What's for dinner: Drupal + Apache Solr Search

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Who am I?

- Co-maintainer of some Solr-related modules
- Working with Drupal since 4.7
- Support Engineer at Acquia specializing in Search/Solr issues

- https://www.drupal.org/u/janusman

Agenda

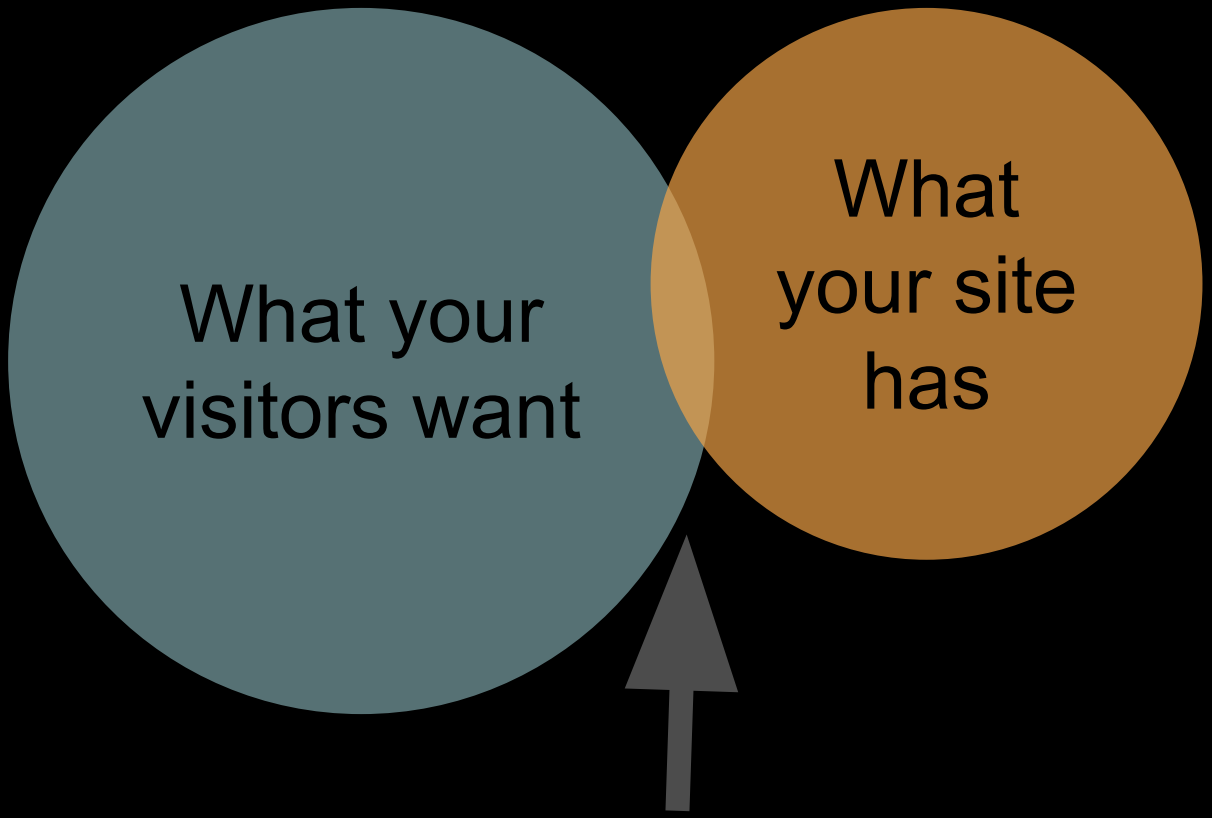
- Search [in general] is hard
- Let’s experiment with Solr
- Drupal and Solr examples

Show of hands?

- What are **you** interested in?

Search = hard

Search = hard



Are they finding items in your site?

- **Search = UX/IA**
- Is your content fielded/categorized?
  - Does your navigation + search use this?
- Are you exposing tasty data to Google?
- Do you have metrics of how your site is doing?

