openSUSE Build Service

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OpenSUSE Build Service

- Current Challenges and Goals
- Architecture
- Demonstration
- Roadmap and Conclusion

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Current Challenges and Goals

Current Challenges

The open source communities provide lots of source code, but building & installation is often hard for unexperienced users.

Current challenges:

- maintain sources for different target platforms
- maintain patches during upstream updates
- integrate external contributions
- merge code back to external source repositories
- no version updates for released distributions

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Goals of the Build Service

- Open the distribution development itself
- Make it simple to provide binary packages of software
- Maintain sources in one place, offer packages for everybody
- Support the “Release early, Release often” approach
- Involve and connect the open source communities
- Make it easy and secure to install new software

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What is the Build Service ?

Server Infrastructure

- The Build Service server hosts all sources
- provides the build systems to create packages
- provides download and mirror infrastructure for packages
- is the communication framework

A set of tools:

The tools are used for local operations on the workstation or for remote operations on the openSUSE server.

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The Project Model

A project provides workspace for set of users and software packages.

A project is the central place to manage the sources used for multiple distributions.

A project can

- host an entire distribution like the SUSE Linux Factory distribution.
- host a single package to be build on other distributions
- host a small change (bugfix) for an existing package

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The open design of the Build Service

- Everyone will be able to use the Build Service.
- The Build Service tools are open source.
- The Build Service provides a public API.
- The Build Service can get integrated into existing tools.
- The Build Service is not limited to SUSE based distributions
- Integration with existing web pages is possible.

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Trust Model

- The Build Service does guarantee that the binary package got build from the sources, but it can't judge about the sources itself.
- Everyone can submit source, this causes a potential security problem. Installating software from external sources requires trust in these.
- The decision to trust a package or not is up to the end-user.
- A trust rating system helps the end-user to judge about software.
- The trust level of project depends on the trust level from its contributors.

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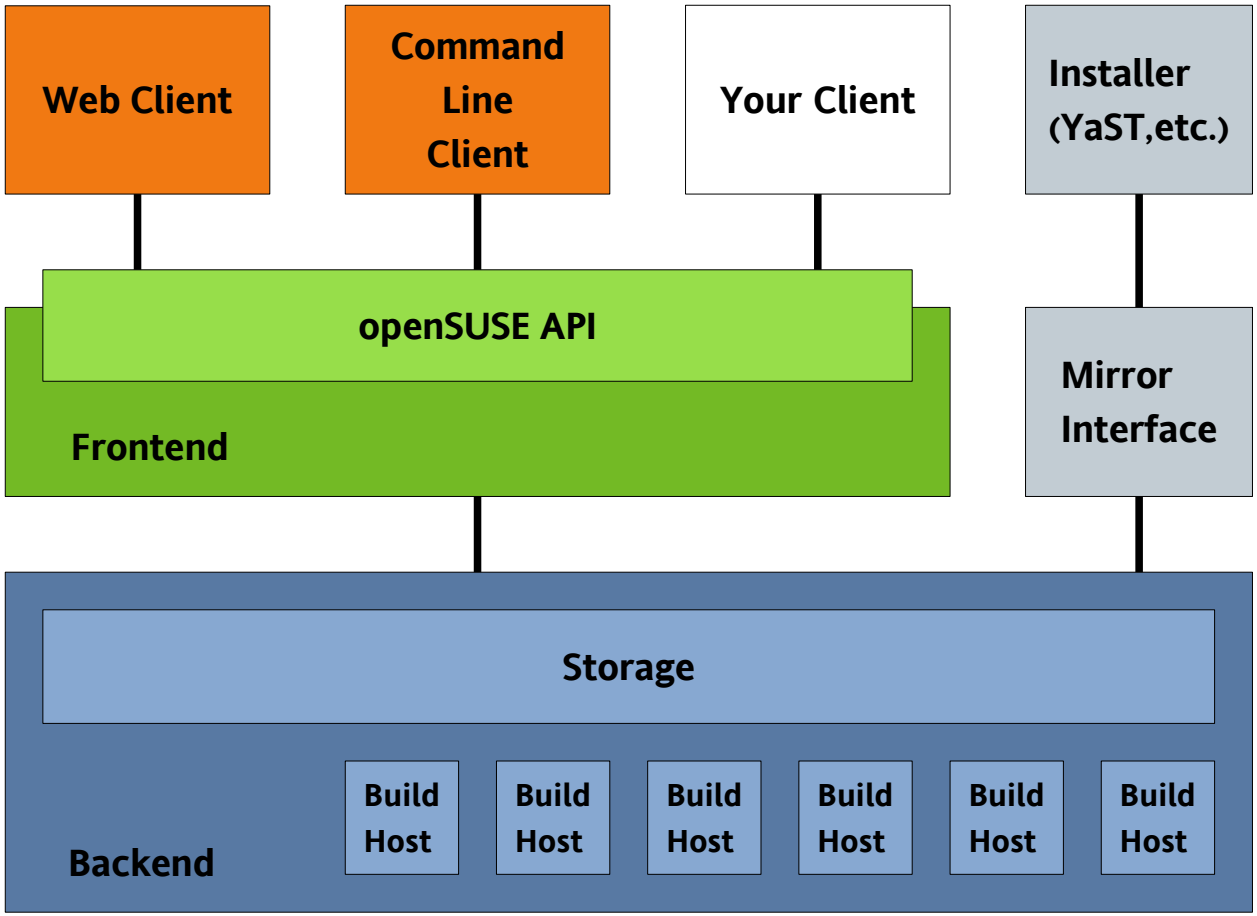
Architecture

