



> IP TELEPHONY FOR BUSINESS ADVANTAGE-  
CENTRALIZED OR DISTRIBUTED?

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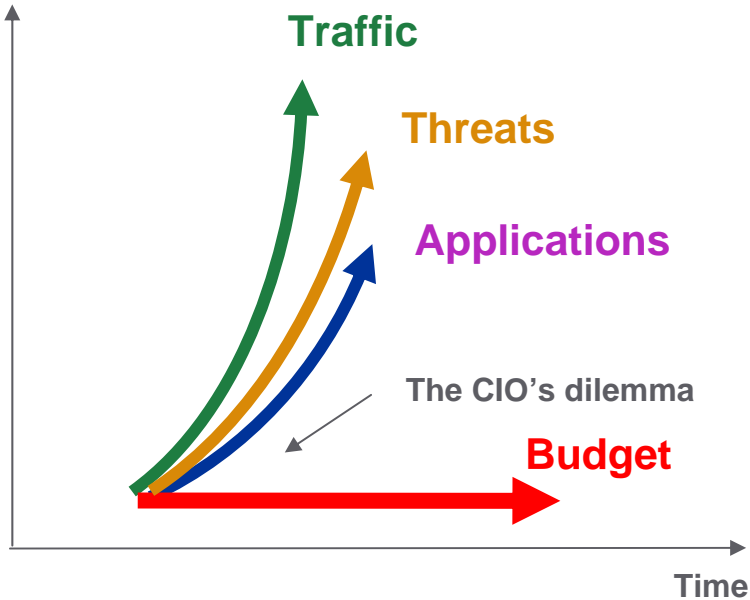
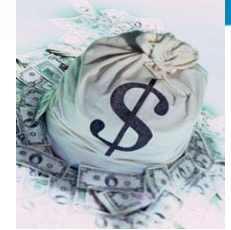


# IP Telephony is Wonderful Technology

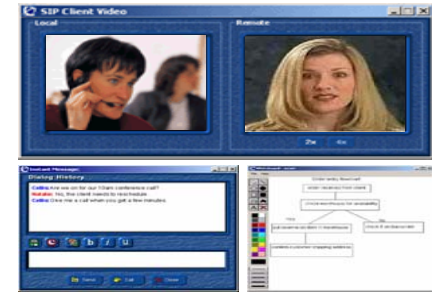


**...But it has to take you where you want to go**

# IP Telephony Opportunities



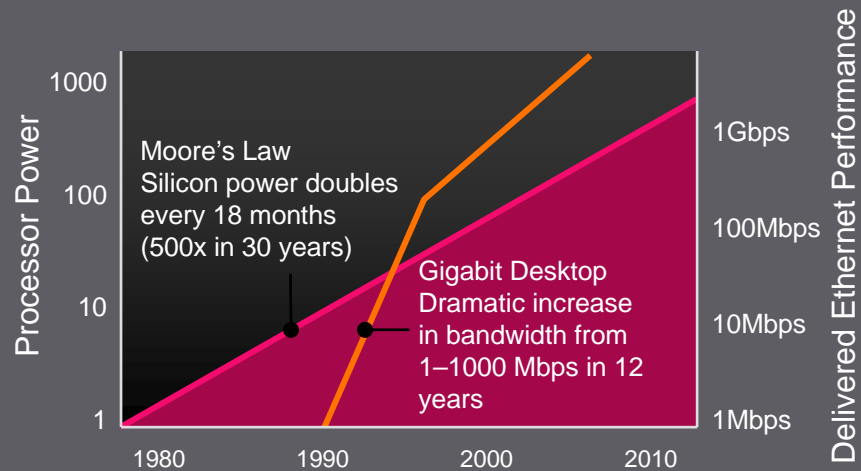
- Lower TCO by doing more with less
- Increased employee productivity through mobility and Unified Communications
- Revenue growth and improved customer service through SIP-based virtual contact centers



