Cisco TelePresence – New Experience in Business Communications

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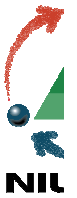
NIL Data Communications



Technology that provides an "In Person" *Experience* over an IP Network

ePresence Meeting

xperience

- Every participant at the table ... life size
- Eye contact, audio from person speaking
- Speak normal voice level
- No perciveable latency

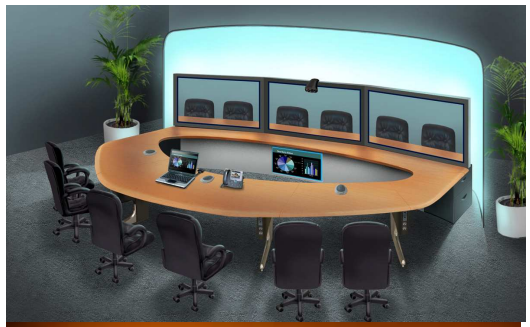
mplicity

- Technology invisible to the user
- As easy as placing a phone call

sco TelePresence leverages the Network as the atform along with Cisco Unified Communications to liver Unique In Person Experiences

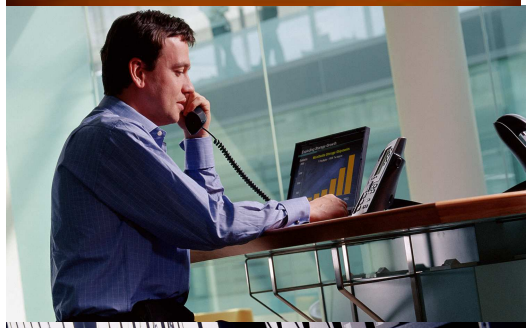
mplete Solutions

Endpoints
- Group and executive



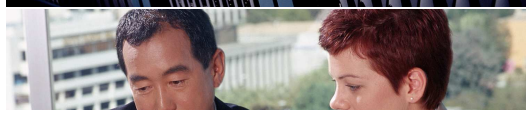
High Definition Video Switch
- Multi-point

