



Fuego Jamboree no3, July 2019

Integration of Fuego with other frameworks (review of Linaro Connect)

http://fuegotest.org/wiki/Fuego_Jamboree_3

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Linaro Connect

- PDF Slides

- https://static.sched.com/hosted_files/bkk19/5f/linaro-connect-sangorrin-april2019.pdf

- Youtube

- https://www.youtube.com/watch?v=J_Gor9Wlr9g

 Debian Continuous Integration

Ktest

 openQA



LKFT 

 Buildbot
The Continuous Integration Framework

GKernelCI

CI/CD



avocado

AUTOTEST



syzkaller



Jenkins



LAVA
linaro.org/lava



LTP

phoronix



kernelci.org

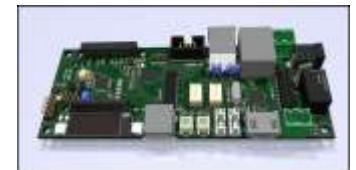


Fuego

 EBOT
EASY TESTING



R4D



SLAV/MuxPi

Kselftest

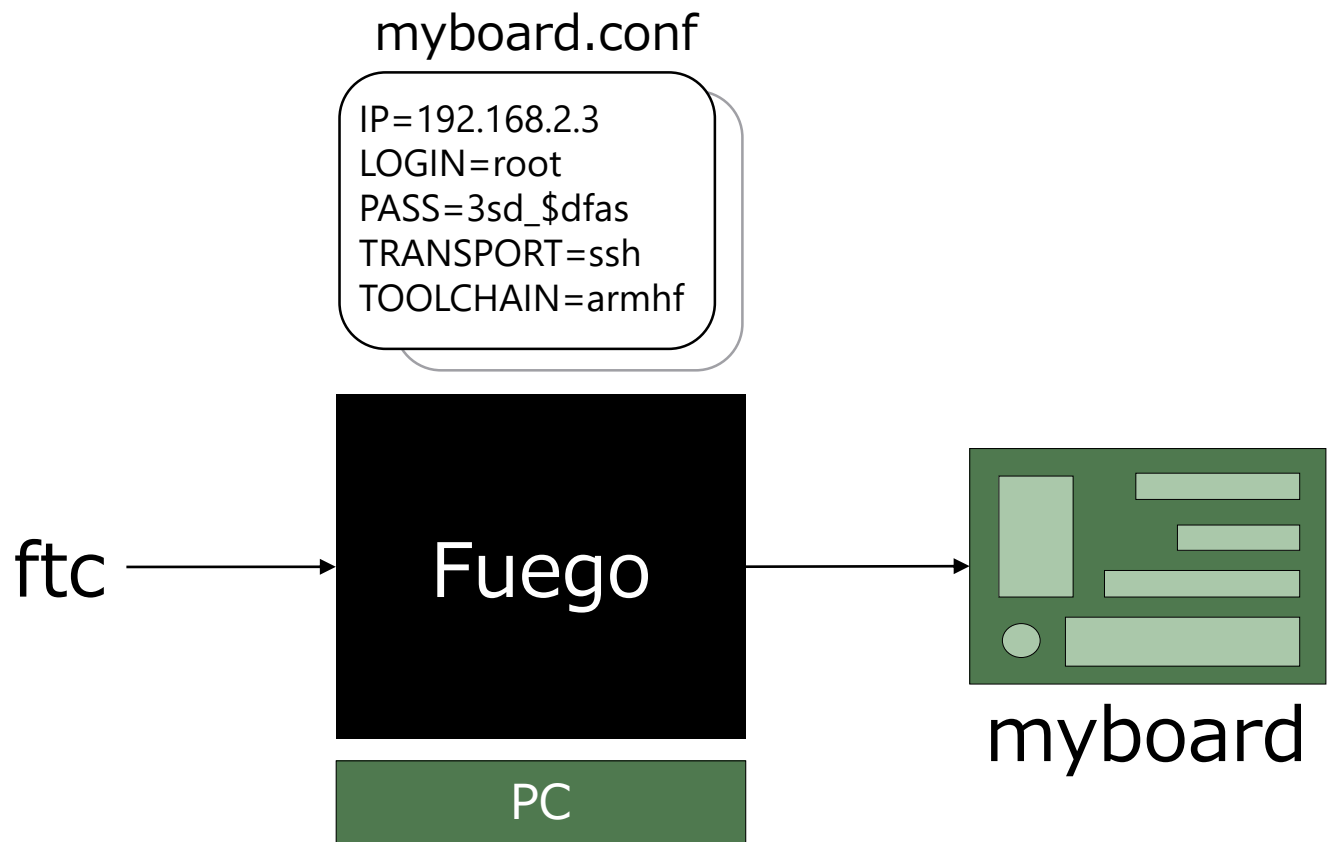


OpenTest

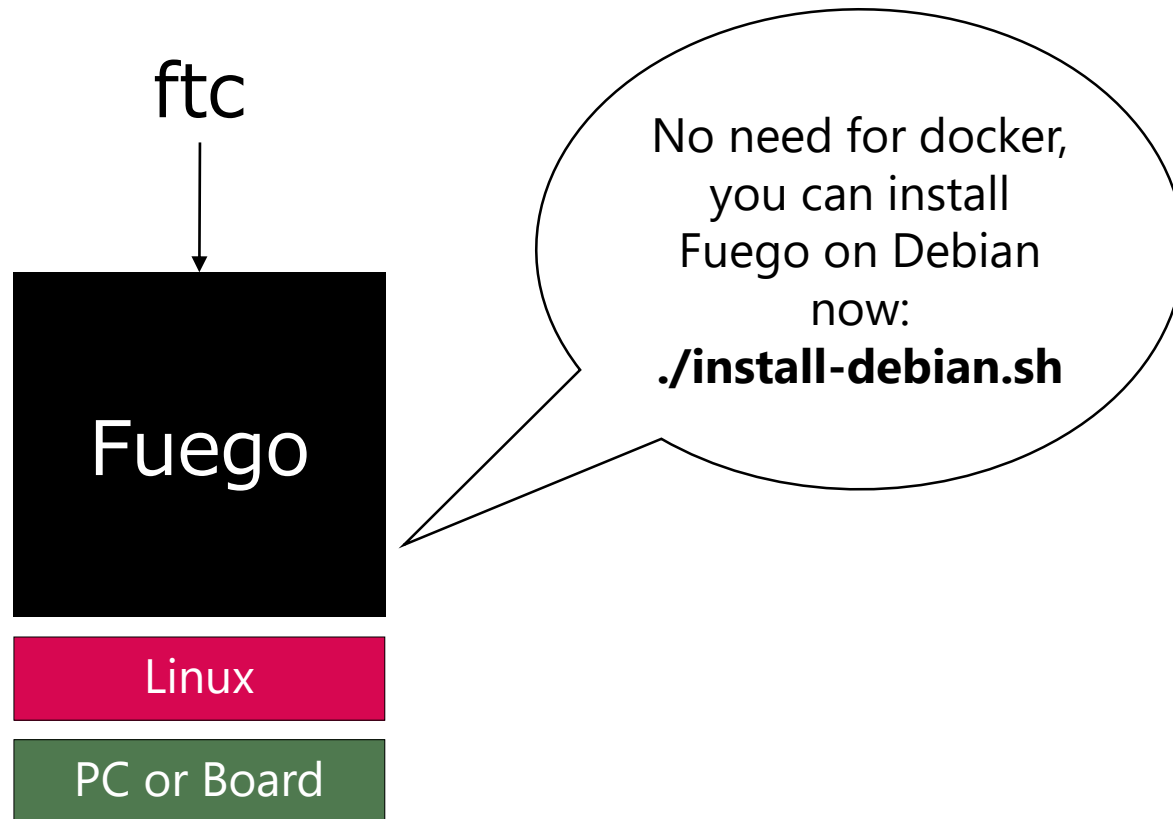


Travis CI

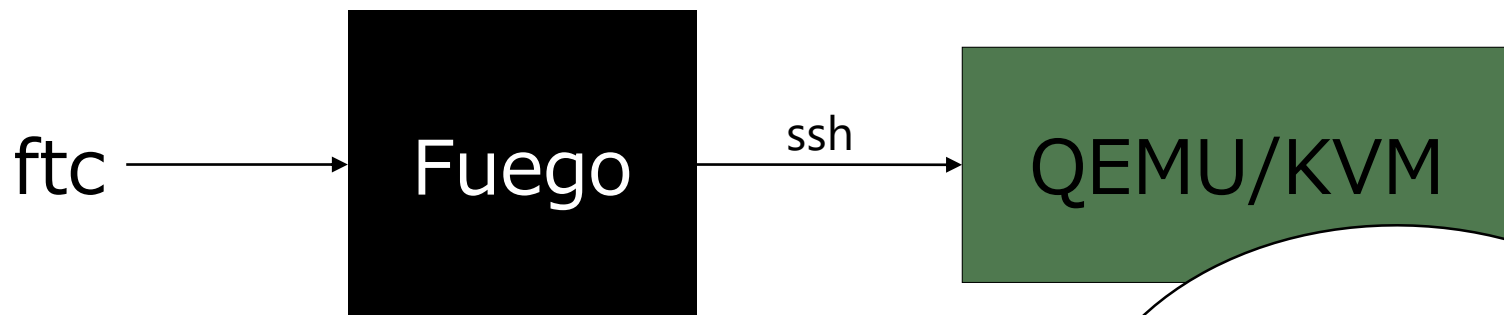
Host-target configuration



