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# Accessible Virtual Meetings



# Introduction

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# Disclaimer

- The assessments provided herein should not be construed to be an endorsement or approval by the Federal Government of any specific platform or program.
- No representations are made in this presentation as to whether or how certain platforms are or are not in compliance with legal or regulatory requirements from FCC, DHS, or other Federal agencies or legislation.
- To view this presentation in context with presenter remarks, please see: <https://www.youtube.com/watch?v=rR9RfhvM2sU>



# Agenda

- Accommodations vs. Accessibility
- Challenges and Opportunities
- Best Practices
- Equipment and Technology Recommendations
- Virtual Conferencing Platforms Overview
  - Zoom
  - Cisco WebEx
  - Google Meet
  - Adobe Connect
  - Microsoft Teams
  - Live Streaming (e.g. YouTube, Facebook, Twitter)
- So how do I pick a platform?
- Q&A Session

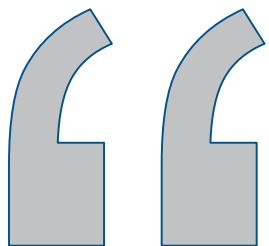


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# Quote to share



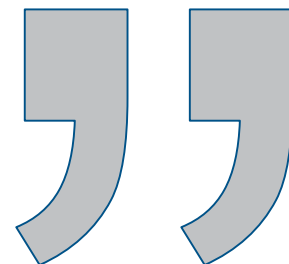
For most people, technology makes things *easier*.

For people with disabilities, however,  
technology makes things *possible*.

Mary Pat Radabaugh

Director of IBM's National Support Center for People with Disabilities

1998



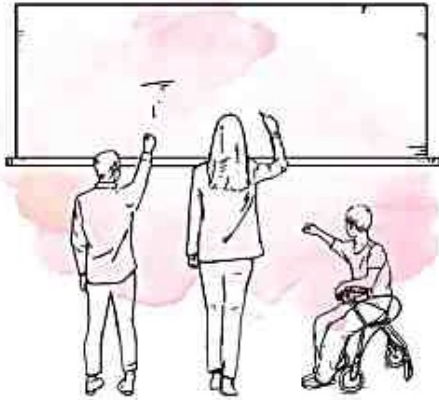
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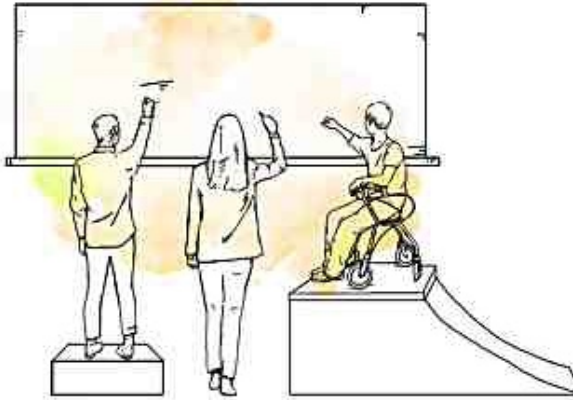
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# Reminder...

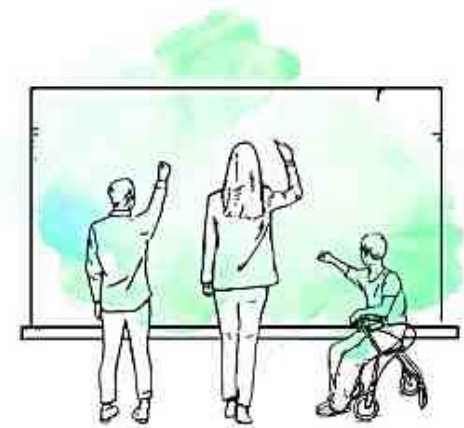
## Equality



## Accommodation



## Accessibility



## Accommodation is not the same as accessibility.

- Accommodations are for **individuals** and are **reactive**.
- Accessibility is for **populations** and is **proactive**.
- Accessibility should make content **available to all**, in equally effective ways, at the **same time**.
- Accessibility is the goal, accommodations are just tools to reach it.





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# Virtual Meetings: Challenges

- Platform limitations (Technical)
- Environmental limitations (Security, budgetary)
- Licensing limitations
  - Some features not uniformly available (e.g. higher-tier licenses).
- Diverse access methods/user interface (UI)
  - Inconsistent user experience
- Limited ability to provide technical support
  - Screen share does not share screen share tools
- Turn taking awkwardness
  - Lack of access to conversational cues
- Conflicting accommodations
  - Limited screen space and bandwidth
- Lack of experience and/or training

		Low	Demands	High
Controls	High			
	Low			

# Virtual Meetings: Opportunities

- Interface customization
- User control of Assistive Technology
- Expanded pool of participants
  - Geographic, disability, time
- Productivity
- Richer remote interactions (as opposed to “conference call”)
- ...?



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# Virtual Meetings: Universal Meeting Design

- Establish a single **Point of Contact**
- Ask for **help**
- Do a **technology test** in advance
- Broadcast the **Communication Rules**
  - Sample at the beginning of this presentation
- Embrace good meeting **management techniques**



# Meeting Management Techniques



**Agenda:** Distribute a detailed agenda prior to your meeting\*

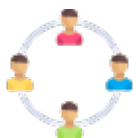
**Attendee List:** Make available a list of confirmed attendees



**Moderator:** Assign one participant to serve as meeting moderator



**Name Announcements:** Remind participants to identify themselves before they begin to speak



**Manage turn-taking:** Establish a clear procedure (or utilize a digital tool) to manage turn taking



**Document sharing:** Distribute any relevant documents well in advance of the meeting\*

*\*Any/all document distribution should consider accessibility of those documents (e.g. word format, PDF, plaintext, braille, videos to be captioned & audio described)*

# Meeting Management Techniques - continued



**Communication style:** Describe the content of the graphics, speak at a moderate rate and stay on topic for ease of communication



**Check In:** At the beginning of your meeting take a moment to ask whether all attendees have what they need for effective communication.




**Solicit Feedback:** Provide a contact for and specifically solicit feedback on accessibility of the meeting.




**Screen share sparingly:** Screen/content is not accessible to screen readers users and can take screen space away from video that may be needed. Use with caution and consider toggling shared content on and off only when needed.