Components Overview



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Backend

- Building Packages

- Storage for sources (version controlled)
- Farm of build hosts for building packages
- Run build in specified environment
- Build for multiple hardware architectures (currently i586, x86_64)
- Storage for built packages
- Provide build status and logs

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Frontend

- Programming Interface to the Build Service

- Public API for client tools
- Access to sources
- Access to build status and logs
- Access to built packages
- Control build
- User management

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Frontend Utilities

- Additional Frontend Services and Utilities
  - SPEC file generation
  - News feeds about new packages
  - Project rating
  - Interfacing with upstream repositories (CVS, SVN, etc.)
  - Interfacing with other developer portals and software index sites (Sourceforge, Freshmeat, KDE-Apps, GnomeFiles, etc.)
  - Automatic version upgrades
  - ...

(most of this isn't implemented yet)

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openSUSE API

- Public Programming Interface for the openSUSE Build Service

- REST-based API
- XML over HTTP
  - Frontend functionality exposed through HTTP operations
  - Control and meta data is transferred and stored as XML
  - Schema validation for all XML data

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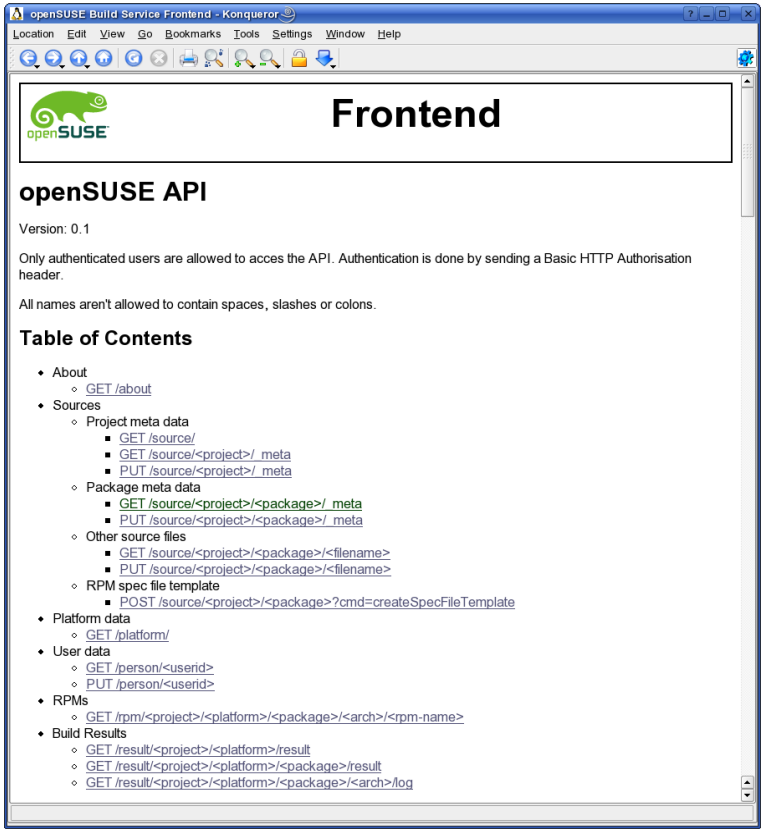
openSUSE API Documentation

