

Journey to the Cloud

Jeff Hoehing, Principal Consultant



Agenda

- Industry/Business Trends
- Cloud and DR in the Cloud
- Verizon Terremark Overview
- Q&A



The World in which we Operate has Changed

- “Consumerization” of IT blending use of technology at work and personal space
- Increasing speed of business
- Business is mobile and operates 24x7
- Global economic volatility requires IT to be nimble—*fast*
- Service is a key differentiator—great products are no longer good enough
- Customers expect IT to be *easy*
- Flexible and “Asset lite” IT investments
Buy vs. Build / On-Premise vs. Off-Premise



Are we in-sync with the our business customers and our industry?



Cloud is a reality.

60% of all enterprises in 2013
will use some form of **cloud**
computing for **scale flexibility**
and **cost reduction**.

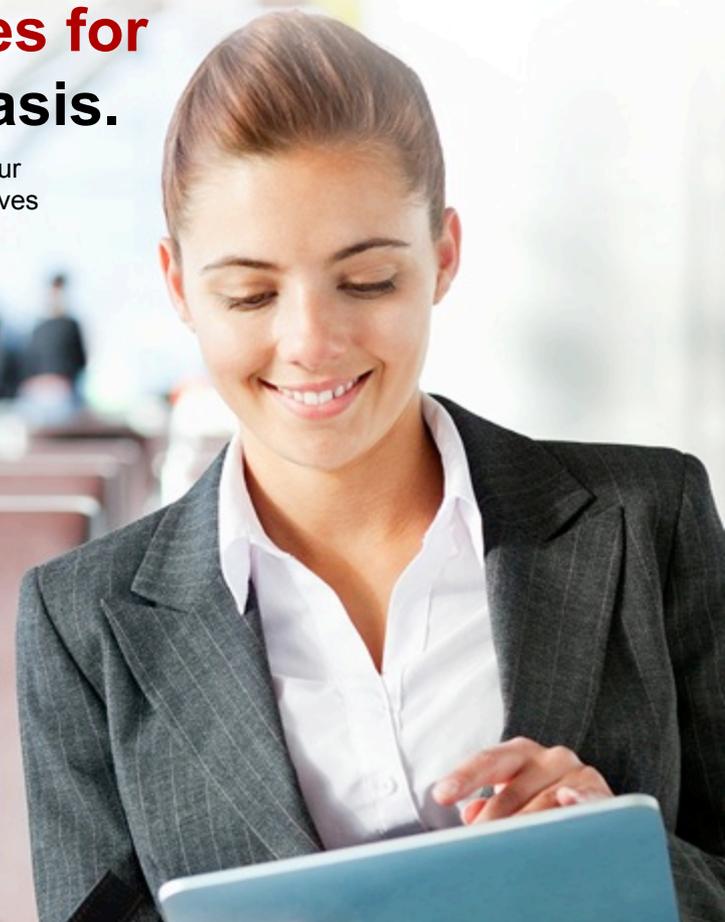
Network World, "Gartner Top 10 Emerging
Infrastructure Trends," June 5, 2012



Mobile is the new business as usual.

66% of employees use at least **two mobile devices for work on a daily basis.**

Forrester Research, Inc. "Benchmarking Your Enterprise Mobile Device Operations Initiatives and Plans," October 10, 2012



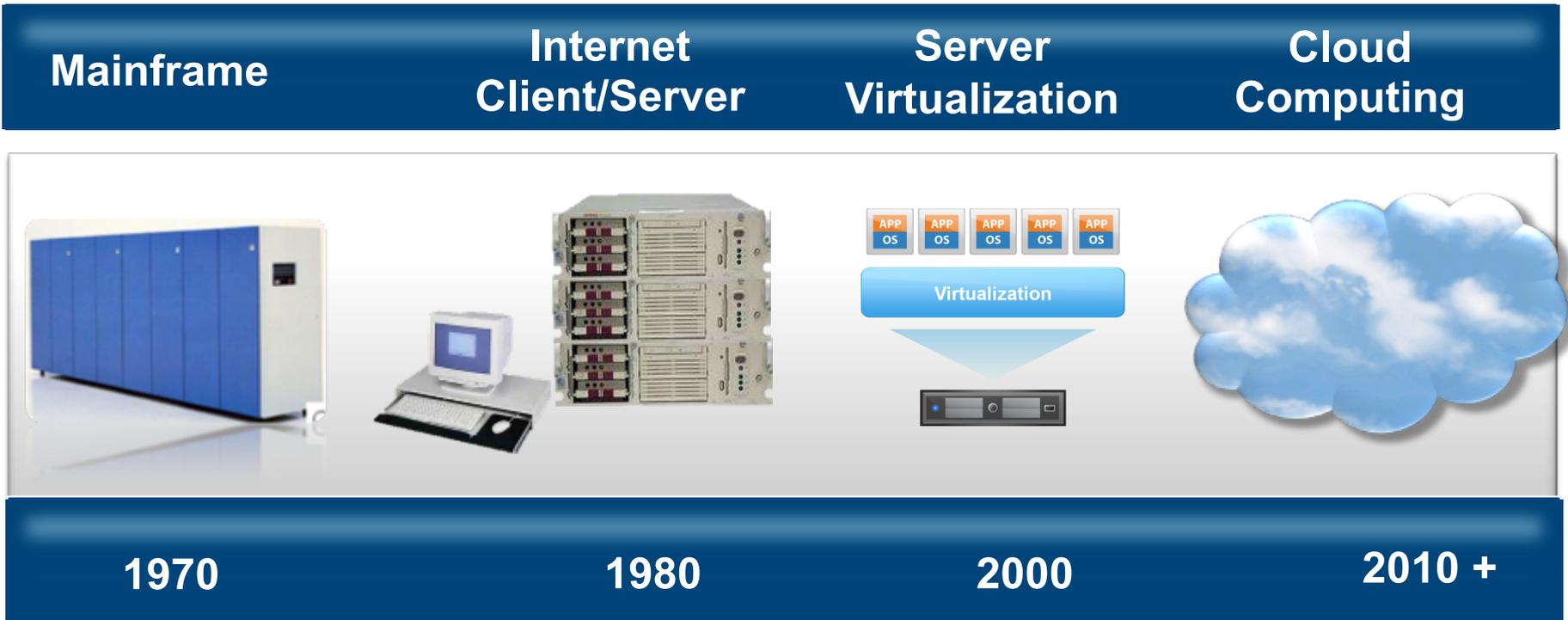
It's the Internet of things.

