



# Disaster Recovery

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# Expect the Unexpected!



# Preparing for a Disaster

- Business Continuity Plan (BCP)
  - **FFIEC on BCP Planning:**

The business continuity planning process involves the recovery, resumption, and maintenance of the entire business, not just the technology component. While the restoration of IT systems and electronic data is important, recovery of these systems and data will not always be enough to restore business operations.

<http://ithandbook.ffiec.gov/it-booklets/business-continuity-planning/business-continuity-planning-process.aspx>

# Preparing for a Disaster

## Business Impact Analysis (BIA)

- Foundation for all Business Continuity Plans
- Assess and prioritize business functions and processes, including their interdependencies
- Maximum Allowable Downtime
- Recovery Point Objectives
- Recovery Time Objectives

# Analyzing Business Processes

**Processes**

- Teller
- Elec. Serv. - Int. Banking
- Funds Mgmt.
- Elec. Serv. - Wire
- Elec. Ser. - ACH
- Elec. Ser. - Merch. Cap.
- CSR
- Elec. Serv. - Debit
- Loan Serv.
- Loan Orig.
- HR
- Credit Analysis
- AP

	Telecommunications Infrastructure					Third party providers											Internal Systems & Business Processes						
	Core Processor	POS & ATM	PBX (voice)	Internet	Branch Connectivity	Fiserv	E-Mail	Main Street Checks	EZ Lender	IBB	Federal Reserve	FNBB	Federal Home Loan Bank	Center State Bank	ACG	ABG	GBA Benefits	Travelers Express	Key Personnel	Vital Records	Hardware, Software, Data	Workspace (facilities)	Production Processes
Teller	X		X	X		X	X			X					X			X			X	X	
Elec. Serv. - Int. Banking	X			X		X	X																
Funds Mgmt.	X		X	X		X	X			X	X	X	X	X					X		X		X
Elec. Serv. - Wire	X		X	X		X	X			X	X								X		X		X
Elec. Ser. - ACH	X		X	X		X	X												X		X		X
Elec. Ser. - Merch. Cap.						X													X	X	X		
CSR	X		X	X		X	X	X		X	X										X	X	
Elec. Serv. - Debit		X		X		X																	
Loan Serv.	X		X	X		X	X											X	X	X			
Loan Orig.	X		X				X		X									X	X	X	X		
HR			X	X			X									X	X		X				
Credit Analysis				X		X	X												X		X		
AP	X		X	X		X	X												X		X		

# Recovery Time Objective (RTO)

- RTO:
  - The time period after a disaster at which business functions need to be restored.  
[http://www.riskythinking.com/glossary/recovery\\_time\\_objective.php](http://www.riskythinking.com/glossary/recovery_time_objective.php)
  - Established for each critical business process; Teller, Loan Product, etc.

# Process Risk Assessment

**Process:** Teller

(Cash handling)

**Func. Unit/Dept:**

Retail

**Maximum Allowable Downtime:** 3 Days

**Recovery Time Objective:** 1 Day

**Recovery Priority:** 1

Recovery Time (days)

< 0.5

1

2

3

4

5

6+

Relative Risk				
Financial	Operational	Regulatory	Strategic	Reputation
	0	0	2	0
	3	0	5	2
	8	0	8	8
	10	10	10	10
	10	10	10	10
	10	10	10	10
	10	10	10	10

**Overall Cost**

2

10

24

40

40

40

40

0 = insignificant risk

10 = unacceptably high risk

## Methods to recover critical process

- File based backups
  - Symantec Backup Exec, Windows NT Backup
- Online Backup Technologies
  - LiveVault, SonicWall CDP, Barracuda Backup Service
- Alternative Solutions
  - SAN\Virtualization Replication
    - EMC, EqualLogic Replication
    - VMware Site Recovery Manager (SRM)
  - Cloud
    - Continuum

