



Operating the Belle II Collaborative Services and Tools

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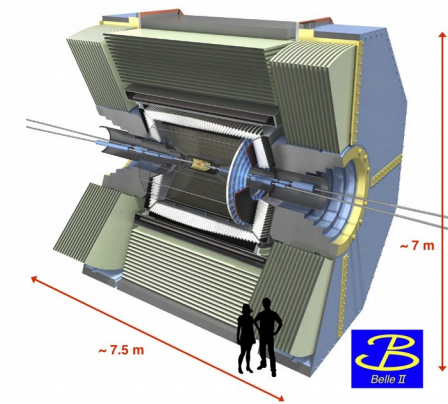
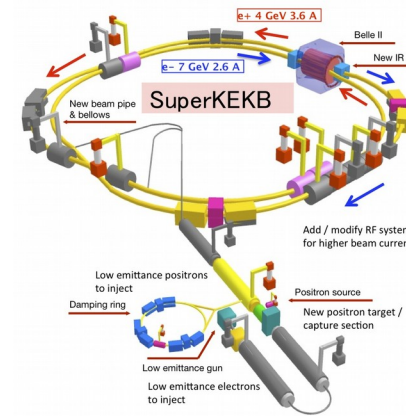
<https://indico.cern.ch/event/773049/contributions/3474857/>

Belle II

Successor of Belle (1998 -2010)



- KEK, Japanese High-Energy High-Energy Accelerator
- B- \bar{B} meson pair B factory
- KEKB, a 3.3 km circumference asymmetric e^+e^- collider
- World record of instantaneous luminosity $2.1 \times 10^{34} \text{ cm}^{-2} / \text{s}$
- SuperKEKB is major upgrade forty times luminosity
- Belle II experiment to record 50 times more data than Belle
- International collaboration
- ~1000 users ~100 institutes ~23 countries ~4 continents ~19 timezone
- Revised collaborative services and tools 2016



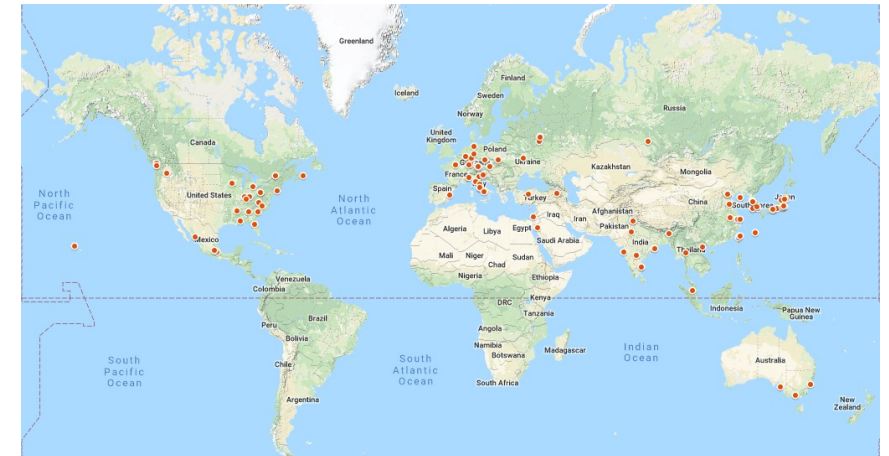
Introduction

Motivation



Why are collaborative services and tools needed?

- Communication is essential for any (virtual) collaboration
- Sharing and exchanging information
- Integration of a global virtual communities
- Administration and organization



