Collabora Productivity

Native comments & change tracking in LibreOffice Online

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Problems with previous approach

Trigger unnecessary rendering of document’s tiles

- Upon user selecting a comment, the anchor lines would become bold and trigger a tile invalidation in document
  - Not ideal for Online where every unnecessary invalidation has a huge performance cost

- Invalidation would happen even if the document content is unchanged

Problems with previous approach

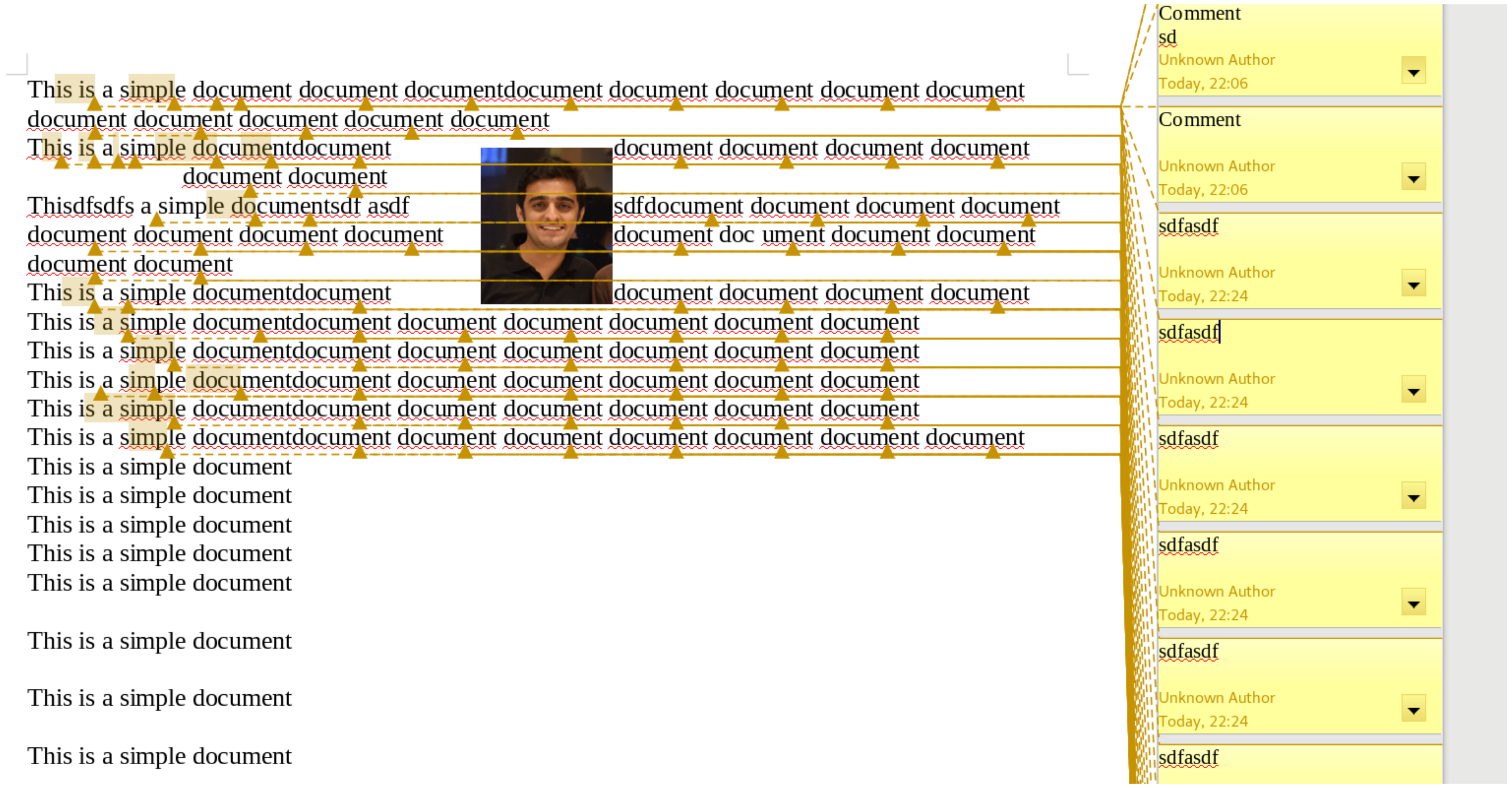
Harder comment navigation

- Imagine a page full of range comments with range positions completely out of sync with comments’ position on the sidebar; finding which comment belongs to which text is hard
- Ideal would be to slide the comments to their range position as they are clicked

