Advanced project tracking with Arbit

FrOSCon 2010

Kore Nordmann

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About me

- Kore Nordmann (<kore@php.net>, <kore@apache.org>, <kore@qafoo.com>)
- Long time PHP developer
- Founder of Qafoo GmbH
  - Provides training & consulting on PHP software quality tools & processes
  - Provides commercial support for Arbit
- Active open source developer:
  - Apache Zeta Components (Graph, WebDav, Document), *Arbit*, PHPUnit, Torii, *PHPillow*, KaForkL, Image 3D, WCV, ...

Outline

What is arbit?

- An issue tracker on steroids.

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  - A “project tracker”

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Motivation

- Yet another issue tracker - why?
- There are already so many out there, ...
  - Trac
  - Redmine
  - Mantis
  - ...
- ... develop another one?
- Anybody got an idea?
- What do you hate most about them?

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  - Anybody got an idea?
  - What do you hate most about them?

Initial roadmap

- Started in Februrary 2008
- Primary development goals
  - Clean extensible PHP code
  - Native, easy multi-project support
  - Well-defined for custom extensions
  - Planned feature set
    - Tracker, wiki, source browsing, notifications, ...
    - Integrate Continuous Integration (CI) with issue tracking

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Integrating CI

- What does CI mean?
  - Running tests on each commit / every hour
  - Analyze source code for defects
  - Build releases on build success
  - Report failures
  - Deployment pending
- Support for this in Hudson, phpUnderControl, ...
- Lots of integration with issue trackers
- Combine knowledge about bug statistics with source metrics
- Get a good overview of a project in one tool

