

Recovery in the Cloud

Tampa Bay Technology Forum
CIO / CTO Network

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Introduction

Recovery in the Cloud

Recovery in the Cloud refers to Disaster Recovery, and Business Continuity techniques or strategies that leverage cloud computing products and technologies, including virtualization, data and application replication, synchronization, and fail over / fail back.

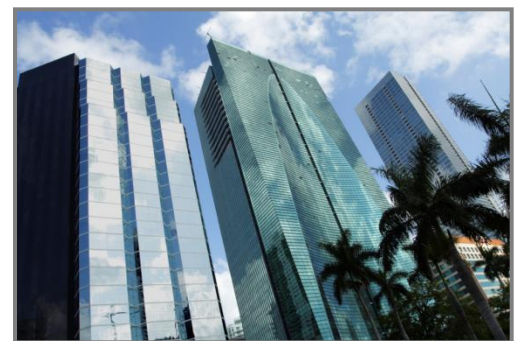
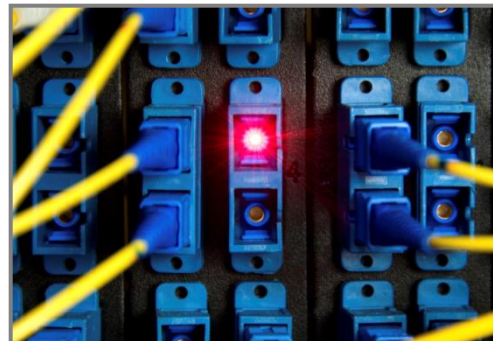
Agenda

- Introductions
 - Lonnie Maier, Enterprise Sales Leader, FPL FiberNet
 - Todd Benjamin, VP Enterprise Hosting, Hostway
- Presentation
- Questions & Answers

About FPL FiberNet

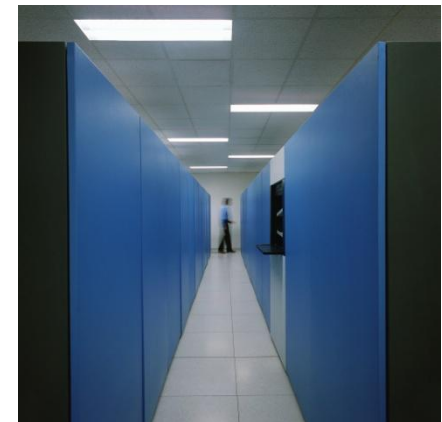
FPL FiberNet is a leader in business-critical networking solutions

FPL FiberNet LLC delivers wholesale and enterprise telecommunication services throughout most major metropolitan areas in Florida and Atlanta, with its extensive long-haul and metro fiber-optic networks



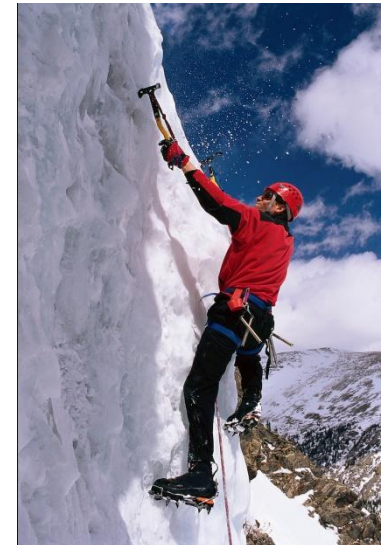
Hostway Corporation

- Global Provider of Infrastructure, Platforms, and Web Enabled Business Applications
 - Operations in 14 Countries in North America, EMEA, APAC
 - 6 Commercial Data Centers in North America, 6 Global
 - 40,000+ Servers Under Management
- Heterogeneous Data Center Environment
 - Infrastructure as a Service (IaaS)
 - Cloud Computing Platforms (PaaS)
 - Software as a Service (SaaS)
 - Internal Hostway Applications



FPL FiberNet / Hostway Partnership

- Network Peering at the Tampa IP Exchange – www.tampaix.net
- Marketing Alliance Combining the Collocation and Enterprise Hosting Services of Hostway with the Fiber Backbone and Bandwidth Services of FPL FiberNet



Why is Disaster Recovery Important?