Problems with previous approach

Anchor lines all over the document

- Interfering with user experience
- Especially when there are lot of comments



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Comment
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Unknown Author
Today, 22:06

Comment

Unknown Author
Today, 22:06

sdfasdf

Unknown Author
Today, 22:24

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Unknown Author
Today, 22:24

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Unknown Author
Today, 22:24

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Unknown Author
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Unknown Author
Today, 22:24

sdfasdf

Problems with previous approach

Harder to maintain

- Involvement of editeng.
- Typing comment in one view interfering with other views
  - Special cases to handle that in LOK
- And many other problems; a lot of bug fixing involved around comments earlier

And no change tracking comments support

So, this is what we wanted

- Better UX
  - Quicker response times
    - Avoid unnecessary round-trips with every typed character
  - Animations!!!
- Better DX
  - Low maintenance costs
  - Less developer time fixing comments related bugs
- Integrated change tracking comments
  - Easier to accept/reject changes, add comment, etc.

Implementation

Implementation

- Optional feature
  - Can be disabled by an option in LOK
  - Other LOK clients still using in-tiled comment rendering
  - Pass --enable-tiled-annotations in GTV

- Wrapped all comment functionality under the set of LOK APIs

Implementation

- Single LOK command to get all the comments (with their parent-child relationship)
  - getCommandValues(ViewAnnotations)
  - JSON array containing all the comments

Implementation

- Augmented existing UNO commands
  - For insertion/removal/modification of comments
  - .uno:InsertAnnotation, .uno:RemoveAnnotation, .uno:ModifyAnnotation now return/accept a ‘Id’ parameter to identify the comment

Implementation

- Callbacks to notify LOK clients
    - For insertion/removal/modification of comments
    - LOK_CALLBACK_COMMENT
        - With a JSON containing the information about the comment

JSON structure

```
{
    "comment": {
        "action": "Add",                              // “Remove”, “Modify”
        "id": "11",                                   // Unique ID across lok instance
        "parent": "4",                                // “0” if it’s a root comment
        "author": "Unknown Author",
        "text": "This is a beautiful comment",
        "dateTime": "2016-08-18T13:13:00",     // ISO 8601 time format
        "anchorPos": "4529, 3906",                    // position of comment in twips
        "textRange": "1418, 3906, 3111, 919"   // rectangle coordinates of range comments in twips
    }
}
```

Implementation (Writer)

- Only available module with support for reply comments
- Parse the internal data structures and convert it to JSON preserving the parent-child relationship
- Calculate the rectangles in twips for range comments
  - And put them in JSON
- Give unique Ids to each SwPostItField object to be able to identify comments from the LOK API
  - Needed to later modify or remove a specific comments

