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End-to-End QoS

Robin Layland

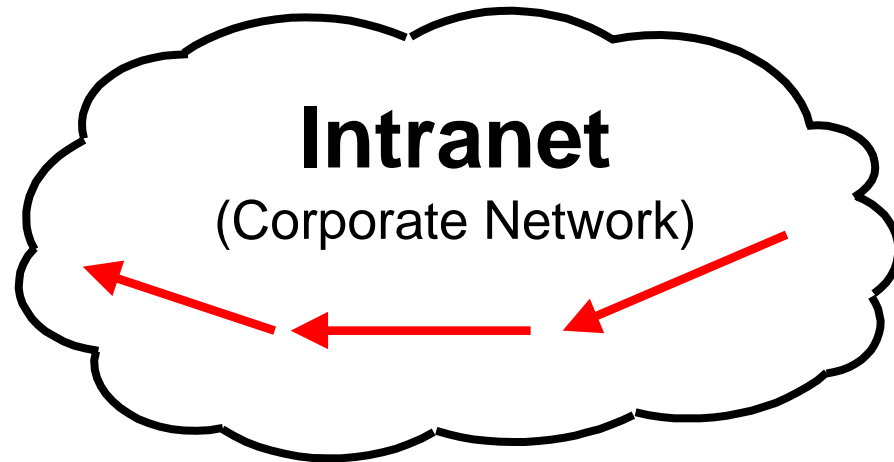
President, Layland Consulting

September 10, 2001