http://api.opensuse.org/apidocs



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Client Tools

- User Interface for Developers and Packagers

Web Client

- Easy browsing and project administration
- Editing and uploading of sources
- Downloading of built packages

Command Line Client

- Editing and uploading of sources
- Start local build for debugging

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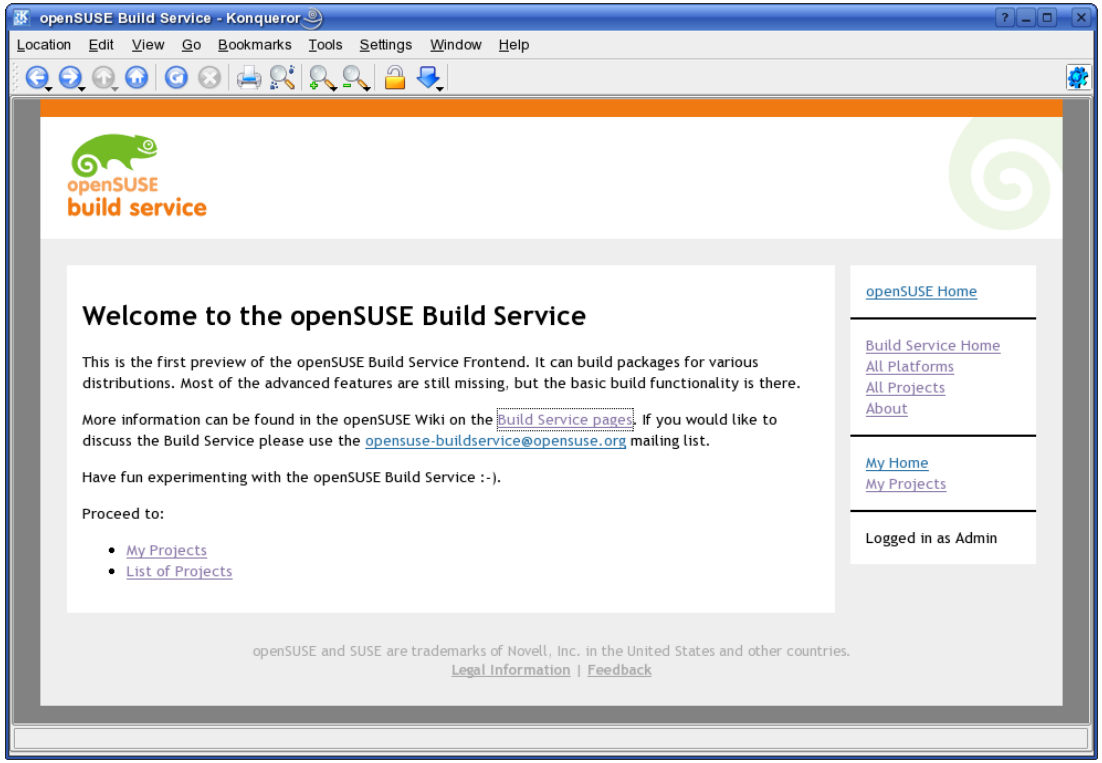
Web Client

