

SDForum Event

Building Search Engine in the Social Media Era

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3/24/2010

Agenda

- 1. The changing search environment**
2. Traditional search engine architectures
3. New architectures for real time search and social search
4. Semantic search
5. Emerging real time web monitoring
6. Q/A

The Changing Search Environment

Users expect more from search box:

- find documents
- discover information
- answer specific questions

**Web of documents:
web pages, blogs,
Q/A, forums**

The Changing Search Environment

Users expect more from search box:

- find documents
- discover information
- answer specific questions
- check real-time status update
- check my social circle
- monitor social media

Web of documents:
web pages, blogs,
Q/A, forums

Status updates and
Social networks:
facebook, twitter,
google, ...

Real-time data
streams (API)

Web of data:
linked semantic data,
databases

The Changing Search Environment

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- find documents
- discover information
- answer specific questions
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- Full Text Search Technologies
- Semantic Search Technologies

Computing Clouds:
Google, Salesforce,
Facebook, ...

Web of documents:
web pages, blogs,
Q/A, forums

Status updates and
Social networks:
facebook, twitter,
google, ...

Real-time data
streams (API)

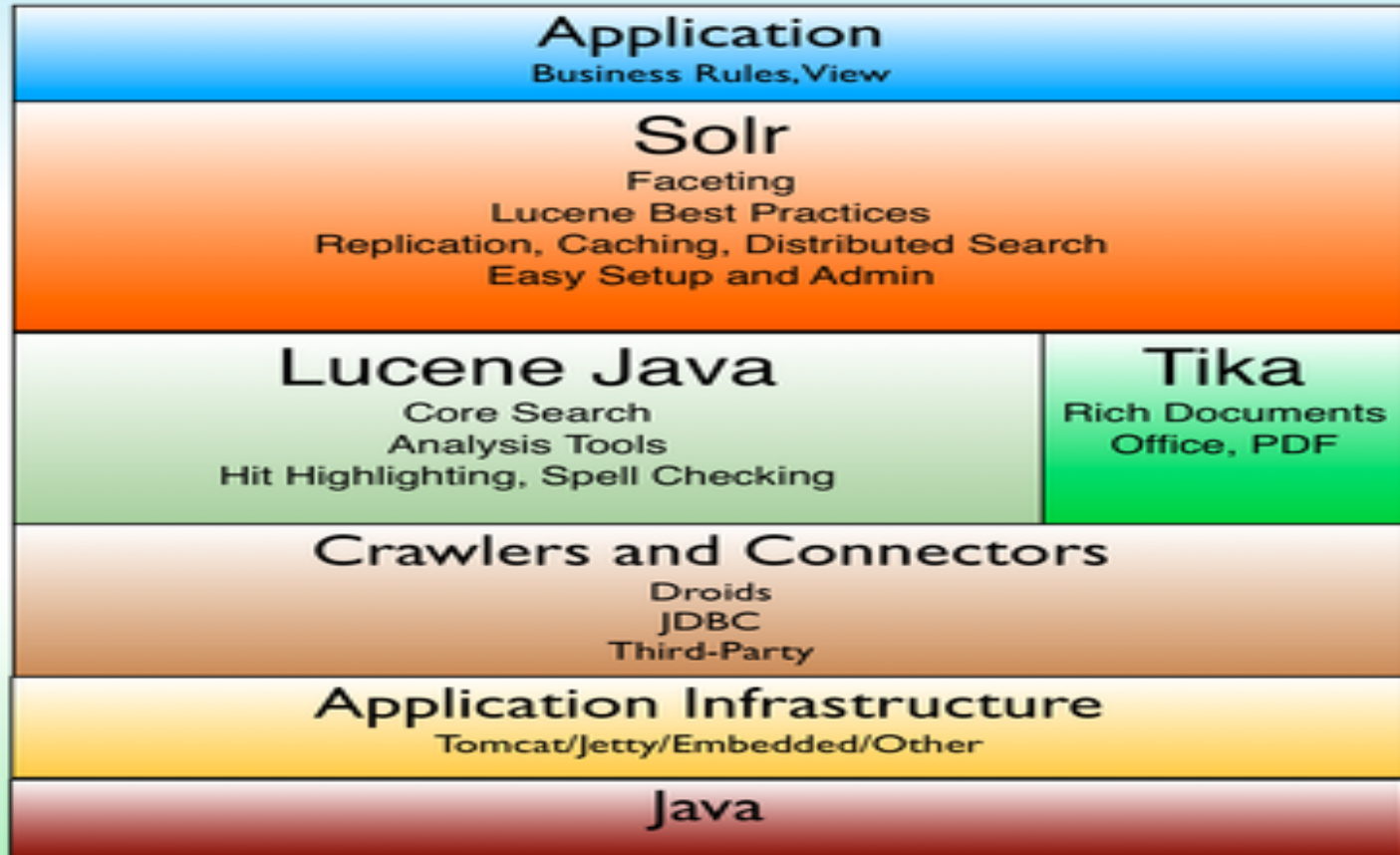
Web of data:
linked semantic data,
databases

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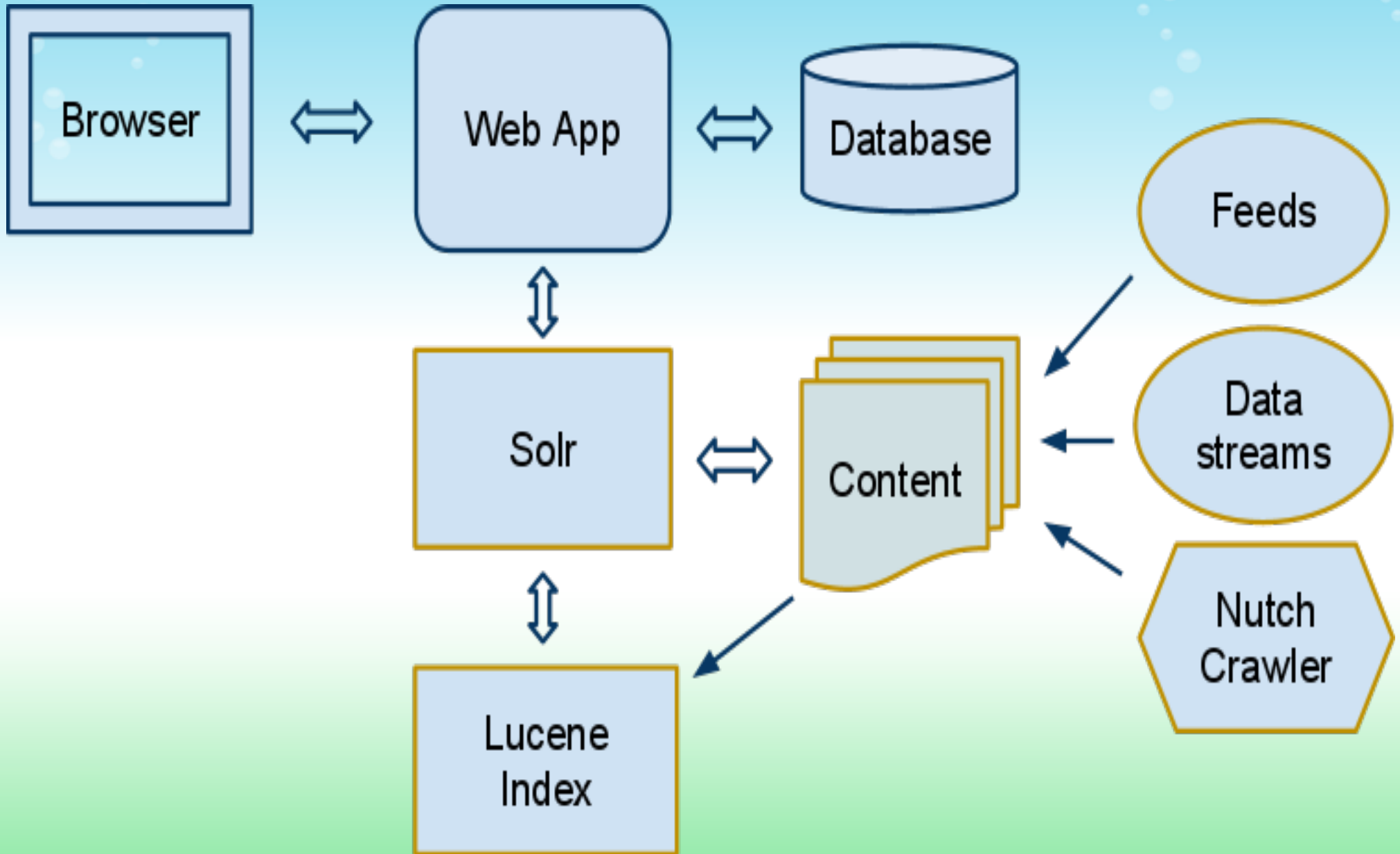
Open Source Lucene/Solr

