CERN

CERN Search & Social for the Enterprise Web experience

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Outline:

- Status of CERN Web Services
  - Overview & Status
  - Web Site Life Cycle Management, Web Analytics
- CERN's Enterprise Social Networking System
  - Motivation & purpose
  - Feature overview: profiles, social networking, microblogging, suggestion systems and discussion forums
- CERN Search
  - Status
  - Enterprise search
  - New features

WEB

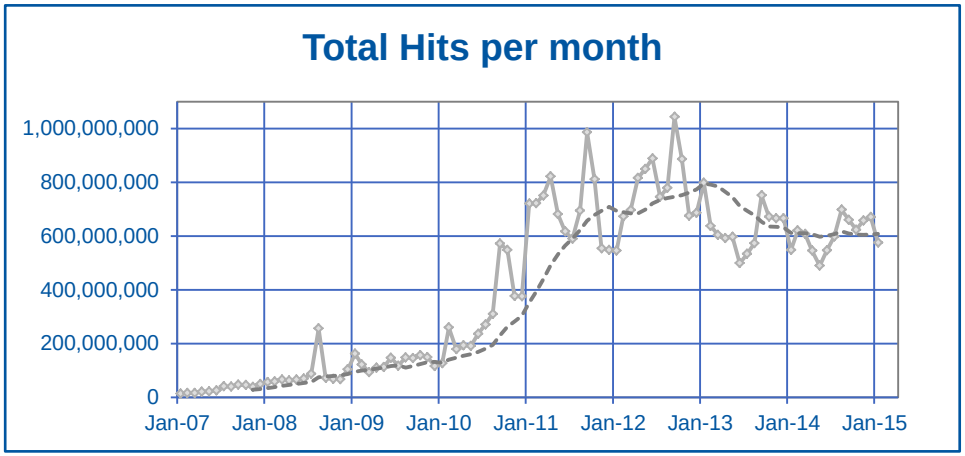
Status of CERN Web Services

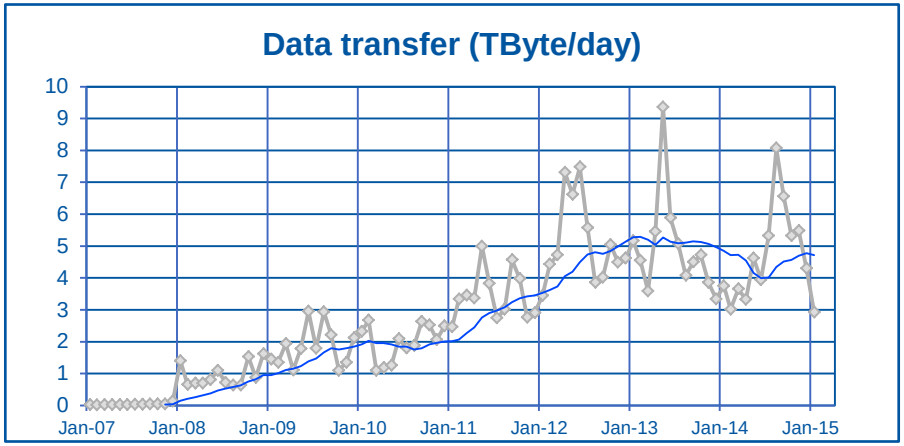
- Mandate: “Support for authoring and publishing content on the web.”
- About 200 Webservers (many cloud based)
  - Windows IIS with DFS Storage,
  - Apache with AFS,
  - Drupal,
  - Sharepoint,
  - TWiki (IT/PES)
  - Java MiddleWare On Demand site (IT/DB)
  - APEX workspaces (IT/DB)
- Wide range of technologies for dynamic content:
  Perl, PHP, Python, Django, .NET framework, …

CERN Web Services in Numbers

- **Number of sites:**
  Total 14455 sites on ~200 Web servers (2015-03-22)

Number of sites	
Centrally hosted (IIS & DFS)	6100
AfsGateway (Apache & AFS)	3742
Sharepoint	2790
Drupal	836
Twiki	520
J2EEApp	279
APEX	186
Other	2
Total	14455





- **Web traffic:**
  - Sep 2014: 700 million hits
  - Sep 2014: **8 TByte / day**

