

# What You Make Possible



# Capture Transform Share Video Delivery

BRKEVT-2661

# Capture – Transform – Share (CXS)

## Agenda

- Capture – Transform – Share (CXS) Overview (5-10mins)
- Solution Components (15 mins)
- Demo (15 mins)
- CXS Architecture (10 mins)
- Deployment considerations (10 mins)
- Cisco on Cisco CXS Case Study (5 mins)
- Conclusion (5 mins)

# CXS Overview



# The Importance of Visual Interaction

People remember.....



**20%**  
of What They **Hear**



**30%**  
of What They **See**



**70%**  
of What They  
**See *and* Hear**



## Importance of Visual Traffic

30% of brain's cortex devoted to vision, 8% for touch and 3% for hearing

More than 60% of communication is non-verbal

Sources: Human Productivity Lab 2006

Pearn Kandola: *The Psychology of Effective Business Communications in Geographically Dispersed Teams* 2006



# Of Business Executives Surveyed

79%

Use two-way video at least weekly

76%

Need a search feature that enables a specific part of the video to be found

82%

Record Business Videos

100%


Said the ability to view, access & manage video from any internet enabled device, regardless of where the video was captured is the most important requirement for one way video



[How do Executives Perceive Video?](#)

# Overcoming Barriers to Video Adoption

## Make everyone a video **producer**



How can I record / stream this Financial Statement / Executive Update?

How can I make sure all my videos look consistent?

Which video format do I use?

How do I make sure my video looks good on any device?

How can I produce this faster & cheaper?

## Make video easier to **consume**



I want to skip to the part where the CEO speaks about CISCO Stock

I want to view this video on any device / screen

I want to share a relevant clip with my staff / colleagues

I want to search a transcript for a keyword

I want video clips recommended by other traders on a similar Stocks / Companies

# Capture



# Transform



# Share



Cisco  
webex



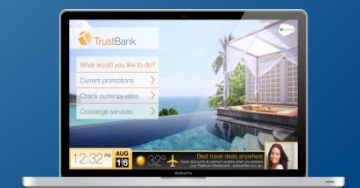
Video Collaboration

Live  
and  
On-demand



Live  
and  
On-demand

Recording & Streaming  
Any to Any Adaptation  
Enhancement  
Post Production  
Video Analytics  
Automated Workflows



Video Content



# Capture



# Transform



# Share



Cisco Webex



TelePresence Content Server



Video Collaboration



Pulse Video Analytics

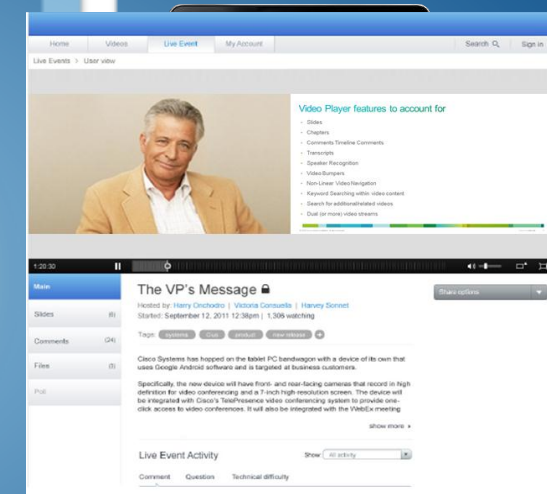
Live and On-demand



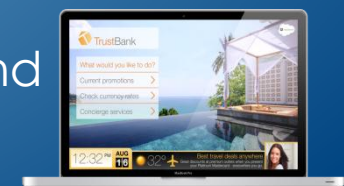
Media Experience Engine

Live and On-demand

Recording & Streaming  
Any to Any Adaptation  
Enhancement  
Post Production  
Video Analytics  
Automated Workflows



Show and Share



Video Content

# Capture • Transform • Share Use Cases

## Training, Lectures, and Structured Meetings



Live stream and record:

- Training events & demos
- Lectures
- Team updates
- Nerd lunches
- Webcasts & seminars
- Ops Reviews
- Podcasts/video blog

## Business Challenge

Employees respond best to live, interactive multimedia training, but costs for capture and video post-production are often too high for regular use

## Benefits

- Scale knowledge faster
- Lower production costs
- Refresh content more frequently
- Reduce barriers for sharing knowledge
- Increase value of video content
- Extract more value out of video investment

## Organisational Communications



Live stream and record:

- Broadcast announcements
- Breaking news
- Town halls
- BU all-hands
- Team updates

## Business Challenge

Organisations need to scale delivery of important announcements and meetings to all employees

## Benefits

- Communicate consistently across company
- Communicate more frequently or urgently
- Drive change and alignment more thoroughly
- Share relevant industry information
- Increase employee engagement
- Accelerate acquisition integration

## Business Meetings



Live stream and record :

- Program reviews
- Staff meetings
- CC/ECs
- Working sessions
- Roadmap & planning meetings

## Business Challenge

Teams need to record day to day video conferencing and TelePresence meetings with high or lasting value content or for absent members, and stream live to TP and non-VC endpoints

## Benefits

- Consume meetings more efficiently
- Target attendance more accurately
- Leverage existing Cisco video investment
- Increase productivity across time zones and locations
- Improve collaboration effectiveness
- Improve participation

# CXS Components





# TelePresence Content Server (TCS)



- Record and stream video and synchronised presentations
- Live and on-demand streaming
- Record scheduled and ad hoc calls
- Premium resolution option (up to 1080p30)
- Secure calling
- Active Directory authentication
- Show and Share integration
- 3<sup>rd</sup> party application integration
- Automated recording alias provisioning
- Fixed publishing points for live streaming
- PIN-protected endpoint playback
- PIN-protected MCU conference
- Create access lists via LDAP
- MXE 3500 integration via a new media server
- Automated workflow: TCS – MXE 3500 – Show and Share

## capture

record & stream SD/HD live video from TelePresence endpoints

## share any content

share presentations, document camera, desktop synchronised with video

## distribution

compatible with all major streaming formats, CDNs, and web portals

Stream live to digital sign DMP's via MXE 3500



# Capture with TelePresence Content Server (TCS)

*Extend the Value of Your Video Conferencing Investment*

**Leverage your video conferencing endpoints  
by turning them into HD broadcast / recording  
studio's and easily create rich video content**