30 Billion Things

will be connected on the web by
**2020, changing the way we live
and do business.**

Forbes, "Gartner Top 10 Strategic Technology
Trends," October 23, 2012

Fundamental Shift in IT



Cloud services fundamentally shift how IT is delivered and consumed.



Business Trends

- **Cloud Adoption Grows**
 - In 2013, 60% of all enterprises will have adopted some form of cloud computing
- **Three Main Reasons Businesses are Choosing Cloud**
 - To control IT costs
 - Build and deploy applications quickly
 - Easily expand the size and scale of their infrastructure
- **Cloud Enables Context-Aware Apps**
 - Enterprise Applications, CRM, ERP etc are rapidly moving to software-as-a-service (SaaS) model.
 - 50% of all enterprises will adopt a SaaS strategy by 2015.



Business Trends

- **Security is a Barrier**
 - 48% of enterprises are concerned with security defects in existing cloud technologies.
 - 50% worry that cloud computing will lead to unauthorized access to customer information.
 - 43% worry about leaks of proprietary company data



Line of Business Demands

- The question organizations must ask now is, not if, but how they should use cloud services.
- Often driven by LOB demands, companies are increasing the number of applications they have placed in the cloud. In 2011 the average number was three, by 2012 that number was five, and it's expected to double over the next two years.

Frost & Sullivan, 2013



Cloud Based Service Models

Software as a Service (SaaS)



Platform as a Service (PaaS)



Infrastructure as a Service (IaaS)

verizon
terremark



IAAS: Bringing IT and the LOBS Closer

- Key drivers of IaaS adoption
 - » Decreasing costs
 - » Strengthening Business Continuity Plans
 - » Preparing for Disaster Recovery
 - » Scalability
- Benefits of IaaS
 - » Agility, speed and innovation
 - » Renewed focus on core competencies
 - » Leaner business models
- Big Data – IaaS provides foundation for data analytics
 - » Storage of data
 - » Analysis of that data to make business decisions



