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Unit testing DBus services

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- Unit tests
- Library unit tests
- DBus client library * unit tests

(*) and service

Unit tests: introduction

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- Testing individual units of source code
  - E.g. single library/program functionalities.
- *White box* testing of the library/program
  - But each functionality treated as a *black box*.
- Main benefits:
  - Find problems early
  - Facilitates changes
  - Simplifies integration
  - Forces a good design

Unit tests: limitations

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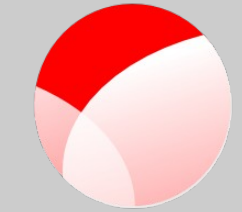
- Must be deterministic
- Must be isolated
- Hard to make good real-life situation tests
- Hard to make tests with external dependecies

Library unit tests



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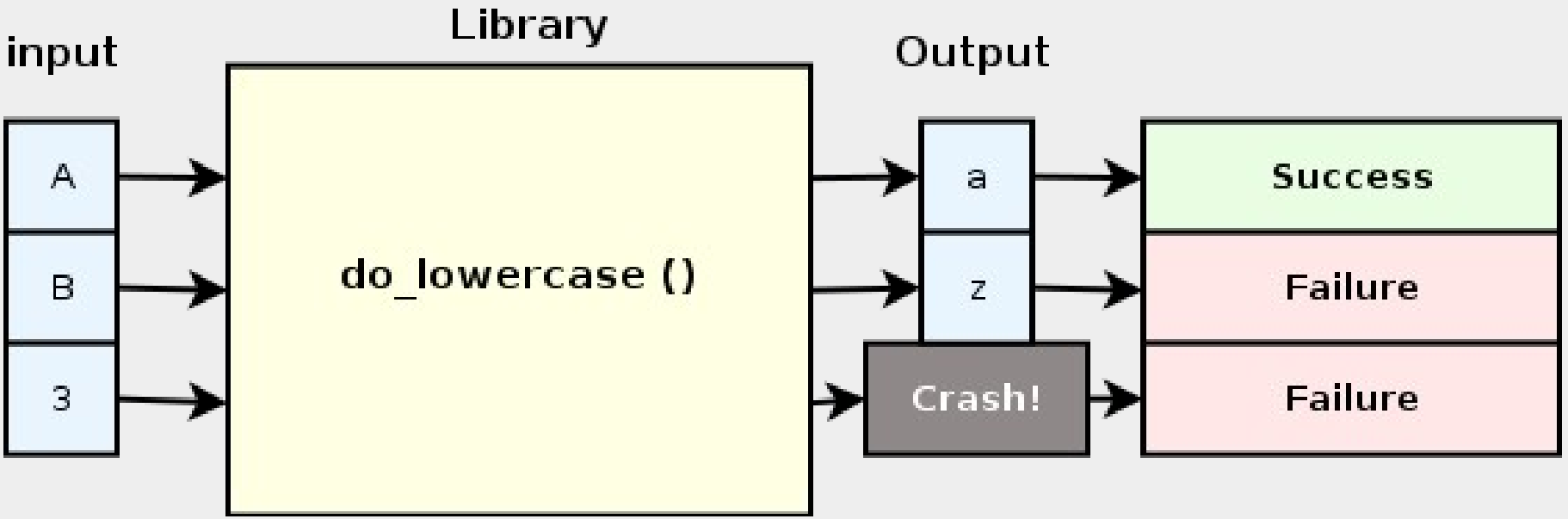
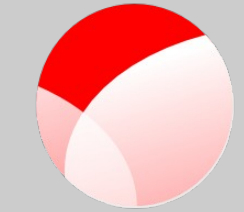
Unit tests without context



