SIP Based VoIP

in MCI Advantage®

Henry Sinnreich, MCI
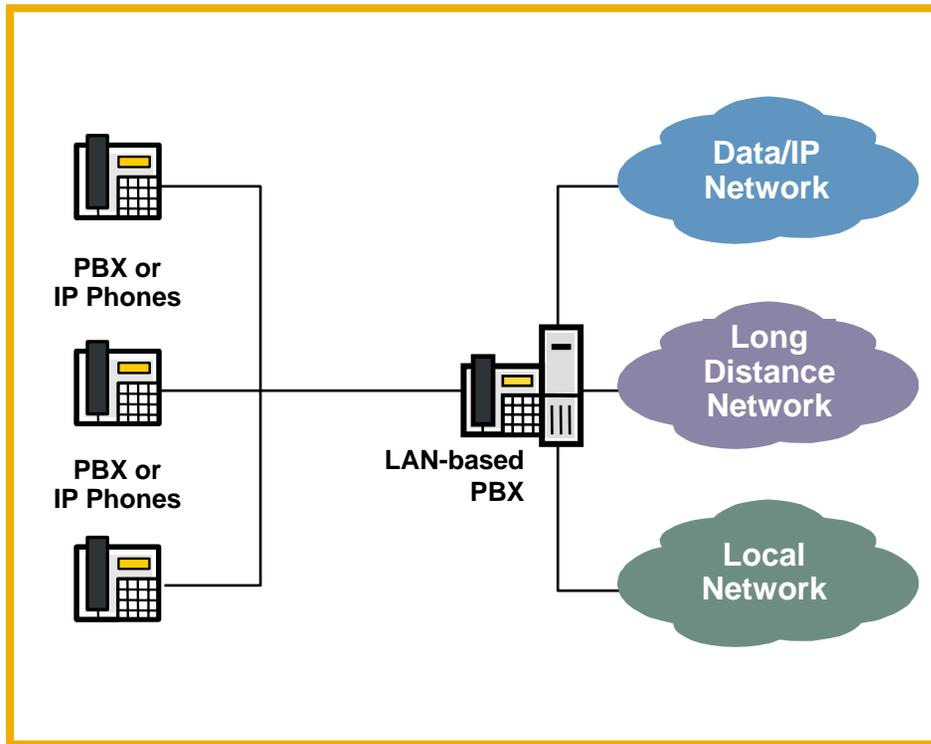
Executive Staff

MCI.