The Lucene Stack

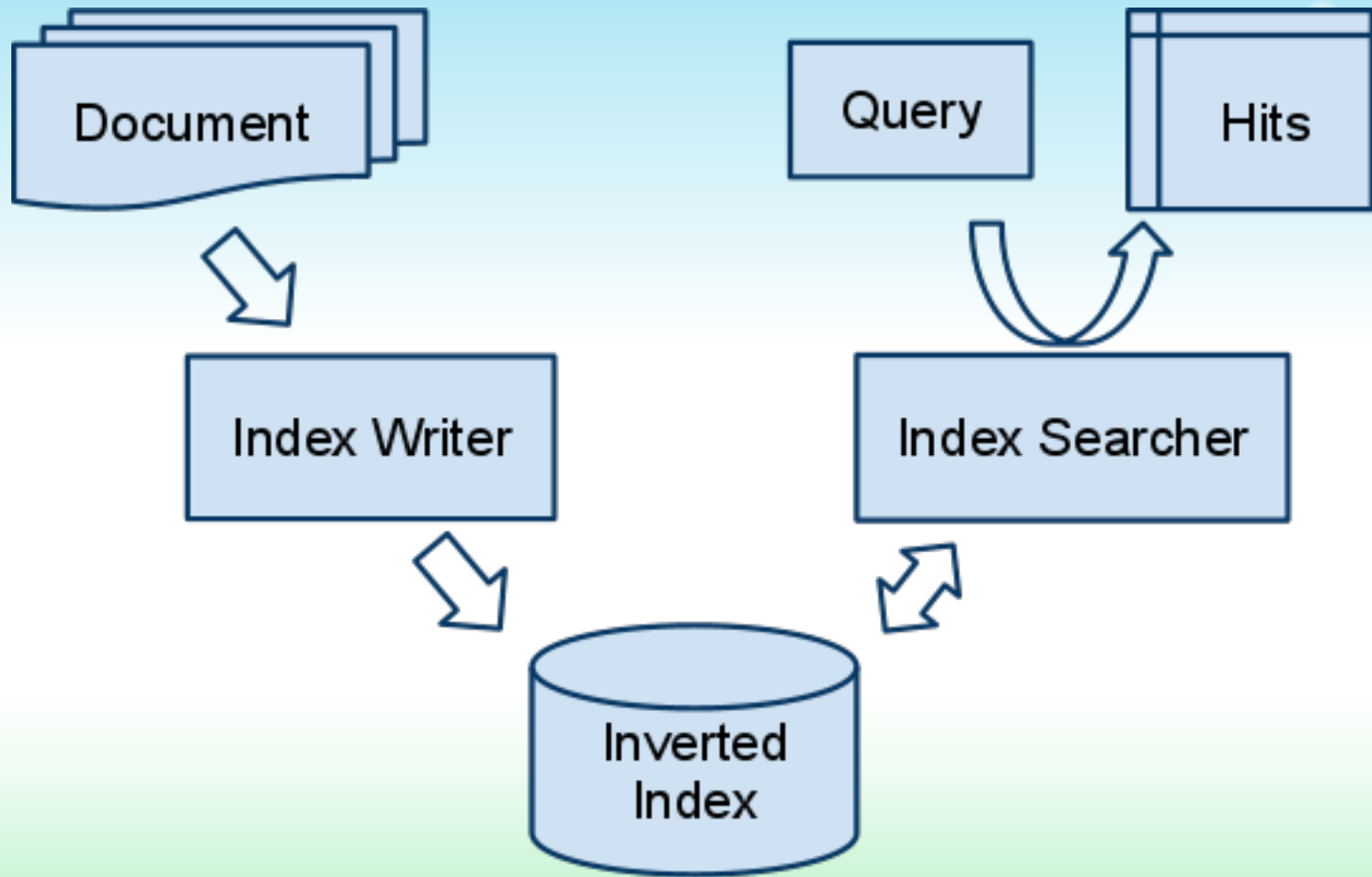


from Grant Ingersoll

Lucene/Solr Search for Web App

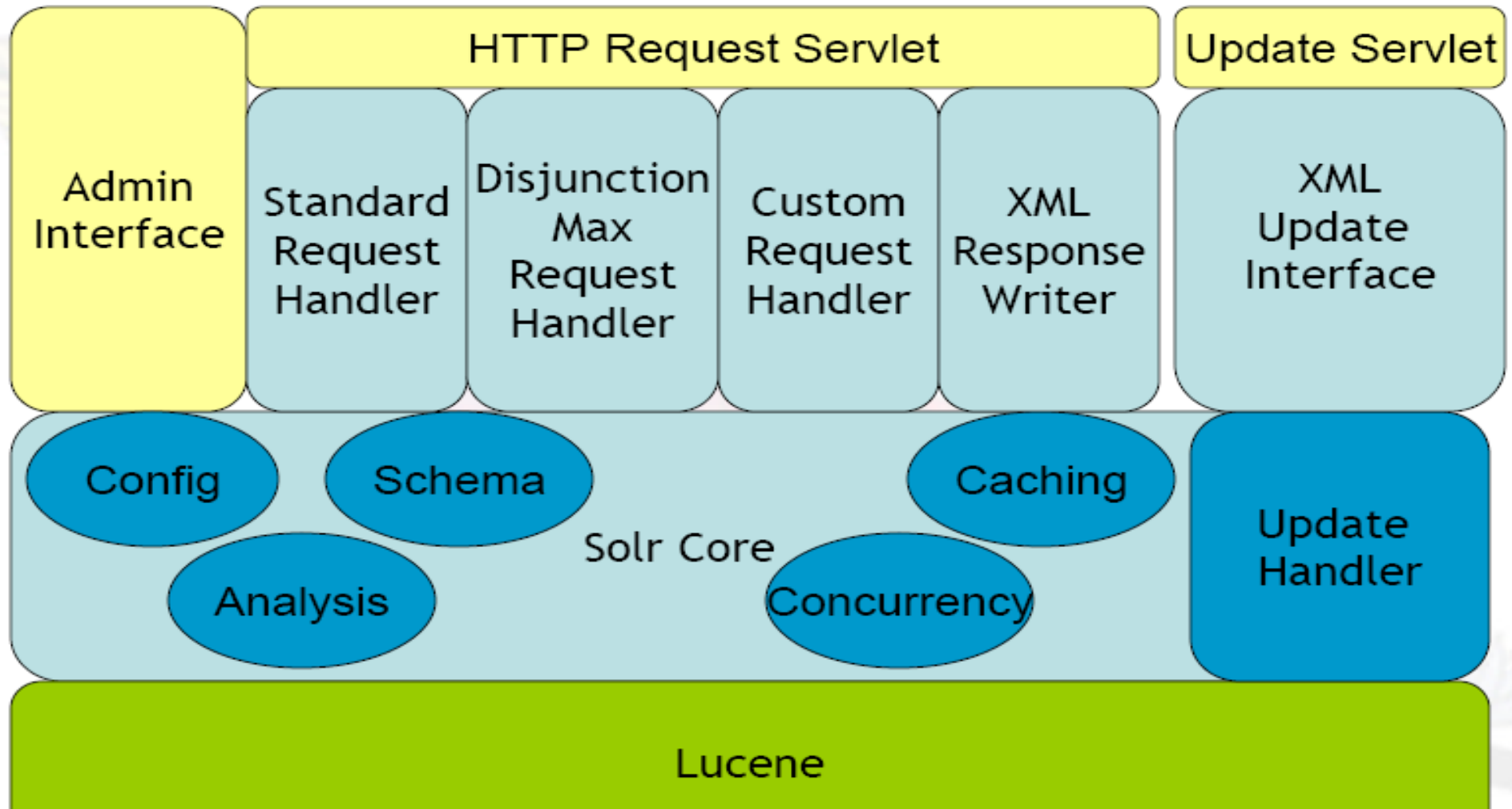


Lucence Indexing/Searching



Solr Server Architecture

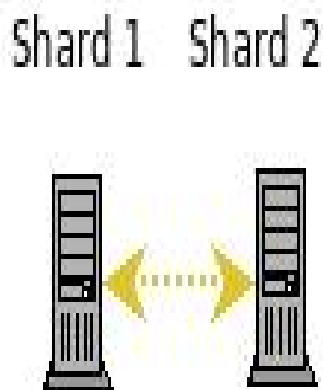
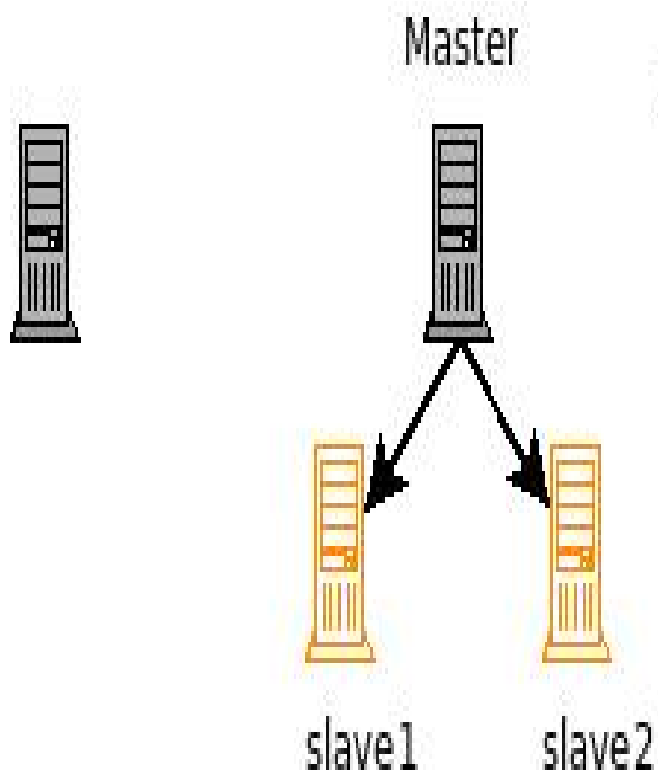
Architecture



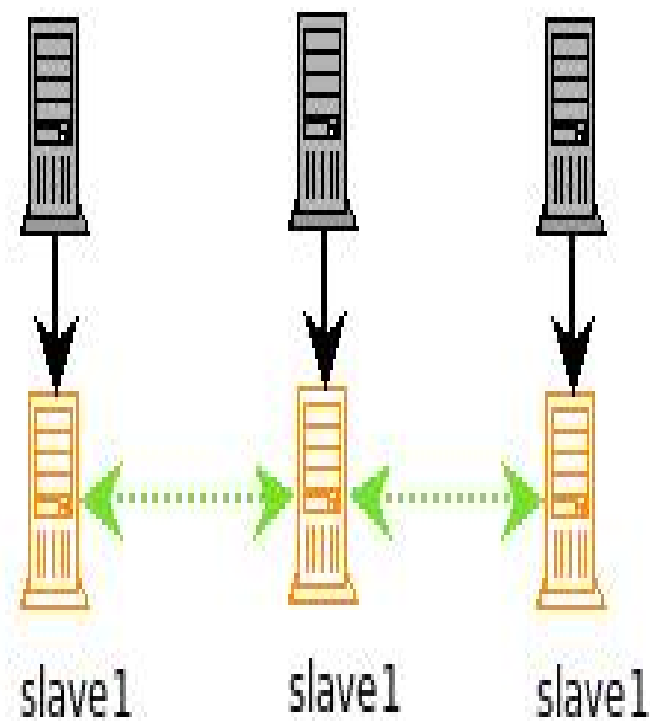
Scaling Lucene and Solr

Single Server Replication Distributed

Distributed + Replication



Shard 1 Master Shard 2 Master Shard 3 Master



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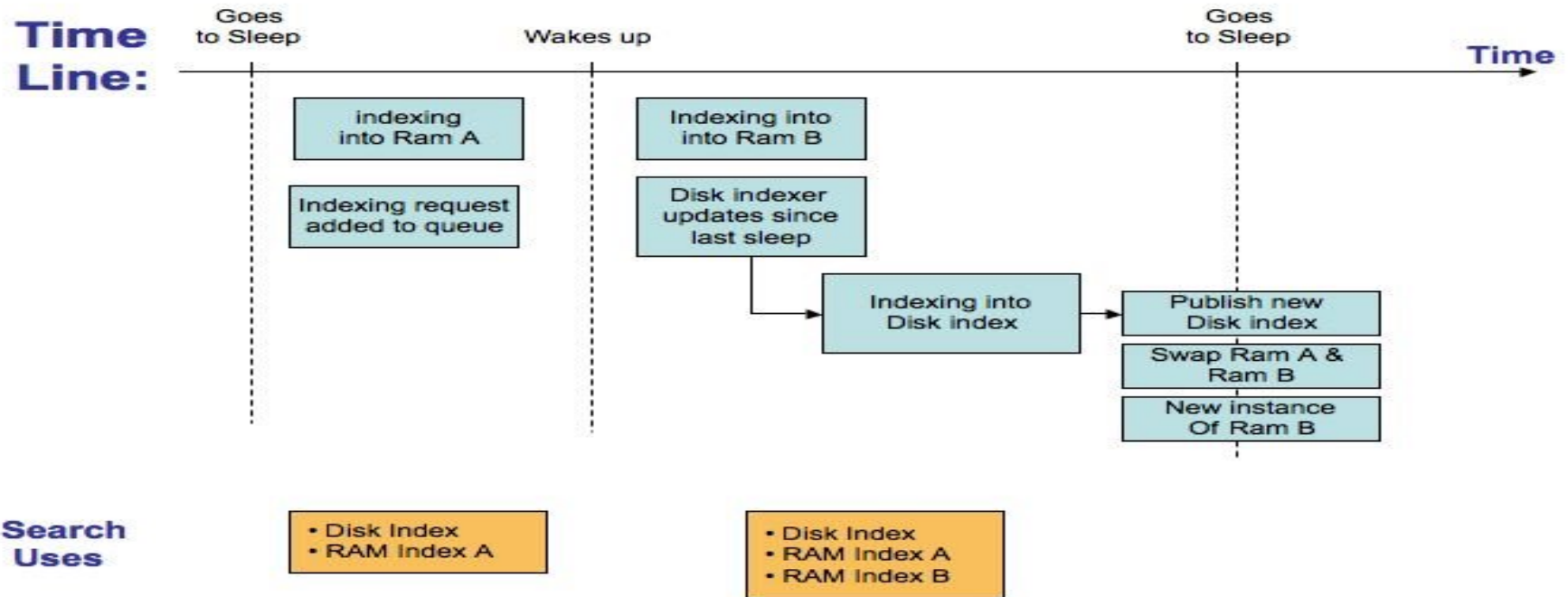
Near Real Time Search

Lucene 2.9:

IndexReader (old + new records) <-- IndexWriter

Zoie (LinkedIn):

Swap Indexes in memory



Google Real-time Search

The image shows a screenshot of the Google Real-time Search interface. At the top, the Google logo is on the left, followed by a search bar containing the text "social media monitoring" and a "Search" button on the right. Below the search bar, there are navigation options: "Web" (selected), "Latest", and "Hide options".

On the left side, there is a sidebar with the following links:

- › All results
- [Images](#)
- [Videos](#)
- [News](#)
- [Blogs](#)
- [Updates](#)
- [Books](#)
- [Discussions](#)

- [Any time](#)
- › Latest
- [Past 24 hours](#)
- [Past week](#)
- [Past year](#)
- [Specific date range](#)

- [Reset options](#)

The main content area displays the following results:

New results will appear below as they become available. [Pause](#)

[Social Media Explorer — Social Media Consulting, Public S](#)