# Equipment and Tech Recommendations


## Fine tune your audio

- 
- Use a headset whenever possible
  - Split your audio between input and output; input via device's built-in microphone, output to headphones or other isolated audio device
  - Only use **one** audio connection method (phone or computer, not both)

## Fine tune your video

- 
- Frame your shot
  - Consider an external webcam
  - Disable autofocus if possible
  - Consider turning off your video when it is not needed\*

## Provide multiple connection options

- 
- Maintain flexibility for your attendees by allowing for as many different connections as possible (e.g. IP audio, phone audio, audio only, video only)

# Equipment and Tech Recommendations - ASR



- Different ASR performance on captioning
- Example between 2 different platforms:
  - **Microsoft Teams** (using Microsoft Azure Speech AI)
  - **Google Meetup** (using Google Cloud Speech to Text AI)
- Edgar Allen Poe's poem "The Raven"

Once Upon a midnight dreary.  
While I pondered weak and weary.  
Over many **acquaint**, **incurious** volume of  
forgotten lore.  
While I nodded, nearly napping, suddenly  
there came a tapping.  
As of **someone** gently **wrapping wrapping up**  
**my** chambered or **just** some visitor I  
muttered tapping at my chain. **Would or**  
only this and nothing more.

Once Upon a Midnight dreary while I pondered  
weak and weary over many a quaint and curious  
volume of Forgotten lore while I nodded nearly  
napping suddenly there came a tapping as of  
**someone** gently rapping rapping at my chamber  
door tis some visitor. I muttered tapping at my  
chamber door only this and nothing more.



Microsoft



# Platforms: Zoom

## Pros



## Cons

- Highly accessible via screen reader
- Simple intuitive User Interface (UI)
- Side by side mode/dual monitor support
- High quality video/audio with low stutter rate
- Non-video participants can be hidden
- Built-in support for captioning (via participant or vendor)
- Supports up to 100 video participants (350 total)
- Multi-pinning and multi-spotlight support
- Can move captions box around the window
- Integrated meeting management tools lack sophistication
- Captioning display lacks customization, sophistication, consistency.
- Security concerns continue to be prevalent, especially amongst government entities
- Built-in live ASR using Otter.ai - but for Business or Pro accounts only (not gov)

