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Let Google Index Your Media Fragments

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Agenda

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- Media Fragments
- Problems of media fragments indexing
- The model to let Google index media fragments
- Discussion
- Conclusions

Find Charlie

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If you search “Charlie” in Google and find the following pictures picture in the result list…

Find Charlie (cont)

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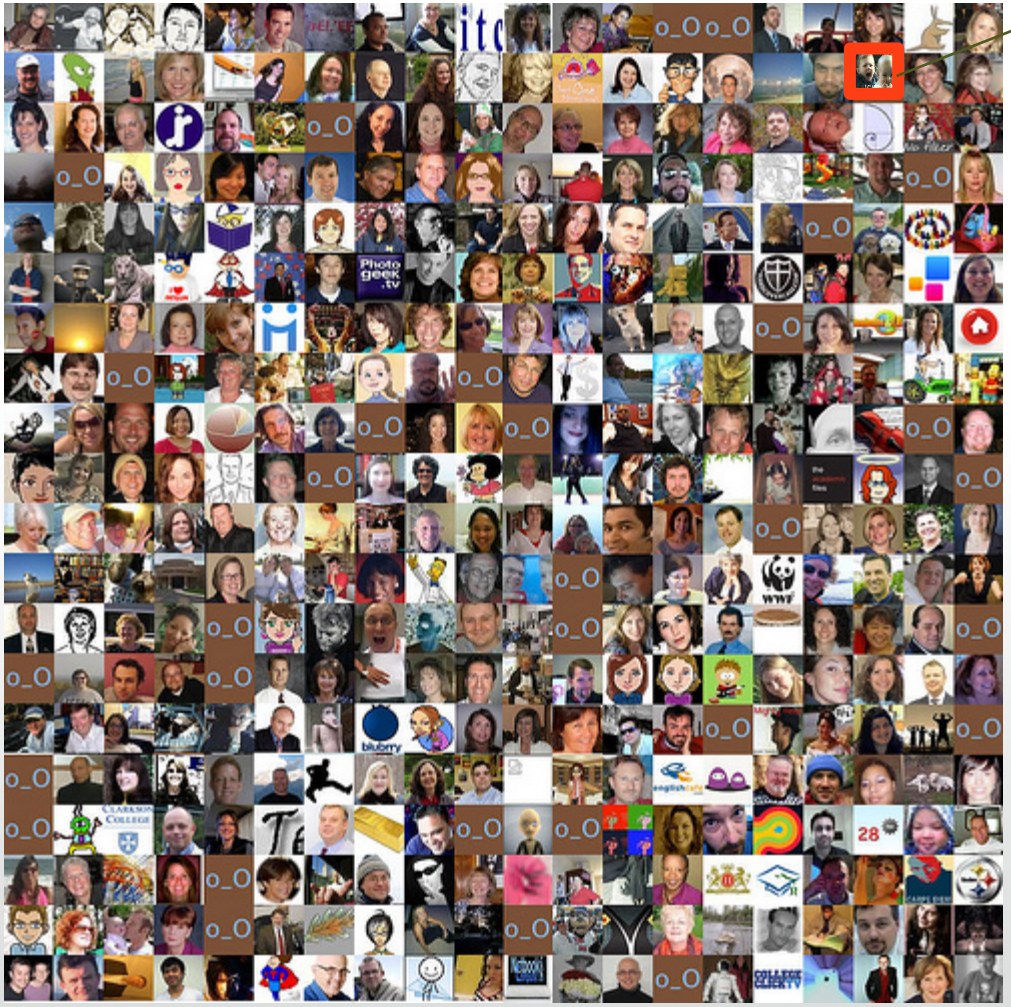
- Again, where is Charlie?



You may expect that the search engine can tell you where exactly is Charlie.

