

Build Your Own High Availability and Disaster Recovery Hot Site

Virtually

Who we are

What we did

Why we did it

How we did it

Who We Are

- 250K People
- On a Peninsula between the Olympic and Cascade mountains



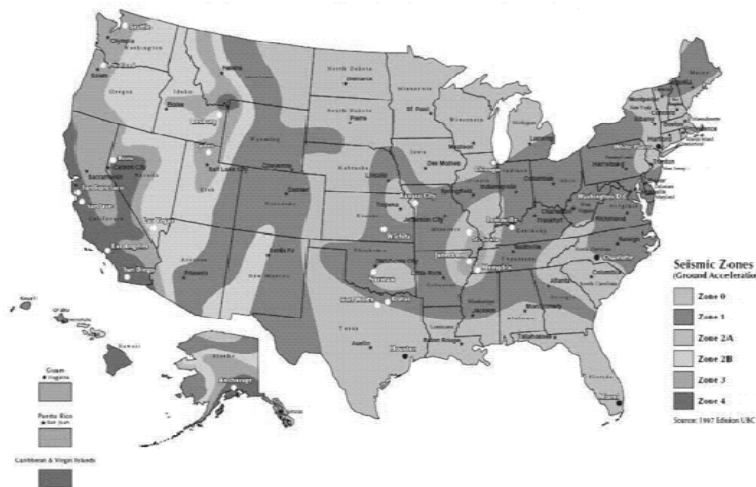
Washington State



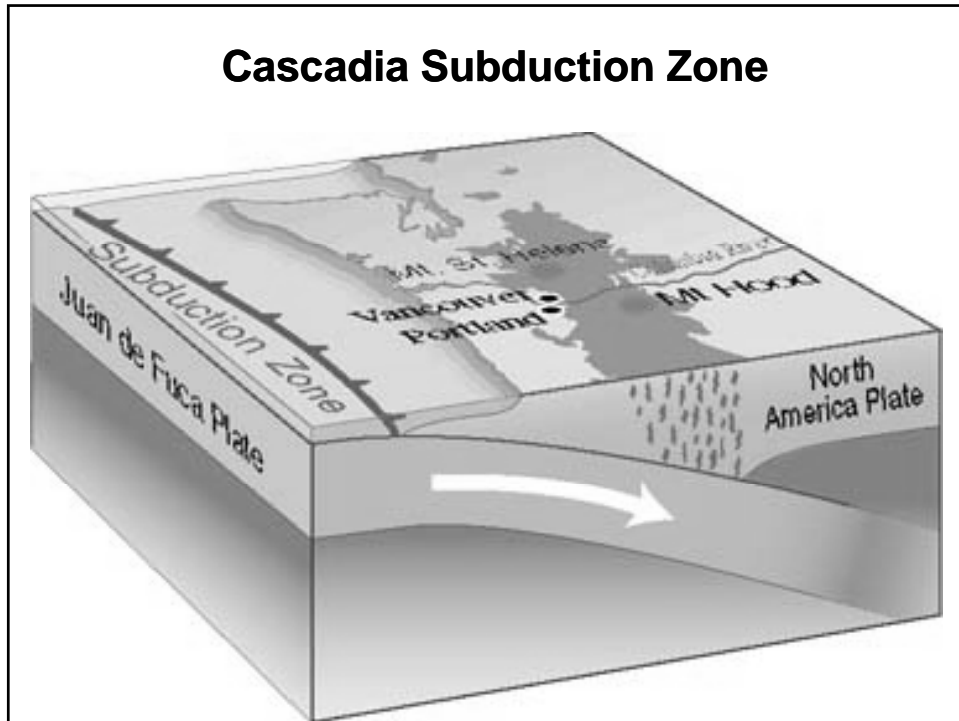
Kitsap County



In Seismic Risk Zone 3 (of 4)