# Data Center Consolidation



MOORE'S LAW VS LAW OF BW

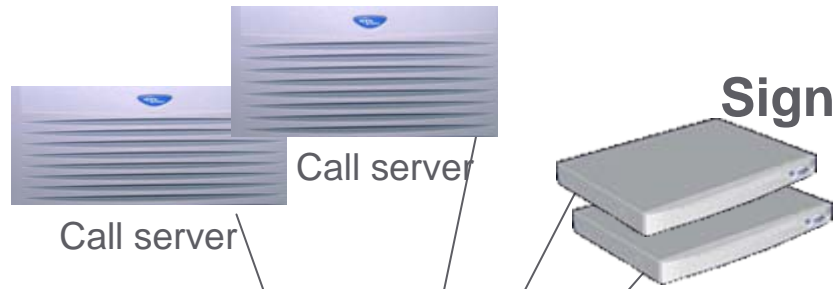


**Improved bandwidth price/performance enabling data center consolidation**

**Drivers for data center consolidation and centralization:**

- > **Better storage and CPU utilization**
- > **Space and power savings**
- > **Opex cost reduction**
- > **Easier to secure**
- > **Increased business agility**

# Taxonomy of IP Telephony Systems

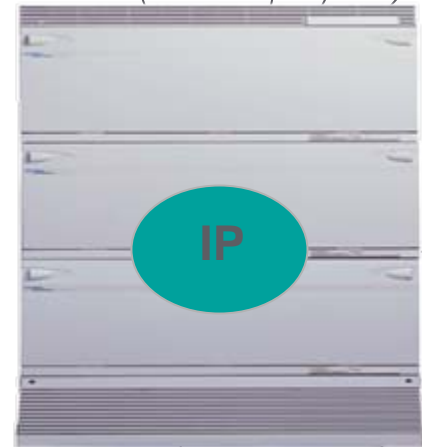


## Call Server

The brains behind IP telephony systems, and provide the control required to allow calls to be established across the network

## Signalling Server

- Centralised dialling plan
- IP phone management
- SIP/H323 Gateway support



## Clients

- PC/laptop/PDA
- Soft clients,
- Non-IP telephones
- Fax machines

## Media Gateways

Provide media mapping and transcoding functions between the IP network and a Circuit-based networks, Compression, Silence suppression, Echo cancellation



## Applications

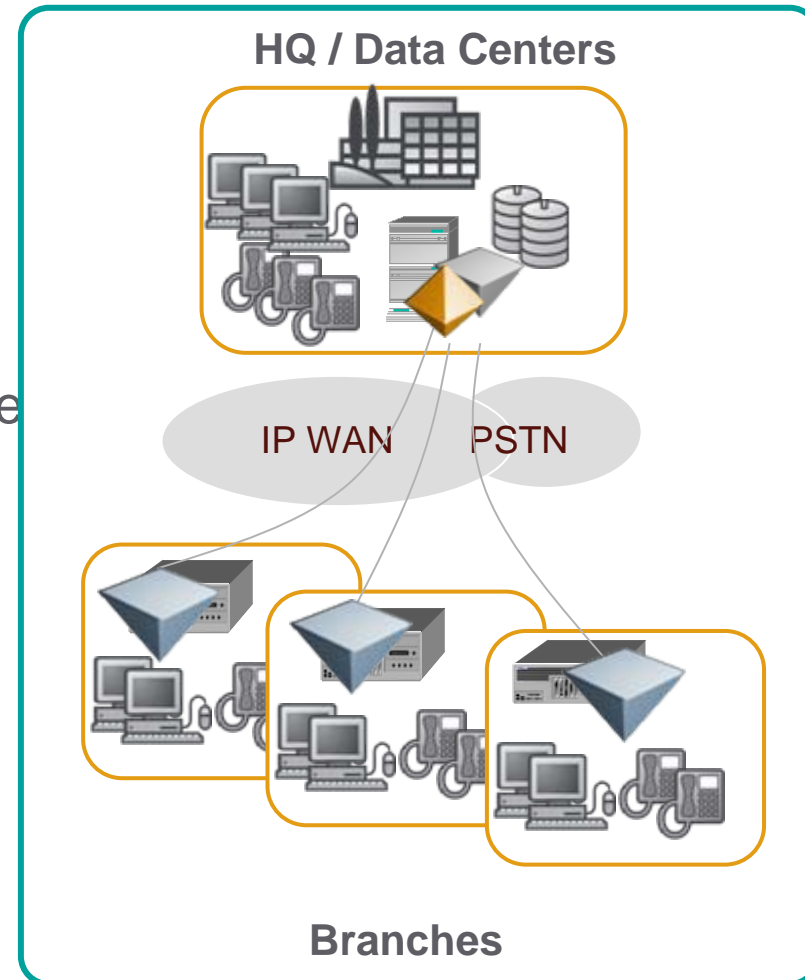
- Call Center
- IVR
- Unified messaging,
- Conferencing
- Collaboration

