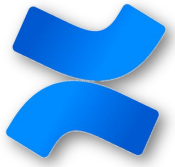
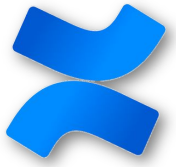
Atlassian Confluence as an ELN and shared resource system



21.09.2021



Ilja Bezrukov
Rebecca Schwab
Max Planck Institute for Developmental Biology
Tübingen

MPI for (Developmental) Biology

(3) 5 Departments (director + 2-5 groups)
(4) 7 research groups,
(3) 7 core facilities
Administration

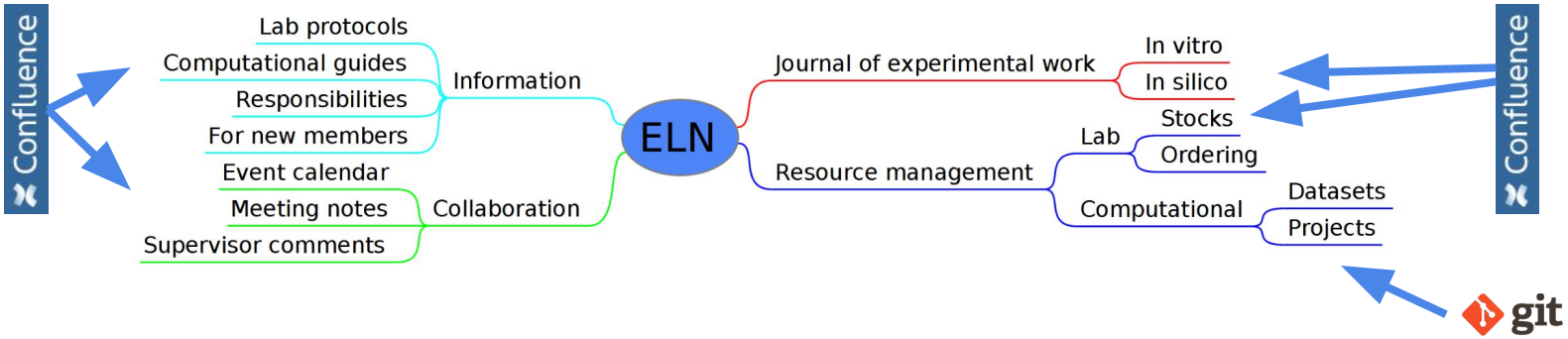
Wet lab biology
(structural biology, molecular biology, genomics)

+

Computational biology

Confluence (start: 2015)

ELN: how much flexibility is needed?

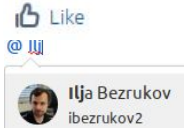


- Flexible vs pre-defined structure
- How flexible does an ELN need to be?
- Balance computational focus with classical lab work
- One system for everything vs specialized tools

What is Confluence?

- Advertised as an enterprise collaboration system
  - Strong wiki functionality
  - Collaborative features (@tags, sharing, likes, commenting)

ATLASSIAN



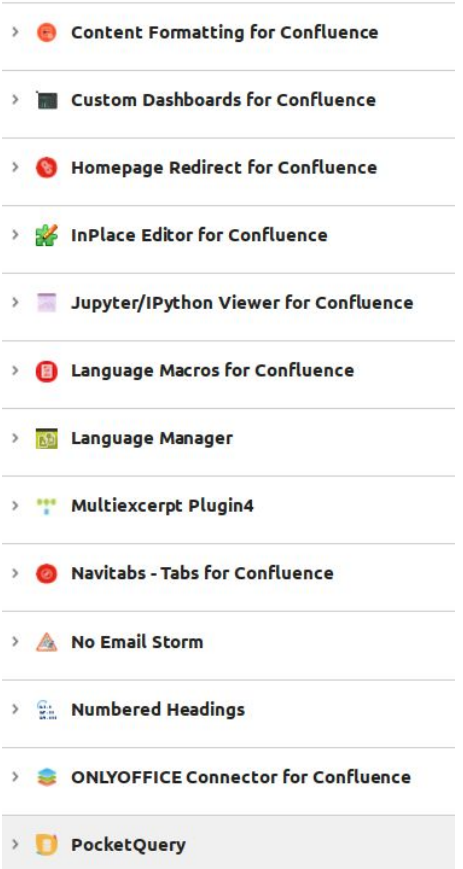
- Large plug-in ecosystem
- Can be run on-premises or as cloud instance
- Proprietary, with access to source code available
- Currently very generous licensing to non-profit organizations