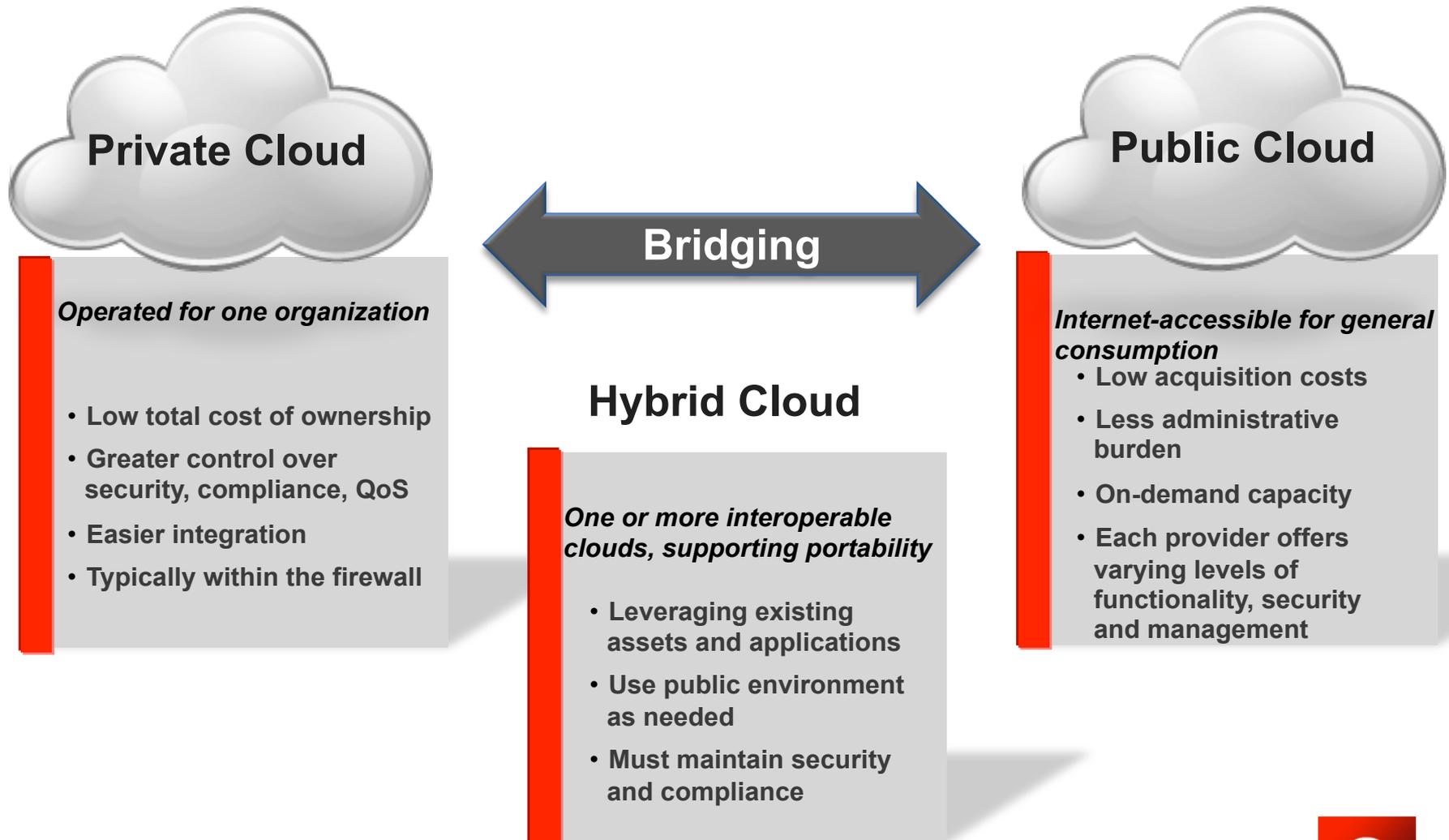
Tenants of Cloud Computing

- **Secure** – Must be logically separated, monitored and administered to reduce business risk and remove deployment barriers.
- **Reliable** – Increase uptime, balance traffic loads, predict bottlenecks. Performance equal to or better than traditional models.
- **Flexible** – Easy to enter and Exit agreements. Improve provisioning cycles
- **Scalable** – Capacity on demand
- **Transparent** – Easily viewable performance and cost metrics.



Infrastructure as a Service

Private-Public-Hybrid Options



Determine Cloud Services Delivery Model



- Traditional on-premises model will continue to exist under pressure to be significantly more efficient
- Pressure for cost efficiency creates opportunity for private cloud enablement
- Hybrid environments will be the enterprise deployment model through 2014

Corporate security and governance are required in all delivery models!



Security Concerns

- #1 stated concern with Cloud Computing adoption

Greatest Concerns Surrounding Cloud Adoption at Your Company	
Security	45%
Integration with existing systems	26%
Loss of control over data	26%
Availability concerns	25%
Performance issues	24%
IT governance issues	19%
Regulatory/compliance concerns	19%
Dissatisfaction with vendor offerings/pricing	12%
Ability to bring systems back in-house	11%
Lack of customization opportunities	11%
Measuring ROI	11%
Not sure	7%
Other	6%

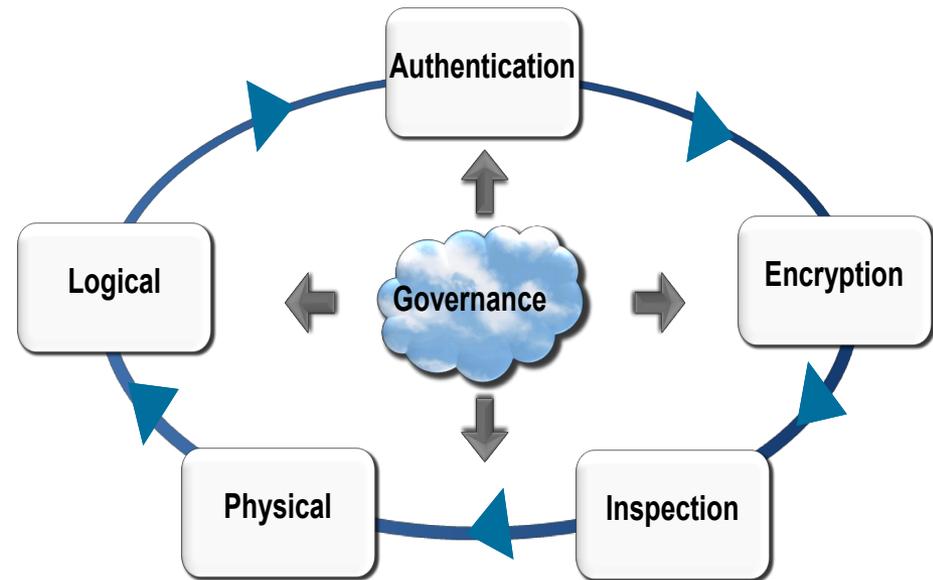
*RESPONDENTS SELECTED UP TO THREE CRITERIA.

