TWiki at CERN
Past , Present and Future
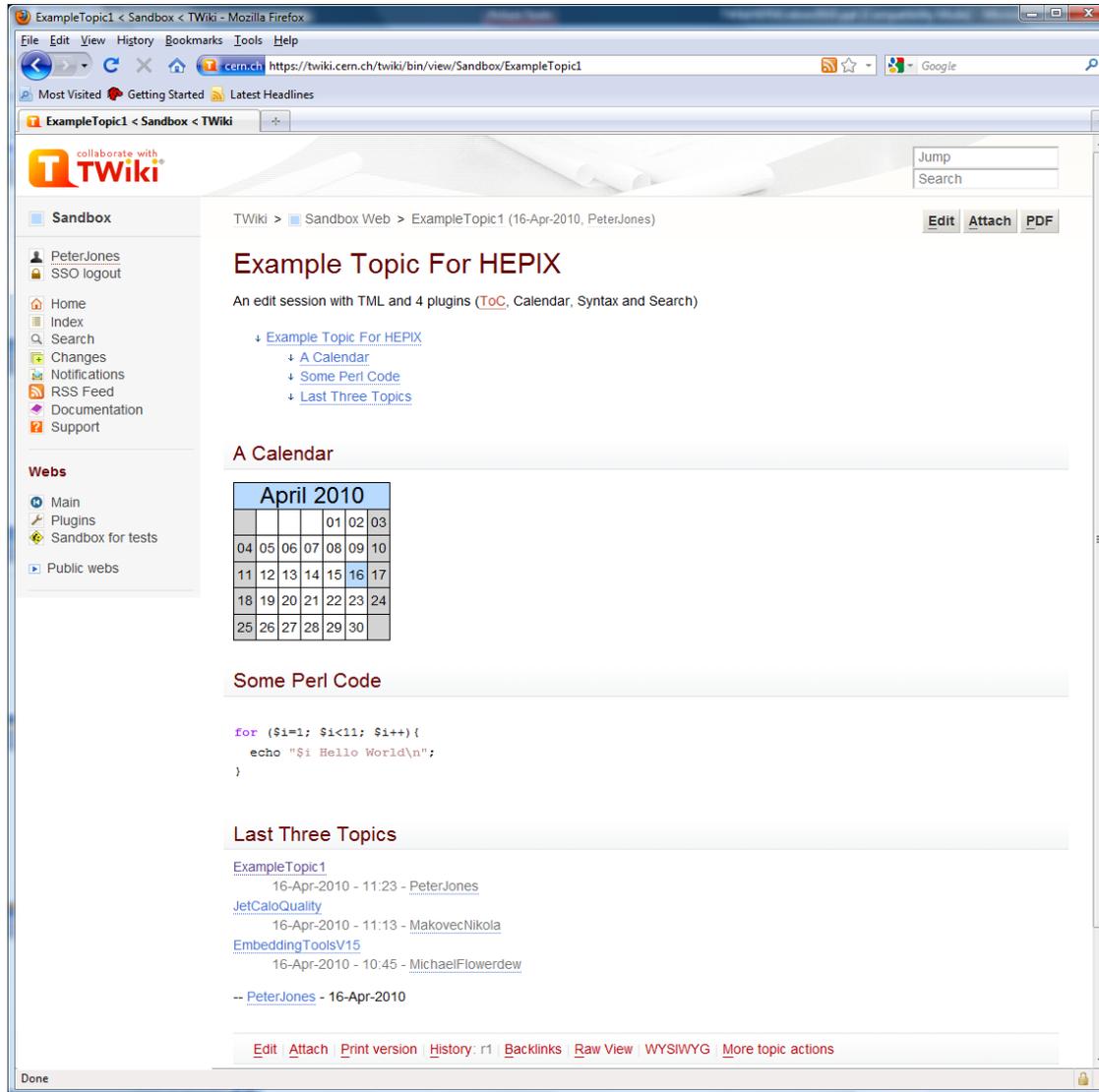