# Content Sharing Layouts

## Multiple Options

### Content Sharing Layouts

- Multiple output formats
  - Switching
  - Joined
  - Stacked
  - Picture in Picture



# Transform: MXE 3500

## transcode and transrate

VODs and live streams for playback on any device

## post-production

easily normalise videos and enforce branding and copyright

## pulse video analytics

make video content intelligent, searchable and easy to navigate



- Any to any transcoding and transrating
  - Transform WebEx meeting recordings
  - Live streaming to Digital Sign DMPs
  - Graphic overlays and watermarks
  - Video trailer and bumpers
  - Speech to Text
  - Automated workflows
  - Basic and advanced UIs
  - UCS C200 M2
  - Automated workflow: TCS – MXE 3500 – Show and Share
- 
- Automated Keyword spotting and speaker identification
  - Easy to find videos - what's spoken & who's speaking
  - Quickly zero-in on portions of videos that are of interest
  - Auto-Vocabulary for speech engine customisation
  - Integrated into Show and Share



# Share with Cisco Show and Share

## Webcasting and Video Sharing Application

- Live and on-demand video content
- Secure video communities
- Flexible authoring, publishing, and review workflows
- Support for uploading a wide variety of file types and recording
- Collaboration tools such as commenting, rating, and word tagging,
- Advanced content storage, archiving, and distribution management
- Support for both managed and unmanaged live webcasting with additional options including slide synchronisation, viewer Q&A, and polling
- One click publish to share
- Multiple Language support
- Mobile application available for iPhone and iPad
- Pulse Video Analytics support for easy video search and navigation
- Automate workflow: TCS – MXE 3500 – Show and Share



Communicate faster, more accurately and consistently

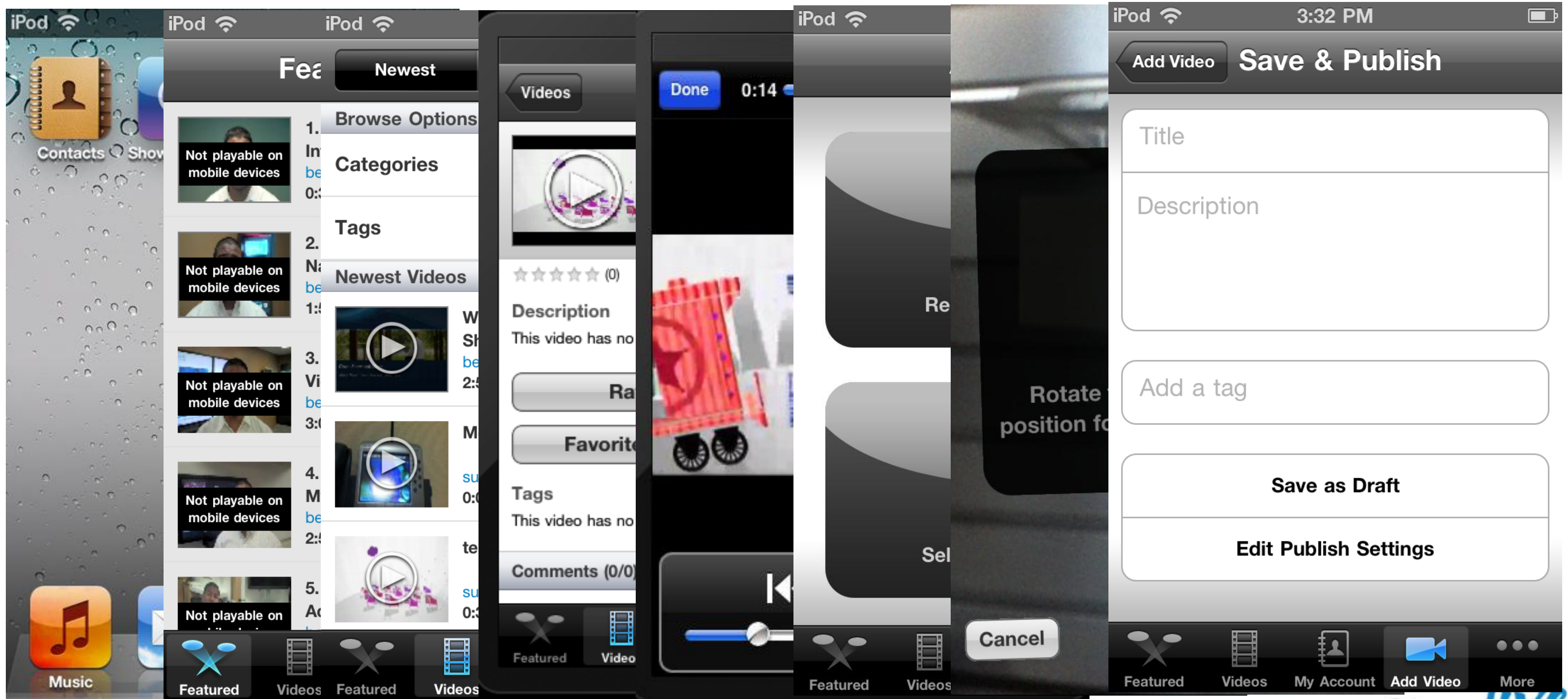
Share videos privately and securely

Share video with anyone, anytime, anywhere




# Cisco Show and Share - iOS App!

Free Download from the Apple App Store



# Pulse Video Analytics

Q2FY11 TECB All-hands  
Posted by: superuser | Thursday, September 15, 2011 12:20 PM | 18 views  
Overall: ★★★★★ (1) | Your rating: ★★★★★



Speakers	Keywords spoken by All Speakers
All Speakers	apart (3)
Marthin De Beer	apple (4)
Laura Ipsen	application (4)
Guido Jouret	application layer (1)
Odd Johnny Winge	applications (3)
Simon Fleming-Wood	branch (2)
	business video (3)
	chasm (3)
	collaboration (4)
	collaboration a... (1)
	commerce (1)

- Automated Spoken keyword spotting
- Automated Speaker identification
- Related videos
- Show and Share integration (AirSpeeder, Dec 2011)
- Embeddable media player
- OpenSearch / OpenSocial APIs
- Solr search engine
- License on the MXE 3500

