



# Video Streaming in Higher Education

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AVNet K.U.Leuven



# Moving images & sound for education

- Video Conference solutions
- Streaming Server services
- Live Event streaming
- Compression services
- Recording & distributing lectures
- Web conferencing for online learning and collaboration

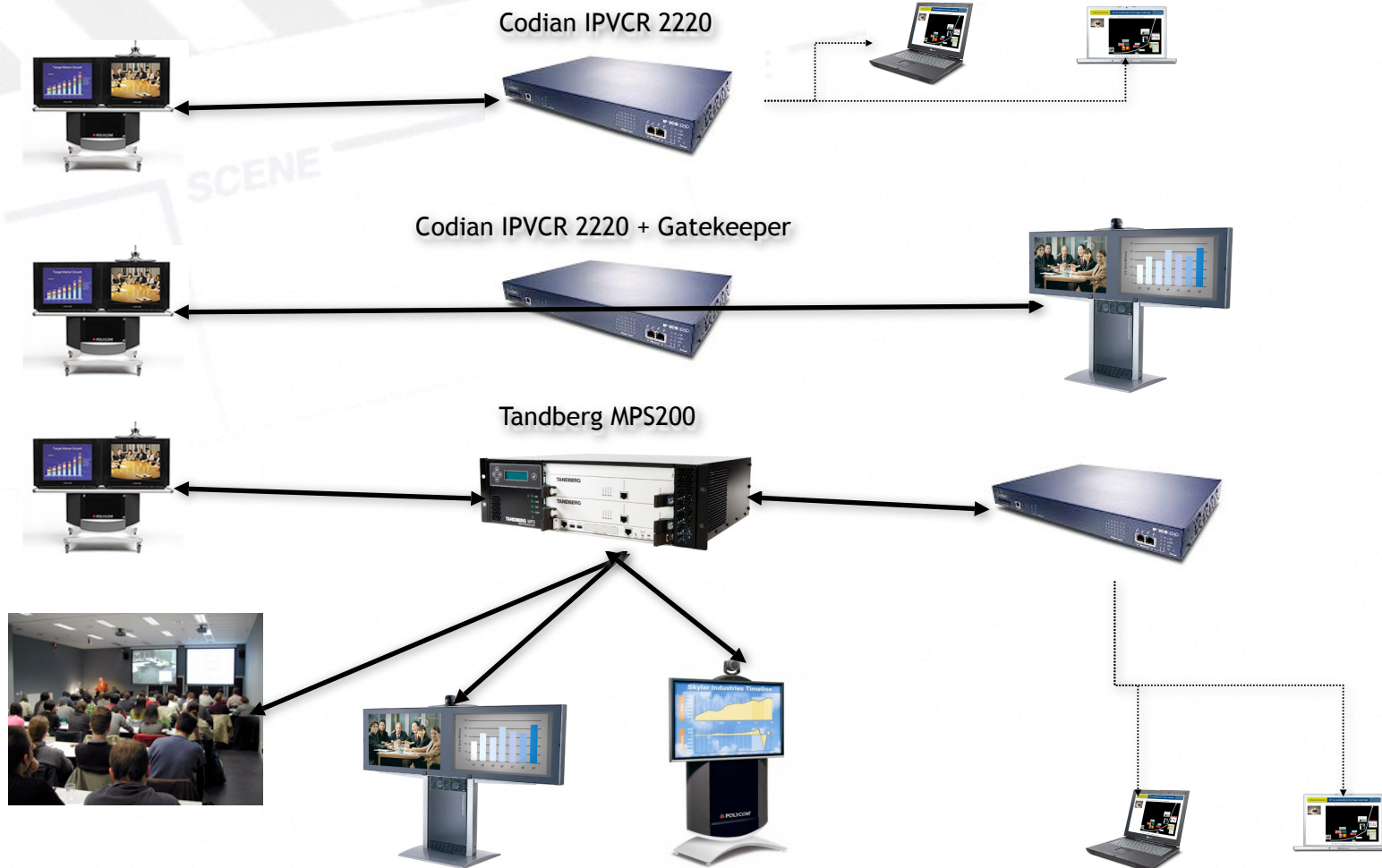
# Videoconferencing

- Started as an ISDN oriented service.
- Changeover to IP connections (80%)
- 6 (up-to-date) installations at K.U.Leuven
- 13 installations in affiliated Flemish hospitals
- Tandberg MPS200 VC “bridge” (ISDN & IP)
  - ISDN (2 x PRI) and IP
  - 20 video ports, 16 audio ports
  - 5 concurrent conferences
- Codian IP VCR VC recording and (live) streaming