Media Fragment

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- Denote the inside content of multimedia resources
- Four dimension defined in Media Fragment 1.0 spec
  - Temporal dimension (10s to 20s of a 20mins long video clip)
  - Spatial dimension (a rectangle area in an image)
  - Track dimension (different sound tracks or captioning for different languages)
  - Named dimension (the combination of the above three)

Current Situation

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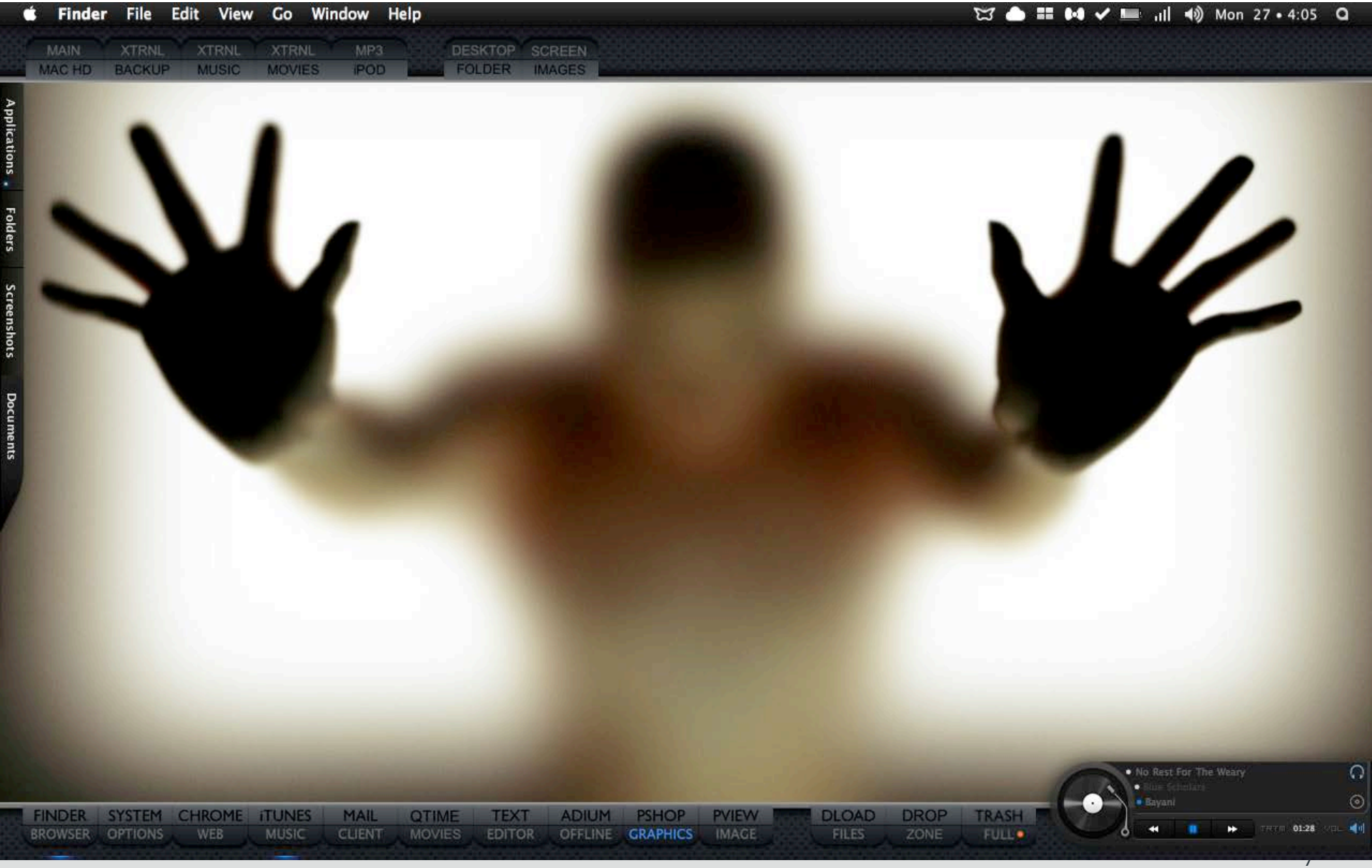
- Multimedia uploading, sharing, tagging is easy
- Searching WHOLE multimedia resource is easy
- But searching PART of multimedia resource is difficult
  - Annotations are not linked to media fragments
  - Linked using javascript
  - no unique page for each media fragment
  - Example


Finder File Edit View Go Window Help
Mon 27 • 4:05
MAIN XTRNL XTRNL XTRNL MP3
MAC HD BACKUP MUSIC MOVIES iPOD
DESKTOP SCREEN
FOLDER IMAGES
Applications
Folders
Screenshots
Documents
FINDER SYSTEM CHROME iTUNES MAIL QTIME TEXT ADIUM PSHOP PVIEW DLOAD DROP TRASH
BROWSER OPTIONS WEB MUSIC CLIENT MOVIES EDITOR OFFLINE GRAPHICS IMAGE FILES ZONE FULL
No Rest For The Weary
Bayani
01:28

What we want to do...