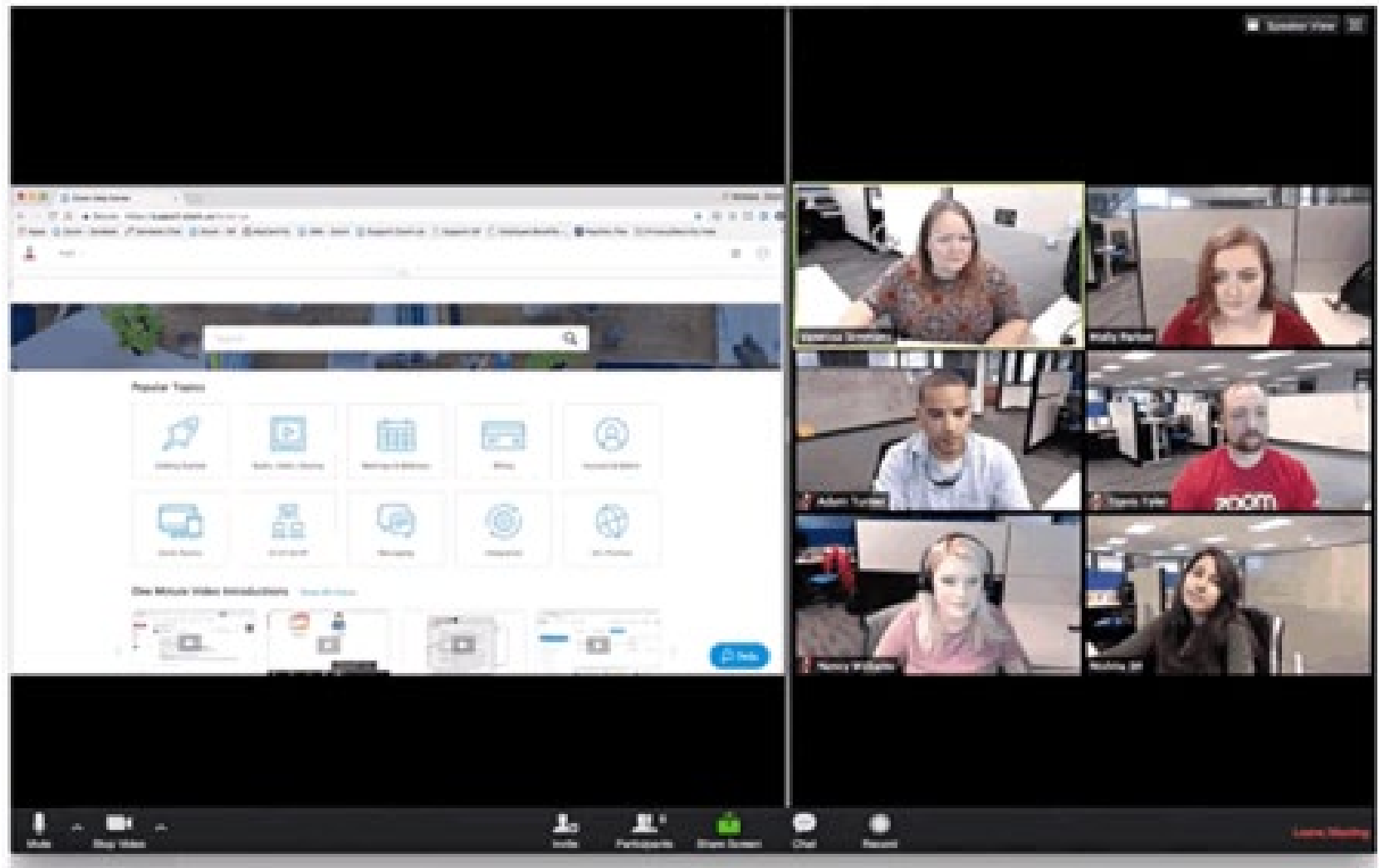




# Platforms: Zoom



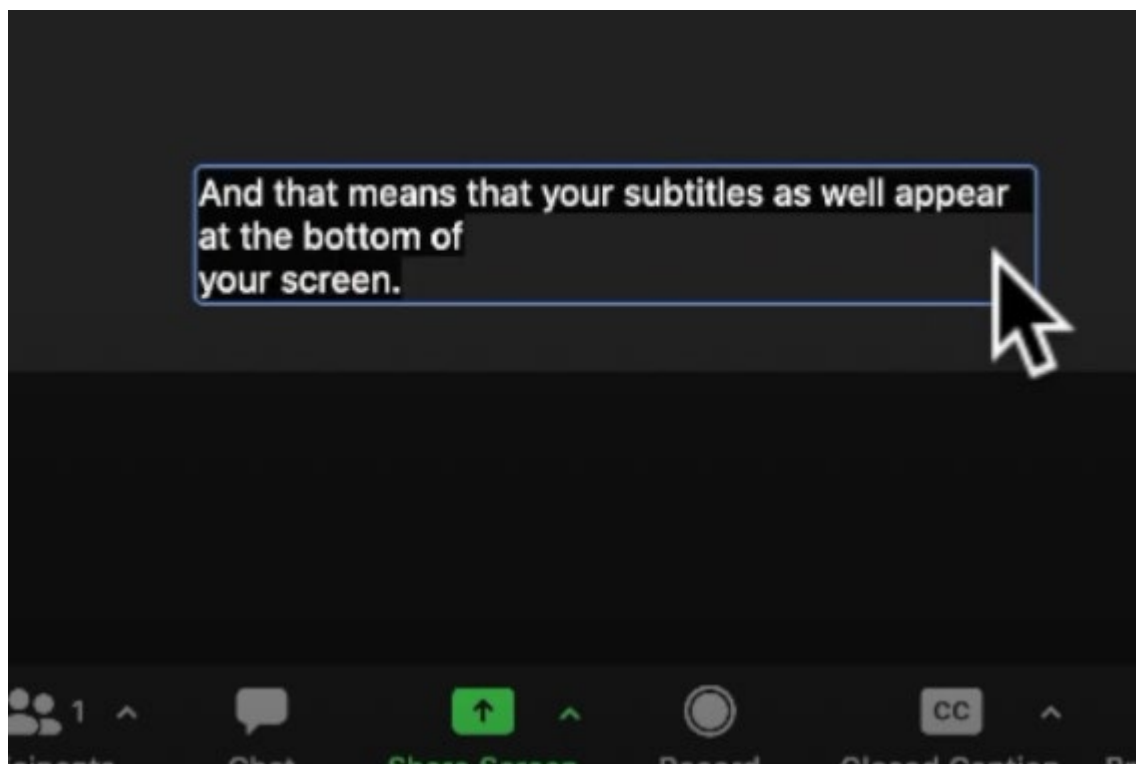
# Platforms: Zoom





# Platforms: Zoom (Placement of Captions)

# zoom



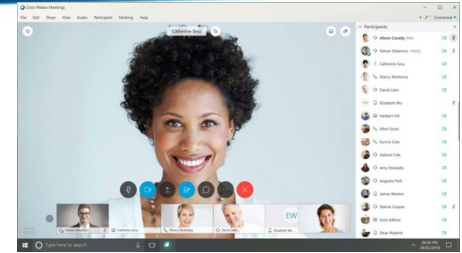
# Platforms: Zoom (Roll-up captioning)

# zoom

appear as closed captions down at the bottom of the zoom session. You can adjust some of the



# Platforms: Cisco WebEx



## Pros

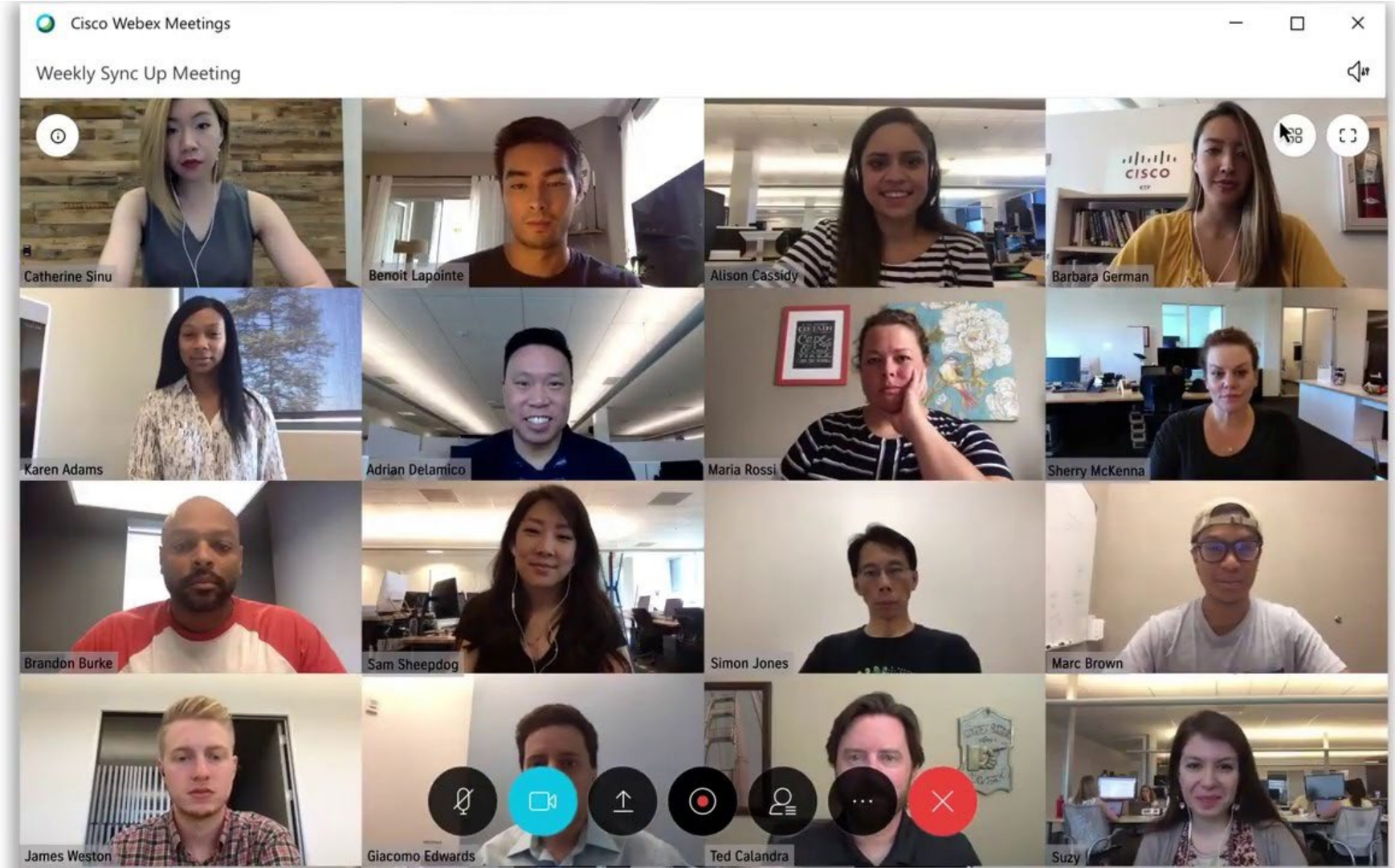
- Easy to procure; security and enterprise ready
- Capability to create a separate module for captioning (Multimedia viewer)
- Centralized feature management (administrators)