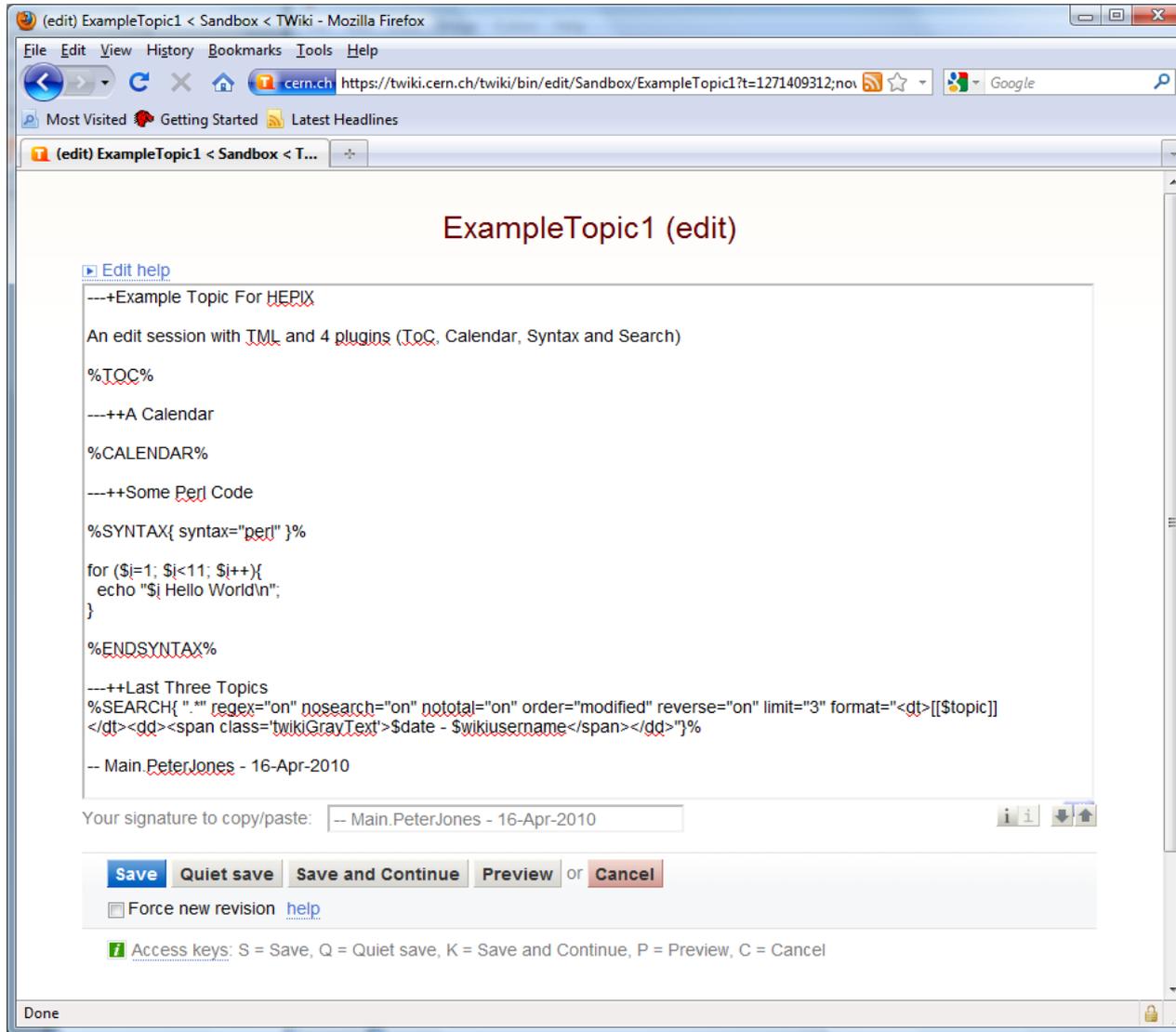
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April 2010