http://build.opensuse.org



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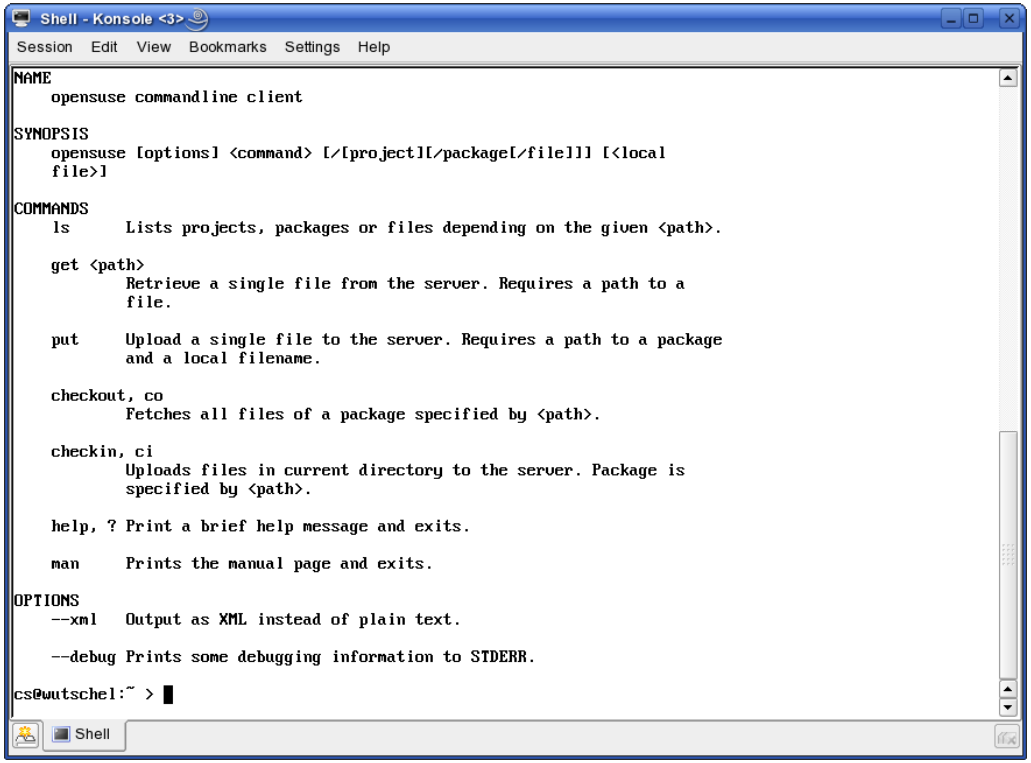
Command Line Client

user@host> opensuse



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Mirror Interface

- Interface to mirrors
- Interface to end users through installation tools

- Syncing with mirrors (rsync, drpmsync)
- Installation source meta data
- Redirecting users to mirrors
- Support end users with finding and installing packages from openSUSE

- See also speed talks (Sunday 12:00)

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Project Model 1/2

A project is a workspace which can be created by any user.

It (may) contain:

- a list of users with write access to it
- sources or a description how to download them
- link to existing sources to be built in a different enviroment
- changes for existing packages
- a list of build targets to build binary packages for
- package repositories