Too Many Networks Mean Inefficiency and Expense
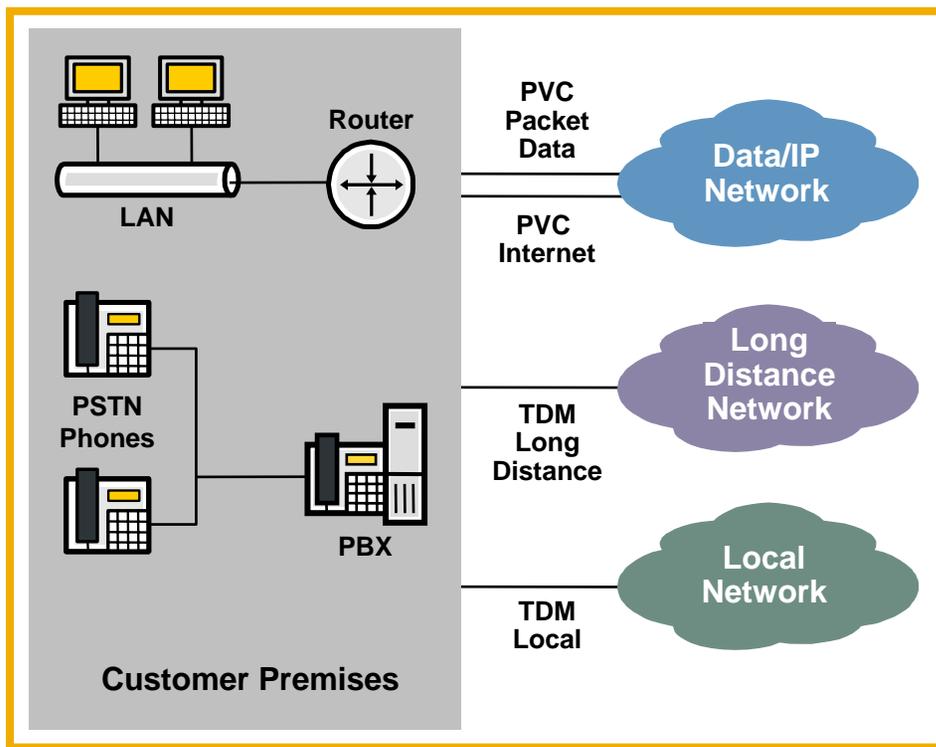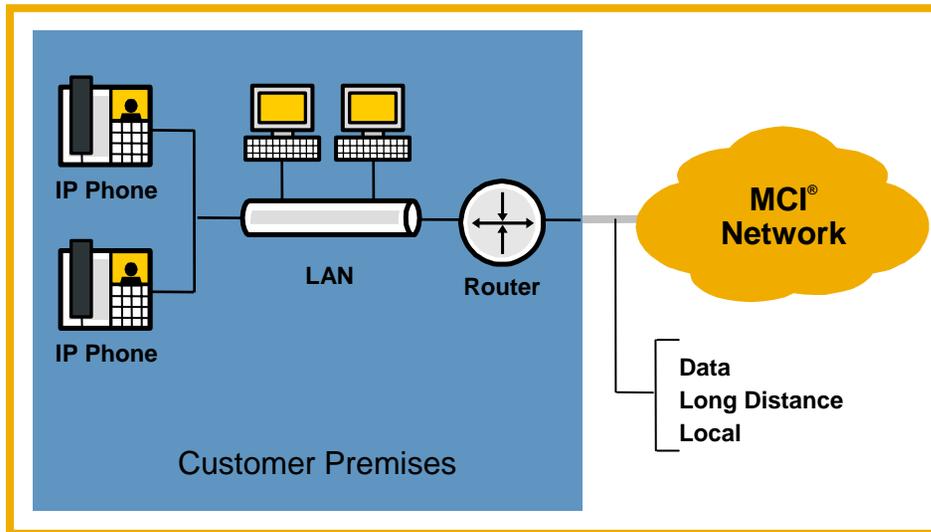

Yesterday

- **Three networks**

- **Duration/geography-based pricing**

- **Expensive moves, adds, and changes**

- **Standalone application**

- **Closed PBX architecture**

MCI.

IP Communications Using CPE Only Addresses Part of the Problem

PBX or IP Phones

PBX or IP Phones

LAN-based PBX

Data/IP Network

Long Distance Network

Local Network

- **Requires equipment purchase**
- **Proprietary – stuck with a single vendor**
- **Requires multiple access circuits**
- **No network gateways to PSTN (limited to LAN)**

MCI.

