

# Preparing for the Worst: Leveraging the Cloud for Disaster Recovery and Business Continuity of IT Systems

CHCANYS  
Annual Conference  
October 21, 2014



Presented by HCNNY  
Stephanie Rose, Timothy Roark, Dev Watson



# Why?

Because disasters come in all sizes and shapes.

- Natural events
- Man-made events
- Technological events



HCNNY 2014



# Why?

## Mental Health Provider

### Locally hosted

- Practice Management
- Line-of-Business
  - Finance
  - Human Resources
  - E-mail
  - Document Management
- Data Backups
- Telephone hub
  - Administration
  - 2 busiest clinics





# Why?

**From:** [inbox@messaging.accuweather.com](mailto:inbox@messaging.accuweather.com)  
**Sent:** Sunday, May 11, 2008 9:52:45 AM  
**To:** MIS Department  
**Subject:** Severe Weather Alert



=====  
Severe Watches and Warnings for DARIEN  
=====

THE NATIONAL WEATHER SERVICE IN CHARLESTON HAS ISSUED A

\* TORNADO WARNING FOR...  
SOUTHEASTERN MCINTOSH COUNTY IN SOUTHEAST GEORGIA...

\* UNTIL 1015 AM EDT

\* AT 951 AM EDT..NATIONAL WEATHER SERVICE DOPPLER RADAR  
INDICATED A SEVERE THUNDERSTORM CAPABLE OF PRODUCING A  
TORNADO NEAR CARNIGAN...  
OR ABOUT OVER DARIEN...MOVING EAST AT 48 MPH.

\* SOME LOCATIONS IN OR NEAR THE PATH OF THE STORM  
INCLUDE...MERIDIAN...CARNIGAN...VALONA...SAPELO ISLAND...

A TORNADO MAY FORM AT ANY TIME. TAKE COVER NOW. ABANDON  
MOBILE HOMES AND VEHICLES. MOVE TO AN INTERIOR ROOM OR  
HALLWAY ON THE LOWEST FLOOR. STAY AWAY FROM WINDOWS.

IF YOU ARE IN THE PATH OF A TORNADO...THE SAFEST PLACE IN A  
HOME OR BUSINESS IS AN INTERIOR ROOM OR HALLWAY ON THE  
LOWEST FLOOR POSSIBLE. AVOID WINDOWS.



**From:** admin@abc-co.org  
**Sent:** Sunday, May 11, 2008 9:55 AM  
**To:** MIS Department  
**Subject:** svr-0-001-0019 : Power Failed on Agent svr-0-001-0021

PowerChute Business Edition has detected the  
following event:

