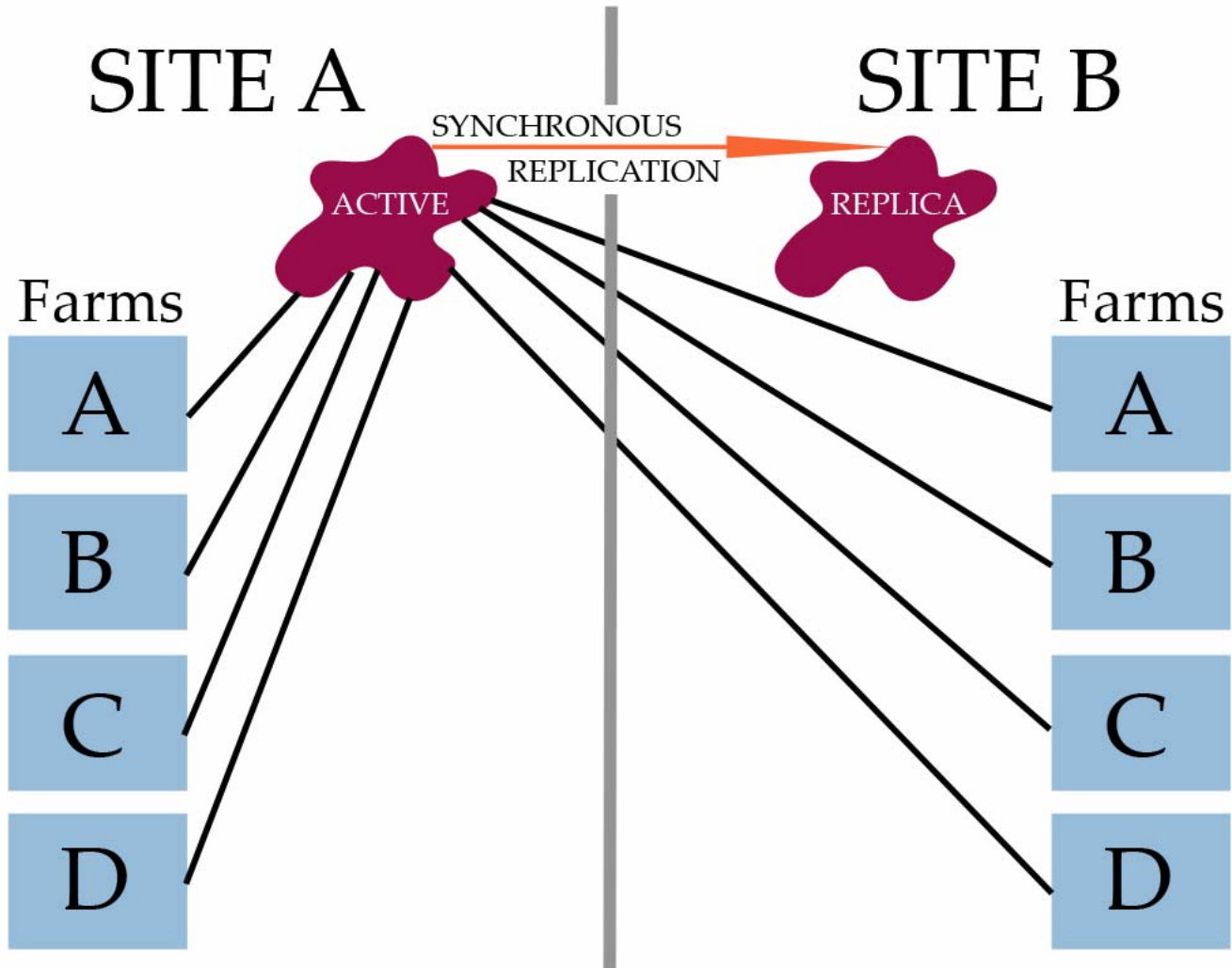
SAN - Failure



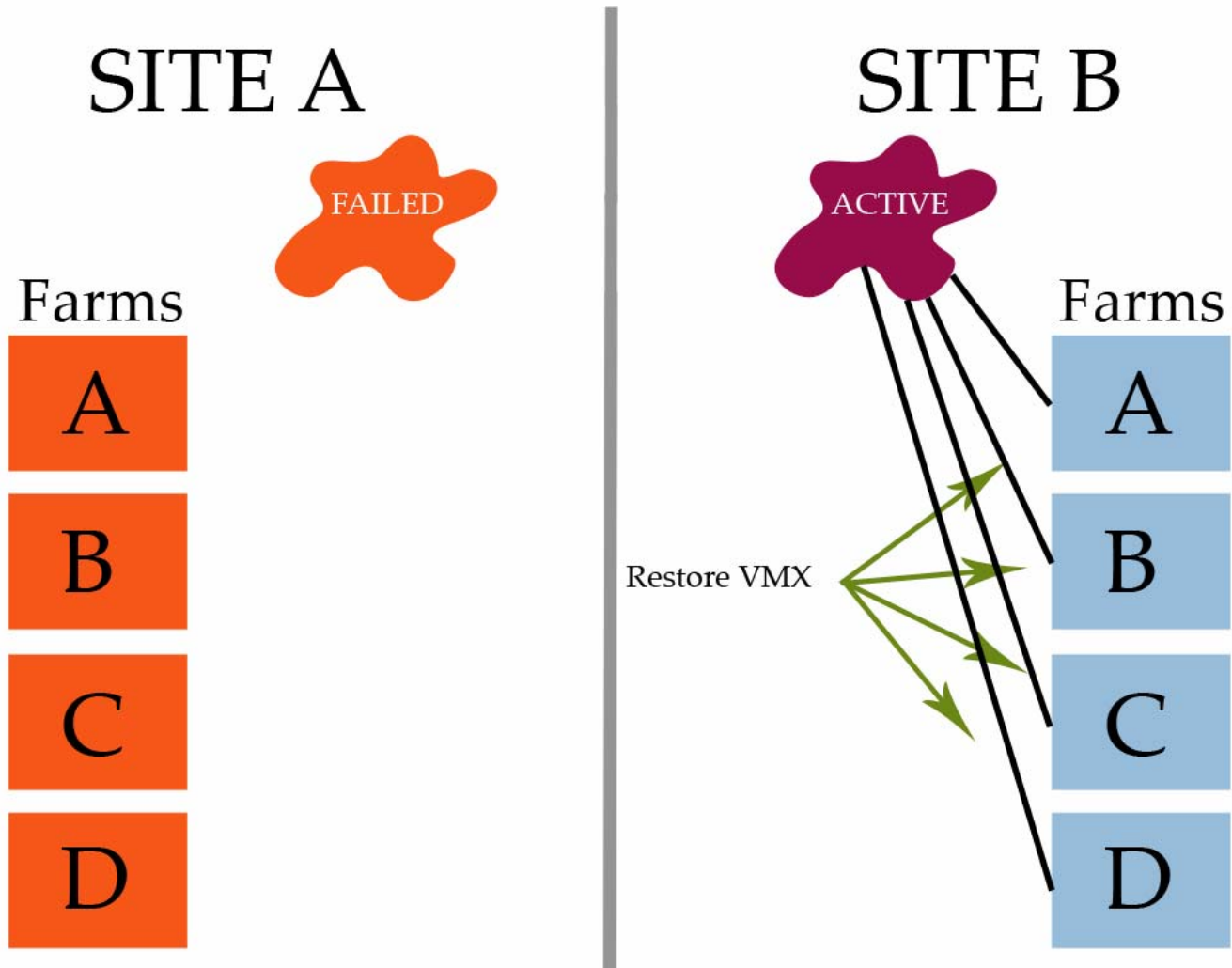
SAN - Recovery



Site – Online



Site – Recovery



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