Licensing

- Self-hosted and cloud versions available
- Proprietary, and expensive even for academic institutions
- “Loop-hole” available: non-profit organizations get a free self-hosted license + generous cloud licensing
- Future availability not guaranteed, which needs to be factored in the use decision
- Our installation dates back to 2015, so far Atlassian has been forthcoming

Ecosystem

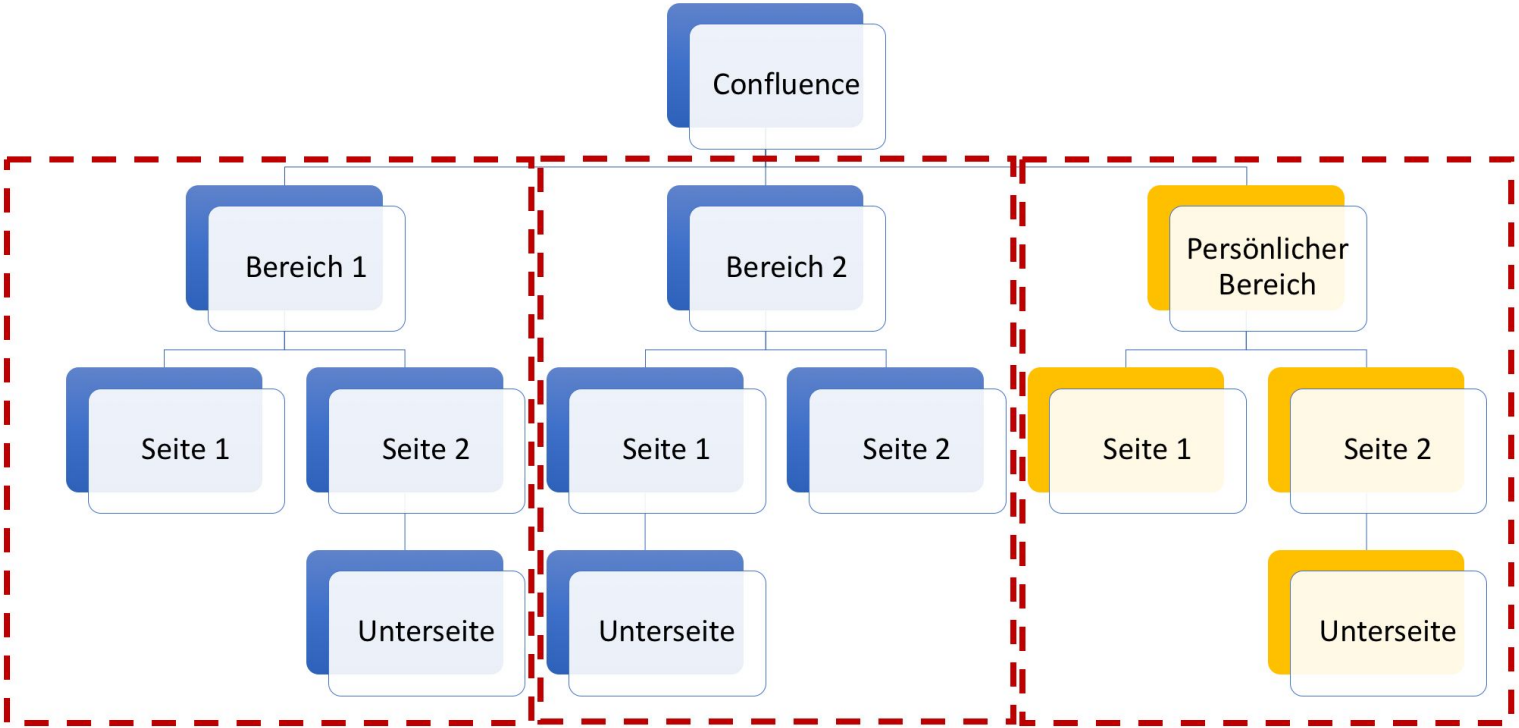
- Large number of high quality plug-ins available
- With a non-profit license, most can be used without license fees
- Examples
  - Content formatting
  - External SQL database access
  - API for scripted page generation/editing
  - Encryption



