

Shepherd

The next generation
course management system & CI
for A+ LMS

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 What is Shepherd

Course
Management
System



**Continuous
Integration**
for **Course Building**

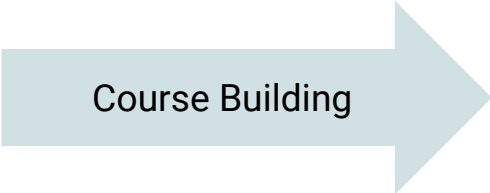
What is course building

RST file

HTML-like syntax,
easy to write

(In Internal Gitlab)

Course Building



HTML

Webpage of this course, can
be directly served in A+

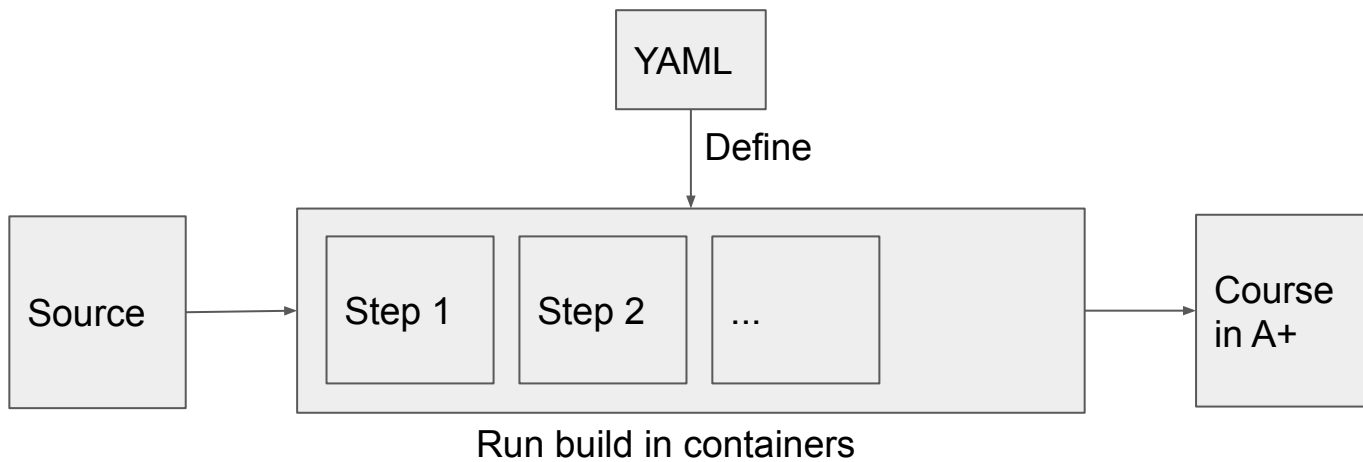
YAML

Define exercises.
Define the grader for
programming exercises.

Doctree

Parsed source files, will not
be used in deployment

How?



With Roman



With Shepherd, you can...



Forget about the annoying string called “password”



Course staff

- Participants
- Groups
- All results
- Visualizations
- Edit news
- Edit course
- Shepherd**

LTI(Learning Tools Interoperability) login

POST
With encrypted
user information

Shared secret keys

Shepherd

You are leaving A+ and entering Shepherd

Information including your name and email address will be sent to the service. This means that at least the service's administrators can identify you. You can see the full list of information below. We use this external service to help you and other students learn. Nevertheless, you aren't absolutely required to use it in order to pass the course. If you want to avoid using the service, please discuss alternative solutions with the course staff.

Moreover, we send this service a so-called **access token**, which gives the service access to the A+ API at your privilege level. If you don't want that to happen, please contact A+ administration.

This service is not covered by any privacy regulations, thus there isn't any lawful entity to enforce it. Please see the **service's privacy notice** for more details.

You can first take a look at the external service without sending data: [services' front page](#).