Media Gateway

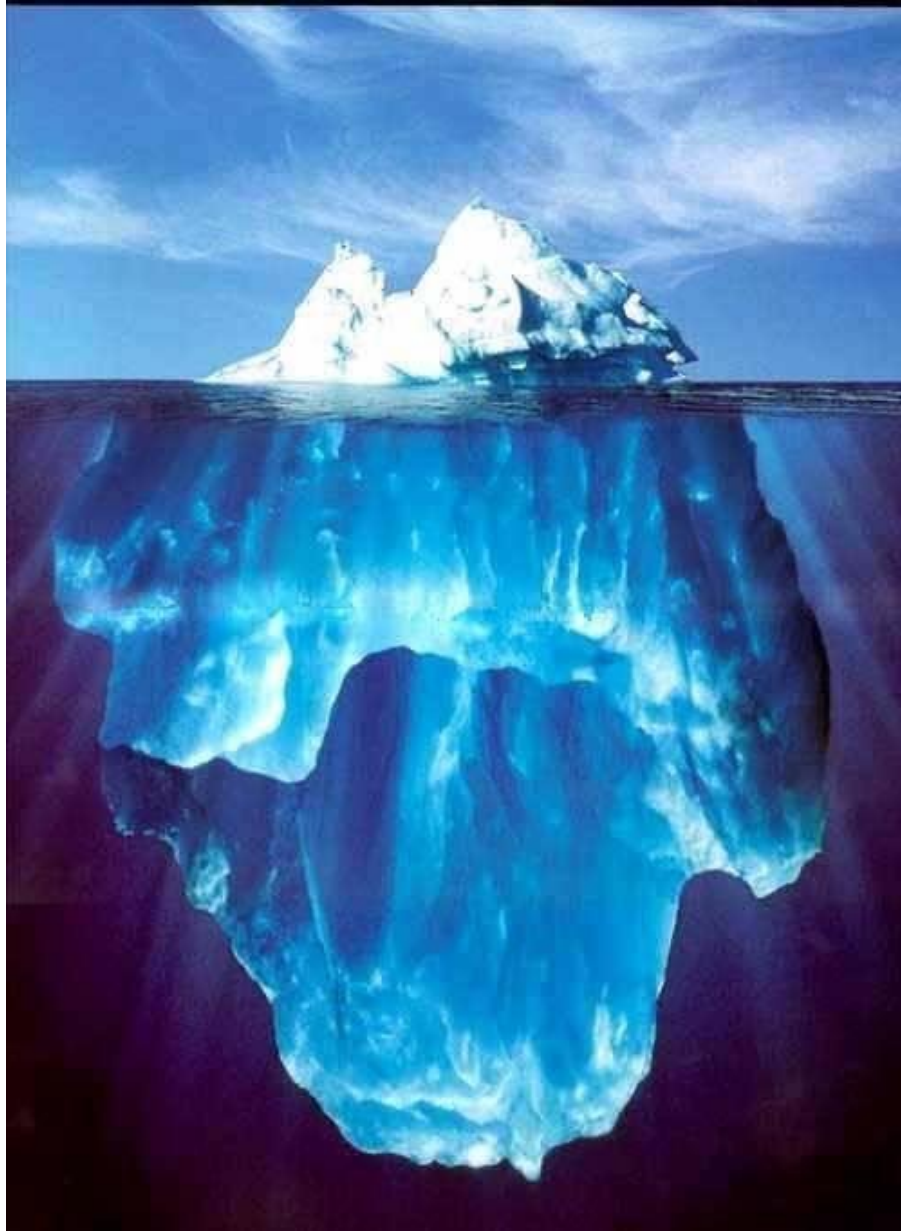
# Deployment Options



- > IP Telephony systems consist of communications and application servers, and media gateways that can be distributed across an IP network
- > Deployment can be on a site-by-site basis, following the traditional telephony model
- > Deployment can be centralized, following the data center model for
  - Lowest TCO
  - Easier security
  - Increased agility
  - Operational effectiveness
- > Deployment can be hybrid