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Title → The next Web of open, linked data

Presenter → Tim Berners Lee

06:02 → Linked Data Principles

07:28 → Grassroot picture

08:21 → DBpedia

09:15 → Government Data

…

Gimme the FRAGMENT, not the WHOLE video!

The Difficulties

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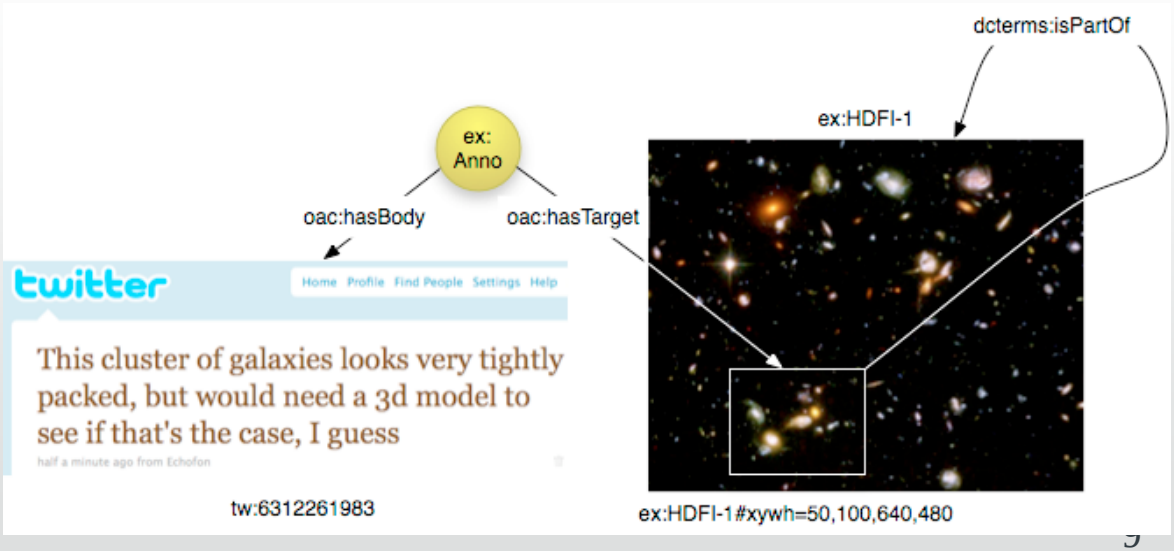
- The landing page is not search-engine-friendly
  - Everything is on the same page and the notion of media fragment is not explicitly embedded in HTML
  - Ajax content is ignored (e.g. Youtube interactive trans)
  - No semantic descriptions, no preview in search results



The Difficulties (cont)

