Video Conferencing

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Introduction

Video conferencing actually encompasses a range of technologies

used in a wide range of situations, often it is not just video and audio

that is transmitted, but also data, allowing collaborative working

through shared applications.

"What is Video Teleconferencing?"

- Video teleconferencing (VTC) allows two or more individuals in different geographic locations to conduct educational, administrative and/or collaborative meetings without unnecessary travel.

- VTC, also known as compressed video, uses digital telephone lines (ISDN lines) to send video and audio signals to participants at different sites to hold a "virtual meeting."

- VTC is fully interactive - participants at both sites see and hear each other simultaneously.

Types of videoconferencing

Video conferencing may be:

• One-to-one meetings, also known as point to point communications, usually involving full two-way audio and video.

• One-to-many involving full audio and video broadcast from the main site, where other sites may be able to send audio.

   For example in a lecture situation, students could ask questions.

• Many-to-many, known as multi-point communication, provides audio and video between more than two sites. With most

   multi-point systems only one site in a conference can be seen at time, with switching between sites either controlled

   manually or voice activated (i.e., the loudest site is on screen).

Physically, the most common scenarios of video conferencing are:

• Desktop video conferencing
• Studio-based systems

Background

Videoconferencing applications have generally the following components:

• Video capture

• Transport (video board, network card)

• Display

• Microphone

• Speakers

Bandwidth and Compression

The bandwidth, or baud rate, is the amount of information which can be transmitted every second. The higher the bandwidth, the better quality the signal that can be transmitted. For a video conference audio and video signals must be transmitted in real time, i.e., a lot of information has to be sent every second, requiring a very high bandwidth.

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Standards

Most major vendors now support the H.320 suite of ITU recommendations that define videoconferencing

mechanisms over switched digital services such as ISDN.

Similar recommendations have also been defined for high-speed wide area networks (H.321), isochronous

networks (H.322), packet-switched local area networks (H.323) and POTS phone lines (H.324).

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Delivery

- ISDN

- IP

- Satellite broadcast

Cost

Conference Room Appliance
Performance: Very Good
Price: $2500 - $8000

Desktop Video
Performance: Fair to Good
Price: $500 - $1000

Teleclass Codec
Performance: Excellent
Price: $10,000

H.323 FABRIC

Soft Phone
Performance: Fair
Price: $0 - $50

Wireless IP Phone
Performance: Very Good
Price: $250 - $600

Fax / Modem Appliance
Performance: Good
Price: $150 -$500

IP Phone
Performance: Excellent
Price: $150 - $500

Applications

Video conferencing is used for a variety of purposes, including:

• Personal communication

• Collaborative work between researchers

• Presentations

• Education

Line Light Field design: Abutted projector
display with a dense horizontal camera array
at table level and actual camera array implementation

Conclusion

Videoconferencing offers a host of benefits to its users, including reduced travel needs, greater efficiency and increased productivity. Many professors would rather take a trip across campus than across the country to participate in a lecture series. Videoconferencing makes unproductive travel time almost non-existent.

Media Streaming

References

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Thanks for your

Questions ?