Native configuration



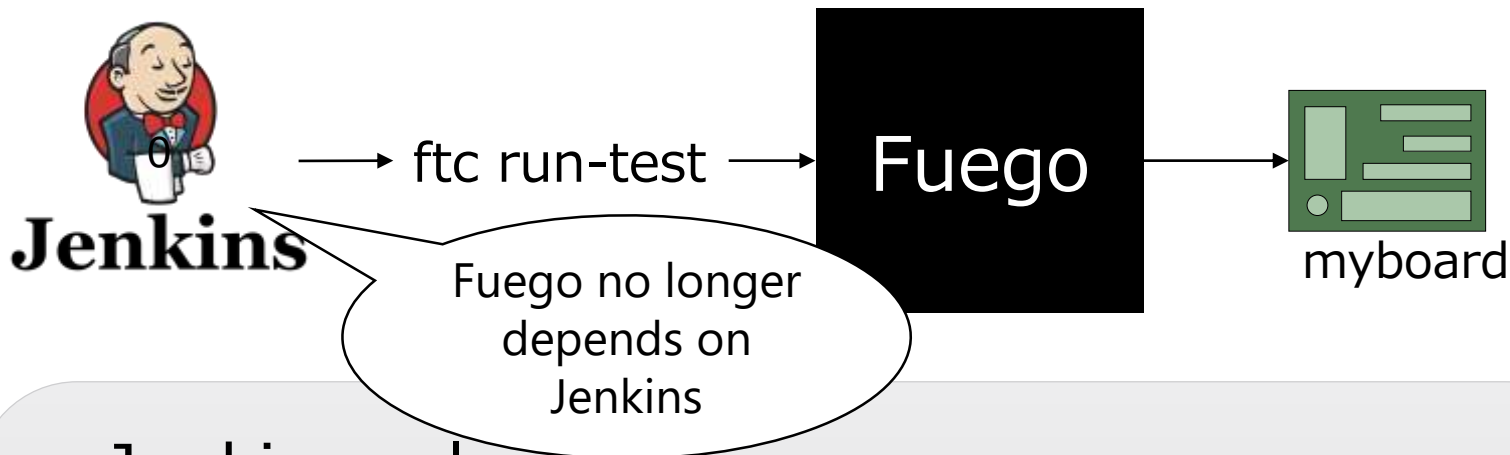
ftc: Fuego command line tool



```
$ ftc help
$ ftc list-boards
$ ftc query-board -b vm -n IPADDR
$ ftc list-tests
$ ftc run-test -b vm -t Functional.hello_wo^TAB
$ ftc run-test -b vm -t Functional.hello_world -s hello-fail
$ echo $?
$ ftc gen-report
```

No need to remember all options, **bash autocompletion** added

Integration 1: Jenkins + Fuego (default)



