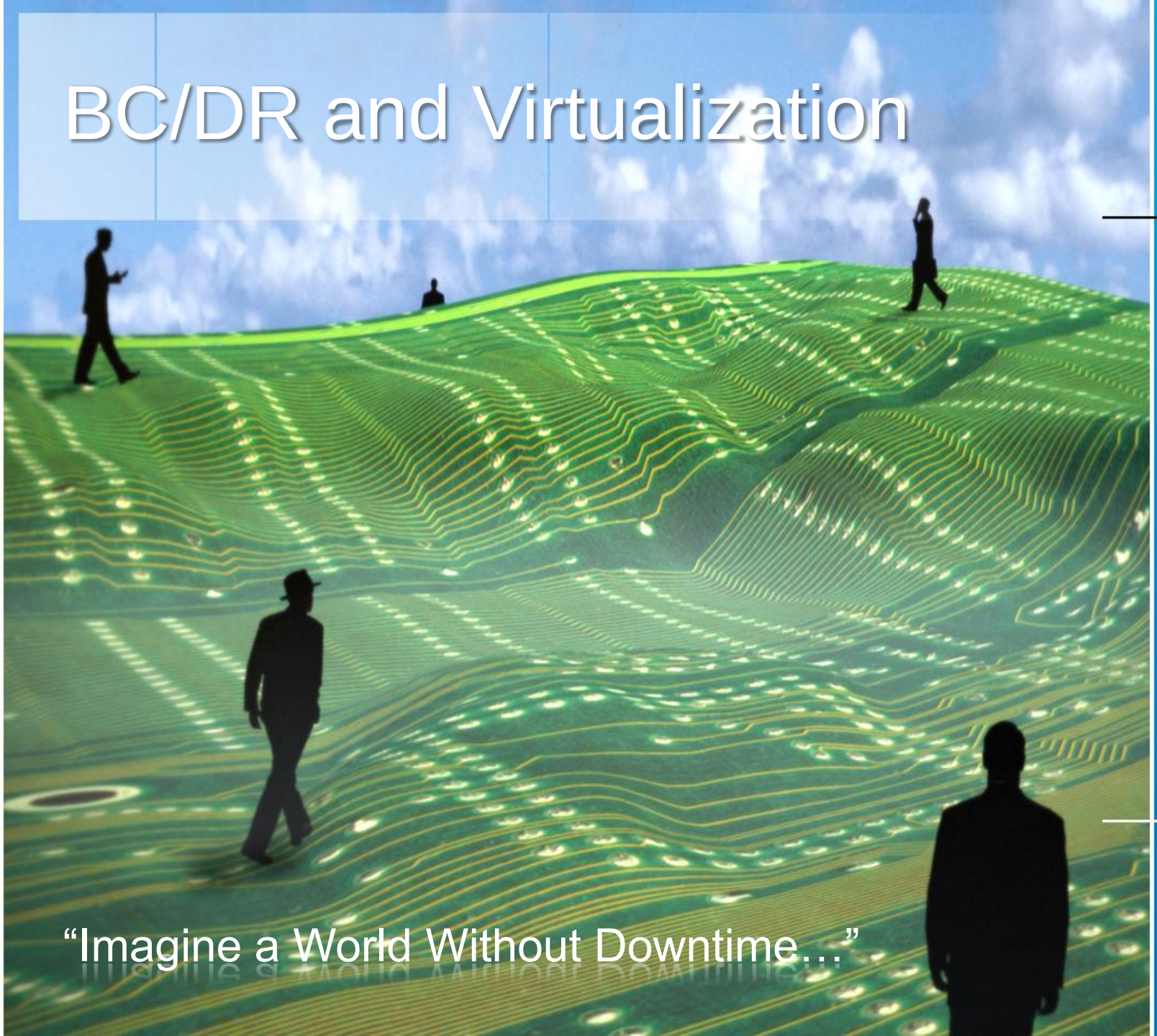
BC/DR and Virtualization



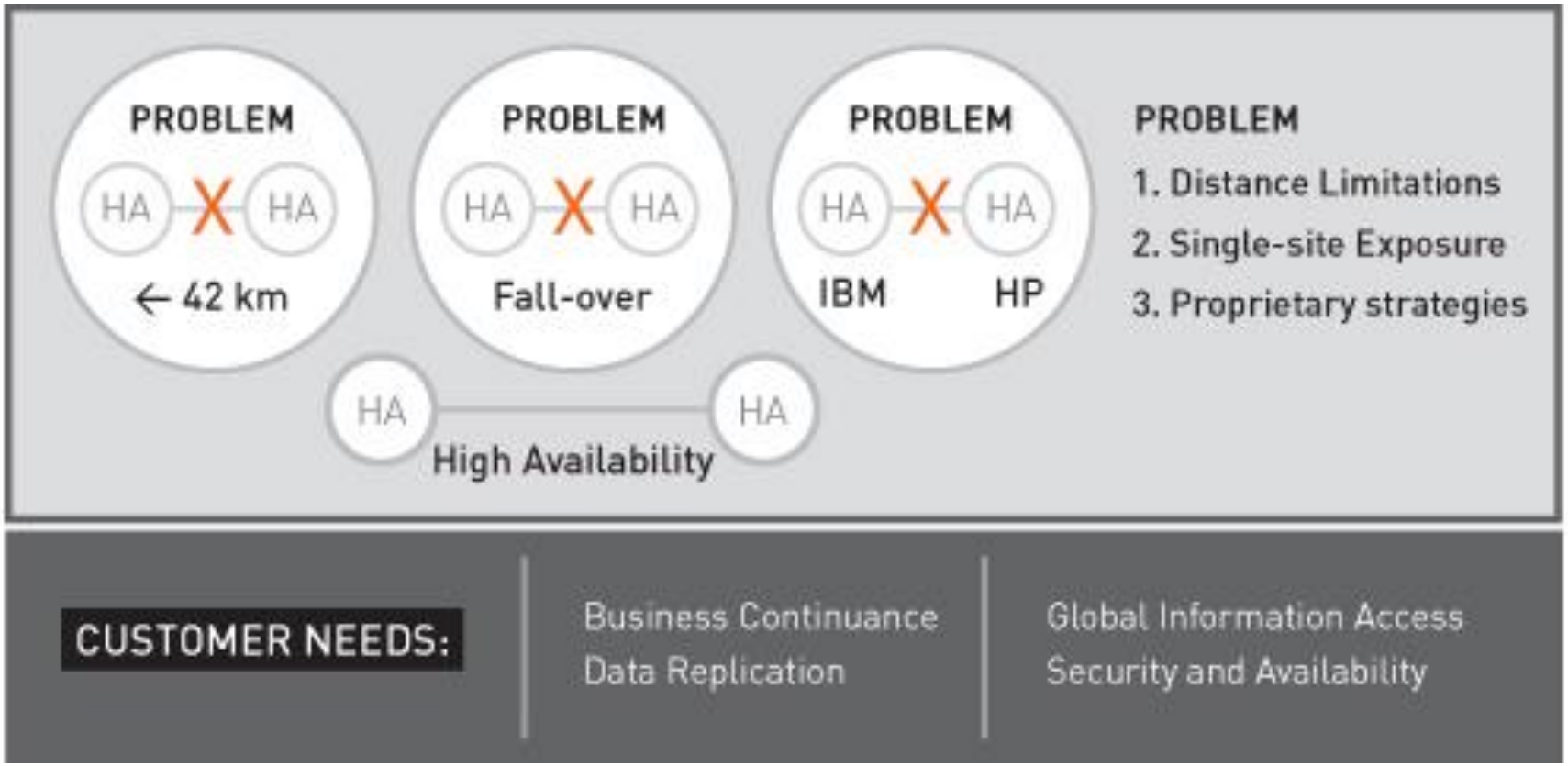
ZeroNines Technology, Inc.