## Codian IP VCR 2220

- Videoconference recorder for video and content (h.239)
- Live streaming and Video on Demand
- 5 recording channels
- 10 playback channels (h.323)
- Streaming QT, WMP (and Real)
- Port 80 for web access
- Port 554 for QT RTSP (6970-6999)
- Port 1755 for WMP streaming

# Codian IP VCR connections



# Videoconferencing network

- vlan network for videoconferencing. (Leuven and Kortrijk)
- Demilitarised zone with dedicated firewall settings outside K.U.Leuven network.
- Primary video codecs: h.263 and h.264
- Streaming live and on demand in QT and WMP formats (Codian IP VCR)

# Streaming video & audio content

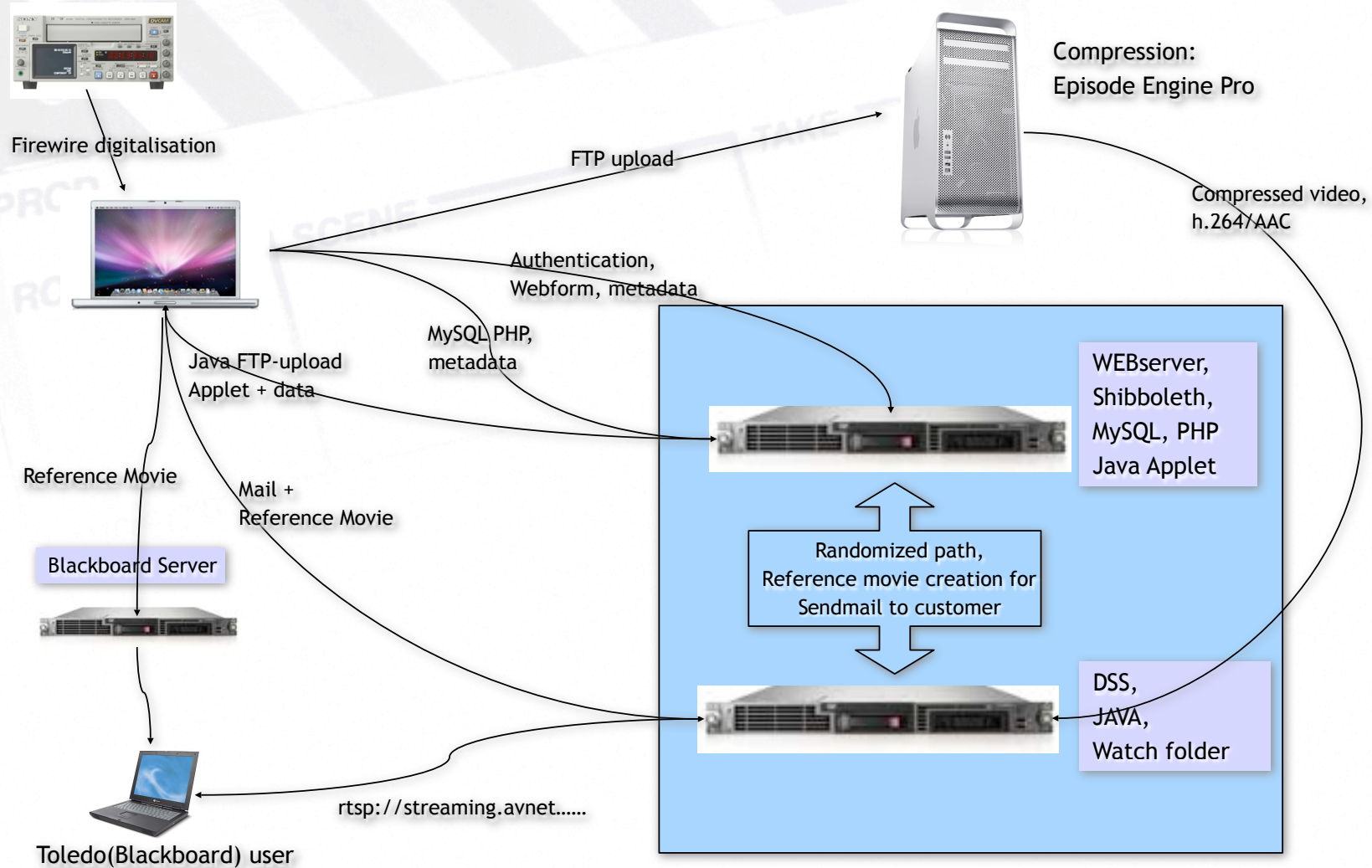
- Started with Precept IP/TV (mpeg-1) in 1997
- QuickTime chosen as the primary video player for K.U.Leuven
- All streaming now in h.264
- QTSS on OS X Server in AVNet network for experiments, tests and specialised tasks
- DSS on Linux server close to K.U.Leuven backbone.
- RTSP on port 554 or 80