Cascadia Subduction Zone



Within Striking Distance of 3 Volcanoes



Mt Baker
Mt Rainier
Mt St. Helens



May 18, 1980



What We Did

- **BIA**
 - Risk Analysis
 - Incident Management
 - Develop Business Continuity Strategies
- **D/R Plan**
 - Defined application priority by tiers
 - Set RPO/RTO
 - Train and Test
- **Virtualization**
 - Utilized technology to meet requirements
 - From server virtualization to site recovery
 - This has been an evolving process

Why We Did It

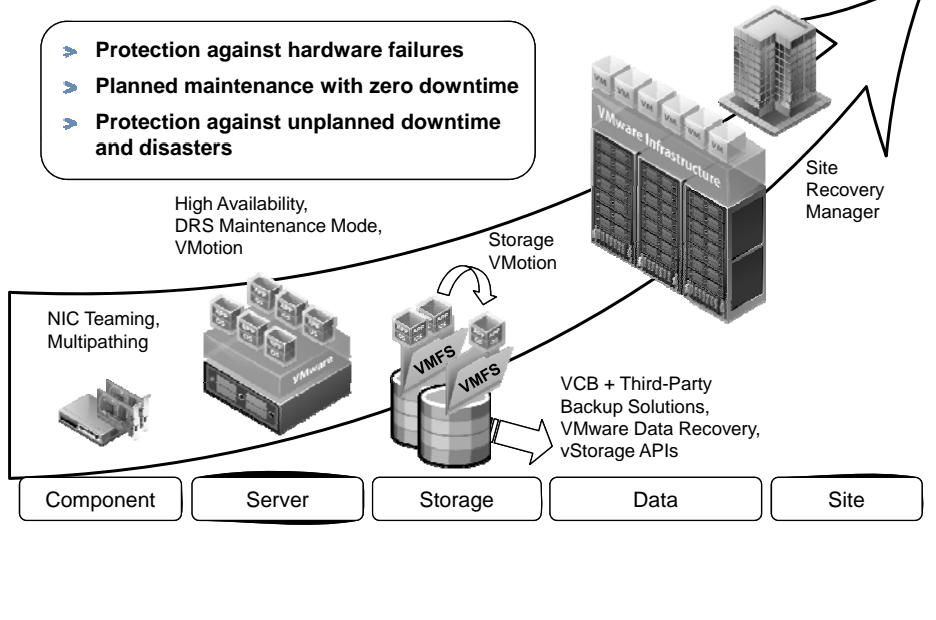
- **Protect life and property**
 - Our mission
 - Meet citizens expectations
- **Serve citizens**
 - Local vs. regional incident
 - Single source for service
- **State Law**
 - Continuity of Operations
 - Meet RTO/RPO (user's expectations)

How We Did It

- **Virtualization assessment**
 - Server utilization
- **Server virtualization**
 - Microsoft vs. VMWare
- **VMWare**
 - DRS, vMotion
 - Site Recovery Manager
 - Vizioncore vRanger Pro
- **Data replication**
 - From HP EVA SAN
 - To Dell EqualLogic ISCSI SAN
- **Physical to Virtual**
 - Servers not yet virtualized

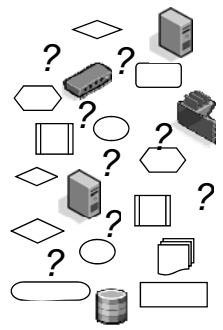
VMware Offers Protection At Every Level

- Protection against hardware failures
- Planned maintenance with zero downtime
- Protection against unplanned downtime and disasters

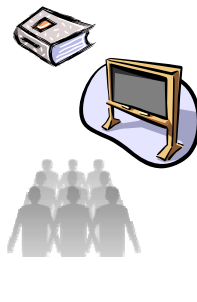


Challenges of Traditional Disaster Recovery

Complex recovery processes and infrastructure



Dependent on perfect training, documentation, and execution



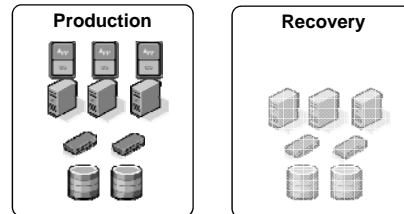
Failure to meet recovery requirements

- > Recovery takes days to weeks
- > Recovery tests often fail
- > Significant IT time and resources consumed