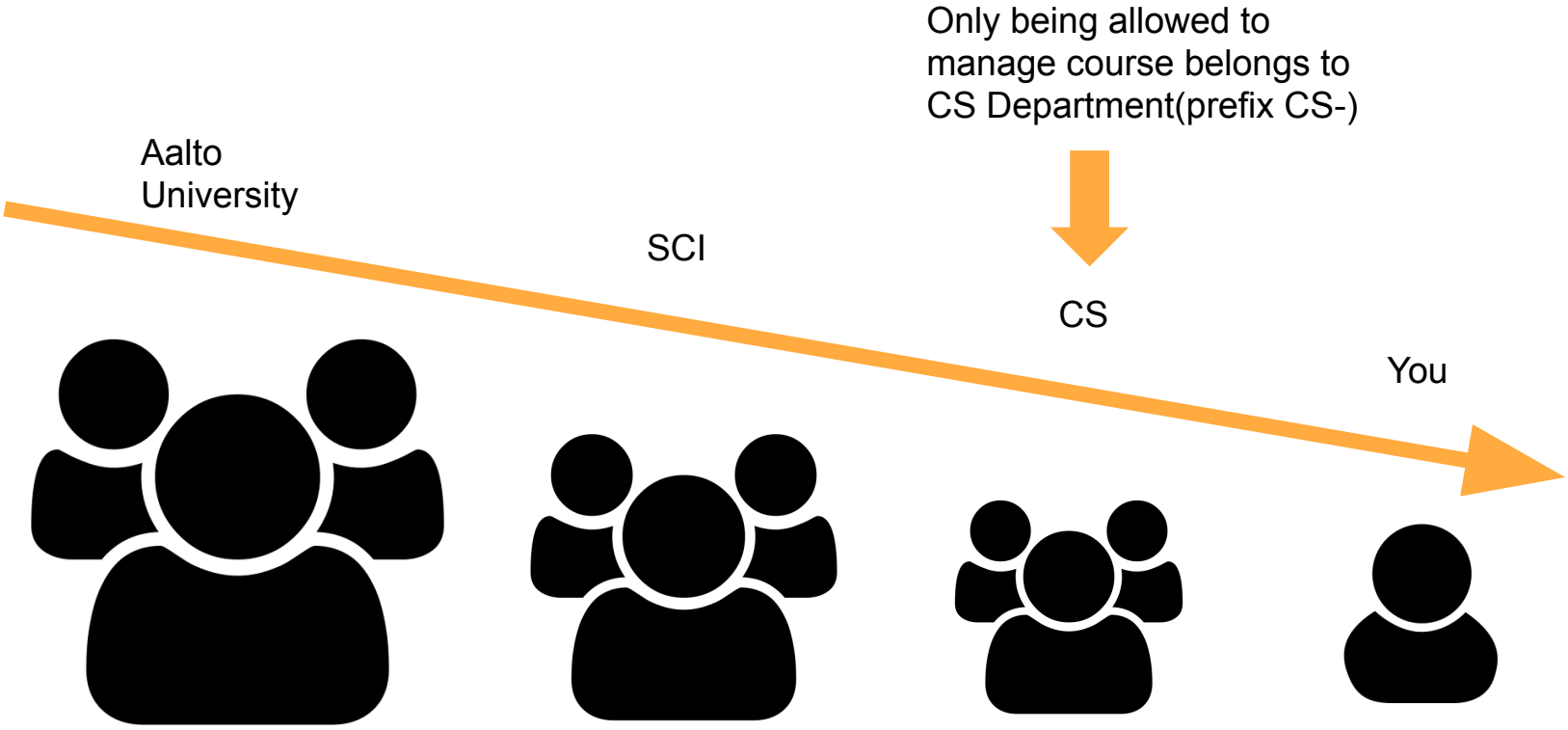
Don't show this and automatically continue to the service next time.
This choice is saved on your device and you can remove it on your profile page.