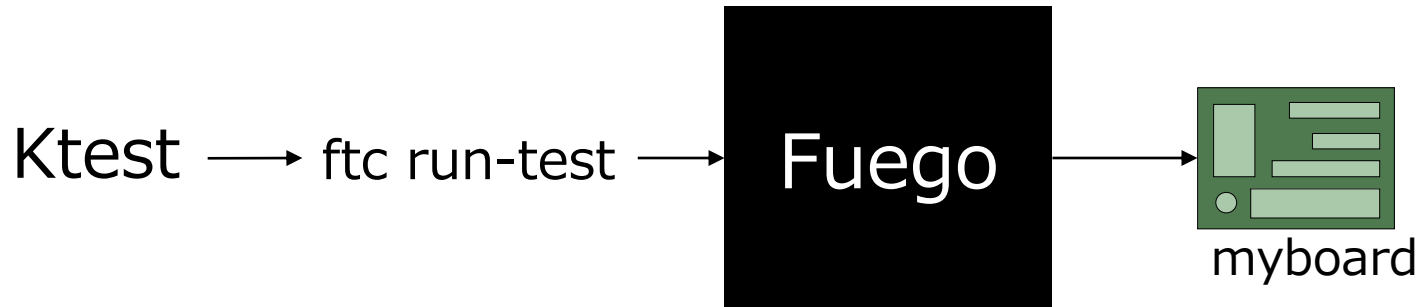
- Jenkins role

- Web server interface including user accounts etc
- Test serialization (only one test at a time for each board)
- Display results (logs, plots, tables)
- Test triggers
- Notifications
- Plugins
- Board scheduling (using Jenkins labels)

Hackathon idea:
Replace Jenkins
with **Buildbot**

Jenkins is installed by default with Fuego unless you use `./install.sh --no-Jenkins`

Fuego & Ktest



- Ktest role
 - Build the Linux kernel
 - Deploy the kernel into the target board
 - Execute a test
 - Boot test
 - Custom test ← **Fuego test**
 - **Patchcheck**
 - **Bisect**

Fuego with Ktest

<https://github.com/satoru-takeuchi/elkdat>

```
$ ./init (only once)
```

```
$ ./up
```

```
$ less ktest/ktest.conf
```

```
MACHINE = 192.168.121.122
```

```
SSH_USER = root
```

```
PRIVATE_KEY := /path/to/ktest-fuego/elkdat-ktest/private_key
```

```
[...]
```

```
$ vi /fuego-ro/boards/vm.board (adjust ip, sshkey to ktest.conf's)
```

```
$ vi examples/test/fuego-hello
```

```
docker exec -i -t fuego-container ftc run-test -b vm -t
```

```
Functional.hello_world
```

```
$ ./test test examples/test/fuego-hello
```

```
-> builds the kernel and deploys it to the VM
```

