

Porion a new Build Manager

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FOSDEM 2022
CI/CD DevRoom

Why a new build manager?

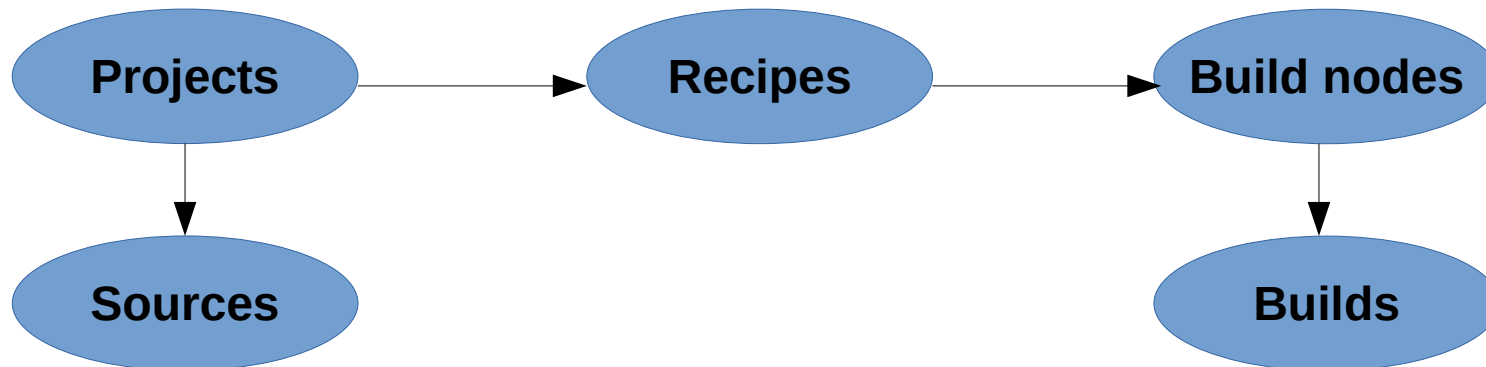
- Used Jenkins during 8 years :
 - 30 projects, 8 build nodes (x86, ARM, Mips)
 - Jenkins is great but...
 - It is slow and uses 1.3Gb memory (RSS)
 - Requires Java on build nodes
 - Regular security vulnerabilities
- Why not :
 - Get rid of Java
 - Make a safer design in Ada

Meaning of Porion

- « porion » comes from north of France coal mine
- « porion » is the master miner (maître mineur)
- « porion » means leek (« poireau » in French)
- « porion » does not work :
he sits down and waits for others to do the job !

Porion concepts

- **Projects** : defines what must be built
- **Recipes** : describes how to build the project
- **Build nodes** : executes the build recipes
- **Builds** : data and results produced by a build



Porion features

- Several build recipes per project branch :
 - Different build nodes (OS, CPUs)
 - Different build options (coverage, release, ...)
- Log filtering :
 - Pre-defined rules (configure, make, mvn, gprbuild)
 - Customizable rules
- Consolidated project view :
 - Compute a global build status on a project (takes into account every branch and every recipe)