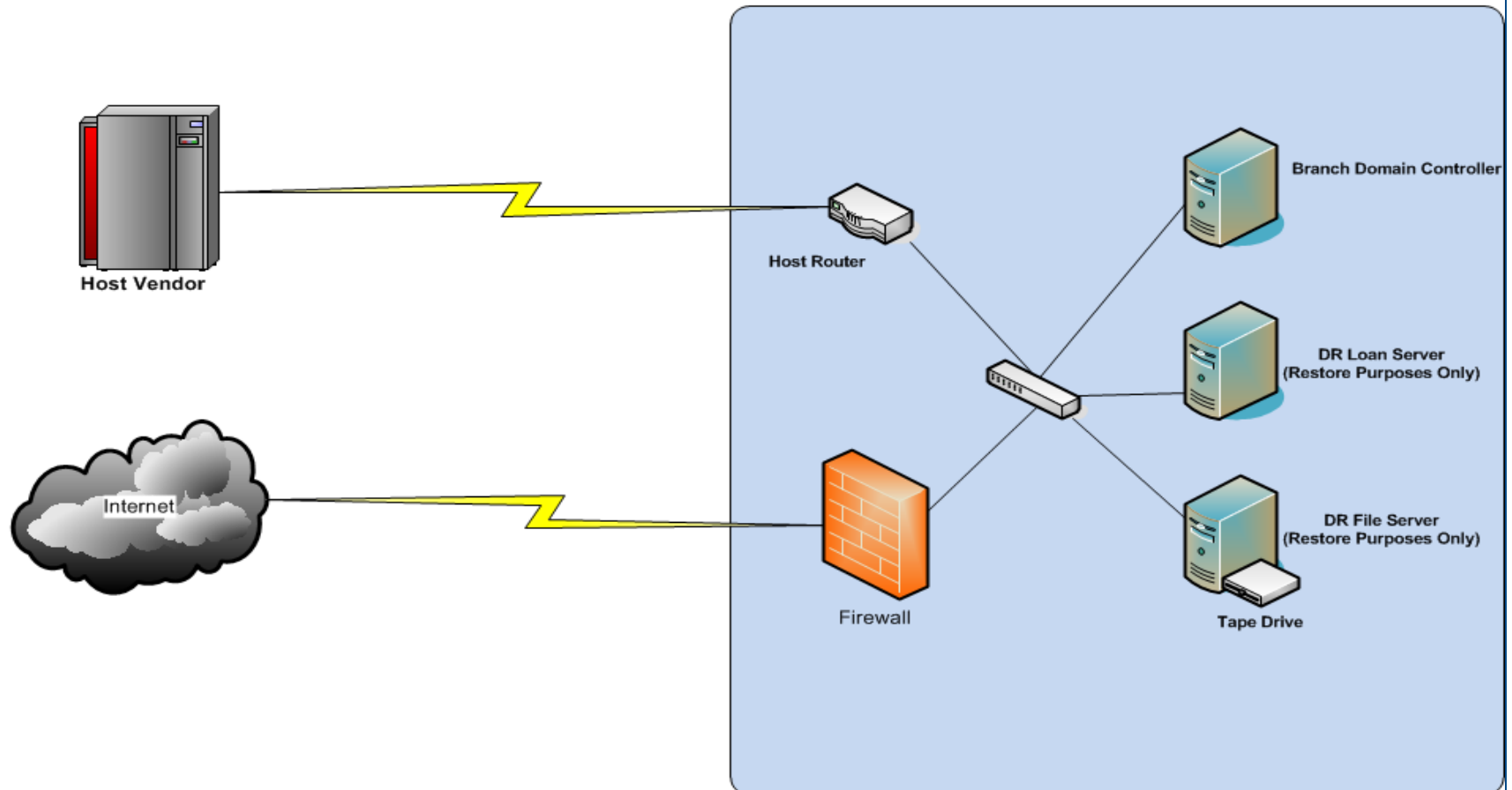
# File Based Backups

- Secondary servers at the Disaster Recovery Site available for file restores
  - Additional considerations
    - SQL
    - Exchange 2007\2010
      - Windows x64
    - Sharepoint
- Internet connection
  - Secondary firewall
- Host Communication
  - DR VPN Router
  - Connection at Branch Disaster Recovery Site