[Continue to the service](#) [Show details](#)

POST http://127.0.0.1:5000/lti/

context_id	127.0.0.1:8000/def/current/
context_label	DEF000
context_title	Def. Course
custom_context_api	http://127.0.0.1:8000/api/v2/courses/1/

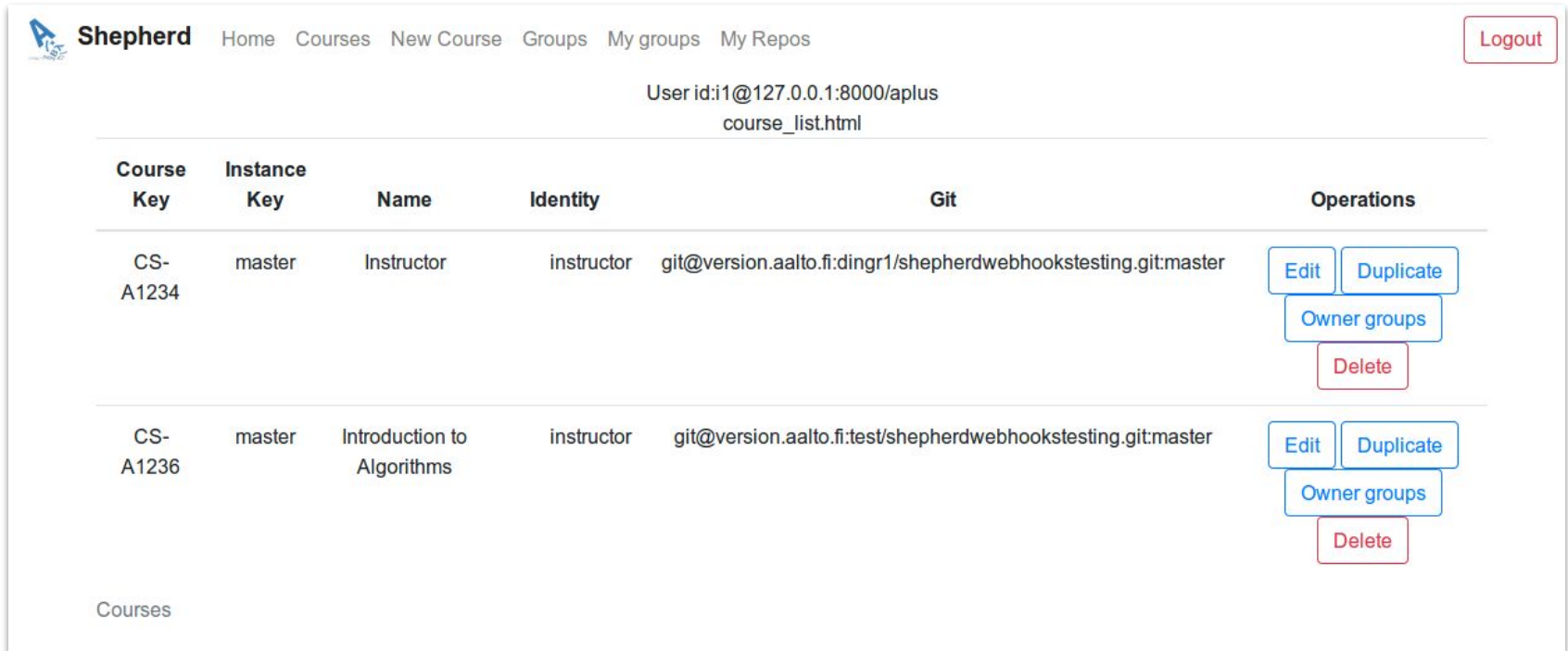
Everybody know it's position - Identity management



Only being allowed to manage course belongs to CS Department(prefix CS-)