Power Failed on Agent svr-0-001-0021



# Why?

EF-4  
Tornado  
May 11, 2008





# Why?

EF-4  
Tornado  
May 11, 2008

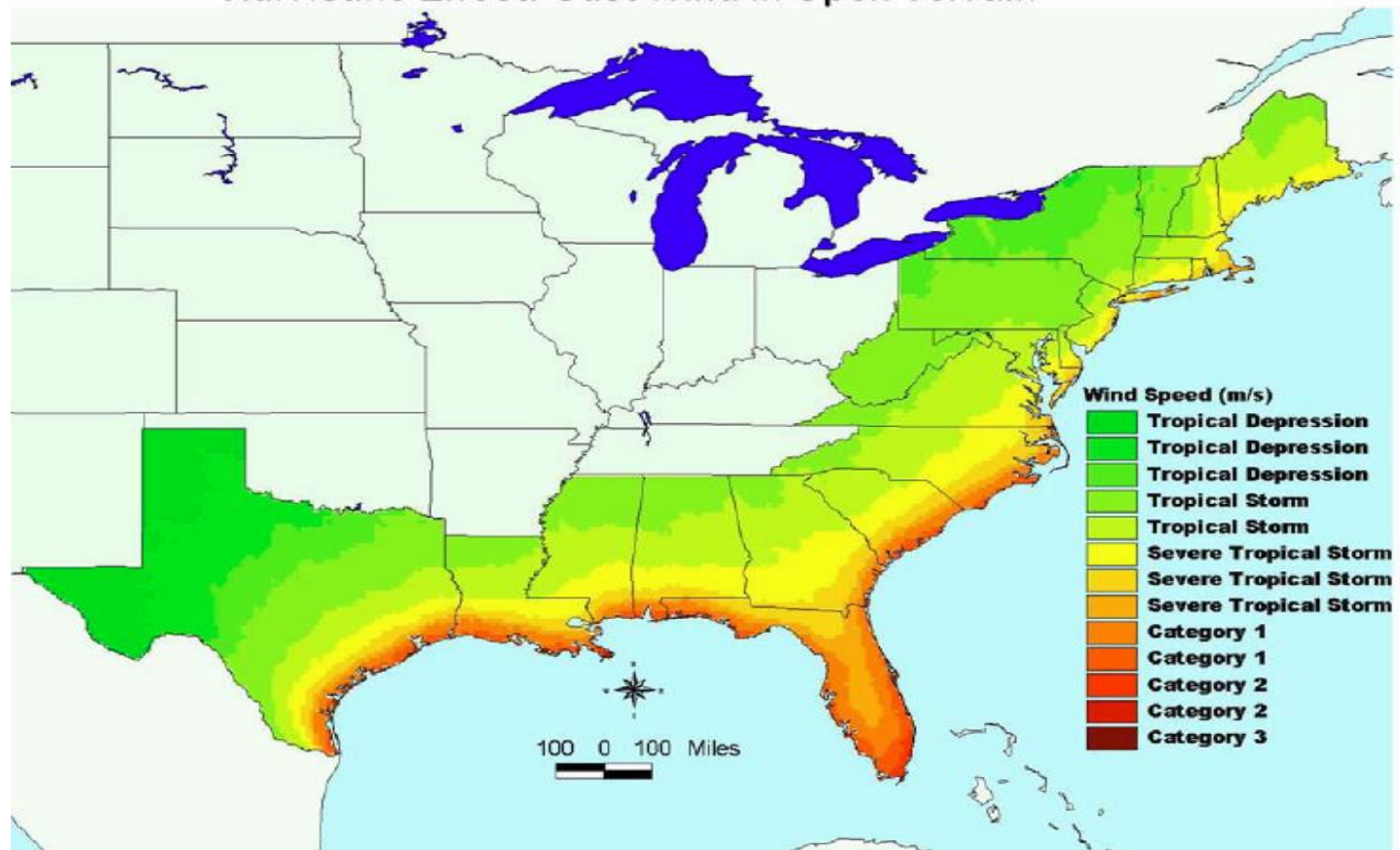




# What are **YOUR** risks?

**50 Year Estimated Wind Speed Hazard**  
(Used by Most Building Codes)  
Hurricane Effect: Gust Wind in Open Terrain

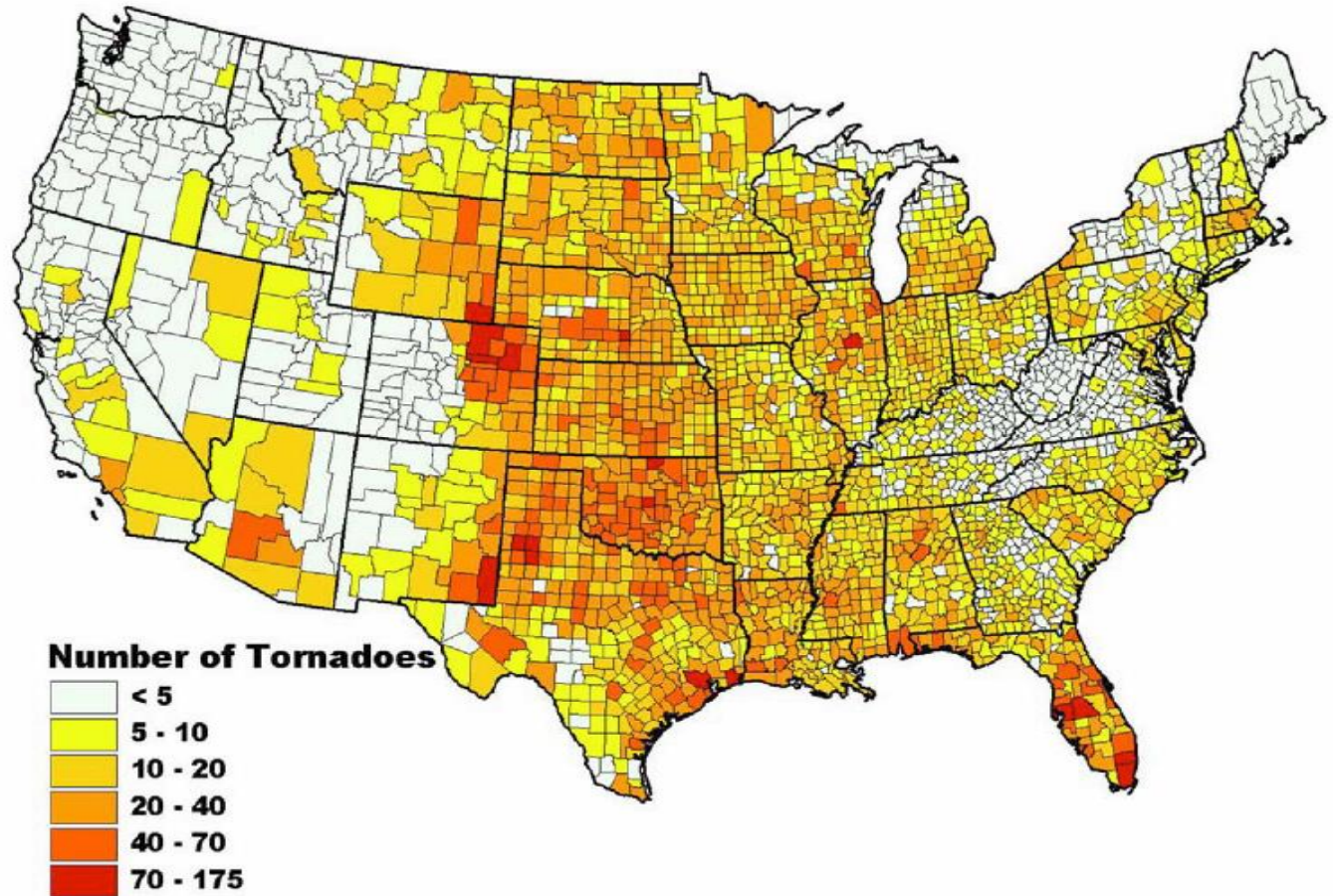
Hurricanes  
&  
Tropical  
Storms





# What are **YOUR** risks?

Tornadoes

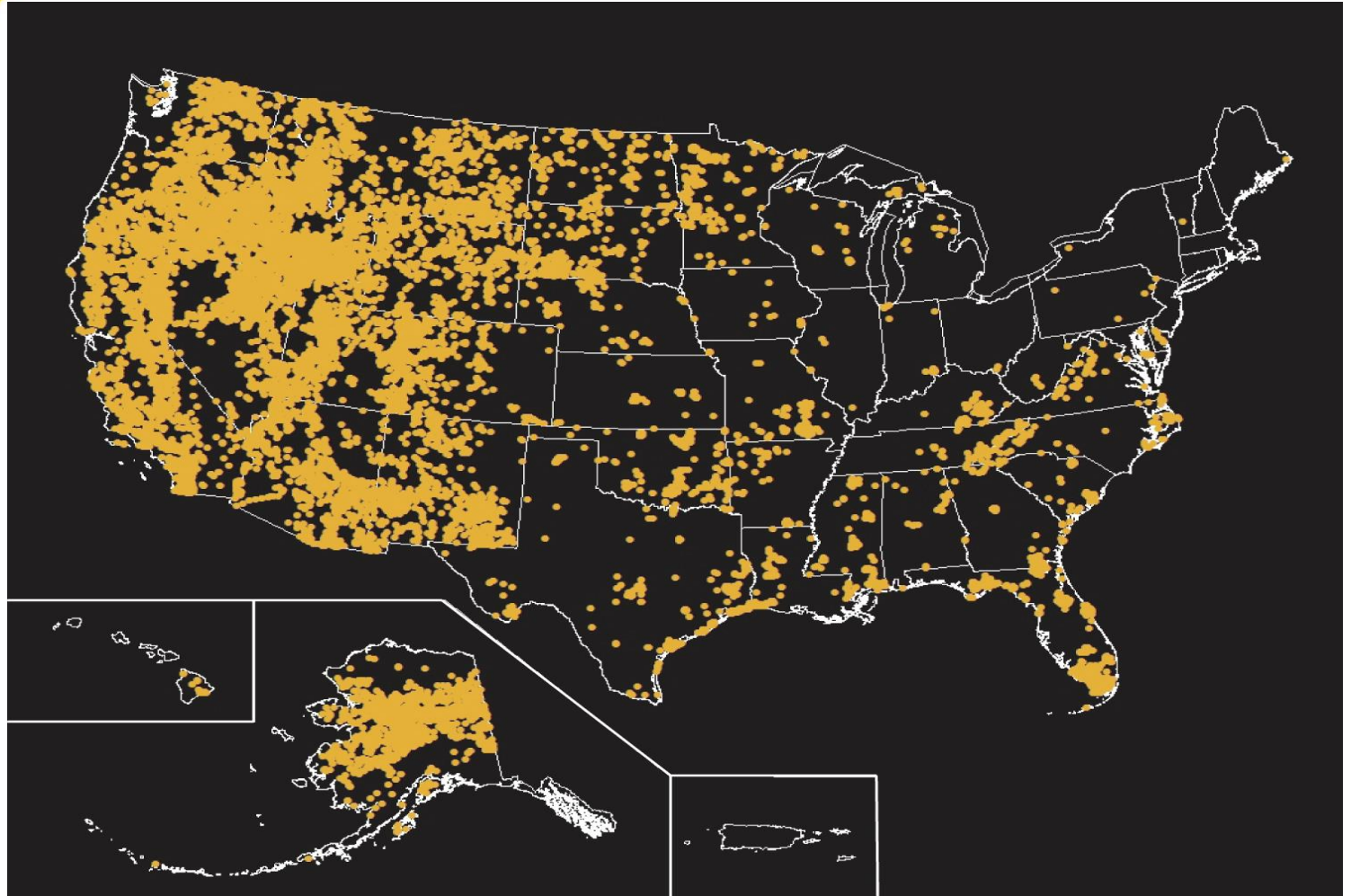






# What are **YOUR** risks?

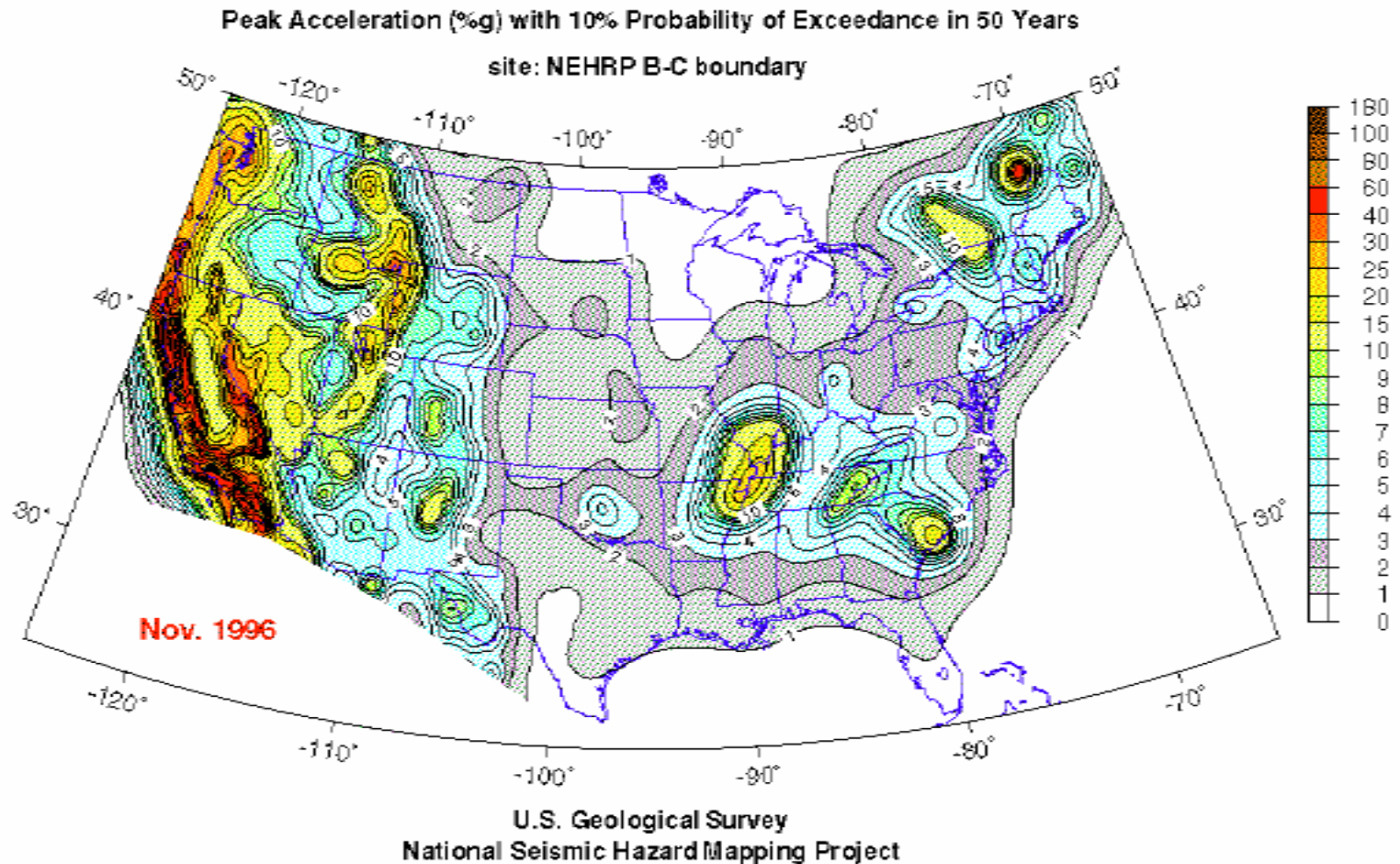
Wildfires





# What are **YOUR** risks?

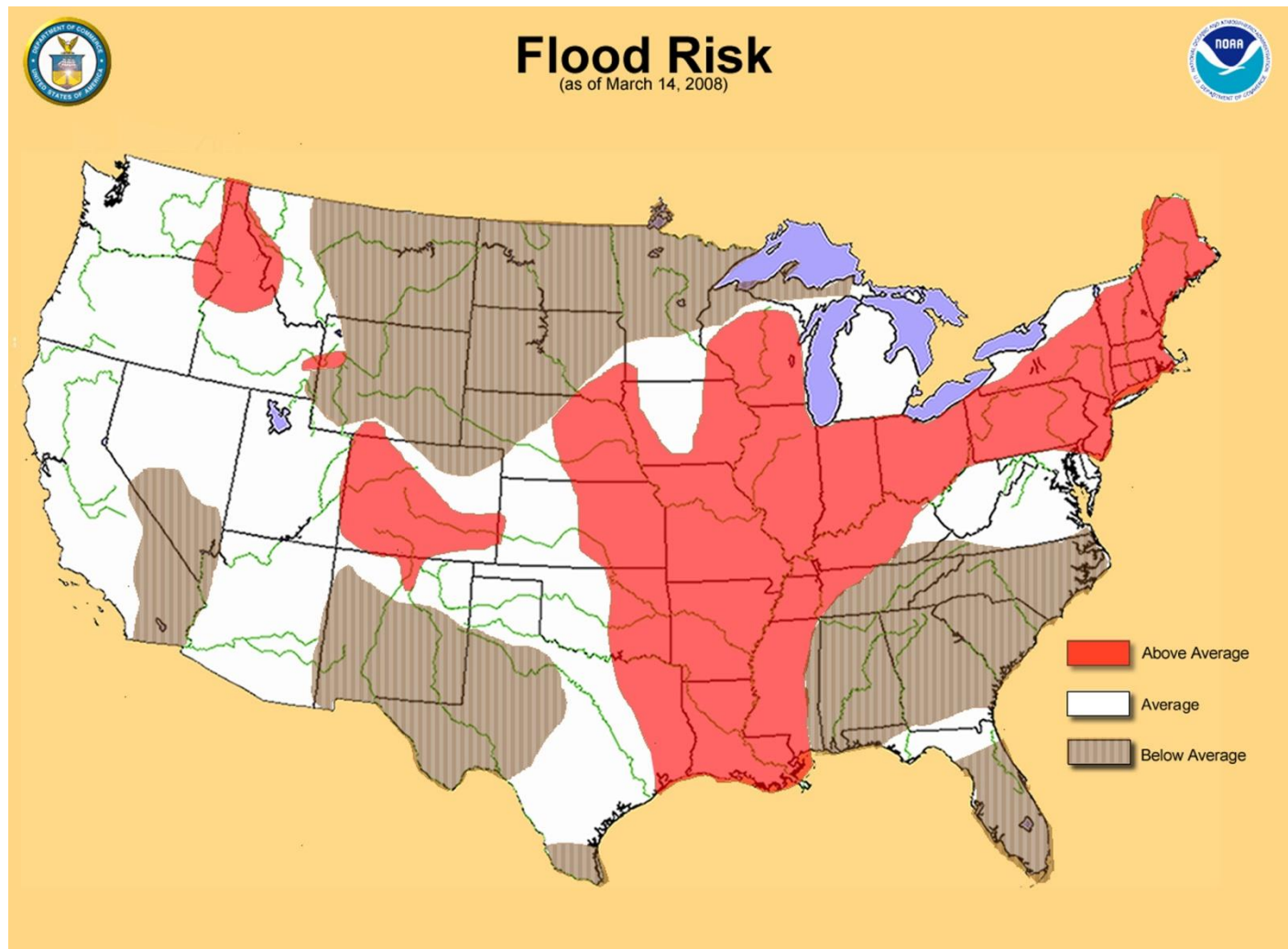
Earthquakes





# What are **YOUR** risks?

Flooding

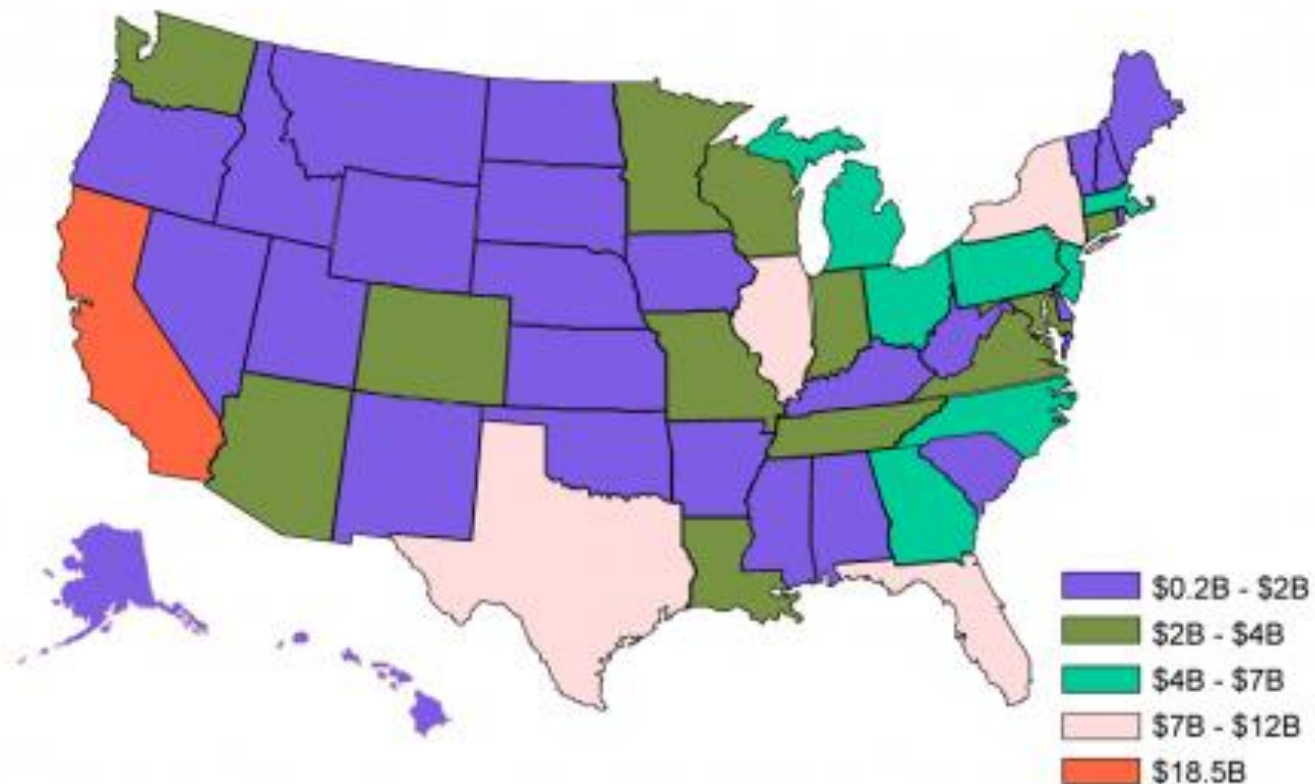




# What are **YOUR** risks?

## Annual Business Losses from Grid Problems

Power  
Outages





# What are **YOUR** risks?

Solar  
Magnetic  
