Building an Internal Enterprise/EDU Streaming Solution

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Webcasting Services

Lockheed Martin Visual Communications

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Types of Webcasts

- **Executive Level/VP/All Hands Webcasts** (large): These webcasts usually consist of a medium to large local audience with a large number of online viewers. They may include multiple speakers, local questions, slide and/or videos.

- **Program/Director All Hands Webcast** (medium): These are usually a smaller local audience with one or two speakers with a medium to large online audience. Presentation usually consists of slides.

- **Training/Project Webcast** (small): These will include a small or no local audience with one or two speakers. Presentation usually consists of slides or screen captures.

- **VTC/Hybrid Webcasts**: These events take an existing VTC and webcast to a larger audience or record for later on-demand playback.

- **Telecon / LiveMeeting Capture**: these events allow us to capture audio and slides in real time for later OnDemand play back for those who missed the meeting, later refresher, or for continuous play back for training or compliance.

- **User Created/Supplied Video**: video can be created by individuals using webcams at their desk or captured with iOS devices. Video can be saved and uploaded for on-demand playback.
What Goes Into A Webcast?

Visual Communications (webcast production team)

Producer

Switcher

Encoder

Camera(s)

Client

Audio

Q&A

Enterprise Business Services (Enterprise Webcasting Services)

Web Server

Streaming Server

SQL Database

Active Directory

LMI
Future (1Q 2016) Enterprise Webcast System
Raytheon Enterprise Webcasting

Kay Guerry
11/16/15
Key Streaming Scenarios

Streaming to desktops:
- 65% - User Generated content, slides & desktop demonstrations
- 30% - Focused functional briefings, VTC assisted
- 5% - Large production broadcast, camera crew, live audience and streaming

Generated Programs:
- 300+ Live Events per year
- 200 assisted recordings
- 750+ User Generated

![Graph showing programs and viewers per month]
Configuration

Origination Site

Encoder

1100110

Origin Server

multicast

Edge Server x39

Receive Site

Edge Server x39

Receive Site

multicast

Origin Server

unicast

Edge Server x39

Load balancers
Two web servers
Two media servers
One on demand server
Application server

Webcast Service
Consulting Firm Focused on IP Video Communications

- Video Conferencing
- Video Streaming
- Video Call Centers
- Unified Communications

Advisor/Investor for startups

Strategy/marketing advice to vendors

www.howard-associates.com
Applications and Trends

Primary Applications

- Executive Town Hall
- User Generated Content
- Training
Live Streaming Process

- **Video Sources**
  - Encoder
  - Decoder
  - Video Conferencing
  - Skype for Business

- **Production**

- **Encoders**

- **Management software**

- **Delivery**
  - Intranet
  - Multicast or Caching Server
  - CDN
  - Internet

- **Enterprise Viewers**

- **Internet Viewers**
Jonathan Schwartz
Digital Video Manager
USC Price Video Services
USC
Current Video Usage

- Online Learning
- Lecture Capture Rooms
- Marketing / Recruitment
  - Promotional Videos
- Event Capture with and without Live Streaming
USC Price Video Strategy

Model 1: Asynchronous

1080P JVC Cameras
QuickTime MOV file on SD Card
Sony XDCAM Codec
(viewable in Mac OS X natively)

Sony Wireless Lav’s
Tascam Recorder Mixer

AMA Workflow
Mixdown
H264 10mbps Output
Adobe Media Encoder

YouTube
iTunes U
USC Price Video Strategy
Model 2: Live Streaming + HD Mastering Capable

1st Camera
Sony XDCAM ISO
Record on camera

SDI

AJA I/O 4K
• Multiple SDI
• Thunderbolt

2nd + Cameras

SDI

OR

HDMI

720P / H264 over Ethernet

Teradek Cube 255

Ad-hoc Wi-Fi or Ethernet

Telestream Wirecast
Live Streaming Production Studio

HDMI

TV or Projector
• Second Screen
• Overflow Room

OR

Record to Disk
• ProRes 422HQ or Avid DNxHD 220
• QuickTime MOV (fast editing)

USTREAM
Post Event Immediate Publish

You Tube
Post Event Immediate Editing

iTunes U

Avid

Pr