- Introduction
  - What is a wiki?
  - Why do we have TWiki?
- Overview and issues of the current service
  - Configuration
  - Performance
  - Authentication
  - Access Control
  - Authentication and Access Control Issues
  - Searching
- Future developments
- Questions

TWiki at CERN - wikis

- In 2003 a group of CERN software developers requested a wiki.

- A wiki is a web page with an edit button.

- First wiki software was created by Ward Cunningham in 1995. "the simplest online database that could possibly work."

- There are many wikis available (see www.wikmatrix.org)
  - Confluence, MediaWiki, PhpWiki, TikiWiki, TWiki....

- TWiki was the chosen solution:
  - it matched the requirements and the CERN working environment (Perl, Linux, AFS and apache...)
  - CERN users from HIP were using TWiki at the time.
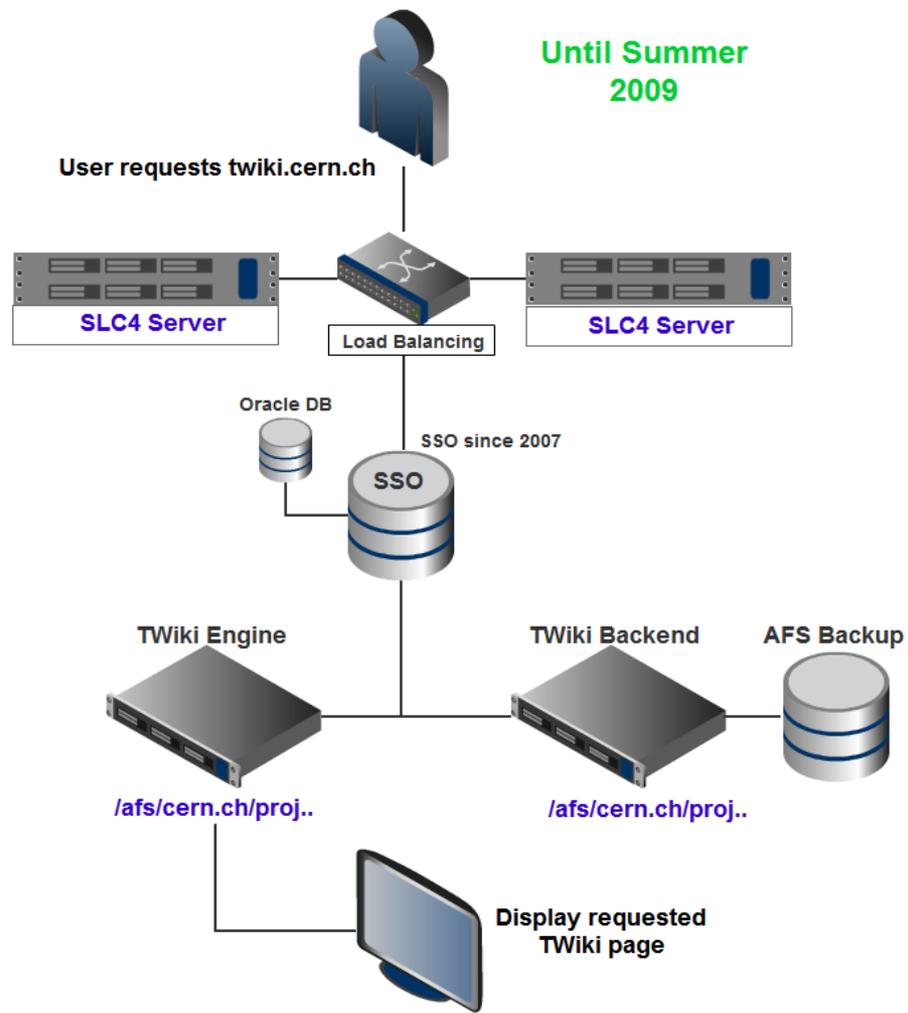
TWiki - overview

- TWiki – is a structured wiki
  - Introduced in 1998. OpenSource license (CERN input).
  - Used by: Nokia, Sony, Oracle, CISCO, EVO....
  - Perl based, plain text DB, runs on Linux and apache
  - Web and Topic hierarchy with access control
  - Revision control – all changes are tracked.
  - Extendability – over 200 plugins
  - Database like manipulation
  - Features of RSS/Atom feeds and e-mail notifications
  - Edit with HTML, TML or What You See Is What You Get (WYSIWYG) editor
  - Fast and easy to use