Social media monitoring firm Sysomos is launching a free location-ba today it's calling FourWhere. The tool mines publicly available ...
www.socialmediaexplorer.com/ - 4 minutes ago

[social media monitoring - Socially Minded](#)
However, in today's world of the Internet and the growth of social media, does get it wrong, dissatisfied customers can tell everyone about ...
www.sociallyminded.co.uk/?cat=103 - 4 minutes ago

[Social Media Examiner, Your Guide to the Social Media Jur](#)
Monitoring the innovations in the social media space also gives you a market is changing and will evolve over the next few years. ...
www.socialmediaexaminer.com/ - 4 minutes ago

media monitoring: : Guest post: Email Marketing + Social Intelligence
[monitoring the media monitoring](#) - barnish.org

 [barnishhj](#) - [twitter.com](#) - 31 minutes ago

Google Social Search

Google [Advanced Search](#)

[Web](#) > [Social](#) [Hide options](#) Results 1 - 3 of 3 for

› **All results**
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[Videos](#)
[News](#)
[Blogs](#)
[Updates](#)
[Books](#)
[Discussions](#)

› **Any time**
[Latest](#)
[Past 24 hours](#)
[Past week](#)
[Past year](#)
[Specific date range](#)

[All results](#)
› **Social**
[Nearby](#)

› **All people**
[Mike Volpe](#)
[Web2express New...](#)
[David Meerman S...](#)

› **All results**
[Visited pages](#)
[Not yet visited](#)


› **Standard view**


Social Media Monitoring Sponsored Links
www.social360.co.uk What's being said about your brand? **Monitor** blogs & forums