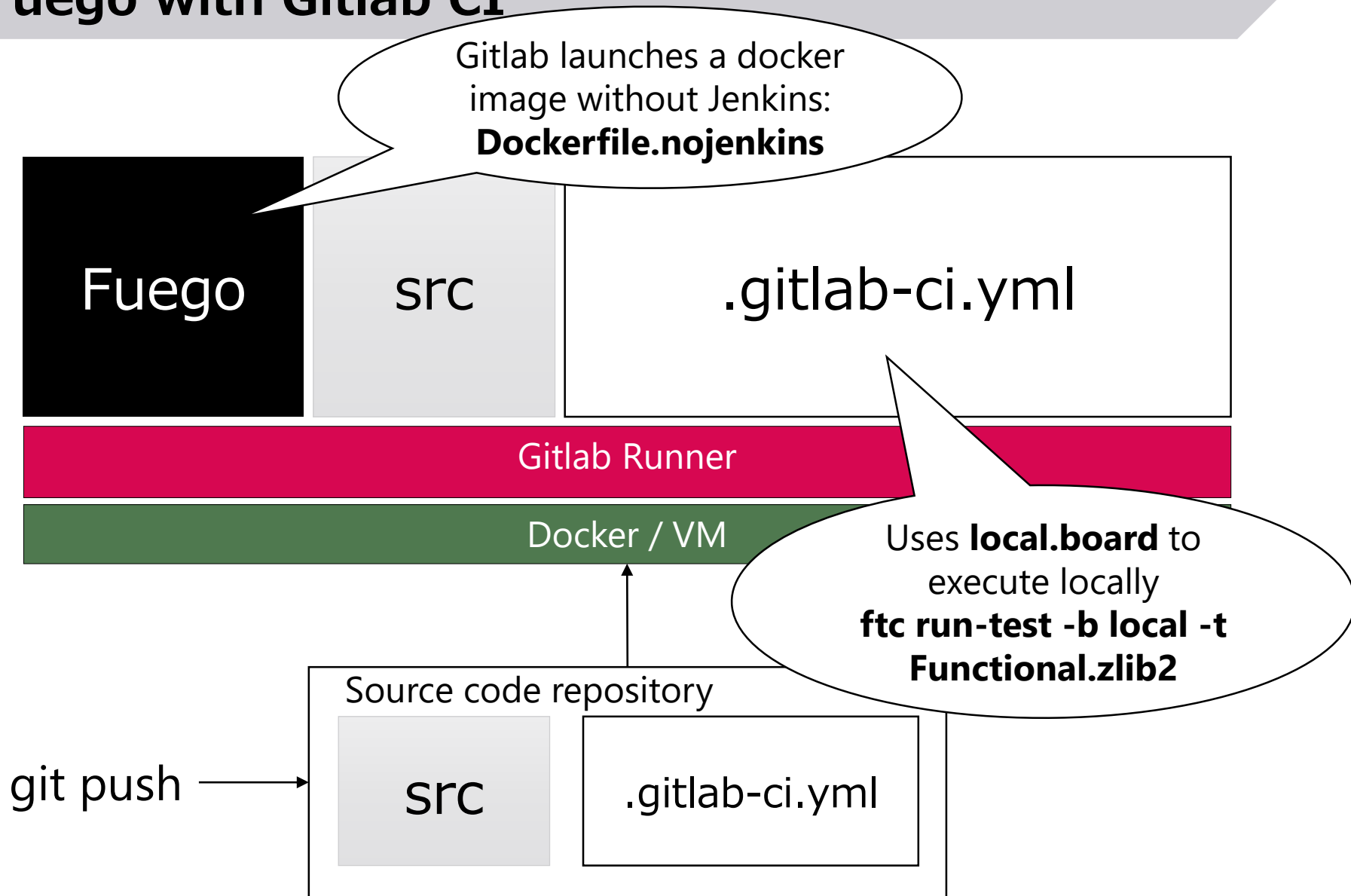
```
-> reboots the VM
```

```
-> executes fuego-hello and gets return code
```

```
$ ./halt
```

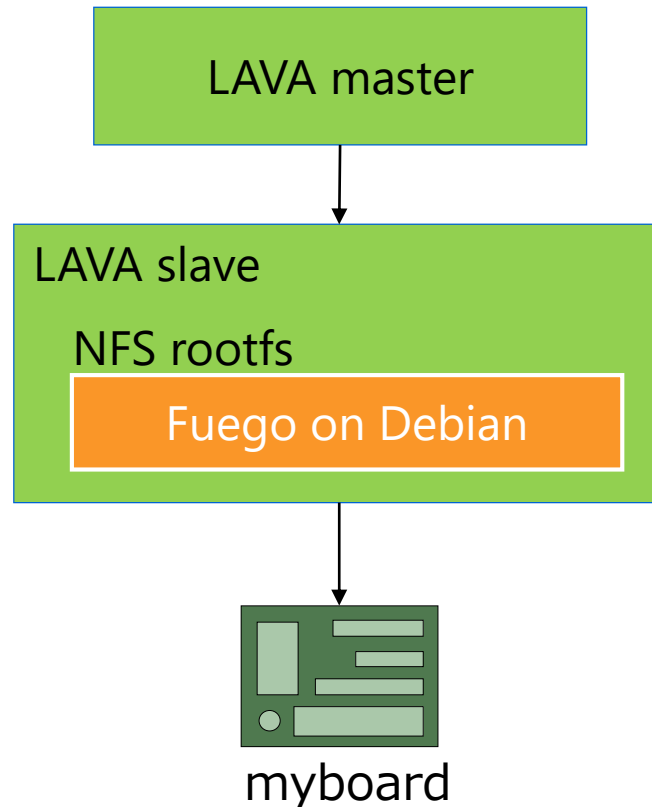
```
$ ./fini (only once to destroy the environment)
```

Fuego with Gitlab CI



Fuego & LAVA (Using native installation)

- Prepare the OS image with Fuego installed
 - I used Debos
- Use `ftc run-test -b local`
- Convert Fuego results to LAVA