- 93% of companies that lost their data center for 10 days or more due to a disaster filed for bankruptcy within one year of the disaster, and 50% filed for bankruptcy immediately (Source: National Archives & Records Administration in Washington)
- Companies experience an average of 501 hours of network downtime every year, and the overall downtime costs an average of 3.6% of annual revenue (Source: The Costs of Enterprise Downtime, Infonetics Research)
- 20% of small to medium businesses will suffer a major disaster causing loss of critical data every 5 years (Source: Richmond House Group)
- The cost of lost business is often greater than expected, but loss of customers and reputation, although difficult to measure, can be far more damaging
- 64% of businesses believe reliability is by far the most important factor when businesses are selecting a broadband network provider (Source: Survey commissioned by FPL FiberNet)
- 51% percent of Florida information technology (IT) leaders believe having a back-up or secondary broadband network is critical to their business (Source: Survey commissioned by FPL FiberNet)
- In the 20th century 158 hurricanes hit the US from all categories; 64 of these were major hurricanes, categories 3-5. Florida had the most landfalls at 57, with the majority of these being in the northwest and southeast (Source: Hurricane History Facts, About.com Guide)

Common Causes of Failures

- Administrator error
- Compromised server(s)
- Hardware failure
- Natural disaster
- Non-natural disaster

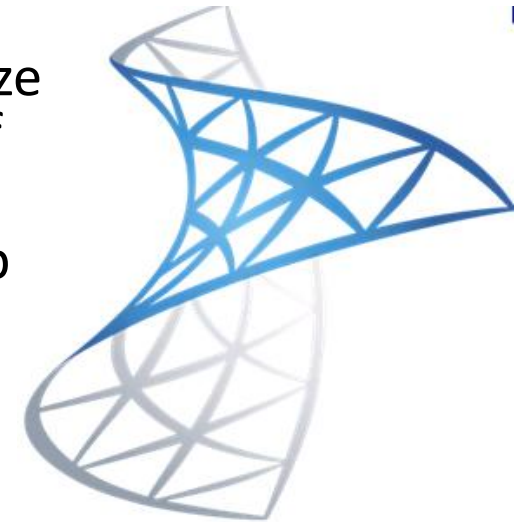
What is Business Continuity / Disaster Recovery?

- Protection of Data (Back up)
- Protection of Systems Environment
 - Applications, configurations, state
 - Capacity of operations
- Policies and Procedures
 - Maintenance & testing
 - Fail over / fail back
 - Security & privacy



Key Terminology

- **Cloud Computing** – the use of virtual and/or hosted compute resources to provide infrastructure and application services
- **Recovery Time Objective (RTO)** – the time following a disaster to resume processing
- **Recovery Point Objective (RPO)** - the point at which the underlying data is recovered, typically either to the last transaction, or less valuable, to the last copy of the data
- **Data De-duplication** – process of reducing the size of data store by eliminating multiple instances of the same content or files
- **Tiered Recovery** – differentiated levels of backup and recovery, based on business value