## Cons

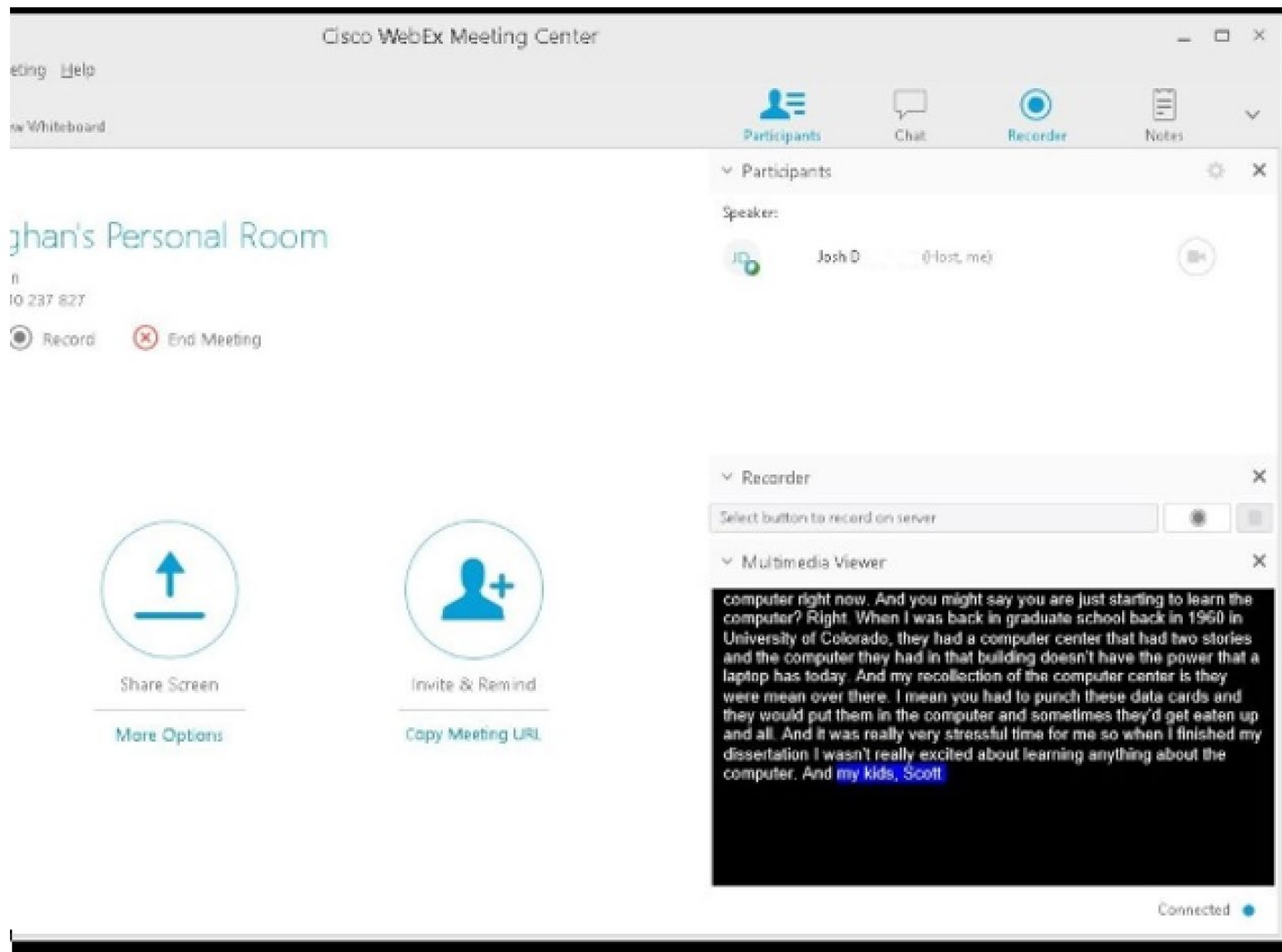
- Not usable for screen reader users.
- Complex user interface requires training to navigate
- Unintuitive video “pinning” functionality
- Inflexible video interface
- Centralized feature management (administrators)



# Platforms: Cisco WebEx



# Platforms: Cisco WebEx





# Platforms: Google Meet



## Meet

### Pros

- FedRAMP approved for some agencies
- Easy to use and intuitive
- Automated captioning has high accuracy and names speakers (isolated audio channels)
- Grid layout for video
- Screen reader and keyboard accessible
- Audio via phone connection
- Browser based- no download required

