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ENHANCED PRESENTATION EXPERIENCE FOR COLOR BLIND MEETING ATTENDEES

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ABSTRACT

Techniques are described for adding support to an online meeting client or collaboration infrastructure, which allows a presentation media stream in an online meeting to be converted to a "color blind" friendly palette in real-time. A configuration "wizard" would be included in the online meeting client, which would guide the color blind attendee to select the palette best suited for their individual experience.

DETAILED DESCRIPTION

Color blindness and color vision deficiency (CVD) affects a significant segment of the population. The experience for color blind users in online meeting scenarios where presentations involve color coding can be greatly impacted.

Common conventions used in online meetings presentations can result in challenges for color blind attendees. There are several examples, including:

1. Red/green indicators for go/no-go project status
2. Color coded graphs/pie charts/histograms differentiating categories or trends
3. Red/yellow/green for urgency in key performance indicators

Color blind attendees find themselves at a disadvantage in these scenarios, having to rely on others to clarify color coded information. At a minimum, this is a tedious and sometimes frustration experience, but there also is the risk that key information is not communicated to all meeting attendees, which could be dire depending on the meeting subject matter.

This proposal consists of a "combination" of existing technologies embedded in online collaboration applications, such as WebEx, to enhance color blind attendees' experience with presentations shared explicitly within meetings

There are several key benefits of this proposal, including:

1. Allowing for all meeting participants to experience online meeting presentations to their individual color perception capabilities and preferences (different than other proposals which replicate a color blind customer's experience for an agent).
2. Focusing on the meeting presentation stream, where communication of critical information can be more important (and more susceptible to issues with CVD).
3. Relying on more than color mappings for meeting attendees to comprehend key information in meeting presentations.
4. Not requiring an additional application to be downloaded and installed or glasses or lenses to experience, which meeting attendees may not have access to at all times.
5. Not relying on conventions and/or policies for presentation color palettes to be maintained, which can be overlooked, or not maintained across all organizations.
6. Not requiring additional actions by attendees to determine colors (e.g., hovering over images, taking screen shots, etc.)

A high level architecture to implement this proposal is illustrated in Figure 1, below.

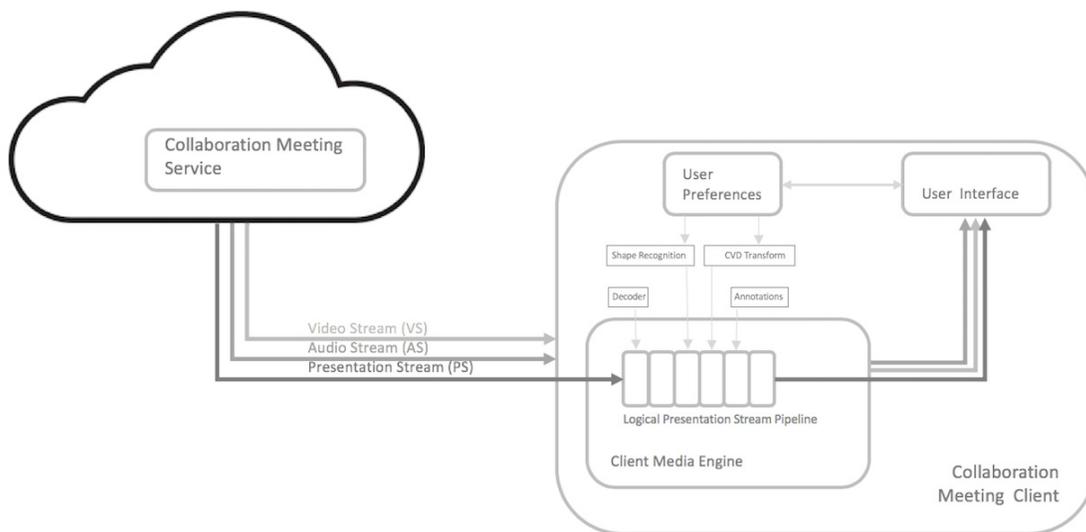


Figure 1

At a high level, the approach is to extend the media processing on online meeting clients (like WebEx Teams™ or Webex Meetings™ client) to include additional processing for the presentation stream. There are potentially multiple types of processing that can be done to enhance the presentation, but this proposal describes two as an example.