Software
- Scheduling
- Automated call launch
- Video concierge



Network
- Business to Business

Services
- Planning and design

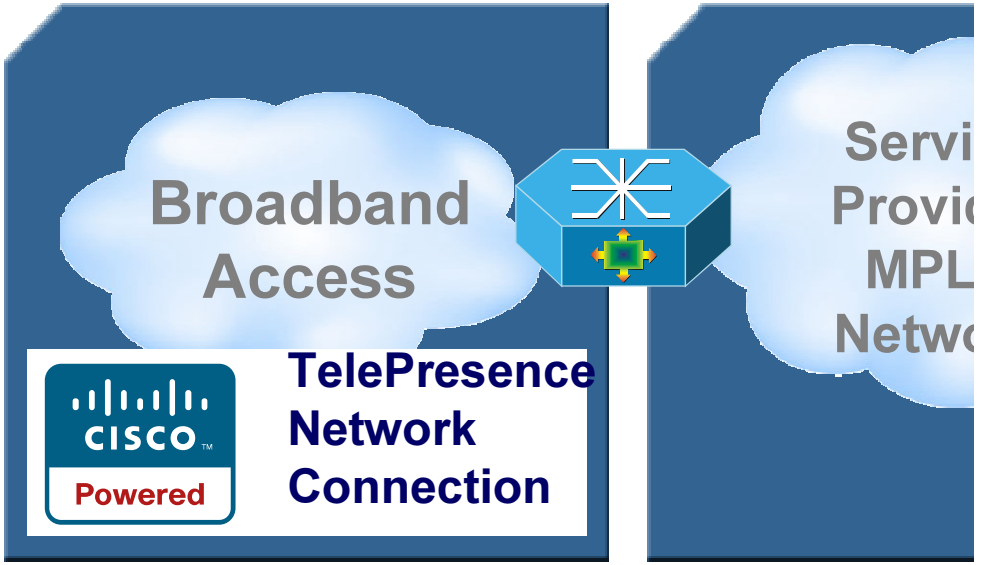


...ual Meeting

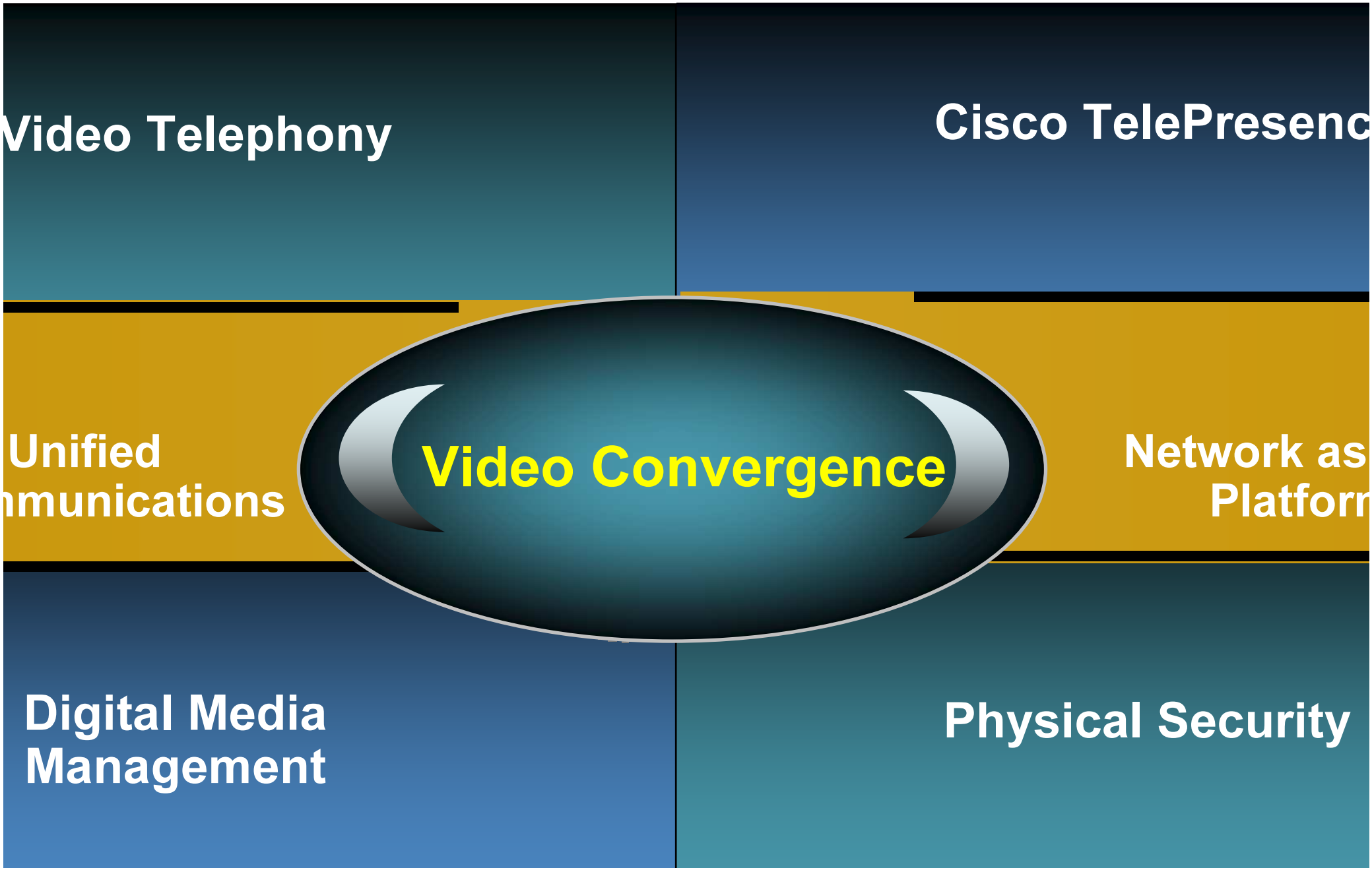
Cisco TelePresence Meeting

ıwork Connection is the Key

- ıaranteed end-to-end QoS
  - Latency
  - Packet Loss
  - Jitter
  - Availability
- ɔerational performance cellence
- ɛcure network rastructure
- ılidated by third-party audit



ey Part of Cisco's Vision for Video Convergence



w and Innovative Philosophy

he Problem

e than 60% of
munication is
-verbal*

Rules of Cisco TelePresence

- Experience the meeting, not the technology

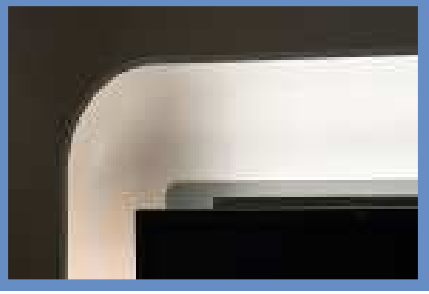
Cisco Built fr the Ground

- Innovative sys not a monthly service

ys

Microphones

Environmentals



Cisco TelePresence Syste

- 12 seats at the virtual table
- Purpose-built room
- 15Mbps@1080p, Ultra High
- Spatial Wideband Audio
- Imperceptible Latency

