

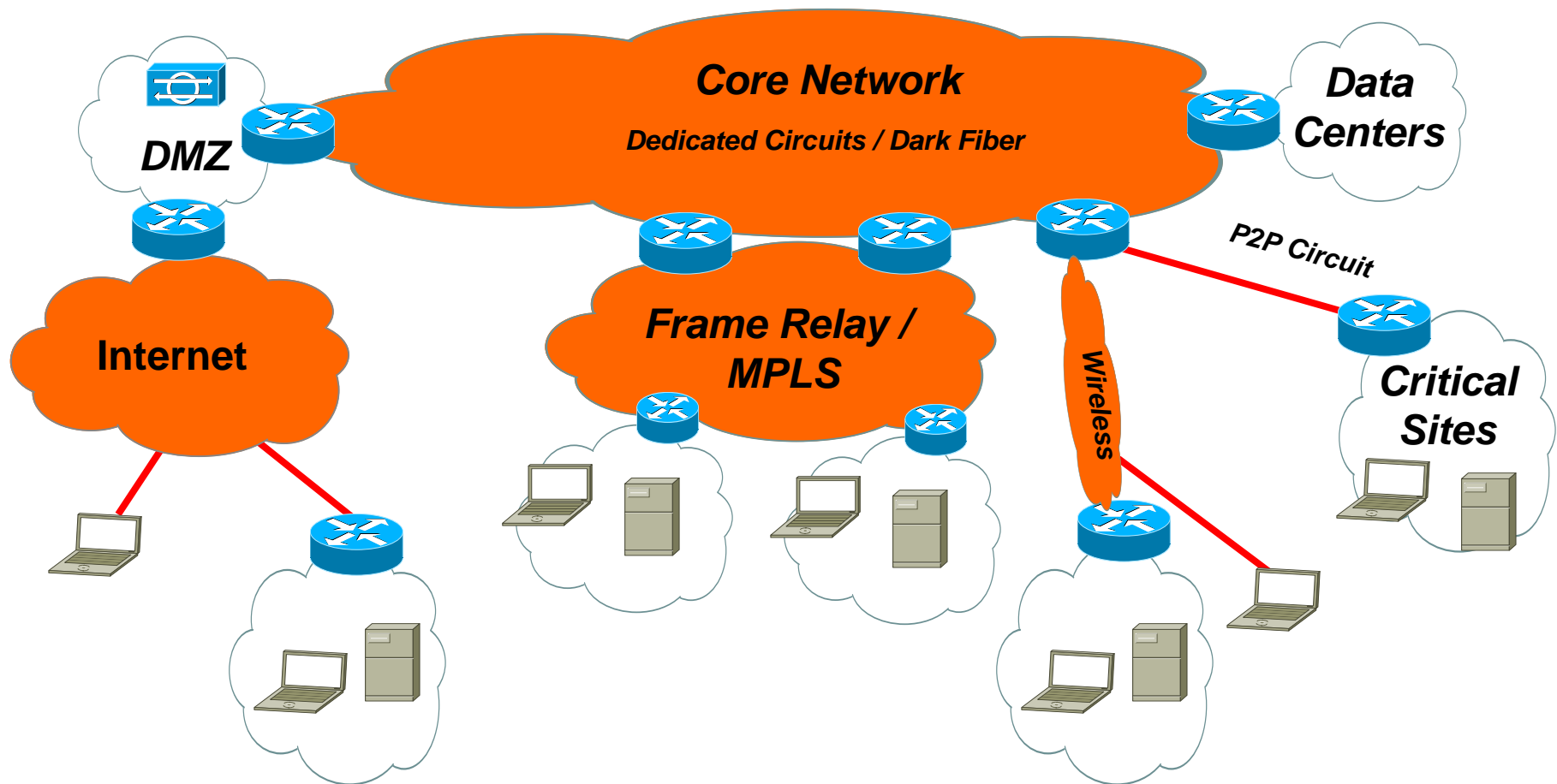
IEEE CQR International Workshop

Next Generation Networks & Impact on Financial Services

**Presenters:
Craig Hinkley
Business Executive – Technology
Network Services**



What does a NGN comprise?



How do I make it all one virtual network with a common set of capabilities?

Network Infrastructure Layer & Application Services

- **Network Infrastructure Layer:**
 - Speed & Feeds still critical
 - Diversity / Failure Domains
 - Failure scenarios & Recovery models
 - Any-to-Any connectivity
 - Buy versus build Functions / “Public” versus “Private Services”
 - Ubiquitous capabilities across diverse delivery media
 - Provisioning; Network Management
 - Convergence – support Real time applications
- **Network Application Services**
 - Security – network connectivity; application; DoS
 - QoS – End to end across various media transports.
 - Media Rich Services – Voice; Video; Content
 - Application Awareness

Network Infrastructure Layer - Diversity

- **Physical Diversity**
 - Building entrances; Common right of way / interconnects; Wiring Center / CO diversity
 - Difficult to manage and track over time – Complexity and Cost
- **Logical Diversity**
 - Network Design to overcome SPOF by being resilient, heal around failures.
 - Easier to implement, can drive costs at the physical and device level
- **Provider Diversity**
 - Mitigate major single provider failures.
 - Balancing select few versus a little from everyone.
 - Increases operational complexity and Ubiquitous Services goal

How do you Determine what diversity strategy to use in your NGN?