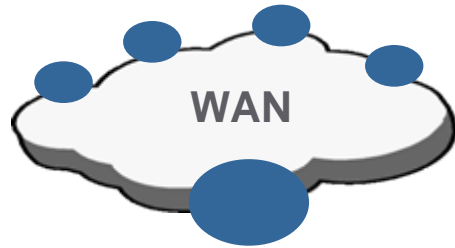


# Factors To Consider For Success

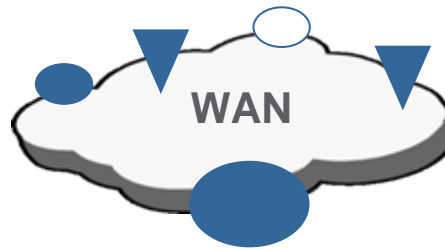


- > Branch Business Model
- > Business Continuity/Disaster Recovery and WAN Reliability
- > WAN Bandwidth and QoS
- > IP Telephony Client Mix
- > Operational Cost

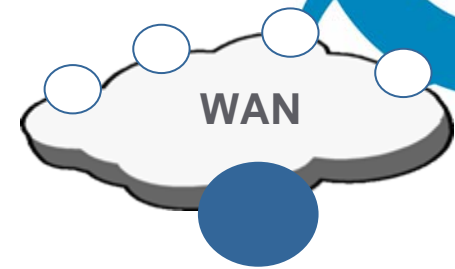
# Factor 1: Branch Business Model



Total distribution



Hybrid model



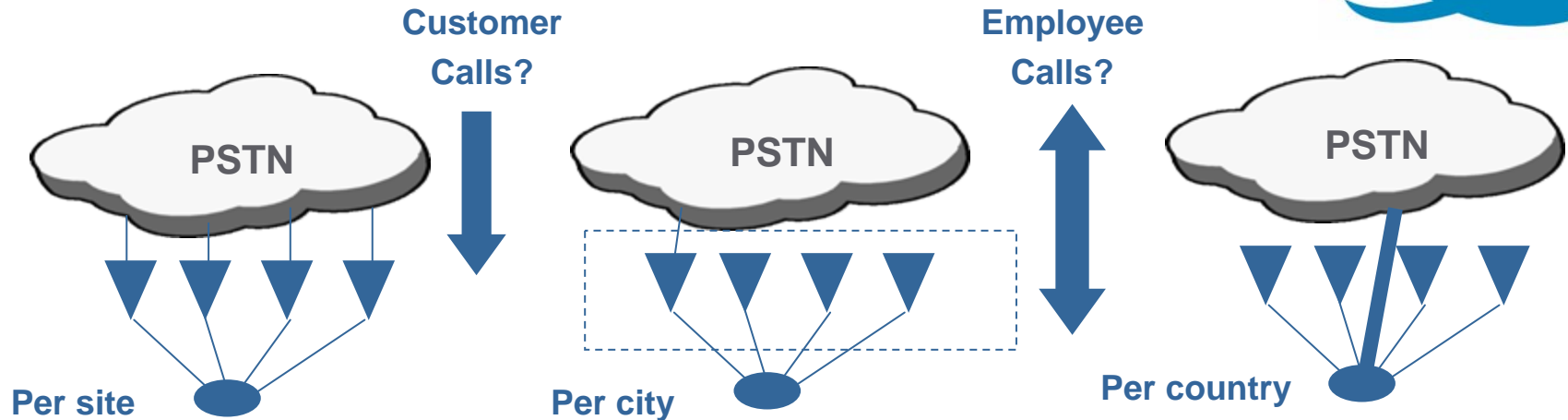
Total centralization

Data center model driving centralization

Remote autonomy and WAN concerns driving distribution

- >Employee-centric remote office or customer-centric branch model
- >Integrated branch vs franchise remote office model
- >More stringent reliability, QoS and functionality requirements for customer-centric branches.
- >Branch-contact center networking?
- >Who pays for voice vs data connectivity