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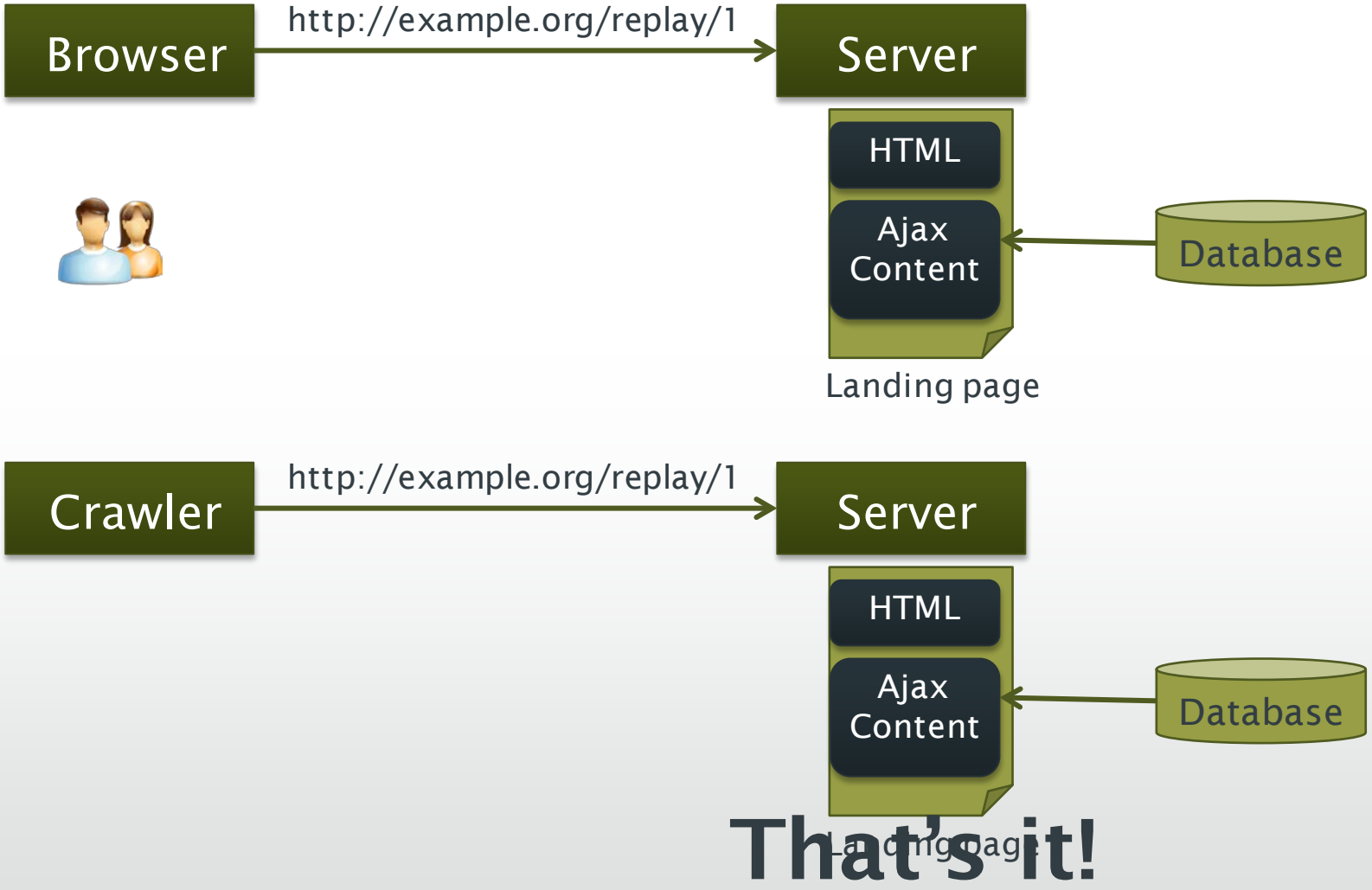

That's it!

Google's Ajax Content Crawler

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- The Crawler is designed to index Ajax content
- Replace token "#!" in URLs with "_escaped_fragment_"