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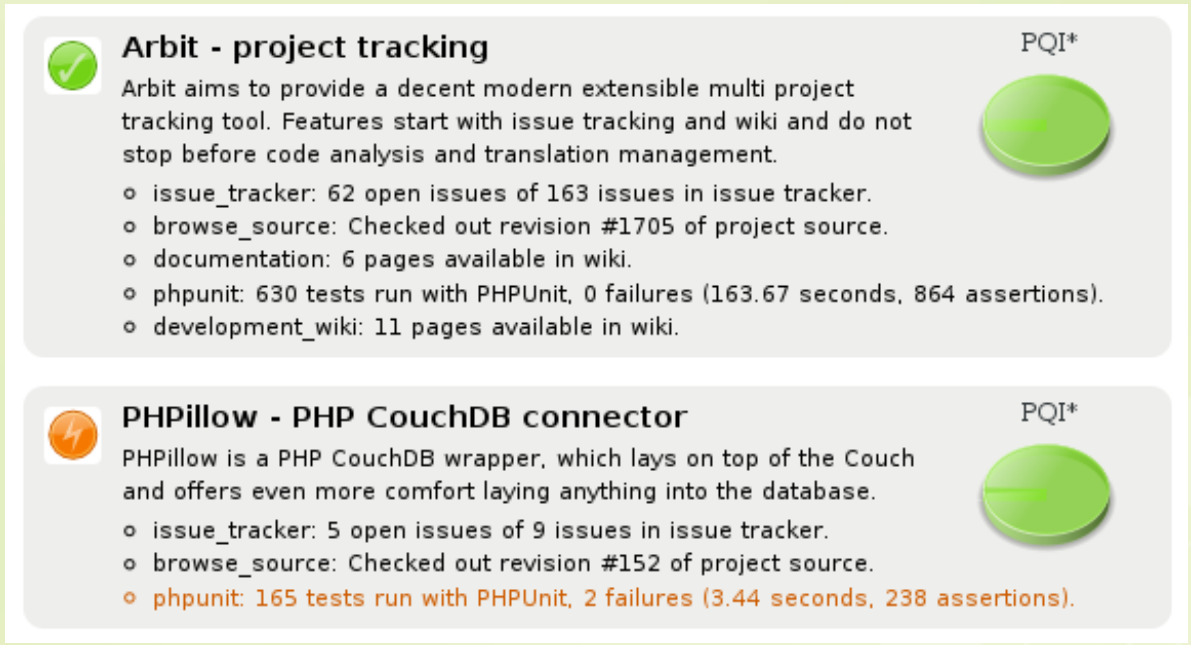
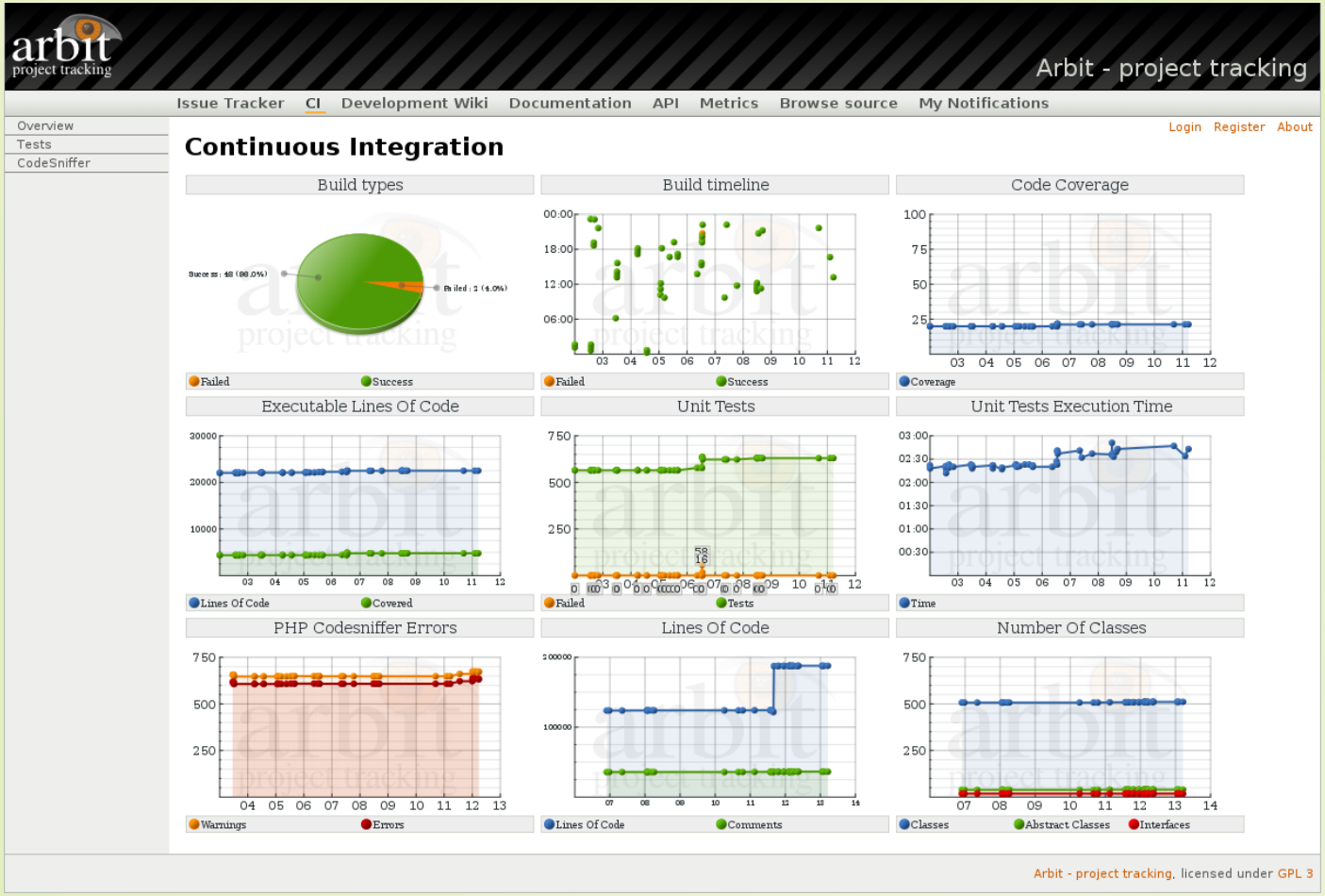
Dashboard


Arbit - project tracking
PQI*
Arbit aims to provide a decent modern extensible multi project tracking tool. Features start with issue tracking and wiki and do not stop before code analysis and translation management.
issue_tracker: 62 open issues of 163 issues in issue tracker.
browse_source: Checked out revision #1705 of project source.
documentation: 6 pages available in wiki.
phpunit: 630 tests run with PHPUnit, 0 failures (163.67 seconds, 864 assertions).
development_wiki: 11 pages available in wiki.
PHPillow - PHP CouchDB connector
PQI*
PHPillow is a PHP CouchDB wrapper, which lays on top of the Couch and offers even more comfort laying anything into the database.
issue_tracker: 5 open issues of 9 issues in issue tracker.
browse_source: Checked out revision #152 of project source.
phpunit: 165 tests run with PHPUnit, 2 failures (3.44 seconds, 238 assertions).