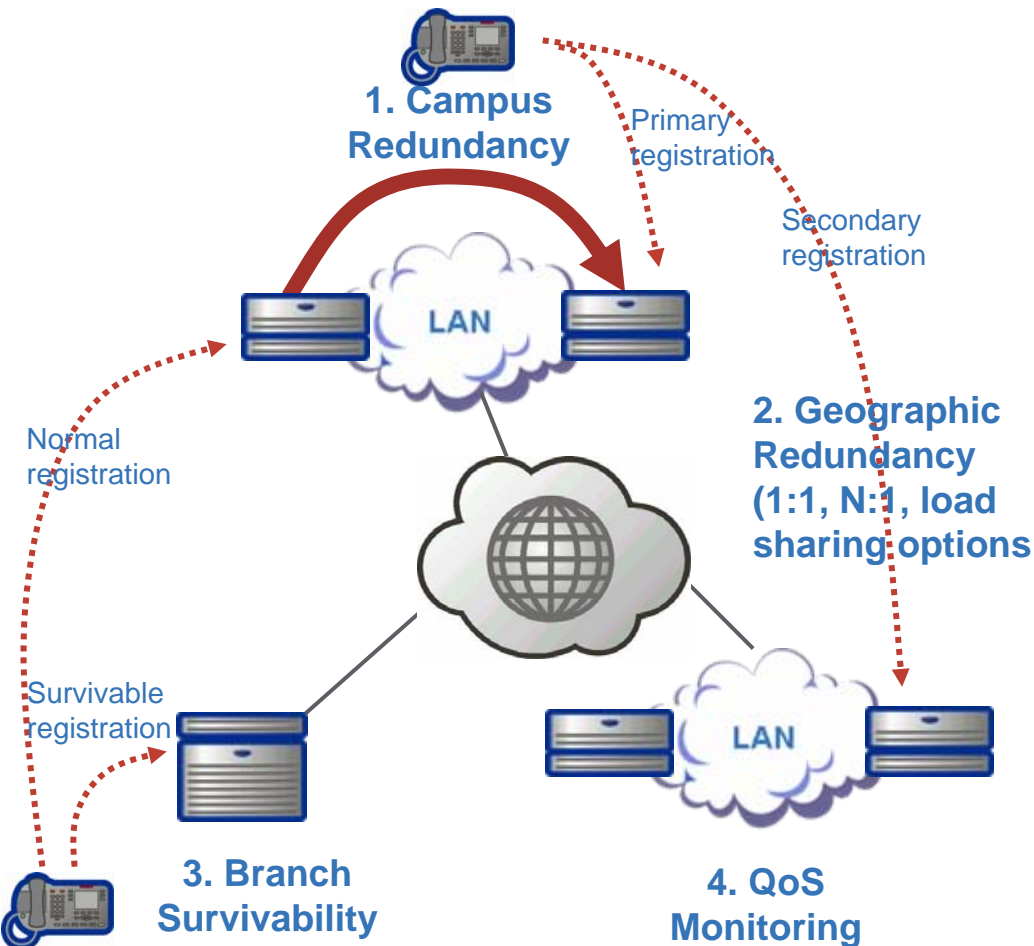
# Factor 1 (cont'd): Gateways Requirements



IP economics driving centralization

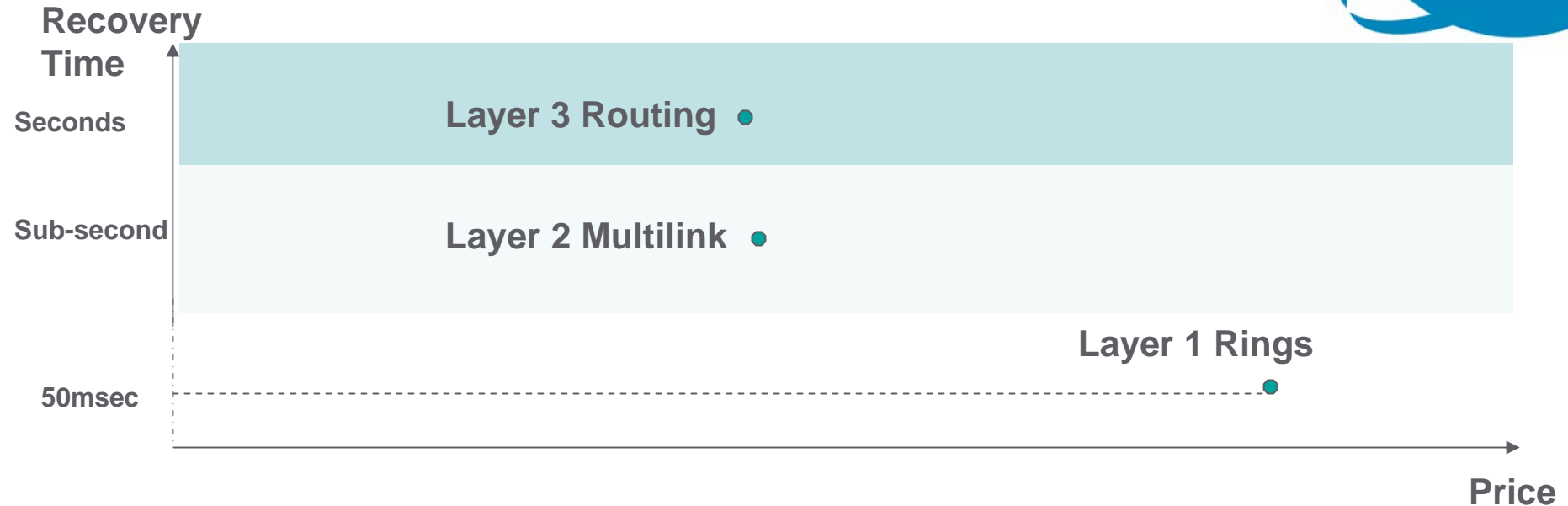
BC/DR & WAN reliability concerns driving distribution  
PSTN charges driving city-based gateways