# File Based Backups

## Disaster Recovery with File Backups

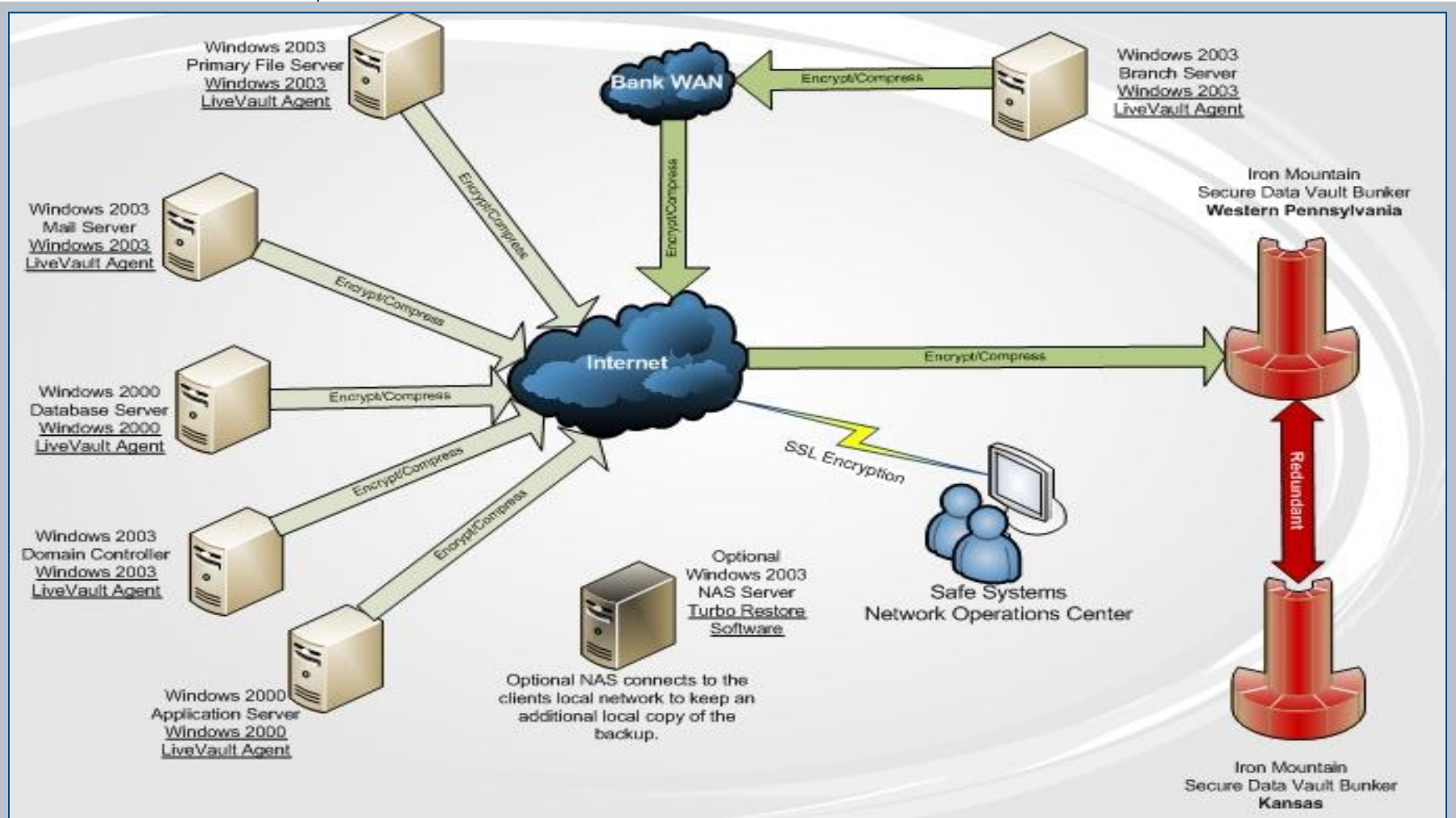
### Branch DR Site



# Online Backups

- Offline Backup Option
  - Local Storage option
  - If not chosen there is a usually a cost associated with sending a HD onsite with data
- Secondary servers at the Disaster Recovery Site available for file restores
- Internet connection
  - Secondary firewall
- Host Communication
  - DR VPN Router
  - Connection at Branch Disaster Recovery Site