CI in Arbit


arbit
project tracking
Arbit - project tracking
Issue Tracker
CI
Development Wiki
Documentation
API
Metrics
Browse source
My Notifications
Overview
Tests
CodeSniffer
Login
Register
About
Continuous Integration
Build types
Build timeline
Code Coverage
Failed
Success
Coverage
Executable Lines Of Code
Unit Tests
Unit Tests Execution Time
Lines Of Code
Covered
Tests
Time
PHP Codesniffer Errors
Lines Of Code
Number Of Classes
Warnings
Errors
Comments
Classes
Abstract Classes
Interfaces
Arbit - project tracking, licensed under GPL 3

Outline

Dependencies

- PHP $\geq$ 5.3
- CouchDB $\geq$ 0.9
  - Alternative RDBMS backend (MySQL, PostgreSQL) being worked on
    - Will probably use Doctrine 2
- Installation
  - Download PHAR or archive
    - Only for testing, not recommened for production
  - Installation instructions: `http://tracker.arbitracker.org/arbit/documentation/view/InstallationGuide`

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Contribute

- Already contributing:
  - Kore Nordmann (kore)
  - Jordi Boggiano (seldaek)
  - Manuel Pichler (mapi)
  - Arne Nordmann (norro)
  - Jakob Westhoff (jakob)
  - Hans-Christian Otto (hco)
  - Tobias Schlitt (toby)
  - Tobias Tom (tobias)
  - ... more contributors in sub projects like VCS-Wrapper
- We would love to welcome you in the community around arbit: `http://arbitracker.org/arbit/participate.html`

Already working

- Issue tracker
- Wiki
- Source browser
- Source metrics rendering (phpDepend)
- API documentation rendering
- Continuous Integration (CI) (*experimental*)
  - PHPUnit
  - PHPCodeSniffer
  - phploc

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- Demo!

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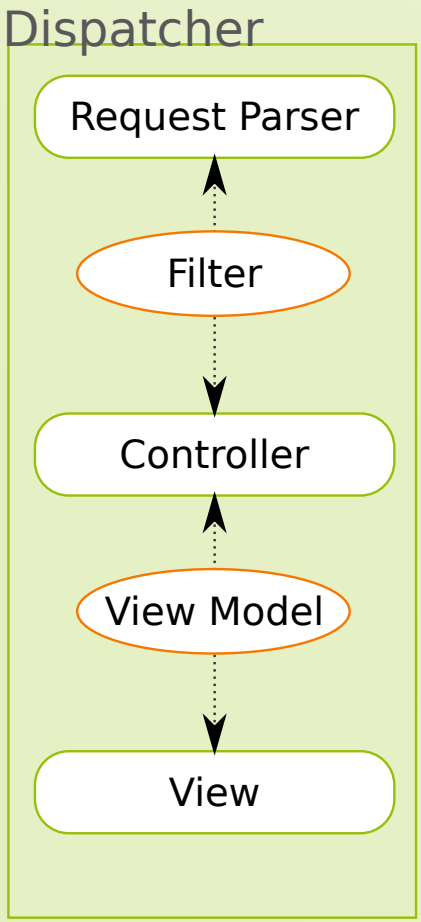
Arbit basic architecture