# Factor 2: Business Continuity/Disaster Recovery



- > Business continuity and disaster recovery for regional and centralized sites
- > Survivable Media Gateways across range of branch sizes
- > Range of WAN offerings with various price-performance and recovery attributes.

# Factor 2 (Cont'd): MAN/WAN Reliability Options



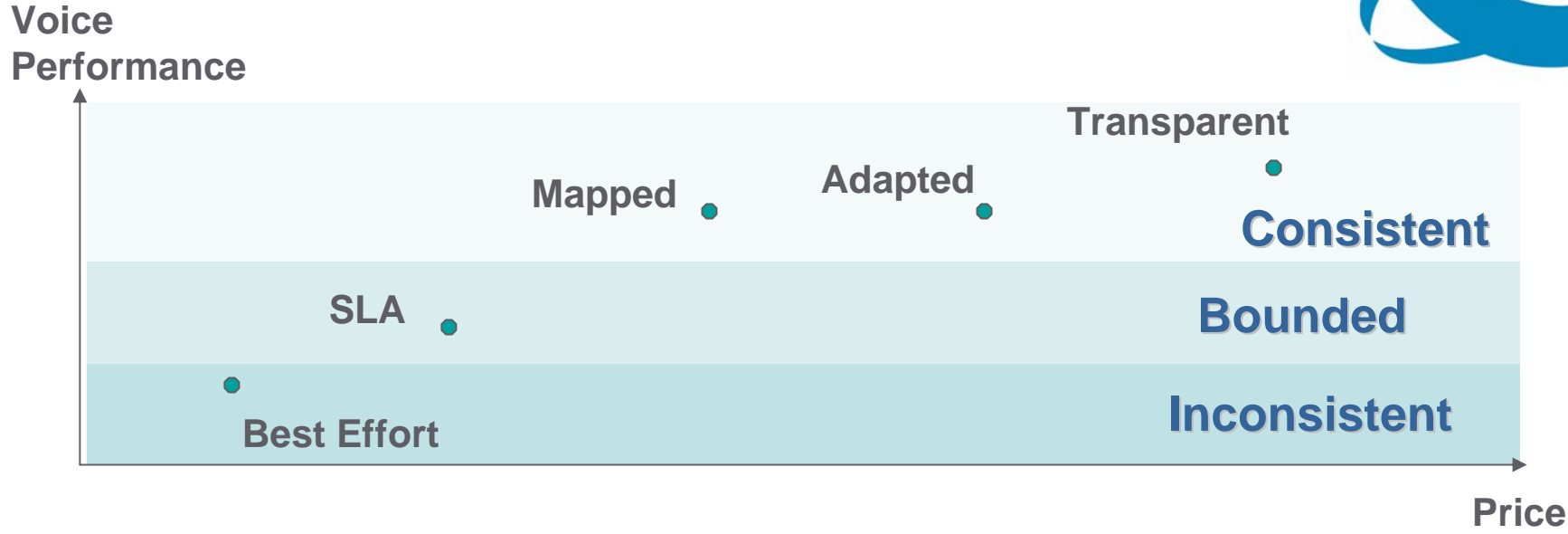
**Layer 1 Optical Rings:** sub-50msec failure recovery, without single points of failure.

