Emetric

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follow along

If you would like to follow along git clone git://github.com/justinkirby/emetric.git

what it does

injects itself into an erlang node then starts dumping data

Demo

inspiration

rebar how to make things simple



Demo

inspiration

rebar how to make things simple

eper

- where data is hiding
- graceful code injection

easy

wanted non-developers to be able to run it without knowing $\operatorname{\mathsf{erlang}}$

easy

wanted non-developers to be able to run it without knowing erlang

no planning to use





wanted non-developers to be able to run it without knowing erlang

no planning to use

become part of continuous build n test



pluggable

add new data sources



pluggable

add new data sources

add new output formats



Demo

Real World

simple

headless

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Demo

Real World

simple

headless

escript

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Demo

Real World

simple

headless

escript

no install

Demo

Real World

collects and dumps data

lots of data

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Demo

Real World

collects and dumps data

lots of data

every two seconds

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os level

- memory usage
- cpu usage
- block io

erlang vm

- run queue
- reductions
- garbage collection
- context switches
- process count

mnesia

- locks
- subscribers
- transactions
 - counts
 - commits
 - failures
 - restarts
 - log writes
- checkpoints
- memory
- size

Demo

Real World

making it simple

rebar is as simple as it gets

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How

What

Demo

Real World

zip ebins

zip:create("mem",Files, [memory])

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Demo

pack zip into script

Header= "#!/usr/bin/env escript\n%%! -noshell -noinput\n", Script = <<Header,ZipBin/binary>>, file:write_file("emetric",Script) How

Wha

Demo

Real World

show the code

show the code

- emetric/rebar.config
- emetric/priv/escripts/boot_emetric

adding new metrics

It is trivial to plug anything into it.

```
deps() ->[emetric_hooks].
sup() -> ?CHILD(?MODULE,worker).
tick(Tick,Acc) ->
vogon_stats(Tick,Acc).
```

Demo

Real World

tagged proplist

illustration purposes.

```
{vogons,[{poems, 10},
        {duration,infinity},
        {avg_pain, 11},
        {frobnications,42}]}
```



Demo

Real World

register with hook

emetric_hooks:add(gather_hooks, fun(T,A) -> vogons:tick(T,A) end,2),

How

What

Demo

Real World

show the code

emetric/src/emetric_stats_mnesia.erl

How

What

Demo

Real World

into csv file

All data goes into a csv file (only built in filter atm).

Demo

vogon csv

```
vogons_tick,vogons_poems,vogons_duration,\
vogons_avg_pain,vogons_frobnications
1,0,infinity,11,42
2,2,infinity,11,42
3,4,infinity,11,42
4,8,infinity,11,42
5,16,infinity,11,42
```

running it

- node
- cookie
- stats to gather
- where it is going

example

```
./emetric --node=ejabberd@localhost --cookie=monster \
  start gather=sys,mnesia scatter=file \
  mods=emetric_filter_csv
```

3 steps to starting

connect

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How

What

Real World

3 steps to starting

connect

inject

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How

What

3 steps to starting

connect

inject

start

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simple rpc ping to remote node with gotchas

simple rpc ping to remote node with gotchas

no net_kernel in escript

net_kernel:start(['emetric@localhost',shortnames]),

simple rpc ping to remote node with gotchas

no net_kernel in escript

net_kernel:start(['emetric@localhost',shortnames]),

epmd can be out of sync

global:sync(),



simple rpc ping to remote node with gotchas

no net_kernel in escript

net_kernel:start(['emetric@localhost',shortnames]),

epmd can be out of sync

global:sync(),

need the same cookie

erlang:set_cookie(node(),Cookie),

Finally a ping

now we can finally ping

```
pong = net_adm:ping(Node),
```



inject

with lots of checks for sanity here

rpc:call(Node,code,load_binary,[Mod,Fname,Bin]).

inject

with lots of checks for sanity here

rpc:call(Node,code,load_binary,[Mod,Fname,Bin]).

and here



How

What

Real World

start

this was tough.

- rpc calls spawn a process
- no way to just start a linked supervisor

gen server proxy

• put a gen server between rpc and supervisor

Demc

almost demo time

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tsung 101

- configuration is xml
- you WILL write an xml config generator/template
- it can be baroque if you want to be precise
- . . .

Introduction How What **Demo** Real World

but it works and works well.

Demo

tsung gotchas

watch for ulimits. put max user counts everywhere possible read example configs helps a lot

steps to running tsung

- need something to stree (ejabberd)
- create users
- write config

Demo

Real World

a walk through tsung

the \$0.25 tour of tsung config

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Demo

Real World

now it is demo time

step by step demo



Demo

Real World

now it is demo time

step by step demo spin up ejabberd



Demo

Real World

now it is demo time

step by step demo spin up ejabberd

spin up emetric

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Demo

Real World

now it is demo time

step by step demo

spin up ejabberd

spin up emetric

run tsung

Wh

Demo

Real World

making the data pretty

welcome to plotr, the red headed step child of emetric

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to avoid the dreaded spreadsheet

welcome to plotr, the red headed step child of emetric

to avoid the dreaded spreadsheet

I learned numpy and matplotlib

welcome to plotr, the red headed step child of emetric

to avoid the dreaded spreadsheet

I learned numpy and matplotlib

not a work of art but it does the job

plotr

- extracts 'interesting' data (std deviation != 0.0)
- generates charts pivoting on ejd sessions
- interactive gui

Demc

Real World

plotr

just the data please

plotr.py --data=/tmp/emetric_node@host_date.csv \
 --out=interesting.csv

Demc

Real World

plotr

just the graphs please

plotr.py --data=/tmp/emetric_node@host_date.csv --graph

Demo

plotr

the ui (it is ok to laugh)

plotr.py --data=/tmp/emetric_node@host_date.csv --ui

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ulimits

ulimits

do NOT store mnesia archive tables in memory

ulimits

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disc only copies is too slow



ulimits

do NOT store mnesia archive tables in memory

disc_only_copies is too slow

global shared rosters are bad especially with large ldap