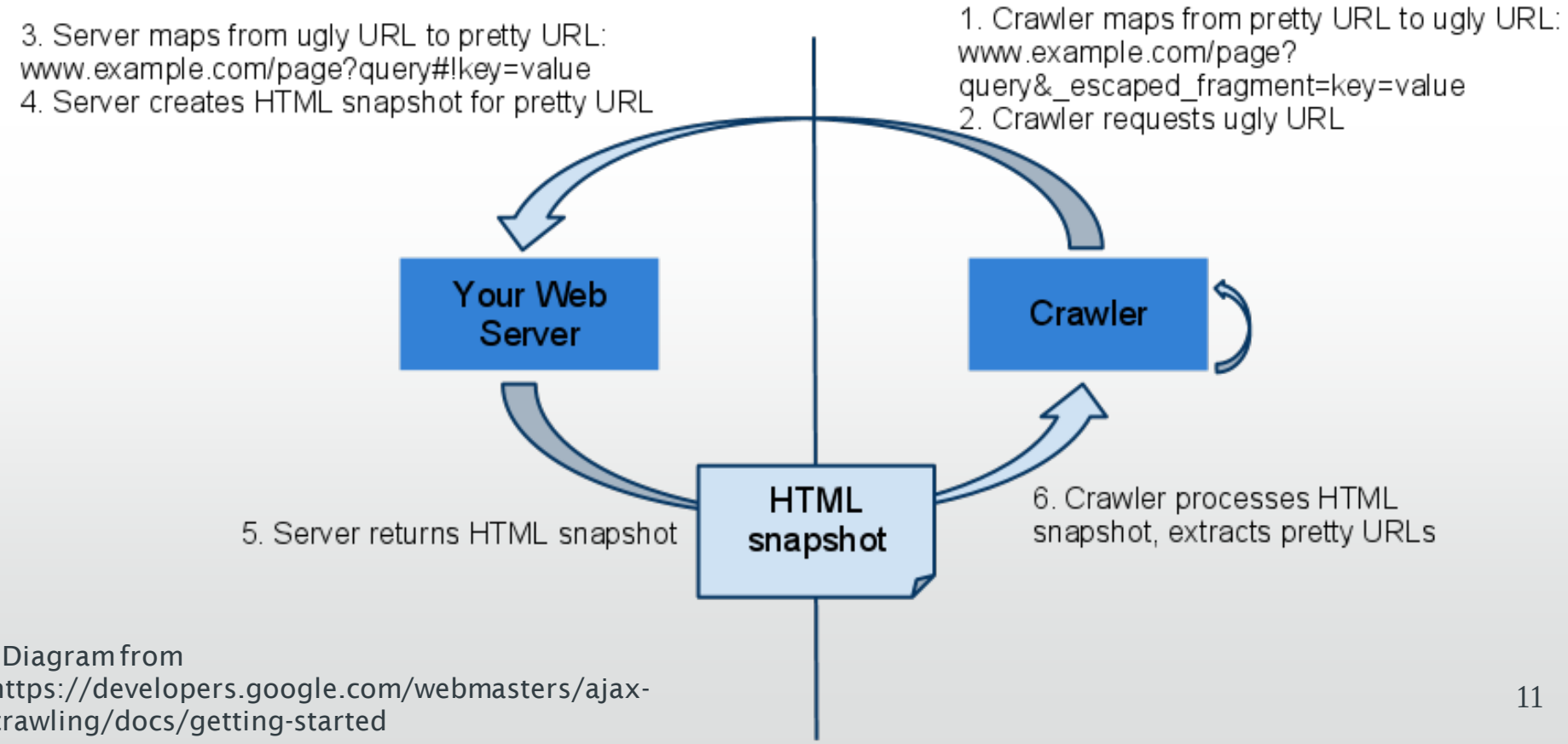

*Diagram from https://developers.google.com/webmasters/ajax-crawling/docs/getting-started

The Key Ideas in Solution

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- The fragment information must be included in the URL
  - Syntax: W3C Media Fragment 1.0 Specification
- Prepare two sets of pages for every media fragment
  - Share the same landing page for users
  - the SEO page for search engine
- Landing page keeps the original user interaction
  - Highlight media fragments on opening
- SEO page
  - **ONLY** includes annotations of the media fragment
  - Embed rich snippet