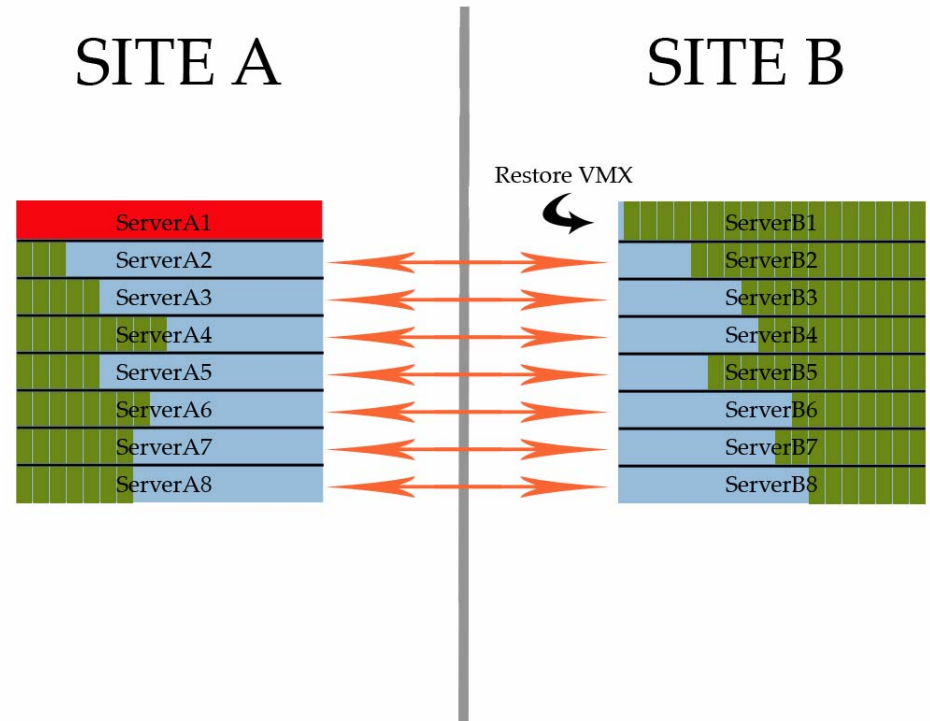
Configuring DSH

- 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 - command`
 - E.G.
 - `dsh -g farma -M -r ssh - service ntpd restart`
 - `dsh -g farmb -c -M -r ssh - cos-rescan.sh vmhba1`