Information Security & Availability

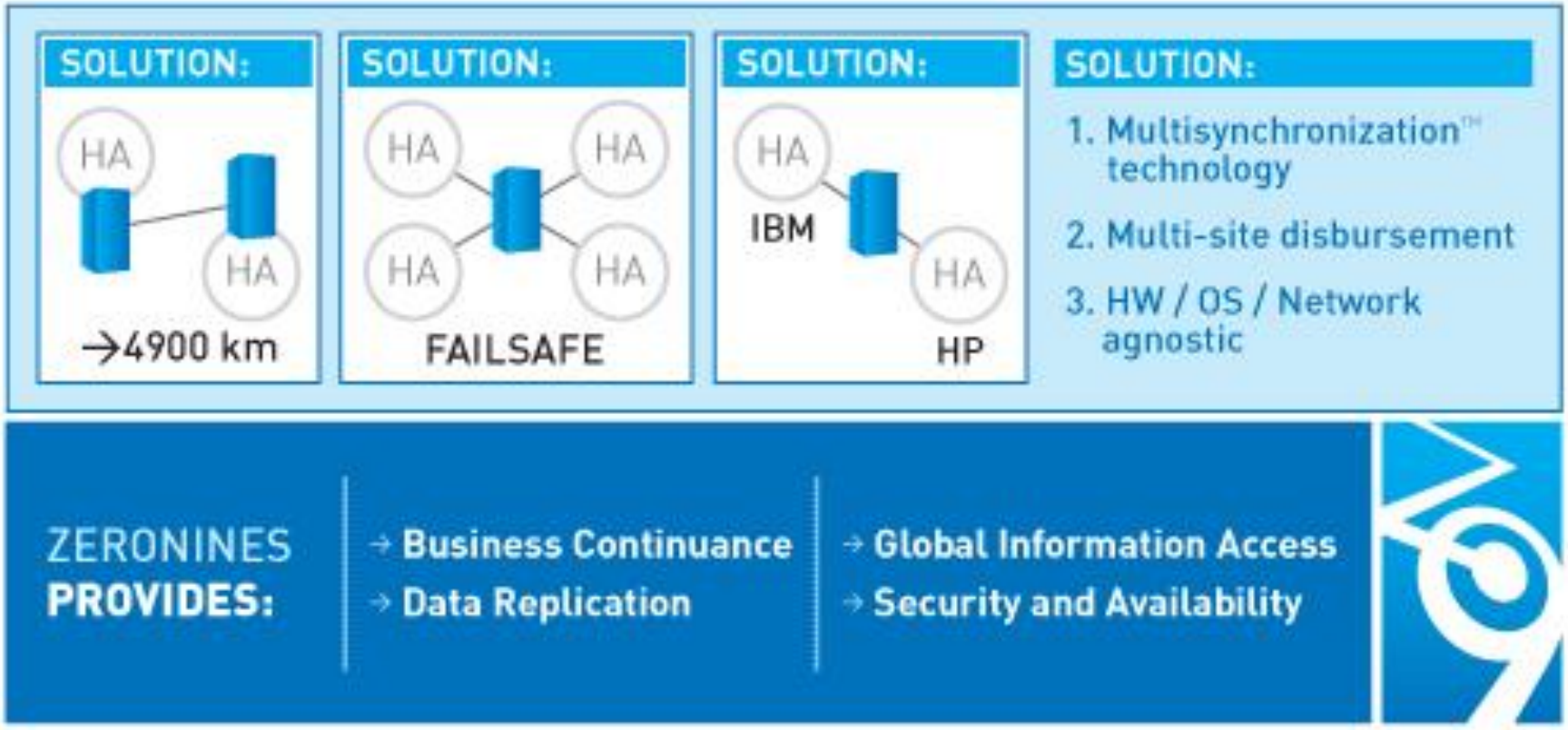
Alan Gin, CEO

alan@ZeroNines.com

Problem


PROBLEM
HA X HA
← 42 km
PROBLEM
HA X HA
Fall-over
PROBLEM
HA X HA
IBM HP
HA HA
High Availability
PROBLEM
1. Distance Limitations
2. Single-site Exposure
3. Proprietary strategies
CUSTOMER NEEDS:
Business Continuance
Data Replication
Global Information Access
Security and Availability

Solution

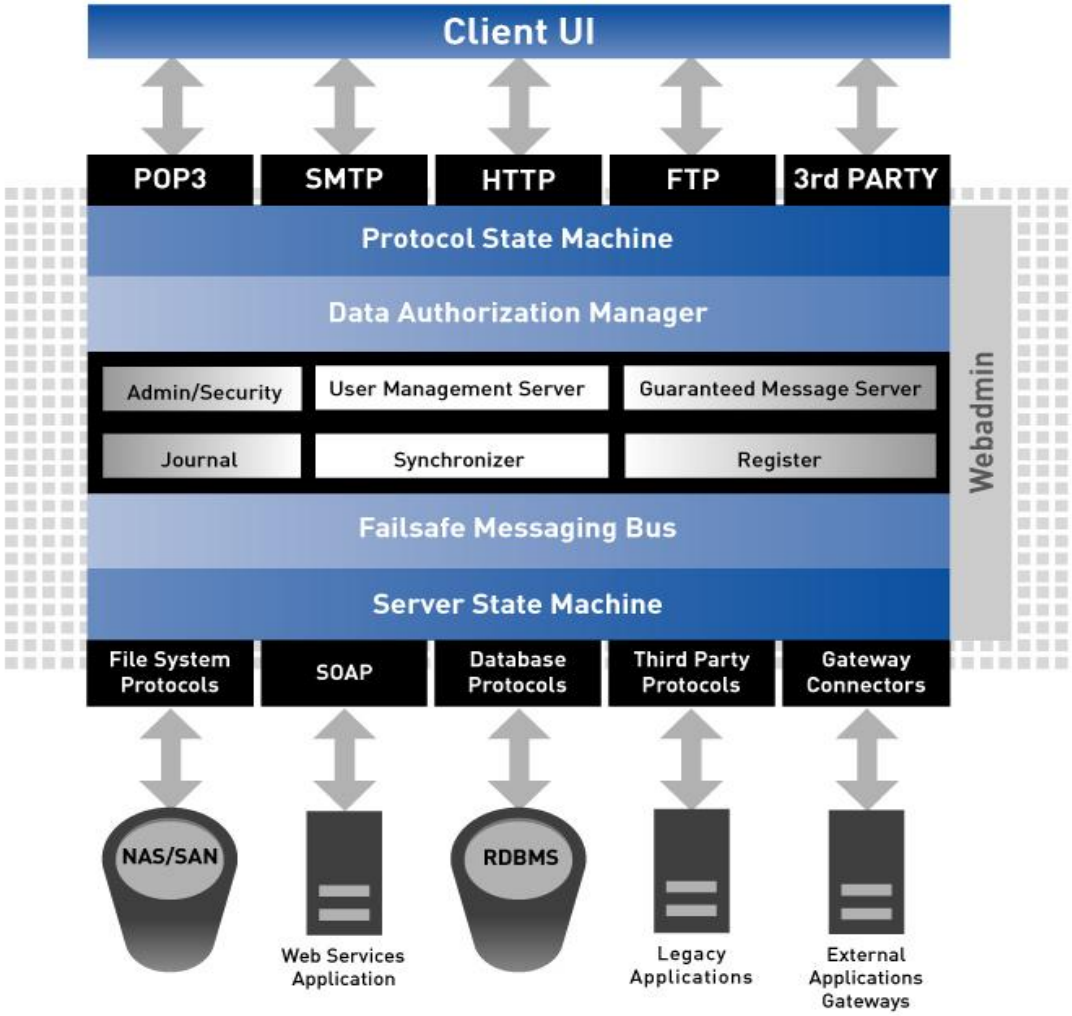

SOLUTION:
HA
HA
→4900 km
SOLUTION:
HA
HA
HA
HA
FAILSAFE
SOLUTION:
HA
IBM
HA
HP
SOLUTION:
1. Multisynchronization™ technology
2. Multi-site disbursement
3. HW / OS / Network agnostic
ZERONINES
PROVIDES:
→ Business Continuance
→ Data Replication
→ Global Information Access
→ Security and Availability

What We Do

ZeroNines' patented architecture disaster proofs software without modification.

Our software prevents losses associated with downtime and disaster recovery. Our technology is transaction based, providing the only continuity solution for applications hosted in geographically dispersed data centers.

Patented Architecture



Domain Expertise

Adolph Coors – American Airlines - American Express – AmericaWest – Bank of America – Bank of Hawaii – Bay Networks - Bechtel – Blue Cross

SPPCO – State of Hawaii – Texas Instruments – TRW - Wal-Mart – Wells Fargo

Burlington Industries – Capital Group - Charles Schwab – Cisco - CitiBank – Costco

- Audit, Security and DR planning (PwC)
- Govt. system integration (Wang)
- Network architecture and planning (AT&T)
- NAS and SAN implementation (STK)
- Server, Storage and Application (Hitachi)

CSC - DHL – EDS - Exxon - First Hawaiian Bank – Levi Strauss - Mastercard – Mirage Resorts – Nike – Novell – Pacific Bell – Sabre - Suntory

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intel
HITACHI DATA SYSTEMS
Microsoft
perotsystems®