Cisco TelePresence Syste

- 4 seats at the virtual table
- General purpose room
- 5Mbps@1080p, Ultra High D
- Wideband Audio

-3000

- 2 participants at the rtual table
- ative 1080p cameras nd 65” plasma displays
- Videband microphones nd speakers
- isco Unified IP Phone 975G
- uto-Collaborate
- udio Add-In

S-1000

articipants at the
ual table

tive 1080p camera
d 65” plasma display

deband microphone
d speaker

co Unified IP Phone
75G

:o Collaborate

dio Add-In

lec

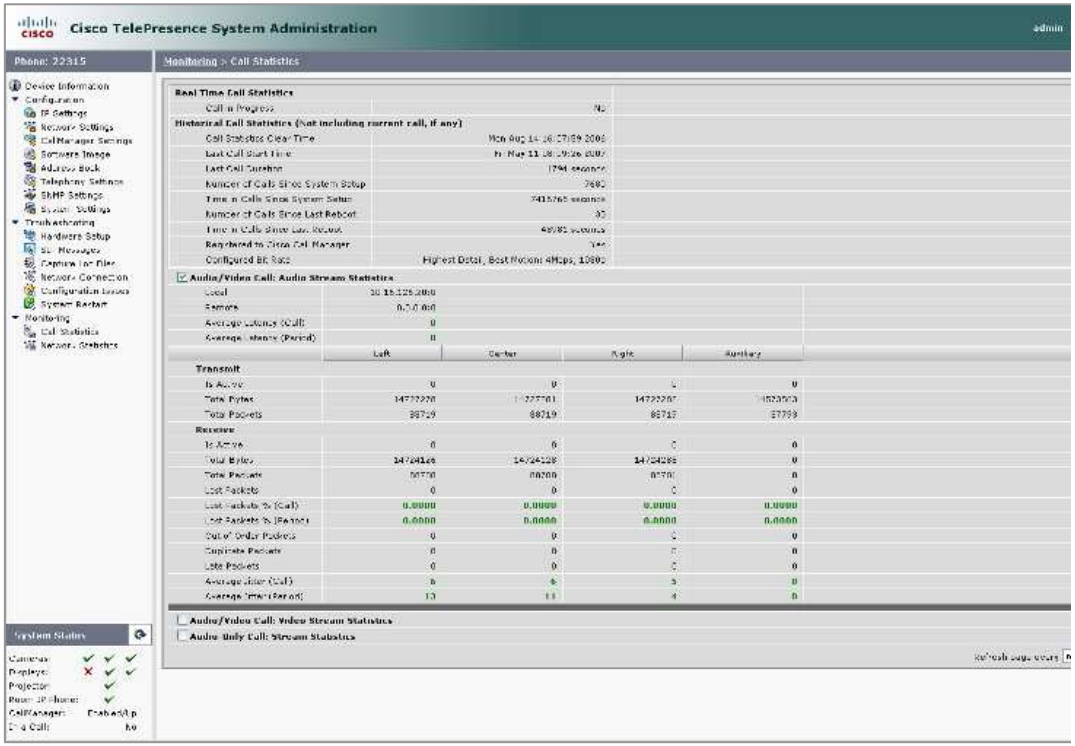
s embedded Linux on
pact flash

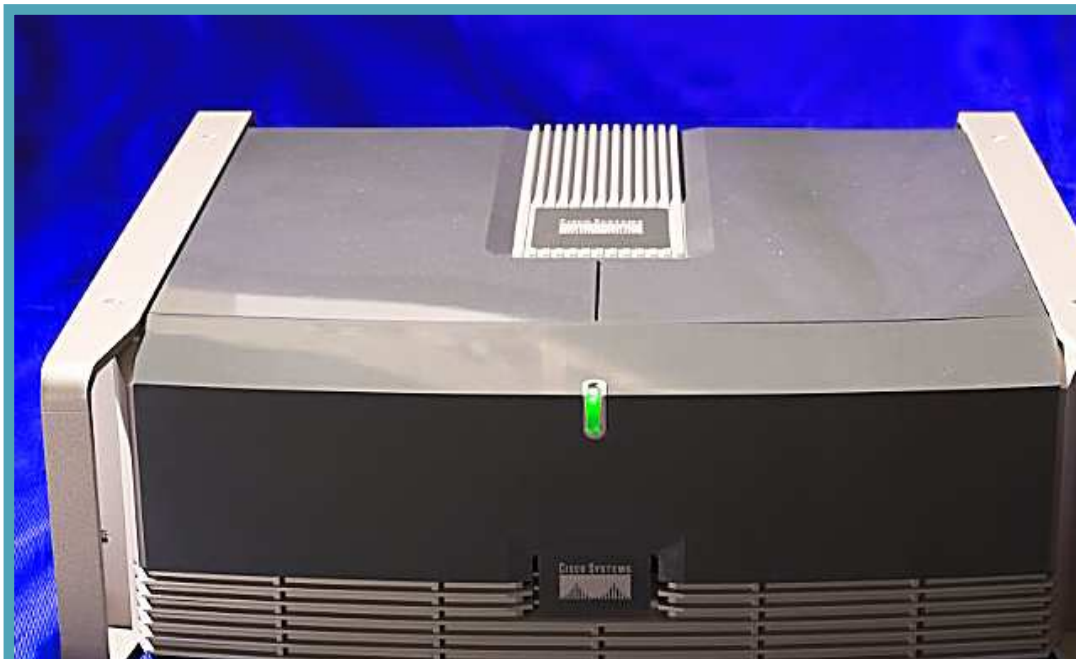
rages Cisco Unified
munications Manager

on open standards

Collaboration for data
ing

o Add-In for audio only
cipants





eo

ameras

- Native 1080p resolution
- Small form factor
- Clustered design for enhanced eye contact
- Purpose built by Cisco – managed by the CTS codec

splays

- 65” Plasma technology
- Native 1080p resolution
- Life size - two people per screen
- Purpose built by Cisco –

lio

icrophones

- Discrete audio by table segment
- Multi-channel spatial audio with echo cancellation

peakers

- Designed to properly reproduce human speech

r Interface

sco Unified IP Phone 7975G provided as rt of system

ovides the user interface the CTS – touch screen

XML

eatures:

- System speed dials
- “One Button to Push” call launch for scheduled meetings

o Collaborate

o Collaborate enables you to
re graphics from a laptop or
ects via a document camera

configuration (Plug and Play)