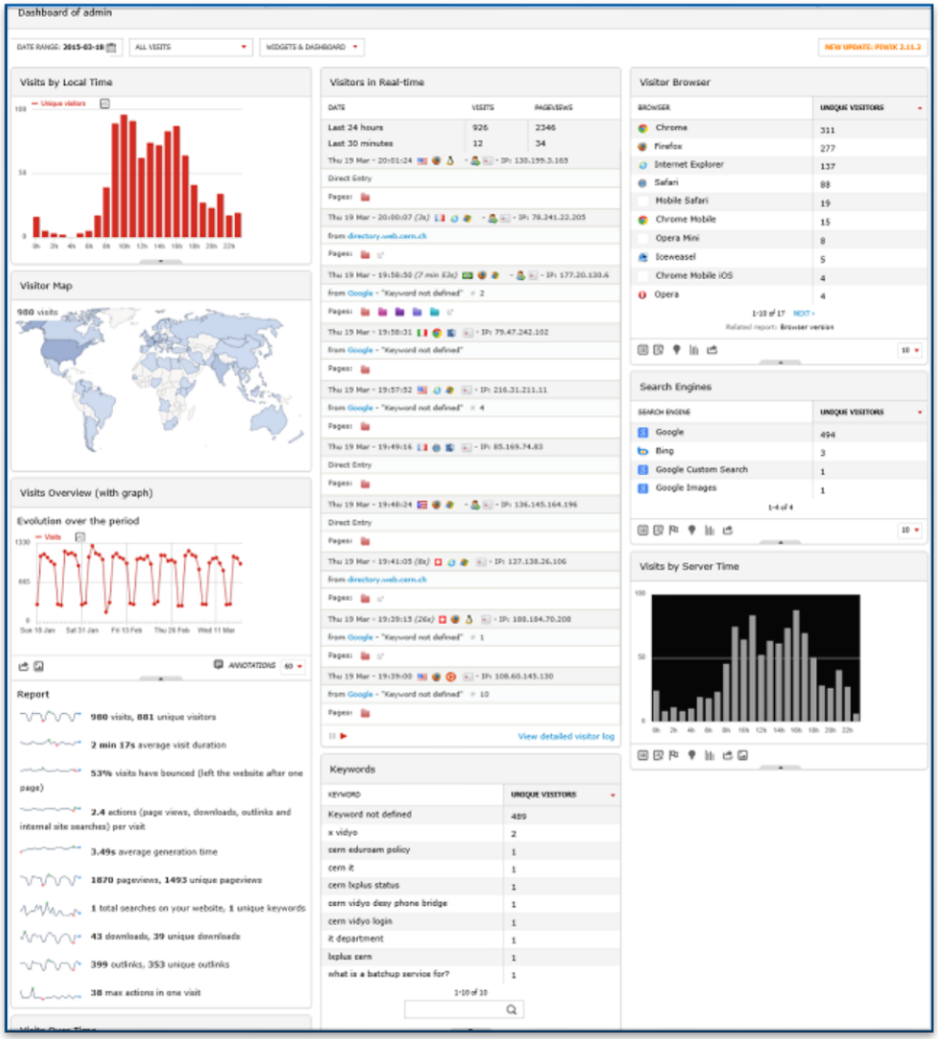
New features (I)

- Web Site Life Cycle Management
  - Website life-cycle as for computer accounts
    → Personnel sites will be blocked/deleted when owner leaves
    → Official Websites will be reassigned to supervisor

  - Will help to prevent orphaned sites
  - Will allow to clean-up unused web-space
    - spring-cleaning:
      - ~300 websites with 0 visit within last 3 years
      - ~3000 websites with <10 visit within last 3 years

New features (II)

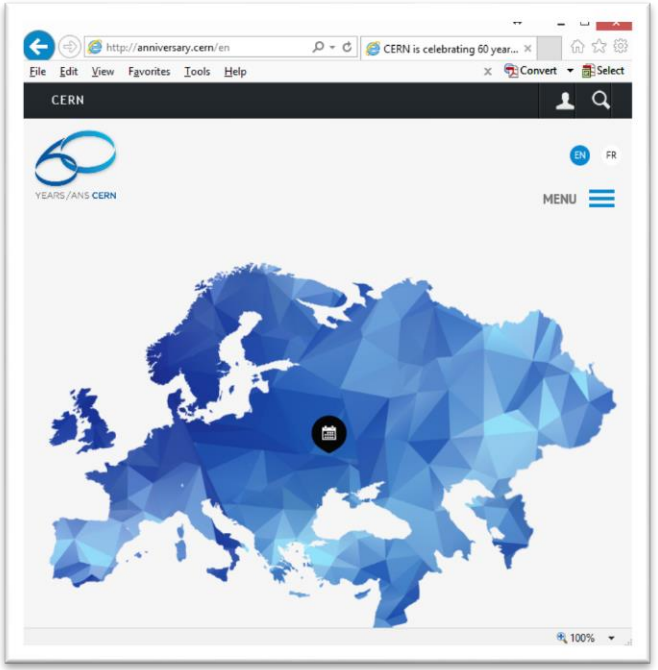
- Web Analytics (Piwik)
  - Popular open-source Web analytics package
  - Accessible for site owners

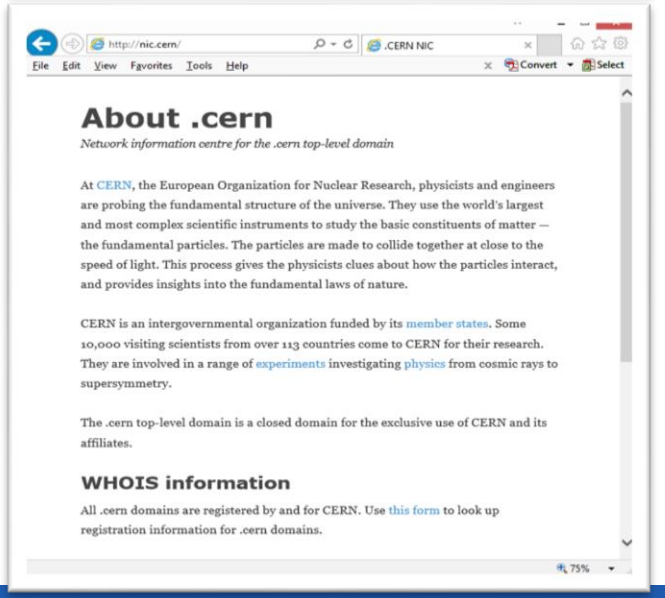


New features (III)