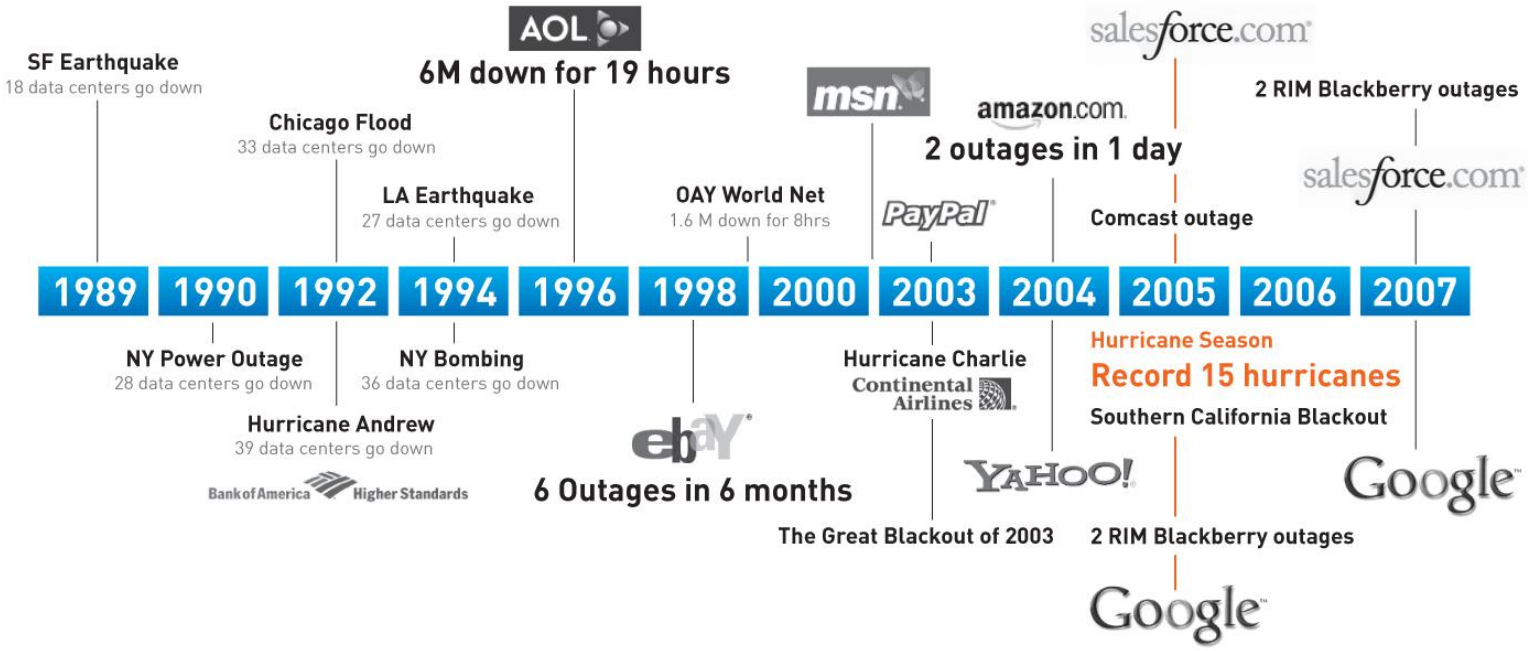
What Disaster?

Since 1953 Total Major Disaster Declarations average 31 per year. (FEMA 2005)

Since 1982 U.S. Hot Site recovery averaged 40 per year primarily due to loss of power, followed by hardware error and fires. (CPR Research 2005)

Financial institutions suffer an average of 1,180 hours of downtime per year which costs them up to 16% of their annual revenue. (Infonetics Research 2005)

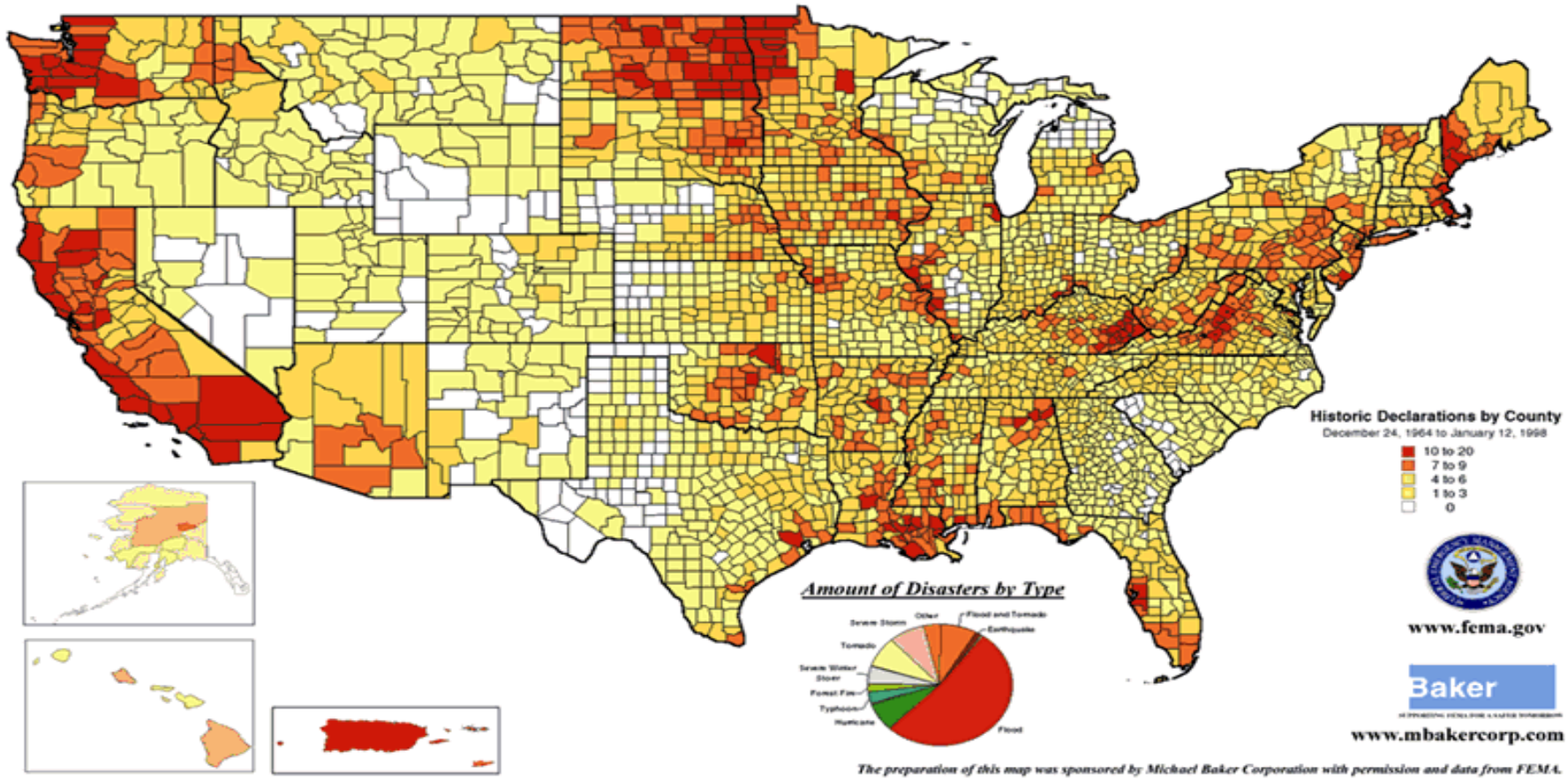
What Disaster?



WHAT DISASTER?

HISTORICAL PRESIDENTIAL DISASTER DECLARATIONS

1,198 DECLARATIONS SINCE 1964



The preparation of this map was sponsored by Michael Baker Corporation with permission and data from FEMA.

"To successfully mitigate against disaster will require the combined talents and concerted efforts of all levels of government, academia, professional and voluntary organizations, the corporate sector, and all Americans."

- Bill Clinton, December 6, 1995

This is everyone's problem

- AT&T
- American Medical Response
- Bank of America
- Catholic Healthcare West
- Cingular
- CH2MHill
- Charles Schwab
- Fidelity
- Pentagon
- Stanford Hospital
- State Department
- SunGard
- Sutter Healthcare
- Visa
- Wells Fargo

We ask "What keeps you up at night?"

We asked 35 Fortune 500 CIOs (1997) …

1. Data accessibility
2. Security
3. Management
4. Application availability
5. Disaster recovery (reactive)

Their Challenges

- Resources
- Budget
- Complacency
- Knowledge Retention
- Technology
- The list goes on……

They Feel Current Generation Solutions

Does not meet today's challenges…..

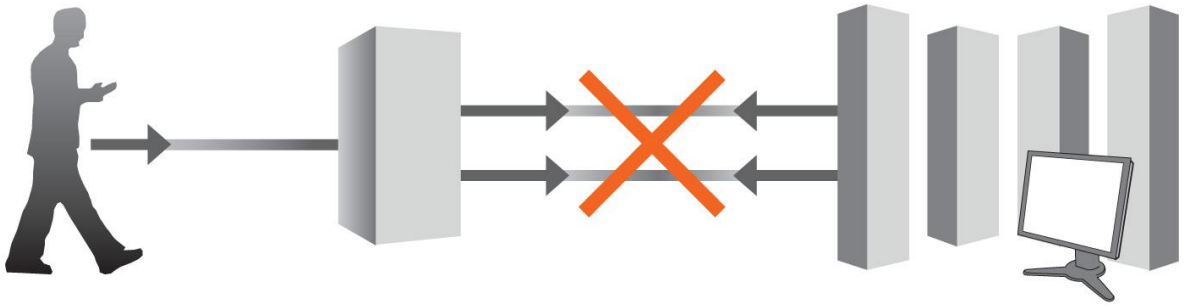
- Tape Backup and Recovery
- Remote Vaulting
- Fail over
- Clustering
- SANs

ZeroNines Technology, Inc.