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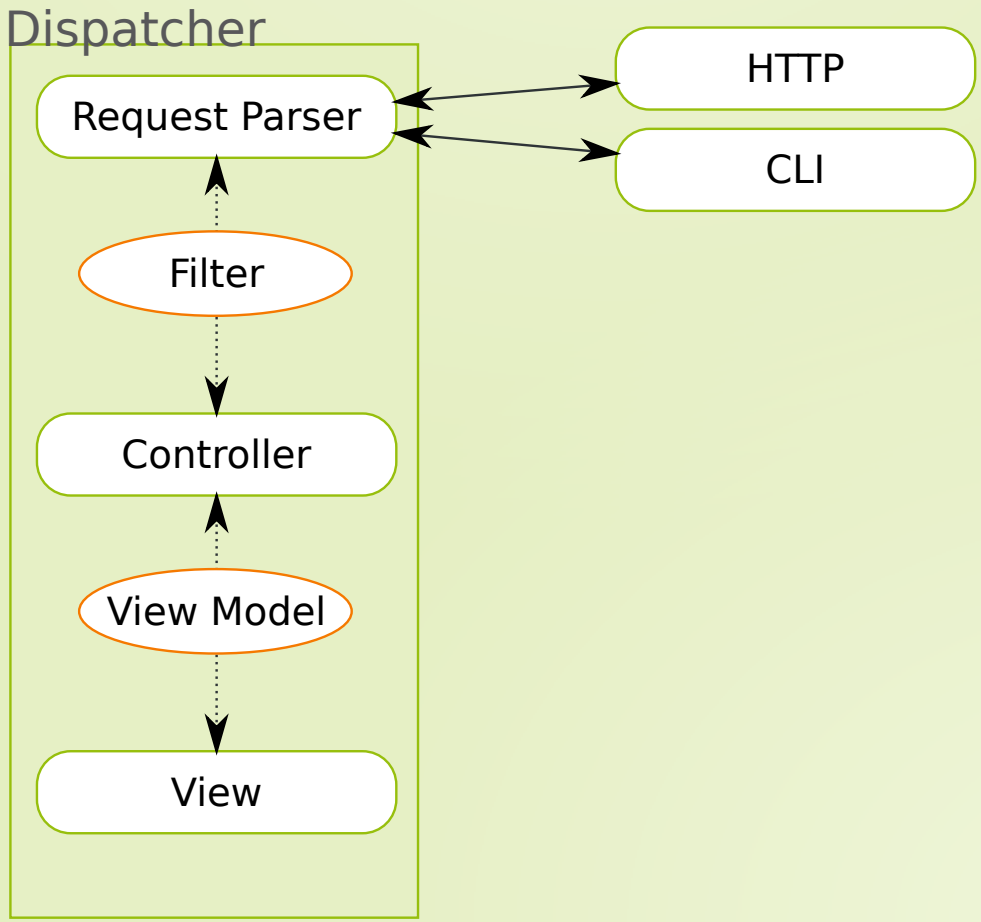

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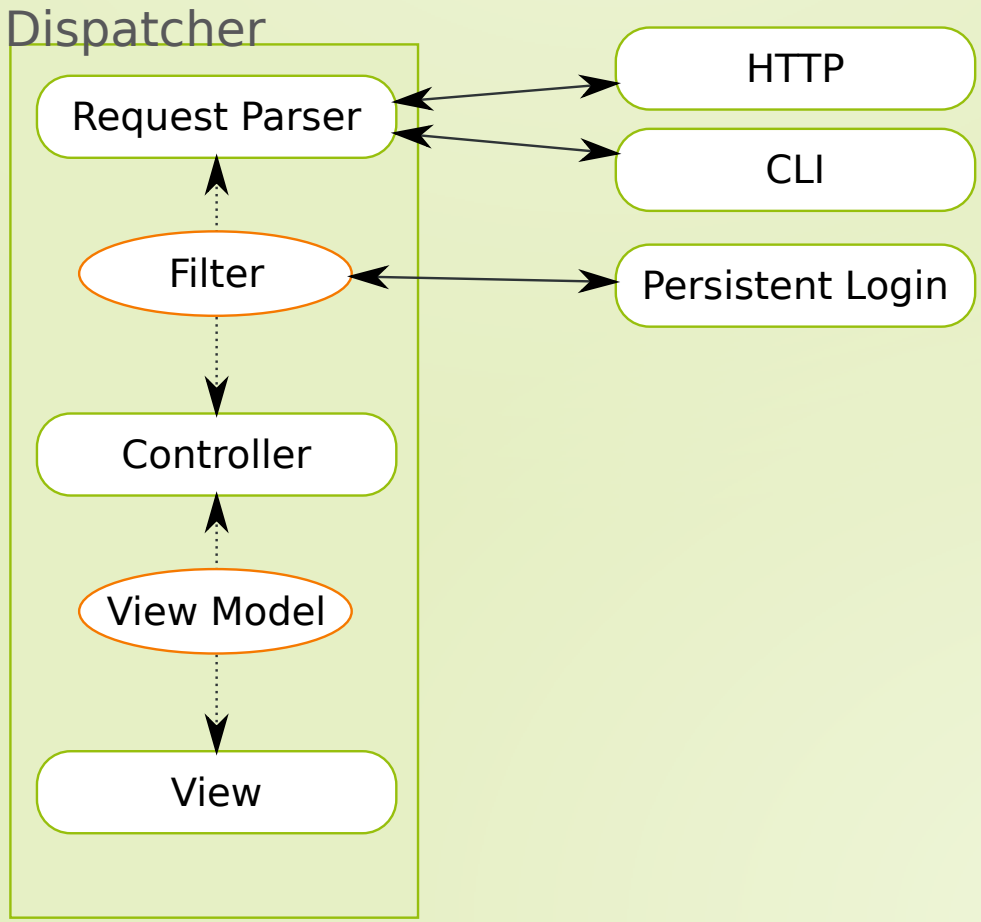