The first type of processing key to enhancing a color blind user's (attendee) experience is related to transform the presentation stream to a palette that is better suited for the color blind attendee. The palette for the transformation is specified by a given user through the meeting client, as part of first-time usage, or as part of application settings. Details of how users specify the settings are mentioned below.

Another type of processing that could benefit a color blind meeting attendee is shape recognition in the presentation stream. Identifying key shapes typical in slide presentations legends and annotating the video stream could help the color blind attendee where key information is being represented or called out. Identifying and annotating "Red X" representing key missing functionality, "Red Stop Sign" denoting "no-go" status, are just a few common conventions for which shape recognition and annotation can be used to help the color blind meeting attendee. This processing can also leverage user configuration/preferences.

User Preferences - Color Palette

Allowing a color blind meeting attendee to specify their preferences for these enhancements is a key part of this proposal. For specifying the color palette from a meeting client, a user would need to have the flexibility to specify their preferences (e.g., via an application or "wizard") in a few ways:

- For those users who want the system to suggest a palette based on their type of CVD, the application (app) would provide the traditional color blind test within the app. This would be used to identify a user's type of CVD so that an existing palette can be selected based on the type.
- For users who prefer to select by experience, a list of pre-defined palettes, supporting CVD and non-CVD attendees alike can be supplied.
- For users who prefer their own palette, users would be allowed a user experience (UX) which provide both color mapping (red = gray) as well as palette fine tuning (dark-to-light, hue, etc.).

In all cases of palette selection, a user would be able to view a selected palette from a sample video (or ones uploaded for test), as well as save them for use within the presentation stream processing.

User Preferences - Shape Recognition

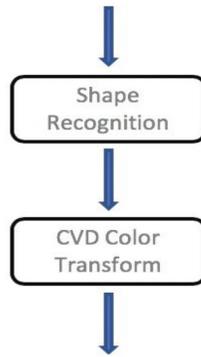
While there are common colors and symbols used within presentations to indicate important information, there will frequently be domain specific representations that would need to be accounted for. This proposal would provide a default set of templates used to be identified in the presentation stream, with changeable annotated text to be overlaid. It would also provide a mechanism for the user to upload custom shape definitions to use as well.

Figure 2 illustrates a hypothetical example of how a slide shared in a presentation may be transformed for a meeting attendee based on configured preferences.

Cloud Service HA Matrix

Cloud Services	External or No State	Health Checks	Multiple Instances	Multi Data Center for DR	Continuous Testing	Active-Active Strategy	Active-Active Multi Data Center	Verified API Compatibility internal and external
Database Service	✓	✓	✓	✗	✓	✓	✗	✓
REST API Service	✓	✓	✓	✗	✓	✓	✗	✓
Logging Service	✓	✓	✓	✗	✓	✓	✗	✓

Milestone	Status
Phase I	○
Phase II	●
EFT	●
GA	●



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Cloud Services	External or No State	Health Checks	Multiple Instances	Multi Data Center for DR	Continuous Testing	Active-Active Strategy	Active-Active Multi Data Center	Verified API Compatibility internal and external
Database Service	✓	✓	✓	✗ Not Supported	✓	✓	✗ Not Supported	✓
REST API Service	✓	✓	✓	✗ Not Supported	✓	✓	✗ Not Supported	✓
Logging Service	✓	✓	✓	✗ Not Supported	✓	✓	✗ Not Supported	✓

Milestone	Status
Phase I	○
Phase II	● Stop
EFT	●
GA	●

Figure 2

In summary, techniques are described for adding support to an online meeting client or collaboration infrastructure, which allows a presentation media stream in an online meeting to be converted to a "color blind" friendly palette in real-time. A configuration "wizard" would be included in the online meeting client, which would guide the color blind attendee to select the palette best suited for their individual experience.