Interference



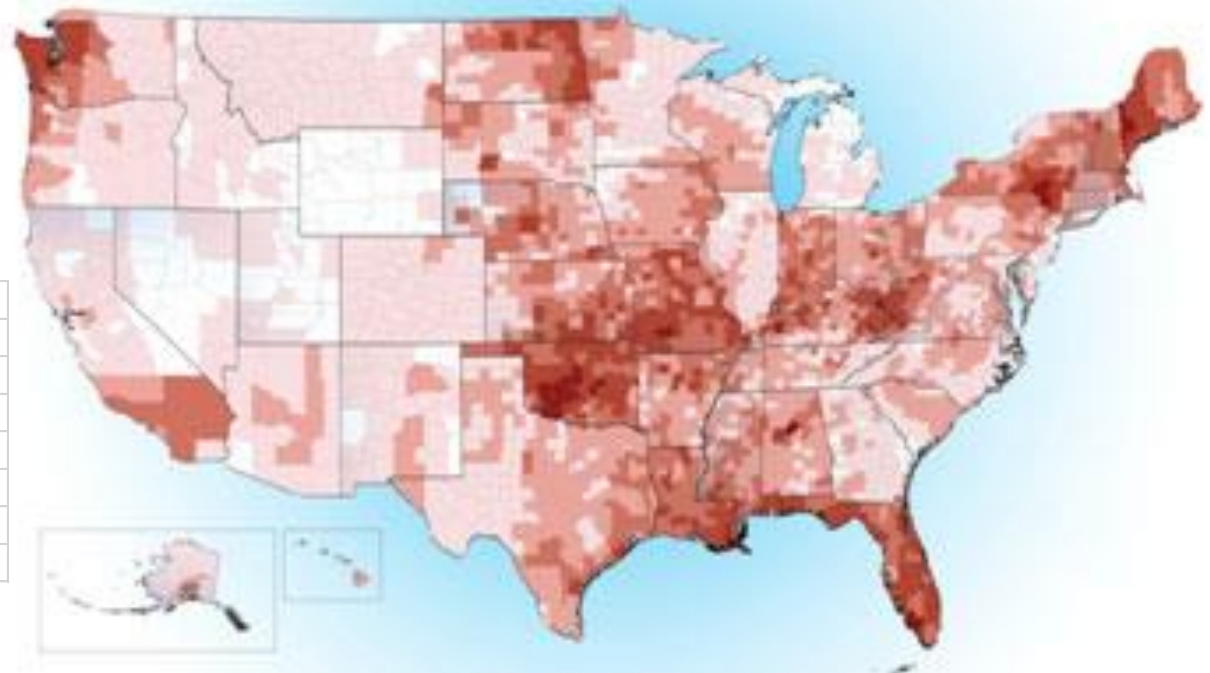


# What are **YOUR** risks?

## PRESIDENTIAL DISASTER DECLARATIONS

January 10, 2000 to January 1, 2010

### Disaster Declarations 2000-2010



#### Additional FEMA Declarations in NY:

7/12/2013	Severe Storms and Flooding
4/23/2013	Severe Winter Storm and Snowstorms
10/30/2012	Hurricane Sandy
9/13/2011	Tropical Storm Lee
8/31/2011	Hurricane Irene
6/10/2011	Storms, Flooding, Tornadoes
2/18/2011	Severe Winter Storm and Snowstorms
10/14/2010	Severe Storms and Tornadoes



# What are **YOUR** risks?

U.S. Commercial Nuclear Power Reactors—  
Years of Operation by the End of 2010

## Nuclear Power Plants As of 12/31/2010

- Ontario, NY
- Buchanan, NY
- Scriba, NY



Years of Commercial Operation	Number of Reactors
△ 0-9	0
▲ 10-19	3
▲ 20-29	48
▲ 30-39	46
▲ 40 plus	7

Note: Ages have been rounded up to the end of the year.