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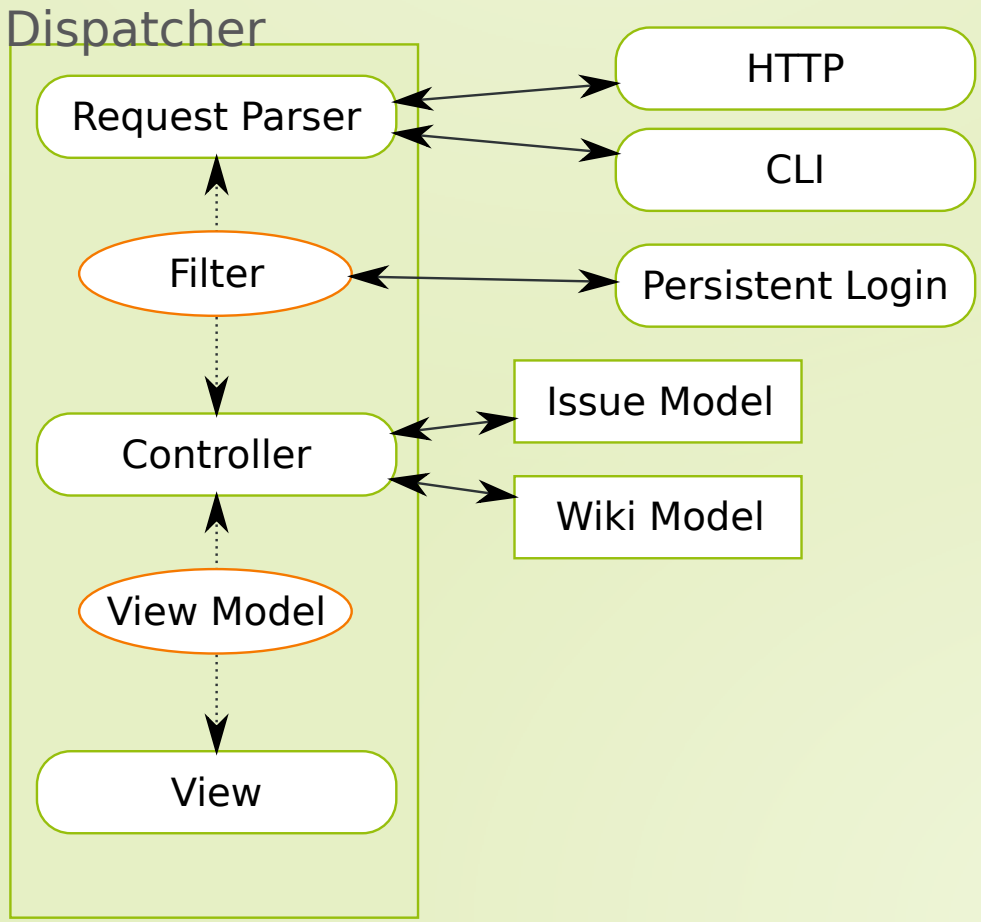