Information Security & Availability

Anatomy of Disaster Recovery

What are our exposures?



Hardware / Software System Failures

- Hardware & Software Component Failure
- Backup Systems Failures
- Communication Failures

Data Center Failures

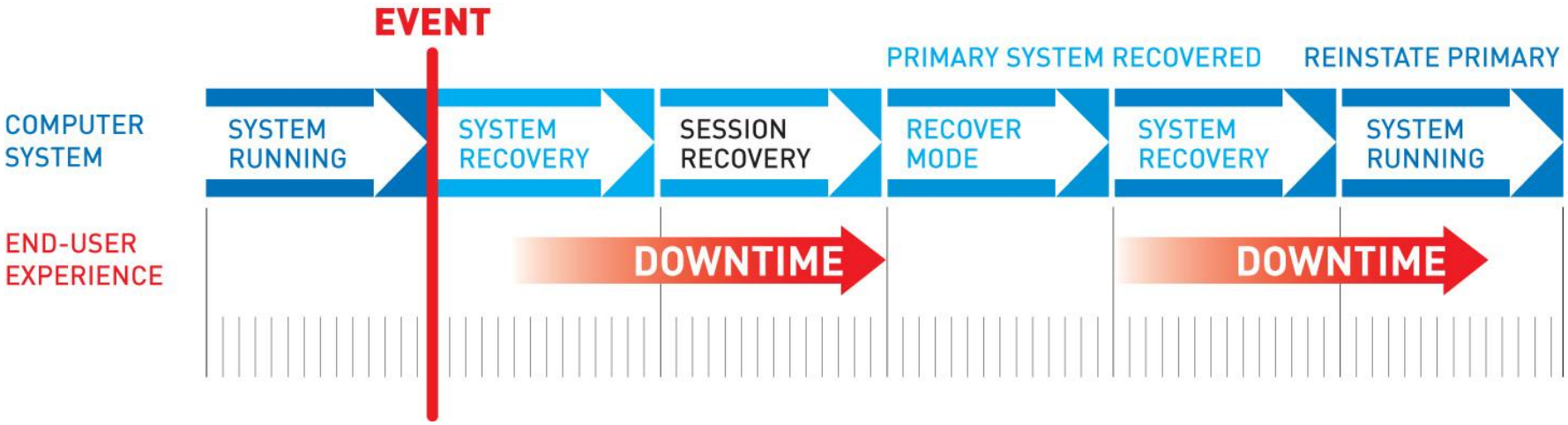
- Loss of Data Center Resources (Electrical, Communications…)
- Fire and/or Fire Retardant Systems
- Man Made (Accidental, User Errors, Hacking…)

Regional

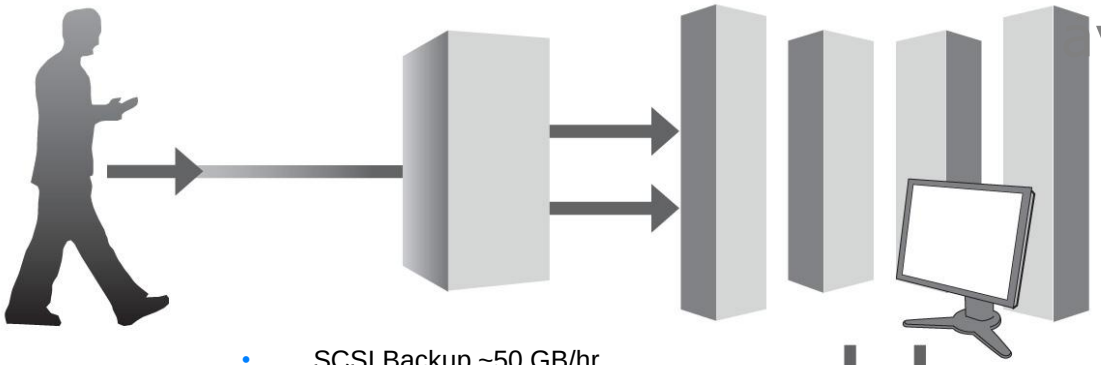
- Acts of Nature (I.e. Earthquakes, Floods, Fires)
- Loss of Resources (i.e. Electrical, Communications)

Disaster Recovery Overview

- Recovery happens AFTER a disaster
  - Recovery is reactive to a disaster
  - Downtime is incurred
  - Data protection at the last backup of image
- Production System Re-instatement
  - Primary System Recovery
    - Requires system downtime
    - Data migration/replication



Tape Backup & Recovery – DR solution available



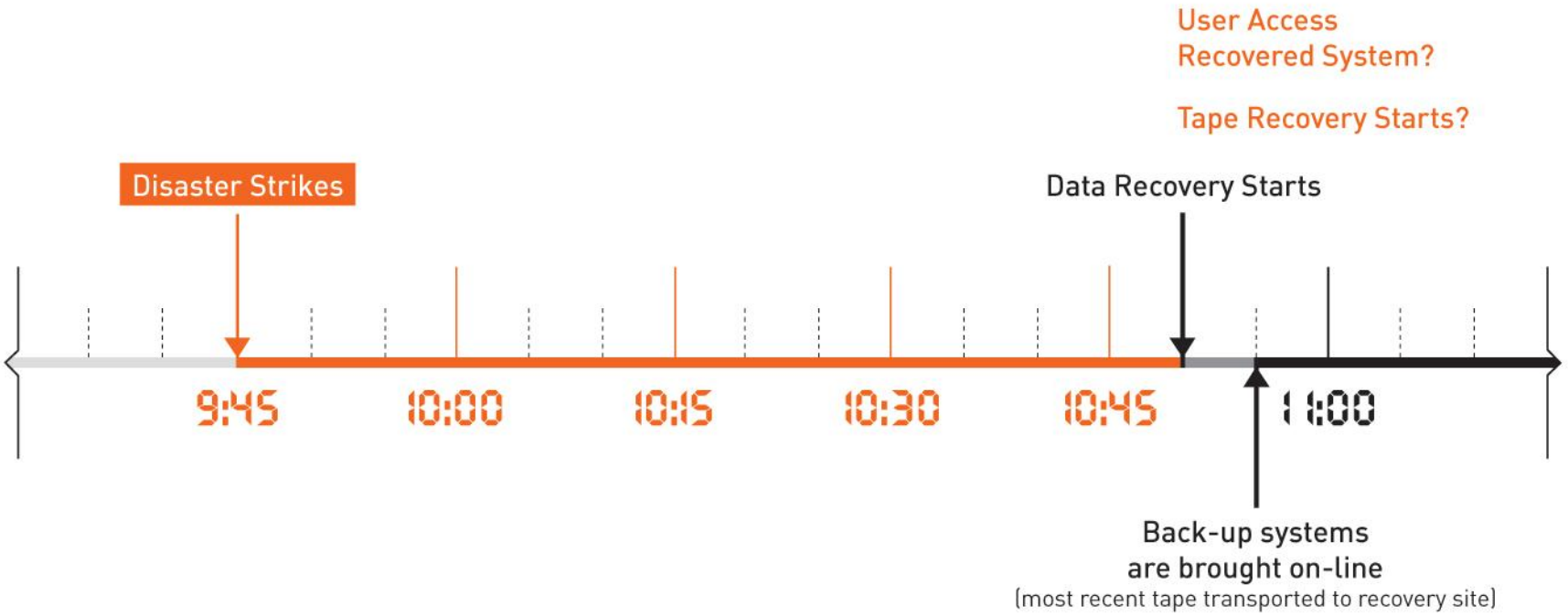
- SCSI Backup ~50 GB/hr
  (also using Virtual Tape Technology)
- Fibre Channel theoretic (360GB/hr – Serverless Backup)

Amt. Of Data	1 SCSI Channel	4 SCSI Channels	1 Fibre Channel 1GB	1 Fibre Channel 2GB
100 GB	2 hrs.	30 min.	<18 min.	<9 min.
1 TB	20 hrs.	5 hrs.	< 3 hrs.	< 1.5 hrs.
10 TB	> 8 days	50 hrs.	<28 hrs.	<14 hrs.
36 TB	30 days	7.5 days	>4 days	> 2 days

Theoretical Limits

- SCSI Tape Drive ~ 50 GB/hr
  80GB tape Cartridges
- 90 Tape Changes / hr max.