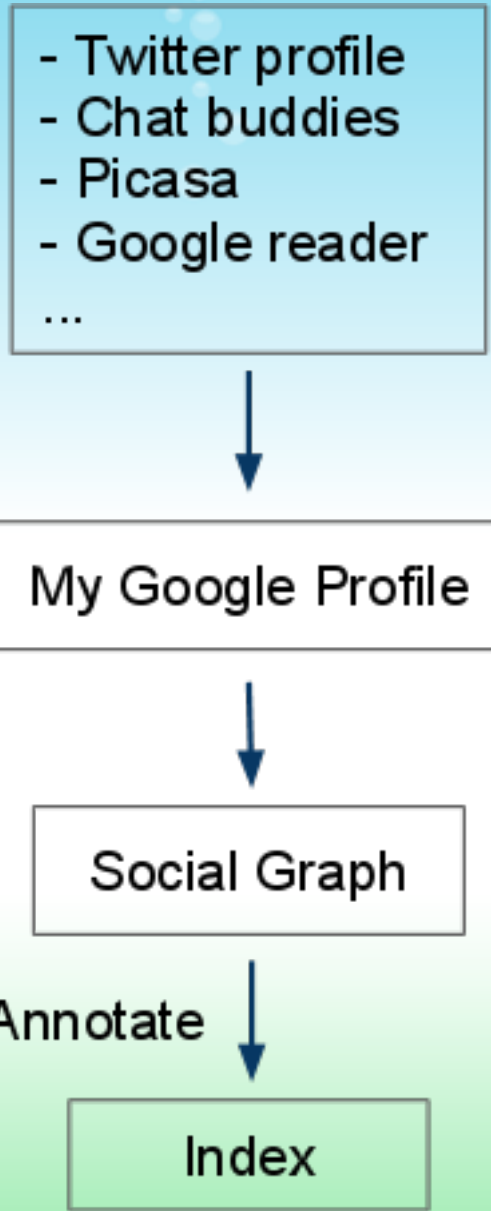
[Track Online Buzz](#)
www.CustomScoop.com What are blogs & Twitter saying? Take a Free Trial to find out!

Social Media Monitoring
www.vocus.com **Monitor** Your Traditional, Online & **Social Media** Efforts with Vocus!

Results from people in your social circle for **social media monitoring** - BETA - [My social circle](#) - [My social content](#)

[How to Monitor Your Social Media Presence in 10 Minutes a Day](#)
 [Mike Volpe](#) - connected via Gmail
How to **monitor** your **social media** presence on Twitter, Facebook, LinkedIn, Flickr and more in 10 minutes a day.
blog.hubspot.com/blog/tabid/6307/bid/4663/How-to-Monitor-Your-Social-Media-Presence-in-10-Minutes-a-Day.aspx
[How to Monitor Your Brand on the Web for Free](#)
But unsurprisingly, I'm going to respectfully disagree with Paul up ...
blog.hubspot.com/blog/tabid/6307/bid/5498/How-to-Monitor-Your-Brand-on-the-Web-for-Free.aspx
[More results from Mike Volpe »](#)

[Web2express Monitoring - Social Media and Real Time Web](#)
 [Web2express News](#) - Monitoring **social media** like twitter, facebook, myspace, blogs, and news in real time; Analyzing and digesting fresh web content to help people and ...
web2express.org/
web2express.org/
Who will benefit from **social media monitoring**? Marketers can use ...
web2express.org/openlab/
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Google Aardvark Social Q/A Engine