Source: U.S. Nuclear Regulatory Commission



# What are **YOUR** risks?

- Maintenance to **WRONG** server
- Database corruption/deletion
- Server or Storage failure
- Application upgrade failure
- Human Error / Sabotage
- Network Connectivity – Datacenter Outage





# What are **YOUR** options?

- Avoid the risk
  - Usually the most expensive option
  - Required by some 24/7 operations
- Mitigate the risk
  - Reduces the impact
- Recognize/accept the risk  
& address with today's tools





# Where are we in technology?

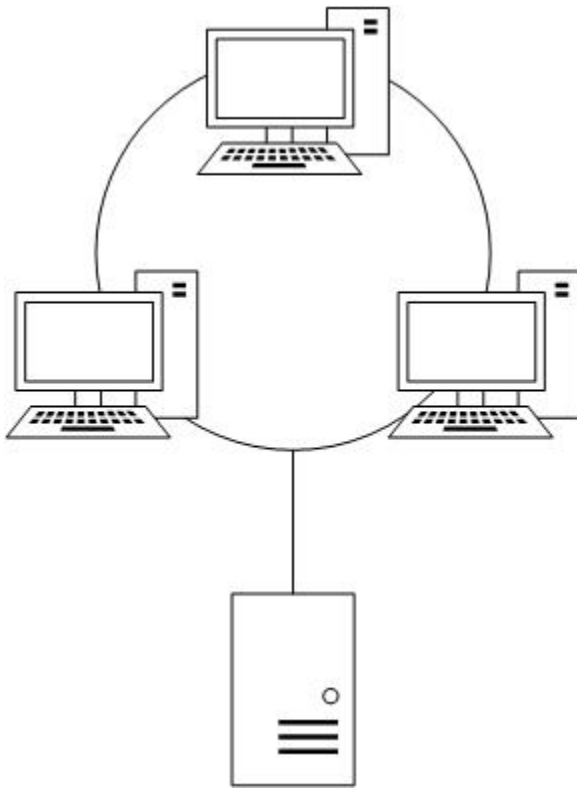
BEGINNING: A few desktop computers





# Where are we in technology?

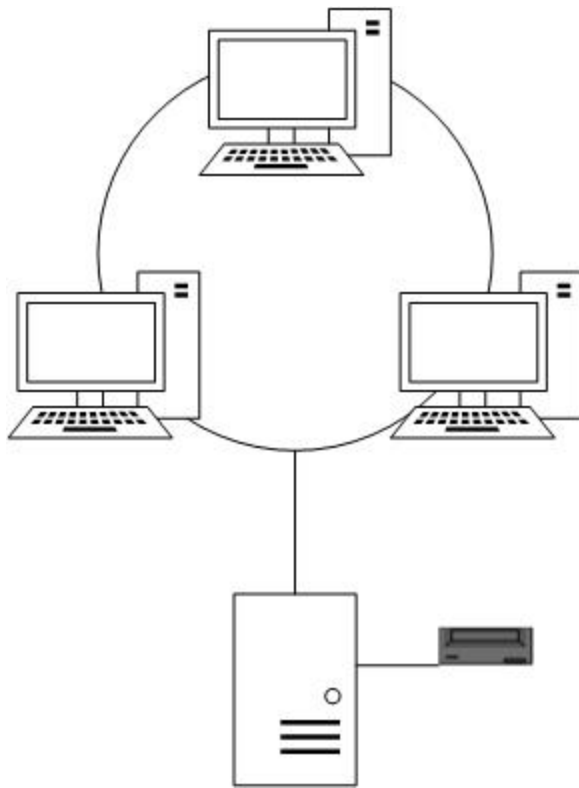
THEN: Added a network and server





# Where are we in technology?

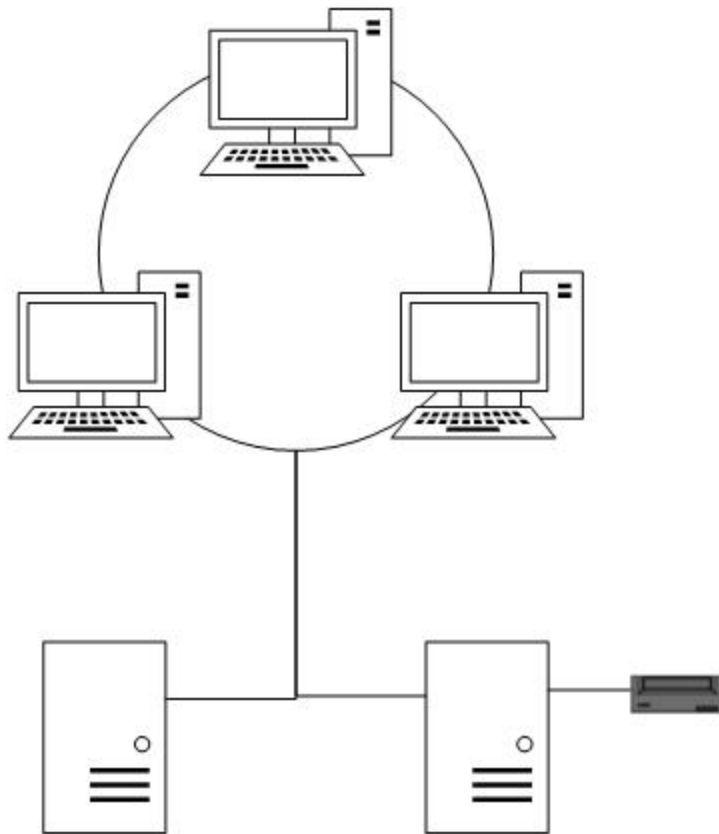
THEN: Added remote storage or backups





# Where are we in technology?

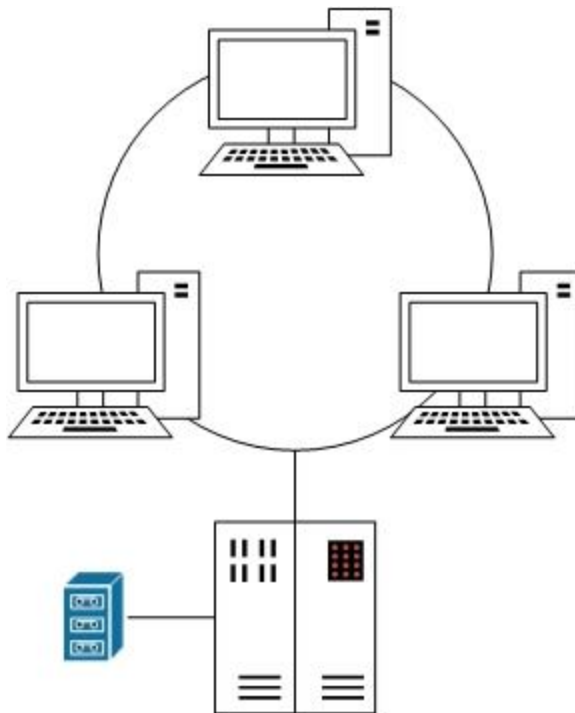
THEN: Implemented server redundancy





# Where are we in technology?

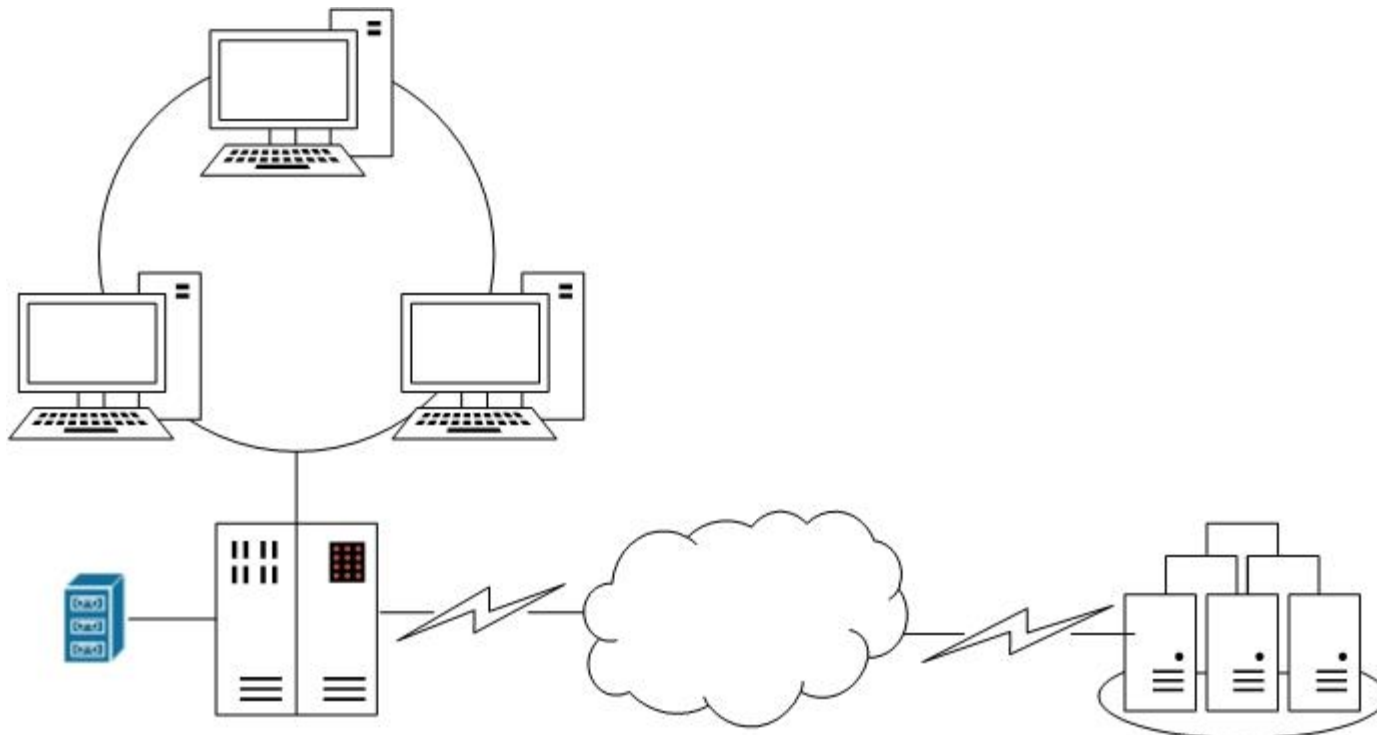
THEN: Virtual Servers and shared storage





# Where are we in technology?

THEN: Data Center integration /  
Central IT area





# Where do you want to be?

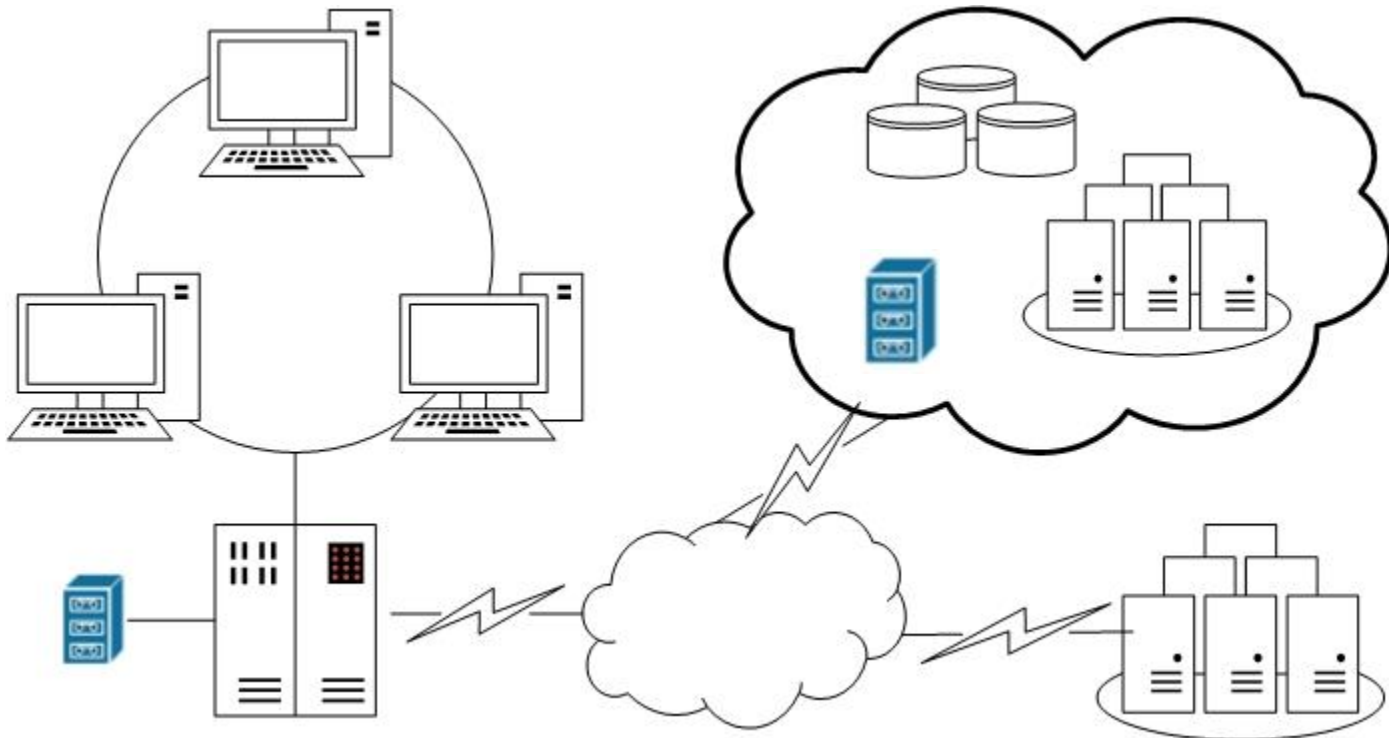
- Reduced Risk
- Recovery Plan and Procedures
- Leveraging today's available technology
- Reduced ongoing operational expenses where possible
- Migration plan for as many workloads as possible towards today's tools and technologies





# When can you get here?

NOW: Cloud integration





# #1 Disruption “Cloud”

There are a number of benefits in utilizing cloud-based services as part of your ongoing operational plan and process:

- Minimal capital costs
- Lower support (people) costs
- Charged only for what you use/consume
- Greater reduction of service disruptions
- Quicker restorations of service



# #1 Disruption “Cloud”

Most all organizations are finding cost savings in using cloud services.

Base: All respondents

	Total	Owner/ executive	Finance	IT	Facilities	Marketing	Customer services	Human resources	Logistics