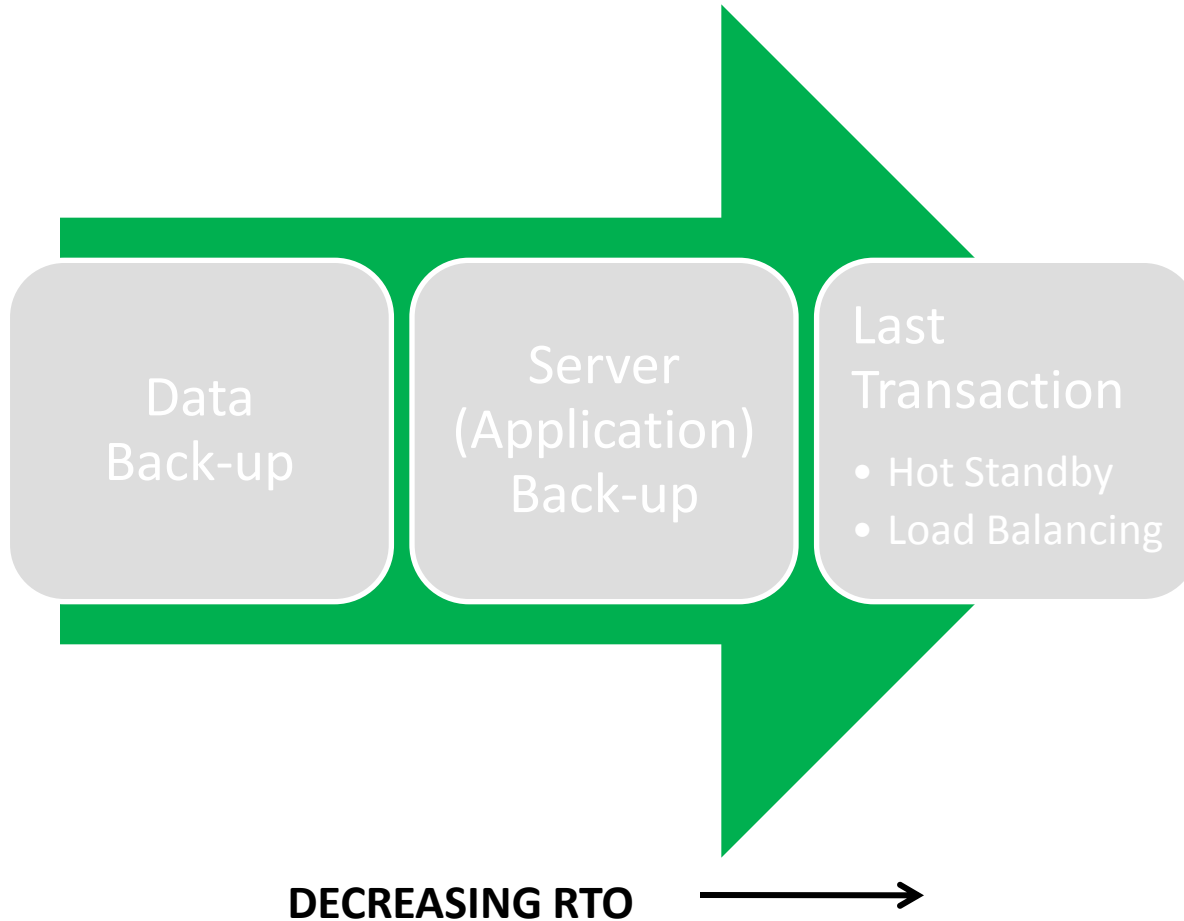


Enabling Technologies

- Tapes vs Disk-to-Disk
- Impact of Virtualization
- Shared vs Attached Storage
- De-Duplication
- Network Bandwidth
- Mobile Devices & Applications