SOURCE: CIO RESEARCH

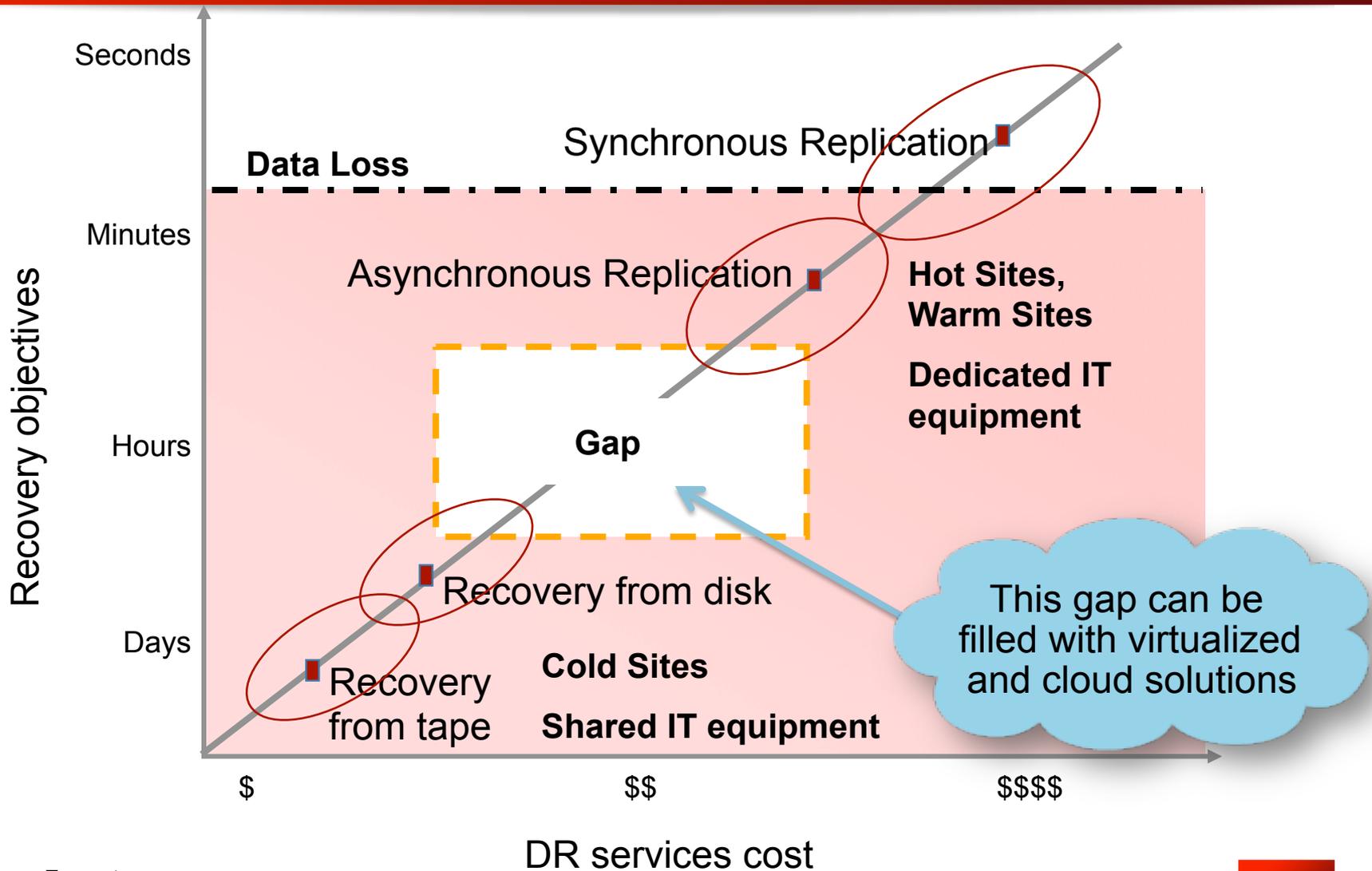


Security in the Cloud

- Security is the leading inhibitor to cloud services adoption:
 - Protecting the Brand and Investments
 - Maintaining regulatory compliance
 - Must carry forward security levels of internal IT
- Volume of Security Threats Grows
 - Understanding the scale of security events requires knowledge
 - ✓ Threats
 - ✓ Vulnerabilities
 - ✓ Assets
 - ✓ Design
- Must be comprehensive in approach:
 - Physical
 - Logical
 - Authentication
 - Encryption
 - Inspection
 - Governance