Recovery Using Tape Backups



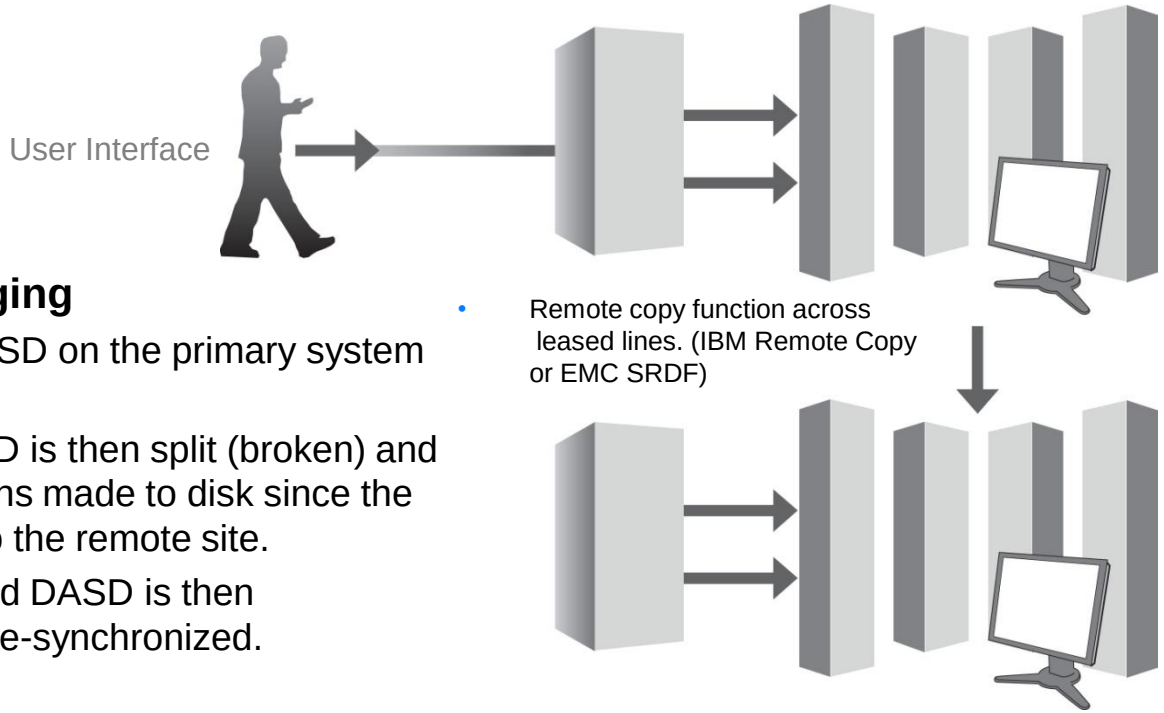
00:00 Last Back-up?

00:00 Processing Continues

Tape Solution Exposures

- Any new transactions between last tape back-up and the event is potentially lost.
- Physical transfer of tapes to recovery sites.
- Loading of the tapes
- Tape Management Issues
  - Image back-ups vs. Incremental back ups
  - Incremental tape sequences
  - Physical damage to tapes

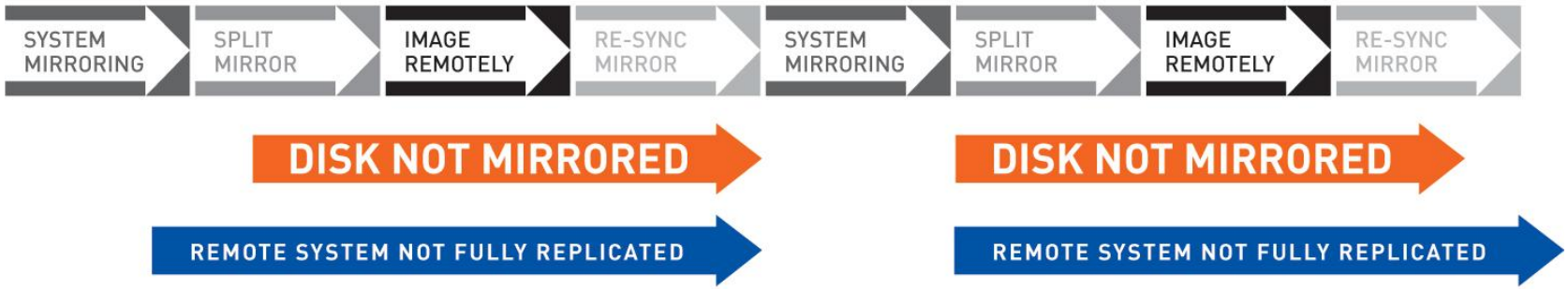
Remote Vaulting – DR solution available



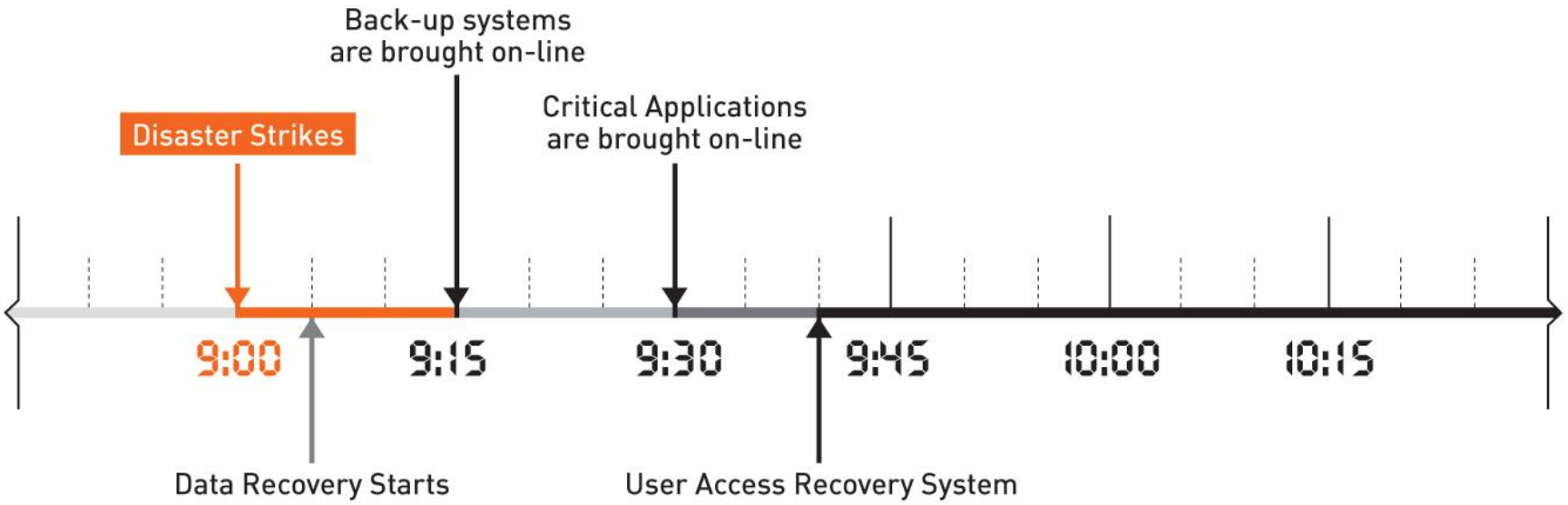
Split Mirror Imaging

- Data written to DASD on the primary system is mirrored locally.
- The mirrored DASD is then split (broken) and then the modifications made to disk since the last copy are sent to the remote site.
- The locally mirrored DASD is then re-established and re-synchronized.

- Remote copy function across leased lines. (IBM Remote Copy or EMC SRDF)



Recovery Using Remote Vaulting



00:00 Last Relication?

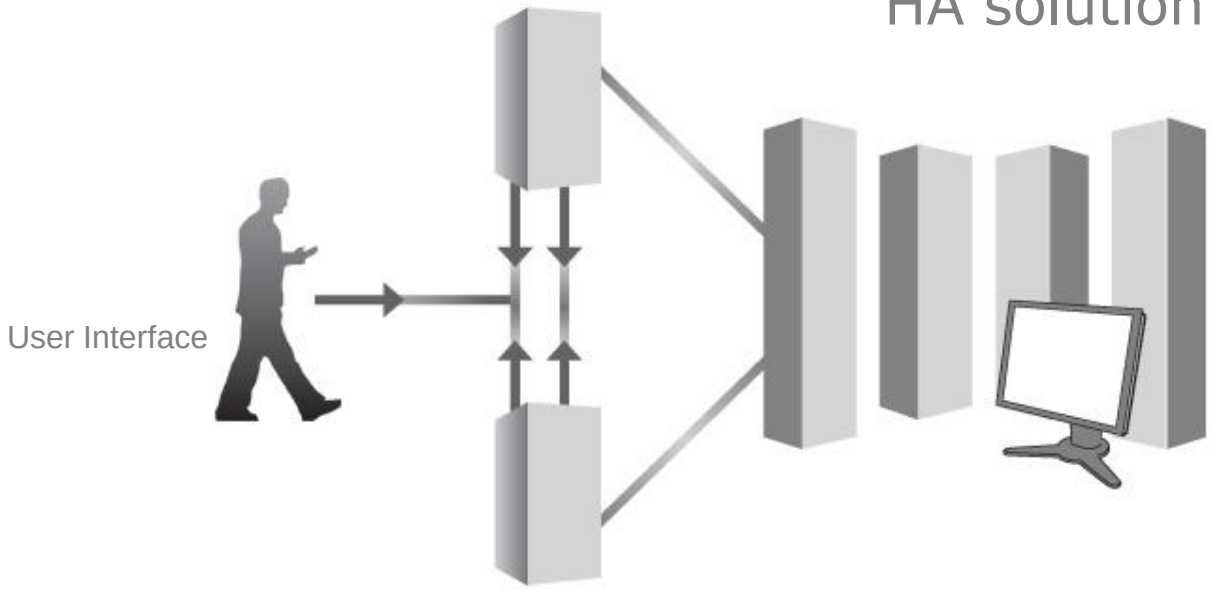
00:15 Next Replication. Replication Process Continues.

