IVCi Case Study: GE Installs Groundbreaking Cisco Telepresence Room

By Nina Parker

Challenge

GE's former CEO and Chairman Jack Welch once said, "The desire, and the ability, of an organization to continuously learn from any source, anywhere, and to rapidly convert this learning into action, is its ultimate competitive advantage." Under Welch's leadership, GE grew to become one of the largest and most valuable corporations in the world. Today, his principles of managerial leadership and continued education and training for employees continue to be ingrained in the company culture. In 2001, GE commemorated Welch's retirement after 20 years of service by renaming its corporate training facility in Crotonville, New York, in his honor.

GE invests over US$1.2 billion annually in training and education programs, and has learning centers located around the globe. Established in 1956, GE's Crotonville location is the hub, and GE considers it the first corporate business school in the world. The site is used by GE executives for high-level training classes and meetings, but it is also available to teach employees at all other levels within the organization.

In 2005, GE implemented an environmentally friendly program called "Ecomagination" as part of its effort to reduce its carbon footprint. In the spirit of Ecomagination, GE's Senior Vice President and Chief Information Officer Gary Reiner began an initiative to save travel time, expenses, and environmental impact with a reduction in companywide travel. Reiner wanted to facilitate meetings and training by reducing the need for personnel to travel to the Crotonville site, without losing the impact of an in-person meeting.

Solution

Flying a GE executive to Crotonville for a meeting can be a costly endeavor. For example, an executive traveling round-trip from Asia for a two-hour meeting could result in an expense of about $30,000, two days of time lost in-transit, and approximately 6294 pounds of carbon dioxide emissions. In addition, arranging for an expert to lecture a training class could be difficult due to scheduling conflicts. GE needed a solution that could replicate face-to-face meetings and reduce the need to travel, so it chose a Cisco Telepresence™ solution to meet this objective.

Telepresence is a high-definition (HD) video-conferencing experience that delivers lifelike virtual meetings. It creates the illusion that participants are in the same room, when in fact they may be in different cities or continents. Telepresence delivers high-impact, realistic meetings with similar room setups at each site (including furniture and décor), HD video and audio, and large display devices. In most cases, a Telepresence installation is an easily deployed solution that is integrated into a dedicated room.

Crotonville's Lyceum conference room was chosen to be a multipurpose Telepresence room. It had been used for training and presentations, but it lacked the equipment that would create a highly realistic meeting experience. Industry expert and Telepresence system integrator IVCi worked with Timothy Peterson, GE's lead deskside support, and Helio Muro, a Cisco engineer and TelePresence expert, to create a custom solution that would transform the Lyceum room into a Cisco® Telepresence environment.

Technology

The Crotonville facility comprises numerous classrooms and meeting rooms, all with slightly different configurations. The Lyceum conference room has stadium-style seating with a 60-person capacity. It is used to hold the two highest-level training courses, business management and executive development, which require the use of high-end presentations, speakers, and subject-matter experts. In addition to training, the room was to be used for executive and upper-level management meetings.

IVCi integrated Cisco Telepresence technology into this multipurpose conference room, and designed the audio and video systems to accommodate 60 participants instead of the typical 10 – 15. "This Telepresence room is the first of its kind," says Tim Hennen, IVCi's senior vice president of AV Integration. "Never before has an integrated Telepresence room been created that can deliver an optimal experience to over 18 participants, and this room's capacity far exceeds that number. IVCi, Cisco, and GE worked together to design and install a truly innovative system."

The technology that was used in this project includes:

· Display Devices: The display devices include three 103-inch Panasonic displays on the front wall, one 65-inch Panasonic display below the plasmas for viewing content, two additional 50-inch displays for content support, one 42-inch Panasonic display for additional viewing during a Telepresence call, and a Smart Sympodium interactive pen display that allows users to annotate over a computer image or blank screen.

  – The three large plasmas are located on a custom steel wall structure that was designed by IVCi and fabricated by Custom Display Solutions. The room's existing wall structure was disassembled, and the material was reused to be cost efficient and eco-friendly. The new wall is equipped to handle the significant weight load of the large plasmas, and features a pull-out mechanism to allow service of the displays without removing them from the wall. A motorized tilt mechanism was installed to provide participants different angles for viewing the 65-inch display, and so that it could be easily folded back into the wall.

  – The presenter can make annotations on the Smart Sympodium, and its content will be displayed for the Telepresence room participants on the far end of one of the three plasmas.