## video search

easily find videos based on what's spoken and who's speaking

## non-linear navigation

quickly zero-in on portions of videos that are of interest to you

## related videos

videos finds your audience through recommendations

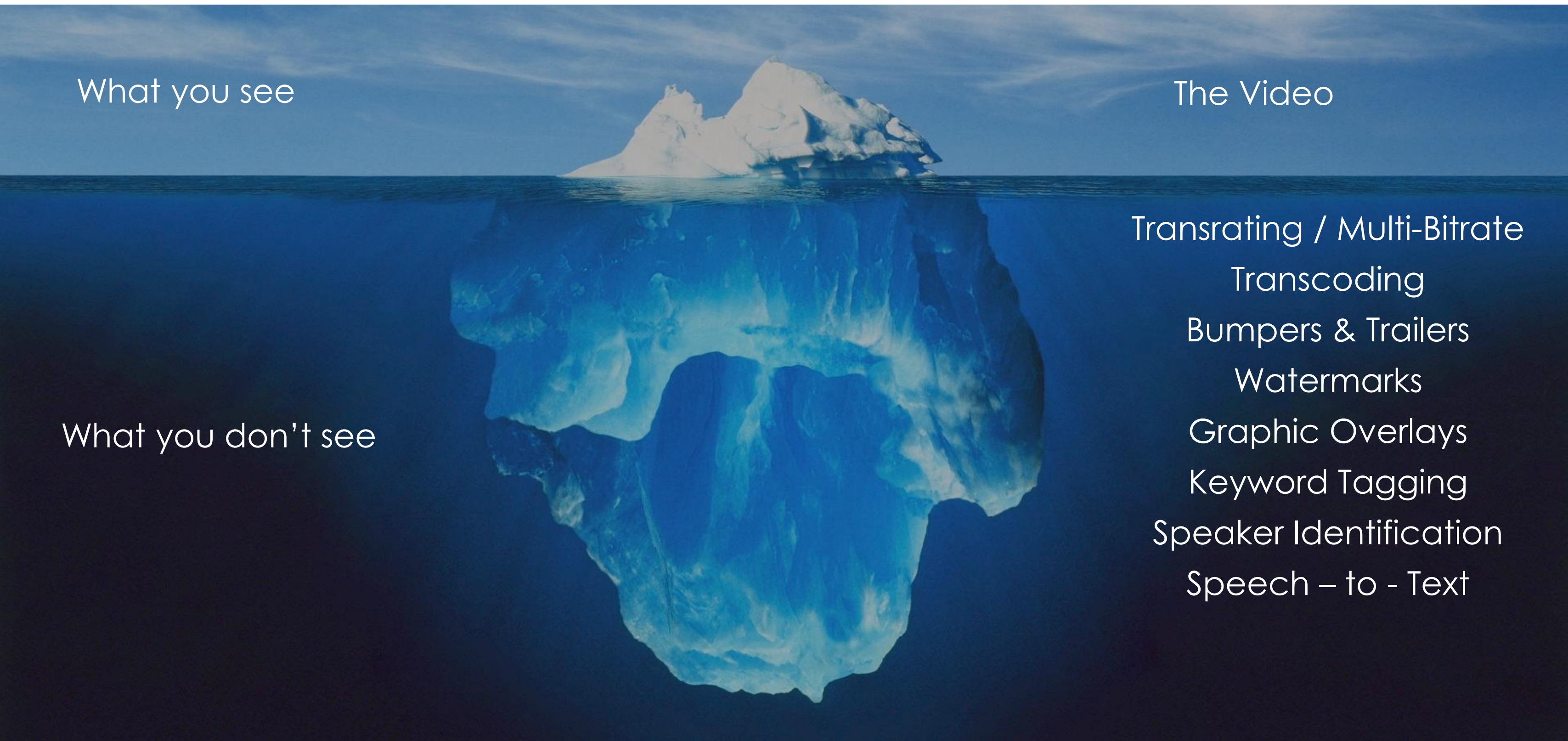


# Automated Solution is Transparent to the User

What you see

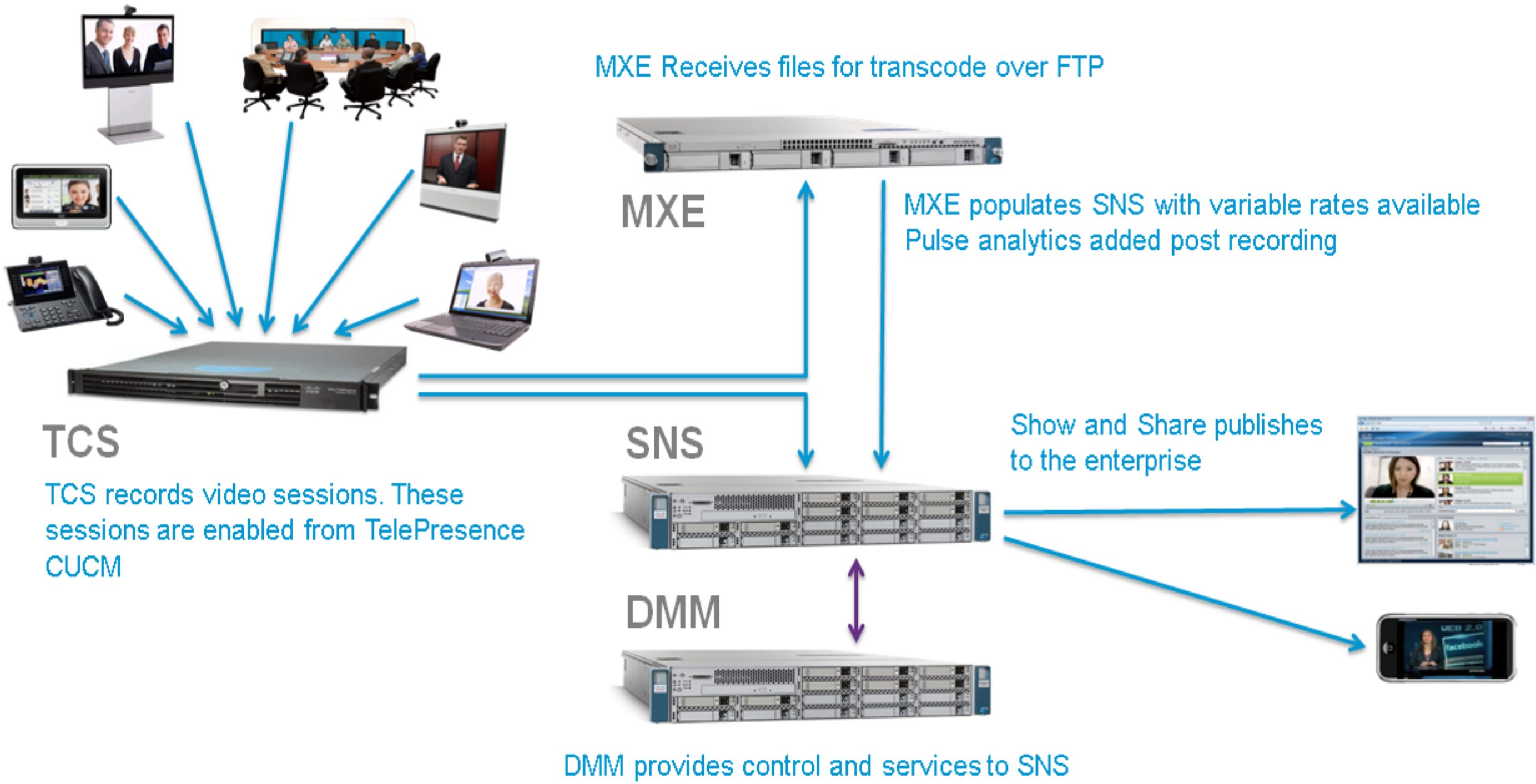
The Video

What you don't see



Transrating / Multi-Bitrate  
Transcoding  
Bumpers & Trailers  
Watermarks  
Graphic Overlays  