- Support for new top level domain **.cern**
  - http://anniversary.cern
  - http://nic.cern

  - Used by CERN communications team for major CERN public events and outreach activities





CERN Web Services in 2015

- Migration Sharepoint: 2010 → 2013
- Migration WebAFS: SLC5 → SLC6
- Migration IIS 7.5 → 8.5
- Drupal 8 pilot
- WebAFS CC7

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  - Feature overview: profiles, newsfeed, social communities
- CERN Search
  - Background, Enterprise Search
  - Document Collections Status
  - New features

SOCIAL

CERN's ESN: Motivation (I)

- **Business Practices That Refuse To Die #44: Email Trees**
  https://www.youtube.com/watch?v=QIqA_YKeboc

Enterprise Social Networking (I)

- We receive too many emails
- Push & Pull channels
- Reply all syndrome
- Knowledge locked in mailboxes
- To avoid communication & knowledge silos
- Shift of general communication habits

Enterprise Social Networking (II)

- Use of technologies to create value by connecting members of an organization
- Similar to public social media but for organizations (LinkedIn, Twitter, G+, Facebook)
- Unlock opportunities to communicate, share knowledge and collaborate

Enterprise Social Networking (III)

- ESN components
  - Social Profiles and Newsfeeds
  - Communities and Workgroups
  - Blogs and Wikis
  - Suggestion System and Social Voting (“Likes”)

Enterprise Social Networking (IV)

- Enterprise Social Networking
  - 80% cultural change of communication and interaction
  - 20% technology
- ESN offers a lightweight communication channel
  - a single place to stay up-to-date about what going on within organization
  - Pull channel i.e. people follow what they are interested in
  - Facilitate information sharing (across hierarchical boundaries)
- Conversations taking place in ESN allow
  - To collaborate more efficiently and allow others to contribute
  - To create content that becomes searchable and accessible to many

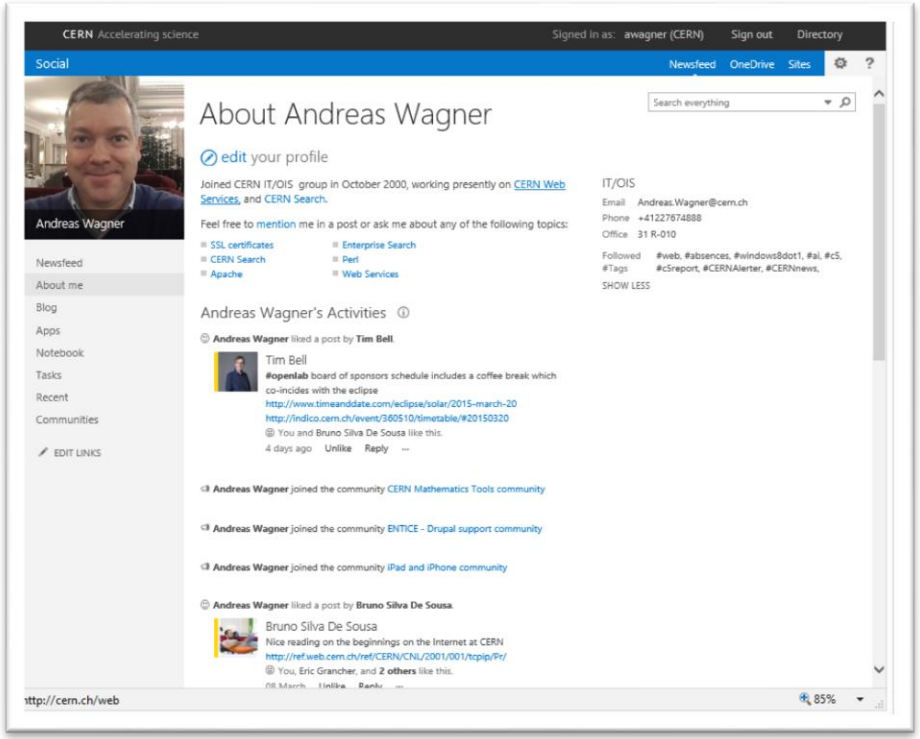
Social @ CERN

- CERN's ESN implementation
  - SharePoint 2013
    - support for all standard compliant of browsers

- Social for CERN
  - Social Newsfeed & Profiles
  - Social Communities
  - Integrated with OneDrive, Office Web Apps, Search
  - Programmatic access