TWiki at CERN - usage

- TWiki has many uses:
  - Replaced many static web pages
  - Documentation, publication (PDF WorkBooks)
  - Whiteboard , Blog
  - Organiser – spreadsheet, calendars...
  - Knowledge base or FAQ
  - Software analysis and design
  - Software archive
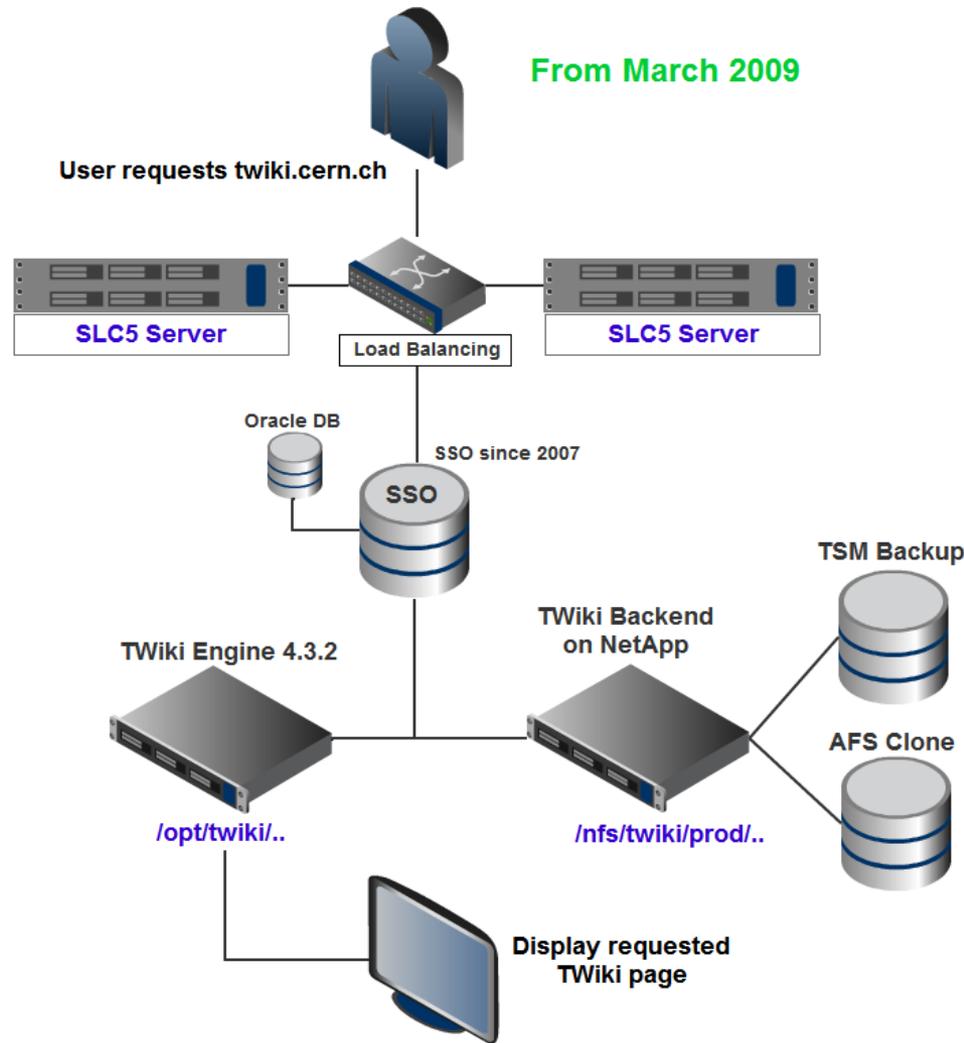 - Helps groups to collaborate more effectively

Example Page

Example code

Configuration until 2009

Until Summer 2009

User requests twiki.cern.ch

SLC4 Server

SLC4 Server

Load Balancing

Oracle DB

SSO since 2007

SSO

TWiki Engine

TWiki Backend

AFS Backup

/afs/cern.ch/proj..

/afs/cern.ch/proj..

Display requested TWiki page

Recent Developments

- Since 2003 TWiki has been upgraded several times
  - TWiki software Cairo -> Dakar -> Edinburgh -> Georgetown
  - To dedicated Linux servers (several upgrades)

- August 2009 installation of Georgetown (4.3.2)
  - Usability enhancements - new What You See Is What You Get editor
  - Security enhancements (reduced risk of cross site scripting)
  - SQL style query language for programmable search
  - New restore feature allows for easier rollback + over 300 bug fixes

- December 2009 upgrade of server
  - TWiki installed locally - DELL Poweredge 1950 2.33GHz, 2 CPU/8 core)

- March 2010 backend migrated from AFS->NFS
  - Service fine on AFS, however AFS has a file per directory limitation
  - Removed problem of 32K file limit (CMS web approaching this limit)
  - Removed all dependencies on AFS

Current Configuration

From March 2009

User requests twiki.cern.ch

SLC5 Server

Load Balancing

SLC5 Server

Oracle DB

SSO since 2007

SSO

TWiki Engine 4.3.2

TWiki Backend on NetApp

TSM Backup

AFS Clone

/opt/twiki/..

/nfs/twiki/prod/..