### Cons

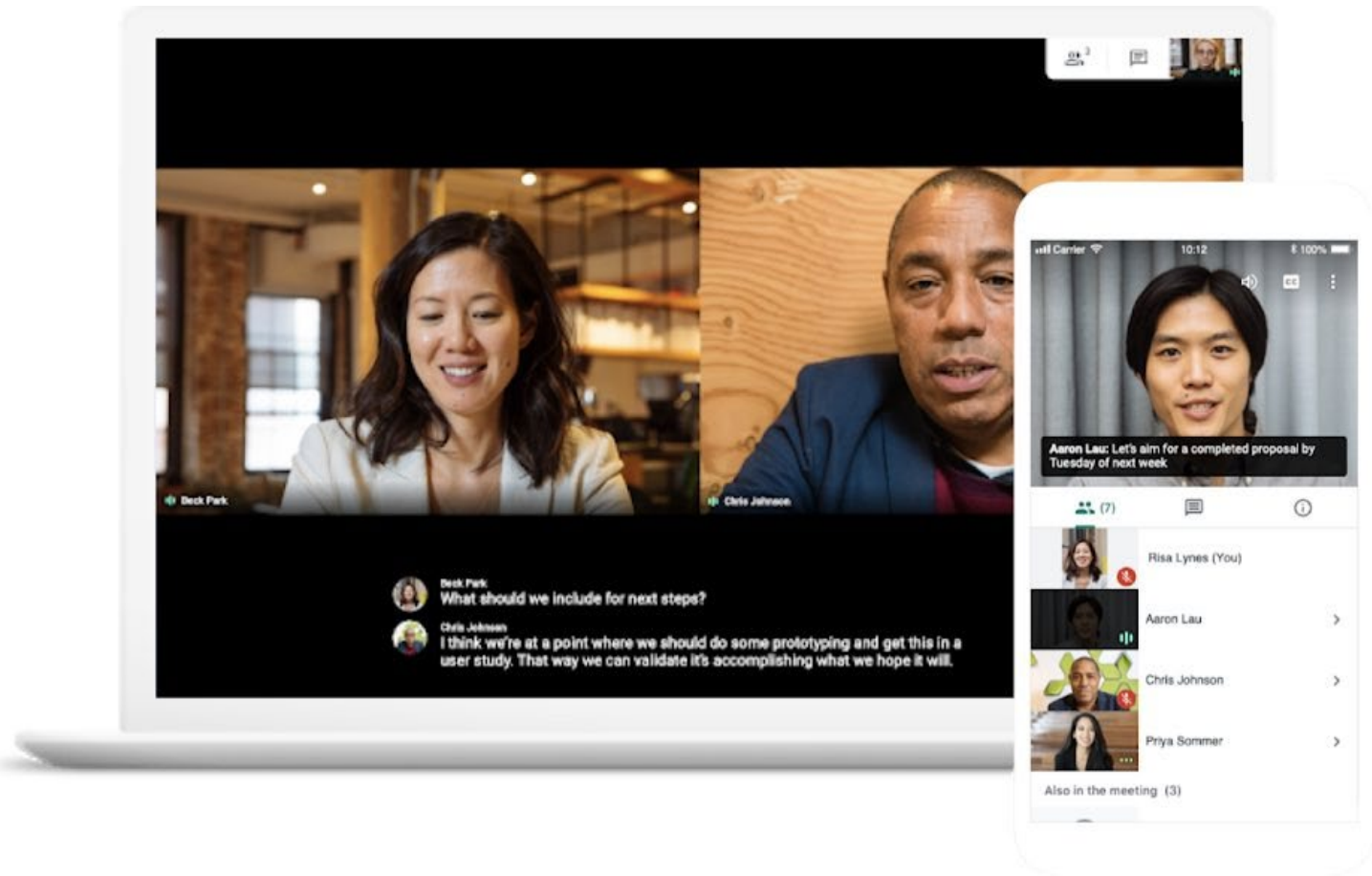
- Not widely available to government agencies
- Max number of video participants depends on license (100, 150, 250)



# Platforms: Google Meet



# Meet



# Platforms: Adobe Connect



## Adobe Connect

### Pros

- Majority of federal agencies use it
- Easy to procure; security and enterprise ready
- Grid layout for video feed
- Maximum user interface flexibility; can add a dedicated pod for captioning
- HTML5 client and desktop application available

### Cons

- Bandwidth intensive, deprioritize video
- Complex user interface
- Not usable for screen reader users
- No video pinning functionality
- Requires additional licenses for add-ons such as conference lines





# Platforms: Adobe Connect

IntelliHome Conference Organisation (Collaboration) - Adobe Connect

Meeting Layouts: Meeting, Layouts, Pods, Audio

Chat (Everyone): John Smith: Welcome to the meeting everyone

Share: Share My Screen

Web Links 3: Browse To

Notes: Meeting agenda

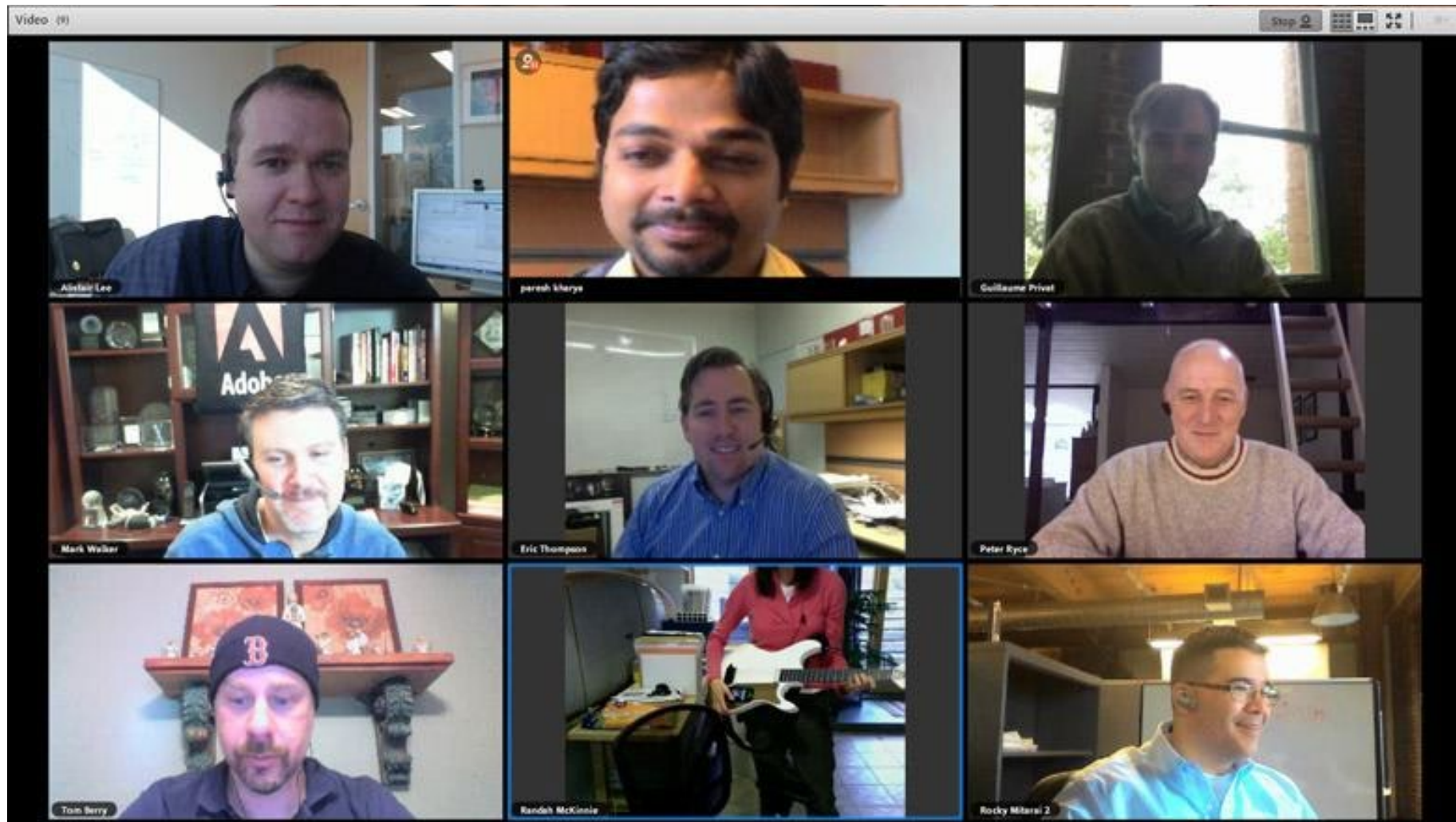
Files: Upload File... Download File(s)