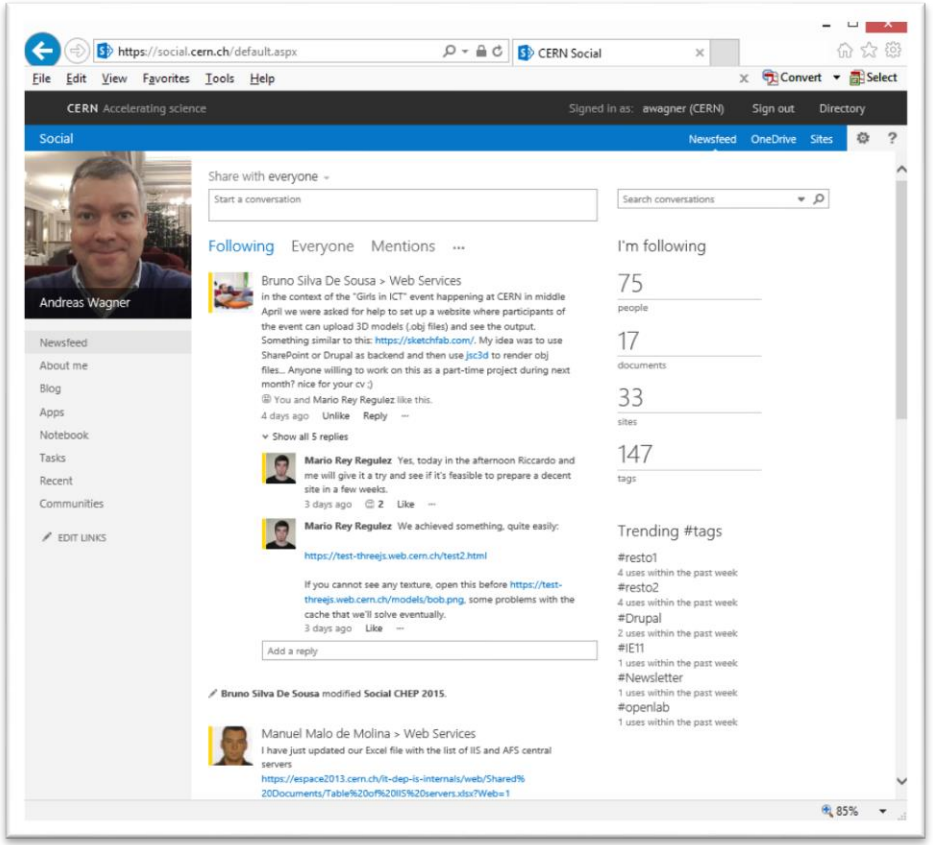
Social Profiles

- On first access profile is created
  (for anyone with CERN account)
  - Add information about yourself, picture, areas of expertise
  - Configure notifications and shared activities



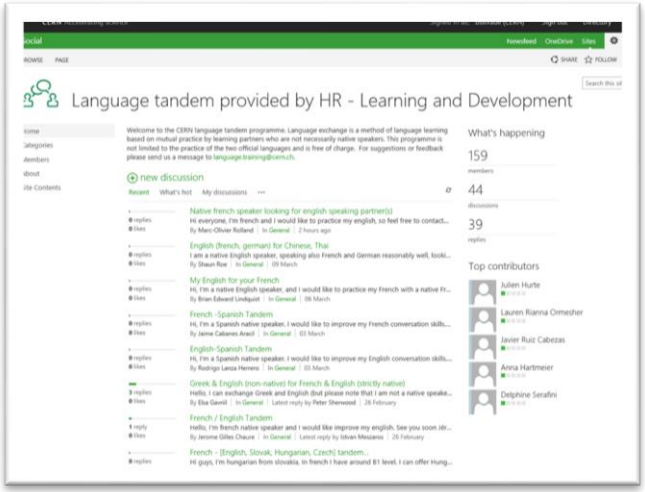
Social Newsfeed

- What you're **Following**
  - people, #tags, documents or workspaces
  - By default you follow your team members
- What **Everyone** is saying
- Your **Activities**
- Your **Mentions**
- Your **Likes**