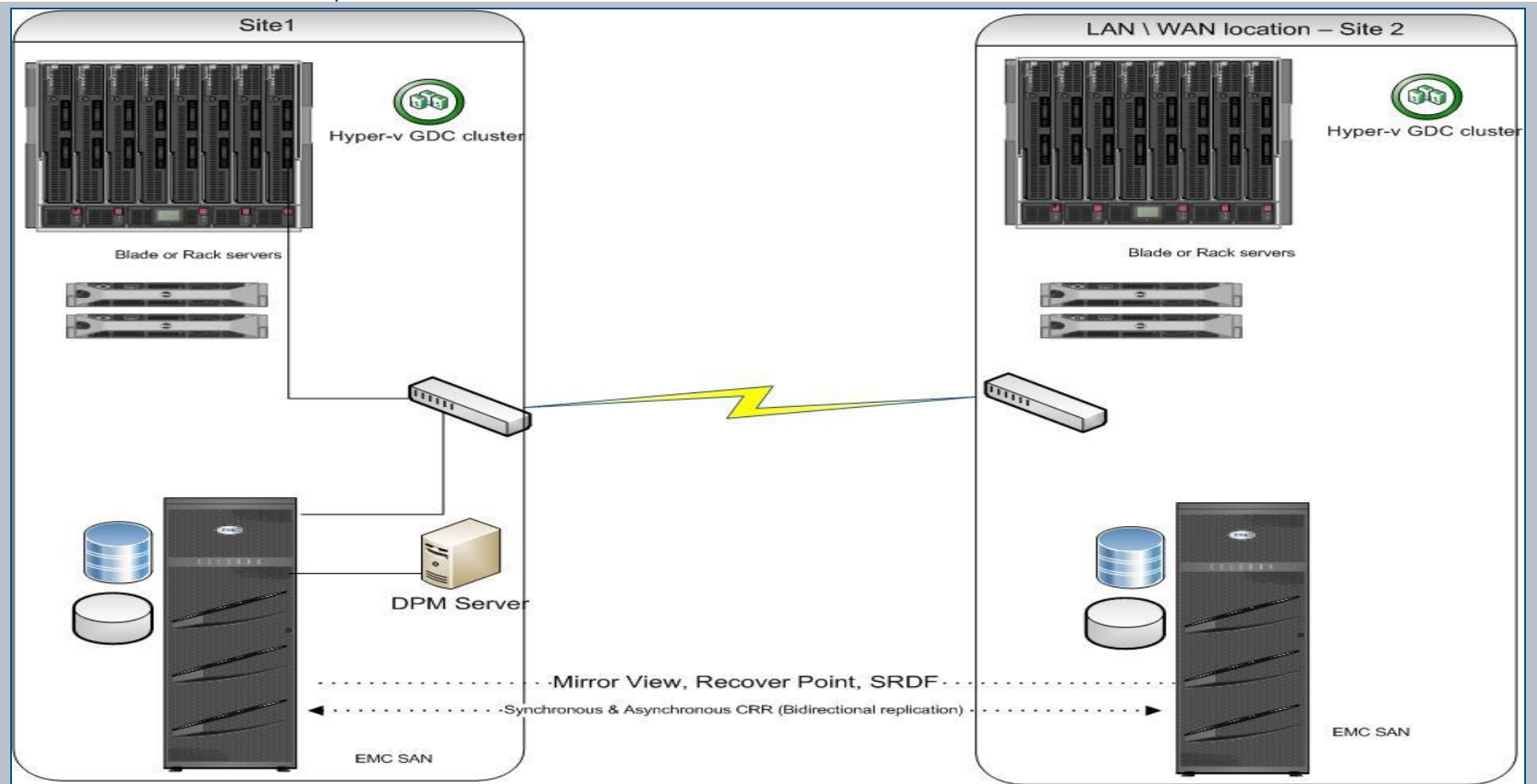
# Online Backups



# SAN-to-SAN Replication

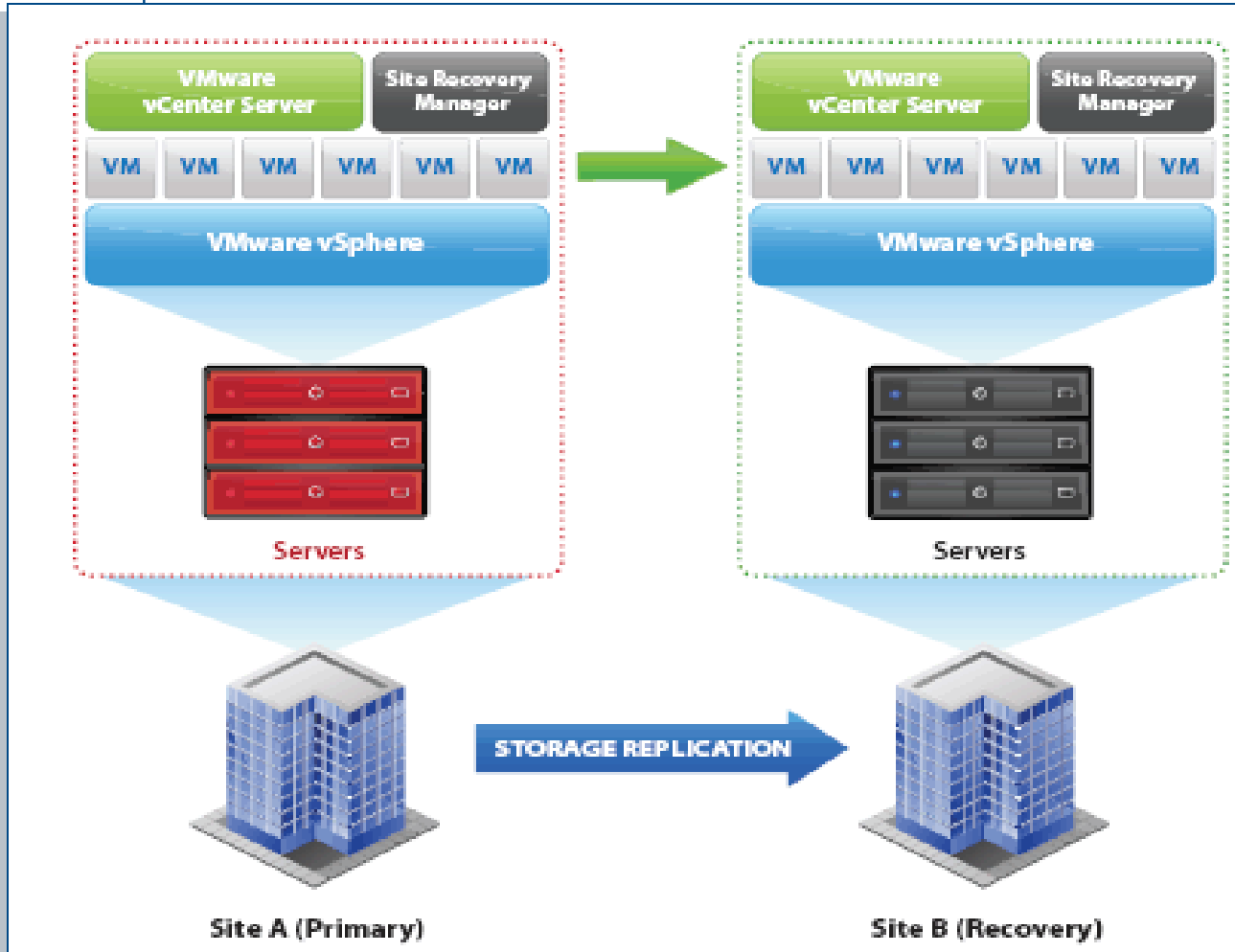
- Higher cost to implement
  - Due to increased hardware necessary to implement
- Identical SAN devices at primary and disaster site
  - EMC, EqualLogic, LeftHand, etc.
  - EMC Celerra
- Faster recovery times
- Large internet connections between sites
- VMWare Site Replication Manager (SRM)
  - Automates recovery of the Storage and VMs