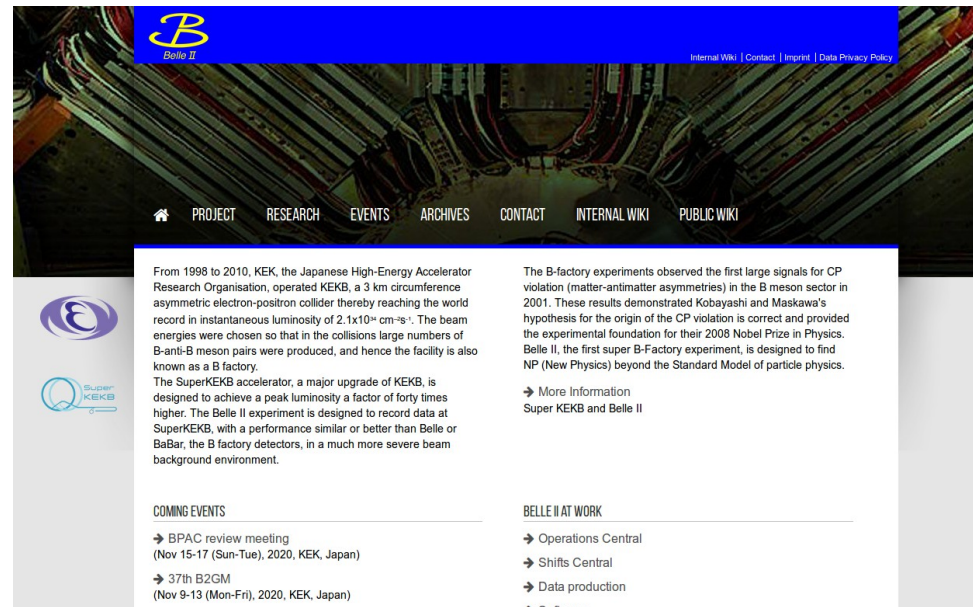
Introduction cont'd

Services



What kind of services and tools are needed?

- Management and administration of users
- Website www.belle2.org
- wiki, issue tracker, agenda service
- Logbooks, shift tools
- Chat service, questions, searches
- Monitoring
- Software building and validation



Requirements



Legacy

- Existing data and information must be migrated

Security

- Data and services must be protected; authentication and authorization for all users

Reliability, Stability, Availability

- Experiment must be operational at any time and integrity of data and information is crucial

Flexibility

- New requirements demand new features or new services and tools

Sustainability

- The collaboration will exist for >10 years

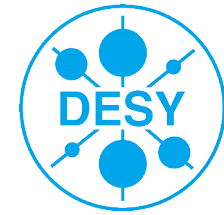
Services

Design

- Access with personal credentials (account/password) only
 - Centrally managed users
 - Membership management system
- As little as possible self-developed and self-maintained products
- Services embedded into a existing IT infrastructure
- Usage of state-of-the art technologies
- Individual (web) services may run on virtual hosts
 - Centrally controlled updates and maintenance
 - Secured web services with certificates
 - Demilitarized zone (DMZ) in the network



Services cont'd



DESY IT infrastructure

- User registry
- Web (*ZMS2*)
- Wiki (*Confluence*), GIT (*Stash*), Issue tracker (*JIRA*) ATLASSIAN tool suit
- Mailing list service (*Sympa*)
- Agenda (*Indico*)



Belle II services in VMs

- Documents (*Invenio*)
- Chat (*RocketChat*)
- Questions (*AskBot*)
- Monitoring (*Apache2 w/ Idap*)



Services cont'd

Membership Management System (B2MMS)



The B2MMS plays a central role

- Keep track of all users who are connected to Belle II
- Acts as an interface to the DESY registry for credentials (account/password) to log in
- Source all Belle II member related issues
 - Mailing lists
 - Author lists
 - Voting
 - Shift lists
 - M&O costs
- Delegation of the management of users to the institution representatives (IR)
- Based on the DESY Identity and Access Management (IAM) (*Apex*)
- Developed at DESY in 2017; in production since January 2018

Experiences

Migration



[*Migrating the Belle II collaborative services and Tools*, CHEP2016, N Braun et al 2017 J. Phys.: Conf. Ser. 898 102014]

- No start from scratch!
- Work of collaboration went on while migrating
- Information was already collected in a twiki, an issue tracker (*redmine*), agenda (*indico*)
 - Twiki contents (~4000 pages and attachments)
- Member lists existed already
 - All users needed DESY credentials (account/password)
- Lack of a clear concept for communication → wikis vs. chats vs. email lists
- New ideas for services emerging during migration → *But this is much better than ...!*
- Concepts are sometimes driven by implementation → *How can we use this nice new tool?*
- New ideas require new installations → *May we have another virtual machine for ...?*

Experiences cont'd

User support



- Recent security standards require user login
- All users in the Belle II context needed DESY credentials (account/password)
- A workflow incl. the membership management system was set up
- Prime user issues:
 - Not reading documentation (to the end)
 - Personal email contacts rather than support mailing lists
 - Forgotten passwords
 - Ignored requests to change password (every 180 days by DESY policy)
 - Unmaintained and out-dated information in the wiki

Conclusions



- The opportunity to revise and rethink the Belle II collaborative services and tools was taken
- Integration into a production-grade IT infrastructure at DESY
 - Adoption of recent security standards
 - Implementation of state-of-the-art technologies
 - Utilization of the ATLASSIAN tool suit
- Development and Introduction of well-tailored membership management system
- Confirmed habits had to be given up (*Always log in!*) (*You need an account first!*)
- User support is known to be a non-scaling crucial issue