Fuego & LAVA (native)

```
$ less iwg20m_debos/metadata/iwg20m.yaml
```

```
[...]
```

```
- action: overlay
  source: overlays/fuego
- action: run
  description: install Fuego
  chroot: true
  script: scripts/install-fuego.sh
```

```
$ less fuego-to-lava.py
```

```
[...]
```

```
for test_set in data['test_sets']:
    result_lines.append('lava-test-set start {}'.format(test_set['name']))
```

```
$ aws s3 cp debos.img ...
```

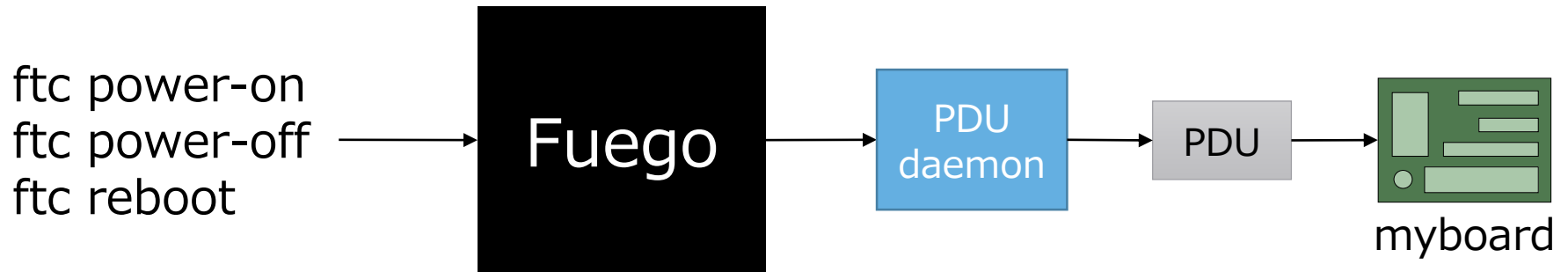
```
$ less linaro_debos_fuego_hello.yaml
```

```
[...]
```

```
ftc -x run-test -b local -t Functional.hello_world || ret_val=$?
```

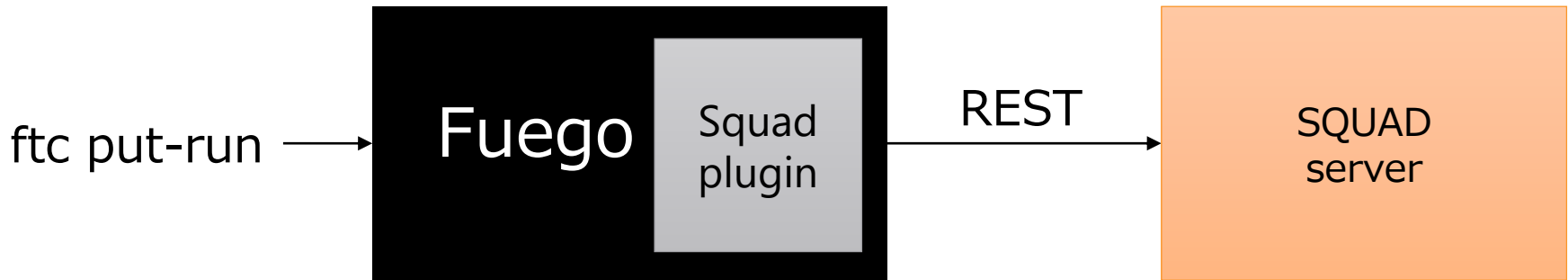
```
$ lavacli jobs submit ./linaro_debos_fuego_hello.yaml
```

Fuego & PDUdaemon



- PDU daemon role
 - Power ON/OFF/Reboot the target board
 - Supports many commercially available PDUs
 - Has a client (pduclient) and a http interface (curl)