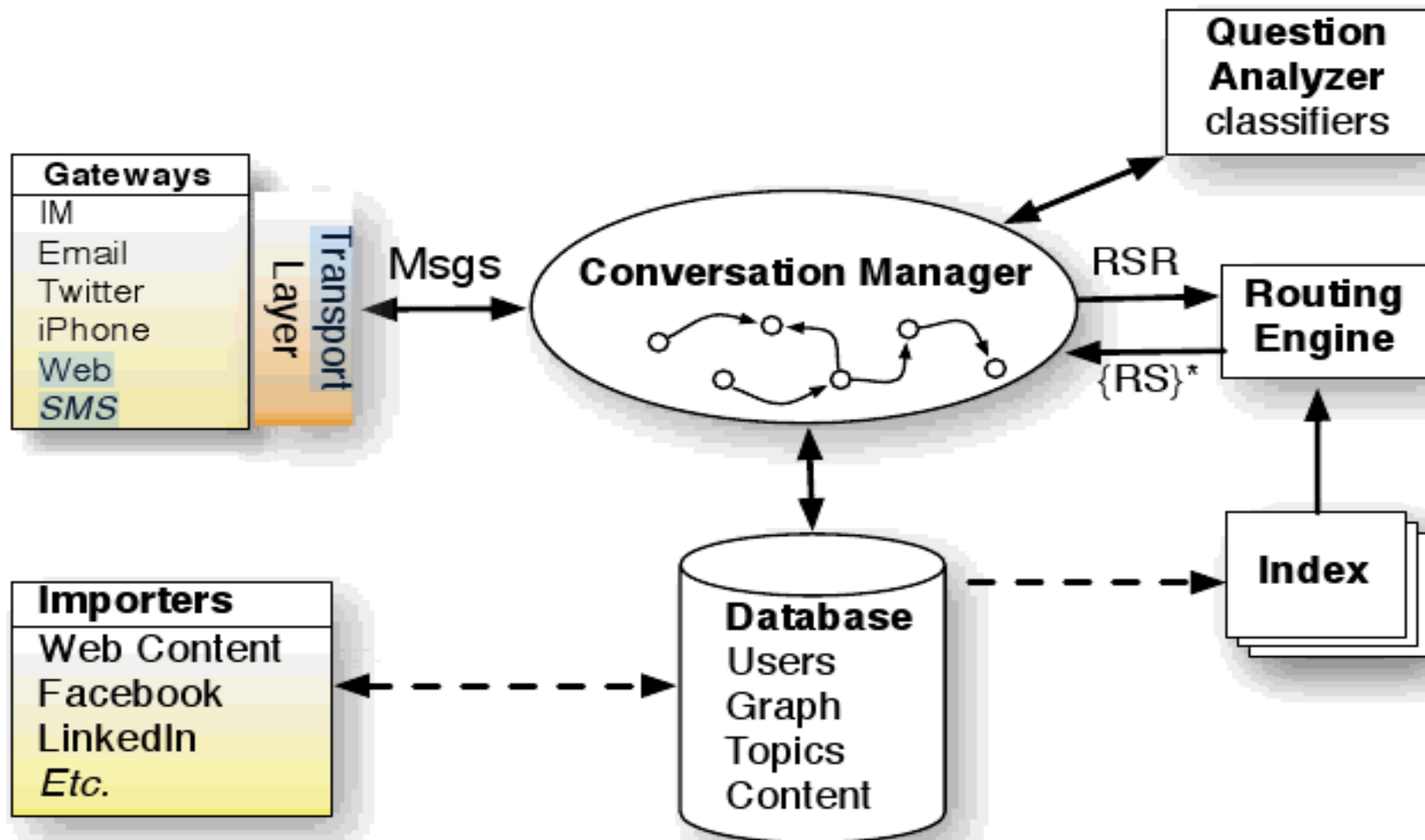


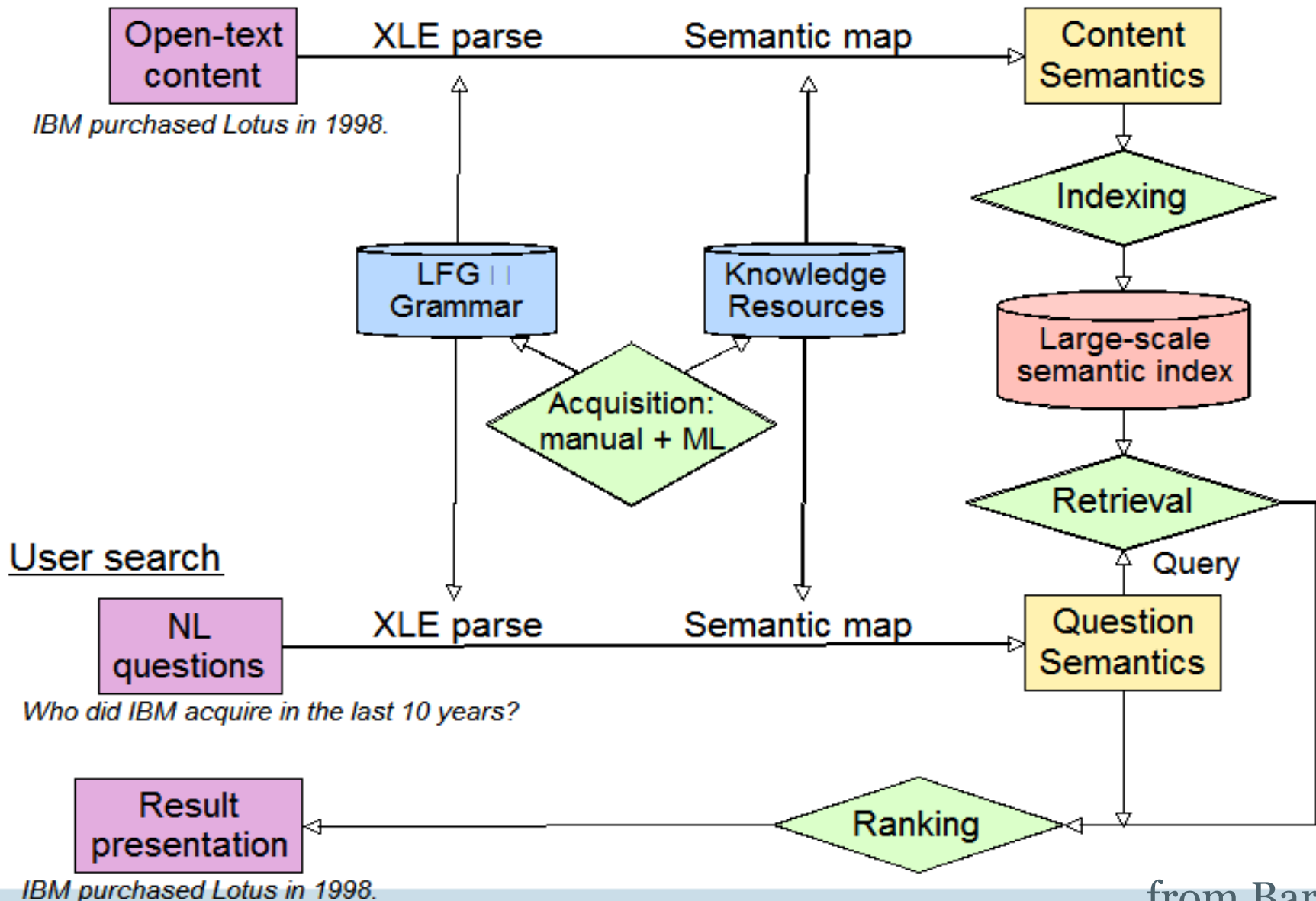
Figure 1: Schematic of the architecture of Aardvark

Agenda

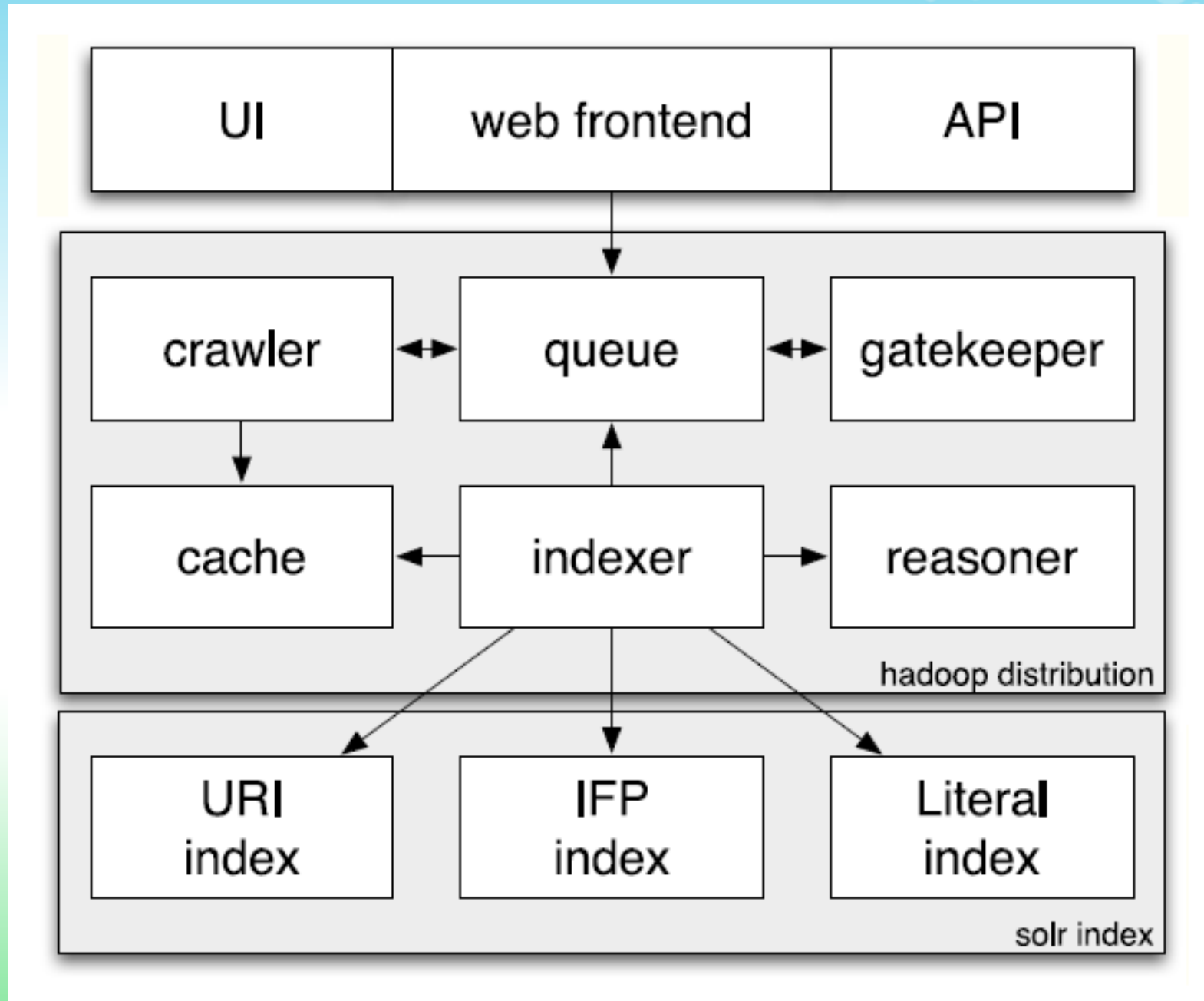
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Bing/Powerset NLP Search Engine

Content Acquisition



Sindice: Retrieving semantic data



index API:
sindice.com
search engine:
sig.ma

Google Semantic Search

Google

Web Show options...

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Apr 20, 2006 ... As a result, it is common for them to block certain actions or **events**. ... wiki.sdforum.org/tiki-index.php?page=Negoti

[SDForum - Quarterly Venture Breakfa](#)

SDForum is the leading Silicon Valley non-pr **events** are organized each month, reaching 1 www.sdforum.com/index.cfm?fuseaction=Pa

[SDForum Hosts Korean Delegation f](#)

The evening **event** will be held at Orrick, 1000 information, visit <http://www.sdforum.org/Inte> www.redorbit.com/news/technology/.../sdforu

Google [Advanced Se](#)

[Web](#) > [Wonder wheel](#) [Hide options](#)

Results 1 - 10 of about

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› All results

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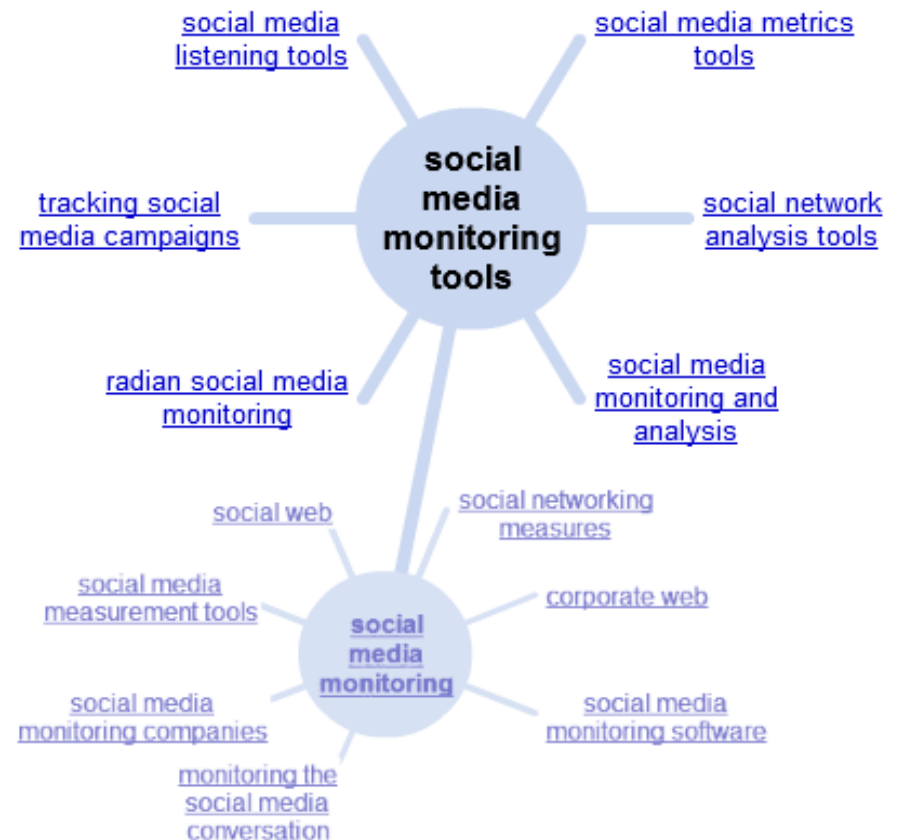
› All results