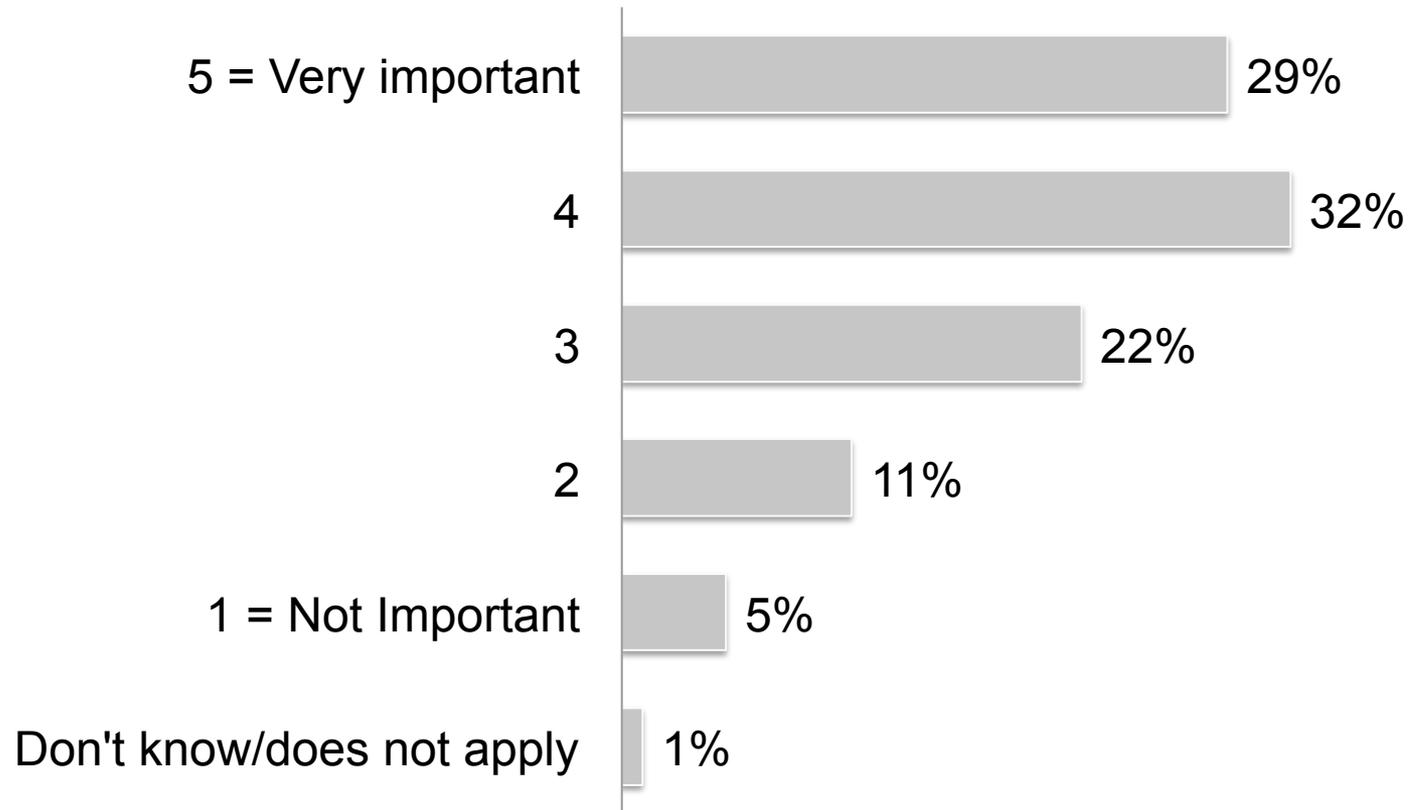


The Gap in Traditional DR services



Disaster Recovery Drives Cloud and IaaS Adoption

"How important was improved disaster recovery and business continuity in your firm's decision to adopt cloud computing IaaS?"



Base: 650 server, storage, or data center decision-makers at North American and European enterprises

Source: Forrester's Technology Forrsights For Hardware, Q3 2011



Cloud-based DR can be Defined in Three Categories

Cloud-based DR

Do it yourself cloud-based DR

- Using the public cloud to architect a custom solution leveraging the agility and speed of the cloud.