- **Audio System**: The audio system includes a Biamp AudioFLEX Audio Matrix, ClockAudio in-table microphones with an FSR push-to-talk custom ring, ClockAudio ceiling-mounted microphones, Tannoy wall-mounted speakers, dual concentric ceiling speakers, and wall-mounted left-center-right speakers.

  – The Biamp AudioFLEX is an open-frame digital signal processor. This flexible architecture was necessary because of the amount of processing and routing that is required among the numerous microphones and codecs, audio sources and hybrids, and speaker zones. Biamp's product allowed IVCi's engineering team to design a system with full control over the routing, auto-mixing, processing, feedback suppression, and equalization.

  – The microphone and audio system was designed to allow a selection of up to six preferences, including push-and-hold-to-talk, toggle on/off, and voice-activated with/without camera video switch selections.

  – To represent a live meeting experience, 30 microphones are capable of being on all the time so that a participant can speak freely, and the appropriate microphone will deliver the audio. The microphones also come with a "look at me" function; they are programmed so that when the speaker pushes a button, a camera will zoom-in and deliver a head shot to the far end.

  – The left-center-right speaker system was installed with zoned ceiling speakers to allow for proper room coverage and support for audio conferencing, Telepresence calls, and local presentations.

- **Video Sources**: The eight video sources include one room PC, four laptop feeds, a DVD, a VCR, and a cable TV that can be sent to the left, center, right, or support monitors.

- **Video–Conferencing System**: The video-conferencing system includes multiple Cisco Telepresence codecs and cameras, Sony HD video-conferencing cameras, Extron amplifiers, Barco HD image processors, and Aurrora HDMI matrix switchers.

  – Seven cameras are dedicated to capture room views: three are fixed Telepresence cameras, three are left-center-right cameras, and one is a podium camera to capture the presenter.

  – To help ensure the optimal Telepresence experience, transitioning between camera shots needed to be smooth. For example, a typical Telepresence camera view is a room view, representing the experience of a true in-person meeting. Given the 60-person capacity of this room, the cameras were configured to pan or zoom-in on two participants at a time for a life-size view from other Telepresence rooms. The camera configuration and matrix switchers allow for the smooth transition between room and close-up views at 1080p resolution.

- **Control System**: The control system includes Crestron control system processors and a touch panel.
  – Control of this complex room was made simple with four modes of operation: presentation mode, which allows users to show any source on any of the screens; conference mode for audio and video conferencing; Telepresence mode, which configures the room for Telepresence use; and tools mode for administrator functions.

  – The Crestron touch panel controls many of the conference room's functions with customized presets, including light presets to create the proper level of lighting in the room for a Telepresence call or local presentation, and camera presets for the ability to adjust all 30 microphone/camera locations.

  – The control panel is located in front of the plasmas on a podium, and it is from this location that the presenter can perform functions such as sending content to the far end. The Telepresence codec is controlled through a Cisco CallManager.

  – Cisco IP phones help maintain ease of use and allow for one-touch scheduling of Telepresence meetings.

Results

Although GE currently has 18 Telepresence locations throughout the corporation, the Lyceum room is unique because the system was tailored to an existing room configuration and is therefore not a standard Telepresence solution. The room design successfully accommodates the considerable number of participants by utilizing three large plasma displays, pan-tilt-zoom camera capability, and a flexible audio system.

"Sixty seats is not the typical Telepresence scenario, but working with IVCi, we took the core Cisco technology (the cameras and codecs) and built an authentic experience for the client," says Roy Skillicorn, senior director of AS Services. "Telepresence is growing into new areas. Therefore, we work with our customers to take the methodology and implementation standards for Cisco Telepresence standard rooms, and apply it to these unique, customized rooms. This way, we are able to maintain the overall quality of the solution."

GE has begun holding training sessions and meetings between the new Telepresence room and other Telepresence sites, and the quality of its meetings has improved. "We are a global company, but we now have the ability to conduct face-to-face meetings and make more of a connection with each other," Peterson says. "You learn what the person at the far end looks like, and know that when they scratch their face, they are nervous about something. We can now see the subtle little things that we wouldn't perceive with an audio-only conference. "

GE recently held its corporate executive council meeting, which required business reporting from all of its international locations, and used Telepresence to conduct this meeting as an alternative to international travel. Peterson says, "There was no negative impact to the participants who joined the meeting remotely. The executives were able to do anything they would have done if everyone had been present in the room."

GE will continue to use its Telepresence systems to reduce the time and expense of travel, honor its commitment to going green, and adhere to Jack Welch's enduring principles of leadership and education.

For More Information

For information about Cisco Telepresence Solutions, please visit: http://www.cisco.com/go/telepresence

To find out more about IVCi, please visit: www.ivci.com

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