MCI Advantage ®
Provides Complete Telephony Convergence

IP Phone

IP Phone

LAN

Router

Customer Premises

MCI® Network

Data
Long Distance
Local

- **Voice becomes a data application**

- **Media control and features in the network**

- **Web-based command and control**

- **Business grade service supporting all office sizes**
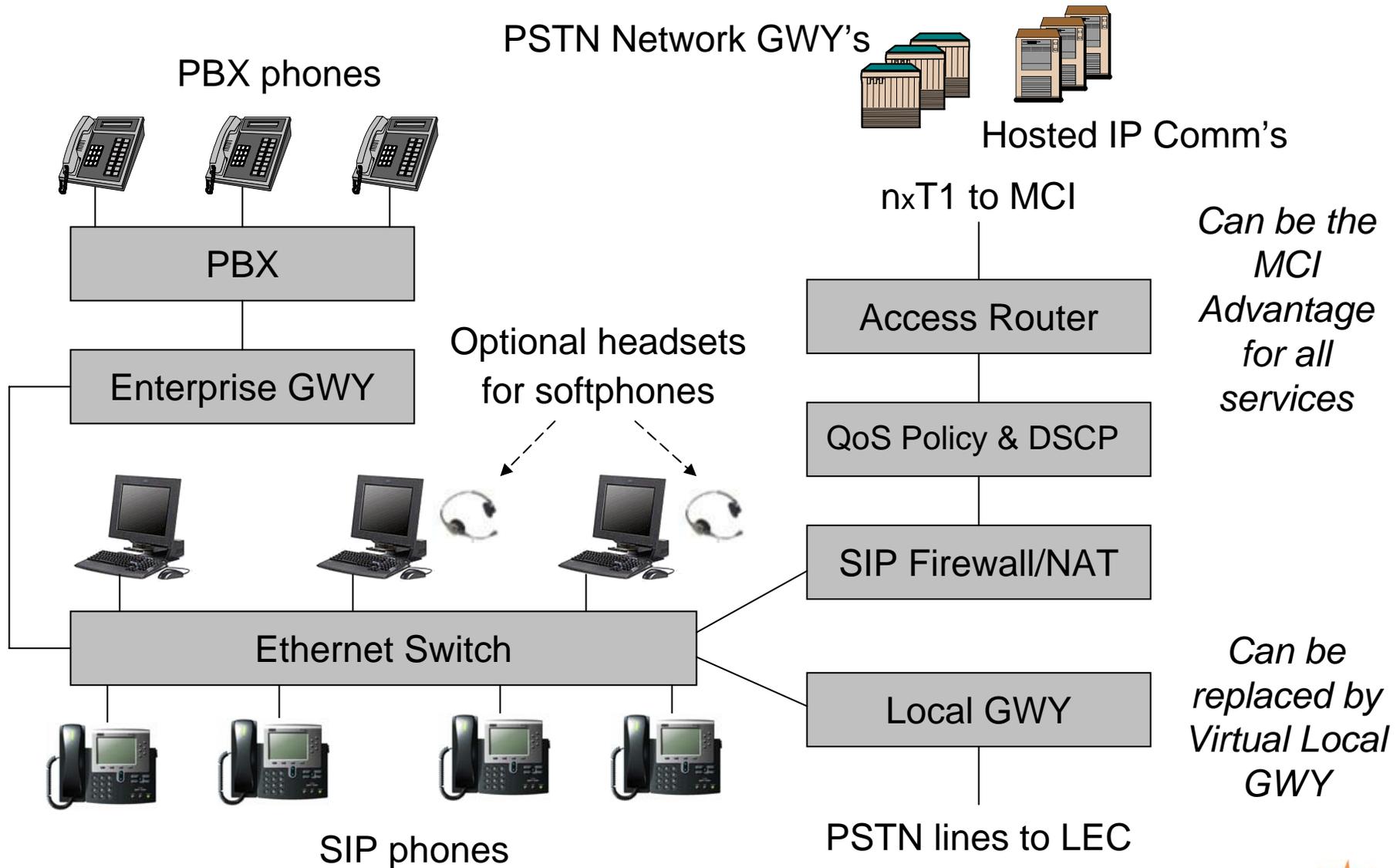
MCI®

Why Architecture Matters
The Benefits of MCI Advantage®

- Network-based architecture decreases CPE acquisition costs

- Use of standards-based technology removes need for proprietary hardware, software and management support

- Feature upgrades are handled in the MCI network, pushing the benefits to all locations at the same time

- **One low** monthly bill; no surprise hardware/software upgrade costs

MCI.®

Network-based QoS Ensures High Performance

- Recognize the value in ensuring good voice and data performance

- Upgraded MCI's IP network to provide Quality of Service (QoS) using Differentiated Services Code Points (DSCP) at the edge

- Support bi-directional QoS

  – Inbound QoS is provided by the network

  – Outbound QoS is provided by the router (UDP/TCP policy)

- Ensures good voice quality and simultaneous data throughput

- Simplifies service delivery and trouble handling with less CPE

MCI

Medium Office Example

PSTN Network GWY's

PBX phones

Hosted IP Comm's

nxT1 to MCI

PBX

Enterprise GWY

Optional headsets
for softphones

Access Router

*Can be the
MCI
Advantage
for all
services*

QoS Policy & DSCP

SIP Firewall/NAT

Ethernet Switch

Local GWY

*Can be
replaced by
Virtual Local
GWY*

SIP phones

PSTN lines to LEC

MCI.