Continuum of BC / DR



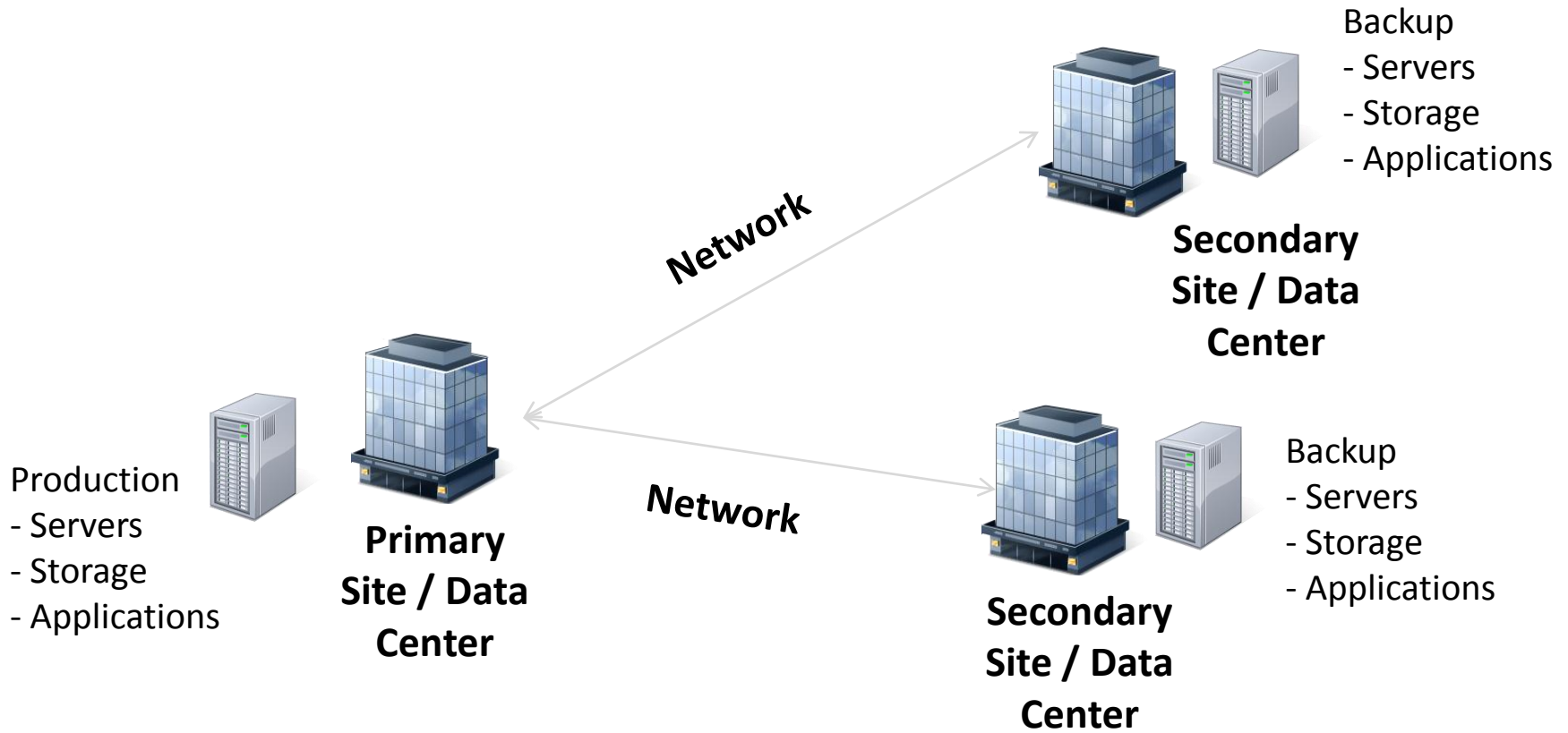
Common Issues With DR Techniques

- Testing and Restoration
- Change Control and Synchronization
 - Primary vs secondary sites
- Privacy and Security
 - Personally Identifiable Information (PII)
 - PCI, HIPAA, other compliance
- Application Licensing
- Application Interdependencies and Recover Order