Cloud-to-cloud DR

- The ability to failover services from one cloud data center to another

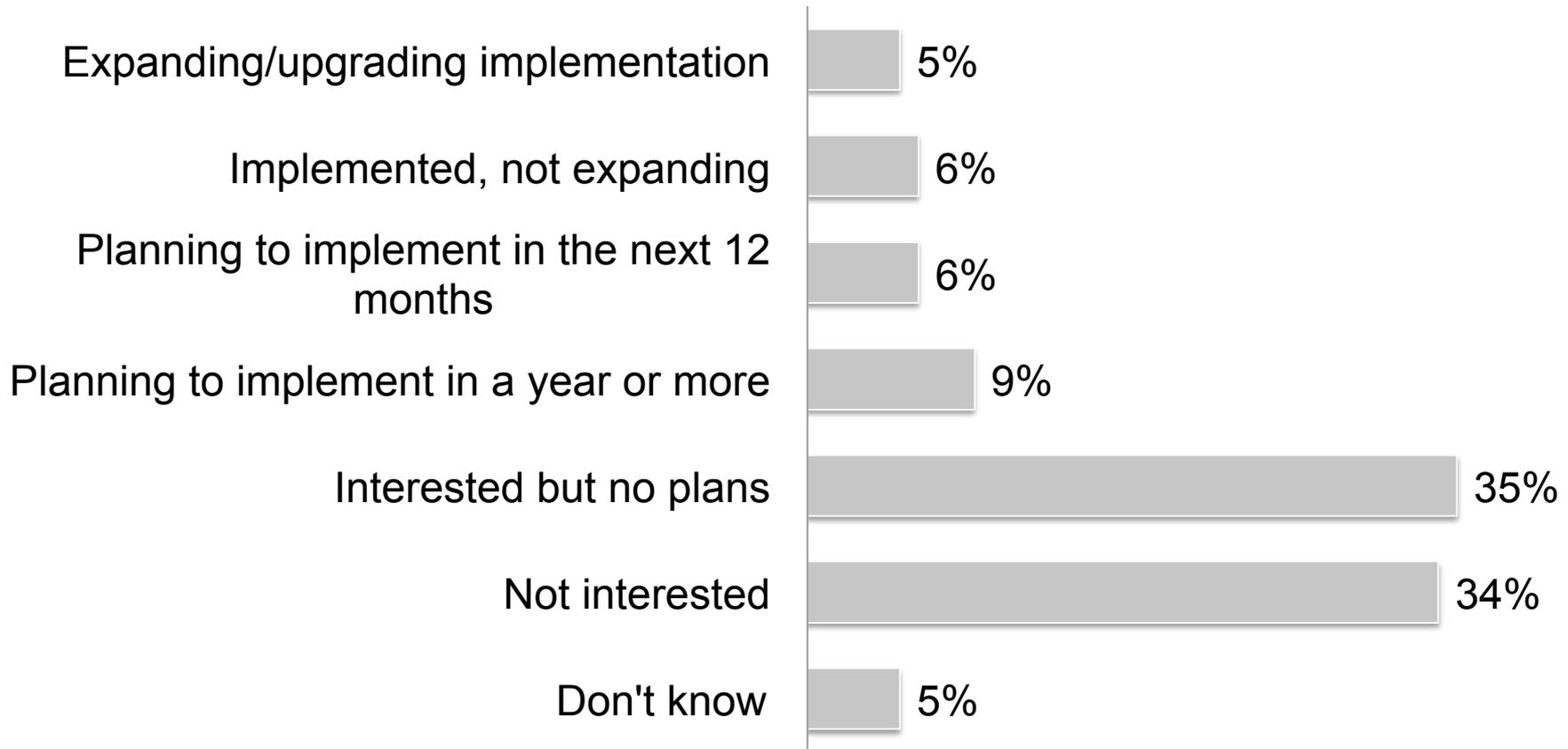
DR-as-a-Service

- Pre-packaged solutions that provide failover to a cloud environment



Two-Thirds of Companies Show Interest in DR-as-a-service

“What are your firm’s plans to adopt IT-recovery-as-a-service based on virtual infrastructure at the service provider?”

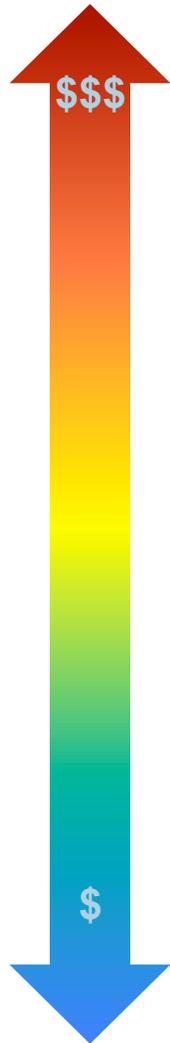


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Like on-premise DR, Recovery Sites Vary in Temperature



- **Hot cloud site:** Recovery cloud is running replica VMs to production site using real-time replication.
 - Recovery time objective (RTO) : 0-2 hours
 - Recovery point objective (RPO): 0-24 hours
- **Warm cloud site:** Recovery cloud contains offline copies of virtual machines that can be spun up during disasters or tests.
 - RTO: 2-6 hours
 - RPO: 0-24 hours
- **Cold cloud site:** Recovery cloud contains backups of production systems that must be first rehydrated and turned into VMs before recovery can occur.
 - RTO: 4-24 hours
 - RPO: 24-48 hours



Benefits of cloud-based DR

**Better
functionality for
less cost**

- Most of the time, you essentially only pay for storage resources, turning on VMs only in the event of a disaster invocation or a test
- Little to no upfront investment is required

**Easier, more
frequent, and
less expensive
testing.**

- Testing can be automated and non-disruptive. DRaaS contracts usually include testing services and failover assistance

**More flexible
short-term
contracts with
fast time to
market**

- Gives you the ability to adapt to changing IT environment and business needs.

**Pay-as-you-go
pricing.**

- On-demand pay-per-use resource that removes the initial investment costs and inflexible contractual agreements, while still delivering recovery capabilities



As with any Cloud-Based Approach, There are Significant Benefits From:

Speed to market

- Cloud solutions can be deployed in a matter of weeks, versus on-premise solutions that take months to years

Economies of scale

- Cloud providers have massive environments that allows them to drive down their infrastructure costs

Agility of cloud providers

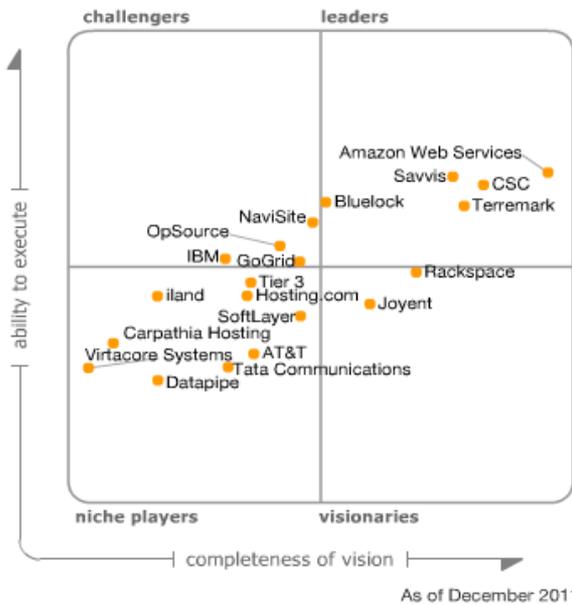
- Cloud providers are constantly expanding and adding additional capacity so you don't have to worry about the ability to expand