Library unit tests



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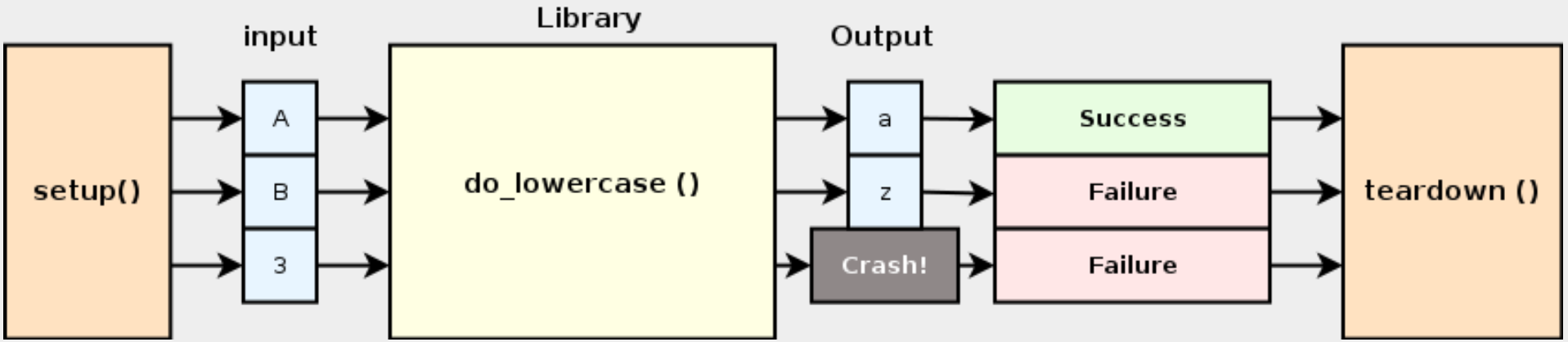