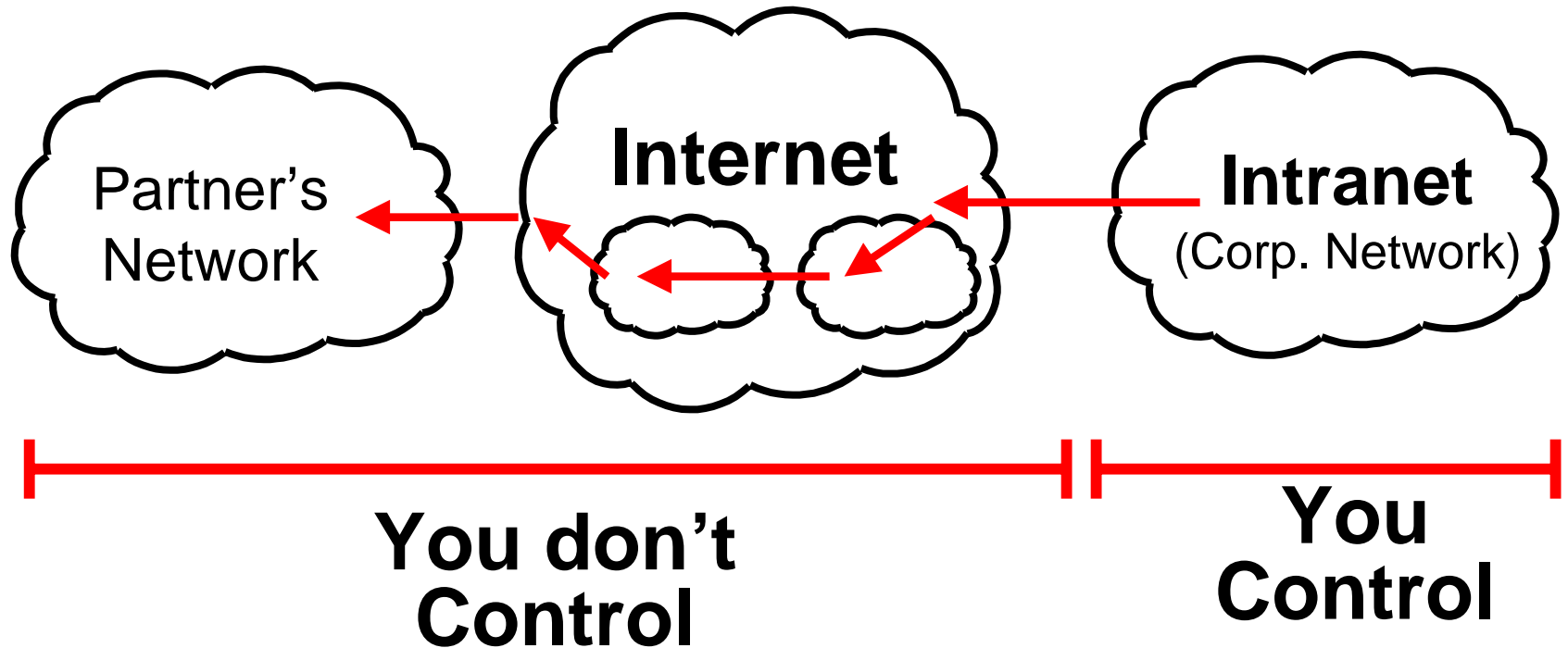
End-to-End QoS: Within your Intranet

Ensure Quality Service



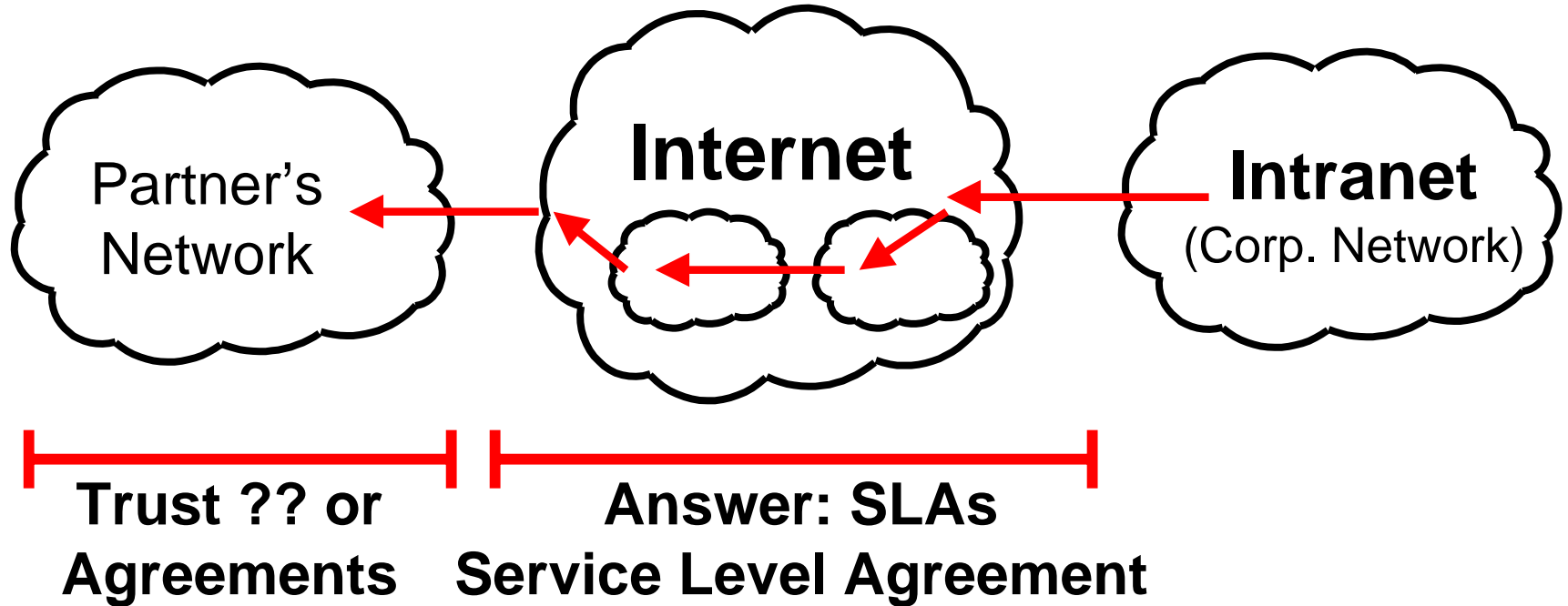
- Implement QoS & Policy Management
- Throw bandwidth at problem