Cloud computing has reduced our IT costs	66%	60%	59%	69%	64%	65%	71%	84%	74%
Cloud computing has enabled us to invest more money back in the business	62%	55%	56%	65%	50%	65%	71%	74%	63%
Cloud computing has reduced the need for our IT team to maintain infrastructure, and given us more time to focus on strategy and innovation	60%	57%	56%	61%	57%	76%	62%	63%	63%
Cloud computing has improved our disaster recovery and business agility	59%	59%	55%	61%	43%	59%	49%	53%	58%
Cloud computing has helped us increase profits	56%	53%	53%	56%	36%	65%	63%	68%	68%
Cloud computing has accelerated our IT projects, e.g. application development or deployment	54%	47%	45%	58%	64%	71%	57%	63%	42%
Cloud computing has helped us to 'punch above our weight' and compete with larger companies	49%	47%	44%	50%	21%	59%	58%	53%	58%
Cloud computing has been a key factor in enabling us to grow the business	49%	43%	41%	50%	79%	59%	63%	68%	58%
Base	1300	387	64	715	14	17	65	19	19

Source: Vanson Bourne



# Our Options - D/R & COOP-B/C

## **Disaster Recovery (D/R):**

Detailed steps to be followed after a disaster.

Example: Data Backup & Recovery

## **Continuous Operations/Business Continuity:**

An outline how the organization will continue to operate after a disaster.

Example: Data Replication

Secondary/Redundant servers



# Cloud for DR and COOP/BC

There are many different degrees to which you can integrate cloud services into your disaster recovery and business continuity plans:

- Backup and Restore
- Pilot Light
- Full Failover





# Backup and Restore

The process of creating a copy of data or a system. There are generally two types of backup: a complete (full) copy or copy of only items changed since the last backup (differential).

In order to use the data/information that was backed up requires the data be restored on another computer.

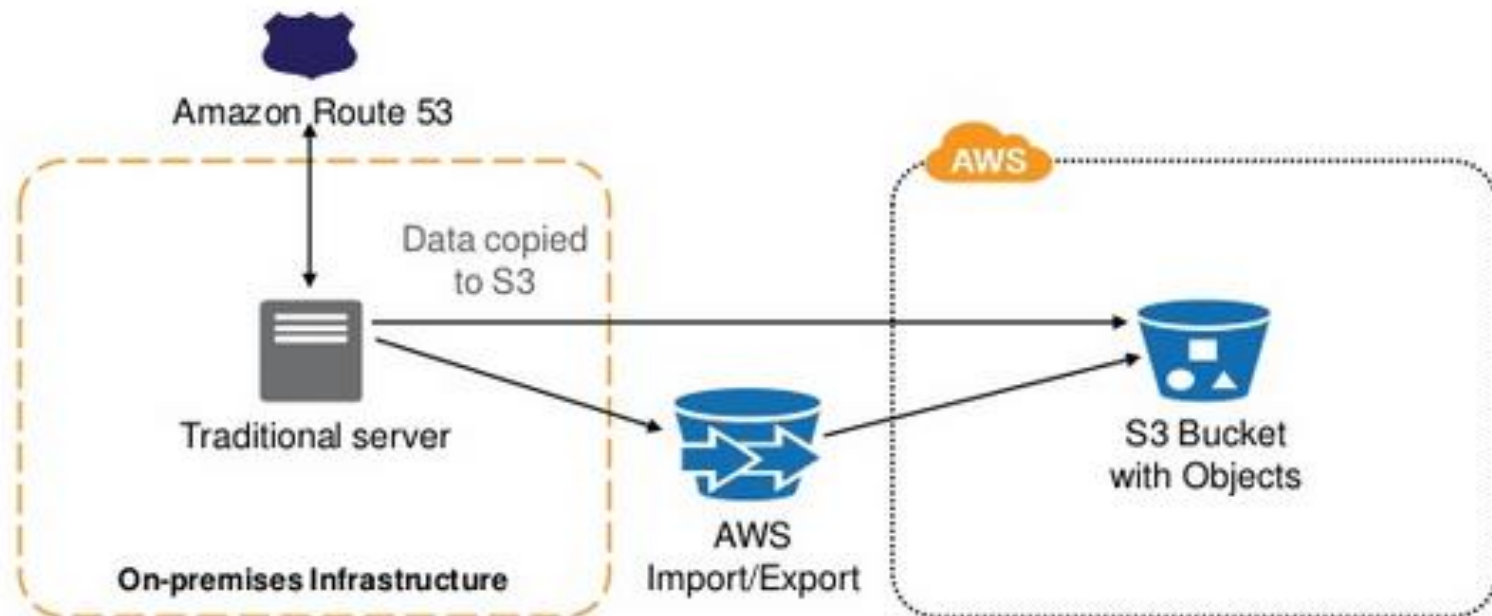
- Easy to get started
- Extremely Cost effective
- Store Backups in S3 Storage
- Restore Services as needed