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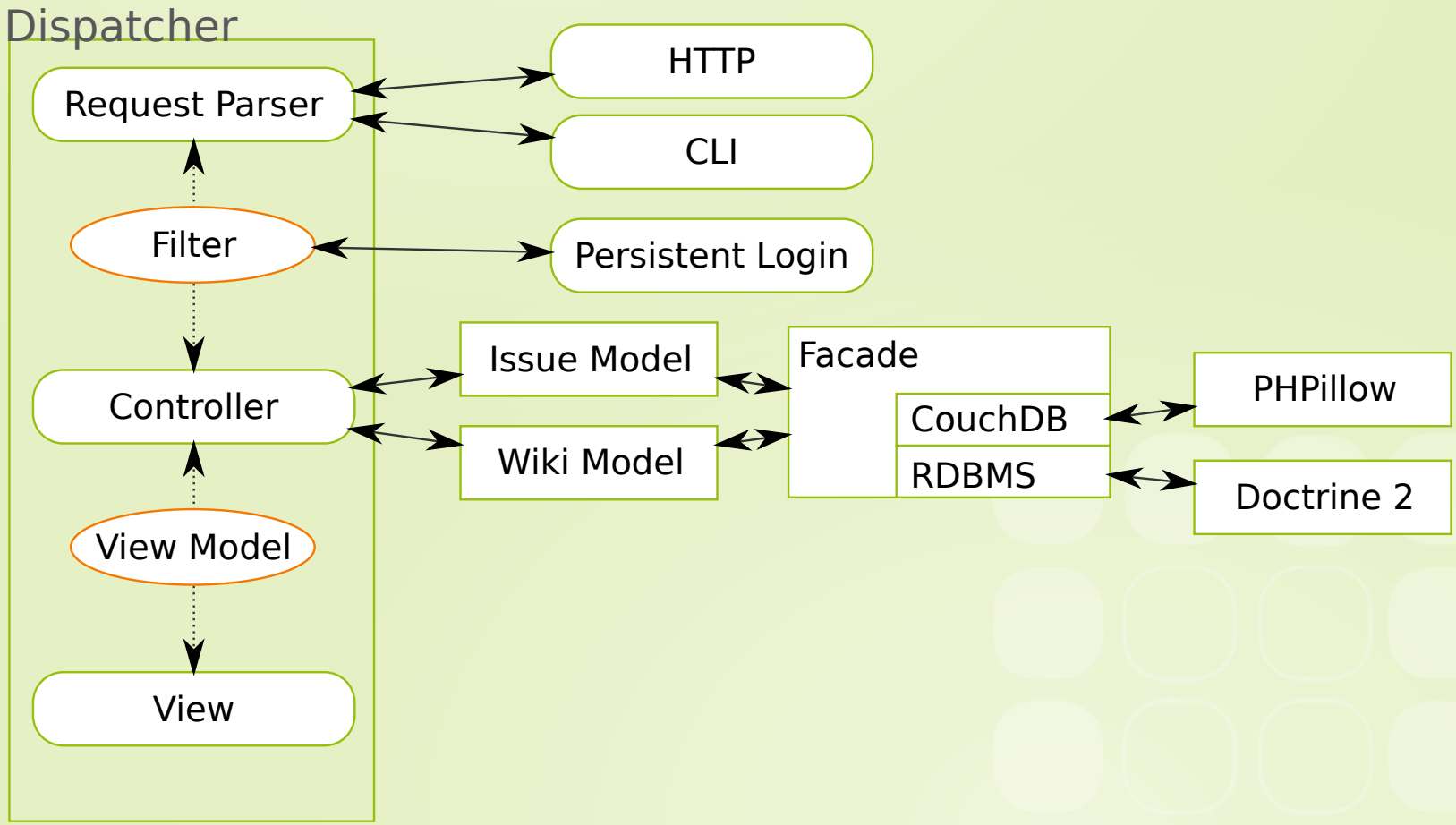