Ability to leverage the core expertise of the provider

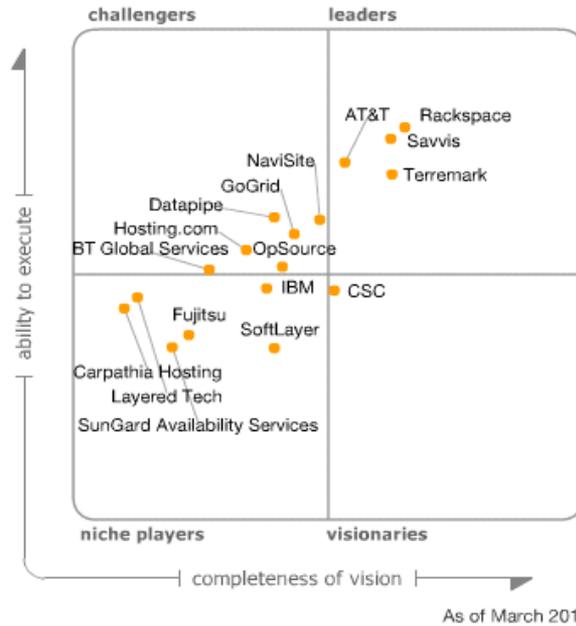
- The core competency of a cloud service provider is to deliver infrastructure services quickly and efficiently



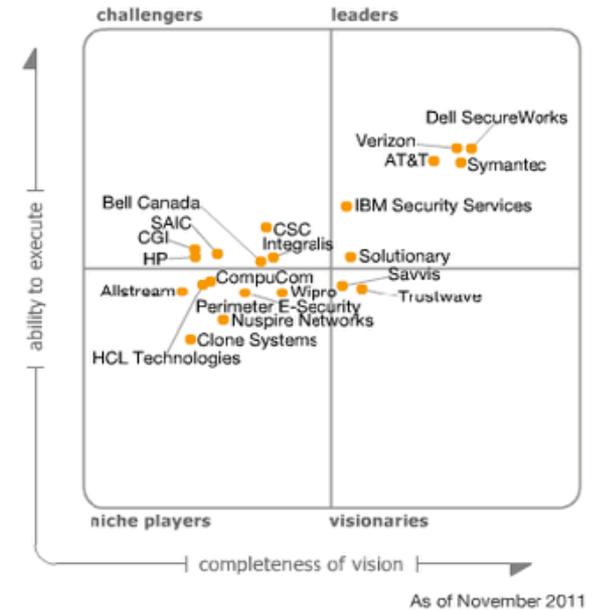
Gartner Magic Quadrant



CLOUD & IAAS



MANAGED HOSTING



MANAGED SECURITY

Gartner Inc., Magic Quadrant for MSSPs, North America by Kelly Kavanagh, John Pescatore November 2011

The full report can be accessed at:

http://www.gartner.com/technology/media-products/reprints/verizon/verizon_1_184SD89.html

This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research note and should be evaluated in the context of the entire report. The Gartner report is available upon request from Verizon

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Verizon Terremark Services Portfolio

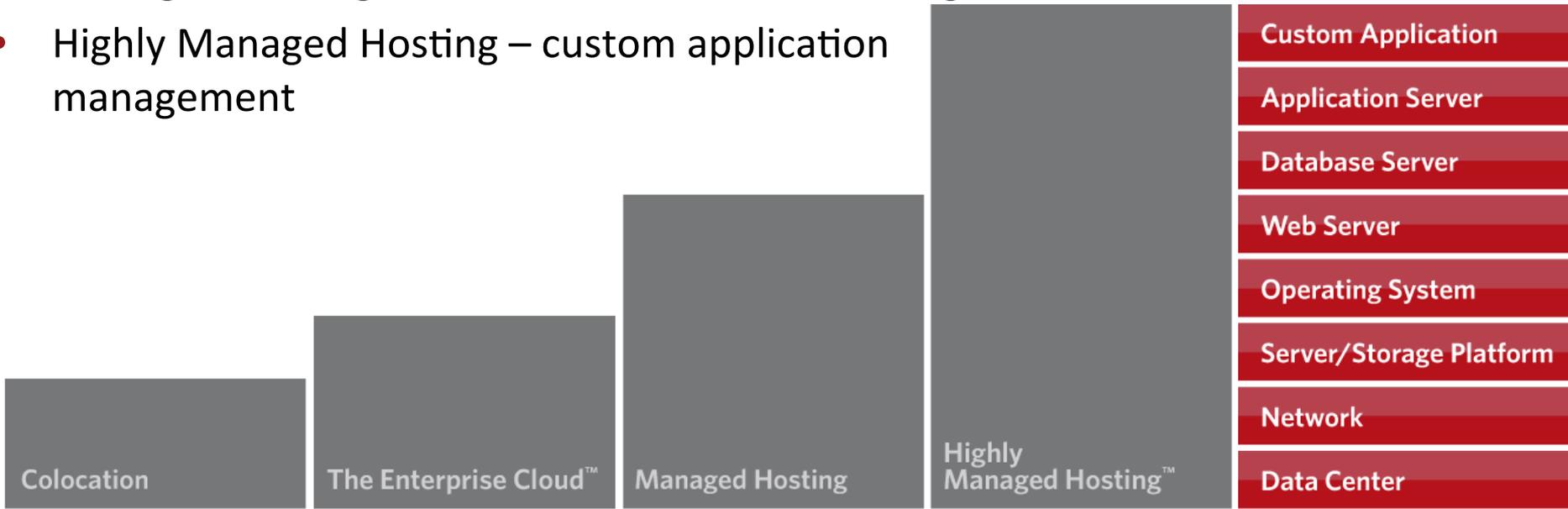


- Enterprise Class Platform
 - » Compliant
 - » High performance
 - » Global presence
- Highly Secure
 - » Architecture
 - » Assessment
 - » Response
- Relevant and Accessible
 - » Integration
 - » Interoperability
 - » Enablement