[Visited pages](#)
[Not yet visited](#)

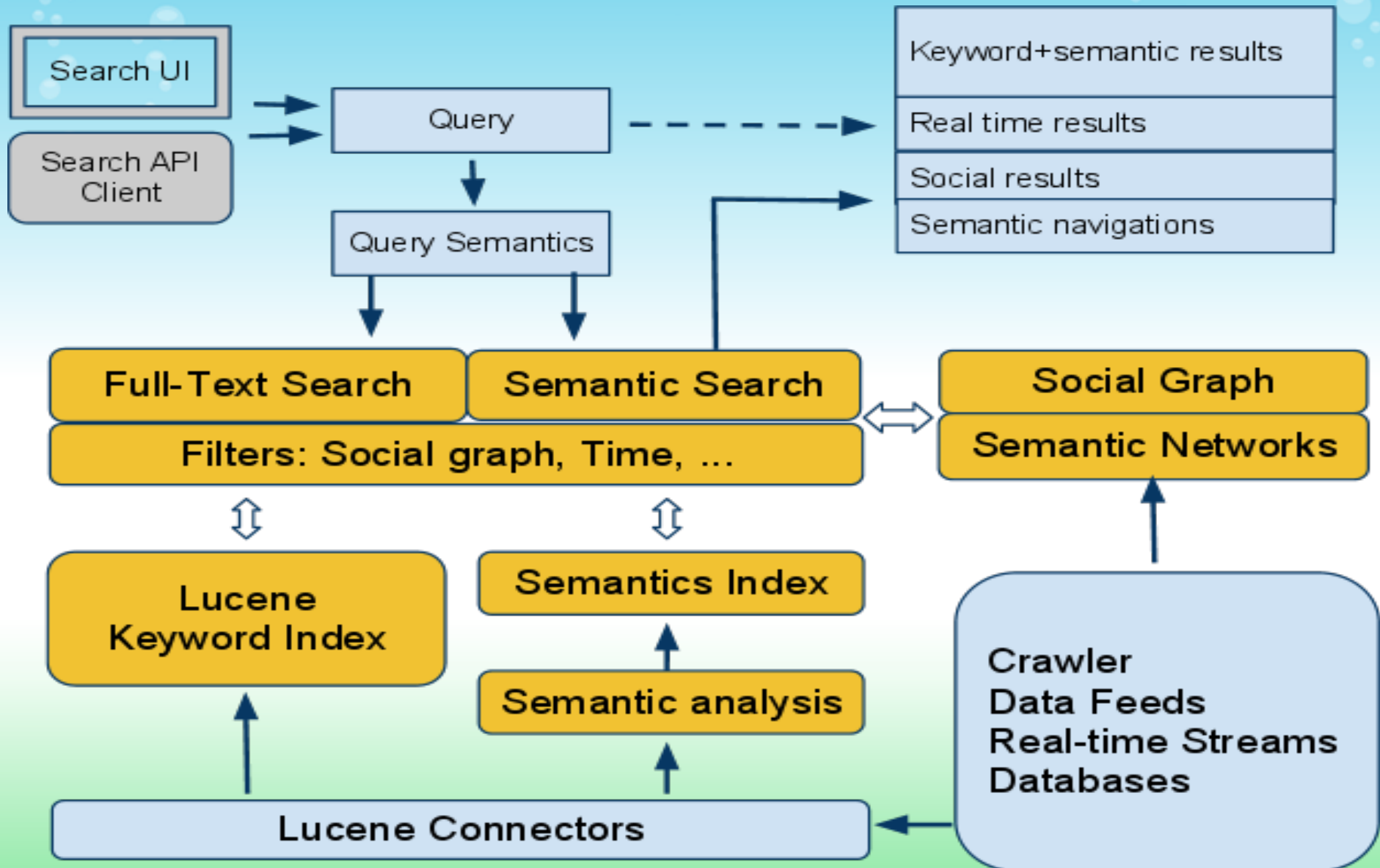
[Standard view](#)
[Related searches](#)

› Wonder wheel

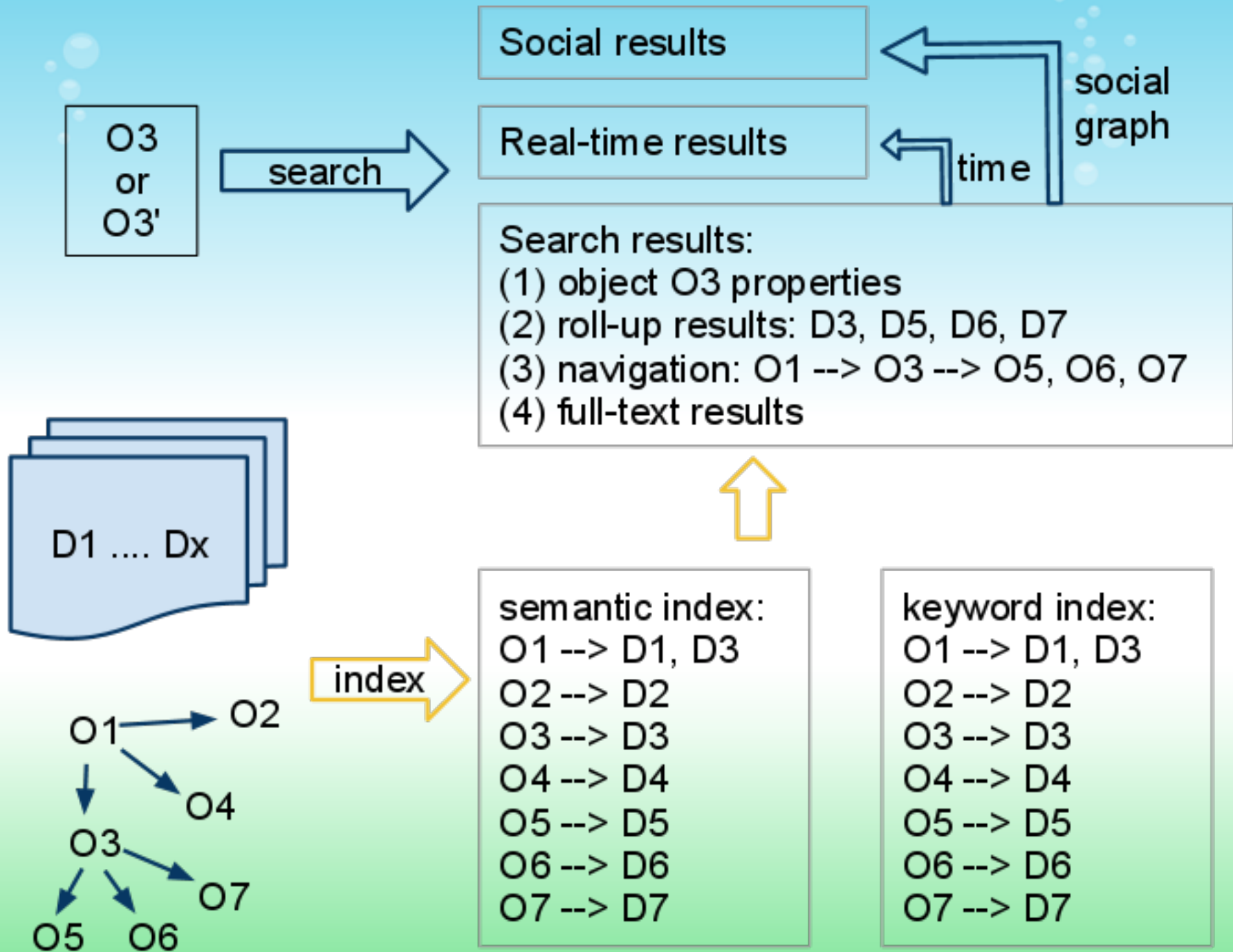
[Timeline](#)



