PART II

Telepresence: A Low Cost Approach, Interoperability and The Commons

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Levels of videoconferencing

- **Web Conferencing**
  - PC and small camera
  - Collaboration tools such as Skype, Elluminate, Dimdim....
  - Fair quality

- **Standard H.323 Video Conferencing**
  - Most common type today
  - Good quality

- **High-Definition H.323 Video Conferencing**
  - Like HDTV
  - Excellent quality

- **Telepresence**
  - HD, plus appearance of being in the same room

All of these will be demonstrated here today.
Traditional Telepresence Systems

• All currently offered systems were investigated.

• All were found to be too expensive for most applications. Typically $250K and up.

• Some are proprietary, and incompatible with all others.

• Some require dedicated and vendor-managed networks.
The Telepresence Kit Approach

- LifeSize Corp was the first to offer low-cost high-definition video conferencing.
- Now they have offered an inexpensive kit version of Telepresence.
- $70K, including installation and one year maintenance.
- Installation by ID Solutions (excellent company!)
- OARnet is installing 2 of these as a pilot program.
The LifeSize Telepresence System

- Four cameras
- Three 60-inch monitors for video
- One 50-inch monitor for slides, etc.
- Touch-screen control system
Multipoint Telepresence Conferences

• Any video conference with more than two participants requires a multipoint control unit.
• We purchased a Codian 12 port HD MCU,
• Costs $54K.
• Supports 4 locations of 3 screens each, or any combination of 12.
Current Status

The first system was installed last week, ending Friday afternoon.

This provided ample time for comprehensive testing and investigation of interoperability with all other telepresence systems in the world, before we got on the airplane to come here on Sunday.

The second system will be installed soon, at Ohio State University.
The Installation Process

• Prepare the wall
• Run the wires
• Hang the monitors
• Pray a lot
• Make it work
Preparing the Wall
The Generals arrive
The Infantry arrives
Hanging the monitors
Running the wires
Official Screen Angle Adjustment Tool
Invalid Format???
Pray a lot
Success!!
Demonstrations

• Note relative quality of video and audio.
• Note equipment required.
• Most connections are between the Ohio Supercomputer Center and this room.
• Most connections are via Internet2. Bandwidth is not a limitation.
• A Codian MCU is used here only to simplify switching between the different demonstrations.
Web Conferencing - Skype is Typical

Macbook Pro, Built-in Camera

Internet2

Macbook Pro, Built-in Camera

Columbus, OH

New Orleans, LA
Standard Definition Video Conferencing

Polycom SD Endpoint

Codian HD MCU

Internet2

LifeSize HD Endpoint

Columbus, OH

New Orleans, LA
High Definition Video Conferencing

LifeSize HD Endpoint

Codian HD MCU

Internet2

LifeSize HD Endpoint

Columbus, OH

New Orleans, LA
Interoperability of Levels of Videoconferencing

- **Web Conferencing**
  - Essentially no interoperability. Collaboranza! 2006
  - [https://wiki.internet2.edu/confluence/display/Collaboranza/Home](https://wiki.internet2.edu/confluence/display/Collaboranza/Home)

- **Standard H.323 Video Conferencing**
  - Complete interoperability. Megaconference 1999-present
  - [http://www.megaconference.org](http://www.megaconference.org)
  - 10th Anniversary Megaconference Nov 6.
  - REGISTRATION DEADLINE TOMORROW 11 AM!!!

- **High-Definition H.323 Video Conferencing**
  - [http://commons.internet2.edu/gigaconference2005](http://commons.internet2.edu/gigaconference2005)
  - [http://commons.internet2.edu/gigaconference](http://commons.internet2.edu/gigaconference)

- **Telepresence.**
  - No interoperability

- **Teraconference 2009**
Telepresence Interoperability

- No Telepresence vendor claims interoperability with any other Telepresence vendor.
- Some Telepresence vendors are natively H.323 compatible (eg - LifeSize, Polycom, Tandberg), making interoperability theoretically possible.
- Telepresence systems use special dedicated MCUs.
- Telepresence systems do not use gatekeepers; hence they can call only via IP address. No GDS.
- Telepresence systems use proprietary control systems, to simplify operation. Eg - Crestron, AMX
Typical Telepresence System

Diagram showing the typical telepresence system with Codec and Proprietary Control System components interconnected at Location A and Location B.
Interoperable Telepresence System

Codec
Codec
Codec
Codec
Codec
Codec

Bypassed or Modified Proprietary Control System

MCU
Gatekeeper

Bypassed or Modified Proprietary Control System

Location A
Location B
5 Fateful Hours, Late Friday Afternoon
Several Firsts

• Connected Telepresence system codecs to standard MCU.

• Registered Telepresence system codecs to Gatekeeper.

• Connected Two same-vendor Telepresence systems together via MCU.

• Connected Two different-vendor Telepresence systems together via MCU.

• Designed MCU operational plan to make this easier.
Telepresence Interoperability Demo

LifeSize Telepresence System

Codian HD MCU

Internet2

LifeSize HD Endpoint
6 Images Squeezed onto One Screen

Internet1

Polycom Telepresence System

Columbus, OH

Dayton, OH

Iformata Company

New Orleans, LA
Telepresence Interoperability!
Internet2 Commons and Telepresence

- No HD or Telepresence capability at the moment
- Short term - Discuss access to the OARnet Codian HD MCU used in this work, for Commons members.
- Longer term - Purchase its own HD MCU.
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Questions?

Thank you for coming!