

dTest - A black box DBus testing approach

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Testing in frameworkd

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- tests for low-level functions (sms)
- DBus tests against locally running framework
- tests are incomplete

Black box tests

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- test the DBus API (rather: test the device)
- treat everything below that as black box
- make sure the high level semantics are correct
- test end to end calling

Controlling two MEs

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What can we do if we control two phones?

- call signalling, reject, answer, hold
- SMS delivery, delivery reports, ...
- stress testing for these systems
- testing wakeup on GSM

Production testing

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- run special software on the device
- during call record the sound, compare with a sample
- special fixture for production testing
- host system can verify that `SetBacklight(100)` results in the appropriate voltage level

Introducing dTest

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dTest is written in python

- uses the unittest framework
- easy to write new testcases
- many convenience functions for testing
- FSOTestCase adds DBus object and connection caches

Introducing dTest (2)

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dTest connects to the Freerunner's DBus via gabriel

- gabriel tunnels a DBus bus through SSH
- connections to two or more Freerunners are possible
- the tests don't (need to) run on the target hardware

Introducing dTest (3)

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- testcases are files in the tests/ subdirectory
- will get picked up by the testloader
- `./dbus_test.py -t usage` to just run tests found in `tests/usage.py`

Demo

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Missing features

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- DBus signal handling needs mainloop integration
→ Doesn't integrate easily with unittest
- support for two busses is incomplete

Use bustle for profiling

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- bustle is a DBus monitor used for profiling DBus calls
- special DBus security policy necessary (read: no security)
- DBus methods/signals as sequence diagram

Thanks!

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Presentation <http://totalueberwachung.de/papers/>

gabriel <http://gabriel.sourceforge.net/>

bustle <http://www.willthompson.co.uk/bustle/>

FSO <http://www.freesmartphone.org/>