Infrastructure Challenges of Traditional Recovery

Fastest, most reliable recovery requires duplicating infrastructure

- Same servers, same network configuration, etc.
- Requires ongoing management



Idle infrastructure at recovery site

- Difficult to share
- Time-consuming to repurpose

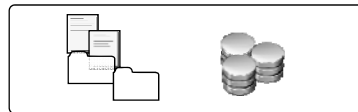
Organizations spend significant time and money on recovery infrastructure that is rarely used

Building Better Disaster Recovery Solutions



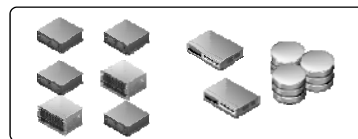
Management

- Simplify and automate implementation, testing, and execution of recovery process



Data

- Provide full protection of configuration, OS, and application data



Infrastructure

- Reduce cost and complexity of providing infrastructure necessary to ensure successful recovery

Reduce Cost and Complexity of Recovery Infrastructure

Eliminate hardware dependencies

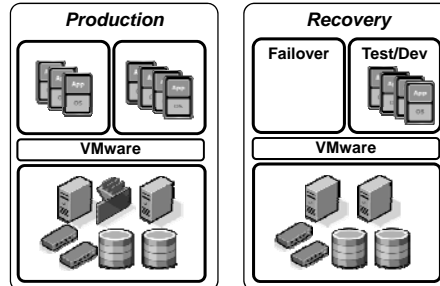
- Reduce risk of failures during recovery
- Reduce ongoing management burden

Reduce infrastructure requirements

- Consolidate production and recovery
- Reuse servers from production for recovery

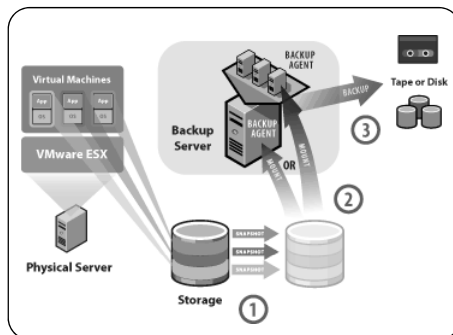
Turn recovery site into productive resource

- Leverage recovery site for other workloads
- Resource guarantees ensure predictable resource allocation



Improving Data Protection

VMware enables scalable, non-disruptive backup and simple, reliable restore to any hardware



Traditional backup

- Disruptive to applications and users
- Slow, complex process for full restore

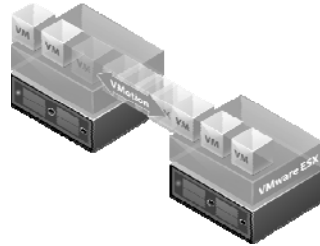
Backup with VMware Infrastructure

- Non-disruptive to applications & users
- VMware Consolidated Backup enables off-host backup with standard backup software
- Enables image and file-level backup of virtual machines

Protection Against Planned Downtime

Server Maintenance

- VMotion & DRS Maintenance Mode
- Migrate running VMs to other servers in the pool
- Automatically distribute workloads for optimal performance



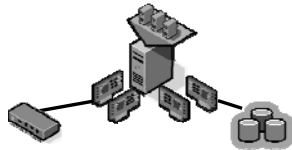
Storage Maintenance

- Storage VMotion
- Migrate datastores for running VMs to other storage targets

Key Benefits

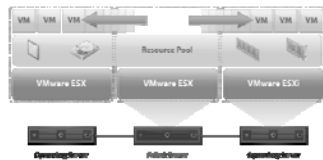
- Eliminate downtime for common maintenance
- No application or end user impact
- Freedom to perform maintenance whenever desired