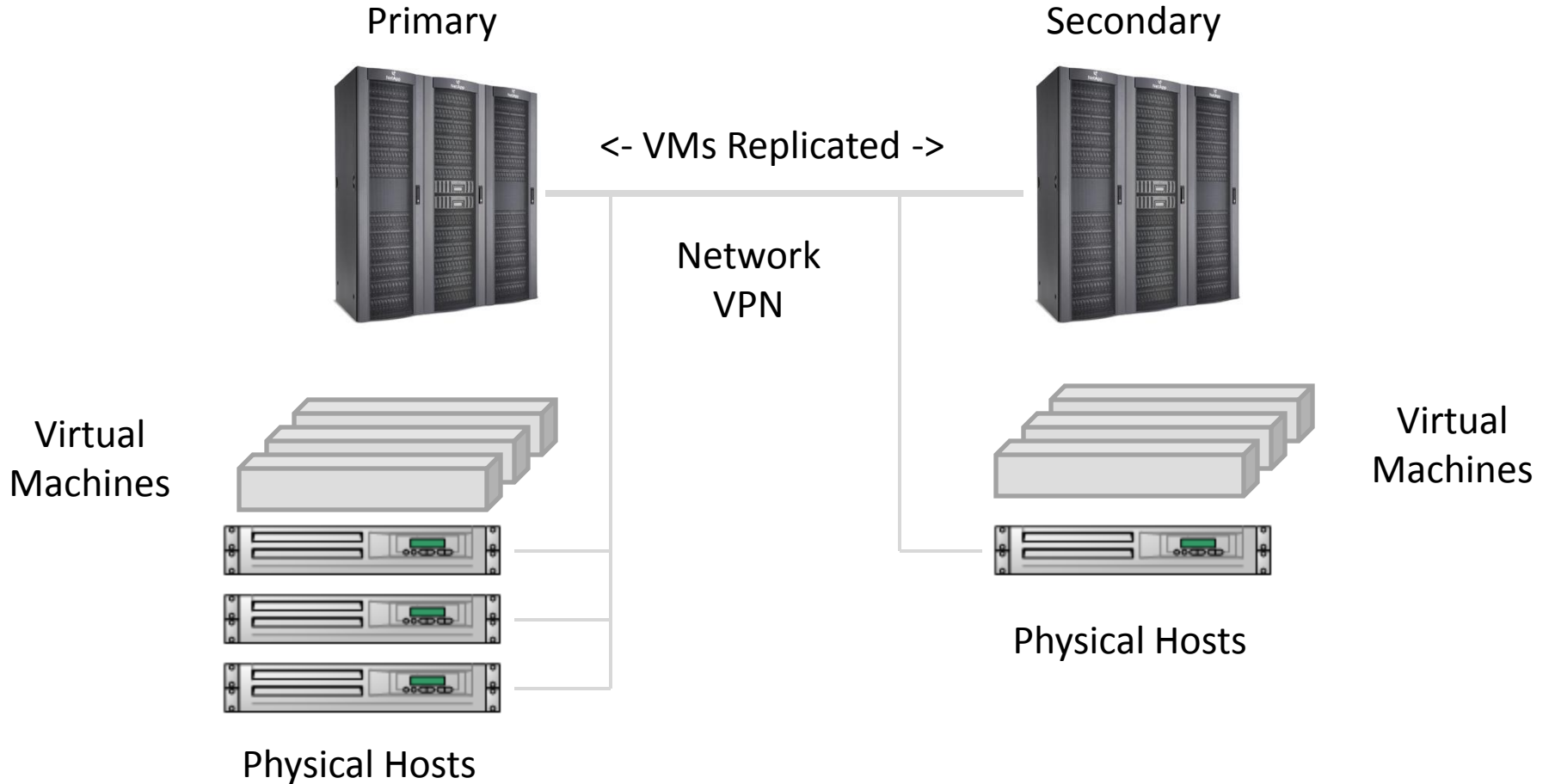
Computing Environment

- The environment has a direct bearing on the type and nature of solutions:
 - Windows and Linux well supported by VMware, SAN providers, etc.
 - Other OS may limit options – AIX, Solaris, mainframe, etc.
- Public cloud providers less likely to support non prevalent hardware and software
 - May have to use colo and private clouds