ges automatically displayed for
sites in the meeting

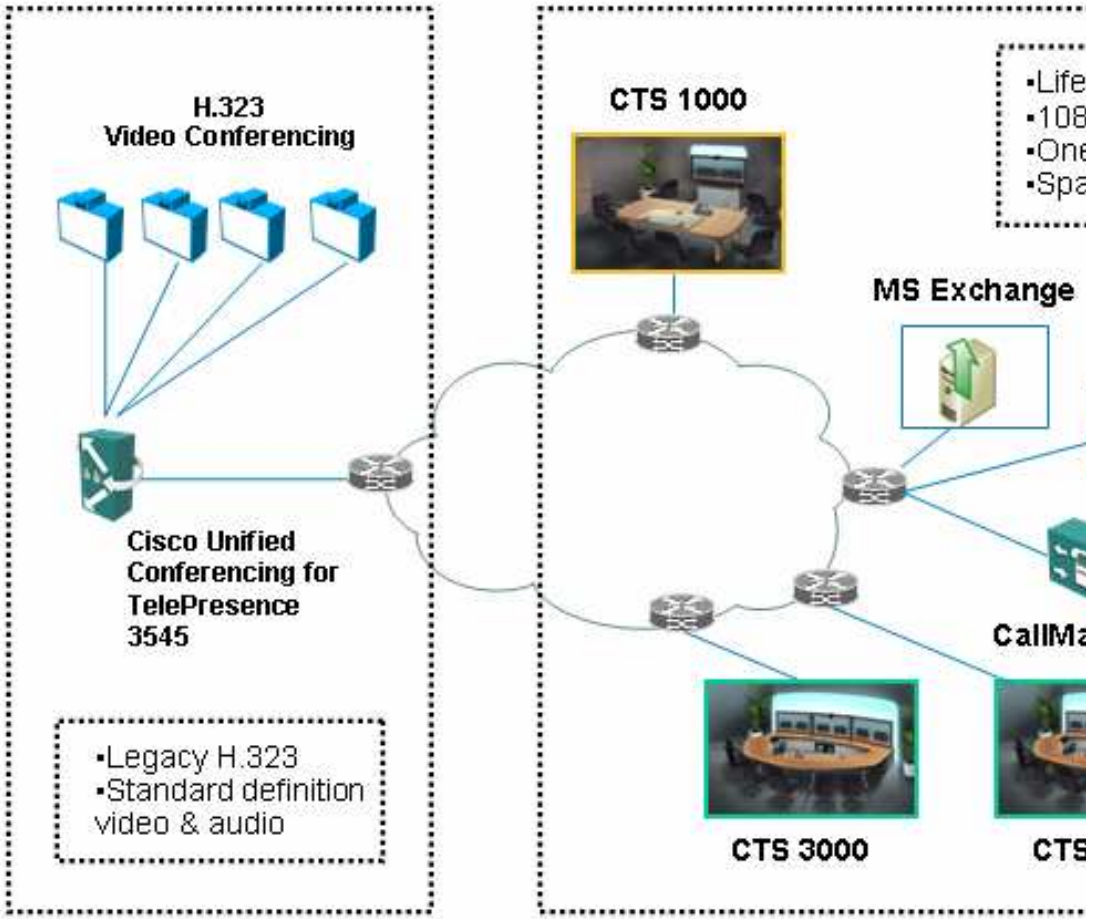
t device activated takes control

s 4th (auxiliary) video channel

roperability