Hybrid Search Engine



Hybrid (Universal) Search



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Social Media Monitoring

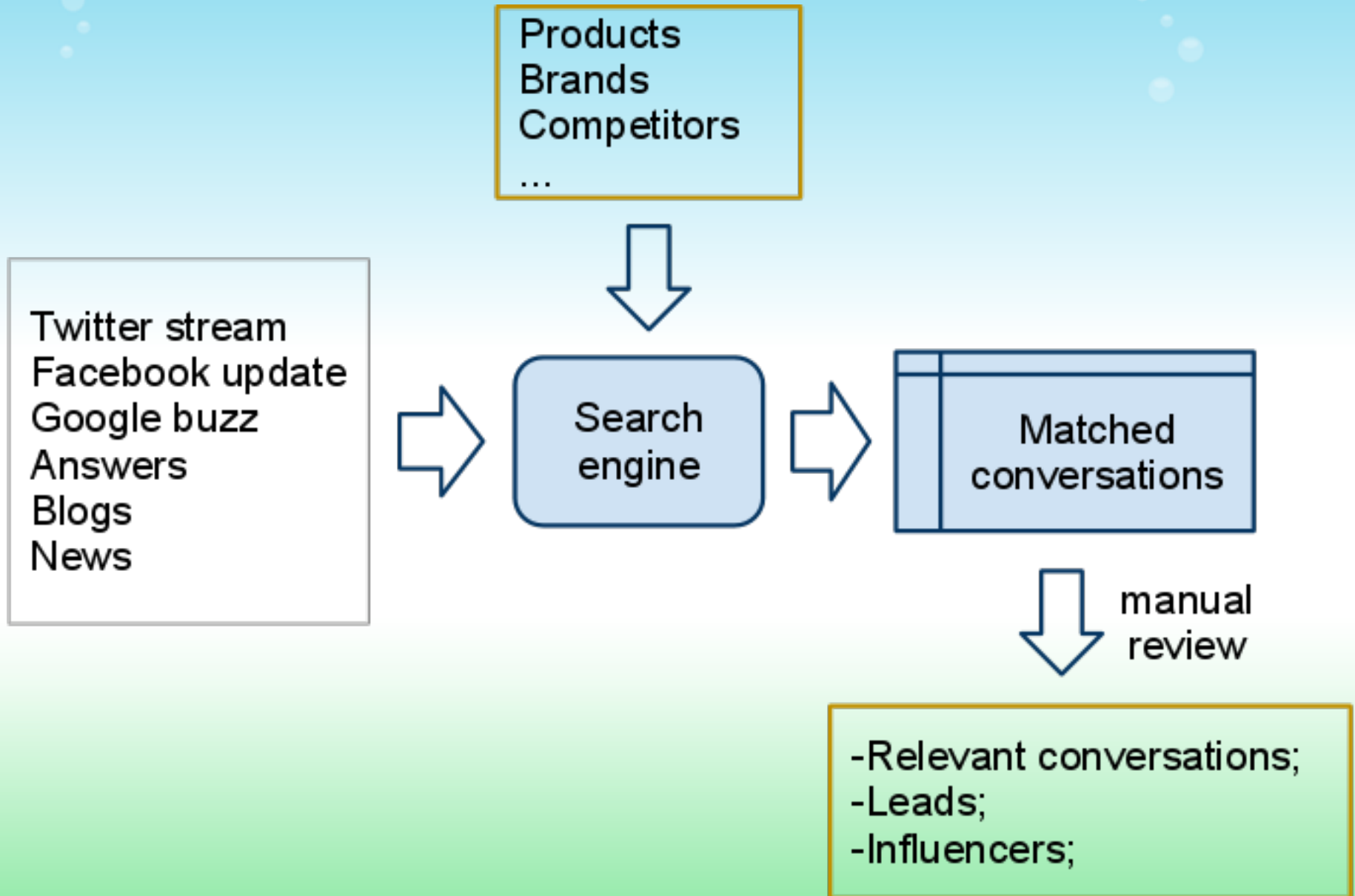
Benefits for businesses:

- understand what people are talking about the company, brands, products, and competitions, etc.
- identify leads for marketing and sales;
- engage with customer and community conversations;
- support customers;
- cultivate product advocates;
- use customer feedback to improve products and brands;

Differences from search engine:

- search engine for filtering
- real-time text analysis and semantic analysis
- auto-discovery of trends/patterns
- collective intelligence
- rule engine for routing right information to right person

Basic Monitoring



Scaling up Social CRM

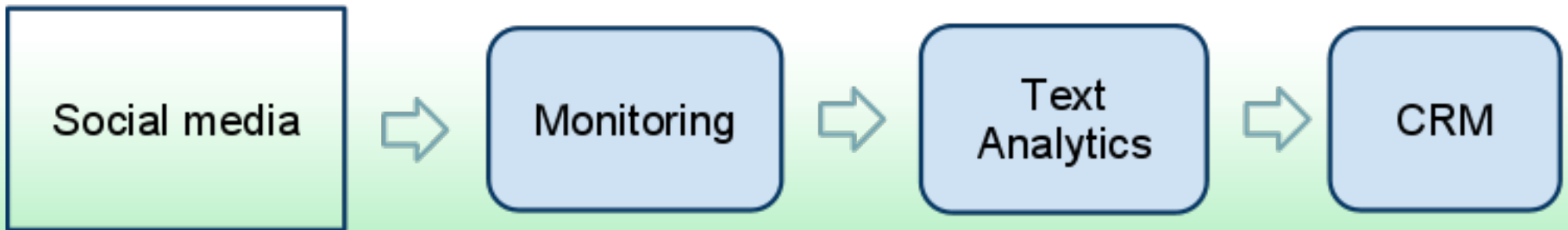
Problem:

Today's social media program does not scale

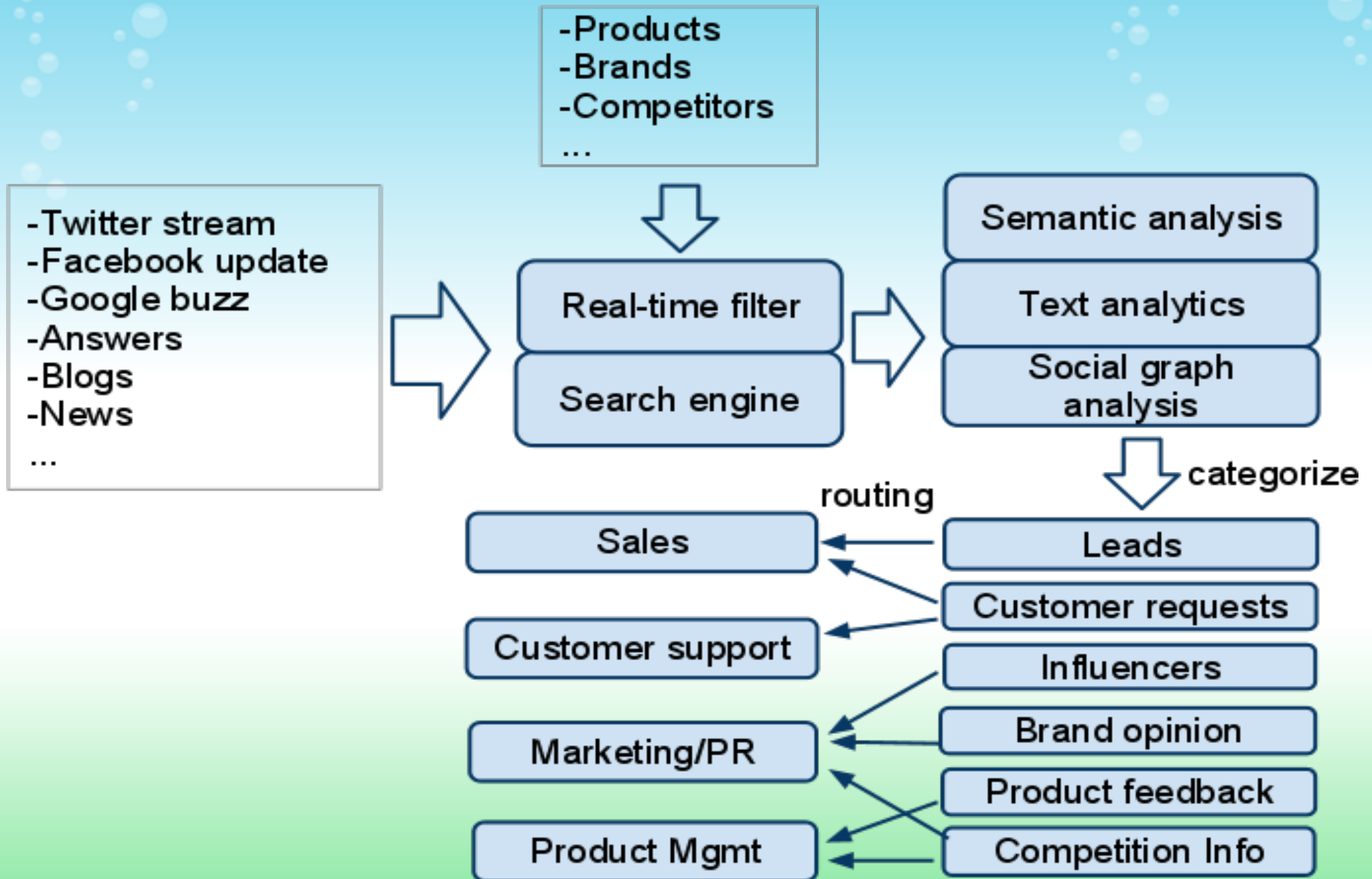
Solution:

Build a pipeline of social context flow and then apply advanced text analytics to automate routing of social contexts.