Attendees (3): Active Speakers, Hosts (1) John Smith, Presenters (0), Participants (2) Isabella Roswell, Marcus North

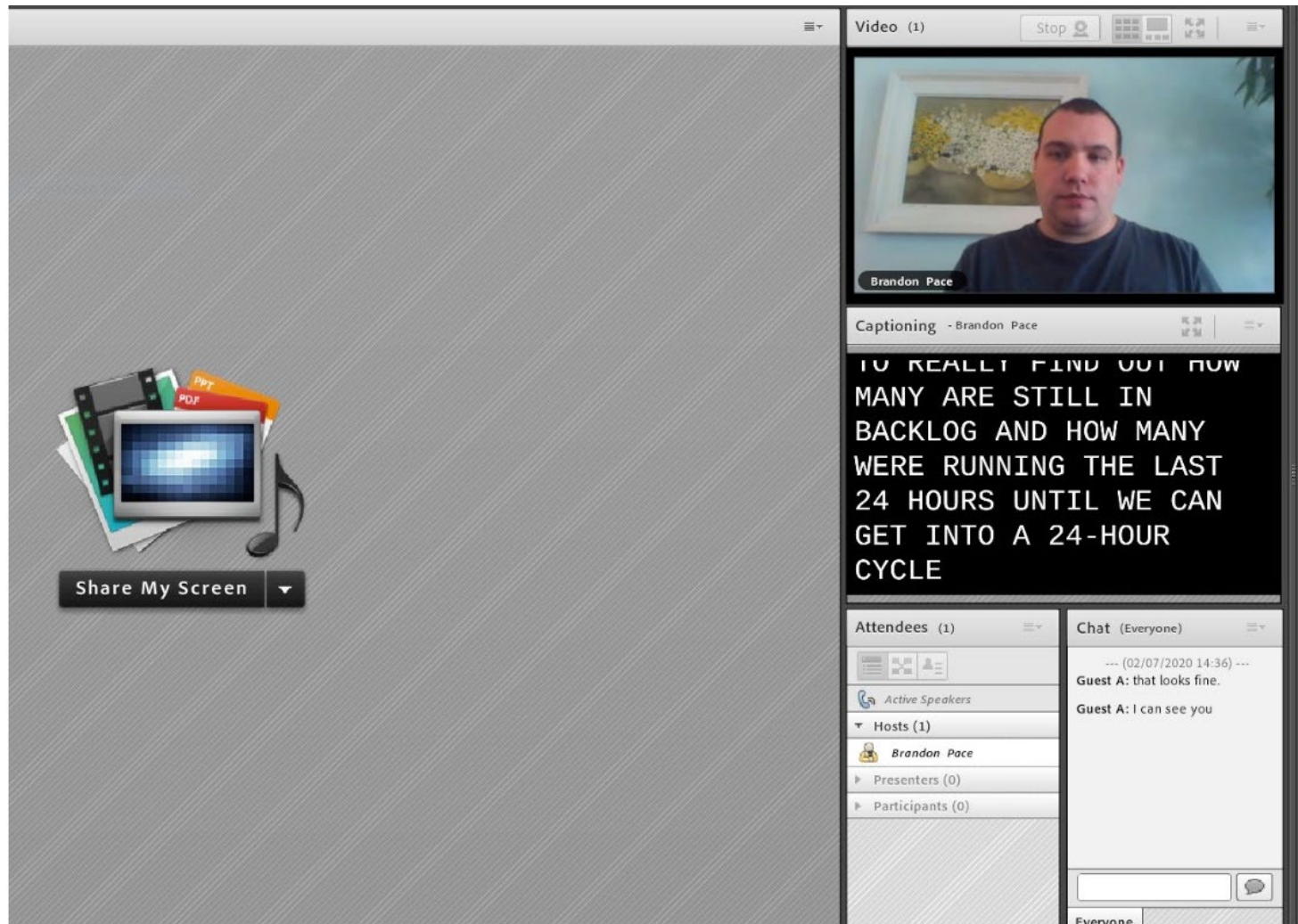
System Tray: Windows, Ask me anything, 14:58 13/10/2016



# Platforms: Adobe Connect



# Platforms: Adobe Connect





# Platforms: Microsoft Teams



## Pros

- Easy to procure; security and enterprise ready
- Available to almost all government agencies with Office 365
- Built-in across Office 365 applications for real-time collaboration
- Embedded invite for one click meetings via Outlook
- Multi-pinning enabled