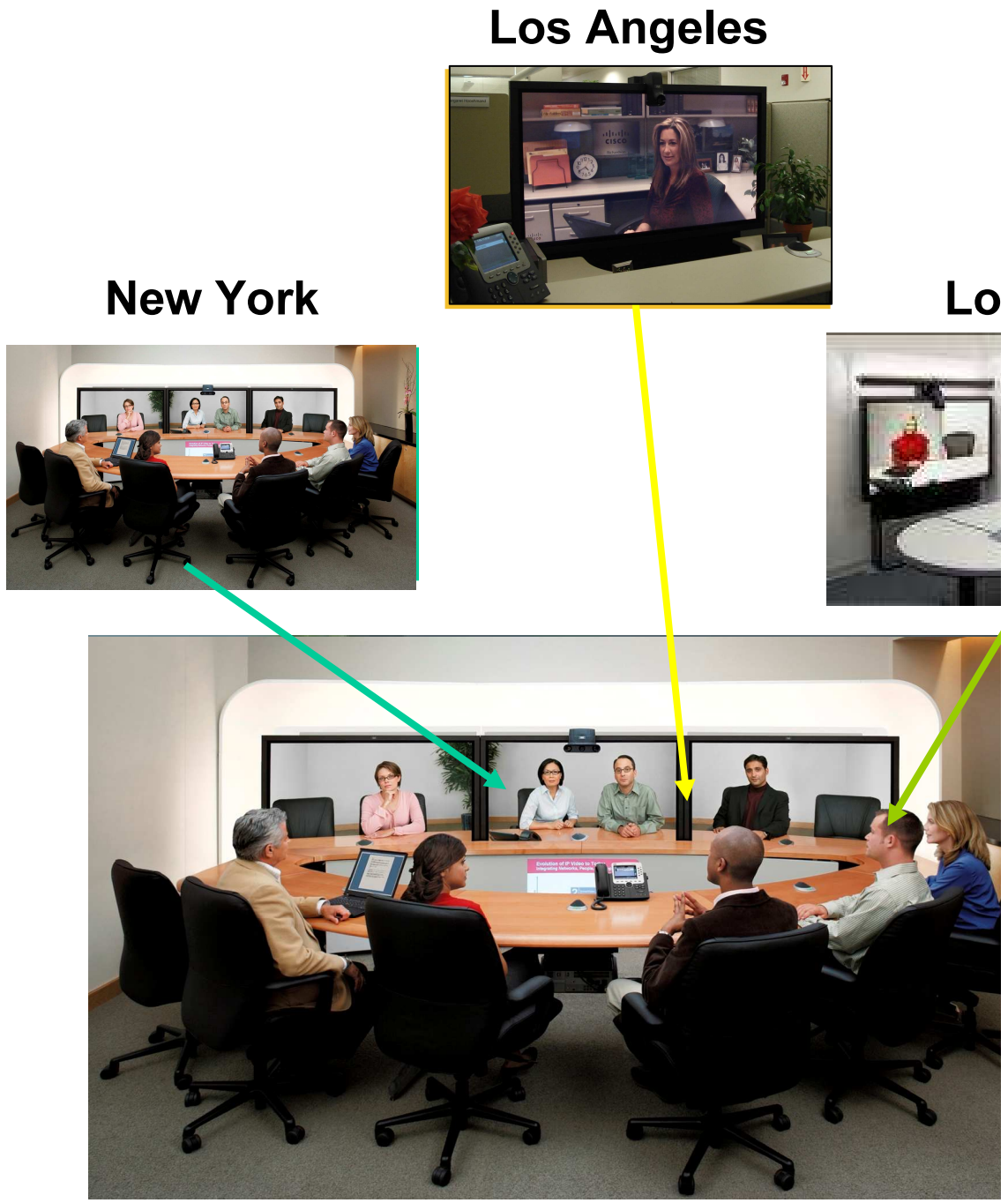
eroperability with Cisco
45 MCU for H.323 and
ssic video conferencing

nference in a port and
werful transcoding
chnologies allow for lower
solution endpoints