Remote Vaulting Solution Exposures

- Any new transactions between last mirror (replication) and the event is potentially lost.
- Cost of moving the data across digital communications.
- Common practice is to only protect the most critical data.
- Proprietary Technologies.
- Database Consistencies.

Failover & Clustering Solutions

HA solution available



- When a primary node fails, secondary node takes over processing
- Secondary node monitors primary through heartbeat connections
- Sessions are maintained
- Distance between Servers is less than 1Km.
- Most systems share disk space

Server Based Solution Exposures

- Physical connection between devices
- Fail-over solutions
  - Shared Storage
  - Master/Slave Architecture
- Clustered Solutions
  - Shared Storage
  - Application Compatibility

The data center conundrum

- Hot sites are fully equipped mirrors of existing data centers (1:1)
  - Duplicate Infrastructure
  - Requires constant management
  - High cost
- Cold sites are everything hot sites are not (0:1)
  - Data recovery challenging
  - Recovery time prolonged
  - Potential loss of data

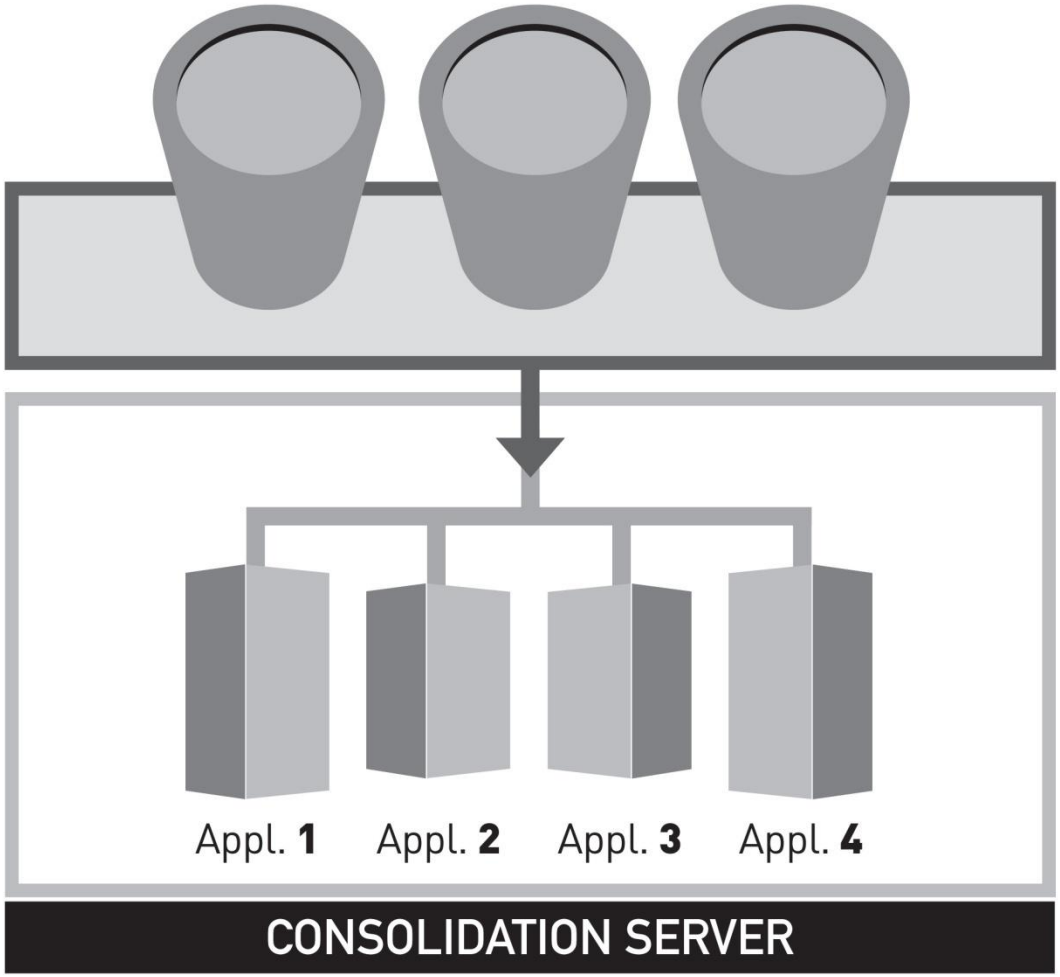
Virtualization

Virtualization

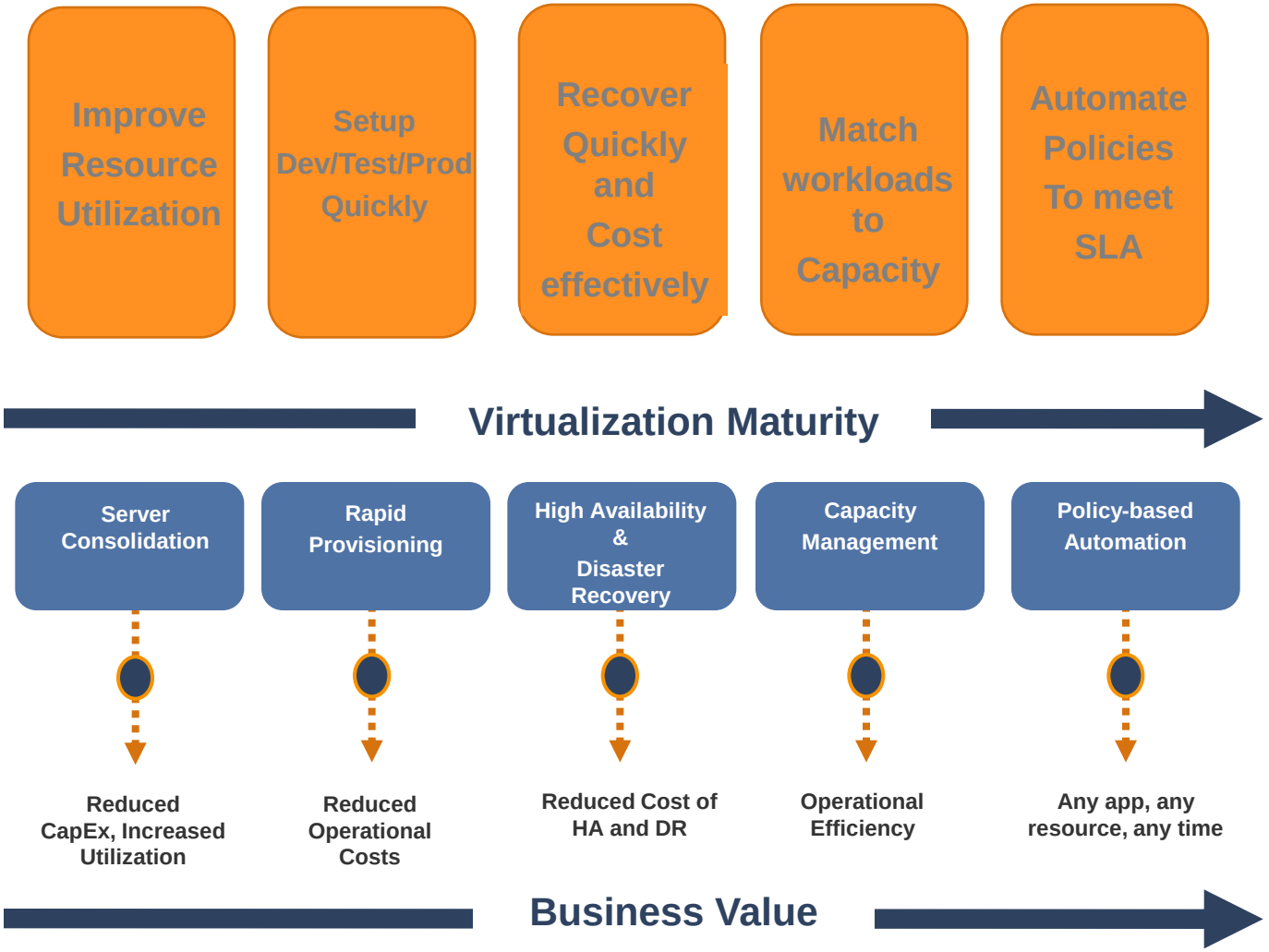
- SAN
- Server
- Application

Virtualization allows you to run multiple applications and operating systems independently on a single server. Administrators can quickly move workloads from one virtual workspace to another - easily prioritizing business needs while maximizing server resources