Define each group's privilege

Manage your course easily - Course management



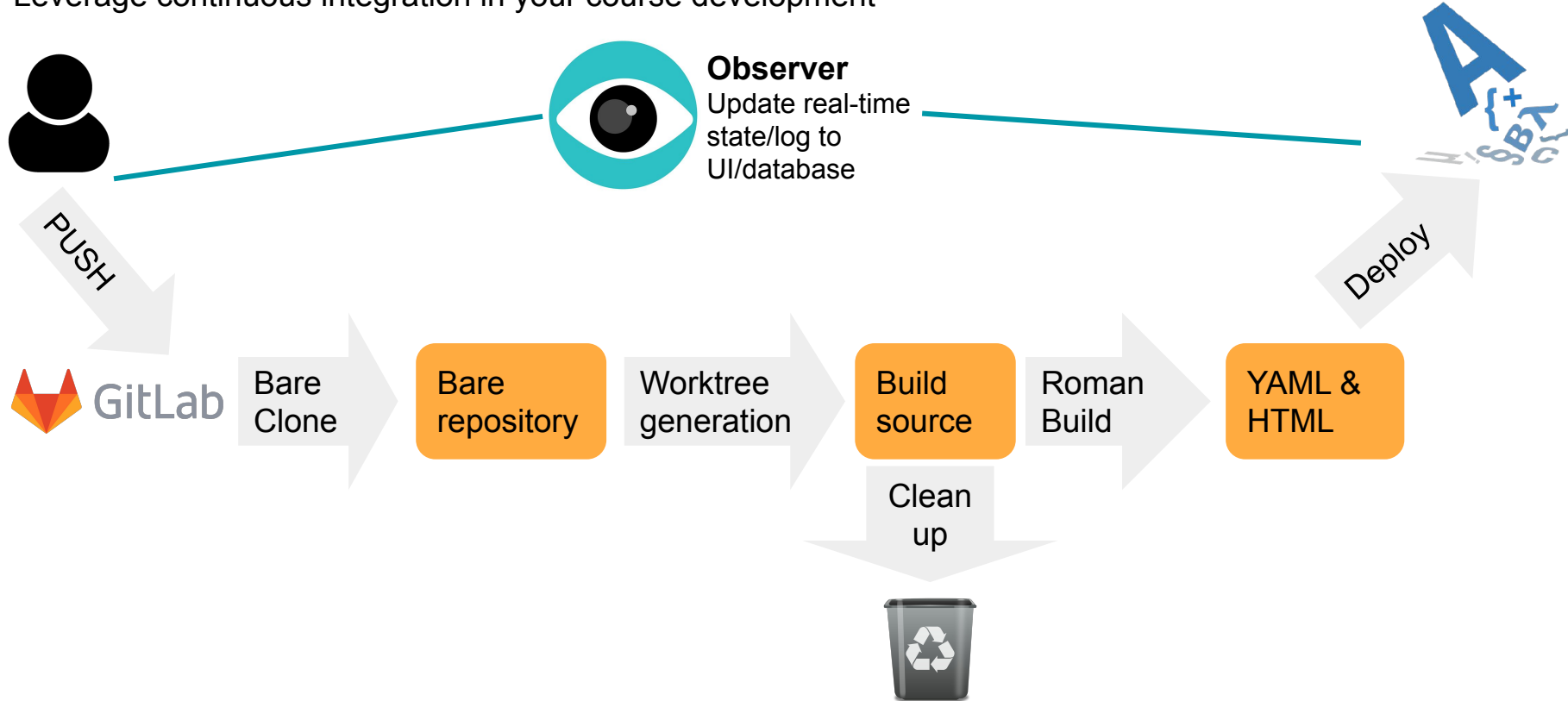
The screenshot displays the Shepherd course management interface. At the top left is the Shepherd logo and navigation links: Home, Courses, New Course, Groups, My groups, and My Repos. A Logout button is in the top right. The user is identified as 'User id:i1@127.0.0.1:8000/aplus' and the page is 'course_list.html'. The main content is a table with two rows of course data. Each row has columns for Course Key, Instance Key, Name, Identity, Git, and Operations. The Operations column contains buttons for Edit, Duplicate, Owner groups, and Delete.

Course Key	Instance Key	Name	Identity	Git	Operations
CS-A1234	master	Instructor	instructor	git@version.aalto.fi:dinger1/shepherdwebhookstesting.git:master	Edit Duplicate Owner groups Delete
CS-A1236	master	Introduction to Algorithms	instructor	git@version.aalto.fi:test/shepherdwebhookstesting.git:master	Edit Duplicate Owner groups Delete

Courses

All you need is “Push”

Leverage continuous integration in your course development



More Interesting Features ...