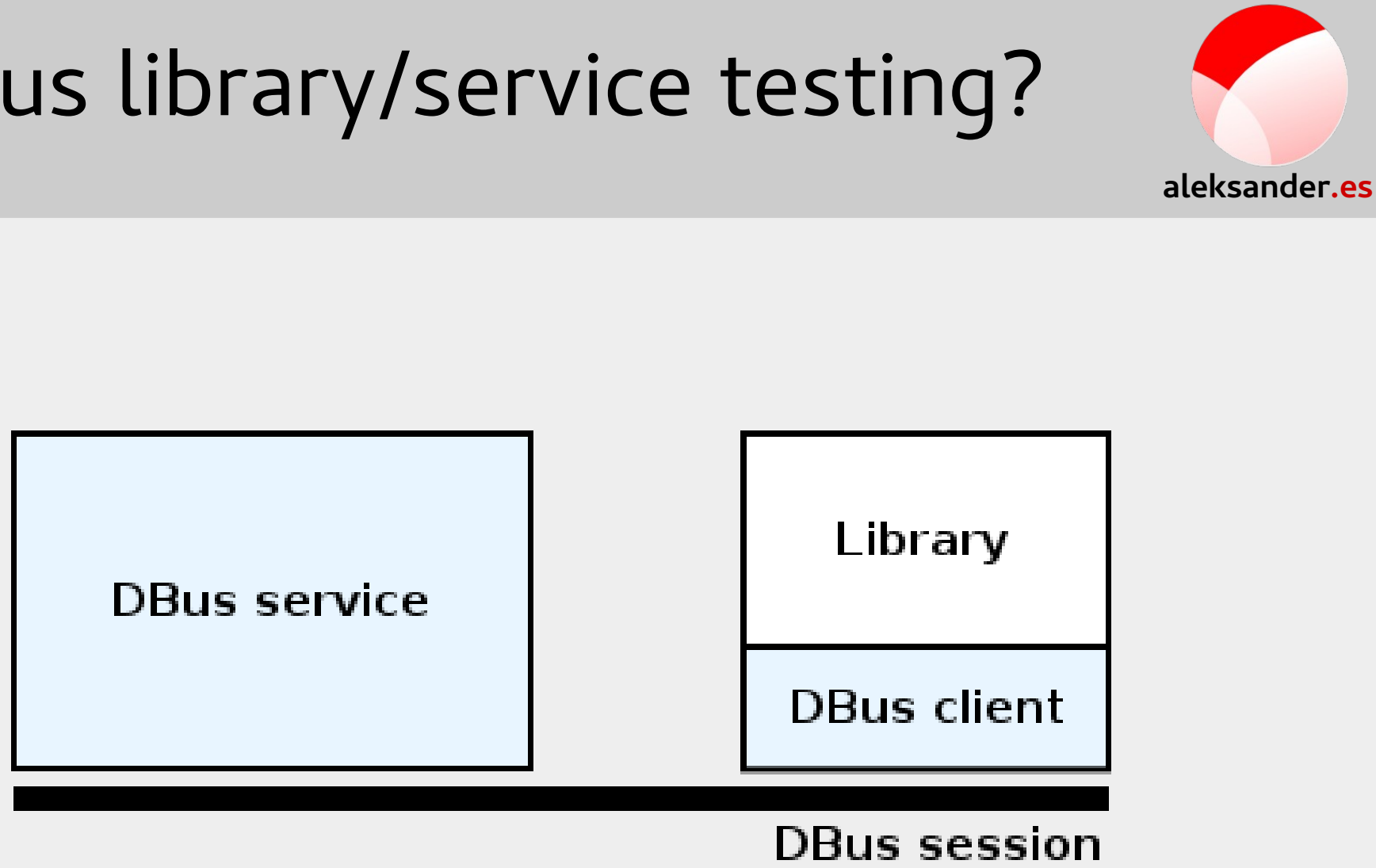
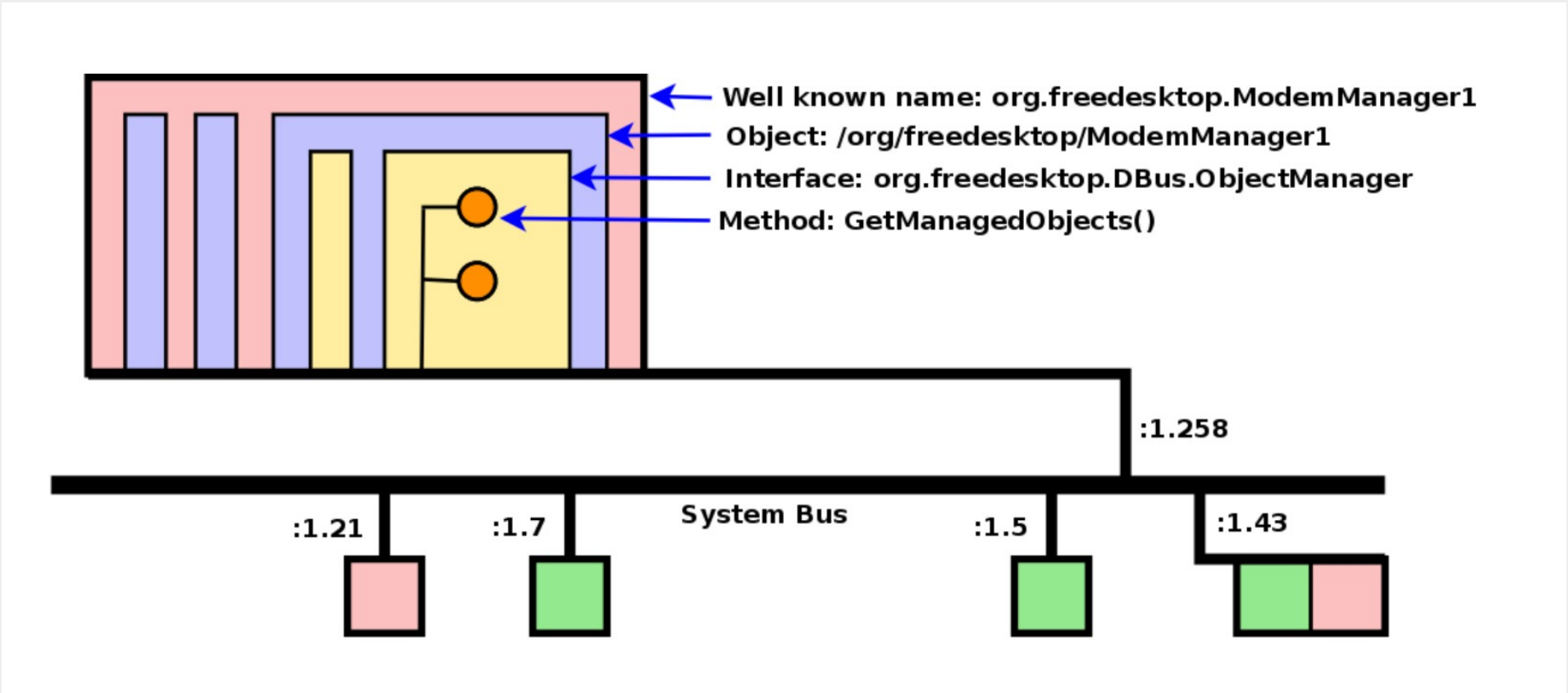
Unit tests with a common context: setup & teardown