Virtual Server Solution

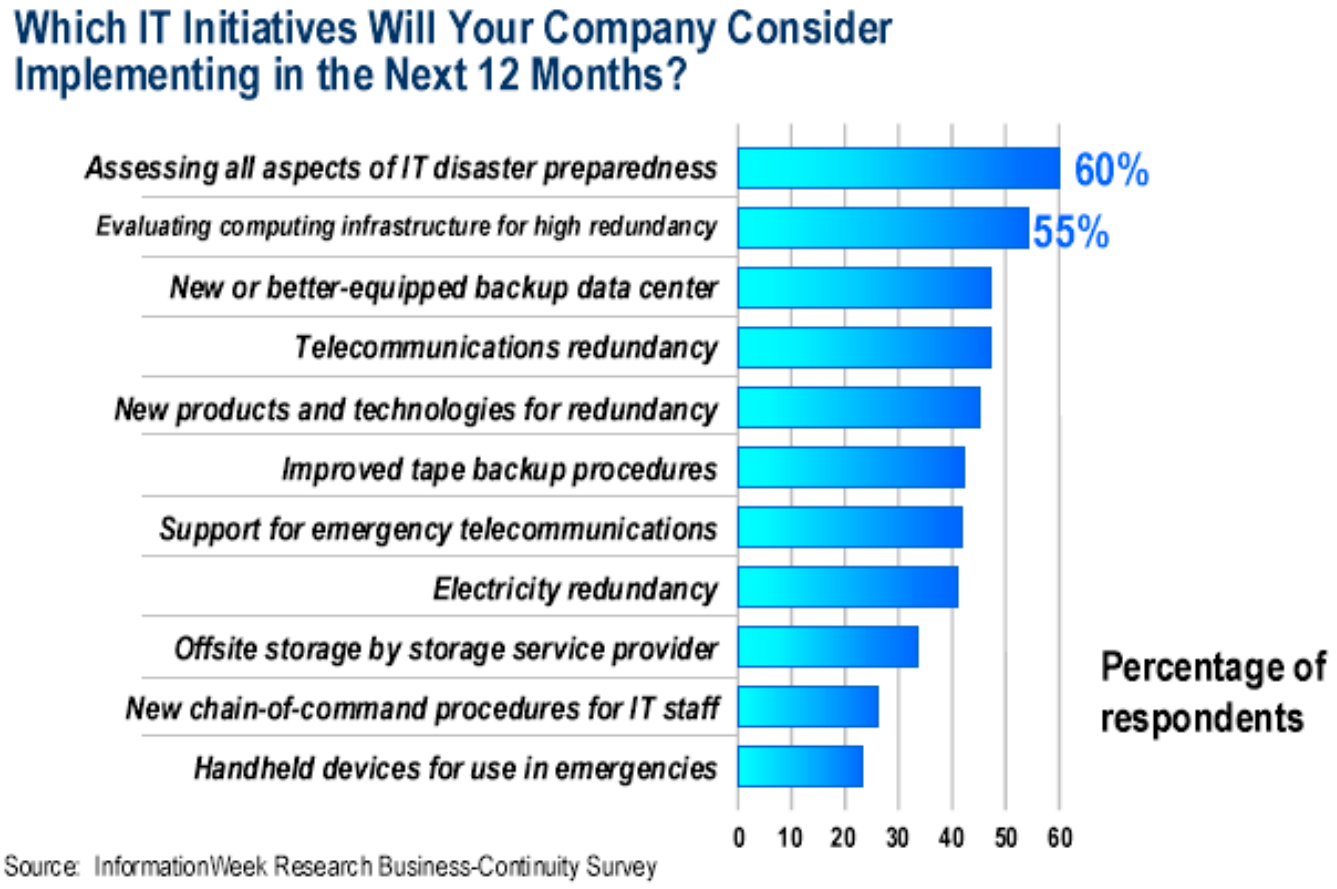


Virtualization is well understood



Trends

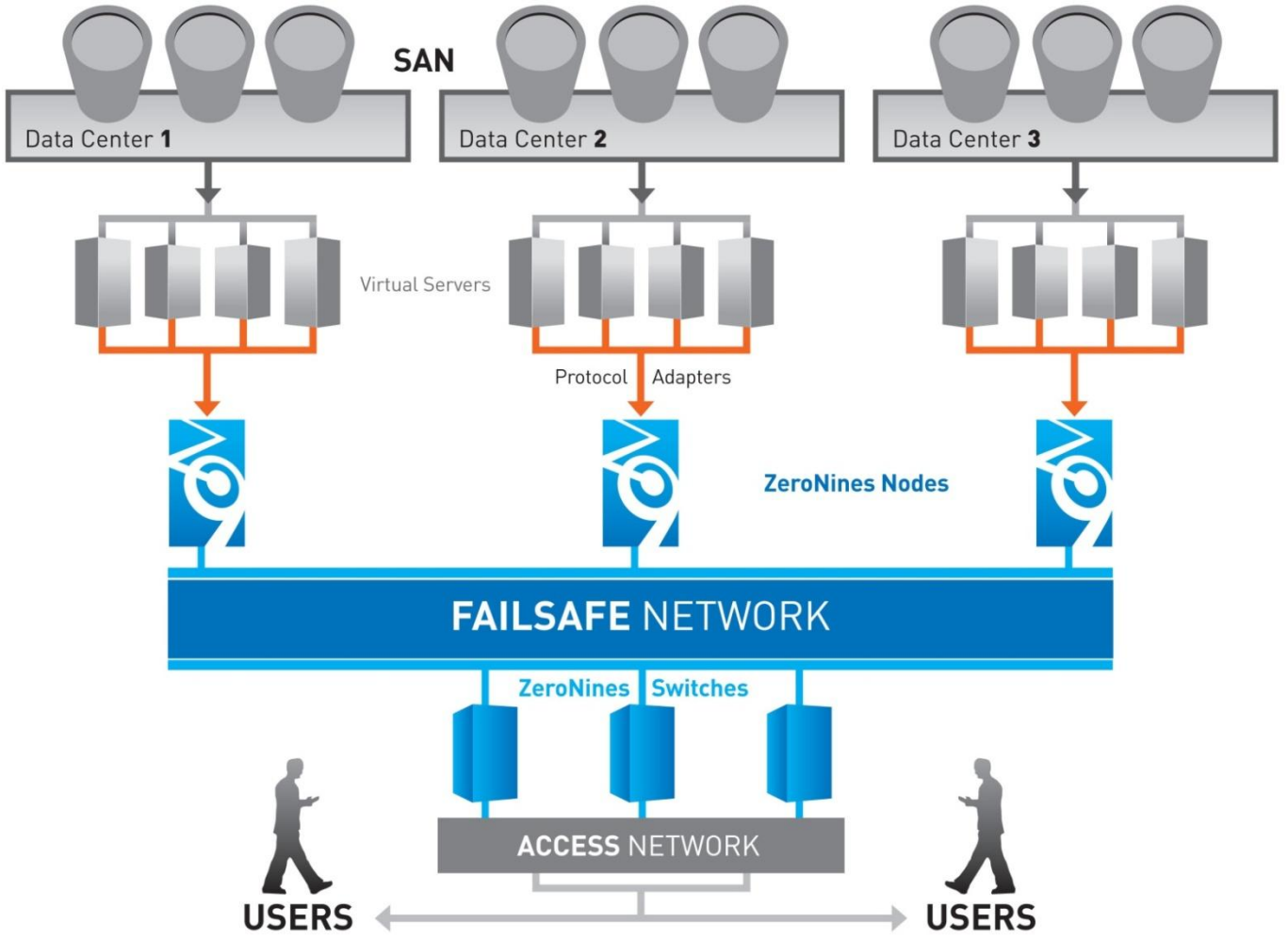
New Initiatives Post 911



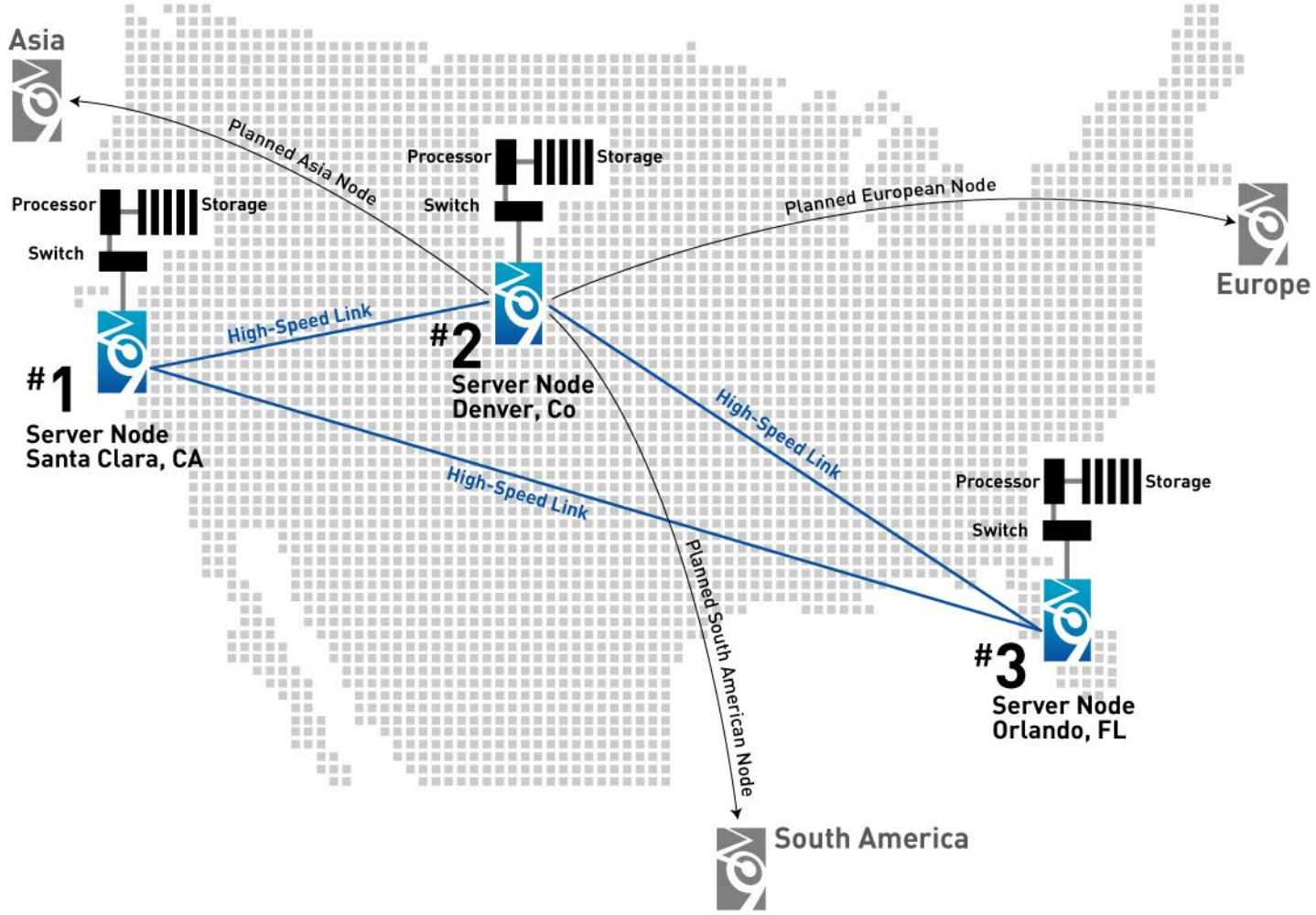
The Future of Business Continuity

- Mitigate against Regional Disasters (1:M; M:M)
- Leverages current assets
- Hardware agnostic
- Operating system agnostic
- Network agnostic
- Will not require prolonged application customization
- No loss of transactions in flight
- Simple, elegant and cost effective

Future of BC: VDC



Future of BC is here…



Questions?

visit: www.zeronines.com

ZeroNines Technology, Inc.

Appendix

Industry Testimonials

Gartner

"…What you've developed in this architecture offers customers more than five nines (99.999) availability…. You essentially take Information Technology availability to Zero Nines!"

-Nick Allen, GartnerGroup Vice President and Research Director (2000)

accenture

"When an Enterprise loses its mission-critical data, due to a disaster of some kind, the recovery "cure" is always painful and very expensive. Prevention is certainly better than cure. The ZeroNines architecture is based on the belief that it is best to avoid disasters rather than rely upon the traditional concept of recovery from a disaster. The ZeroNines team has figured out how to transmit the data continuously to multiple remote sites, so the Enterprise is always fully protected against a disaster, man-made or natural. Any remote site can take over production processing in a literal heartbeat. All that, and without the complexity or expense of real-time synchronization solutions. Bravo!"

-Jeff Kalwerisky, Manager Global Architecture & Core Technologies, Information Security, Accenture (2005)

Industry Testimonials

HITACHI DATA SYSTEMS

"At a time when technology breakthroughs happen every day, it is rare that a team of people is so prepared to harness a cadre of technologies into a solution that hits the sweet spot in multiple markets. The ZeroNines team with which I have worked has over 100 man-years of in-depth experience in the fields of data processing, networking and disaster recovery, so the concept of zero downtime is not new to them. It is merely that recent technological advances enable the concepts on which they have focused for years. I will be surprised if they don't revolutionize these three intertwined industries with their solution."

-Steve TenBarge, VP Global Solutions, Hitachi Data Systems (2004)

EMC² where information lives

The holy grail of business continuity is simple: application ubiquity across time, place and platform. Failover infrastructures are failures waiting to happen. ZeroNines' FailSafe approach finally enables CIO's to sleep at night.

-Dorian Naveh, Director, Product Marketing, EMC Corporation (2005)

Industry Testimonials

PRICEWATERHOUSECOOPERS

"The ZeroNines architecture is based firmly on the belief that it is best to avoid disasters rather than rely upon the traditional concept of recovery from a disaster. It also utilizes intellectual property developed over years of working with multinational service providers and with large global telecommunications providers. It takes advantage of the best of both the it software world and the telecommunications/networking world without being hindered by existing financial and customer contract DSRP arrangements."

-Ken Benson, Director Technology, PwC (2003)

intel

"With Moore's Law producing a paradigm shift in distributed infrastructures, ultra-available solutions must now be delivered on all platforms. Availability, performance and accessibility are now requirements of the enterprise, not merely features. ZeroNines addresses these concerns with multi-synchronization technology that keeps enterprises intact when under attack: simply, effectively and efficiently on today's best server technology."

-Jake Smith, Mobility Marketing Manager, Intel Corporation (2004)

Technology Recovery Project Key Findings

- Banks are increasingly using higher levels of automation to minimize recovery complexity.