Easily secure your repository

Automated the generation of RSA key pair.
& Scheduled deploy key validation

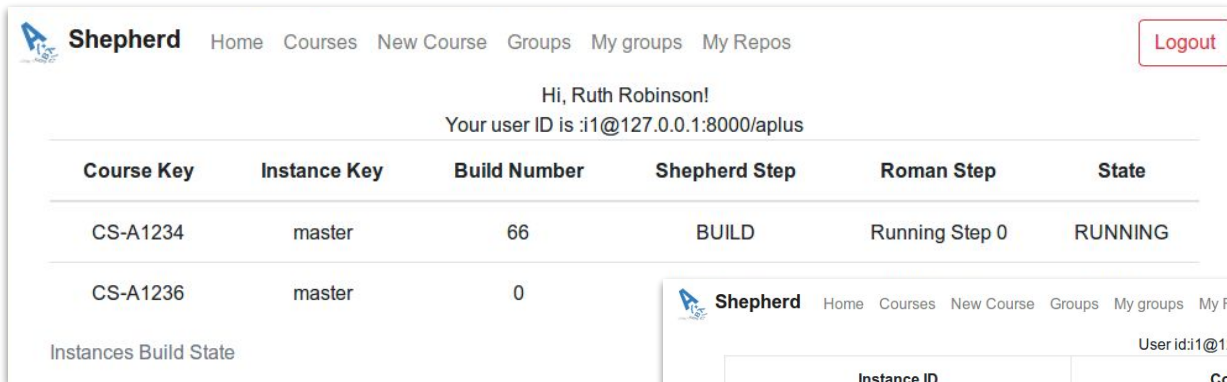


The screenshot shows the Shepherd web interface. At the top left is the Shepherd logo and navigation links: Home, Courses, New Course, Groups, My groups, and My Repos. A red Logout button is in the top right. The user is logged in as 'User id:i1@127.0.0.1:8000/aplus' with the current page being 'course_list.html'. Below this is a table with three columns: 'Git origin', 'Public Key', and 'Courses'. Two repository entries are listed. The first entry has the Git origin 'git@version.aalto.fi:dingr1/shepherdwebhookstesting.git', a public key 'ssh-rsa AAAAB3NzaC1yc2EAAAIAI', and is associated with the 'Instructor' course. The second entry has the Git origin 'git@version.aalto.fi:test/shepherdwebhookstesting.git', the same public key, and is associated with the 'Introduction to Algorithms' course. A 'Repositories' link is at the bottom left.

Git origin	Public Key	Courses
git@version.aalto.fi:dingr1/shepherdwebhookstesting.git	ssh-rsa AAAAB3NzaC1yc2EAAAIAI 	Instructor
git@version.aalto.fi:test/shepherdwebhookstesting.git	ssh-rsa AAAAB3NzaC1yc2EAAAIAI 	Introduction to Algorithms

Repositories

Always know the situation



Shepherd Home Courses New Course Groups My groups My Repos Logout

Hi, Ruth Robinson!
Your user ID is :i1@127.0.0.1:8000/aplus

Course Key	Instance Key	Build Number	Shepherd Step	Roman Step	State
CS-A1234	master	66	BUILD	Running Step 0	RUNNING
CS-A1236	master	0			