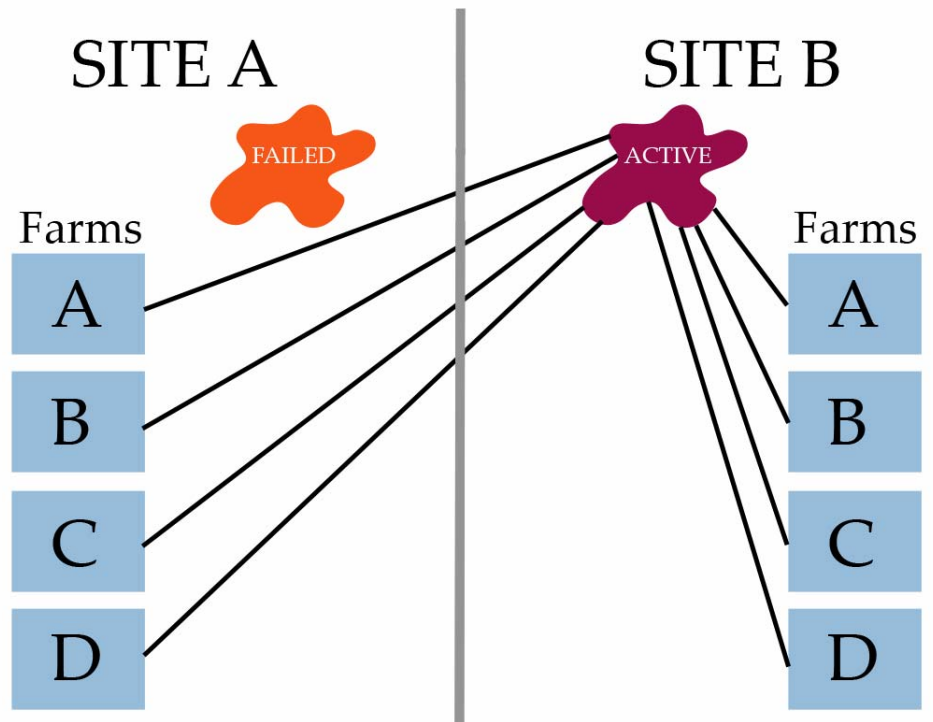
Scripting Your Solution

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



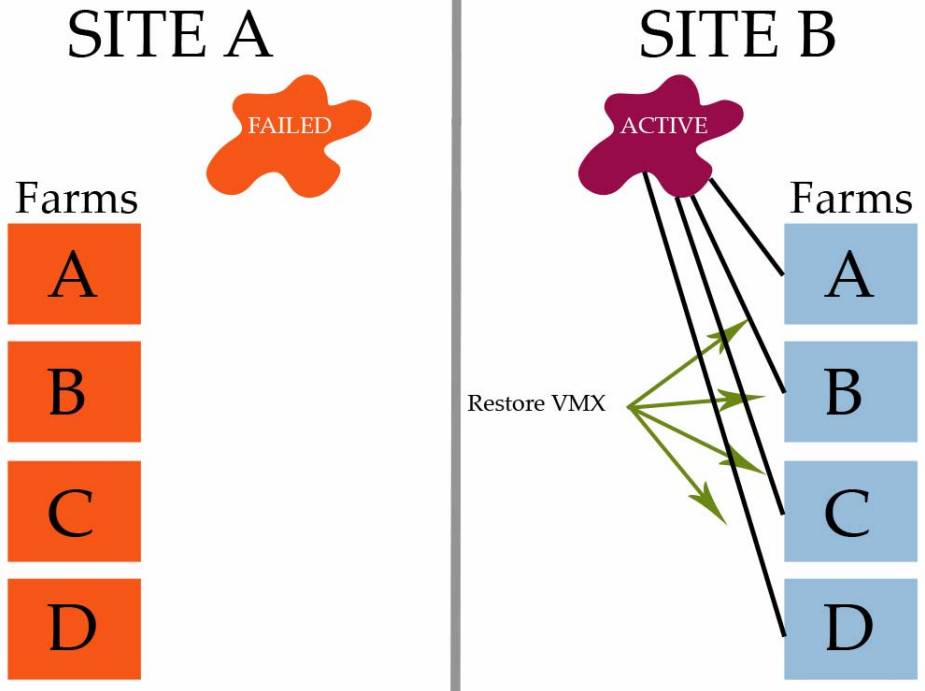
Scripting Your Solution

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