Display requested TWiki page

TWiki at CERN - statistics

- Present Statistics:
  - 7500 registered users (does not include read-only users - TWikiGuest)
  - 190 collaboration webs
  - 60,000 topics (280,000 attachments)
  - 3,000,000 accesses/month (Mar 2010)
    - March: 50000 unique IP addresses, 10000 at CERN
  - 50,000 monthly updates
- Main users:
  - CMS, ~ 15,000 topics, 85000 attachments
  - Atlas, ~ 11000 topics, 60000 attachments
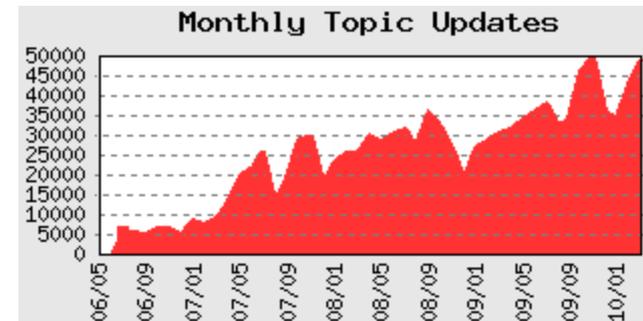 - Others include Alice, LHCb, IT groups, Grid….

TWiki at CERN - statistics
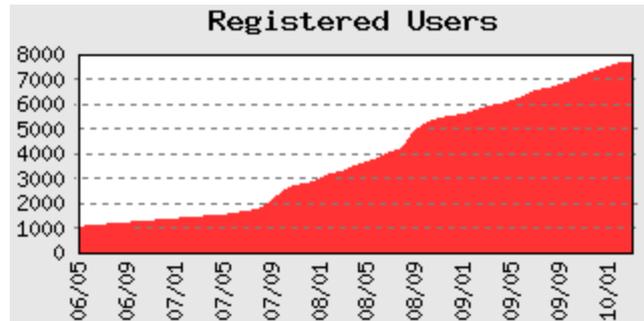
7563 users – March 2010
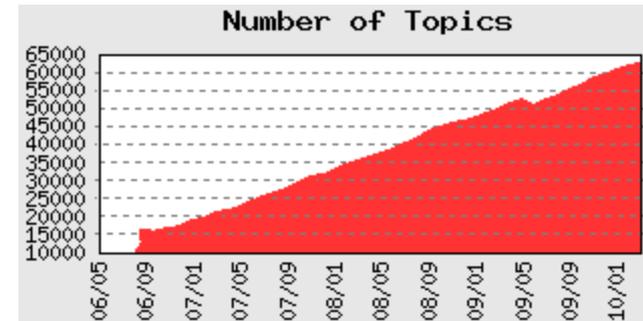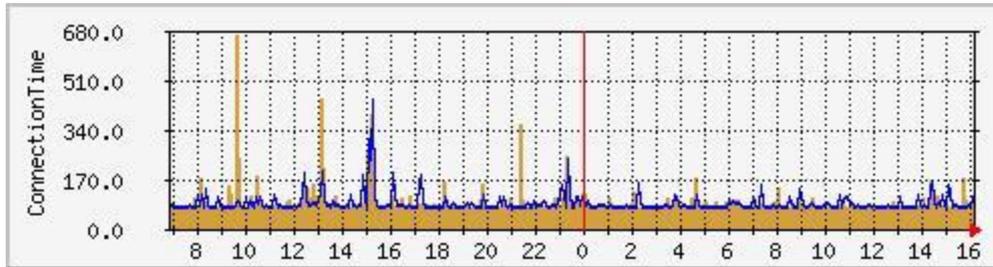

61743 topics – March 2010
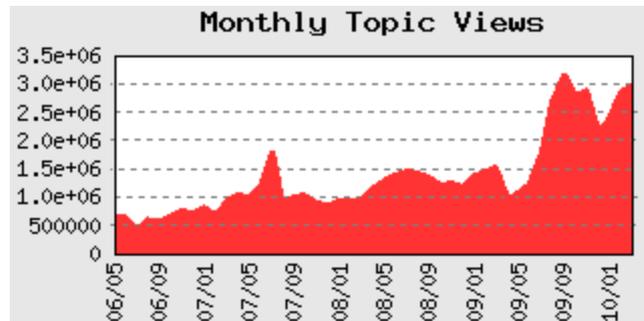
2971857 accesses – March 2010

48736 updated – March 2010

Performance

- It currently takes ~0.7 sec to load a page.