# SAN-to-SAN Replication



- <http://img821.imageshack.us/i/recommended.jpg/sr=1>

# VMware Site Recovery



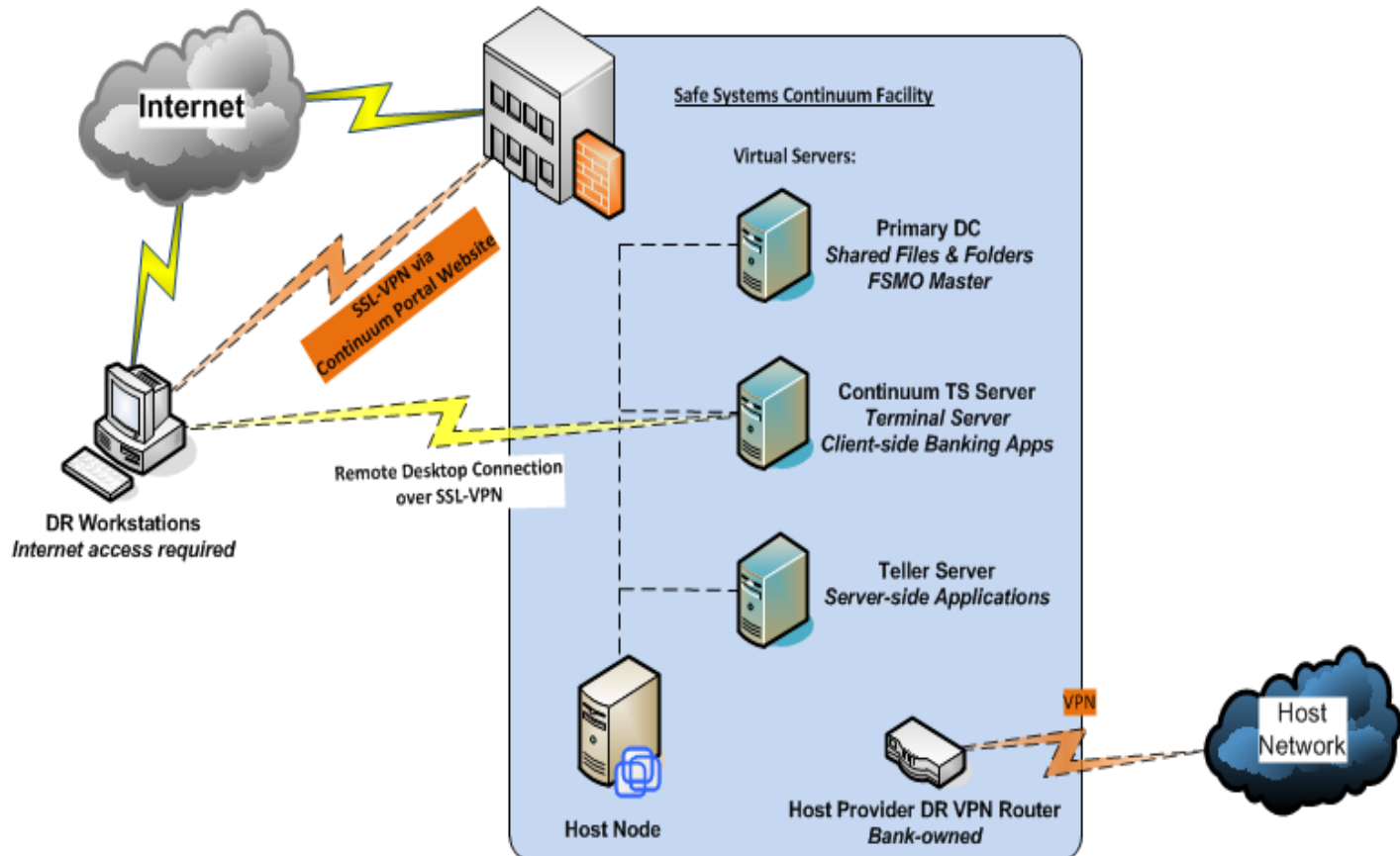
<http://www.virtualizationworks.com/VMware-vCenter-Site-Recovery-Manager.asp>

# Cloud Backups

- Continuum
  - Online backup solution providing recovery for protected servers in the event of facility loss\*
    - \* Local Recovery Server provides single-server recovery capability at production site
  - Business process recovery solution for numerous critical functions
  - Provides secure SSL access to critical servers from any Internet connection
  - Host communication is established at the Safe Systems Continuum facility or via a designated branch location
  - No additional hardware costs