Keyword Tagging  
Speaker Identification  
Speech – to - Text

# C-X-S Automated Workflow





# CXS Demo

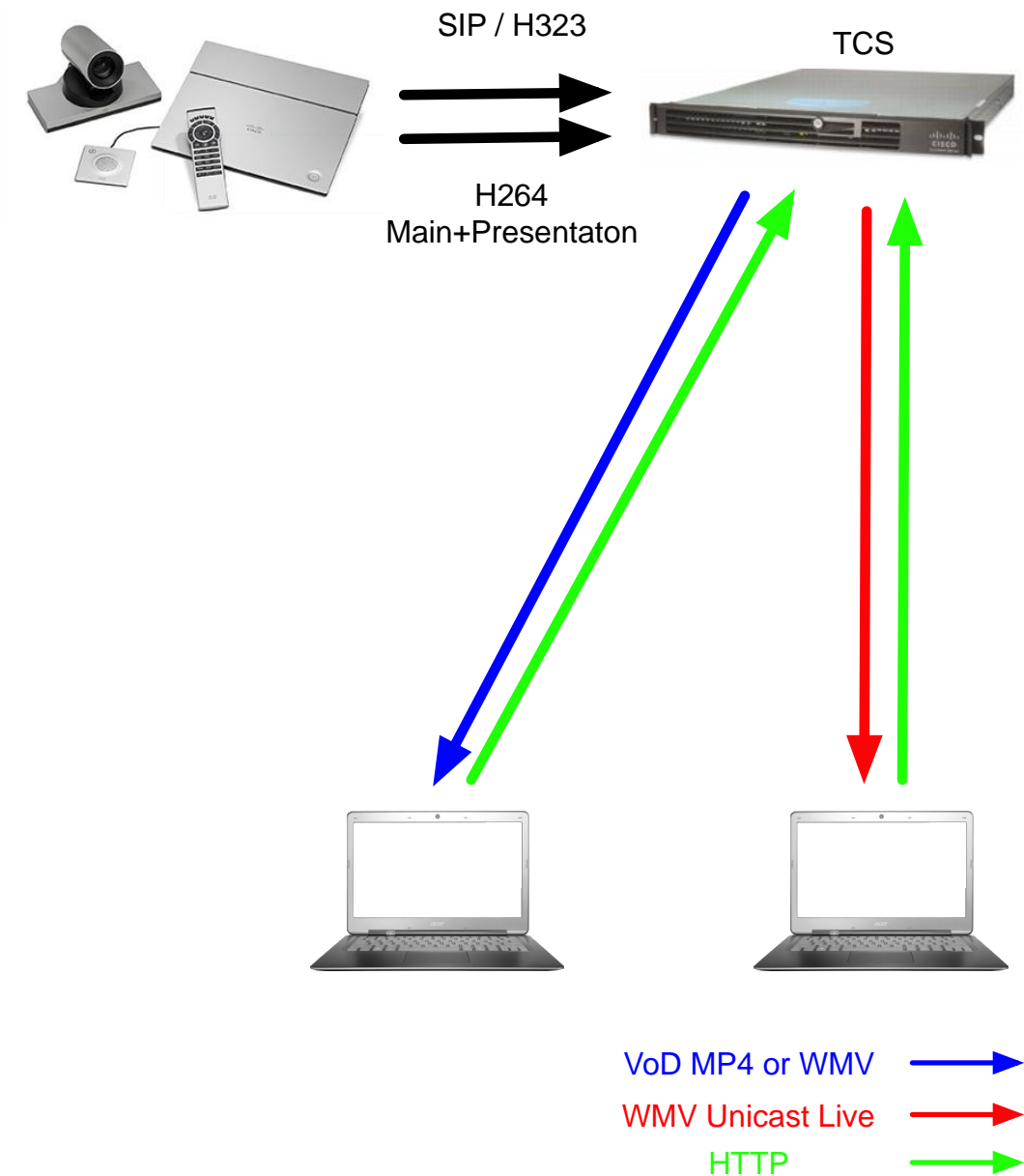


# CXS Architecture



# TCS Standalone Design

- Video Codec calls TCS via SIP/H323
- TCS receives dual stream H264 video and composites the two streams into a single Live and/or VoD output
- PC user accesses TCS portal via HTTP
- User Views WMV Live stream via Silverlight player on TCS portal
- User Views Vod via Silverlight or Flash player on TCS portal