DBus library/service testing?



DBus services vs clients



GTestDBus

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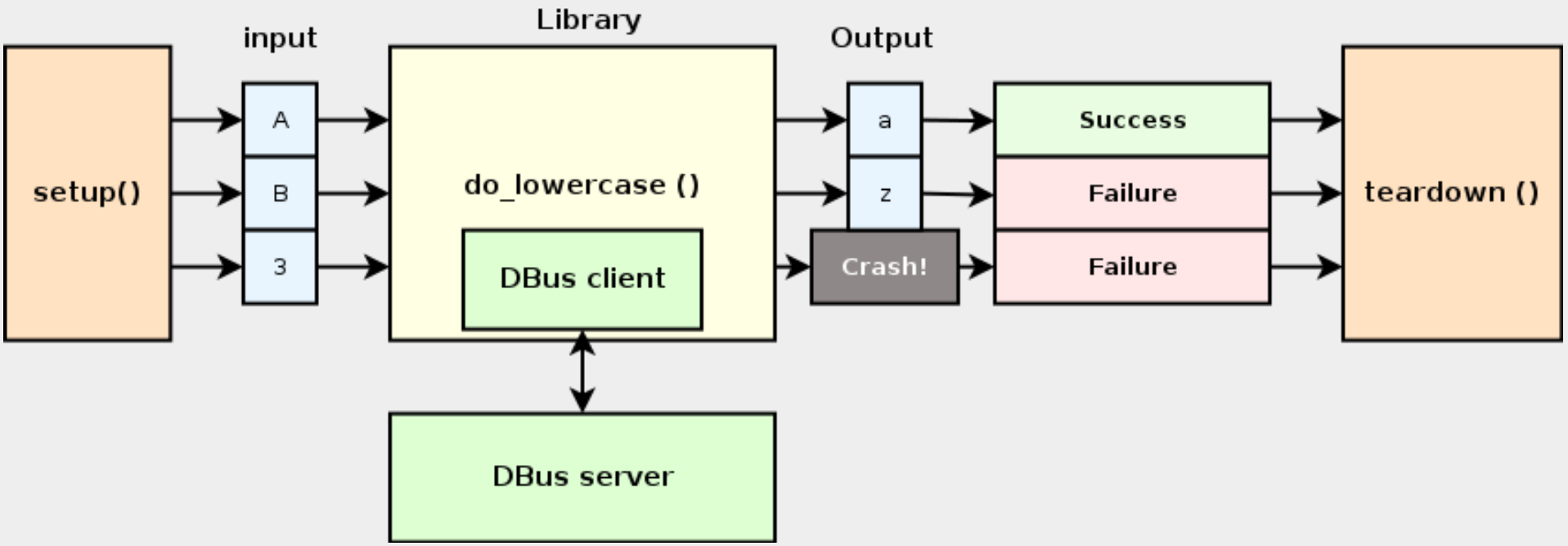
- Private DBus session running in the context of the unit test., since GLib/GIO 2.34.
- On test setup:
  - **g_test_dbus_up()**
- On test teardown:
  - **g_test_dbus_down()**
- Start the service:
  - **org.freedesktop.DBus.Peer.Ping()**

DBus based unit tests



But...