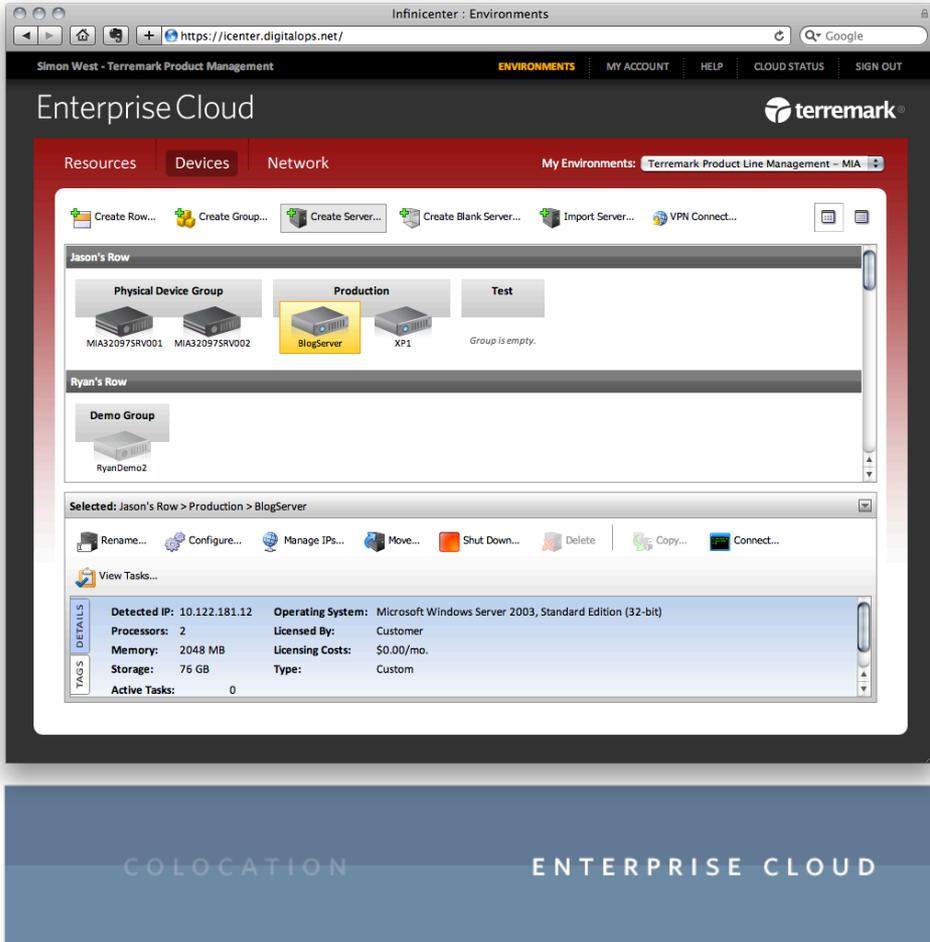


Infrastructure Services Portfolio

- Collocation – datacenter and network services
- Enterprise Cloud – self-service utility computing
- Managed Hosting – O/S and infrastructure management
- Highly Managed Hosting – custom application management



Enterprise Cloud



Enterprise Cloud

- Virtual Private Cloud architecture
- Powered by VMware vSphere
- Private compute pools guarantee resources
- Burst mode for dynamic scale
- Secure, auditable and compliant
- Physical device integration
- Private network integration
- Full-featured RESTful API
- Available as dedicated private cloud

vCloud™ Services

- vCloud™ Express
- vCloud™ Datacenter
 - Private/hybrid solution
 - vCloud API compatible

DATA CENTER

NETWORK

COMPUTE & STORAGE

OS & WEB

DATABASE

MIDDLEWARE

APPLICATION



Cloud Consulting Professional Services

Cloud Readiness Assessment

Assessing readiness of a customer and their applications to move to the cloud

ASSESS

- Assess technical feasibility of the application(s) moving
- Define business value of the application(s)
- Identify risks associated with the application(s)

Cloud Security Readiness

Enabling a secure migration to the cloud

SECURE

- Gather application security requirements
- Identify any compliance constraints
- Define cloud security parameters for the applications in scope

Cloud Identity Assessment

Helping customers assess their identity and privacy needs

ACCESS

- Highlight access and privacy needs
- Assess business, compliance, process and technical impact on IAM when adopting cloud services



Service Overview

Terremark's Virtualized Disaster Recovery (VDR)

- Disaster Recovery as a Service, providing compute, network and storage resources on demand at a secondary location
 - Replicates data, operating systems and applications from any production environment into a securely managed cloud environment in a top tier Terremark data center
 - Terremark-managed failover to a production-ready environment in the event of a catastrophic outage at their primary facility
-

“Disaster Recovery is the #2 priority for IT decision makers. Over 60% want DR capabilities and over 90% will have budget (30% have increased budget year over year) .”





ERASE BOUNDARIES BETWEEN **DATA AND PEOPLE**

**Build new capabilities fast. Get to market sooner.
Generate new revenue streams. Make smarter decisions.
Handle a 400% increase in demand.**



CONNECTED MACHINES

INCORPORATE
MACHINE DATA
INTO BUSINESS DECISIONS

Monitor and control operations remotely. Make better decisions with real-time data. Automate key business processes. Develop new products and business models.

VERIZON LEADS IN CLOUD INFRASTRUCTURE AND SERVICES

FLEXIBLE | COST-EFFECTIVE | SECURE

