Regression Testing in Plan 9: show us where it hurts with SpinalTAP

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SpinalTAP

- Regression Testing and Test Driven Development.
- Why Automate?
- The Testing Anything Protocol (TAP)
- SpinalTAP API
- TAP Extensions
- SpinalTAP Utilities
Regression Testing and Test Driven Development

- A software testing method which seeks to insure that new bugs were not introduced when making a change
- Include eXtreme Programming (XP), Agile, Test-Driven Development (TDD), ...
- Write tests first
- Automate and summarize
Why Automate?

- More than 50% of a project's life-cycle is in debugging and testing.
- Bug fixes take 33 to 40 times as long.
- Additional 15% to 30% investment results in 40% to 90% reduction in defect density.
- Test suite itself is an asset.
The Testing Anything Protocol (TAP)

- Developed by Larry Wall in the mid 80's for Perl language
- Separation of Producers and Consumers
- Simple
- No formal specification
TAP stream example:

Optional: TAP version 13
Required: 1..3
# some diagnostic
ok 1 - Input file opened
ok 2 - First line of the input valid
not ok 3 - Read the rest of the file # TODO reason
Example TAP Summary

Test Summary Report

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t/iterators.t (Tests: 92 Failed: 8)
   Failed tests: 7-13, 15

t/nofork-mux.t (Tests: 6 Failed: 0)

t/regression.t (Tests: 4794 Failed: 103)

Plans=47 Tests=9370
Result: FAIL
SpinalTAP API

- plan(int num_tests); lazy_plan();
- ok(int bool, char *msg,...);
- diag(char *msg, ...);
- skip_next(char *reason,...);
- skip_block(int num_tests, char *reason, ...);
- skip("reason",
      ok(1,"test 1");
      ...
    );
SpinalTAP API

- todo_next(char *reason,...);
- todo_block(int num_tests, char *reason, ...);
- todo(“reason”,
          ok(1,”test 1”);
          ...
      );
SpinalTAP API

- eq(void *a, void *b, int(*comp)(void *a, void *b), char *msg, ...);
- bail_out(char *reason, ...);
- die_on_fail(); restor_fail();
- pass(char *msg, ...); fail(char *msg,...);
SpinalTAP Extensions

- NAME test-name
- output_file(char *name);
SpinalTAP Utilities

- Prove – search for and run tests [WIP]
- TAPdancer – TAP stream parser
- TAPestry – history [WIP]
- Faucet – synthetic tap generator
Summary

• Regression testing is an important and valuable software engineering practice
• SpinalTAP provides a language and system agnostic testing tool for Plan 9
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#define drummer(X) bail_out("The Drummer always DIES! This one died %s",X);