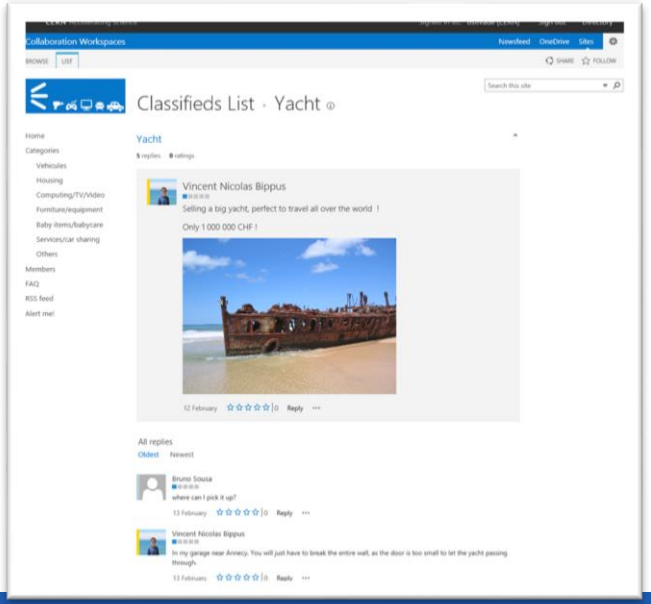


Social Communities

- Forum experience
  - Topic, Q&A oriented

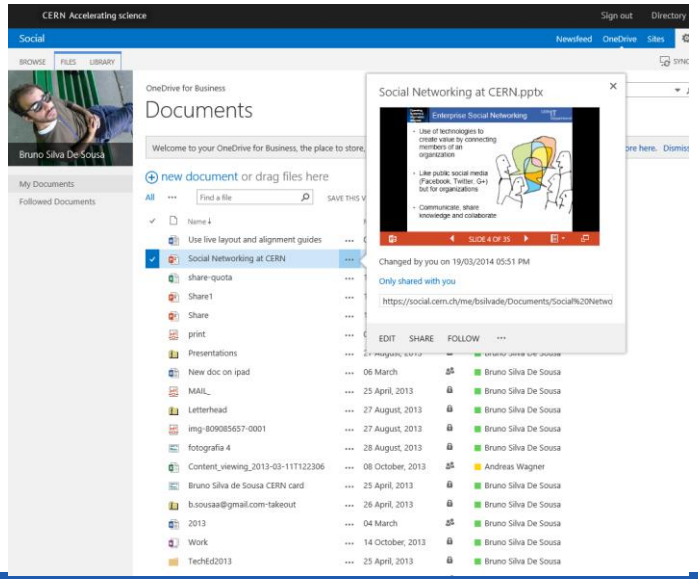


- Can be opened also for external accounts
- e.g. IT Lightning Talks, Software Development, Language Tandems, CERN Market, …



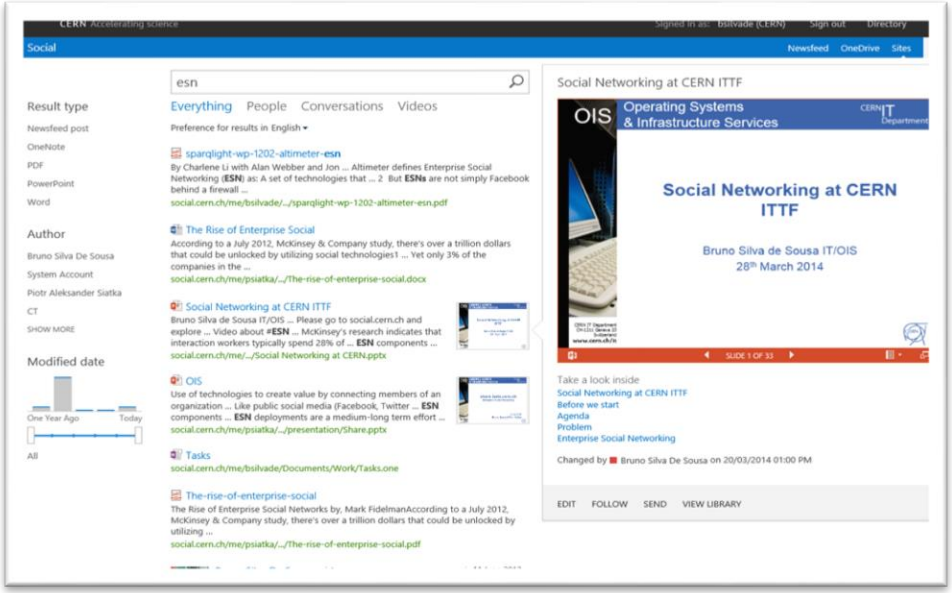
CERN Social: integrated with …

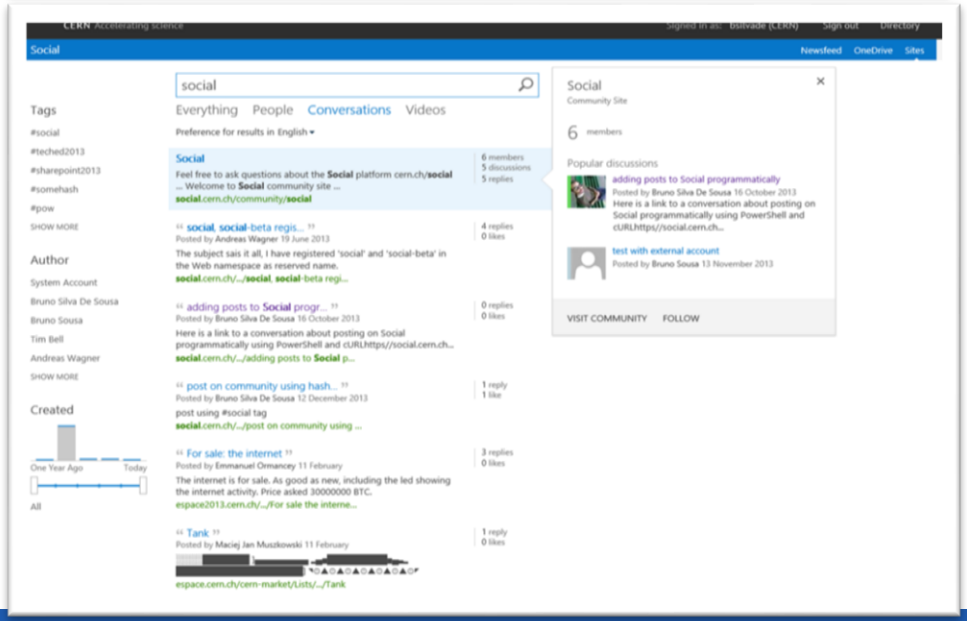
- OneDrive (for business)
  - Place to easily share and collaborate on files
  - Can be ‘Shared with Everyone’ (Anyone logged on CERN SSO including Federation)
- Office Web Apps
  - Browser-based for Word, PowerPoint, Excel, OneNote and PDF files
  - Allows concurrent editing