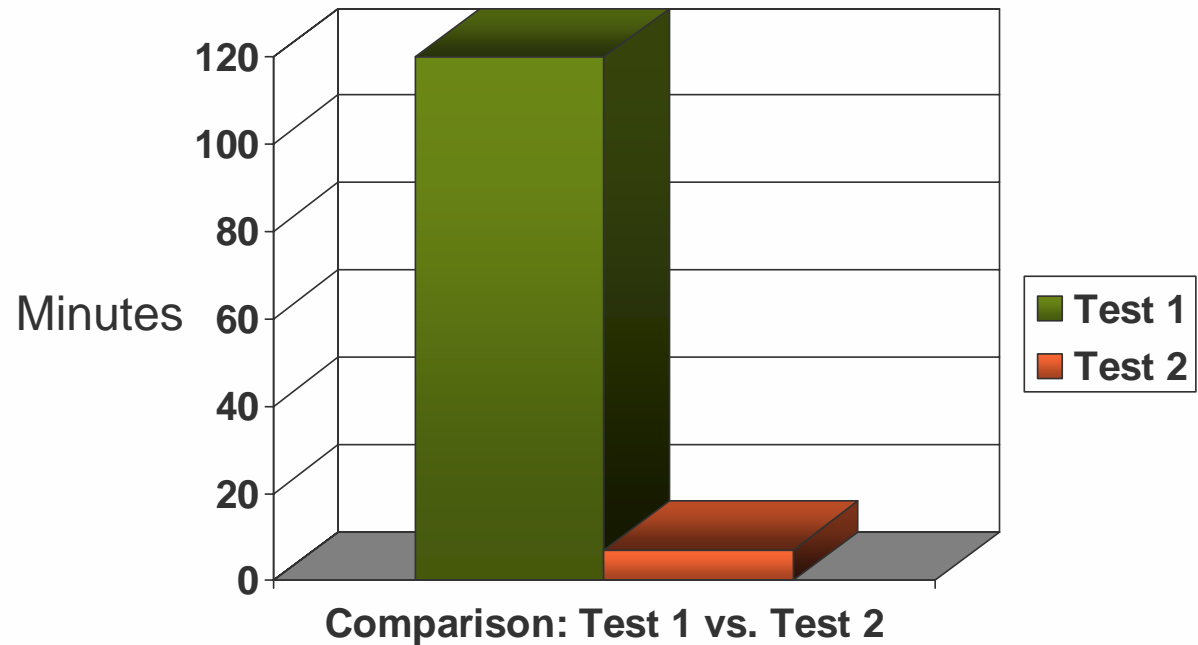
Scripting Your Solution

- 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

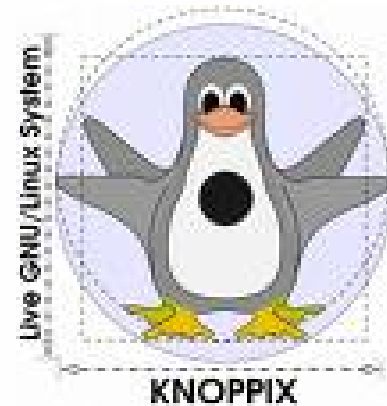
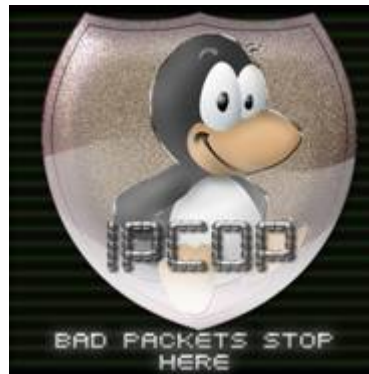