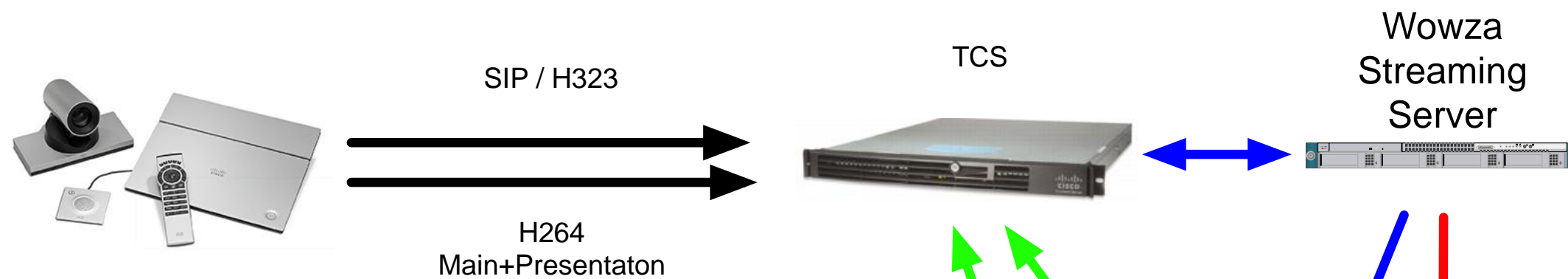


# TCS Standalone Design

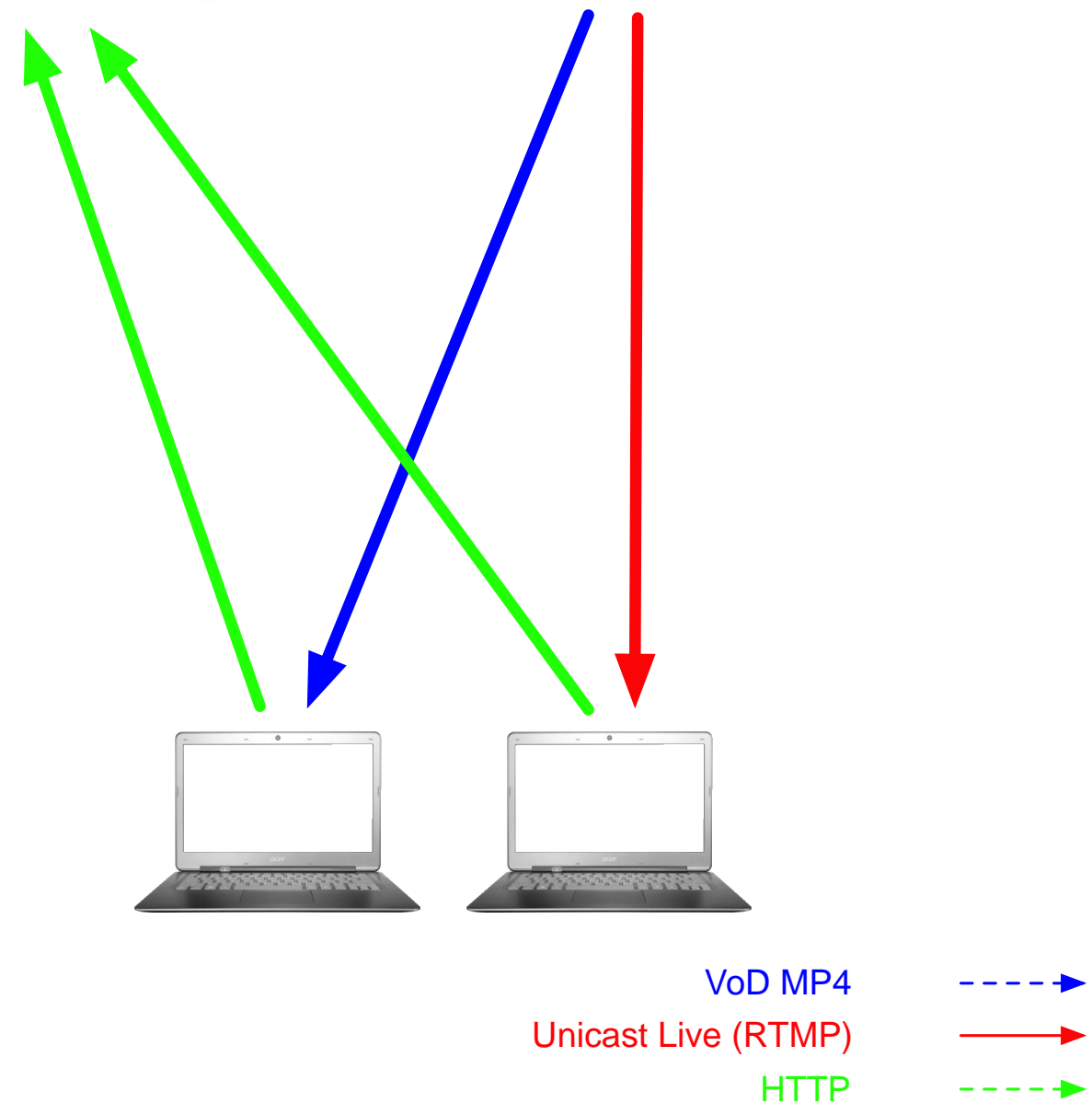
## All-in-one Solution

- Uses built in Windows Media Streaming Server, or HTTP server
  - Limited to WMV for live streaming (uses Silverlight player on PC and Mac)
  - MP4 VoD's are streamed via HTTP progressive download (can't skip ahead until downloaded)
- Single box design limits scalability for viewing
  - 100 concurrent viewers maximum per TCS in cluster
  - Does not effect 10 concurrent recordings per TCS in cluster
- Uses TCS as the user portal, not SNS, certain features not available
  - Only content from TCS recordings is available, no other sources

# TCS with External Streaming Server



- TCS receives SIP/H323 video as in previous slide
- TCS pushes live H264 stream to Wowza server via RTSP
- TCS creates .mp4 VoD file and moves to Wowza via FTP
- PC (or Mac) user accesses TCS portal via HTTP
- TCS portal redirects users to Wowza server to view live stream via Flash Player
- TCS portal redirects user to Wowza server to view VoD via Flash Player