The Solution

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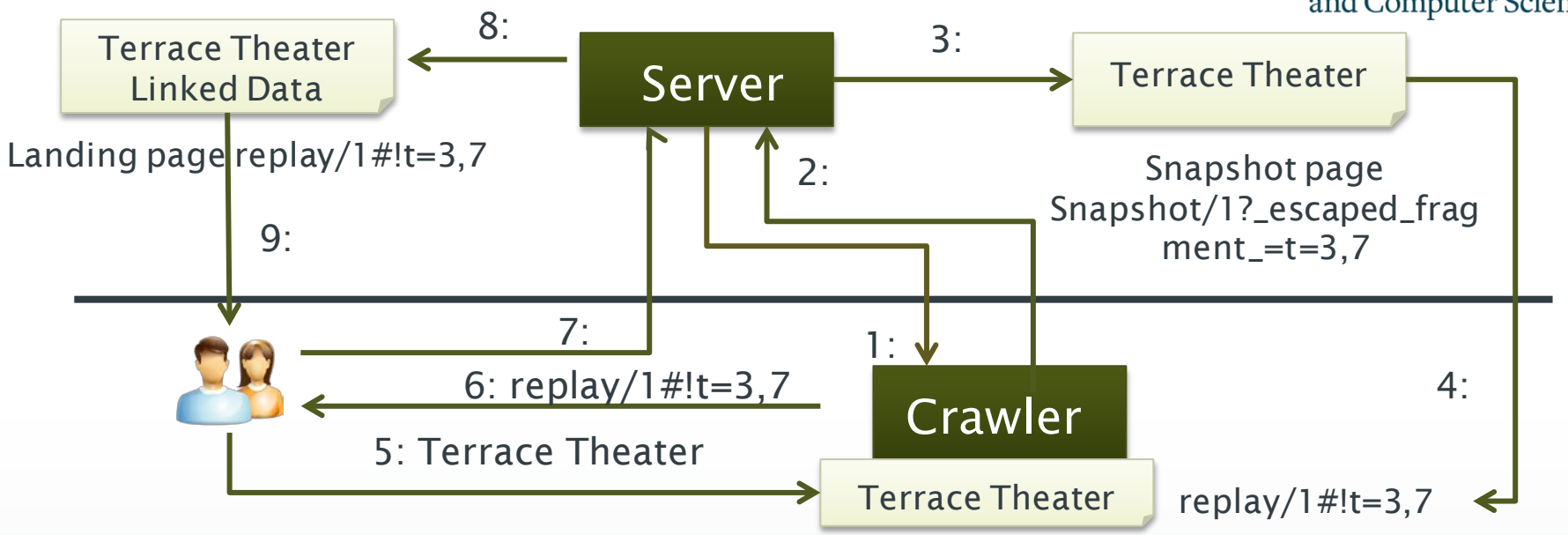

1: Submit pretty URL replay/1#!t=3,7 to the crawler

2: Crawler asks server for replay/1?_escaped_fragment_=t=3,7

3: Redirect the request to the snapshot page generated by the server. The snapshot page only contains annotations and Microdata for "#t=3,7",

4: The snapshot page is returned to the crawler with URL replay/1#!t=3,7

5: A user searches keyword "Terrace Theater"

6: Google includes replay/1#!t=3,7 in the search results

7: The user click the link and ask for the document at replay/1#!t=3,7

8: The server returns the landing page containing both "Terrace Theater" and "Linked Data"

9: The landing page highlights the media fragment by start playing from 3s to 7s

Introduction of Synote

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- We implemented the model in Synote system
- User can generate annotations and synchronise them with audio-visual resources
- Synote doesn't store video, audio, image files
- Synote stores:
  - The URL references to video, audio image files online
  - User generated annotations and synchronisation points
- Single Resource: Tag, Note, Slide, etc
- Four categories of compound resources: Multimedia, Transcript, Synmark (tags, description), Presentation Slides

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Demo Time!

Synote v.s. TED Talks

All kinds of conceptual things, they have names now that start with HTTP

Discussion

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- This is a hack! It now only works for Google
- The Media Fragment URI syntax is slightly modified
- Hashbang URL "#!" has many side effects [1]
- Microdata is embedded in snapshot pages for each media fragment
- Keep another set of snapshot pages for SEO and do not need to abandon the existing landing pages
- A better solution could be adding vocabularies about media fragment to schema.org

1. See http://dannythorpe.com/2011/02/09/side-effects-of-hash-bang-urls/

Workload

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- For existing applications, you need
  - Includes hashbang in your url
  - URL mapping for “#!” and “_escaped_fragment”
  - Programmes to generate the snapshot page
  - Highlight the fragment when the page is opened

Conclusion

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- Initial attempts to improve the online presence of media fragments
- Future work
  - For more search engines, Yahoo!, Bing
  - Consider other aspects of SEO
- More media fragments could be published to benefit search

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Questions?