One Network for All Your Features

- **Traditional Centrex features**

  – Attended/Unattended Call Transfer

  – Call Forward / Call Hunt

  – Outbound Call Blocking

  – Private Dial plans

- **Network features**

  – Voicemail

  – Find-Me

- **Upcoming enhancements**

  – Auto Attendant

  – Operator Console

  – Call Pick / Call Park

  – Music On Hold

  – Call Blast

MCI.

MCI Advantage: IP Centrex

1. Set up the preferences

2. Make a call

3. Monitor the call

4. Hold the call

Leverage All Capabilities in Windows Messenger
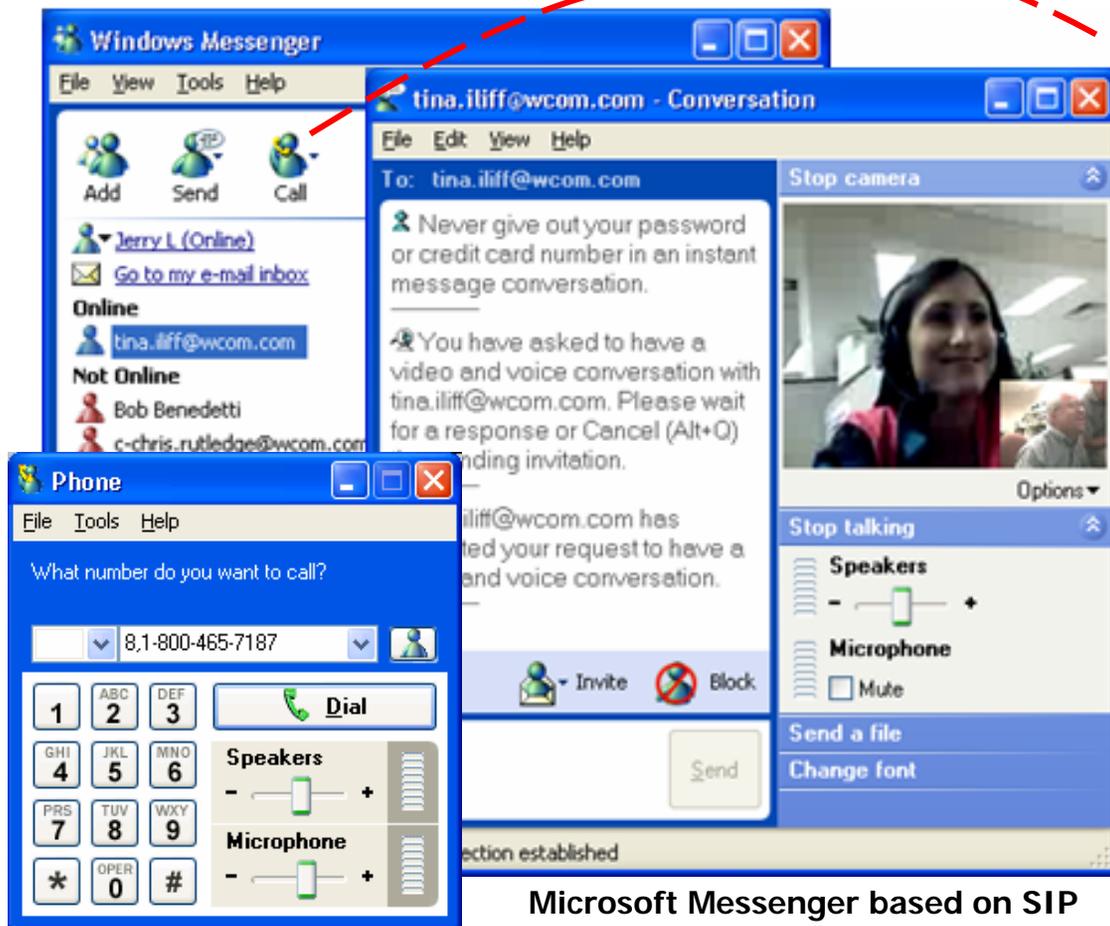
SIP Network Gateway