Resources Required

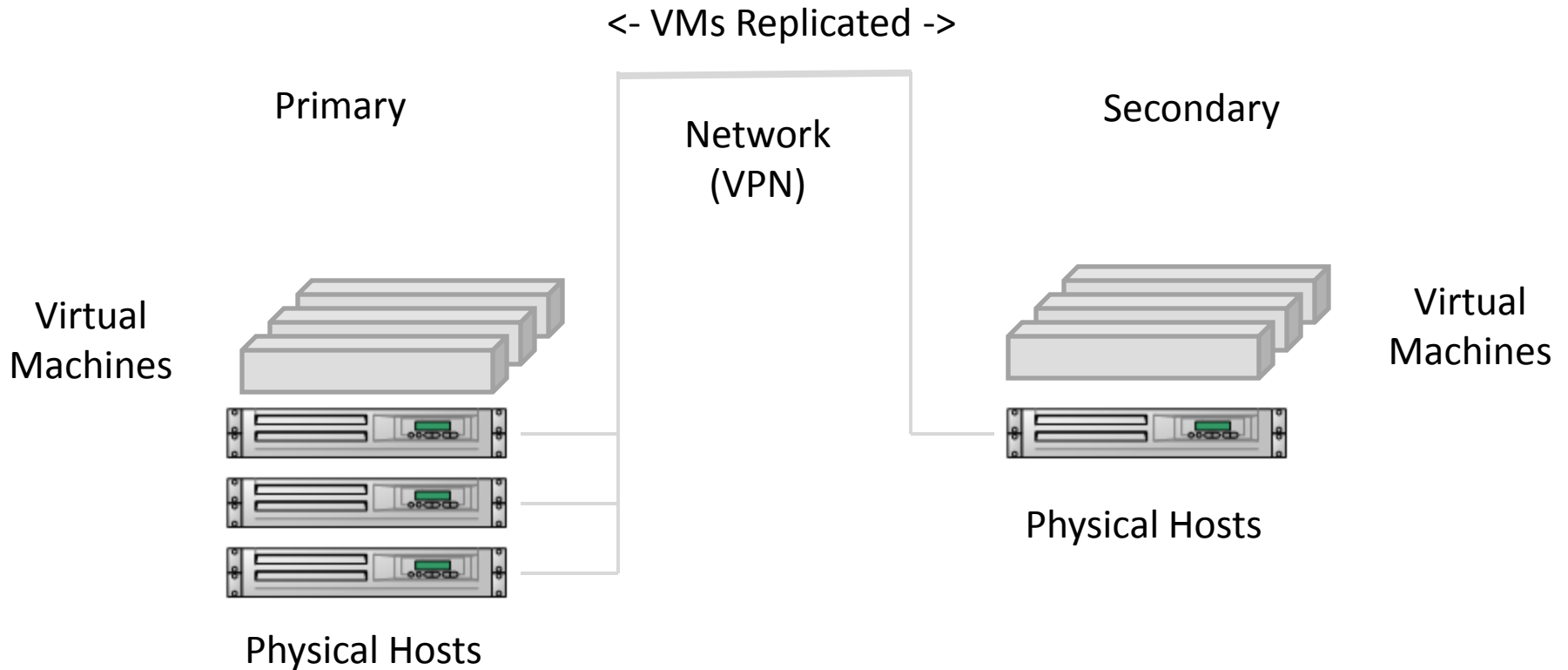


Simple Example – SAN to SAN

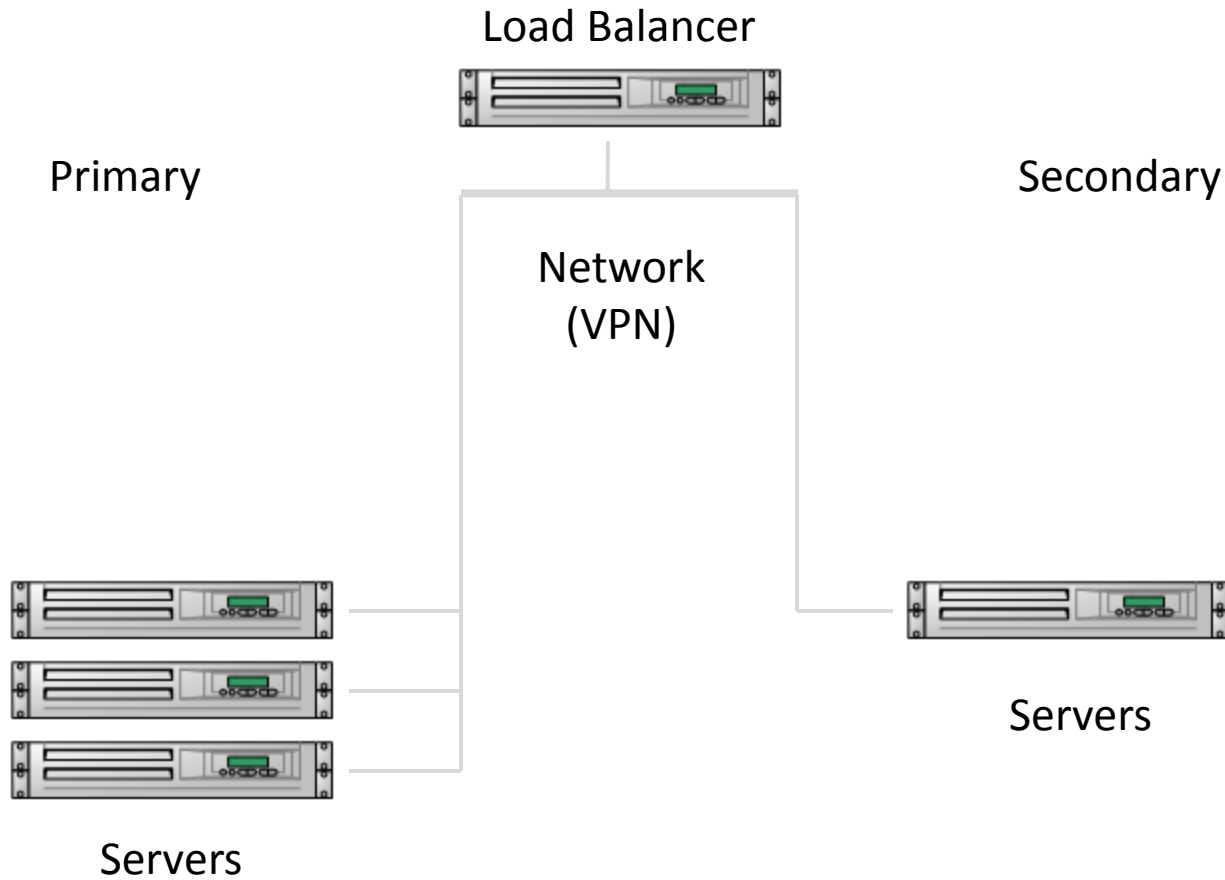


Simple Example – Standby

Cold standby copies of servers (updated periodically) or hot standby with continuous synch



Simple Example – Load Balancing



Other Considerations

- Size of the DR (Company Size)
 - Smaller systems may be easier starting point
- Integrated and Distributed Applications may be more complex, esp. replication
- Don't forget due diligence on SaaS operators
 - Many companies “assume” they have adequate DR

Recovery as a Service Providers

- RaaS is an emerging cloud phenomena
- Several companies hold themselves out as RaaS providers, including Geminare, i365, RackSpace, Terremark, Sungard, Asigra, etc.
- Still nascent, with most of the deployments in the pilot stage, many with small to medium size companies who may have limited existing DR
- Approaches vary from general to very specific

Illustrative Costs (Server Replication)

- Costs vary greatly depending on specific configuration and functionality
 - Virtual Machine \$250 - \$400 / mo
 - Storage \$0.40 - \$1.50 / GB / mo
 - May have to pay for physical servers for Virtual to Physical (P-V) restoration

Source: Gartner 2010 Data Center Conference

As Applied to Small Configuration

- Assumptions:
 - Configuration of 7 servers, Exchange hosting, running six applications, file servers, and a backend SAN

Customer Expenses			
	Customer Internal	Customer to Hostway	Total
Mainframe	8% of infrastructure cost	2% to 4% of infrastructure cost	10% of infrastructure cost for hot site and one test/year
Data Backup	Insignificant	Very Low: \$30-50/100 GB / mo	
Replication	Insignificant	\$400 - \$800/mo	
Application Backup	Possibly some Application Licenses	\$700/mo - \$1400/mo	