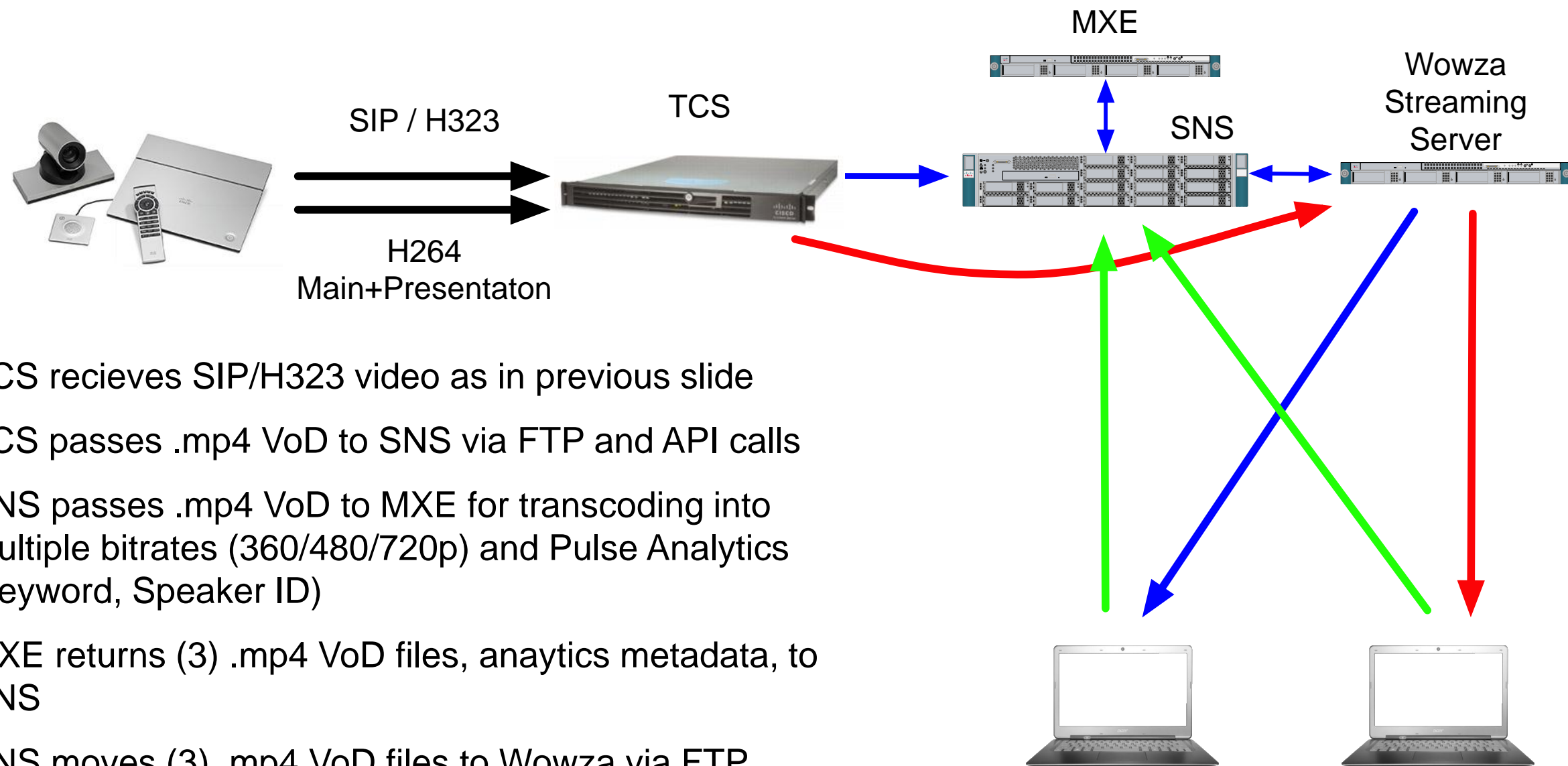
# TCS with External Streaming Server

## Scaling TCS portal


- Wowza streaming server is used for all streaming both Live and VoD
  - Wowza is a general purpose streaming server from Wowza Media (3<sup>rd</sup> Party)
  - TCS sends live video to Wowza via RTSP
  - TCS records VoD and sends file to Wowza via S/FTP
- TCS portal redirects users to stream the Live or VoD video from Wowza streaming server
  - The only traffic going to TCS from viewer is HTTP
- Scalability of viewing is increased



# CXS (TCS, MXE, SNS, Streaming Server)



- TCS receives SIP/H323 video as in previous slide
- TCS passes .mp4 VoD to SNS via FTP and API calls
- SNS passes .mp4 VoD to MXE for transcoding into multiple bitrates (360/480/720p) and Pulse Analytics (keyword, Speaker ID)
- MXE returns (3) .mp4 VoD files, analytics metadata, to SNS
- SNS moves (3) .mp4 VoD files to Wowza via FTP
- User accesses SNS portal page via HTTP
- SNS interface redirects user to Wowza URL for live or VoD video streaming

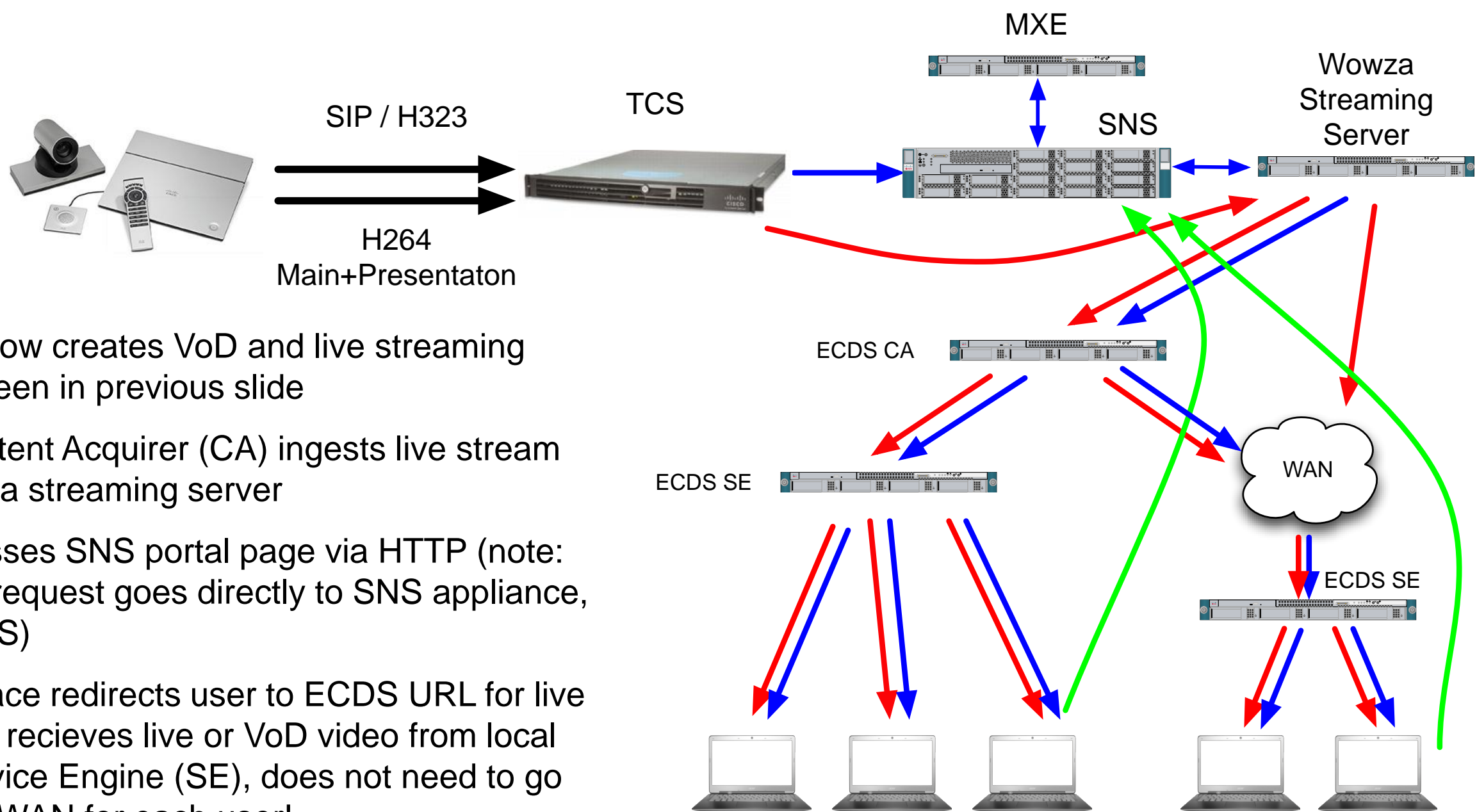
VoD MP4   
 Unicast Live (RTMP)   
 HTTP 