Microsoft Messenger based on SIP

1. POTS Connectivity
- **PC to phone**

2. IP Communications
- **Presence**
- **Text messaging (IM)**
- **Voice, telephony**
- **Video**

3. Data Collaboration
- **Whiteboard**
- **Application sharing**
- **FTP**

There are many other SIP compliant PC and PDA clients

Laptop and desktop become full communication enabled

MCI

SIP Gateway Services

Network Gateways: SIP-PSTN using SS7

Enterprise Gateways: SIP-PBX using ISDN/Q.931 or CAS

Local Gateways: SIP to LEC for backup service, 911, 411, 1-800

Shared Local Gateways (SLG) are placed in the MCI network and act as a LG

MCI.

Over 90 Local Metropolitan Markets Makes MCI® One of the Largest CLECs

MCI proprietary & confidential
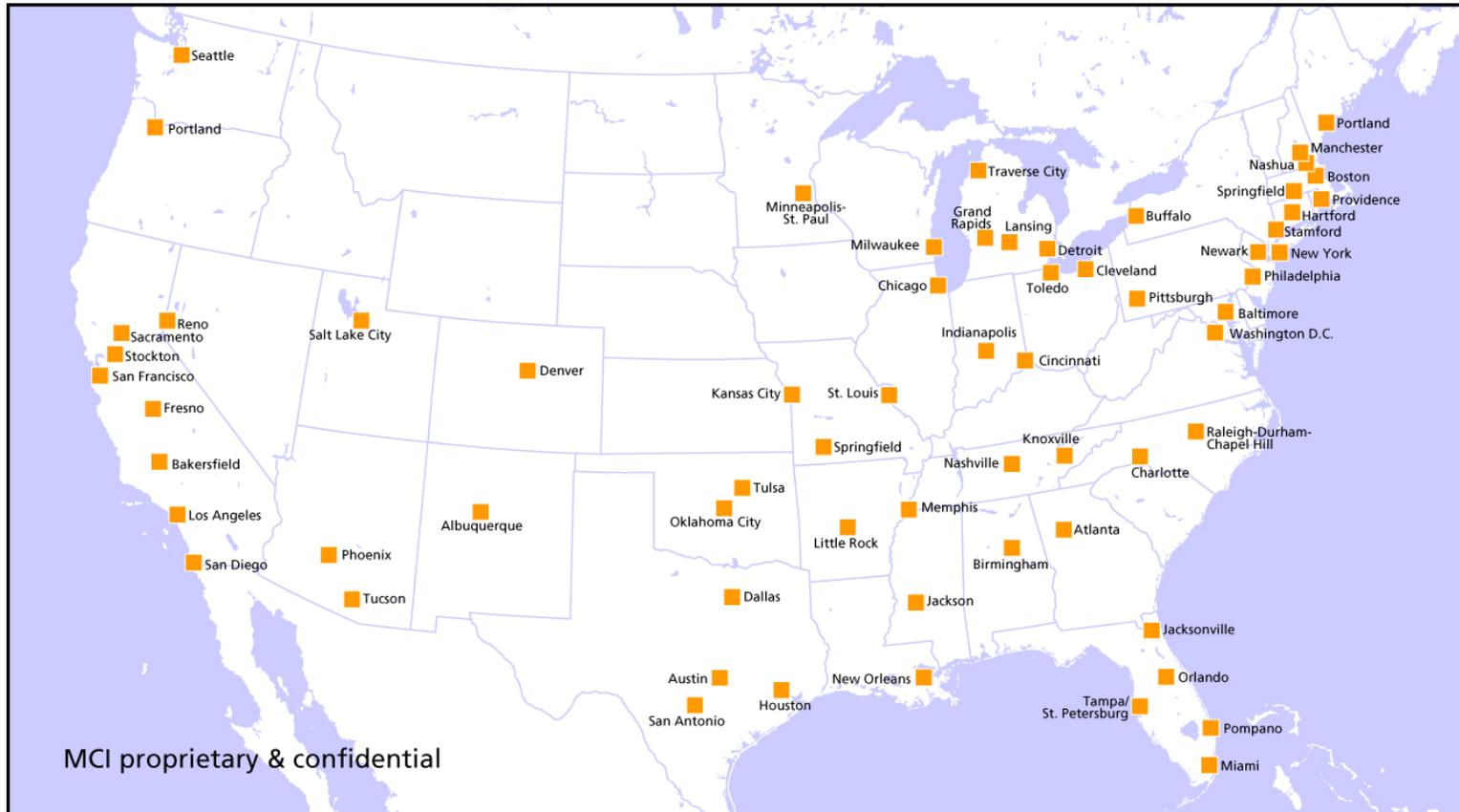
MP4204v3.3