# Upload Tool

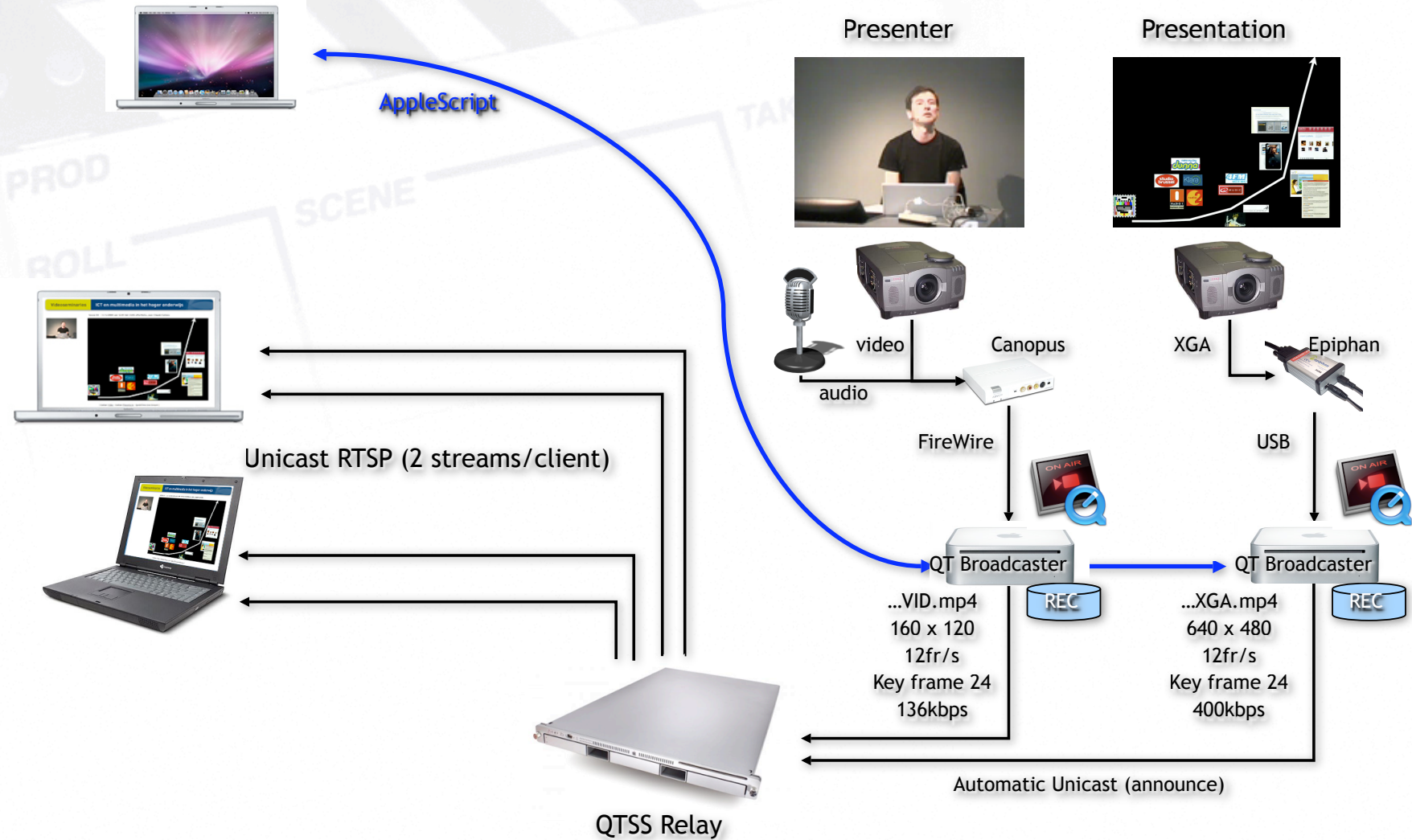
- Web interface to upload and compress video (JAVA, JavaScript, PHP, MySQL).
- Authentication using central K.U.Leuven login. (Shibboleth)
- Dedicated format h.264/AAC 320x240.
- Compression application:  
Episode Engine Pro on Dual Quad core Mac
- Reference Movie in email attachment to clients. (.mov)
- Administration for file deletion, copyrights, sharing, metadata,...



