

Test Driven Development (In Erlang)

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Writing test code.

The process of
incrementally creating
and using test code
throughout project
advancement.

Improve Quality

Increase Confidence

Reduce Effort

**“Without it, it would
have taken me several
more months getting
comfortable with
development.”**

Solo Development
Small Teams
Large Teams

**Failure Is an Important
Step**



Add Tests

Run Tests

Write Code

Run Tests

Re-factor Code

Fast

Specific

Consistent

What to test?

- Success
- Failure
- Bugs/Defects
- Edge Cases
- Modules
- Applications
- Everything else ...

Who writes tests?

- Developers
- QA
- Friends
- Family
- Managers
- Executives
- Pets
- Stakeholders
- Computers (Test generators?
Terminators?)
- Everyone Else

Inconsistent Results

Slow Test Suites

Vague Tests

Technical Gotchas

Unbalanced Coverage

Stale Test Suites

Poor Continuous Integration

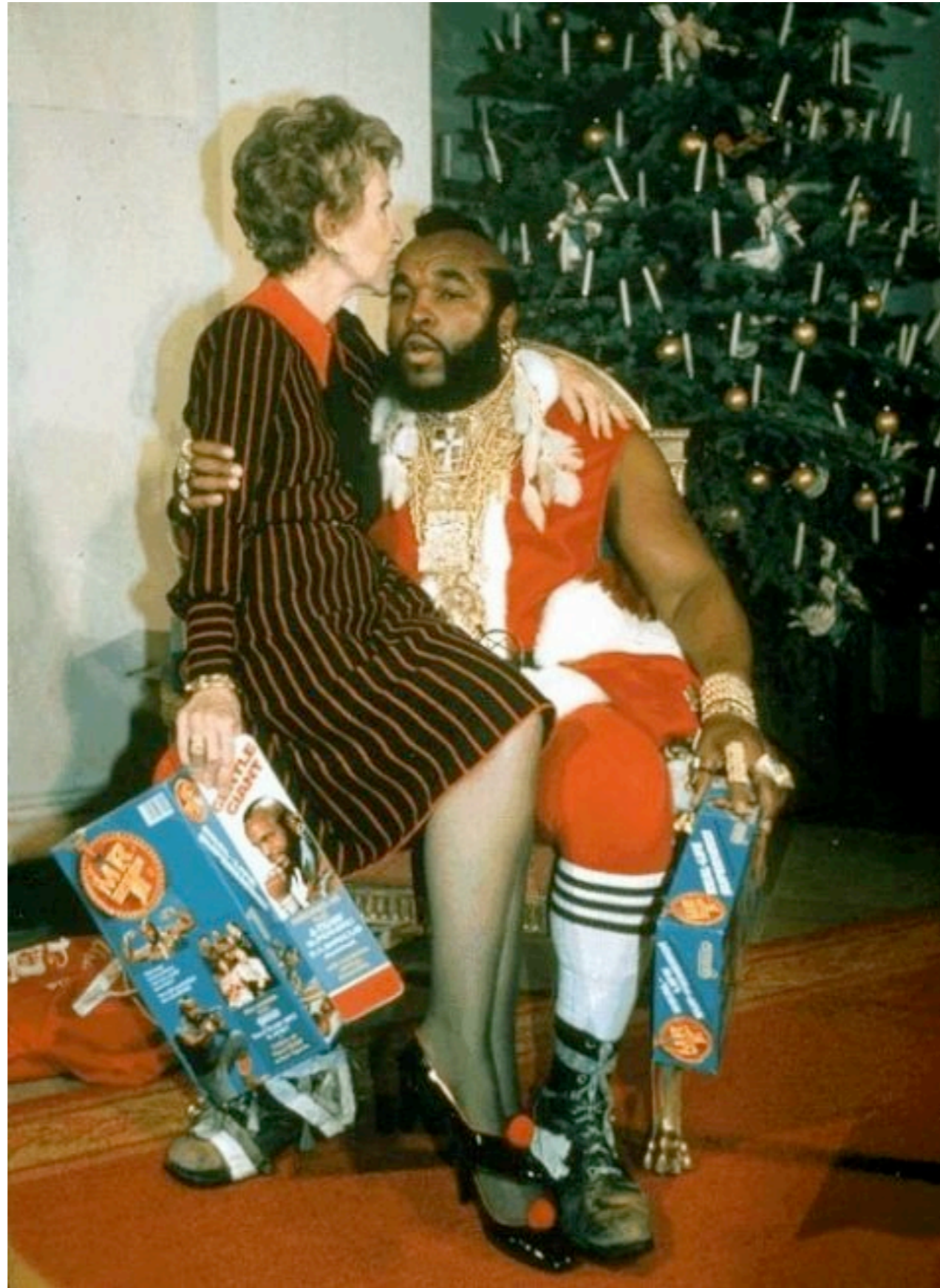
Poor Participation

Other Gotchas

Ignoring Broken Builds / Failing Tests

Erlang Test Tools

- etap
- eunit
- common_test
- QuickCheck
- [Insert yours here]



etap

- Based on the “Test Anything Protocol”
- Supports most of TAP Version 12
- Lots of flexibility

etap Features

- Verbose or quiet
- Coverage reports
- Gradually build structure
- Test lots of different things