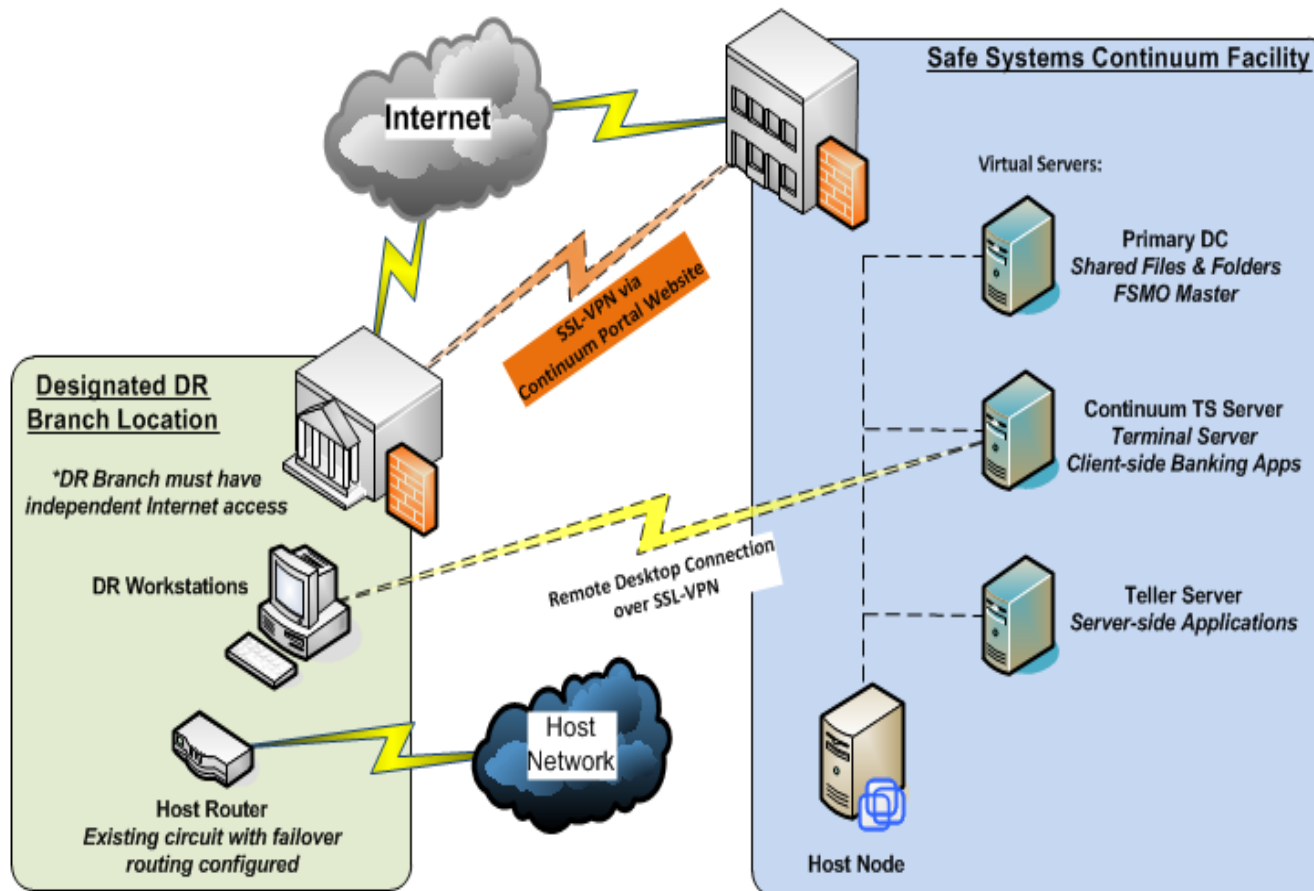
# Cloud Backups

## Continuum Disaster Recovery Solution with DR VPN Router



# Cloud Backup with Branch as DR Site

Continuum Disaster Recovery Solution with Secondary Routing



# Backups & BCP

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Funds Mgmt.	X		X	X		X	X			X	X	X	X	X					X		X		X
Elec. Serv. - Wire	X		X	X		X	X			X	X								X		X		X
Elec. Ser. - ACH	X		X	X		X	X												X		X		X
Elec. Ser. - Merch. Cap.						X													X	X	X		
CSR	X		X	X		X	X	X		X	X										X	X	
Elec. Serv. - Debit		X		X		X																	
Loan Serv.	X		X	X		X	X											X	X	X			
Loan Orig.	X		X				X											X	X	X	X		
HR			X	X			X									X	X		X				
Credit Analysis				X		X	X												X		X		
AP	X		X	X		X	X												X		X		

# Conclusion

- It's not *if* you will be questioned on an exam, but *when*
- Preparing starts with a solid BCP plan
- Create RTOs for each business process
- Annual testing