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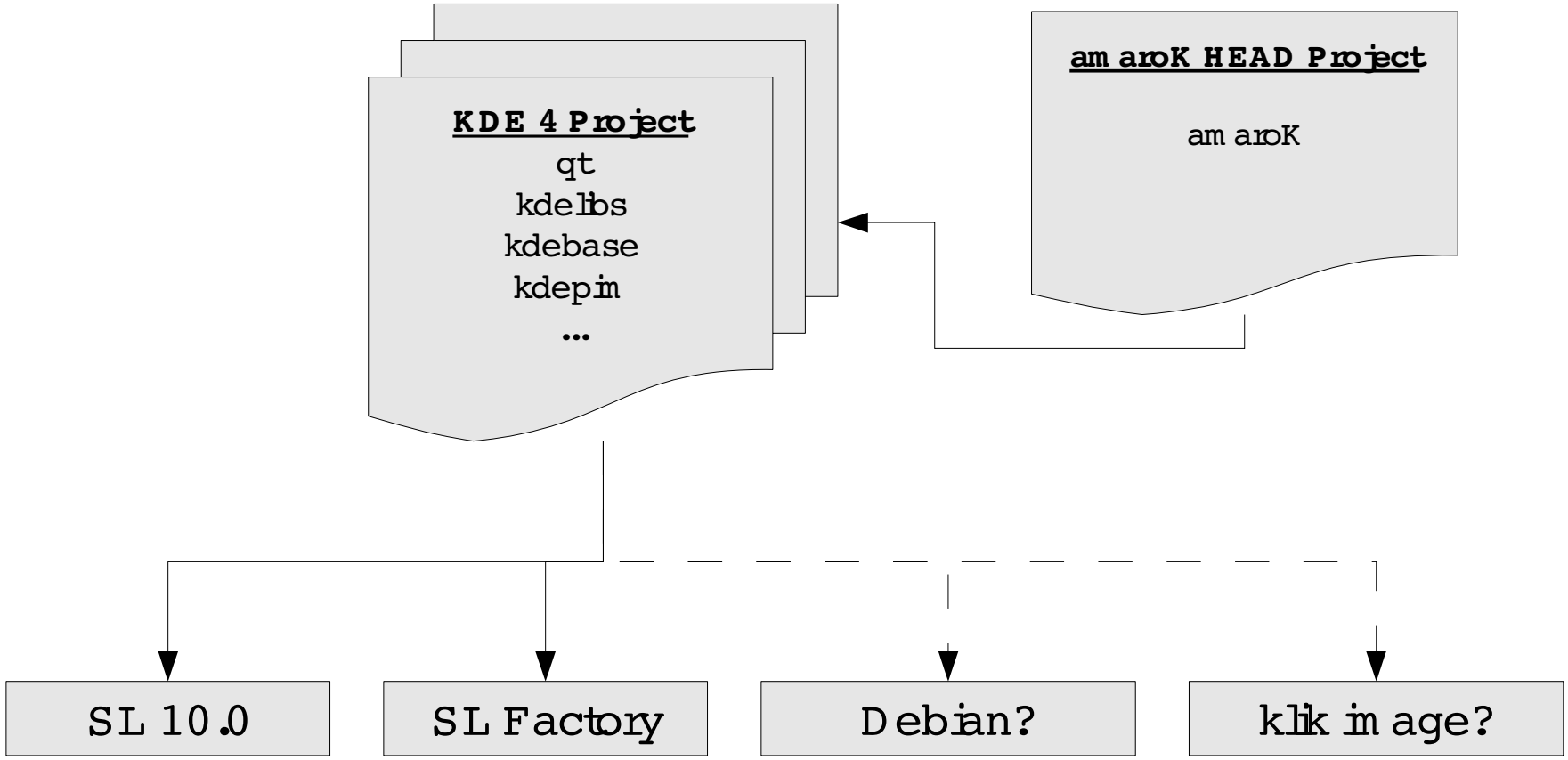
Project Model 2/2



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Demonstration

Future Ideas

Future ideas are collected at

http://www.opensuse.org/Build_Service/Future_Ideas

- Template based package creating
- Build targets for klik or XEN images
- Translation framework
- QA and automated test case framework

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Roadmap

A detailed and updated roadmap is available at

http://www.opensuse.org/Build_Service

Preview Phase (starting today)

- build for addon packages does work

Alpha Phase (Q2 2006)

- Hardware is in place
- Import of SUSE Linux core packages does start

Beta Phase (Q3 2006)

- write access for everybody
- core features are complete

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Resources

http://www.opensuse.org/Build_Service

Overview about the project and links for further informations and the source code.

http://build.opensuse.org

A running instance of the Build Service.

opensuse-buildservice@opensuse.de

The mailing list for discussing the Build Service.

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