"Hands-free" webcast solutions for streaming public meetings live, then archiving for on demand.
In business since 2003
More caption inquiries in first half of 2017 than 14 prior years
**CAPTIONING OVERVIEW**

**WHY CAPTION**
Good stewardship, ancillary benefits, law.

**STATE OF THE INDUSTRY**
Legacy gear, workarounds, video platforms.

**FORKLIFT UPGRADE?**
Capital and recurring expenses.

**UNIQUE CHALLENGES IN STATE LEGISLATURES**
Lots of channels, long meetings, breaks, budget.

**MOVING FORWARD**
Consolidate channels, cheaper encoders, web-only, automated transcription.
GOOD STEWARDSHIP

According to the National Association of the Deaf there are more than 36 million Americans who are deaf or hard of hearing -- roughly 10% of the population.
WHY DO WE CAPTION?

Ancillary benefits

Search the spoken word

Transcripts help with minutes/journaling

Discussion alerts
ADA Title II: State and local public entities must be accessible

DOJ enforcement

Section 508 of the Rehabilitation Act

Wider web accessibility requirements

FCC

TV -- March 30 2013

Internet (if on TV) -- July 1, 2017

Exempt on channels < $3M in revenue
Internet Streaming Challenges

Broadcast television is clearly defined
- SD – line 21 (CEA-608)
- HD – SDI VANC (CEA-608/708)

Web streaming has competing standards
- Flash/Silverlight/HTML5/QuickTime/HLS
- HDS/MS Smooth Streaming/MPEG Dash, etc.

Evolving landscape
Work to be done

Switch to digital/HD came before accessibility push

Early HD encoders that didn't support captions

SD captioning was actually easier because it is carried in the video frame
STATE OF THE INDUSTRY / WORKAROUNDS

- Open Captions

- Text box web captions

- Don't work on mobile devices
- Almost always "open" and taking up real estate
May have been working until a few months ago, now dead because of Flash deprecation.

Also don't work on mobile devices.

Workarounds drive operational costs higher.
STATE OF THE INDUSTRY / VIDEO PLATFORMS

Popular video platforms only recently began to support modern caption handoff

Content Delivery Networks
Akamai -- May 2016

YouTube -- April 2016

Facebook -- June 2017(!)
STATE OF THE INDUSTRY

- Chicken and egg problem
  - Customers > encoders > servers/CDNs

- We have the technology!
  - These problems are largely solved, but at a cost
Closed caption encoder/decoder

Phone line(s), analog all the way

IP; firewall

$5-10k

Video encoder

5 major market vendors

$15-20k

Per channel!
$100-150/hr, depending on volume

Total runtime, including breaks if they're not able to be scheduled

Multiple overlapping captioners
Lots of rooms

- House/Senate floor, committee rooms
- 2-14 encoders
- $14 \times 30k = 420k$

Long form content

Indeterminable breaks

- TV stations, by comparison
- Home grown systems with dependencies

Budget!
Software upgrades
Web only captions
Inject captions at streaming layer

Consolidate channels
Backhaul rooms to multichannel encoders

Cheaper HD contribution encoders
Not web capable but can be repurposed
$1750
Automated transcription

Target is 97%

Thresholds may be lower
  Early attempts unintelligible
  Two years ago you could get the gist
  Current solutions occasional errors

Research is at 95%
MOVING FORWARD / RECURRING

Human transcription

Rubber knickers are coming over to the hillside to get a closer
Commercial solutions for TV
Replacing human transcribers
Depends on audio quality

Using these technologies in a variety of solutions
Live caption lesser meeting rooms
Cleaned up for on-demand
Sound Search
“Hands-free” webcast solutions for streaming public meetings live, then archiving for on demand.