Social Search

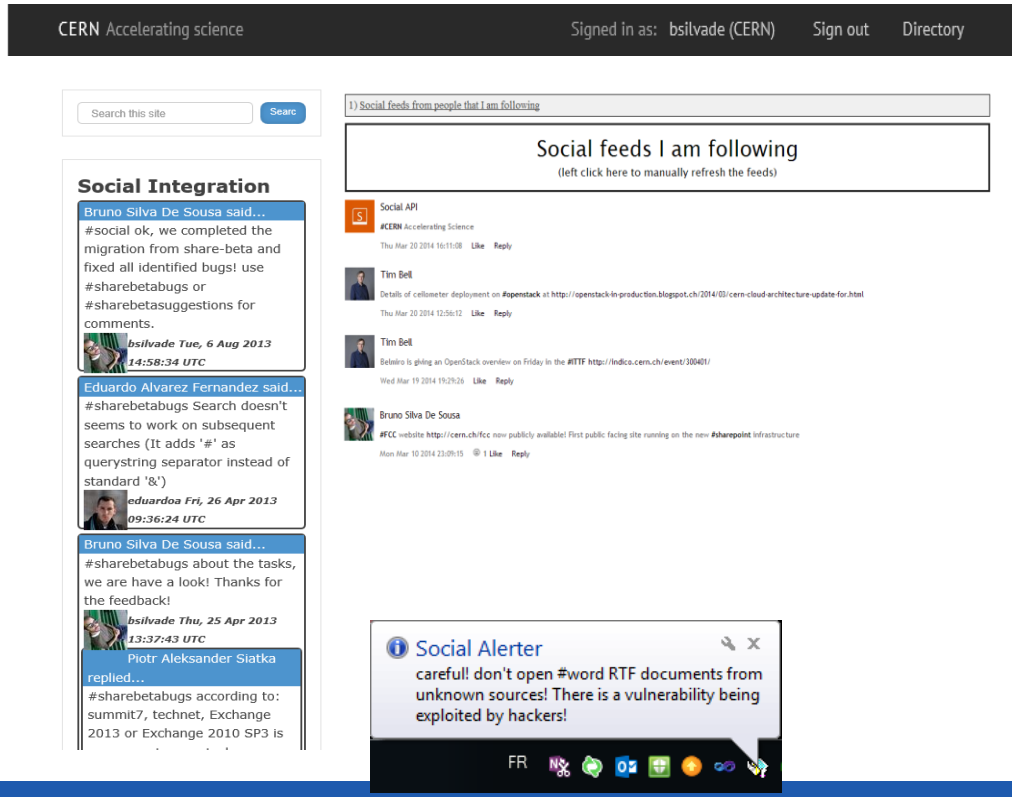
- Find content
  - Context tabs
  - In-page previews
    - Documents
    - Conversations
  - Visual Refiners
  - Features coming to next version of CERN Search





CERN Social - programmatic access

- To allow integration with existing Web applications.
- REST API to interact with Social
  - SSO (with CORS), NTLM, Kerberos, Basic authentication
- JavaScript API developed to ease integration
- Drupal modules available (read/write)
- Plugin for CMF
- Plans to integrate Social with common CERN Web Toolbar



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SEARCH

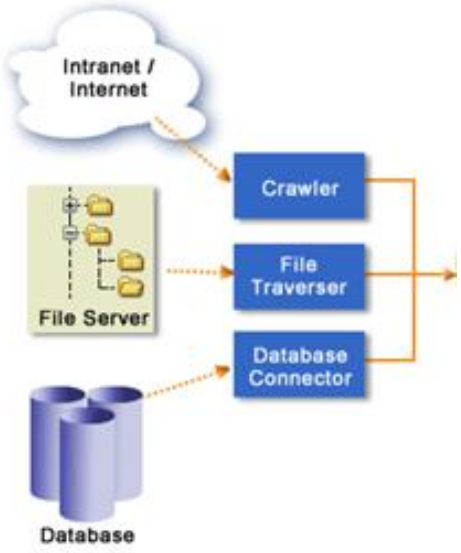
CERN Search

- A central Search solution to provide
  - **for users**
    - **Single entry point for searching information on wide range of content sources at the same time**
  - **for service providers**
    - **Search backend service**
      - **Indico, TWiki, Drupal, SharePoint, JACOW, E-group archives, (EDMS)**

- History
  - Start of project in 2006:
    based on commercial product FAST ESP
  - Now: FastSearch for SharePoint 2010
  - In preparation Search SharePoint 2013