**Layer 2 Multilink:** Multilink-based services for sub-second recovery from last mile failure.

**Layer 3 Routing:** Layer 3 rerouting-based services providing multi-second recovery, with flexibility of using a mix of services from multiple carriers



# Factor 3: MAN/WAN Bandwidth and QoS Options



**Best effort:** Ubiquitous cable modems and DSL links

**SLA-based (no QoS):** Statistically bounded packet loss and latency, with SLA-based FR and UBR ATM offerings

**DiffServ-to-802.11p Mapped:** New QoS-enabled IP and Ethernet services.

**IP/Ethernet-to-VC Adapted :** Established QoS-enabled FR and VBR-rt ATM services

**Transparent:** Ubiquitous physical private line services (including CBR ATM)

# Factor 4: IP Client Mix

## IP desktop sets



## Mobility













- > Investment protection and client reuse
- > Employee (re-)training
- > Per wiring closet PoE with UPS
- > Functional vs personal clients
- > Static vs dynamic MAC environments

## Installed base (digital and analog)



# Summary: Factors to Consider

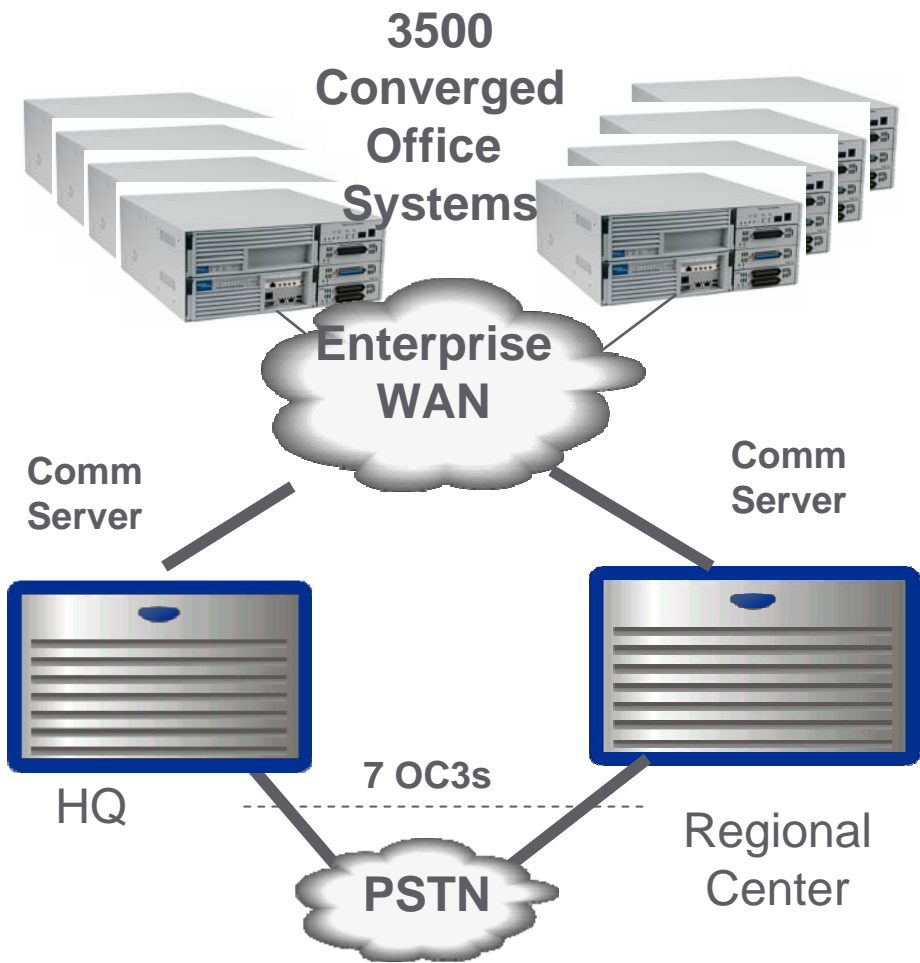


Decentralized		Centralized
Retail, SMB, Government, etc Relationship w/Branch	 <b>Business Model</b> 	Financial, Pharm, Relationship w/DC
Low BW Public & poor QoS	 <b>WAN Bandwidth &amp; QoS</b> 	Mid-High BW Private & QoS ready
Poor local and geo clustering at HQ	 <b>Business Continuity</b> 	Seamless Call Server failover
Investment protection for Analog + Digital handsets	 <b>Telephony Client Mix</b> 	Greenfield or IP telephones only
More functions to manage  New features have to be installed at all branches	 <b>Operational Cost</b> 	No remote VoIP equip to manage  New features are installed centrally