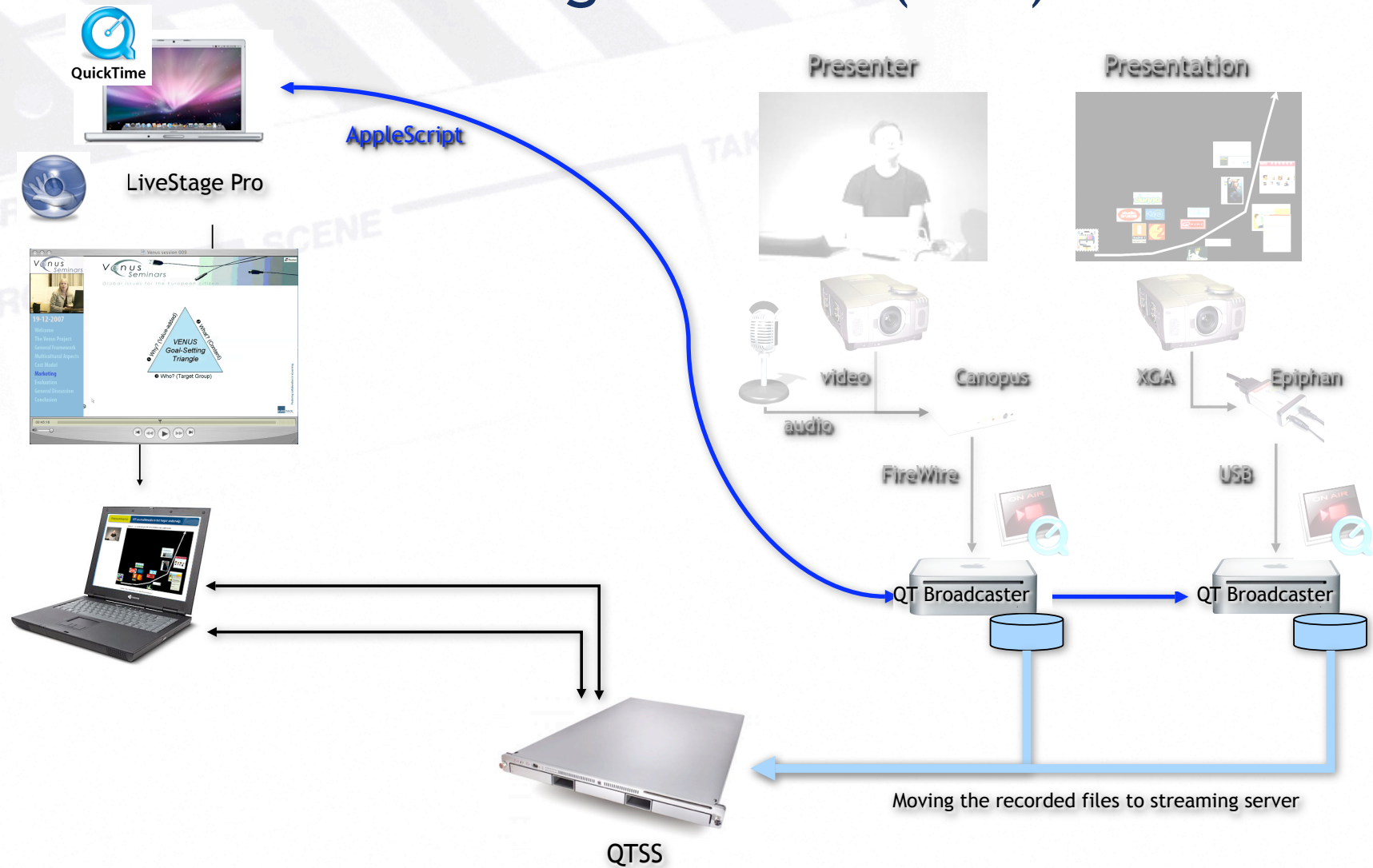
# Upload tool setup



# Recording lectures (live event)



# Recording lectures (VoD)

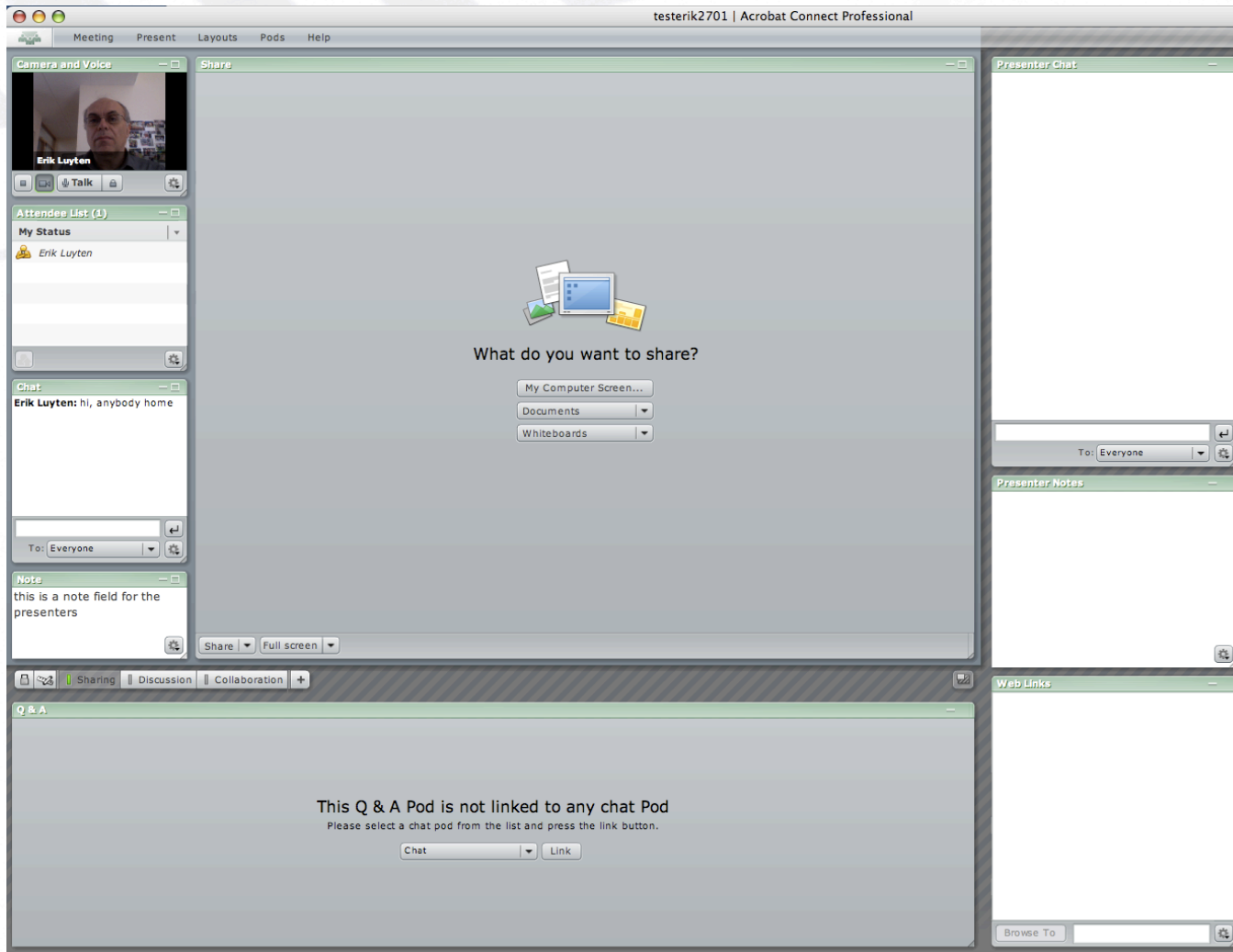


# Web Conferencing



- Adobe Connect Enterprise Server
- Ports: 1935 (RTMP), 80, 443 (SSL)
- Uses:
  - Web meetings (flashmeeting)
  - Examinations
  - Support (screen sharing)
  - Learning modules

# Adobe Connect Meeting





Thank You

Q & A