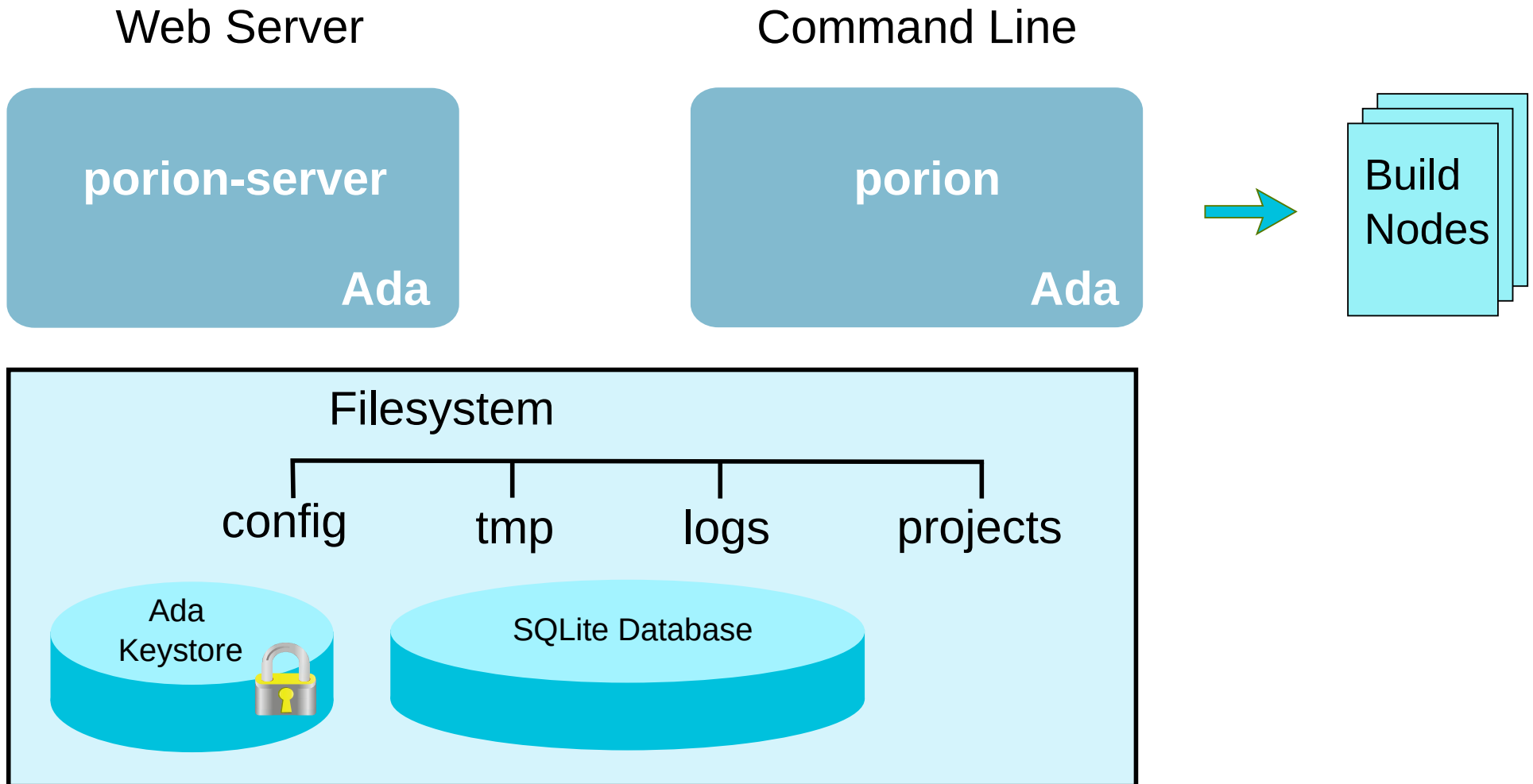
Some security aspects

- A build manager has access to sensitive data :
 - Sources files (proprietary projects)
 - It has access to API secret keys
 - It knows some credentials (checkout sources, connect to build nodes)
 - It knows the secret keys to sign or to publish

Safe design with Ada

- Ada is designed for safe & critical systems :
 - 40 years of evolutions : Ada 83, 95, 05, 12, 22
- Some benefits of Ada :
 - Strong typing to prevent programming errors
 - No code injection, no buffer overflow
 - Pre & post conditions to enforce API usage
- Other benefits of Porion architecture :
 - Uses Ada Web Application security and permission framework
 - Uses Ada Keystore to store sensitive data

Porion architecture



Porion installation

- Installation from sources

```
git clone --recursive https://gitlab.com/stcarrez/porion.git
cd porion
./configure
make
sudo make install
```

- Installation with Debian package

```
sudo apt-get install porion-server
```

Porion setup

- Need a workspace :
 - For the database
 - For the build area
- Choose workspace area and setup with :

```
porion init workspace-dir
```

Porion build node setup

- Each build node need a space for the build area
- Need only an ssh access with private/public key (no password)
- Register the build node with an URI
- Ssh scheme URI to register a build node
- Optional list of commands (rules) that must be checked on the node

```
porion node -R git,make,mvn,gprbuild,lcov,cloc \  
ssh://porion@poseidon/home/porion/build-dir
```

Adding a project

- Add a project and tell how to get the sources
 - Tar, Zip file path
 - Git URL

```
porion add https://github.com/Ada-France/aflex.git
```

- Porion creates a build recipe for the project :
 - Identify GNU tools (./configure, make)
 - Identify Maven
 - Identify CMake
 - Identify npm

Updating recipes

- Add a build step to a recipe

```
porion step aflex make install
```

- Updating a build step

```
porion step --update 3 aflex sudo make install
```

- Build

```
porion build aflex
```

- List and information

```
porion list
```

```
porion info aflex
```

Porion identification string

- Easily identify a project, branch, recipe or build

- General format :

`<project> [#<branch>] [~<recipe>] [@<node>]`

- Build identification :

`<project>:<build-number>`

aflex

aflex#debian-gnat-9

aflex:8

aflex~beaglebone@beaglebone

aflex~main

aflex~netbsd

Porion small demo

Porion Web Server

- Implemented on top of AWA and AWS :
 - Ada Web Application (Web app security framework)
 - Ada Web Server (Pascal Obry, Dmitriy Anisimkov)
- Provides high level dashboard overview
- Responsive UI for desktop, phones, tablets,...
- Server UI still under construction

Conclusion

- Performance :
 - Web server memory reduced from 1.3Gb to 50Mb
 - Faster Web requests
 - No need for Java on build nodes
- Next development steps :
 - Notification of build results
 - Full editable configuration in Web UI
 - Start/stop build nodes (VM or dynamic instances)

Questions