# **What Are Enterprises Doing?**

# ONE OF THE LARGEST US RETAILERS WILL HANDLE 10M CALLS/MONTH ON ITS 3500-SITE DISTRIBUTED IP TELEPHONY SYSTEM.

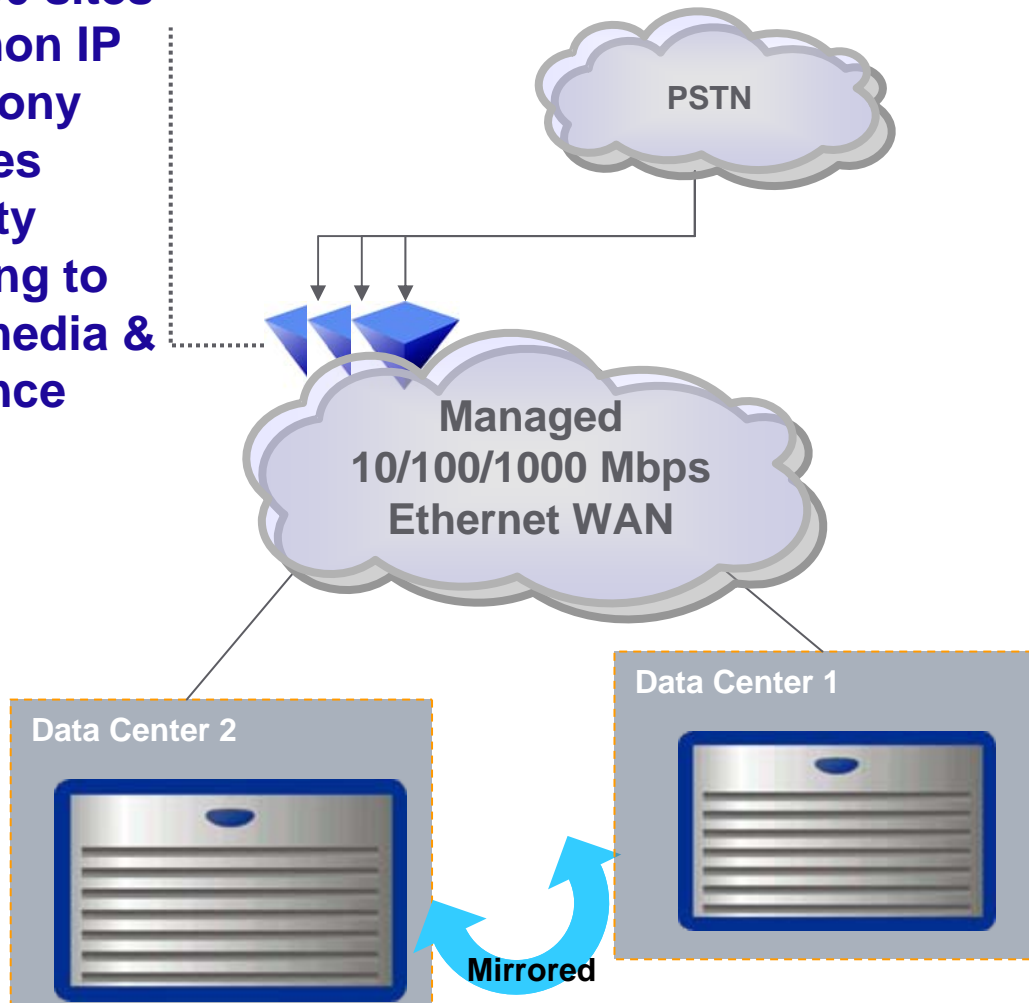


- 10 million voice calls per month with inter-site connectivity via IP trunking
- 3500 retail stores working into centralized IP Telephony system
- IVR consolidation
- Centralized store management and single network view

# A PROVINCIAL GOVERNMENT IS DEPLOYING CENTRALIZED IP TELEPHONY FOR 45000 USERS.



- 450-500 sites
- Common IP telephony features
- Mobility evolving to multimedia & presence



## Cost reductions

- > Uniform numbering
- > Virtual contact center
- > Server utilization & license optimization
- > Centralized admin
- > Centralized ops

## Investment protection

- > 99.999% reliability
- > Streamlined operations for BC/DR
- > Evolution from PBX and Centrex to survivable remotes and centralized architecture

## A Glimpse Into the Future: IT Convergence Changes Everything

- > Bringing the telecom and IT together leaving traditional telecom vendors behind
- > IP Telephony integral to software-centric Unified Communications
- > Integration with email & calendars
- > Consistent QoE via application aware networking and security
- > SOA enables UC-enabled business processes
- > Opportunities for increased data center integration



**Hybrid and centralized systems will be the norm**

# Centralized or Distributed- What's Right For You?



## Balancing business needs

>with the network costs (which increase as reliability is enhanced) and

>IP telephony costs (which decrease as you centralize)



**> *Thank You***

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