Protection Against Unplanned Downtime



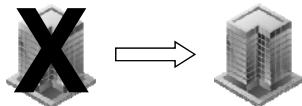
Component Failure

- Leverage redundant network and storage connections
- Share redundancy across workloads



Server Failure

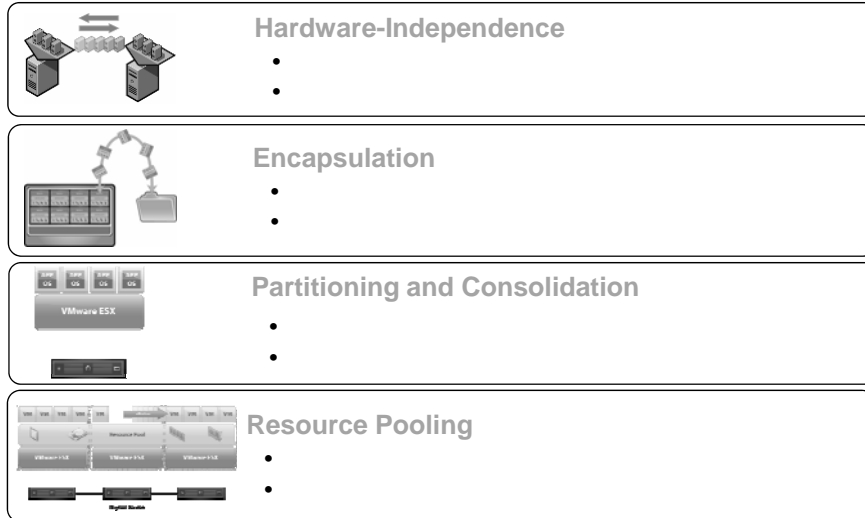
- Automatic restart of virtual machines; VMware High Availability automatically restarts VMs on other servers in the pool
- Continuous protection with VMware Fault Tolerance



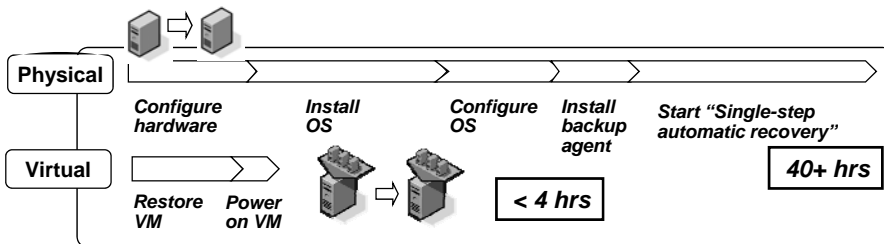
Site Failure

- Automated failover with VMware Site Recovery Manager

Key Features of Virtualization D/R



Simplifying the Disaster Recovery Process



Eliminate recovery steps

- No operating system re-install or bare-metal recovery
- No time spent reconfiguring hardware

Standardize recovery process

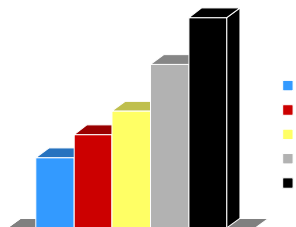
- Consistent process independent of operating system and hardware

Benefits

- Ease of scheduling tests
- Testing is non-disruptive
- Failover for upgrade testing
- Rebuild a single server
- Rebuild entire data center
- Build test scripts

ROI of owning hot site

- 5 year commercial Hot Site cost
\$336,000



1st yr \$3K/mo=\$36K/yr

2nd yr \$4K/mo=\$48K/yr

3rd yr \$5K/mo=\$60K/yr

4th yr \$7K/mo=\$84K/yr

5th yr \$9K/mo=\$108K/yr