- Issues with slow performance addressed
  - Upgraded servers (DELL Poweredge 1950 2.33GHz, 2 CPU/8 core)
  - Upgraded Software (including Plugin updates)
  - Looked at any AFS bottlenecks (afs-cache, SSD)
  - Tuning: prepare some pages in advance (menus, feeds)
  - TWiki gardening is encouraged

Authentication

- SSO since October 2007 – (initially we used Kerberos)
- TWiki Registration and membership of 'CERN Users' group necessary:
  - for editing files
  - uploading attachments
  - authorized views
  - topic management
- All registered users have a WikiName (for signature and access control)
- TWikiName is matched to UPN email address (from SSO)
  - PeterJones = peter.l.jones@cern.ch
- All users are called TWikiGuest until logged in
- Light weight registered users are allowed in but are vetted

Access Control

- Set using the TWikiName(s)
- Defined by the Admin for the site level
- Set on the web level by the coordinator
  - Ex. Set DENYWEBVIEW = list of Users and/or Groups
- Set by the user for each topic
  - Ex. Set ALLOWTOPICVIEW = list of Users and/or Groups
- TWiki groups can also be used:
  - A list of registered TWiki users
  - Created by the TWiki user
  - Also created by a script based on mailing lists or egroups
- Since Nov 2009 direct use of egroups
  - Ex. Set ALLOWTOPICVIEW = cms-web-access

Egroup integration

- TWiki is written in OO Perl and is extendable.
- A new user mapping can inherit existing modules

  ```
  #!/usr/bin/perl
  package TWiki::Users::ADFSUserMapping;
  use base 'TWiki::Users::TWikiUserMapping';
  ```

- Collaboration requested Access Control based on egroups
- Apache returns information about SSO session
  - $ENV{HTTP_ADFS_GROUP}
- Technical Student wrote new code to handle egroups
- New access control handles TWiki and egroup entries
  - Ex - Set ALLOWTOPICVIEW = PeterJones, hepix-users-egroup
- In production since November 2009 as requested by LHC
- Work still ongoing...
- https://twiki.cern.ch/twiki/pub/Main/EgroupTWikiIntegration/EgroupsAndTWiki.pdf

Problems encountered

- Trouble-shooting for performance
  - High loads due to erratic TWiki use (feeds, search, browser issues, recursive calls...)
  - Some groups request static exports of data in case of downtimes.
- SSO has advantages (one login) but there are some disadvantages
  - Modification to the code and user registration
  - User mapping uses email address, which can change
  - Some users can have more than 1 SSO account
  - Load balancing has been problematic and is currently disabled
- Web management
  - Change of policy with some web or topic protection
  - Large TWikiGroups need maintaining
  - Web name changes. Causes problems with backlinks
- Search
  - TWiki WebSearch is slow on large webs and the results are not always satisfactory
  - People want Google search but this does not work on protected data
  - CERN search is the answer and will soon be ready on protected webs.

Future developments

- Re-introduce loadbalancing

- Upgrade to new servers
  - 4 Dell M610 blades – 48Gb ram
  - At least one server to be on uninterruptable power

- Complete SSO integration
  - Complete egroup integration (for sub groups and PDF)
  - Solve user mapping issues (changes of email address)

- Automize TWiki installation (Quattor) – (bare SLC5 not enough)

- Install and test Helsinki version (v5) and upgrade extensions

- Gardening – work with collaborations to maintain their pages

- Improve search feature

- Keep an eye on developments and evaluate other wiki options

Foswiki fork

- Oct -27 2008 TWiki.net took over governance of the TWiki project. (LHC started Oct 2008)

- Core contributors disagreed with the new governance model.

- TWiki is now led by TWiki.net instead of the Open Source community. However it is still Open Source

- Foswiki available since early 2009.
  - Based on TWiki core.
  - Very different look and feel to TWiki by default.
  - Latest release is 1.09

- Stability is most important for our user community so we remain with TWiki for now.

Who we are

- Total effort ~ 1FTE

  – IT-PES group
    - Including: Peter Jones, Nils Høimyr, Alexander Bernegger, Juan Manuel Guijarro

  – IT-DB group
    - Including: Giacomo Tenaglia, Artur Wiecek

    (The above were all in the same group until end 2009)

Summary

- TWiki installed at CERN following user requests
- TWiki quickly grew in popularity
- Complements other IT web services
- The service has adapted to user requirements
- Regular software and hardware upgrade needed to satisfy user demand
- Performance –maintain quick page load
- Continue with SSO integration
- Improve search
- Continue to be part of the TWiki.org project
- Wikis evolve and other options are monitored

Useful URLs

- CERN
  - https://twiki.cern.ch/
- TWiki
  - http://www.twiki.org/
  - http://www.twiki.net/
- Other
  - http://www.wikimatrix.org/
  - http://www.foswiki.org/

Platform &
Engineering
Services

Questions

CERN**IT**
Department

Thanks For Listening….

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