Google vs. site search

Google

- #1 traffic generator?
- General matching
- Targetted?
- “Secret sauce”

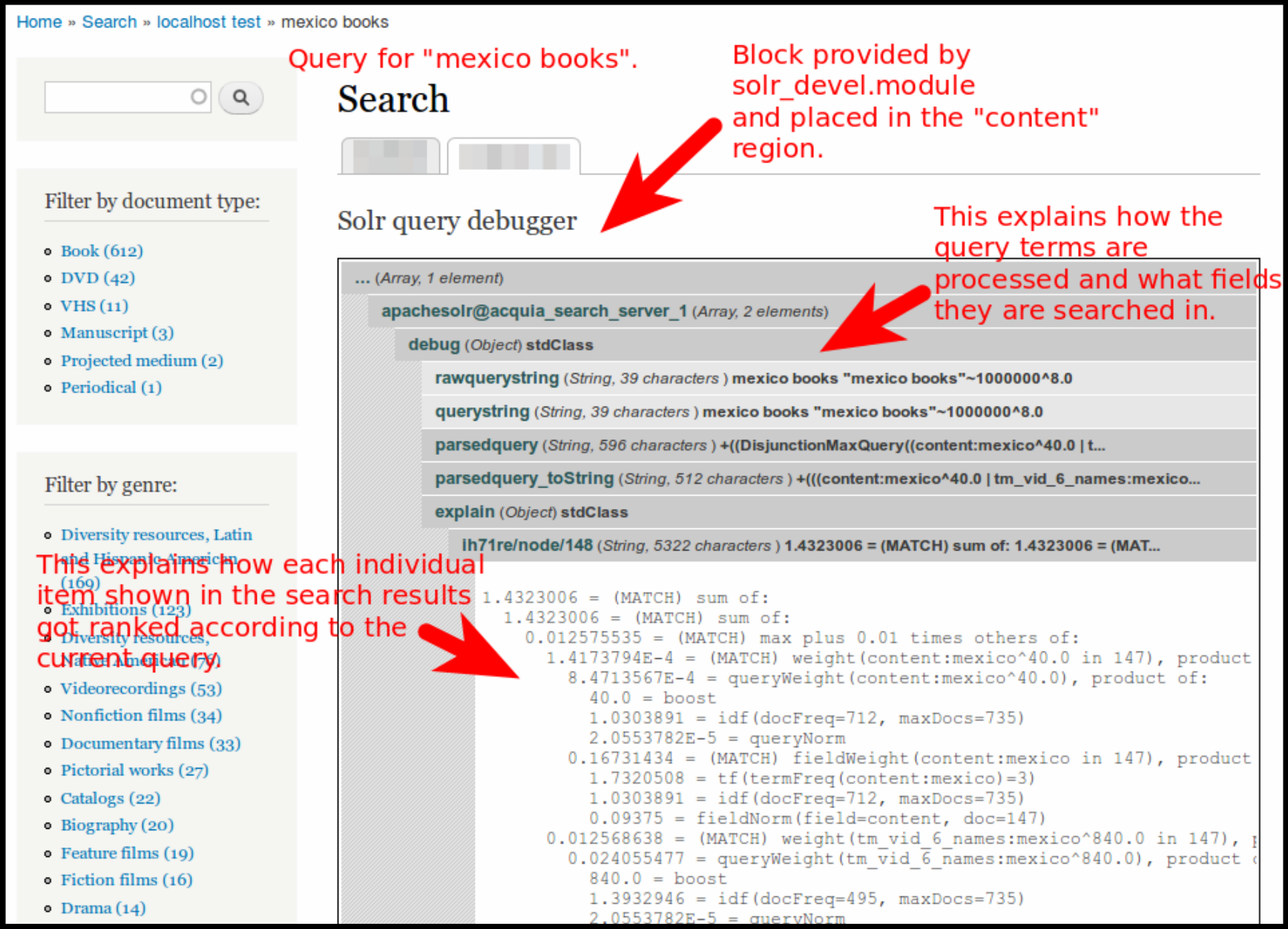
Site search

- Control what is matched
- Targetted
- What’s your secret sauce?
  - Use your metadata!
  - Know thy customer!

The Solr Secret Sauce

- Processing
  - tokenizing
  - synonyms, stopwords
  - stemming & other linguistic processing
  - https://cwiki.apache.org/confluence/display/solr/Filter+Descriptions

- Complex querying/boosting
  - per-field matching a query
  - phrase vs non-phrase matches
  - function queries



Solr Explain output from solr_devel.module. DON'T PANIC!