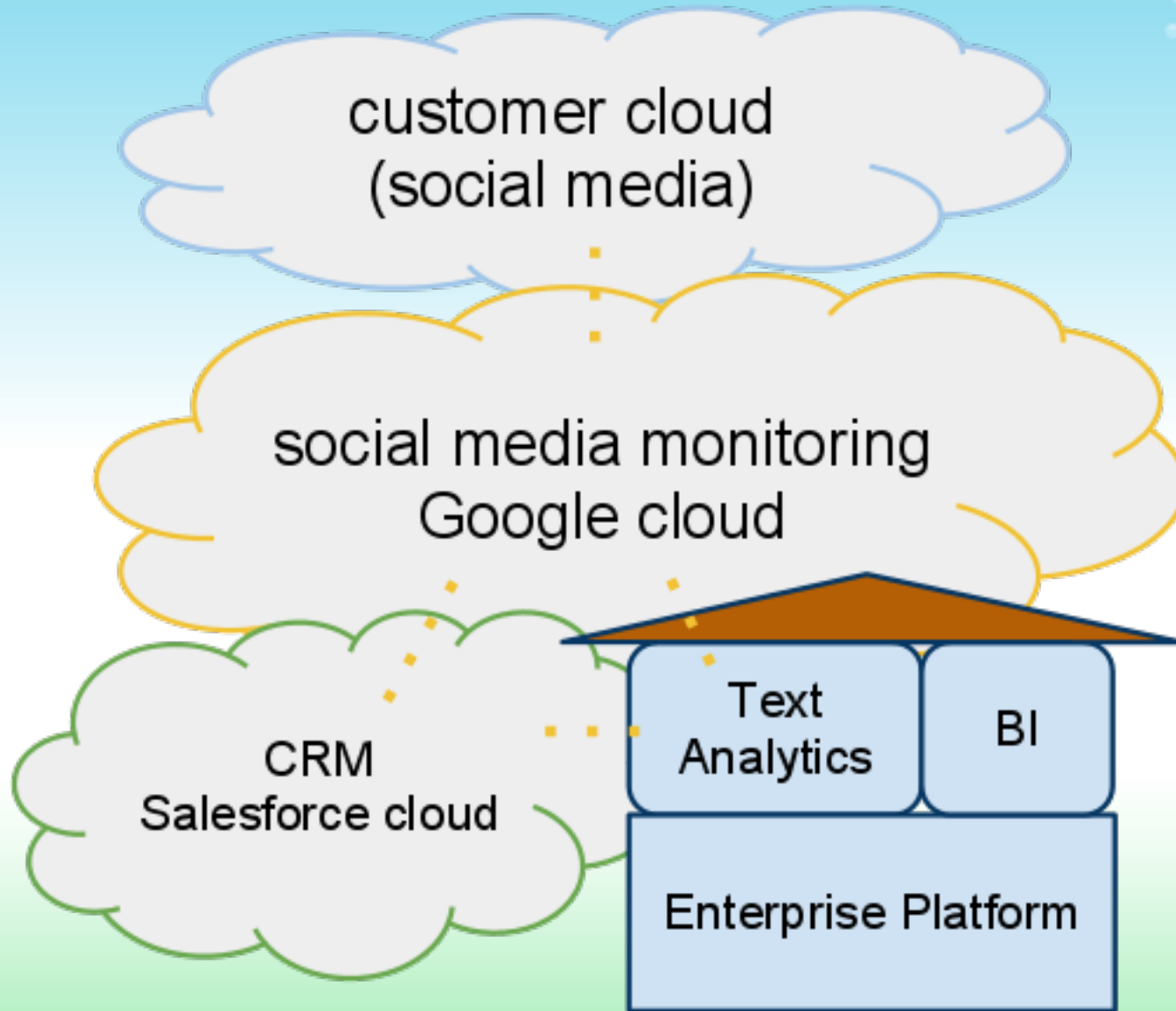
Component Architecture:



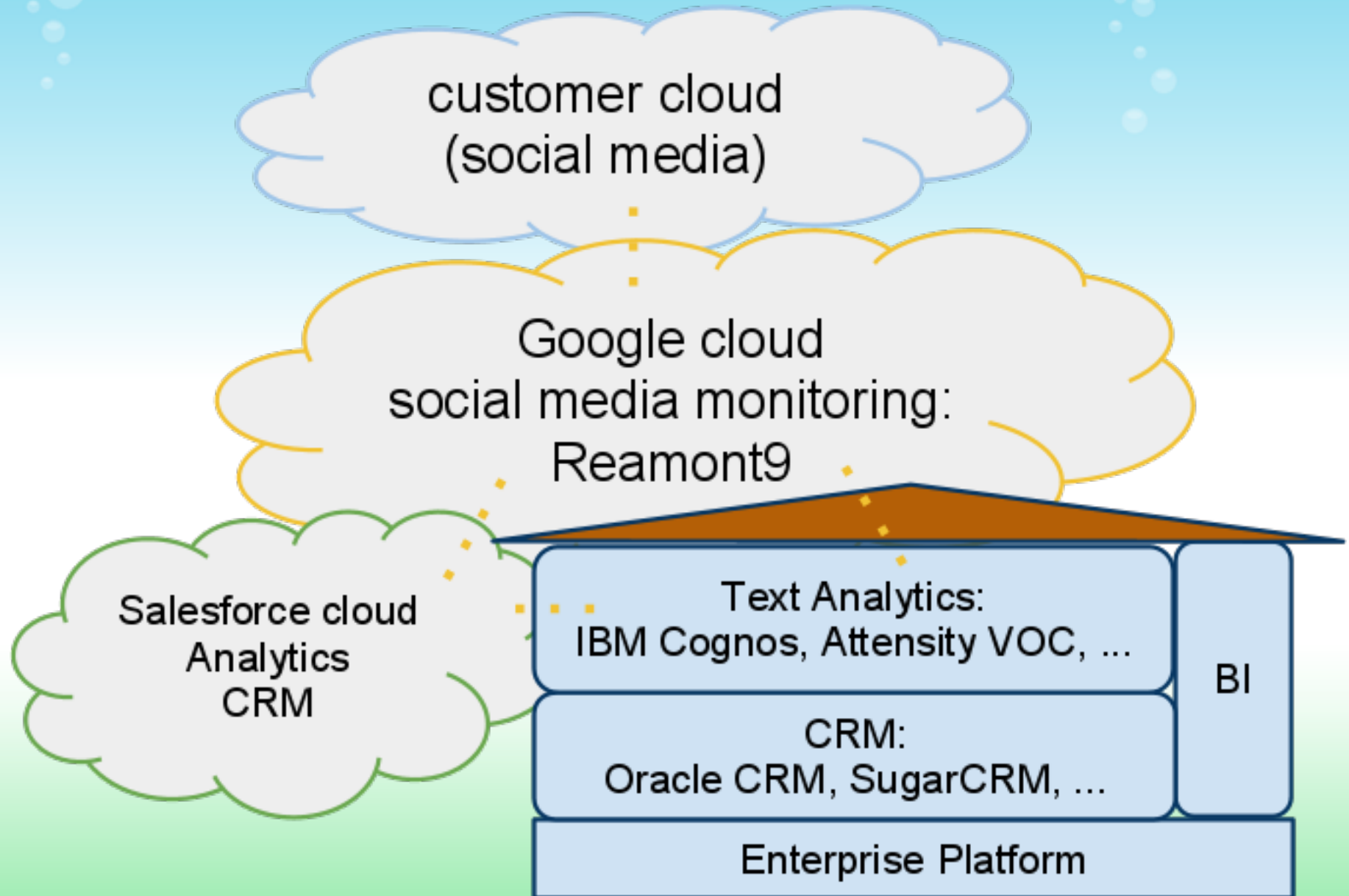
Intelligent Monitoring Pipeline



Social CRM Integration in the Clouds



Turning CRM into Social CRM



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