Fuego & Squad

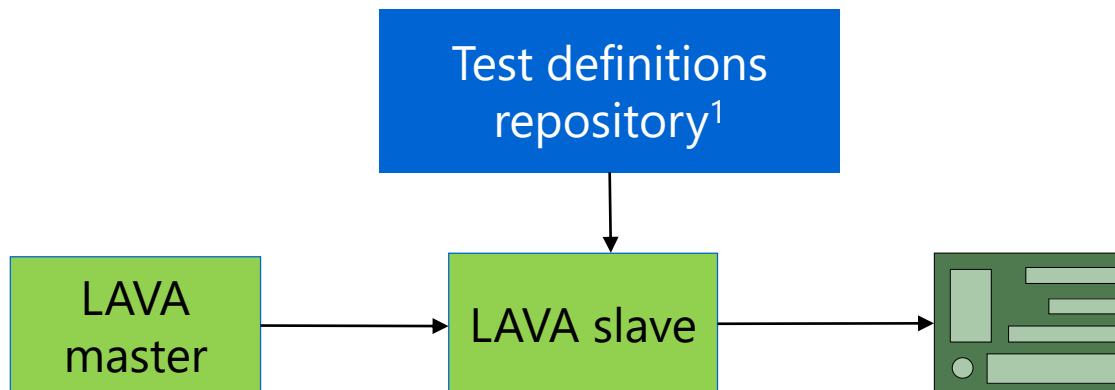


- Squad role
 - Visualization of results
 - Search results by keys
 - Compare results across boards and kernel versions

```
$ ftc list-run -q  
$ ftc put-run xxx
```

Ref: <http://fuegotest.org/ffiles/fuego-jamboree2-daniel-sangorin-23jun2018.pdf>

Fuego & LAVA (using native definitions)



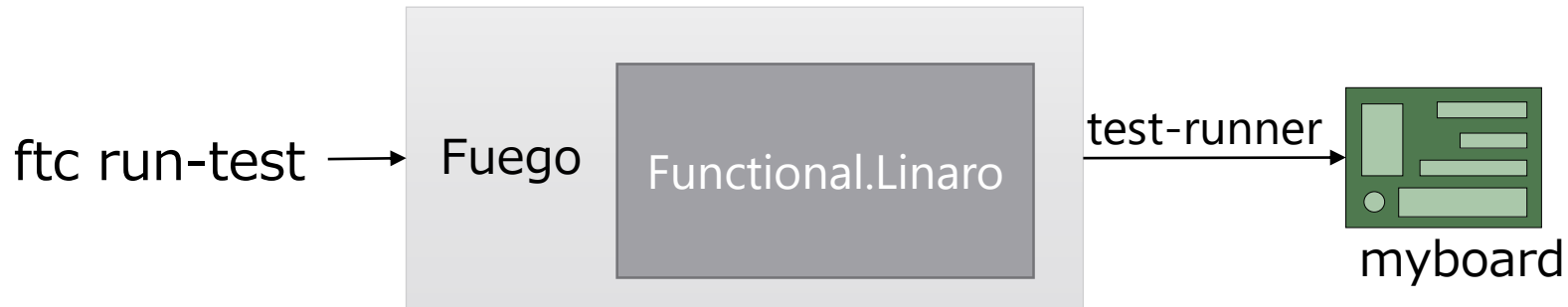
- **Concept:**
 - Extract fuego test definitions
 - Add a wrapper for Linaro test definitions
- **Difficulties**
 - Some tests are not ready for local execution
 - Some tests have a python parser
 - Fuego tests that use log_compare script work fine though
 - Maintenance would be an issue

¹ <https://github.com/sangorin/test-definitions/tree/master/automated/linux/fuego>

Fuego & LAVA (test definitions)

```
$ lavacli jobs submit ./lava-cip-core-ethtool.yaml  
$ show the yaml file on the repo
```


Fuego & Test runners



- Example test suites supported:
 - Autopkgtest (tests inside Debian packages)
 - Ptest (yocto/oe tests)
 - LTP
 - Kselftests
 - Linaro test definitions
- Others we may support in the future
 - Oday (lkp), Avocado, CKI

Fuego running Linaro test definitions

```
$ . ./automated/bin/setenv.sh
$ cd ./automated/linux/smoke/
$ ./smoke.sh -s true
$ cat ../output/result.txt
$ ftc run-test -b vm -t Functional.linaro -
dynamic-vars
"yaml=./automated/linux/smoke/smoke.yaml"
$ ftc run-test -b vm -t Functional.linaro -
dynamic-vars
"yaml=./automated/linux/lshw/lshw.yaml"
```

Conclusions

- 4th methods to run Fuego on LAVA!
- How to run Linaro tests on Fuego
 - Others: ptest, autopkgtest, LTP, kselftests..
- Gitlab integration
- Jenkins integration
- Ktest integration
- Squad integration