- More!
  - Highlighting
  - Spellchecker
  - Elevation (a.k.a “Best Bets”)
  - “More like this”
  - Text extraction from PDF, Office docs, etc.

Solr Experimenting

Install Solr locally in 5 minutes

- Get Java
- Download Solr
- Add .txt and .xml config files from Drupal module to Solr's conf/ folder
  - Extra files available elsewhere
- Run it!
  - java -jar start.jar
  - http://localhost:8983/solr/

Solr basics

- Comparison to MySQL
  - Mysql Rows => Solr “Document”
  - Columns => “Fields”
  - Single ‘schema’, but is dynamic
    - For `text_*` definition
    - `text_1, text_blah, text_foo` all share same properties.
  - `schema.xml` defines fields

- Use it via HTTP
  - HTTP GET, POST, etc.
    - `GET /solr/select?q=red+shoes`
    - `POST /solr/update`
      `<delete><query>*:*</query></delete>`
  - Logging
    - access, errors, etc.

Fields and their behavior

- Defined in schema.xml
  - Docs: http://wiki.apache.org/solr/AnalyzersTokenizersTokenFilters
- GUI for testing field behavior: http://localhost:8983/solr/admin/analysis.jsp

Let’s try stuff!

- Use our local Solr: http://localhost:8983/solr/
- Recommended Chrome app:
  - Advanced REST Client

Some sample requests

```
# Get the first 10 rows back from WHATEVER is in the index

 http://localhost:8983/solr/select/?start=0&rows=10&q=*:*

# q=[keywords you want to search for]

 &q=label:mexico+label:houses   #works without qf (see below)
 &q=mexico+houses               #REQUIRES qf=.. (see below)

# Tell Solr where it should look for the keywords given in q=

 &qf=[fieldname]^[boost value]
 &qf=content^40.0       #Makes matches in 'content' field mean "more"
 &qf=content^40&qf=label^21.0   #You can specify multiple fields/boosts
```

```
# Specify fields to return:
 &fl=[fieldname,fieldname...]
# Turn on spellchecker:
 &spellcheck=true

# Add facets
 &facet=true
 &facet.field=[field1]
 &facet.field=[field2]

# Boost some things over other others.
 &bq=[fieldname:fieldvalue]^21.0
 &bq=bundle:article^21.0   #Example: make articles score higher than others
```

Understanding processing

http://localhost:8983/solr/admin/analysis.jsp

Try analyzing these phrases:

- `CamelCase`
- `Hello-world`
- `www.example.com/one/two/three`
- `work works working worked`
- `2MB HD`
- `the thing and a thing with a thing`
- `¡Amigo! El níñó ißt loóking for a pixima 2 MegaPixel camera`

Synonyms, protwords can help!

Align your content with what's in **their heads.**

- **parking lots** or **parking garages**??
- **parks** != **parking**
  - On noes! Stemming makes them equal! #FAIL
- Are they überspellers?
  - **asymmetrical**
  - **epidemiology**

Drupal + Solr + You ...

= ♥ ?

The Drupal Side

- 2 modules provide Drupal-Solr connection:
  - apachesolr.module
  - search_api_solr.module

- Many settings
  - Include/exclude items from index.
  - Boost items by their node type, date created, sticky, number of comments and other metadata.
  - Control boosting by text matches (per field!)

- Many (many) add-on modules
  - autocomplete
  - text extraction from PDFs/other
  - query modifiers (“more cowbell”)
  - add/alter data to be indexed
  - solr configuration generators
  - debugging

Demo Drupal + Solr

Common things that go wrong

1. Can’t search or index!
    a. Drupal not properly connected to Solr
    b. Drupal barfs during indexing
    c. Solr returns data that makes Drupal barf
    d. Solr down. Check the logs!

2. Results are wrong!
    a. Item missing from results
    b. .. or, “zombie” items showing
    c. Items from another site?

Usual culprits:

- Sharing single Solr index across sites
- Mismatched expectations
    - a query matches or scores differently than what you thought.

Thank you!