# CXS (TCS, MXE, SNS, Streaming Server)

Providing Advanced Video Portal Features

- Show and Share provides advanced portal features (vs. TCS portal)
  - Content can be uploaded to SNS from any source (TCS or other)
  - Increased scale up to 4000 concurrent viewers for live events
  - Social features (commenting, rating, time line comments, related videos, etc.)
  - Embeddable videos (embed video into Sharepoint, Webex Social, webpage etc.)
- Supports mobile devices (iPhone/iPad) via SNS Mobile App
- Supports advanced features with MXE integration
  - Pulse Video Analytics
  - Multi-bitrate, multi resolution playback (360p/480p/720p)
  - Automated post-production (Graphics overlays, watermarks, etc.)

# CXS and ECDS Design



- CXS workflow creates VoD and live streaming video, as seen in previous slide
- ECDS Content Acquirer (CA) ingests live stream from Wowza streaming server
- User Accesses SNS portal page via HTTP (note: this HTTP request goes directly to SNS appliance, not to ECDS)
- SNS interface redirects user to ECDS URL for live video, user receives live or VoD video from local ECDS Service Engine (SE), does not need to go across the WAN for each user!
- SNS interface redirects user to ECDS URL for VoD video (note: if ECDS SE does not have local copy, ECDS SE goes to Wowza origin URL)

VoD MP4 →  
 Unicast Live (RTMP) →  
 HTTP →





# CXS and ECDS Design

## Scaling Video Content across the WAN

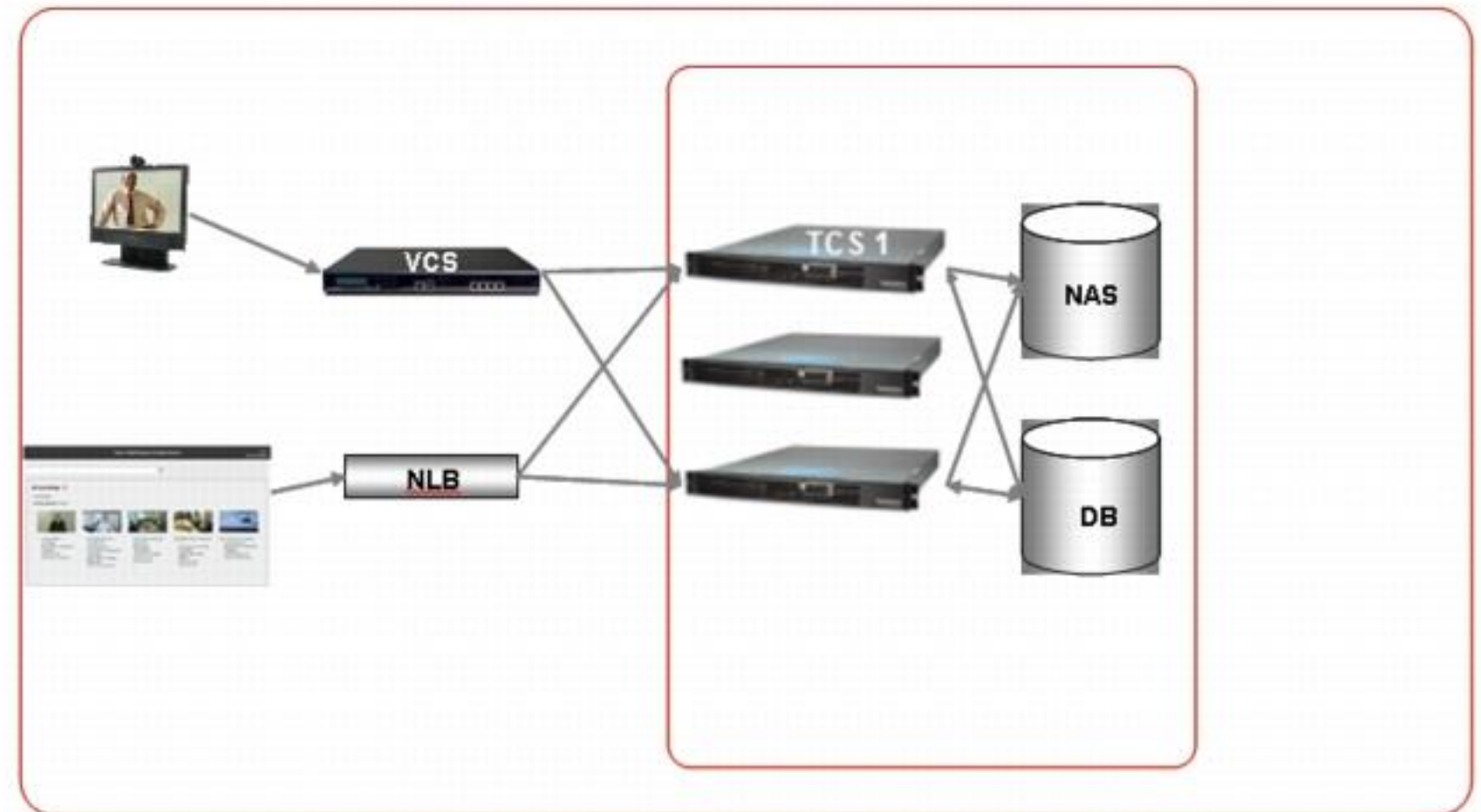
- ECDS allows Live and VoD to scale across the WAN
  - Without ECDS, a 50 person branch office watching a 500kbps live stream would consume 25Mbps bandwidth just for live stream.
  - With ECDS, the same branch would only need one stream across the WAN: 500Kbps vs 25Mbps!
- Initial HTTP page load still goes directly to SNS appliance
  - Need to consider that SNS can serve approximately 4000 users loading a live event page simultaneously at the same start time.