Enterprise Search

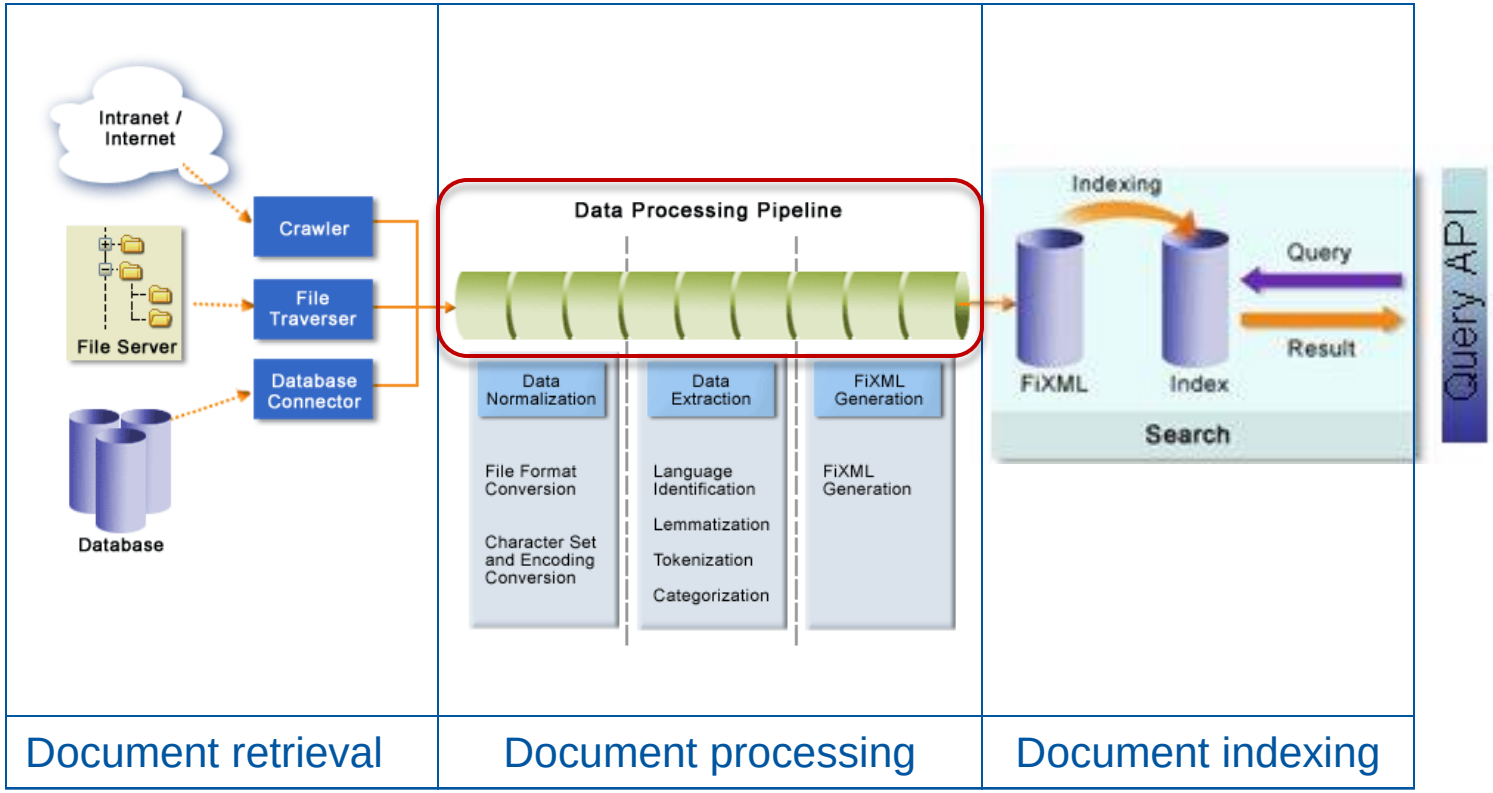
- Wide range of document sources:



- Web Pages (Public & Protected)
- File systems
- Databases
- Directories (People and Places)
- Document repositories (CDS, EDMS, Indico, …)
- Structured Content Management System Data
  - SharePoint, Drupal, TWiki

- Variety of meta data
- Different Access Protection Schemes
- Different retrieval methods and frequencies

Document Content Flow



Indexing Protected Content I

- To allow indexing protected content we need to
  - Retrieve the document
    - Search engine needs access to document,
    - Crawlers are not necessarily SSO aware
  - Obtaining document ACLs
    - To be able to decide who is allowed to find a document
    - Often not trivial since most systems answer the question:

      “Has a given user the right to access a given document?”