End-to-End QoS: Complicating the Problem



**Can't implement QoS & Can't throw bandwidth at it
But its your problem if there is a problem!**

End-to-End QoS: An Answer



SLA: Service Level Agreements

**Only as good as the service provider
or the systems standing behind them**

You need to:

- **Understand their issues so you can evaluate the offering**
- **Know what problems they have so you can ask how they deal with them**
- **Be able to monitor their performance**

Issues

- **What should you ask for in a Service Level Agreement?**
- **What is reasonable?**
- **What is unreasonable?**

Manickam Sridhar
Chief Technology Officer
Sitara Networks

Issues

- **How do I check on my service provider to make sure they are providing what they promised?**
- **What measurement and reporting tools are available to help me?**
- **What Can I expect from the Service Provider?**

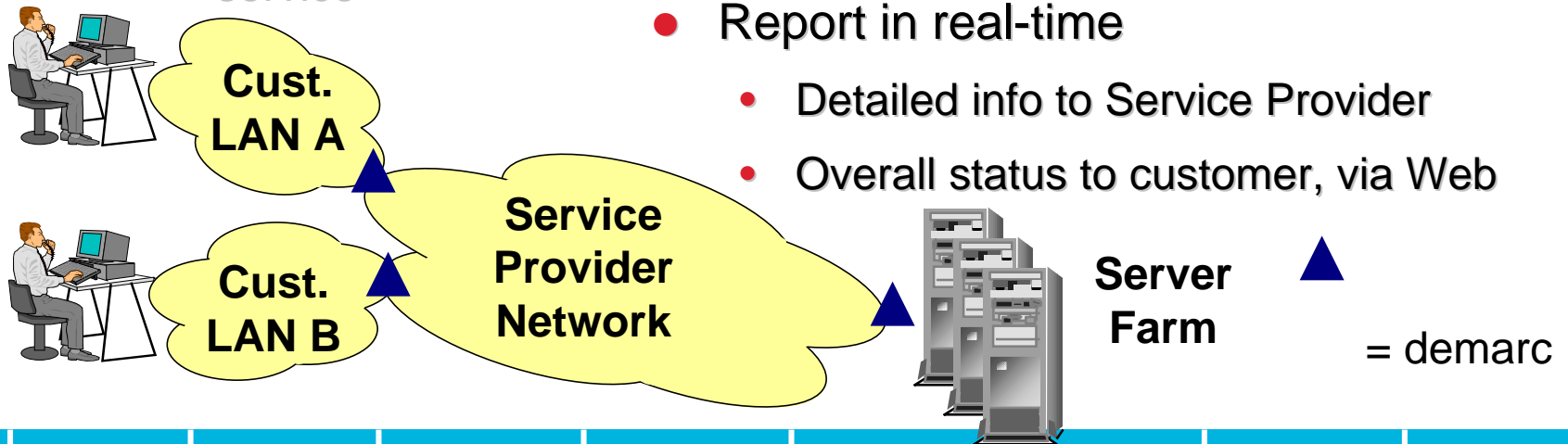
Jamie Warter
Vice President of Marketing
Brix Networks

Gotcha or “Trust but Verify” Relationships

- Internal Tools
 - Severe data correlation issues “he said – she said”
 - Lots of gray area – methodology, validity
 - Energy spent on finger pointing, not network uptime
- SLAs from Provider
 - Must trust the provider
 - Common Data >> faster problem identification and resolution
 - Energy on both sides spent on fixing the problems
 - Most likely paying a premium for the service
- Independent Third Party Verification
 - Three’s a crowd?