Network Infrastructure Layer – Network / Failure Domains

- **Network domains are a well established best practice for designing a stable, scalable, and resilient network**
- **Failure Domains used to scope your Network into functional domains based upon like capabilities, requirements and resiliency/impact characteristics**
- **Segment Network into functional domains based upon:**
 - Features – WAN Speeds & aggregation; Connectivity model (any-to-any; PtoP, etc.); Communications media options; Convergence
 - Functions – Security; QoS; Rich Media Services
 - Failures, Impact & Risk assessment – various failure scenarios and recovery models)
 - Scalability – Number of sites to support in the domain
 - Business / Financial Case: Financial model / TCO linked to different locations types within a domain

Network Infrastructure Layer – Network Domains & Diversity

- **Core Network**

- Heart and Brain of the Banks computing infrastructure'
- **Diversity Criteria:** All three aspects of diversity applied - Physical, Logical & Carrier.

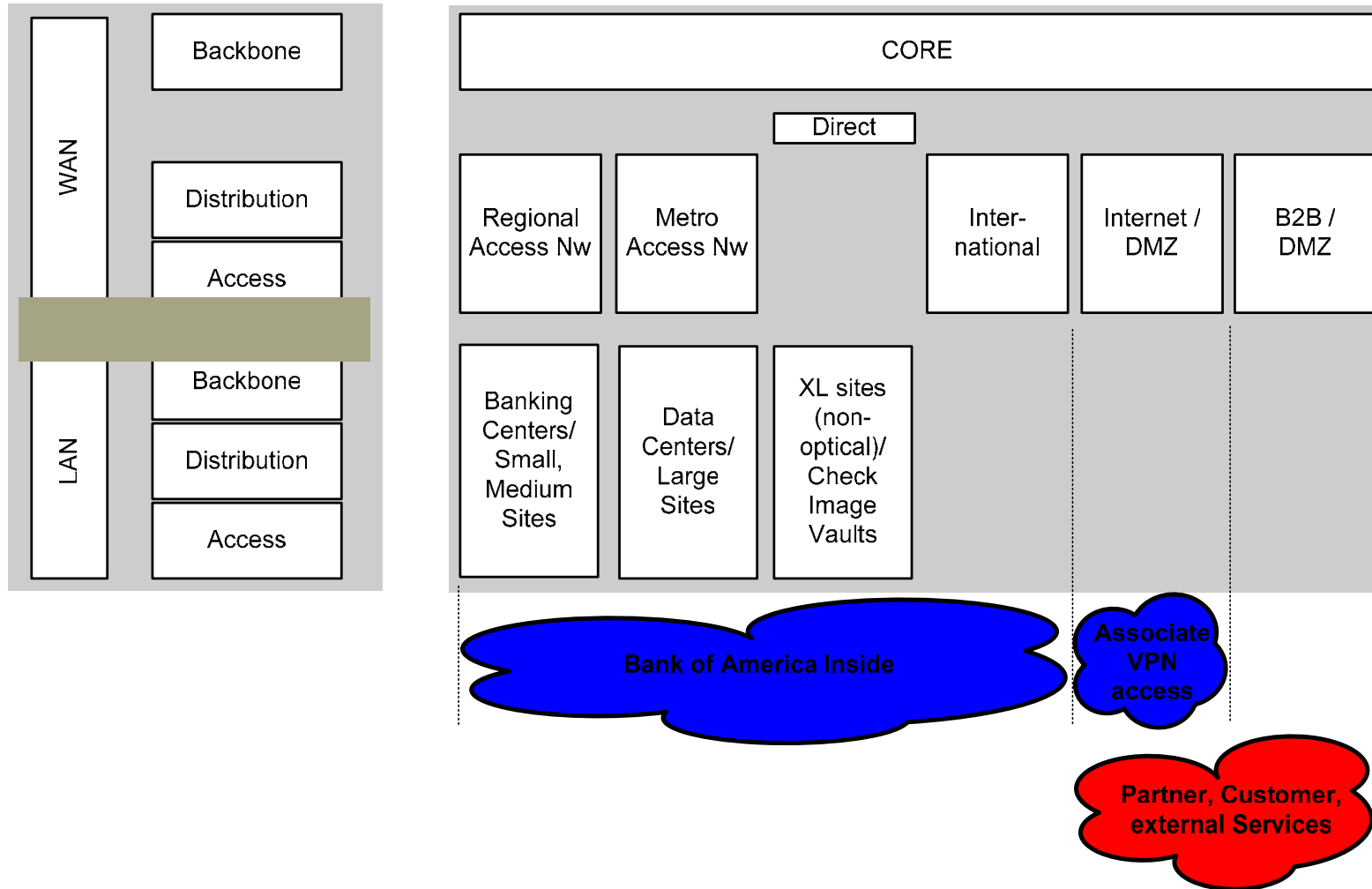
- **Branch Network**

- Diverse geographic footprint.
- Balancing select few versus a little from everyone.
- Large volume of locations has significant risks if all sites impacted by a single failure scenario such as Communications infrastructure failure of a Carrier
- **Diversity Criteria:** Logical & Carrier

- **Associate VPN Access Network**

- Provide access for mobile associates
- **Diversity Criteria:** Carrier.

Network Infrastructure Layer – High Level Domain Architecture



Key Infrastructure Projects

Optical Network - IP and SONET

MPLS Deployment – Core IP Backbone

ISP Connectivity

Access Network – Next Generation

VoIP

Questions?