Change tracking

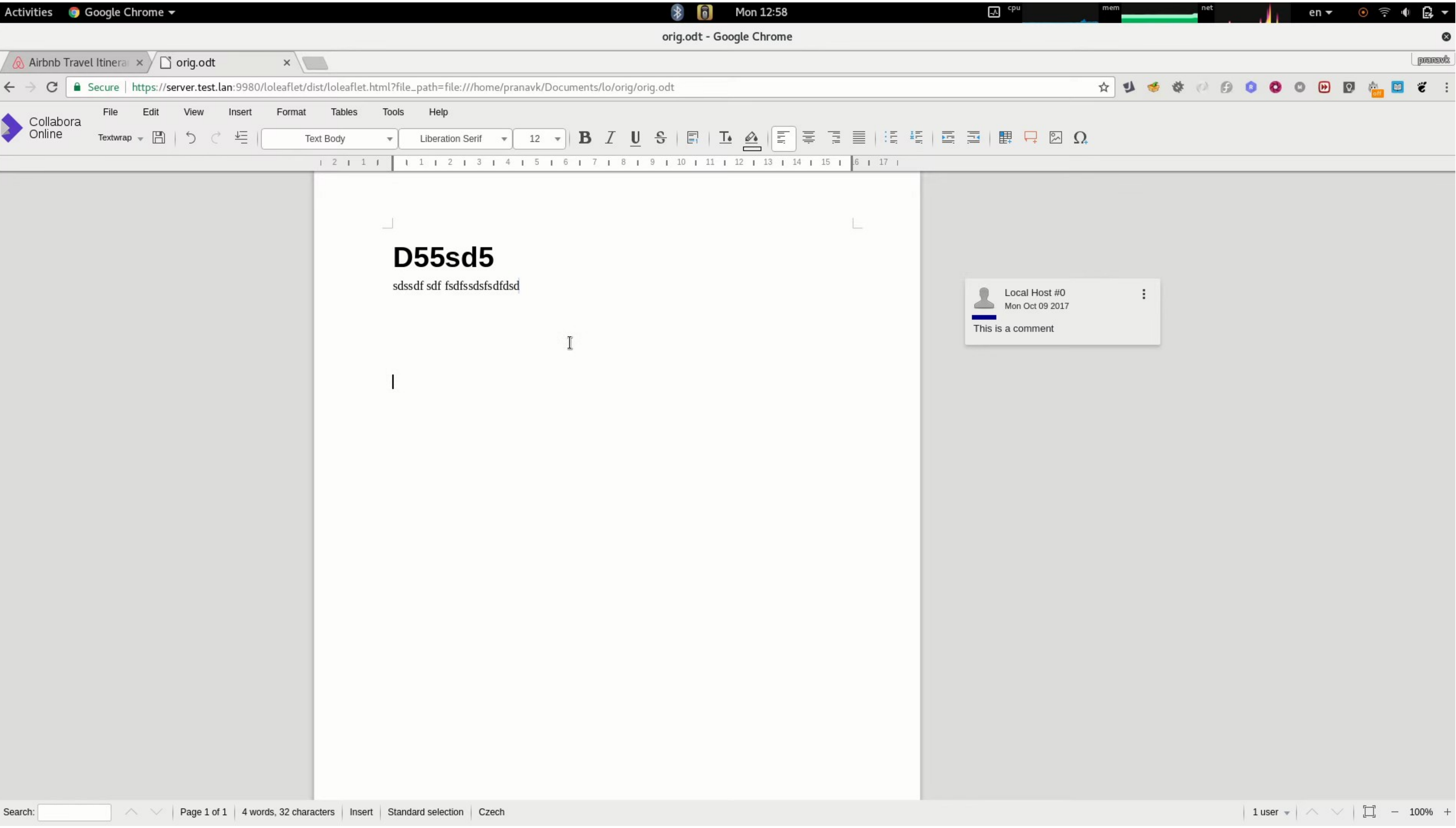
- Simple to expose them through a LOK API
  - Support for commenting was already present in core

- Intuitive UI – can accept/reject changes easily
- Add comments easily
- And animate them to their actual change

Client side

Using comments & change tracking API

- Interpret the JSON and feed it to the layouting algorithm
- Sort comments by their anchor position in the document
  - Keep them as closer as possible to actual content
  - and animate them when they get the focus near to their actual content
- Send data to backend only after comment is committed/saved
  - Whole comment data is sent in one go
  - Small performance win
- Use the change tracking API to fetch changes and their comments and integrate in sidebar with comments



orig.odt - Google Chrome

https://server.test.lan:9980/loleaflet/dist/loleaflet.html?file_path=file:///home/pranavk/Documents/lo/orig/orig.odt

D55sd5

sdssdf sdf fsdfssdsfsdfdsd

Local Host #0
Mon Oct 09 2017
This is a comment

Search: | Page 1 of 1 | 4 words, 32 characters | Insert | Standard selection | Czech | 1 user | 100%

More ideas for future

- Better root-reply comment relationship
  - In ODF, all the adjacent <office:annotation> are treated as reply comments
    - Limitation: Only one comment thread per anchor position
    - Give Id to each <office:annotation> element and link reply comments with a new attribute, <office:parent-annotation-name>
- Ability to resolve comments
  - Some new office:resolved attribute?

More ideas for future

- Ability to reply to comments and resolve them in Calc and Impress
  - Calc: “Notes” vs. “Comments”?
- Change tracking comment threads
  - … instead of only one comment per change

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Any Questions?

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