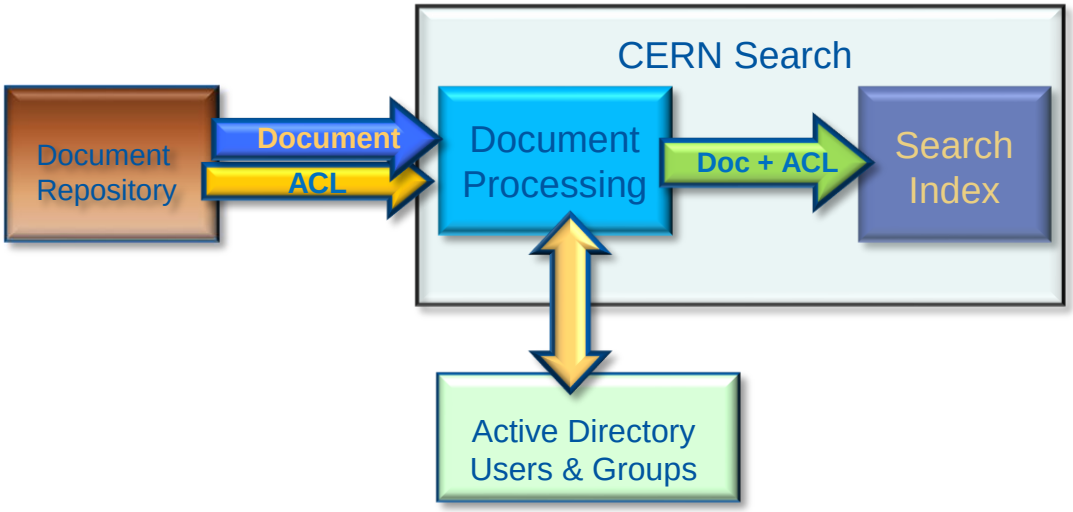
      and not

      “Tell me who has access to a given document?”

      This is due to often complex permission models including inheritance, fine granularity of permissions and changing permission during document lifecycle …

Indexing Protected Content II

- Document Processing
  - Resolve ACLs to SIDs
  - Sent to Indexer with document
- Query Processing
  - Authentication by Front-End
  - creates filter with expanded user credentials and group memberships



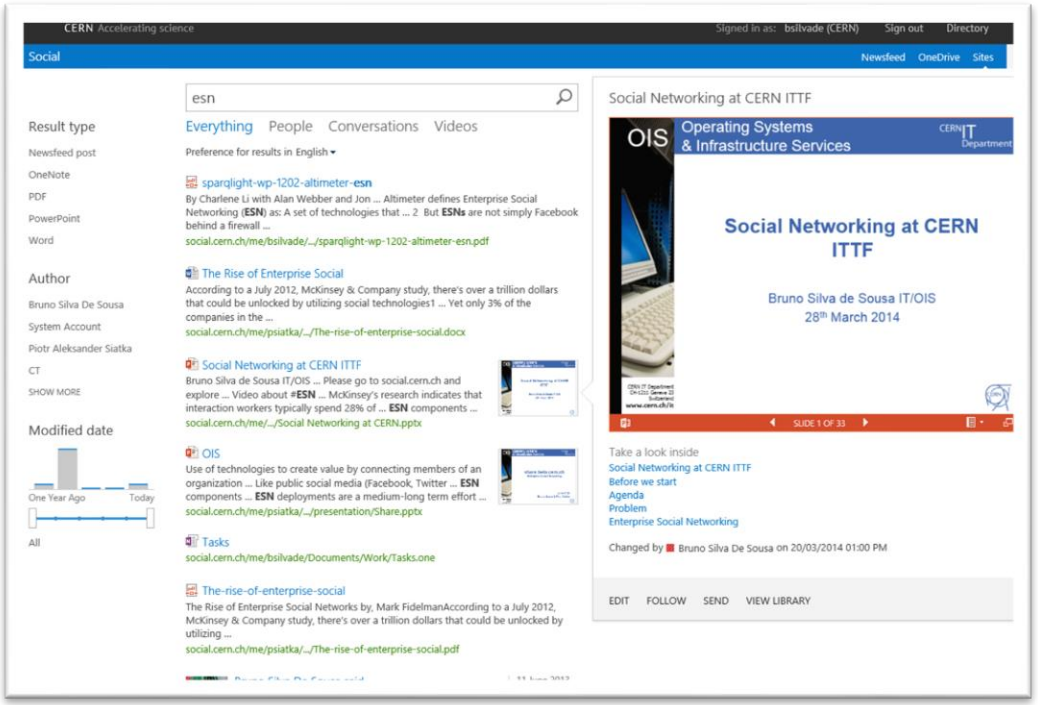
Overview of Indexed documents

Documents indexed by CERN Search - March 2015	
CDS	1,766,190
EDMS	4,927,599
Indico	3,445,490
Jacow	268,520
Twiki	125,702
Drupal	33,871
Jira	14,613
SharePoint (eSpace/Groups Archive)	14,754,487
CERN Websites	1,570,301
Total	**~27 million**

protected contents (SSO integration)

Upcoming Search Features

- CERN Search Migration: SP 2010 → SP 2013
- Find content
  - In-page documents preview
  - Visual Refiners



Summary

- CERN Web Services
  - heterogeneous infrastructure to address needs of different CERN user communities
- CERN Social – Enterprise Social Networking
  - new lightweight communication channel that encourages collaboration
  - a single place to stay up-to-date about CERN
- CERN Search
  - provides access to a wide range of (protected) information and CERN document repositories such as CDS, Indico, Twiki, SharePoint, JIRA and (EDMS).

Thank you for your attention!

Questions ?