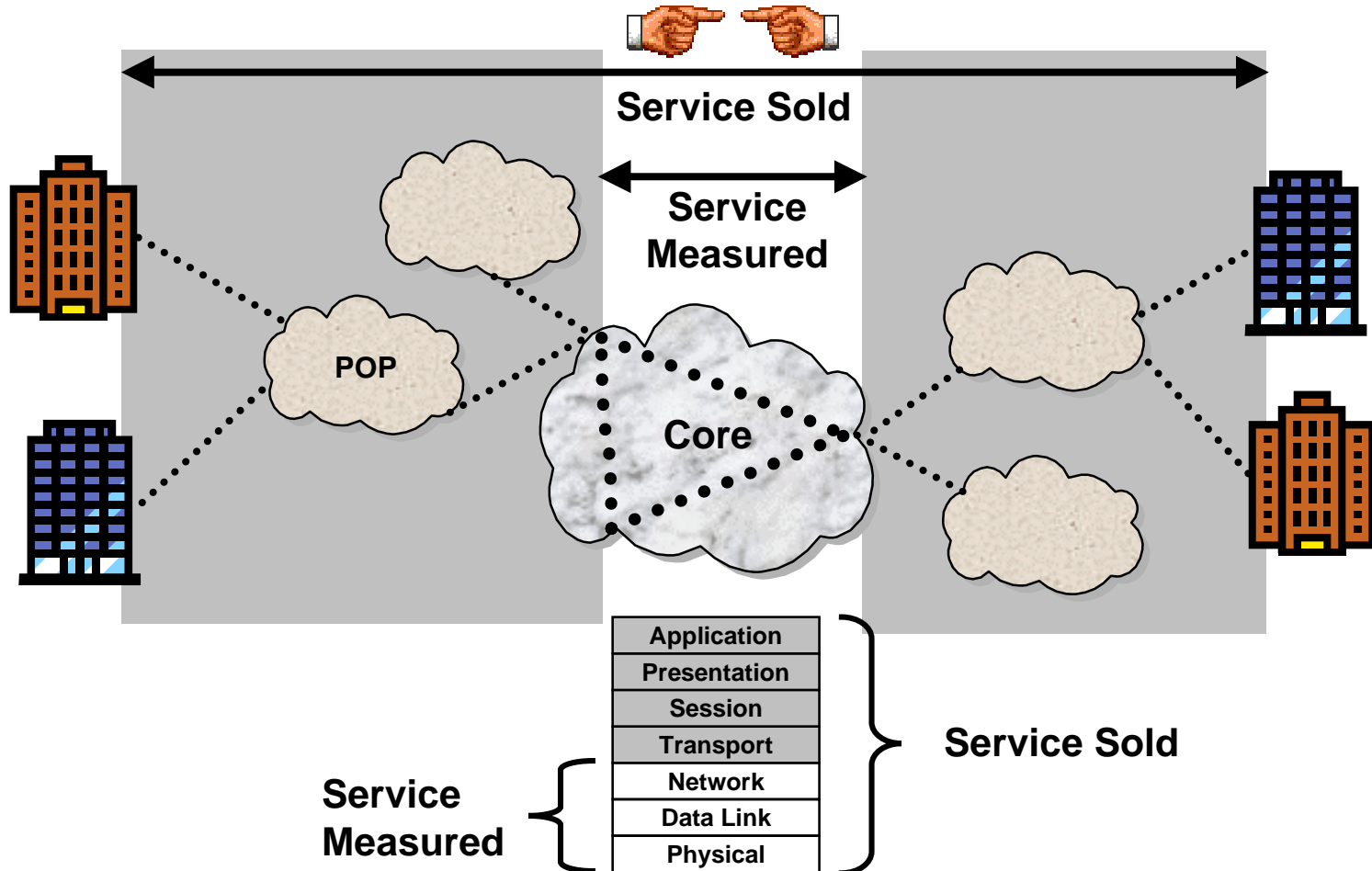
How should we measure?

- Active testing
 - Generate customer-like traffic, on regular schedule
 - Limit to less than 1% of available bandwidth
- Measure from the demarc
 - Where Service Provider interfaces with customer
 - Defines the customer view of SP network or service