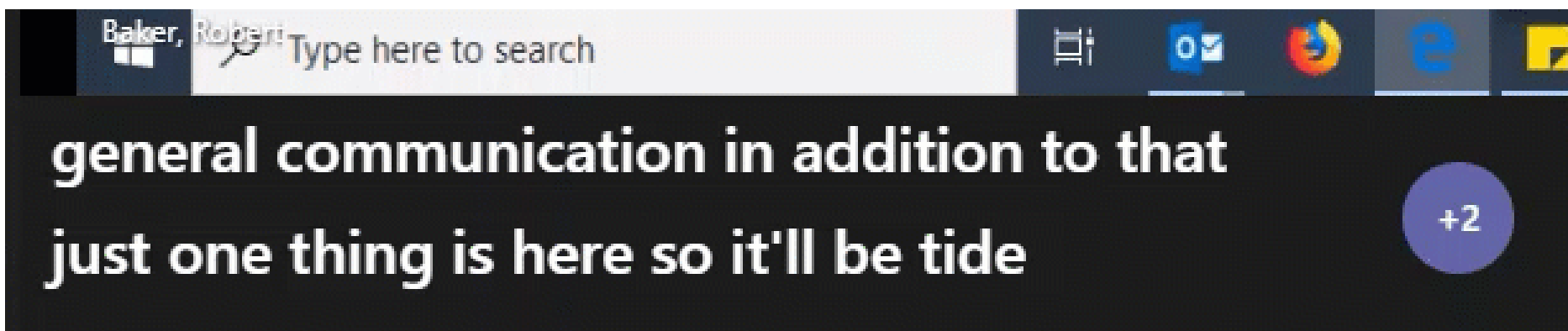
## Cons

- “All-in-one” platform with numerous features that may confuse users
- Accessibility issues (e.g. guests unable to pin, unreliable captioning, screen reader access)
- Not user-friendly & not intuitive
- Captioning only feasible using their Azure AI; no other way to feed captions from CART provider
- License dilemma to obtain alternative methods for accommodations

# Platforms: Microsoft Teams



# Platforms: Microsoft Teams (Captioning example)



\*unedited, real-time  
58 seconds video

# Platforms: Live Streaming



## Pros

- Less bandwidth
- More control of broadcasting various content and video feeds to audience, especially picture-in-picture ASL interpreter and burn-on captioning
- Ease of access to virtually everybody who have a computer or mobile device

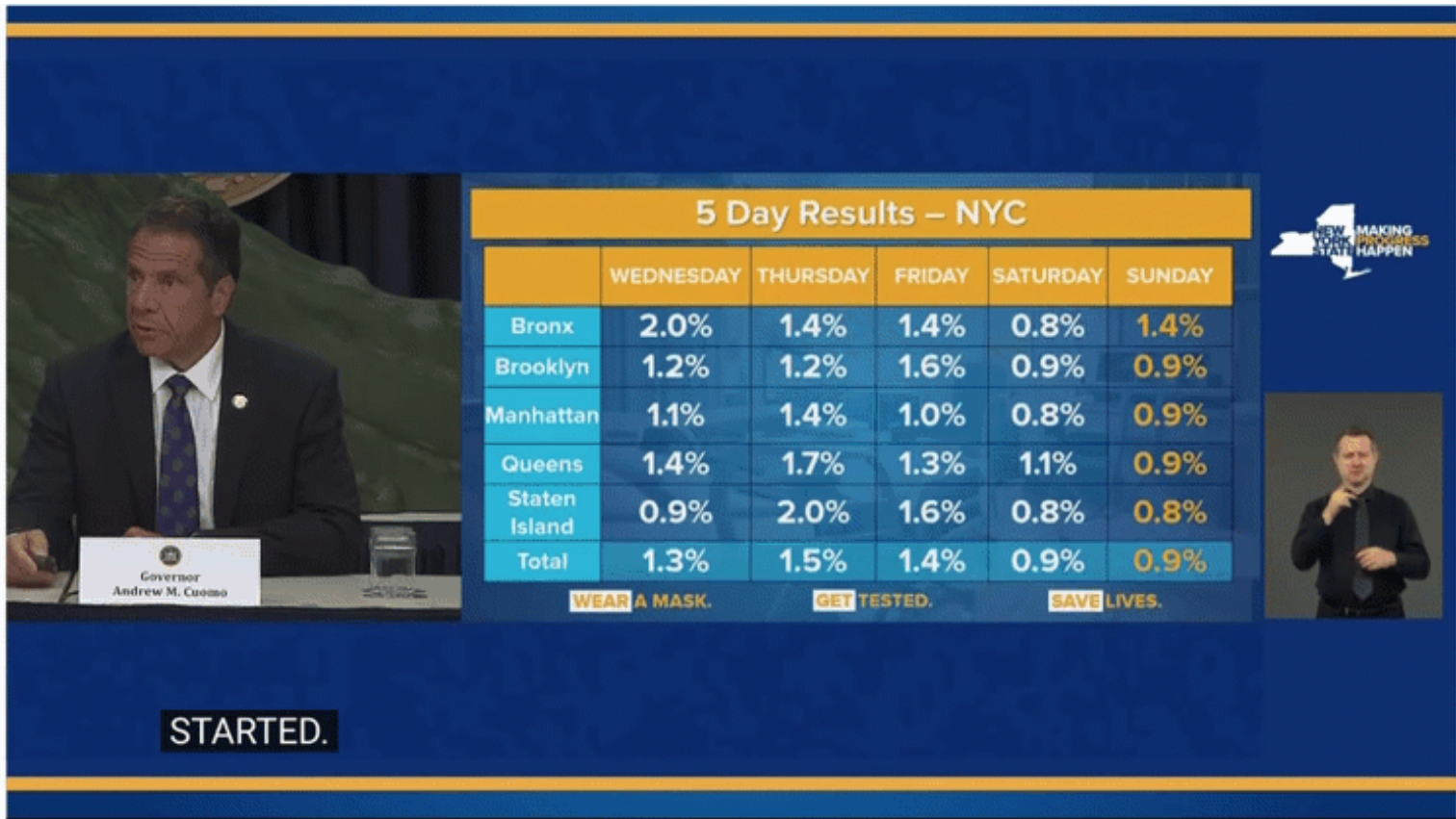
## Cons

- Requires many moving parts along with technical-intensive knowledge to implement solutions, especially with accessibility
- Burn-in or embedded captions on streams are not accessible to screen reader or refreshable braille display users
- Streaming services can be over reliant on ASR generated captioning
- Does not allow for a great degree of user customization