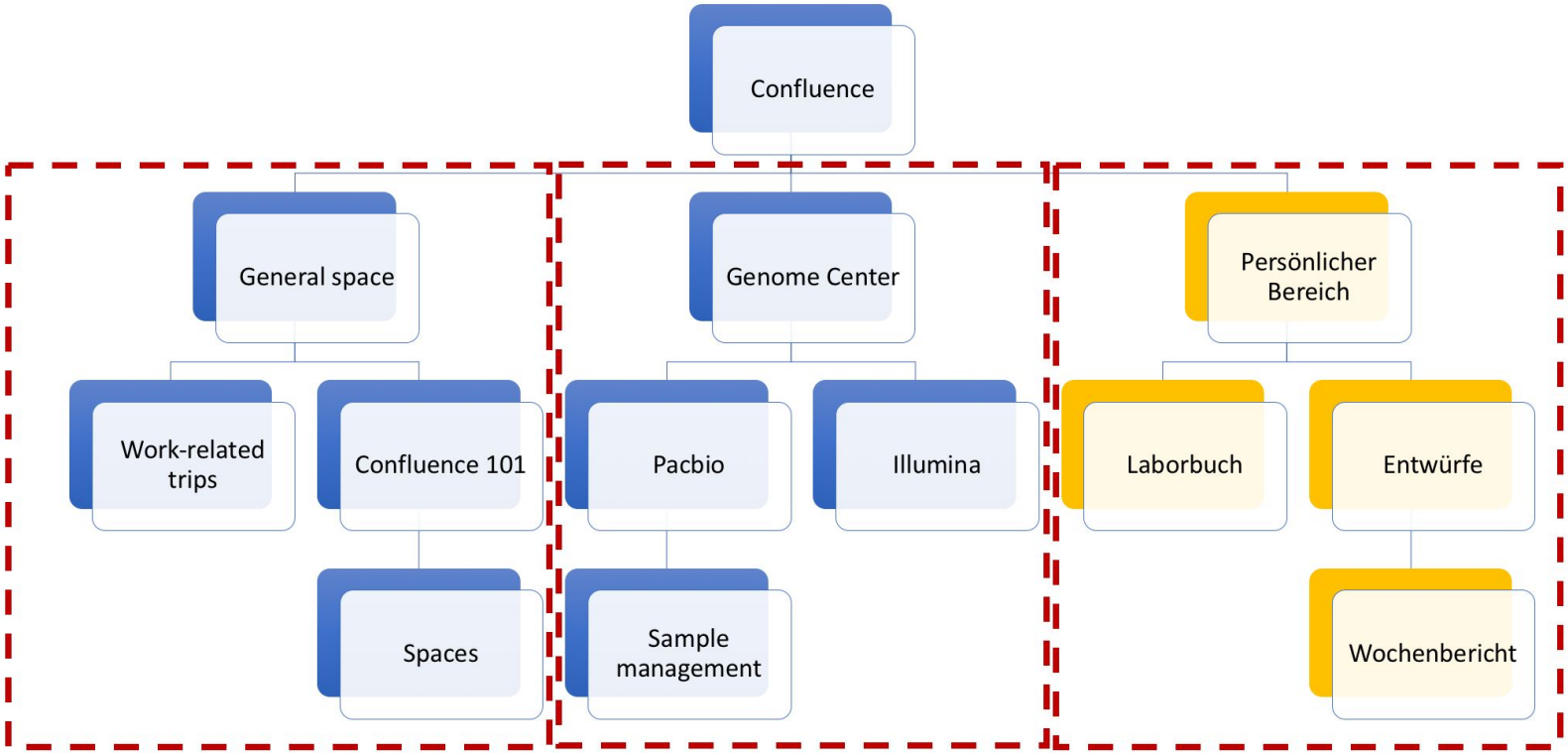
Technical aspects

- User directories can be imported from LDAP or active directory
- Customization by template editing possible
- Page version history is available
- SQL database + Tomcat server stack
- Our instance is restricted to the intranet
- Access to Atlassian support available

Data model


Confluence
Bereich 1
Seite 1
Seite 2
Unterseite
Bereich 2
Seite 1
Seite 2
Unterseite
Persönlicher Bereich
Seite 1
Seite 2
Unterseite

Data model


Confluence
General space
Work-related trips
Confluence 101
Spaces
Genome Center
Pacbio
Illumina
Sample management
Persönlicher Bereich
Laborbuch
Entwürfe
Wochenbericht

Confluence as ELN

- Each page is versioned -> changes can be tracked
- Structured notes with page templates
- User-friendly editor with support for images (*drag and drop*), code blocks and attachments
- No enforced structure -- a degree of user compliance is required
- Fine-grained permissions system for sharing

Confluence as a shared resources platform

- Data model with spaces and nested subpages supports multiple organizational units
- User-friendly editor facilitates content creation
- Well-accepted at the institute
  - Departments have their own spaces, usually restricted
  - Shared spaces for core services and general information

LIVE DEMO/Examples

2 main pillars and 4 levels of organization

Institute
(including administration)

Department/Groups

Subgroups

Individuals

Information

- Rather static