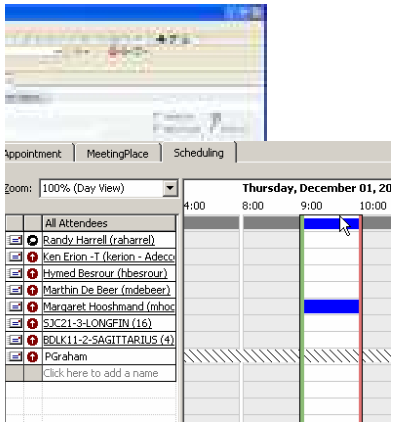


ltipoint Solutions

- more end-points in one ference
- n Definition Video Switch
- igned for Cisco ePresence
- Full-size continuous presence by screen
- Switching by site, by table segment (first to market)
- ports up to 48 segments
- e button to push" call launch



...e Telepresence Manager



liar Tools

One Button to Push

Real-Time Serv

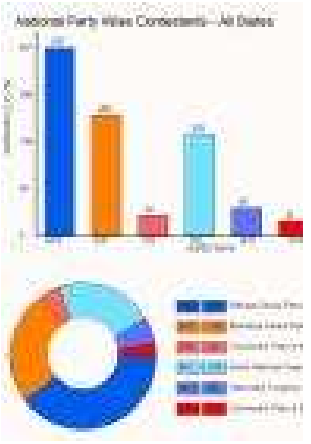
Unified Call Manager

Cisco Network

Cisco TelePresence Manager

Microsoft Exchange
IBM Lotus Notes
Web

Unified Contact Center



siness Decision Maker Perceptions

- Improved relationships and
eased decision-making

- Improved productivity in functional
ps

- Extended competitive advantage

- Faster issue resolution