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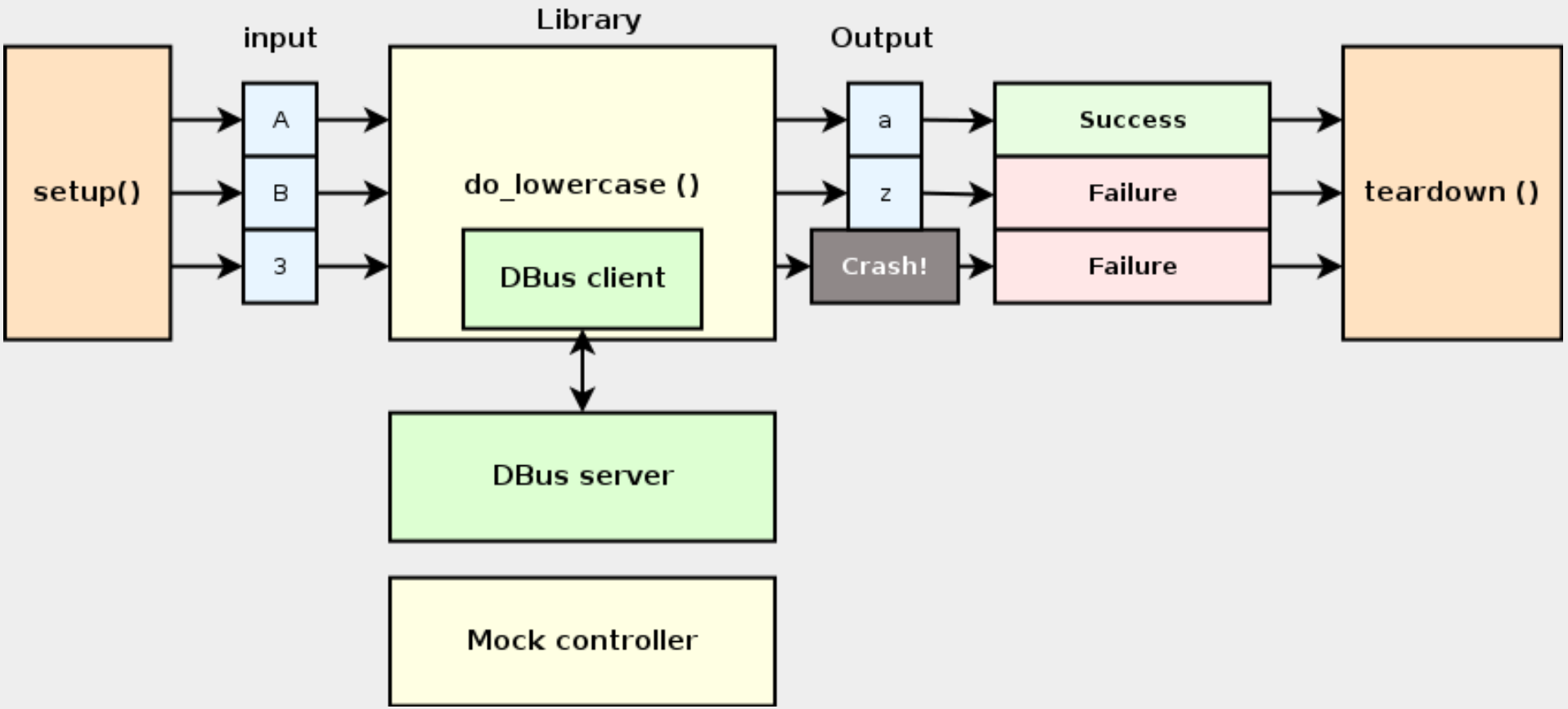
- The DBus service itself has functionality that may need to be simulated for the purposes of the test!
  - E.g. the behaviour of the ModemManager daemon depends on having actual modems available.

Mocking service logic



https://sigquit.wordpress.com/2014/02/14/simulating-2g3g4g-modem-behavior-in-modemmanager-tests

Thanks!

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