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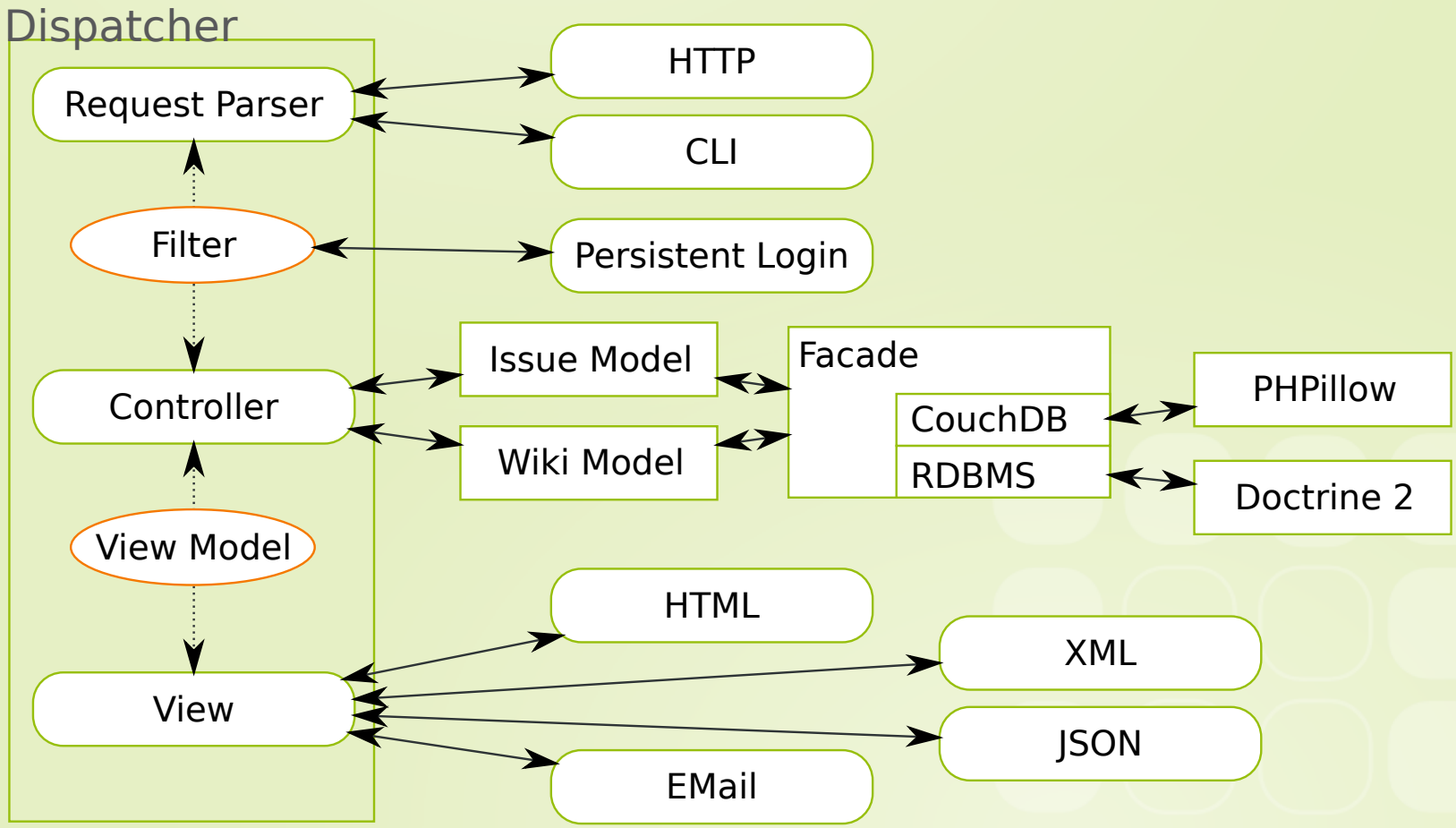

Module communication

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- Signal Slot

Signal slot

```php
<?php

$handler = new arbitSignalSlot();

$handler->register( 'signalA', 'myModule::handleSignal' );
$handler->register( 'signalA', 'yourModule::handleSignal' );

// In module c
$handler->emit( 'signalA', array( /* data */ ) );

// Now all modules registerd for this signal are called with the provided data

?>
```

Practical example

- Inform other modules about source code updates

```
1  // modules/source/classes/controller.php +300
2  if ( $checkout->update( /* ... */ ) )
3  {
4      // ...
5      arbitSignalSlot::emit(
6          'sourceUpdated',
7          new arbitSourceUpdatedStruct( $checkout )
8      );
9  }
```