Getting Started

1. `git clone git://github.com/ngerakines/etap.git`
2. `make && sudo make install`

How to Test

- Have a plan
- Limit scope
- Consider behavior
- Document
- Execute
- Re-factor

```
#!/usr/bin/env escript  
%% -*- erlang -*-  
%%! -pa ./ebin
```

```
main(_) ->  
    etap:plan(2),  
    etap_can:loaded_ok(erlang_couchdb, "Module 'erlang_couchdb' loaded"),  
    etap_can:can_ok(erlang_couchdb, server_info),  
    etap:end_tests(),  
    ok.
```

```
nick-gerakiness-macbook-pro:erlang_couchdb ngerakines$ prove t/*.t
```

```
t/001-load.....ok
```

```
t/002-server.....ok
```

```
t/003-database....ok
```

```
All tests successful.
```

```
Files=3,Tests=13, 1 wallclock secs ( 0.04 usr 0.01 sys + 0.42 cusr 0.12 csys = 0.59 CPU)
```

```
Result: PASS
```

```
nick-gerakiness-macbook-pro:erlang_couchdb ngerakines$ prove -v t/001-load.t
```

```
t/001-load....
```

```
# Current time local 2009-04-30 11:54:54
```

```
# Using etap version "0.3.4"
```

```
1..2
```

```
ok 1 - Module 'erlang_couchdb' loaded
```

```
ok 2 - erlang_couchdb can server_info
```

```
ok
```

```
All tests successful.
```

```
Files=1,Tests=2, 1 wallclock secs ( 0.03 usr 0.00 sys + 0.14 cusr 0.03 csys = 0.20 CPU)
```

```
Result: PASS
```

```
etap_exception:lives_ok(fun() -> mod:fun() end, "mod:fun/0 ok").
```

```
etap:is(mod:fun(1), "foo", "mod:fun/1 ok").
```

(Write some tests)

Code Coverage

```
..260         {clause,new_line(),
..261           [{integer,line(),Pos},{atom,line(),repeated},{nil,line()}},{atom,line()},
..262           []},
..263           [{call,line()},{remote,line()},{atom,line(),lists},{atom,line(),reverse})]
..264
..265       [repeated, _] ->
..266
..267       [{clause,new_line(),
..268         [{integer,line(),Pos},
..269           {atom,line(),repeated},
..270           {cons,line()},{var,line(),'Head'},{var,line(),'Tail'}},
..271           {atom,line(),list_to_atom(Type)},
..272           {var,line(),'Acc'}]},
..273         case Type of
..274           "string" ->
..275             [{call,line()},{atom,line(),is_list},{var
..276             "int" ++ _ ->
..277             [{call,line()},{atom,line(),is_integer},{
..278             "bytes" ->
..279             [{call,line()},{atom,line(),is_binary},{v
..280             _ -> []
..281
..282         end,
..283         [{match,new_line(),
..284           {var,line(),'Acc'}},
..285
..286
..287
..288
..289
..290
..291
..292
..293
..294
..295
..296
..297
..298
..299
..300
```

index.html

file:///Users/ngerakines/dev/erlang_protobuffs/cove

Bookmark on Delicious My Delicious Rupture

forms helper	86%	<div style="width: 86%;"><div style="width: 86%;"></div></div>
protobuffs	80%	<div style="width: 80%;"><div style="width: 80%;"></div></div>
protobuffs compile	91%	<div style="width: 91%;"><div style="width: 91%;"></div></div>
protobuffs parser	48%	<div style="width: 48%;"><div style="width: 48%;"></div></div>

Generated on 2009-04-30 10:07:51.

Total	74%	<div style="width: 74%;"><div style="width: 74%;"></div></div>
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Continuous Integration

Previous builds

Build 93e583c by Tivoli, today

Build 201f410 by Jacob Vorreuter, yesterday

Build 201f410 by Jacob Vorreuter, yesterday

Build 03e089b by Tivoli, yesterday

Build f65e870 by Tivoli, yesterday

Build 606a56

Build 211e53

Build ab42da

Build 335515

Build 045fdb

Build 5f3c81

Build 53cd80

projects / platform

checked with integrity

[Edit Project](#)

Built b6fcbc8 successfully

Added init script for rpplatform

by: Tivoli | today | commit: b6fcbc8fa6770e8ca99730c2fdb4a473725bfb9f

Build Output:

```
(cd rputils; make clean)
make[1]: Entering directory `/var/integrity/builds/platform-master/rputils'
(cd src;make clean)
make[2]: Entering directory `/var/integrity/builds/platform-master/rputils/src'
rm -rf ../ebin/rputils.beam ../ebin/rputils_http.beam
make[2]: Leaving directory `/var/integrity/builds/platform-master/rputils/src'
(cd t;make clean)
make[2]: Entering directory `/var/integrity/builds/platform-master/rputils/t'
rm -rf erl_crash.dump
make[2]: Leaving directory `/var/integrity/builds/platform-master/rputils/t'
rm -rf *.boot *.rel *.script *.dump *.tgz
make[1]: Leaving directory `/var/integrity/builds/platform-master/rputils'
(cd nucleus_client; make clean)
```

Thanks

- <http://github.com/ngerakines>
- <http://twitter.com/ngerakines>