Application Backup Hot	Application Licenses (10% - 50% of cost of primary applications, assume 25%)	\$1000/mo - \$2000/mo	

Source: Independent consultant formerly with ComDisco

Conclusions

- An appropriate and well-documented BC / DR plan is an essential component of every company's IT strategy
- Increased dependence on IT systems and automation make an effective DR plan more important than ever
- Advances in virtualization and other enabling technologies are driving down the cost and raising the functional capability of DR solutions

QUESTIONS?



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Our Parent

With a history spanning 85 years, FPL FiberNet is a subsidiary of one of America's most trusted energy providers

- Wholly owned by NextEra Energy, Inc. (formerly known as FPL Group)
 - Premier energy company in the U.S.
 - \$15 billion annual revenues
 - Operations in 28 states and Canada
 - Leader in renewable energy
- Fortune “Most Admired” Company
 - **Utility Industry** - Four consecutive years; Ranked 1st
 - **Innovation** - Ranked in the top 10 among companies worldwide for innovation
- Ethisphere Most Ethical Companies
 - Four consecutive years
- Florida Power & Light – Key customer




World's Most Admired Companies - 2010		
Company	Industry	Overall score
1	FPL Group	7.05
2	Exelon	6.68
3	Southern Co.	6.55

NextEra Energy is a leader among its peers



CIO/CTO Network



Network Reach

Our network consists of ~ 4,000 miles of fiber connecting all major metro areas in Florida and Atlanta

- Extensive long-haul
- Significant presence in ILEC central offices (CO) with up to 90% coverage in major metros
- Presence in all major cable landing stations
- Located in more than 125 Data Centers, Carrier Condos and customer POPs
- Hundreds of on-net buildings



FPL FiberNet is the competitive access service provider of choice

Cloud at Hostway