Riding on one of North America's Largest IP Networks

MCI proprietary & confidential

Legend:
- OC3c/STM1 (155 Mbps)
- OC12 (620 Mbps)
- OC12c (620 Mbps)
- OC48 (2.5 Gbps)
- OC48c (2.5 Gpbs)
- OC192c (10 Gbps)
- Single Hub City
- Multiple Hub City
- Data Center Hub
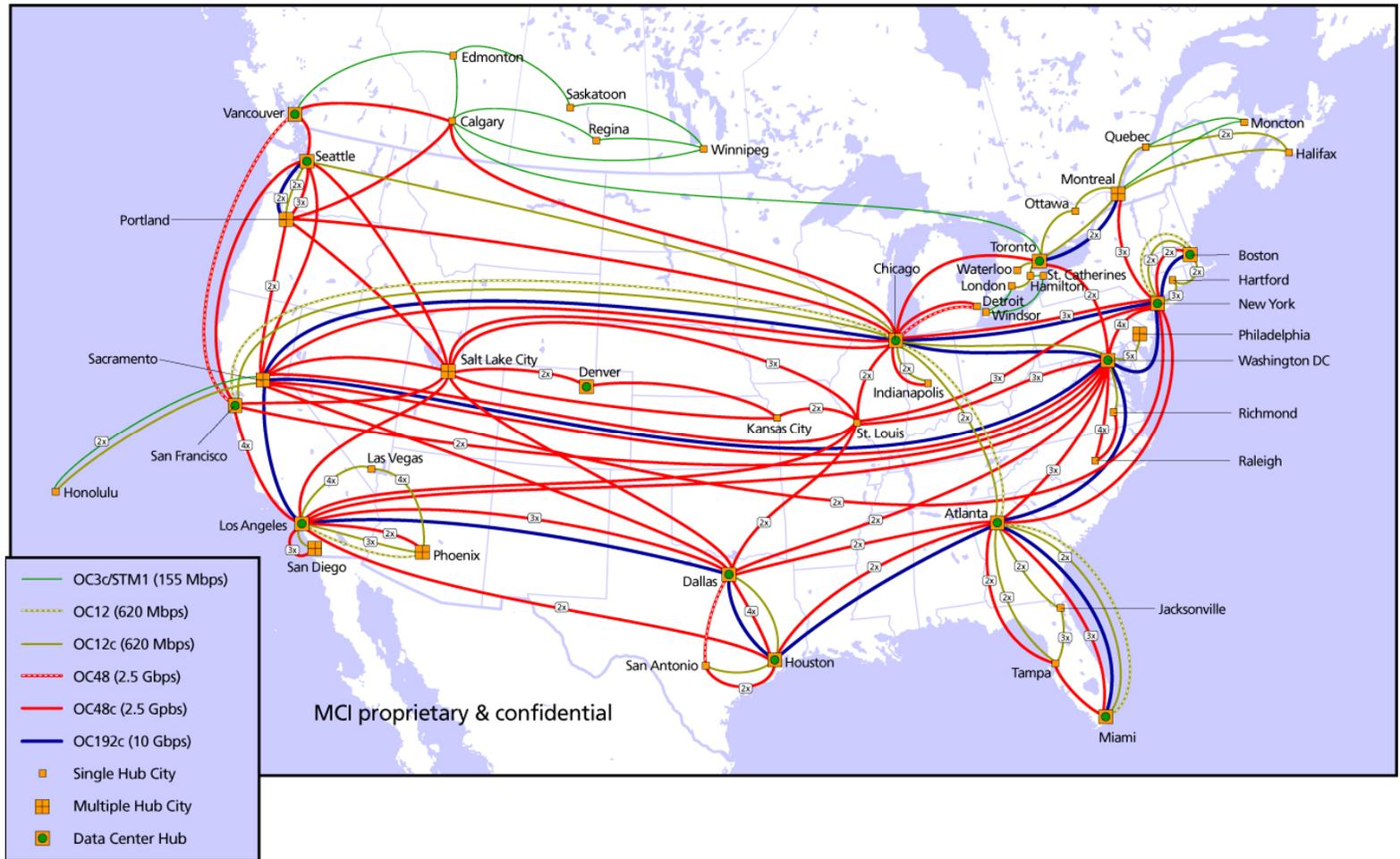
Global IP Network Map
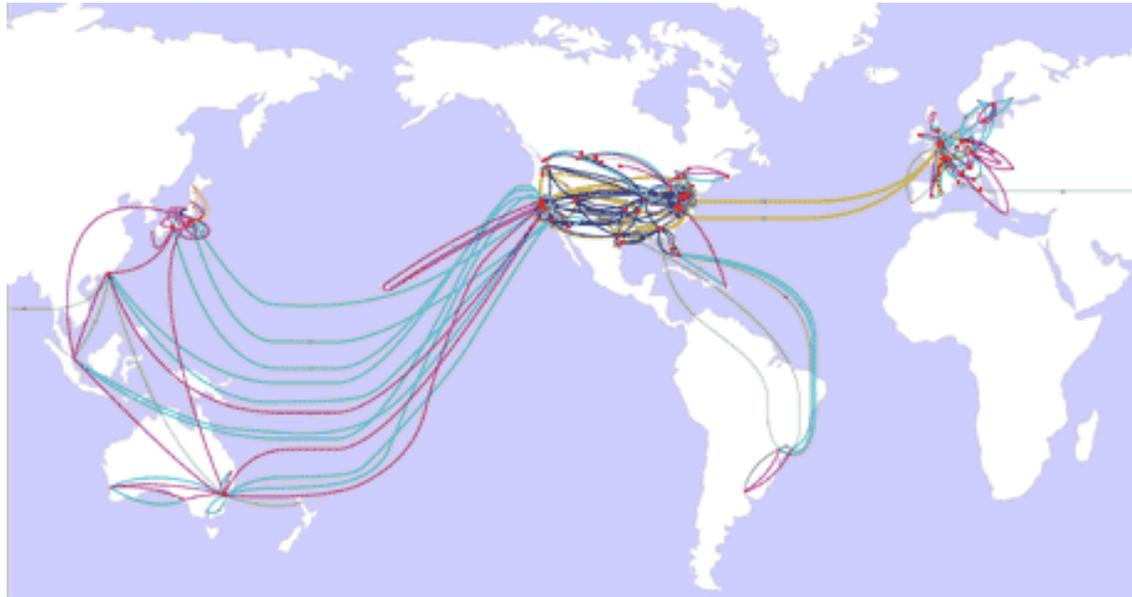
—— 64 Kbps	—— OC12c/STM4 (622 Mbps)
—— T1/E1 (1.5 Mbps/2 Mbps)	—— OC48c/STM16 (2.5 Gbps)
—— E3/T3/DS3 (35 Mbps/45 Mbps)	—— OC192c/STM64 (10 Gbps)
—— T2 (6 Mbps)	• Single Hub City
—— OC3c/STM1 (155 Mbps)	■ Multiple Hubs City
	◉ Data Center Hub

MCI

IP Network Support for Voice

MCI Service Level Agreements (SLAs) guarantee

Monthly latency figures of:

- **55ms or less** for regional round trips within Europe and within North America (for U.S. and Canada customers).