# TCS and MXE Clustering



# TCS Clustering

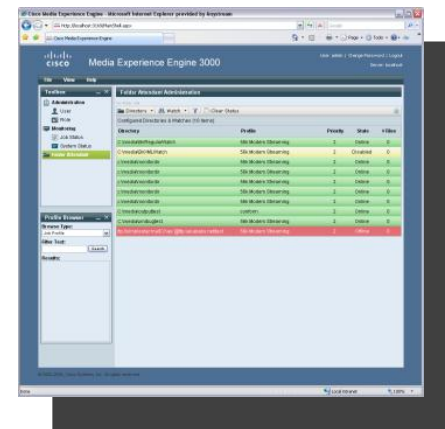
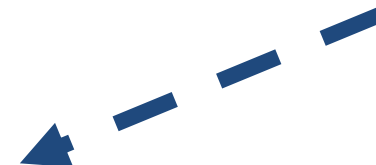
- Cluster up to 10 TelePresence Content Servers:
- Manage a single pool of resources
- Provides up to 100 recording ports (with options)
- Up to 20 can also stream live
- Cluster wizard makes adding and removing nodes easy
- Use common network load balancers



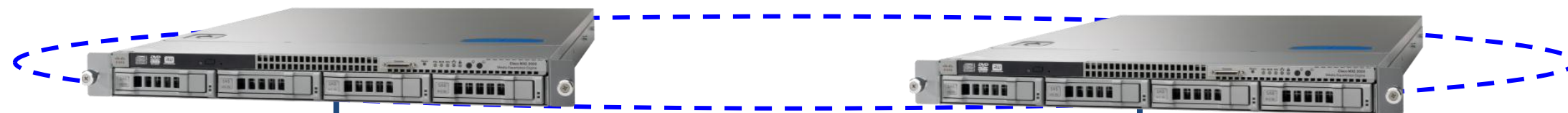


# MXE Clustering Overview

- Access MXE 1
- Submit & Manage Jobs
- Manage Profiles
- Up to 10 MXEs in a cluster



Resource Manager Cluster:  
Jobs distributed across MXE1 and MXE2



## MXE 1 Resource Manager

- Accepts jobs from user
- Distributes jobs to itself
- Distributes jobs to other nodes
- Performs overall monitoring of the cluster

## MXE 2 Resource Node

- Accepts jobs from Resource Manager
- Executes jobs received from the RM

# Case Study

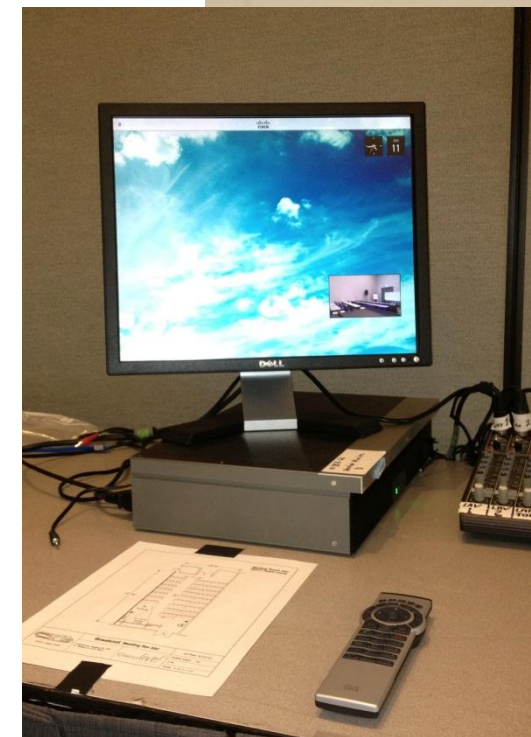






# Capture

- 36 breakout rooms were outfitted with a C90 Codec, connected to:
  - Cisco onsite network, private VLAN
  - Speaker PPT feed from laptop (VGA)
  - Cisco camera (HDSDI & control)
- Scheduling
  - All sessions were entered into the TMS scheduling system, and set with 2 participants: room codec & TCS recording port.
- Monitoring
  - The content editors monitor the feeds from the rooms, and move the camera if the speaker wanders off.
  - If they see an issue, the codec team is contacted via radio and immediately responds.



# Results

- Over 250 session recordings (400+ hours of on-demand video content)
- Key learnings around large codec deployments.
- 3 trained content editors (no previous TelePresence experience)
- Total Cisco on Cisco deployment: UCS, VXi, TMS, VCS, TCS
- Proof that we can scale to capture 100% of sessions in the future.
- On-demand content made available to attendees within 3 business days, inside CiscoLive365.com
- 25% more sessions captured, **with video**, at 30% of the cost of the previous year with ON24.

# Conclusion



# Key Take-Aways

- Automated easy to use workflow to *Capture Transform* and *Share* video
- High impact use cases for video
  - Corporate Training
  - Town Halls
  - Executive / CEO broadcasts
  - Recording / Streaming meetings
  - Enterprise Video Sharing Portal
  - Corporate Communications
- Little to no training required
- Integrates seamlessly with Cisco Video Communications
- Extends the value of existing Cisco Video solutions
- Leverage Cisco Video Content to have a dramatic impact on your corporate communications and collaboration.



# Q & A



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