- Maintained by few
- Important for new people, new topics, new technologies + checking availability of stocks

Documentation

- Very dynamic
- Used by many
- Ideally interactive and collaborative

Confluence as ELN -- pro's

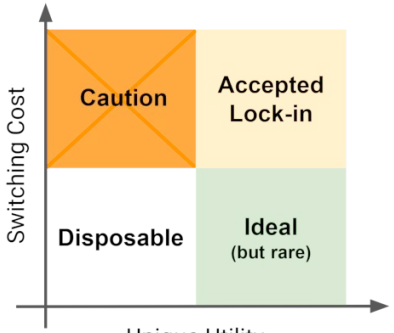
- Usability -- user-friendly without the need for extensive training (except permissions management)
- Flexibility -- able to incorporate notebooks for lab and computational work
- Robust social features: collaboration, comments and supervision possible

Confluence as ELN -- con's

- Does not work out-of-the box: Set up ELN workflows requires work and documentation
- No specialized features for lab stock management
- No ordering SAP 'connection'
- Flexibility can be a disadvantage if strict workflows need to be followed

Open-source vs. closed-source

- Licensing model has danger of vendor lock-in
- Fall-back strategies
  - Content can be migrated to static HTML
  - A working version does not need to be updated ASAP, except for critical security fixes
  - Security fixes are provided for 2 years
  - Migration to a paid plan as last resort



Conclusion

- Confluence can be used as an ELN for mixed computational/biology labs
- User-friendly interface which facilitates information sharing and increases adoption
- Flexibility, at a price: no enforced structure
- Set up of ELN workflows requires work
- No out-of-the box support for stock management
- Vendor lock-in needs to be considered

Thank you for your attention!