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## TECHNIQUES FOR AUTOMATICALLY PASSING PRESENTATION CONTROL IN AN ONLINE MEETING

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### ABSTRACT

Techniques are presented for improving and streamlining an online meeting experience by predetermining the list of presenters and their corresponding presentation material, such that presentation control is dynamically passed based on the content currently being shared. Having a smooth transition between presenters and presentation materials improves the online meeting experience.

### DETAILED DESCRIPTION

Online meeting systems enable meetings among people spread across the globe. Meetings are not restricted to interactions among people and can include presentation of materials to attendees such as slideshows, spreadsheets, text documents, design diagrams, system architecture diagrams/descriptions, etc. Often, such presentations are created by a group of people who want to jointly share the material with a wider audience such as key stakeholders and leadership teams. These meeting/events frequently have fixed time slots and agendas. The situation of sharing a presentation where each section is developed by specific individual creates the following challenges:

1. Passing control of the presentation in the middle of a session creates disruptions and breaks the flow of the presentation. Passing control can also result in loss of time and risks losing the interest of attendees, particularly when such disruptions are frequent.
2. If a single person (host) is controlling the presentation from his/her laptop or desktop and another person is speaking/presenting the material being shared, the presenter may have to frequently ask the host to advance to the next slide or go backwards or forward to another point in the presentation. This becomes even more challenging when there are animations in the slide, because there is delay in

communication and further lag by the system to change the slides. Overall, this creates an unpleasant and disjoint experience and confusion regarding the material being presented.

There are no known online meeting systems that allow auto mapping of the attendees to the content sections and passing the presentation control specific to application navigation. A novel mechanism is proposed which allows dynamic control to be designated to a specific presenter for a set of slides or a particular section of a presentation without any disruptions.

In one proposed embodiment, the presentation is uploaded with a marked section to an online meeting server of an online meeting system. The availability of such data will then be timed based on the session to avoid any extra space consumption. An enhancement to the online meeting system allows the mapping of user email IDs or other unique identifiers with the uploaded content sections or slide numbers and the initial speaker. An option available in the online meeting system allows the host or any of the presenters mapped to start sharing the content with the audience. The online meeting system validates the mapping with the attendee list and their email IDs and passes the control to the designated user for the desired section/slide numbers.

In the proposed embodiment, a meeting application provides the host with a simplified Graphical User Interface (GUI) that not only allows the host the schedule the meeting and include the list of attendees but also allows the host to designate the presenters beforehand. Additionally, the host is required to enter the slide numbers for which each presenter is responsible. As an example, a host might specify A, B, C, D, and E as the list of attendees and A and B as the presenters. A is responsible for the first 10 slides of the presentation, while B is responsible for the last five slides in a 15-slide presentation. The GUI also allows the host to upload presentation material for a meeting.

On entering this information, the host submits a form. Once submitted, information about the meeting (topic, attendees, presenters, slide numbers of each presenter, the upload location of the presentation itself) is converted into JavaScript Object Notation (JSON) format, using an underlying YANG model. A sample high-level YANG model is provided below.

```
module meetingInfo {
```

```

namespace "urn:ietf:params:xml:ns:yang:x-compnay-meetingInfo";
prefix "x-company-PI";
description
  "Data model to store information about meeting";
revision 2020-05-17 {
  description "Initial revision of meeting info";
}
container meetingInfo {
  leaf meetingTopic {
    type string;
    mandatory true;
    description "Topic of meeting";
  }
  leaf-list attendeeList {
    type string;
    mandatory true;
    description "List of attendees";
  }
  leaf-list presenterList {
    type string;
    description "List of presenters";
  }
  leaf-list presenterSlideMap {
    type string {
      pattern '[a-zA-Z]+@[a-zA-Z]+\.[a-z]+:[0-9-,]+';
    }
  }
  leaf presentationLocation {
    type string;
  }
}

```

Once converted into JSON format, the meeting server then parses the presentation material to discern/prepare the following:

1. The number of slides in the presentation (this task is achievable by leveraging libraries such as Python's PPTX);
2. A marker for each slide that allows the meeting application to discern which slide is currently being shared with the attendees. This is important because it is required for the meeting application to dynamically switch presentation control depending on the slide number. To that end, this proposal suggests the following technique by which marker information for each slide can be prepared: the meeting server can embed slide number digits at a specified location of each slide, which effectively

results in the meeting server numbering each slide of the deck from start to end. This task is achievable using Python's PPTX library. If the slide number for each slide is already present in the deck at the correct location, e.g., at the bottom right corner, then this step can be skipped.

Once completed, the JSON description of the meeting is stored at a known location.

As summarized in the figure below, once the meeting begins, a meeting application bot is made to join the meeting, such that the bot downloads the JSON meeting description to discern the list of attendees, the list of presenters, and the download location of the modified presentation with slide numbers at the correct location in each slide. The bot downloads the presentation material and "shares" its screen. Simultaneously, the bot assigns presenter control to the first presenter based on the parsed JSON description.

As the meeting progresses, the meeting server performs periodic optical character recognition (OCR) on the content being shared to discern the slide number. Various collaboration devices are already able to gauge when a document being presented has changed during a meeting. This same solution/technology may be leveraged to determine when content has changed significantly enough to warrant a new OCR scan. OCR can be performed as a standalone service or could be embedded as a service in the online meeting system cloud.

If the OCR service detects a change in the slide number, the meeting server is notified. If the new slide number corresponds to a new presenter, the meeting application bot is notified by the meeting server. This can be achieved by extending (<https://tools.ietf.org/html/rfc4575>). As a result, presentation control is dynamically allocated to the new presenter. If no change in slide number is detected, the next time a significant change is observed in the content being presented, a new OCR scan is performed. The proposed system provides a mechanism by which the online meeting experience can be improved and made more seamless by predetermining the list of presenters and their corresponding presentation material, such that presentation control is passed dynamically based on the content currently being shared.