- Reduced IT support

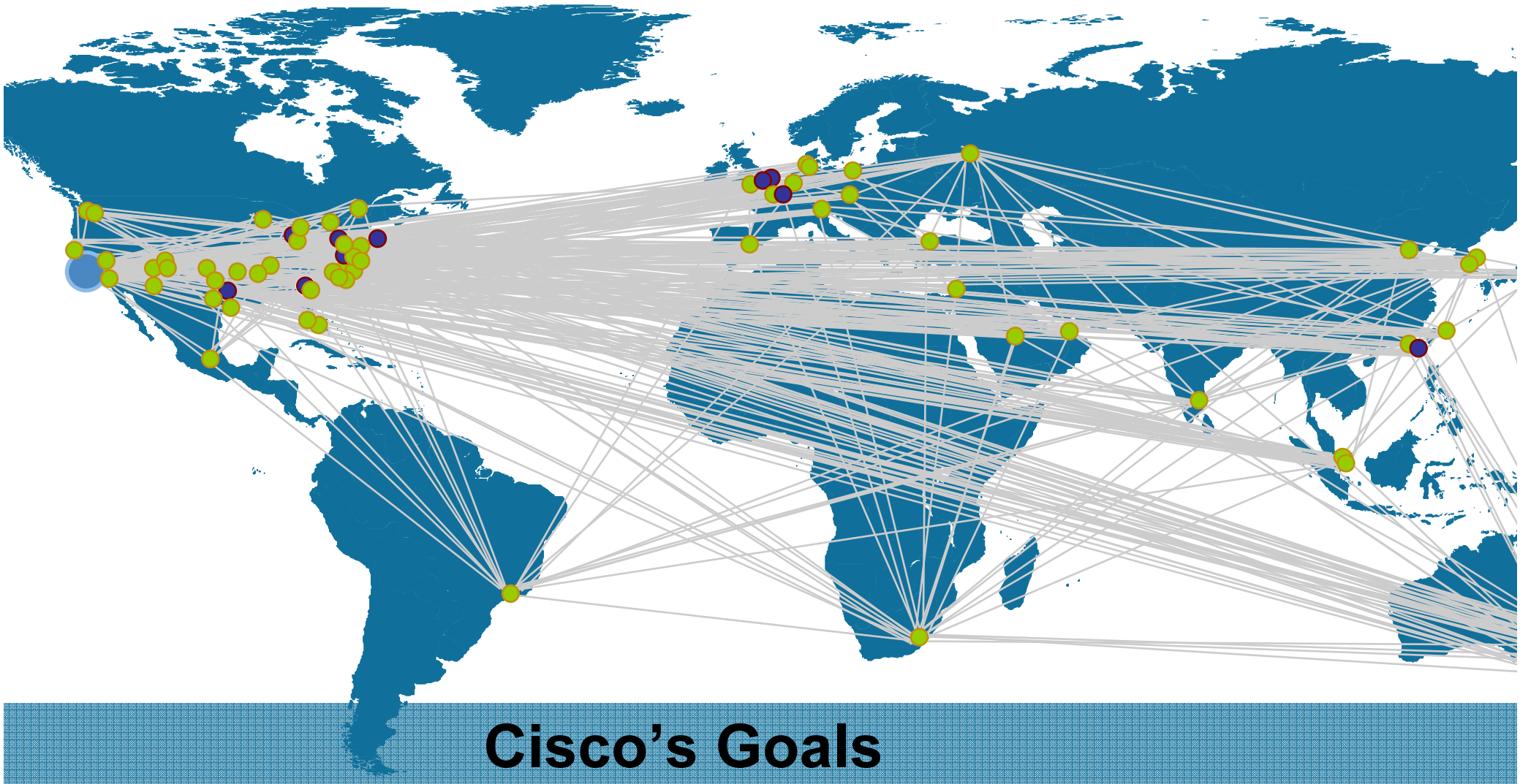
...ed Virtual Agent

S 1000 and Cisco Unified Contact Center
ɔress

ɛate an intimate experience for the customer with
-size, high-definition video images and CD
ality audio

w applications, Vertical Markets

Systems at Cisco Offices



Cisco's Goals

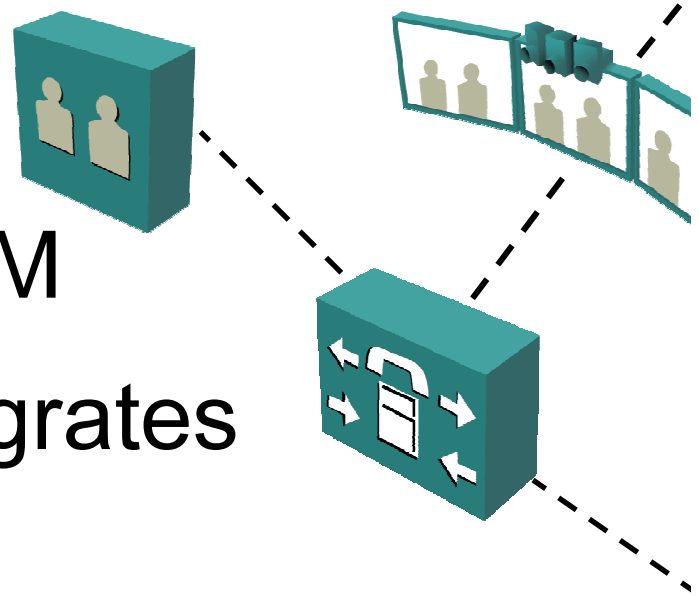
ve productivity

e business models

- Cut travel by 20%
- Reduce expenses by U

sco TelePresence - CUCM

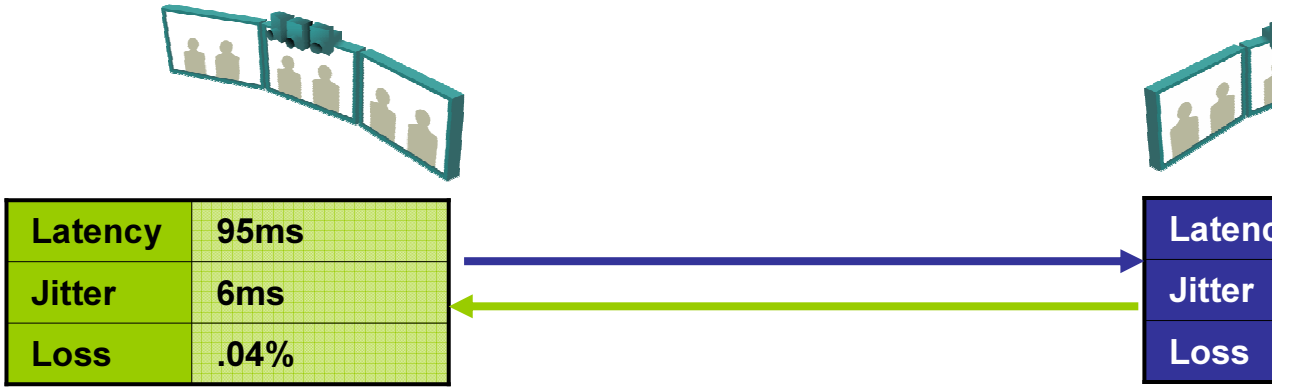
- UCM Release 5.1(2b) or later required
- UCM view a CTS just like a
  isco Unified SIP IP Phone
- TS-Manager integrates with CUCM
- isco TelePresence Multipoint integrates
  ith CUCM via SIP trunk
- isco Unified SIP IP Phone 7975G