- **55ms or less** for regional round trips within Europe and within North America (for non-U.S. / Canada customers).

- **95ms or less** for transatlantic round trips between London and New York.

Packet delivery of:

- **99.5 percent or greater** for regional round trips within Europe and North America.

- **99.5 percent or greater** for transatlantic round trips between London and New York.

MCI.

2004 Roadmap Items

- **Support for Private IP network service, a la carte**

- **Additional features**

  - **Auto attendant**

  - **Caller ID**

  - **Call park**

  - **Call blast**

  - **Attendant console**

  - **Remote Office**

- **Dedicated 800**

- **Voice SLA**

- **International Expansion**

MCI.

Generic 2004 Roadmap Objectives

Scaling up the IP-PSTN gateway network

Wholesale channels

Cable VoIP using SIP

Global footprint expansion

Consumer SIP VoIP products

Automation for service delivery

MCI.

Internet Communications are Disruptive

"We are not re-engineering the telephone service but we are redefining communications" **Teresa Hastings in 2000**

We are presenting here some of the new services, but believe many or most innovations are yet to come.

Voice over IP (VoIP) in MCI Advantage is only a beginning.

Note: This deck shows the potential of SIP. MCI Advantage does not yet fully utilize all the capabilities of SIP, due to the normal development time to take technology to market.

MCI.

"SIP Service Examples" is on the IETF standard track, LC for RFC, MCI contribution

Call hold	**Music on hold**
Attended call transfer	**Consultation hold**
Unattended call transfer	**Attended transfer**
Call forwarding/unconditional	**3-way conference**
Call Forwarding/busy	**Adding a 3rd party**
Call forwarding/no answer	**3rd party joins**
Single line extension	**Find-me**
Call pickup	**Call park**
Outgoing call screening	**Automatic redial**
	Click to dial

Ref: <draft-ietf-sipping-service-examples-04.txt>

MCI.

SIP: Beyond Class 5, IP PBX and IP Centrex

Services in endpoints

Parallel voice and IM/e-mail communications: Attended transfer and consultation hold may use IM as a parallel communication channel,

Presence is a new core capability:

  Use presence attributes for polite calls,

  Use presence for call-back,

  Use presence to set up ad-hoc conferences,

Use PC with GUIs and 3pcc to invoke all features,

Attendant work station becomes SIP telephony device,

Voice mail becomes a component of unified messaging,

Integrated IM, voice, video and data conferencing/collaboration

From call centers to CRM

ENUM SIP services

Global Internet mobility extends all services beyond the enterprise

MCI.

What Internet communications may not do well at present

Re-engineering the telephone system:

– Better and cheaper circuits

Wireline telephony nirvana:

– Power from the C.O. as alternative for electricity supply

  • Can use power from FXS port on residential adapter or gateway

– Location for 911 when users can be anywhere

  • Static IP phone can be configured with location information

  • Ethernet hub or WAP location

  • Portable devices can be anywhere

– Circuit-like QoS in oversubscribed networks

  (there is no line busy tone either!)

MCI.

The Value Proposition of IP Communication Services

Higher service resilience than PSTN – proven on 7/11/03 and 8/15/03,

More than one service provider – see above

Better voice quality than PSTN, new

Multimedia: Text, voice, video, data, new

Mobility for all communication services -new

Presence based services - new

Event based communications - new

Integration of voice mail, e-mail, IM, SMS

Multiple conferencing models and media - new

Call routing heaven + ENUM - new

Secure communications

User preferences and control for all of the above- new

Integration with the Web (new!):

Communication, information, productivity apps, entertainment, transactions

Gateways to PSTN, mobile telephony, paging networks, ISDN, H.323, etc.

100% open standards based, multi-vendor interoperable- new

Service development is easy and fast - new

Bottom line: Lowest overall cost and highest functionality combined

MCI.

Conclusions

As MCI is migrating all its traffic and services on to one single public IP backbone, MCI Advantage allows customers to consolidate all types of communications, Internet and data services and benefit from the integration of communication, applications and transactions over IP and the Web.

MCI.