# Backup and Restore

## Backup and Restore





# Pilot Light Strategy

A pilot light is a fully configured system that is in a “paused” or inactive state. This allows the system to be easily recovered/restarted by activating the application layer of the system. The Data-Layer consistently receives updates from production datacenter.

## **Advantages:**

- Very Cost Effective

## **Enabling Steps:**

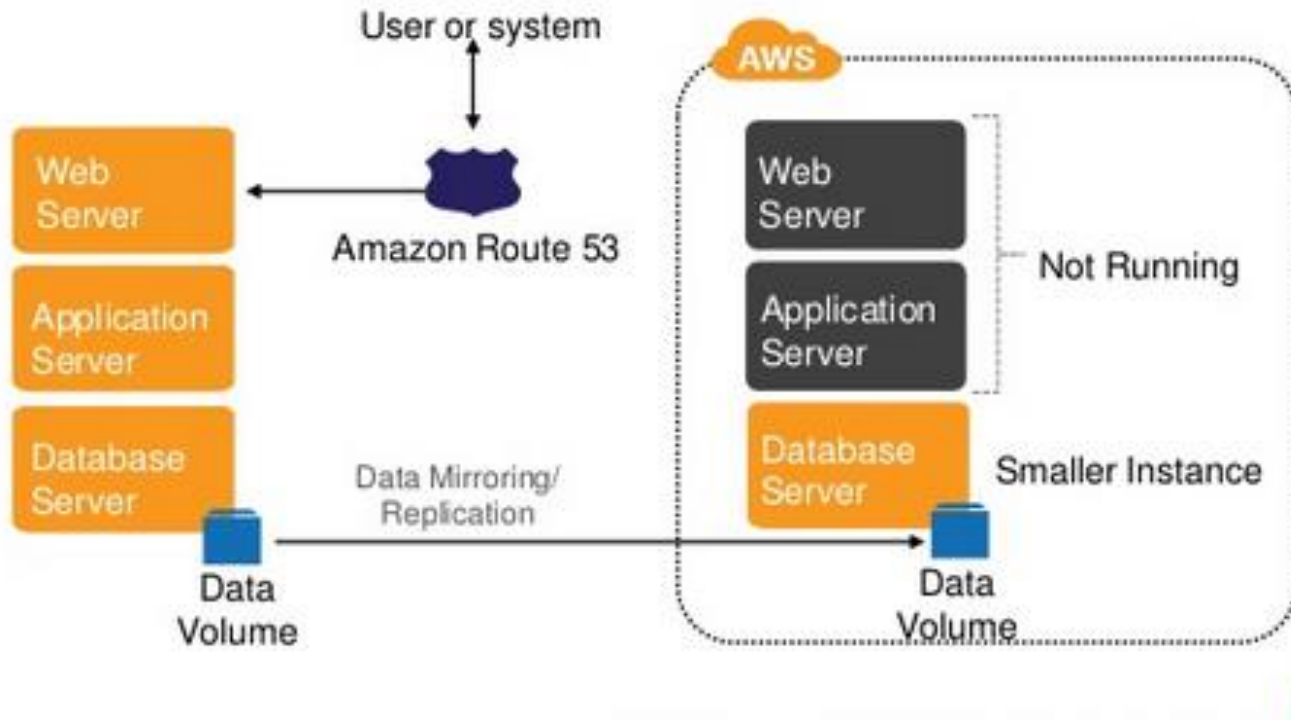
- Enable Application Layer Data Replication
- Prepare Cloud Application Servers to be in ready to start mode
- Test Compute Nodes on regular basis





# Pilot Light Strategy

## Pilot Light





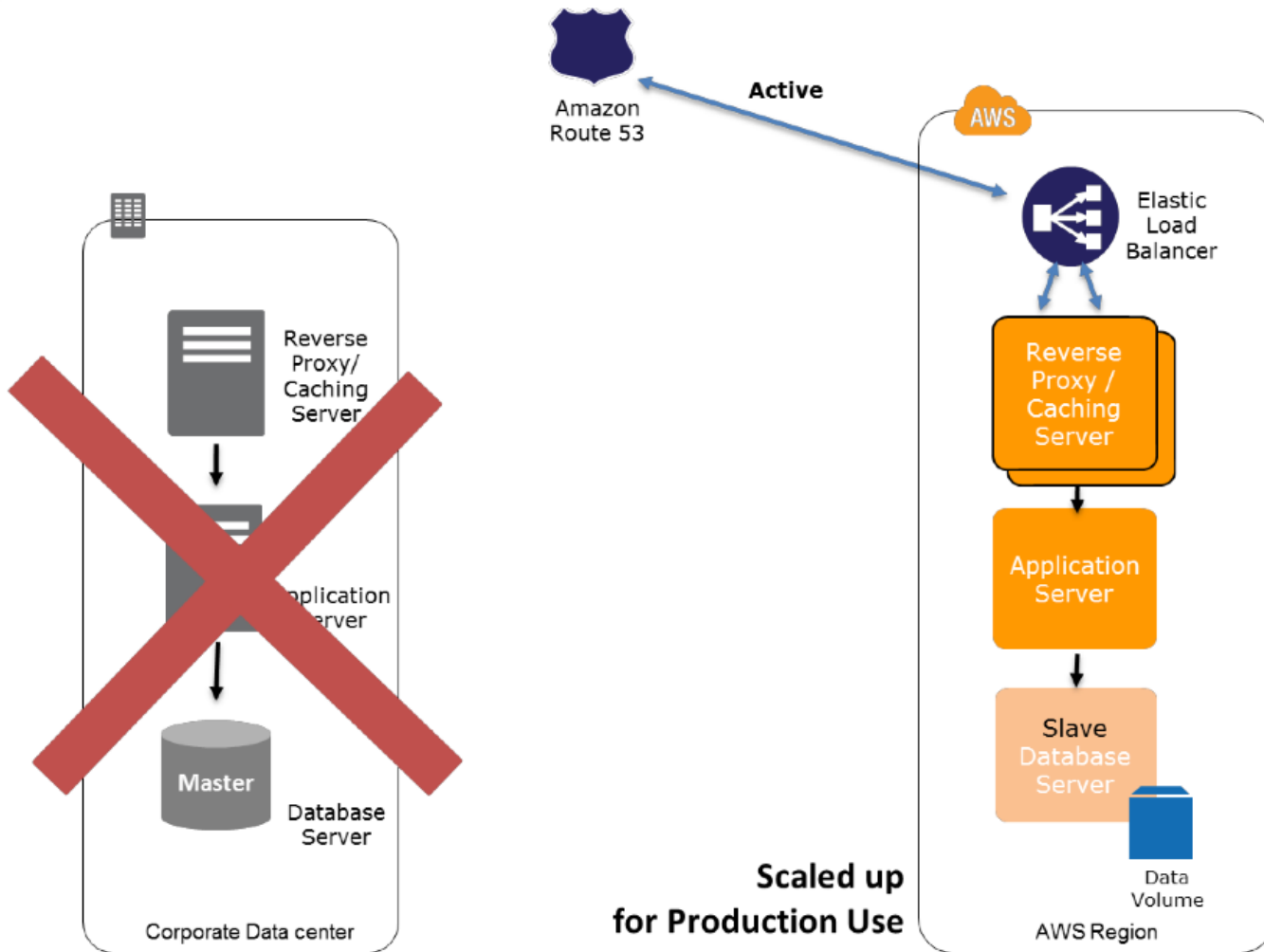
# Full App / Datacenter Failover

Failover virtual Datacenter Services or Full Application Workload failover can greatly reduce long service disruptions for your organizations.