ffic Characteristics Summary

ne-Way, End-to-End Service
vel Targets

- Latency ≤ 150 ms
- Jitter ≤ 10 ms
- Loss ≤ 0.05%



rget, Warning Message,
ll Terminated

ax Bandwidth per Second

- CTS-1000 = 5.5 Mbps (at 1080p)
- CTS-3000 = 14.6 Mbps (at 1080p)
- CTMS = 198 Mbps (5.5 Mbps * 36 sites)

sessment

ze and orientation

'all, door and floor materials

ocation of windows and doors

ound transmission and noise reduction

coustic - reverberation

r Conditioning

ower

thernet connectivity

perience the Experience @ NIL

ndwidth

Average bandwidth utilization is much less.						
n	1080p	1080p	1080p	720p	720p	720
andling	Best	Better	Good	Best	Better	Goo
Screen (kbps)	4000	3500	3000	3000	2000	100
Microphone (kbps)	64	64	64	64	64	64
Video channel projector (kbps)	500	500	500	500	500	500
Audio channel add-in) (kbps)	64	64	64	64	64	64
io and Video (kbps)	4,628*	4,128*	3,628*	3,628*	2,628*	1,62
io and Video (kbps)	12,756	11,256	9,756	9,756	6,756	3,75
total bandwidth *Layer 2- 4 overhead*	5.5 Mbps*	4.9 Mbps*	4.3 Mbps*	4.3 Mbps*	3.1 Mbps*	2 Mb
total bandwidth *Layer 2- 4 overhead*	15.3 Mbps	13.5 Mbps	11 .7 Mbps	11.7 Mbps	8.1 Mbps	4.5 M

00 transmits up to 128kbps of audio, but can receive up to 256kbps when participating in a meeting with a CTS-3000.

asured?

Delay, jitter and loss are measured:

- End-to-end (codec ethernet port to codec ethernet port)
- Uni-directionally (each codec independently measures incoming RTP traffic)

End-to-end budgets are carefully engineered to provide glol coverage without negatively impacting the experience

- A portion of the budget is allocated to the service provider (dema to demarc – including CE-PE links) and the remainder is allocate the Enterprise

esholds

	Target	Warning Message	2nd Warning
End to End	≤ 150 ms	≥ 200 ms	≥ 400
ervice Provider	≤ 120 ms	≥ 160 ms	≥ 320

Recommended SLA

) split between Service Provider and Enterprise

0% allocated to the SP is from demarc to demarc - including the CE-PE link

0% allocated to the Enterprise

ice Provider should engineer their network to the Targets, but the Se
l Agreements (SLAs) should be based on the first threshold

shold behavior:

00 ms

A warning message is displayed **"Experiencing network delay"**

00 ms

esholds

	Target	Warning Message	Call Term
End to End	≤ 10 ms	≥ 20 ms	≥ 40
Service Provider	≤ 5 ms	≥ 10 ms	≥ 20

Recommended SLA

0 split between Service Provider and Enterprise

0% allocated to the SP is from demarc to demarc - including the CE-PE link

0% allocated to the Enterprise

ice Provider should engineer their network to the Targets, but the S
l Agreements (SLAs) should be based on the first threshold

shold behavior:

0 ms

A warning message is displayed **"Experiencing network congestion"**

0 ms

Step 1: System will lower motion handling from **Best** to **Good**

Step 2: If condition persists the call will be disconnected and an error message will be di

	Target	Warning Message	Call Term
End to End	≤ .05 %	≥ .1 %	≥ .2
Service Provider	≤ .025 %	≥ .05 %	≥ .1

Recommended SLA

0 split between Service Provider and Enterprise

0% allocated to the SP is from demarc to demarc – including the CE-PE link

0% allocated to the Enterprise

ice Provider should engineer their network to the Targets, but the S
l Agreements (SLAs) should be based on the first threshold

shold behavior:

1%

A warning message is displayed **"Experiencing network congestion"**

2%

Step 1: System will lower motion handling from **Best** to **Good**

Step 2: If condition persists the call will be disconnected and an error message will be di
"Call could not proceed due to excessive network congestion"