- Market dynamics are demanding that large firms provide faster recovery capabilities at lower cost and with less risk.
- Financial firms are increasingly integrating technology recovery capabilities into systems.
- Banks are giving increased consideration to large-scale disasters and are mitigating risks with multiple, wide-area recovery locations.
- Banks are moving toward internal recovery centers and away from third-party recovery centers.

Source: COMPUTERWORLD-8.30.04

MyFailSafe Customer Testimonials

"I'm what you might call a Treo Power-User so email is an extremely important channel of my communication with clients and associates. I pull emails from 4 different accounts so spam was becoming a real problem until about 9 months ago when I started using MyFailSafe. Now when my device alerts me to an incoming email I can be sure that it is from a person and not a waste of my time to read. MyFailSafe has not only freed up time previously spent weeding out junk, it has effectively made my email communications more important to me. It's like TiVo for email - everything you want with none of the commercials!"

Shain Rae
Vice President
Morgan Stanley

MyFailSafe Customer Testimonials

"I used to get about 200 junk emails a day...now I get none. If you calculate that it takes at least one second to clear out the junk emails from the real emails, that would be about 73,000 emails (=wasted seconds) per year; that means using ZeroNines' MyFailSafe technology saves me about 20 hours per year. The beauty of ZeroNines' MyFailSafe application is its simplicity; I can integrate all my email accounts, from different servers around the world and have only my important and authenticated email delivered to one account, and even forwarded to my blackberry terminal - it does not get any cleaner, or easier than using ZeroNines' MyFailSafe product. Advanced real-time multicasting engines will play a mayor role in taking IT systems' security to the next level of reliability."

Alexander von Mueffling
Managing Director
Bentley Securities Corporation

BENTLEY ASSOCIATES L.P.
INVESTMENT BANKERS

Customer Case Study A

The Problem

- International Non-profit organization with 100,000 users is overwhelmed with SPAM
- Implemented another vendor solution that created more traffic and problems for management

The Solution

- ZeroNines Data Authorization Manager
- Deployed in <2 days

Benefits

- Zero SPAM
- Significant decrease in network bandwidth
- End users can manage Data Authorization themselves
- Leverage existing Anti-Virus investment

Customer Case Study B

The Problem

- Healthcare organization has critical patient data in one location with 50 branch facilities requiring remote access
- Vaulting data to single backup location is expensive and data is not synchronized creating management workflow problems
- Unable to meet HIPAA contingency planning requirement

The Solution

- ZeroNines FailSafe engine MultiSynched to 3 regional facilities requiring no modification to legacy applications and no forklift equipment upgrades

Benefits

- Better network bandwidth utilization and load balancing
- Patient data is always available even during regional outage
- Web based System Administration Manager monitors FailSafe nodes seamlessly

Customer Case Study C

_The Problem

National Wireless Carrier is completing the development of their Enterprise Reference Architecture and needs a security and high availability technology layer

_The Solution

ZeroNines FailSafe information security and availability software architecture

_Benefits

- Ultra high availability
- Zero untrusted network intrusion
- Significant increase in network bandwidth optimization
- Leverage existing software investment of legacy applications without modification
- Transactions are automatically replicated and archived N+2
- Web System Administration and Management integrates easily with legacy OpenView standard
- Bypass technology allows for diagnostic roll-back functionality
- Server, Storage and network agnostic