Instances Build State

Real-time
Step / State
Display

Real-time
log



Shepherd Home Courses New Course Groups My groups My Repos Logout

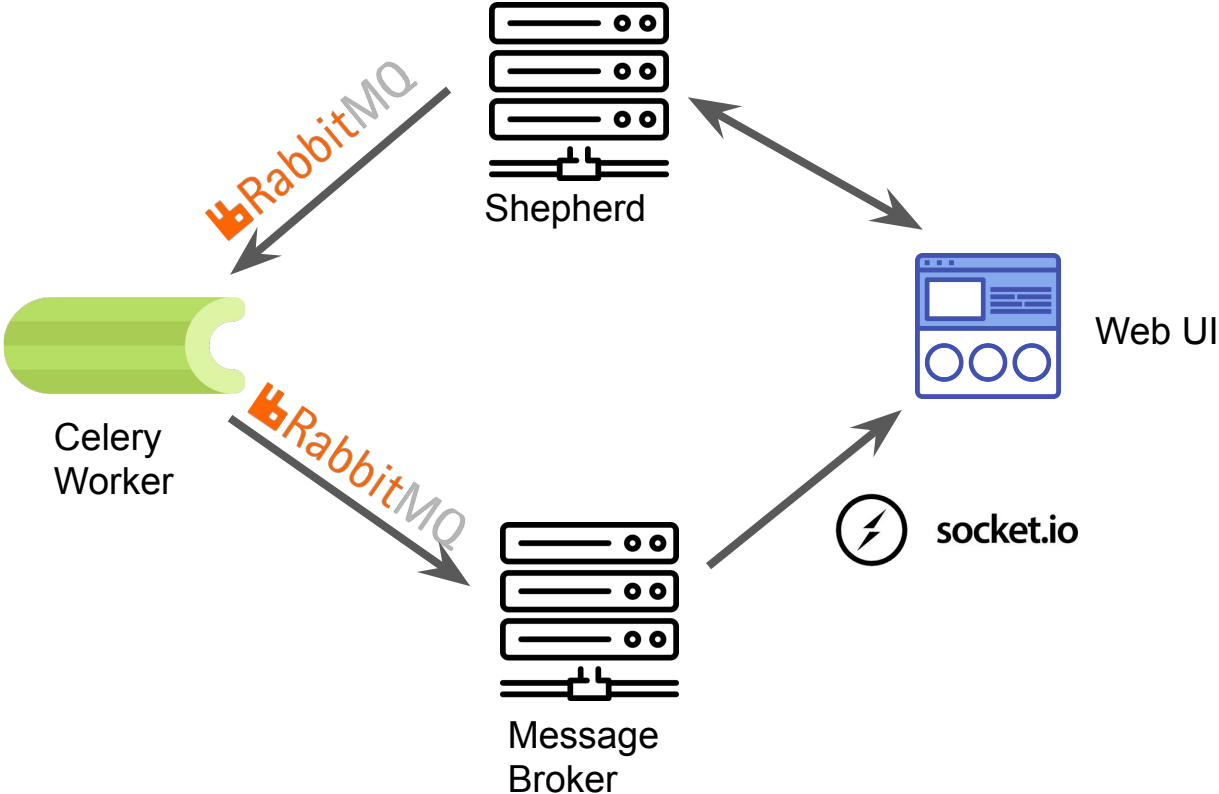
User id:i1@127.0.0.1:8000/aplus

Instance ID	Course Key	Instance Key
1	CS-A1234	master

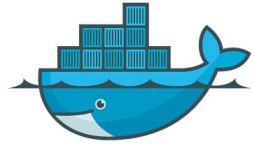
```
PREPARE url:git@version.aalto.fi:dingr1/shepherdwebhookstesting.git, branch:master course_key:CS-A1234 instance_key:master
PREPARE Pulling from git@version.aalto.fi:dingr1/shepherdwebhookstesting.git
PREPARE Private key detected on /u/18/dingr1/unix/code/shepherd/apluslms_shepherd/../../shepherd_repo_keys/git_version.aalto.fi_dingr1_shep
PREPARE Warning: Permanently added 'version.aalto.fi,139.233.248.135' (RSA) to the list of known hosts.
PREPARE Preparing /u/18/dingr1/unix/code/shepherd/apluslms_shepherd/../../shepherd_test_clone/builds/CS-A1234/master/60 (identifier 60)
HEAD is now at 1541e72 Update course.yml
PREPARE

BUILD pull_repo result: {'code': 0, 'msg': ''}
BUILD The repo has been pulled, Building the course, course key:CS-A1234, branch:master
BUILD Current build task number of this instance in the queue:[60]
BUILD >> ['find . -name '*.rst' -exec touch {} \;&']
BUILD >> ['sphinx-build -b html -d _build/doctrees . _build/html']
BUILD >> ['Running Sphinx v1.6.7']
BUILD >> ['loading translations [en]... done']
BUILD >> ['loading pickled environment... done']
BUILD >> ['building [mo]: targets for 0 po files that are out of date']
BUILD >> ['building [html]: targets for 38 source files that are out of date']
BUILD >> ['updating environment: 0 added, 38 changed, 0 removed']
```

Distributed and Scalable



Containerization



docker



PostgreSQL

AND

s6 supervision suit

Please check [Test container for Shepherd](#) in Github

Or try it with (Read description in GitHub first)

```
docker pull dry1995/shepherd
```

What's Next?

An enhanced interface?

Maybe learn from me !



Replacing course management part in A+?

Cloud native deployment with Kubernetes?

Use your imagination!



Demo Time

Thank you!