- Failover Virtual Datacenters
- Failover Specific Applications
- Migrate Workloads to Cloud Platforms
- Reduce Capital Intensive Operations

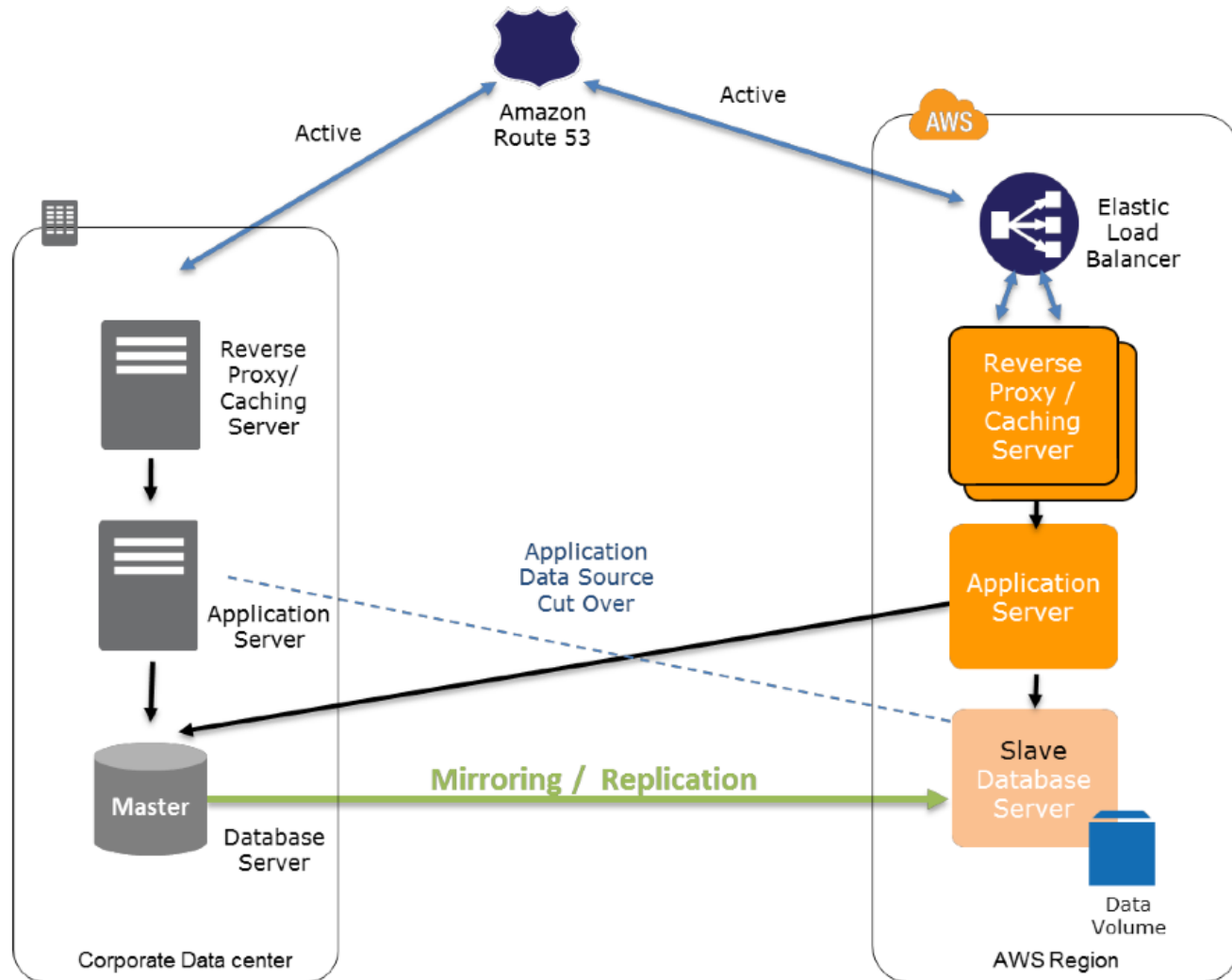


# Full App / Datacenter Failover



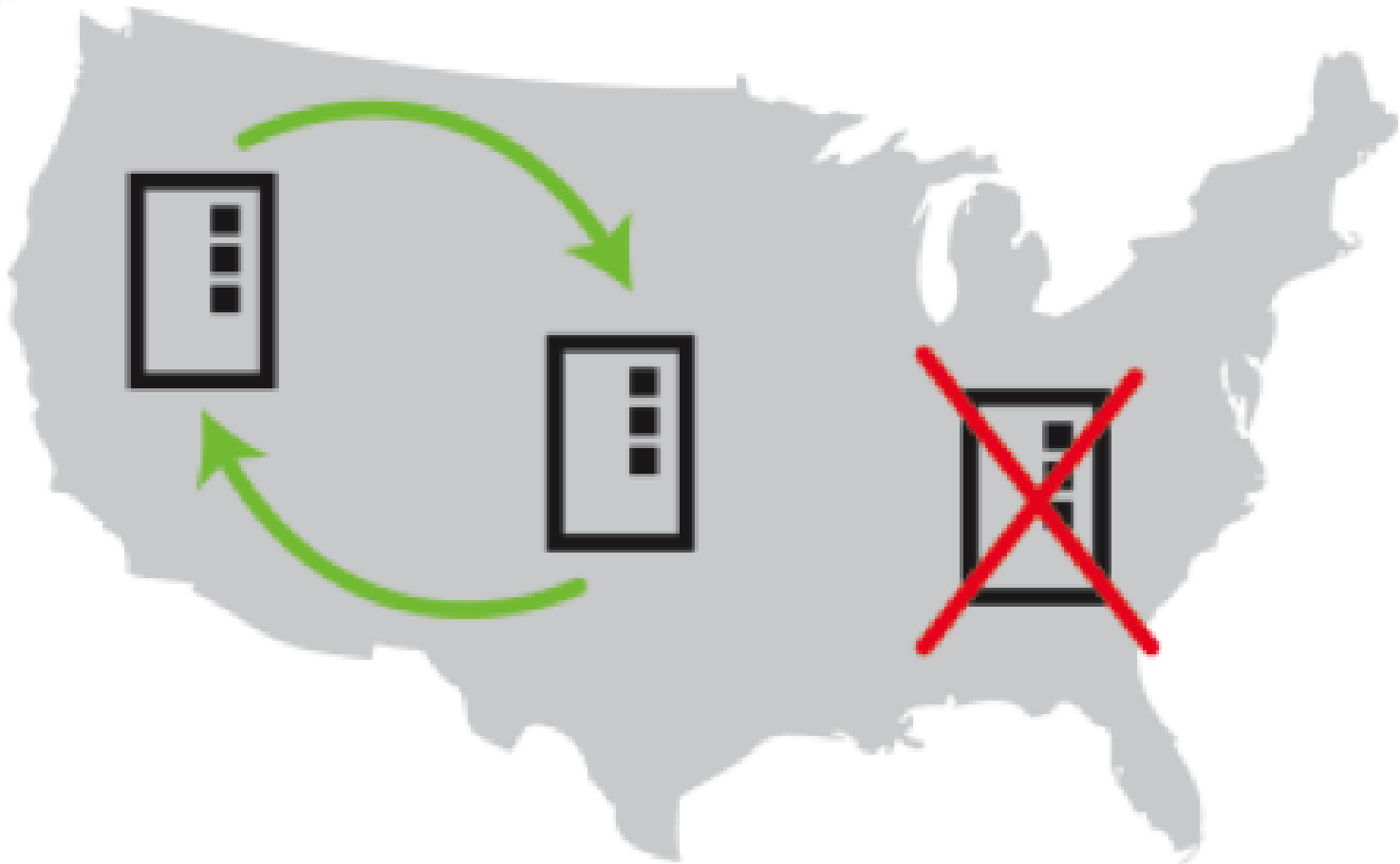


# Full App / Datacenter Failover



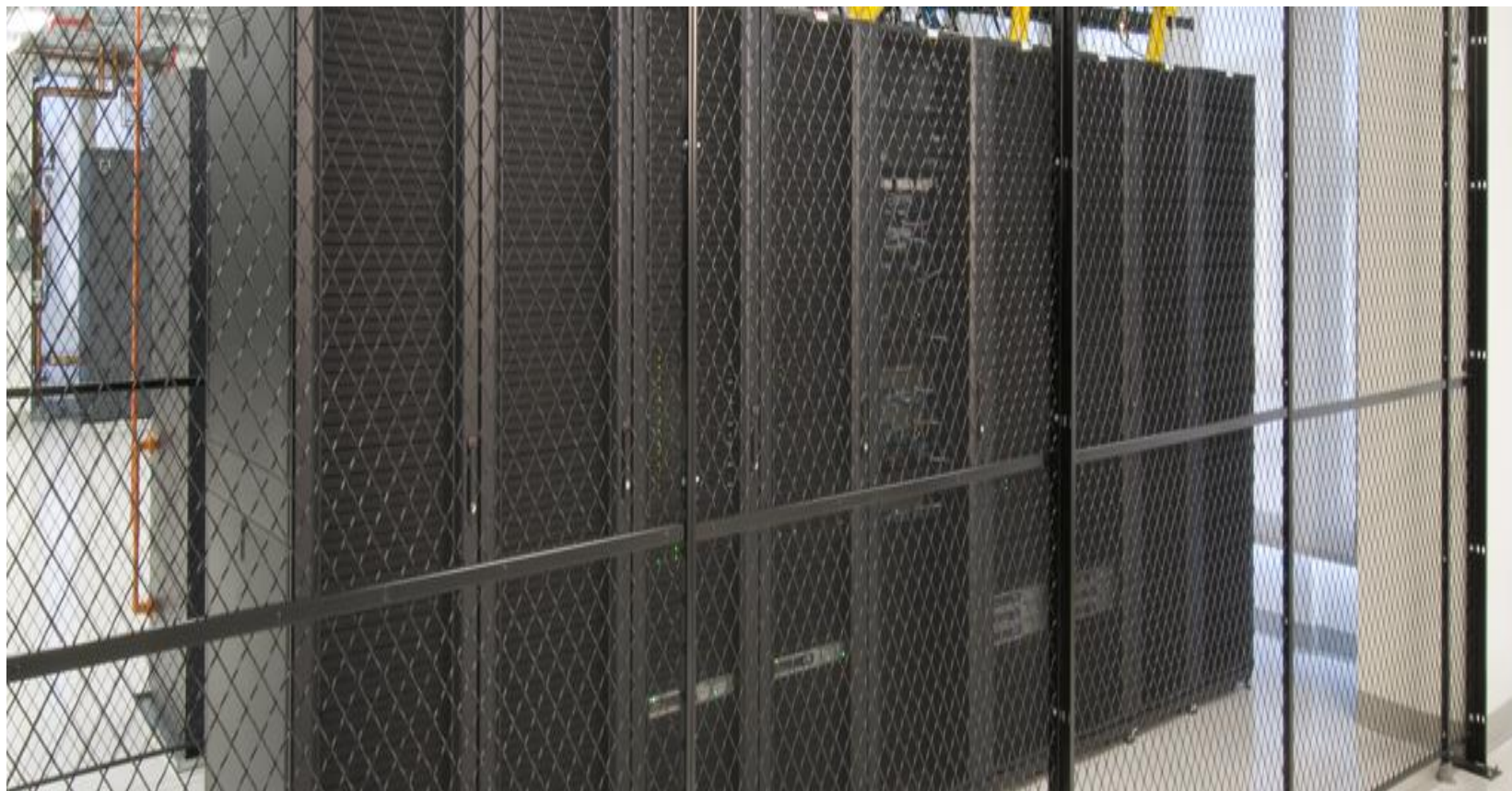


# Full App / Datacenter Failover



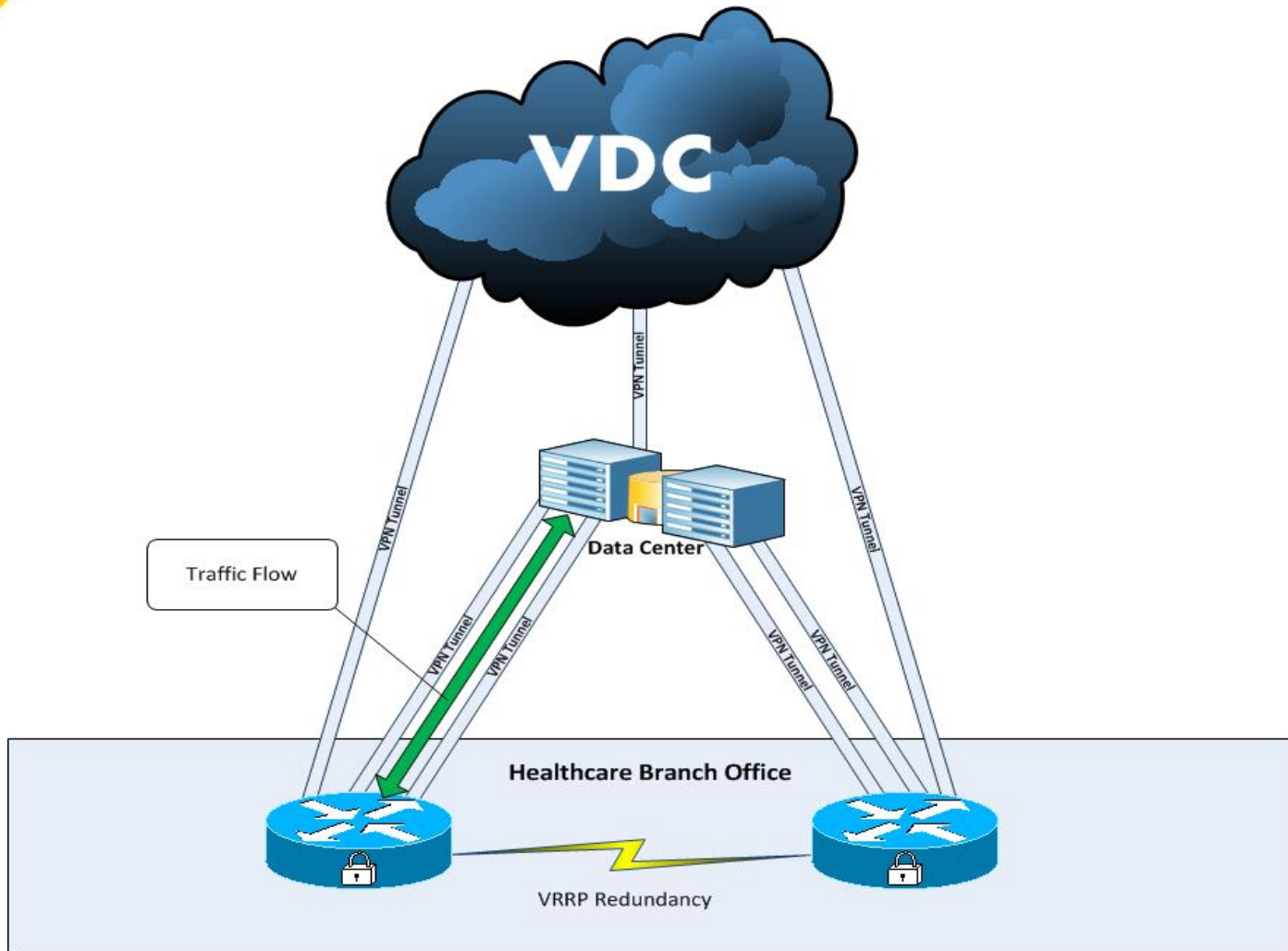


# HCNNY Current Colocation



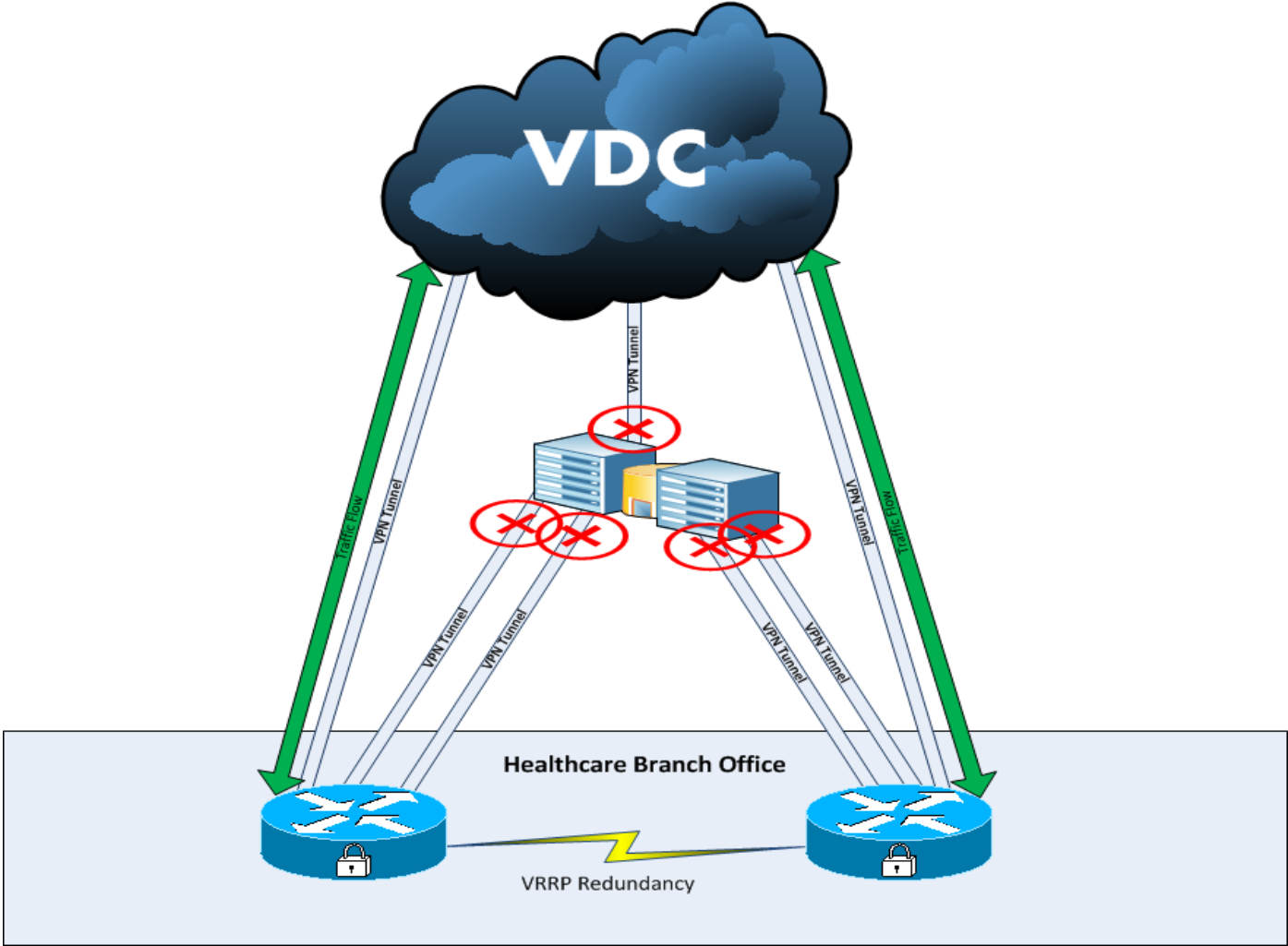


# HCNNY Hybrid Solution





# HCNNY Hybrid Solution







# Summary

- As you can see....We Health Centers have come a long way in today's world.
- Of course we have a long way to still go.
- Evolutions and Paradigm Shifts in Technology create great value opportunities for Health Centers.
- Custom Tailored-fit Solutions per Health Center is now possible



# Questions & Discussions

## Health Center Network of New York (HCNNY)

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