# Platforms: Live Streaming (Bad example)

You**Tube**



**5 Day Results – NYC**

	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Bronx	2.0%	1.4%	1.4%	0.8%	1.4%
Brooklyn	1.2%	1.2%	1.6%	0.9%	0.9%
Manhattan	1.1%	1.4%	1.0%	0.8%	0.9%
Queens	1.4%	1.7%	1.3%	1.1%	0.9%
Staten Island	0.9%	2.0%	1.6%	0.8%	0.8%
Total	1.3%	1.5%	1.4%	0.9%	0.9%

**WEAR A MASK. GET TESTED. SAVE LIVES.**

**STARTED.**





# Platforms: Live Streaming (Good example)



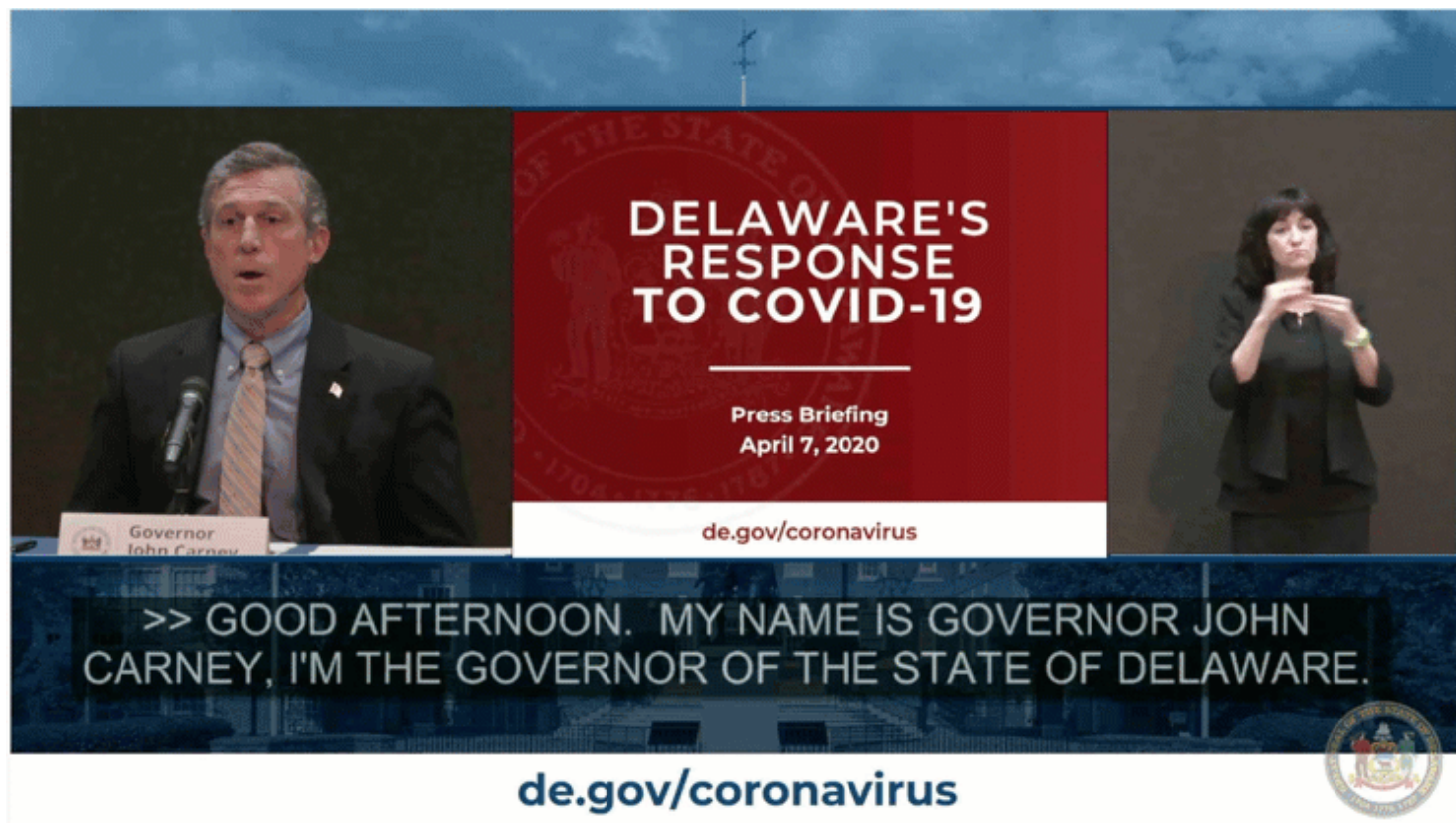
# Platforms: Live Streaming (Size & Transition)

You**Tube**





# Platforms: Live Streaming (Burn-on Captions)



# Platforms: Virtual Event Platform



## Pros

- Less bandwidth
- More control of broadcasting various content and video feeds to audience, especially picture-in-picture ASL interpreter and burn-on captioning
- Ease of access to virtually everybody who have a computer or mobile device
- Some vendors incorporated accessibility features in their platform and/or design

## Cons

- Cost-intensive
- Requires many moving parts along with technical-intensive knowledge to implement solutions, especially with accessibility
- Burn-in or embedded captions on streams are not accessible to screen reader or refreshable braille display users
- Does not allow for a great degree of user customization



# Platforms: Virtual Event Platform





# Platforms: Virtual Event Platform



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# So how do I pick a platform?

*None of the virtual meeting platforms are perfect.*

*Sorry*

- Check with your agency/organization to identify which platforms you already have access to
- Engage people with disabilities to test and evaluate those platforms with you
- Implement meeting management strategies to compensate for weaknesses in your platform
- Utilize other services as possible to compensate for weaknesses in your platform (e.g. separate captioning streaming website, hand raising tool)



# Wrap Up

- Ask: “How can I help?”
- Don't let the perfect be the enemy of the good, but...
  - Don't stop collecting feedback and iterating
- Stay flexible
- Spend time to save time

## Contact Us

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- Brandon Pace (DHS): [Brandon.Pace@hq.dhs.gov](mailto:Brandon.Pace@hq.dhs.gov)
- Archived Presentation:  
<https://www.accessibilityonline.org/cioc-508/archives/110839>