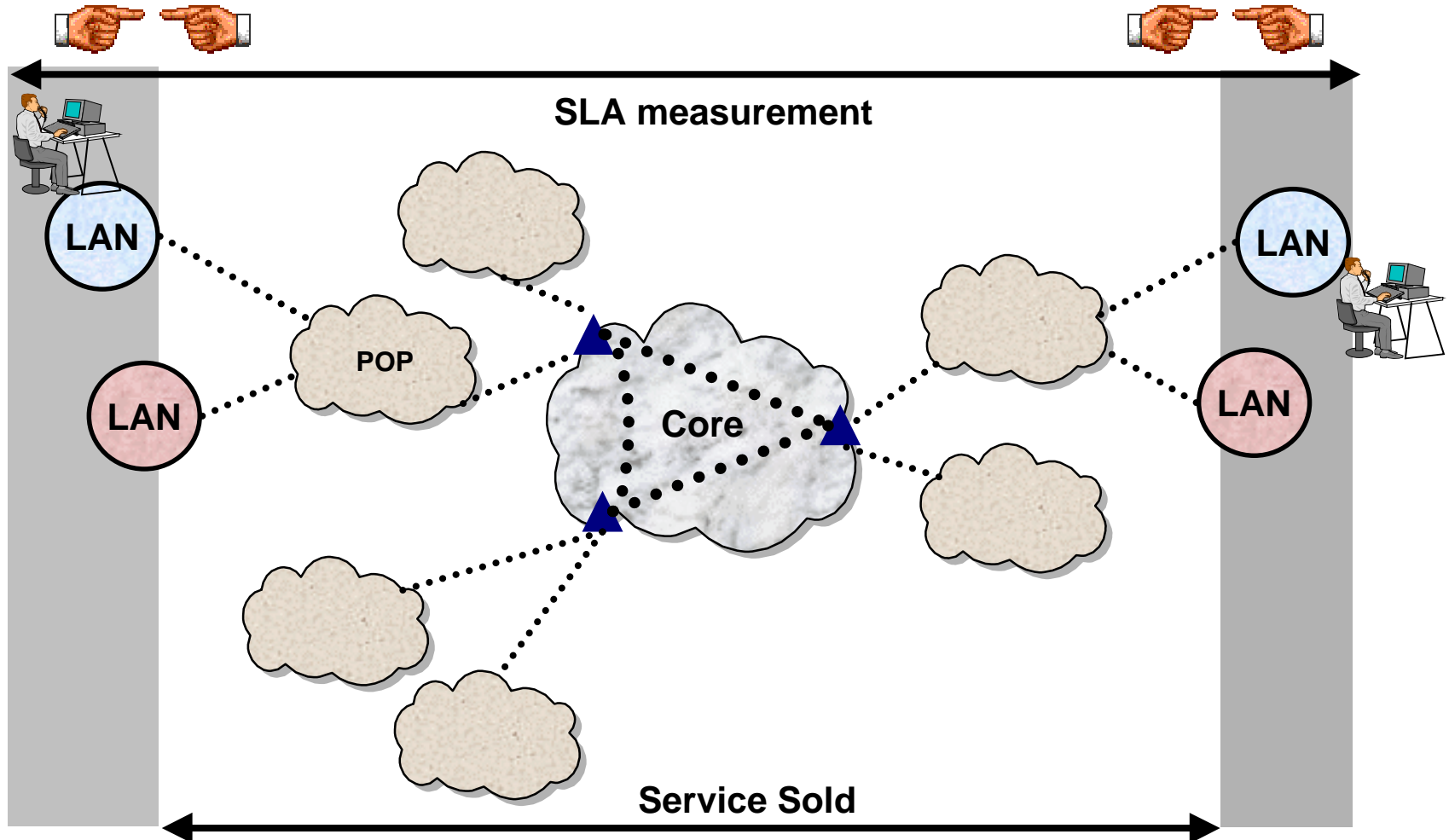
Provider SLA Testing Today – Too Little

Gray areas encourage finger pointing



Customer SLA Testing Today – Too much

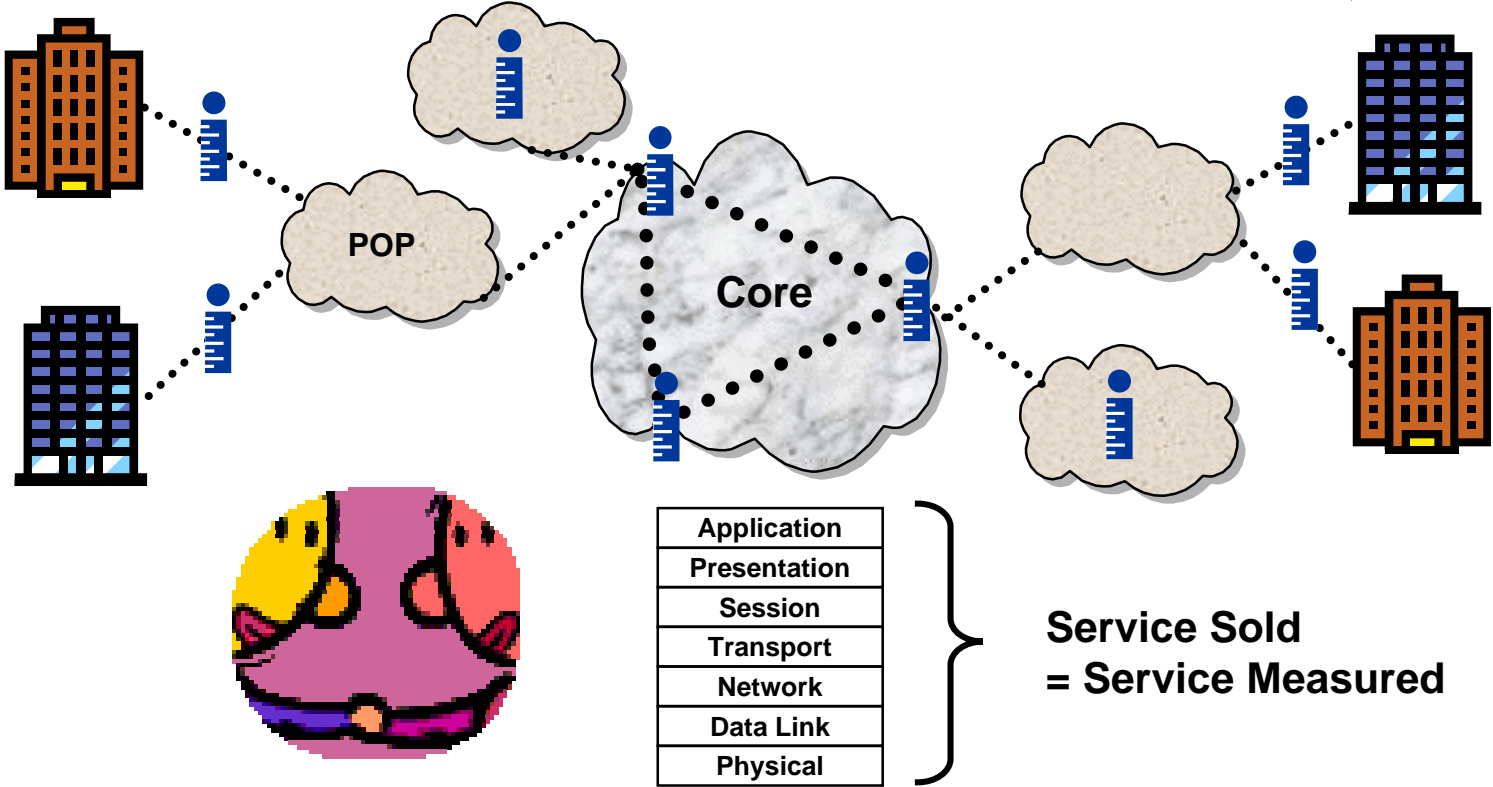
Gray area still encourages finger pointing



Shared Vision SLAs provide the Balance

**With clear, active service demarcs,
carriers now measure what is sold**

Service Sold = Service Measured = Service Guaranteed



Application
Presentation
Session
Transport
Network
Data Link
Physical

**Service Sold
= Service Measured**

What to Demand from your Provider

- A pervasive, end-to-end Internet service level verification system operated by the Provider
- Dedicated hardware verifiers to form Service Demarc
- Comprehensive suite of tests that measure the real services used – VPNs, VoIP, hosted applications, and connectivity
- A real time system for provisioning, monitoring, auditing, and reporting the service performance and SLA compliance

Issues

- **If there is a problem how do I determine where it is?**
- **What tools and techniques are available to determine where the problem is?**

Israel Cidon
Chief Technology Officer
Omegon