Practical example

- Other modules can specify signals to listen for

```
1  // modules/phpunit/definition.php
2  class arbitModulePhpunitDefintion extends arbitModuleDefintion
3  {
4      // ...
5      protected $properties = array(
6          // ...
7          'slots'                => array(
8              'sourceUpdated' => 'arbitModulePhpunitController::sourceUpdated',
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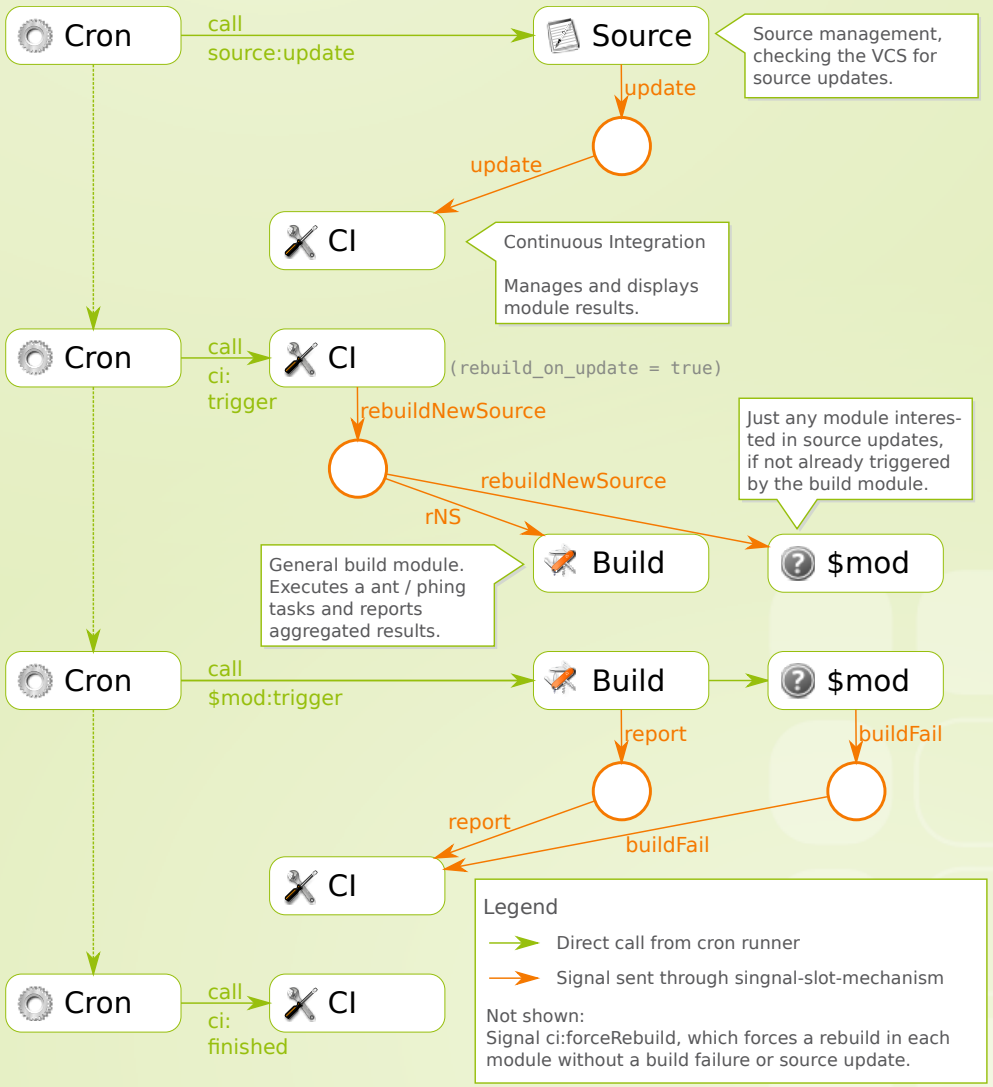
- Signals are sent for “everything”

Signal handling of the CI module



Outline

Periodic

- Task runner implemented in PHP
  - Can parse cron-tables (vixie-cron dialect)
  - Can handle parallel running cron tasks
- Design document:
  `http://arbitracker.org/periodic/design.html`
- Website: `http://arbitracker.org/periodic.html`

VCS-Wrapper

- Abstraction layer for version control system (VCS) read access
  - Implements support for: SVN, CVS, Git, Mercurial, Bazaar, (Archives)
  - Interfaces reflect which features are supported in which VCS
  - Supports: History, diffs, blaming, listings, ...
- Website: `http://arbitracker.org/vcs_wrapper.html`

PHPillow

- Lightweight PHP CouchDB library
- Features
  - Simple document validation constraints
  - Automatic synchronization of views
  - Automatic versioning of documents
  - Couchdb-python compatible tool for dump and import
  - Connection handlers
  - HTTP stream wrapper
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Arbit installer

- Web installer for PHP projects
- Design phase finished
  - Results at: `http://tracker.arbitracker.org/arbit/development_wiki/view/Installer`
  - Please verify that it would work for *your* application
  - Proof of concept in implementation phase

    `svn://arbitracker.org/arbit/projects/installer/trunk`
- Major feature of next arbit release

Outline

The future

- Next important tasks
  - Implement easy-to-use web installer
  - Refactor and stabilize CI related modules
  - Implement a RDBMS backend
- Current roadmap: `http://tracker.arbitracker.org/arbit/issue_tracker/roadmap`
- Qafoo provides commercial support / consulting / training for arbit
  - Will always still stay a fully cummunity-driven Open-Source project

Arbit feedback

- What would *you* like to see in arbit?
  - Special requirements
  - Important features

Outline

Resources

- Website: `http://arbitracker.org/news.html`
- Issue tracker: `http://tracker.arbitracker.org/`
- CI: `http://tracker.arbitracker.org/arbit/ci`

The end

- Open questions?
- Further remarks?
- Contact
  - Mail: <kore@qafoo.com>
  - Web: `http://kore-nordmann.de` / `http://qafoo.com`
  - Twitter: @koredn / @qafoo