Virtual Appliances

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



Nagios®



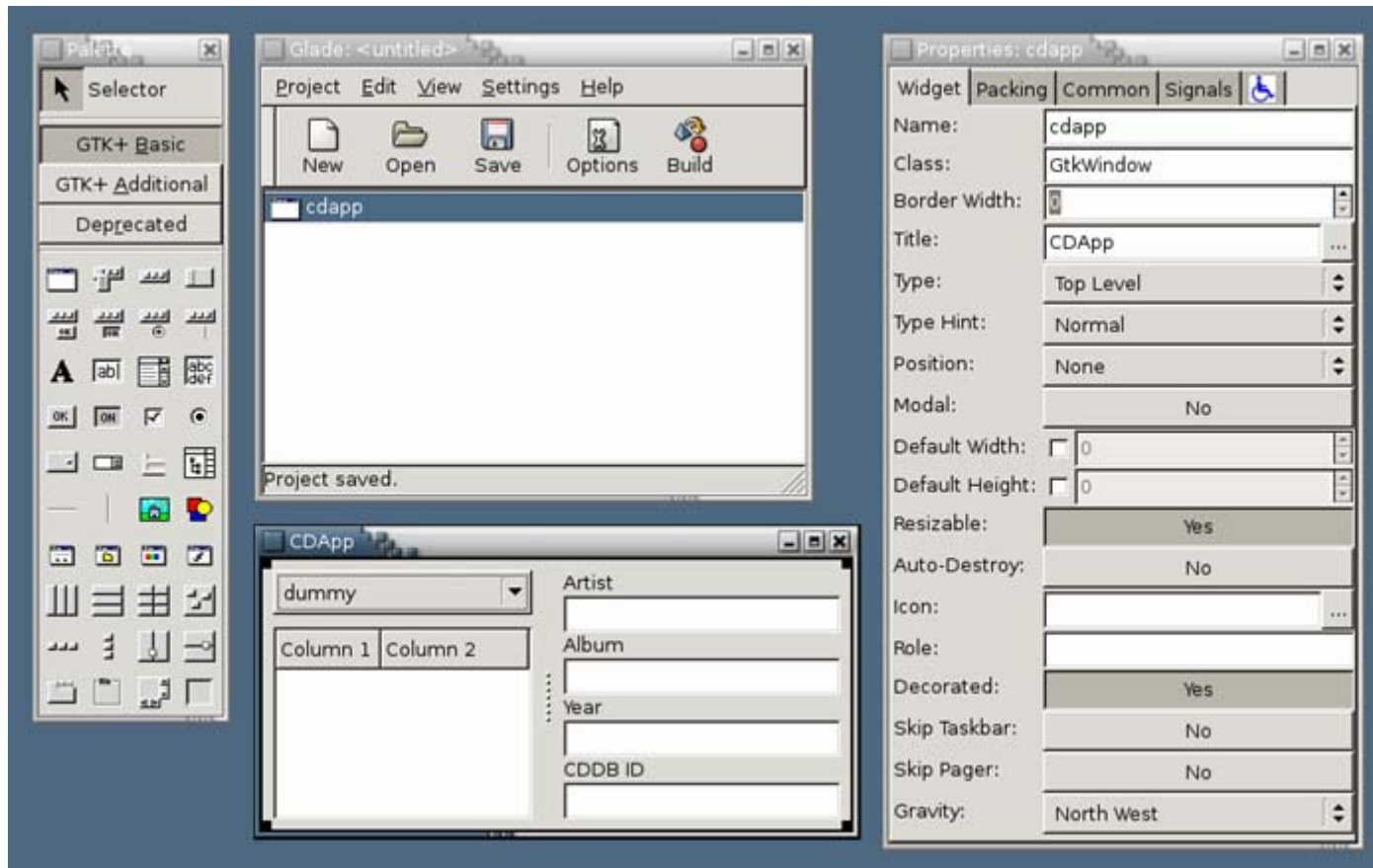
Virtual Appliances

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



ESX Recovery Center


■ Glade User Interface Builder



Recovery Center

ESX Recovery Center

File Help



Type of Failure	What has Failed?	Actions
<input checked="" type="radio"/> Blade Chassis	<input type="text"/>	Registers VMs on complimentary ESX server.
<input type="radio"/> HP EVA	<input type="text"/>	Rescans all farms to map paths to online EVA.
<input type="radio"/> Site	<input type="text"/>	Registers VMs on complimentary ESX servers and then rescans entire online site.
<input type="radio"/> Unregister VMs	<input type="text"/>	Used for cleanup once a failed chassis is back online.

v1.8 Creator: Jason Langone



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