INSTRUMENTING AND MONITORING ERLANG TODAY

Markus Feyh

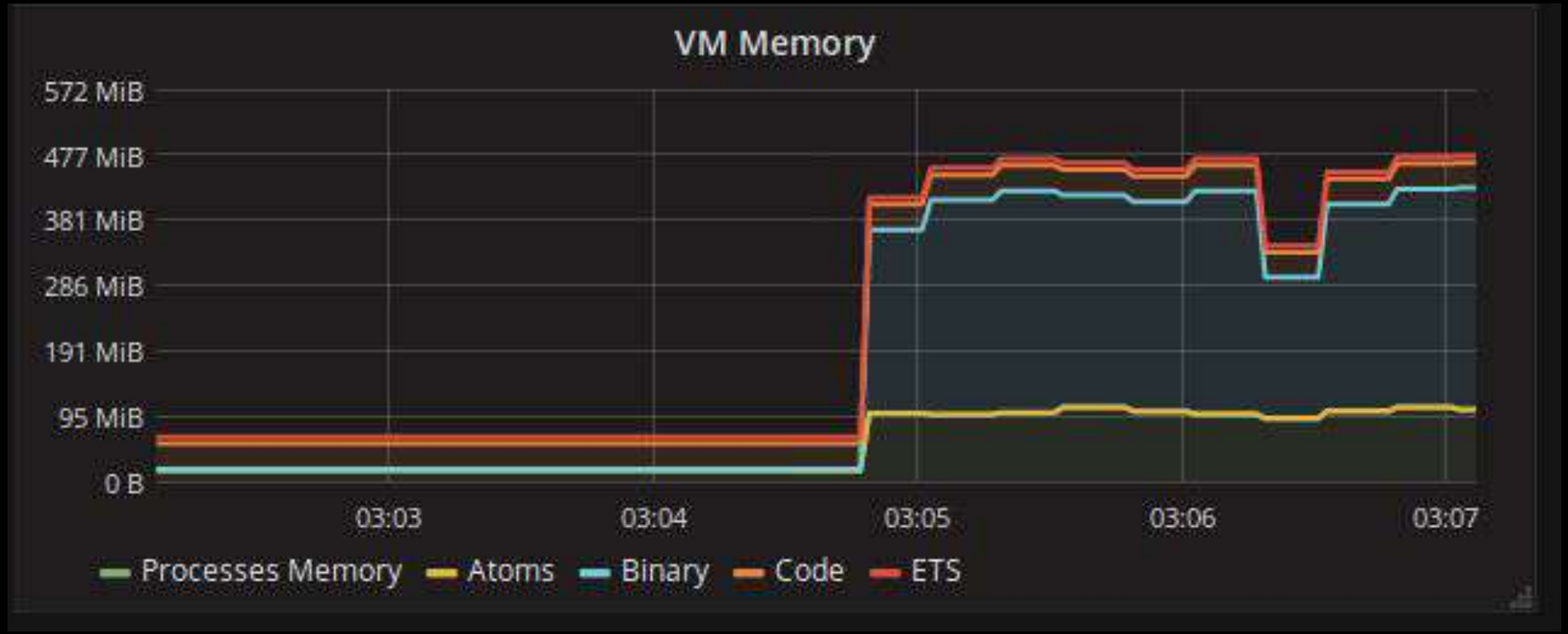
AGENDA

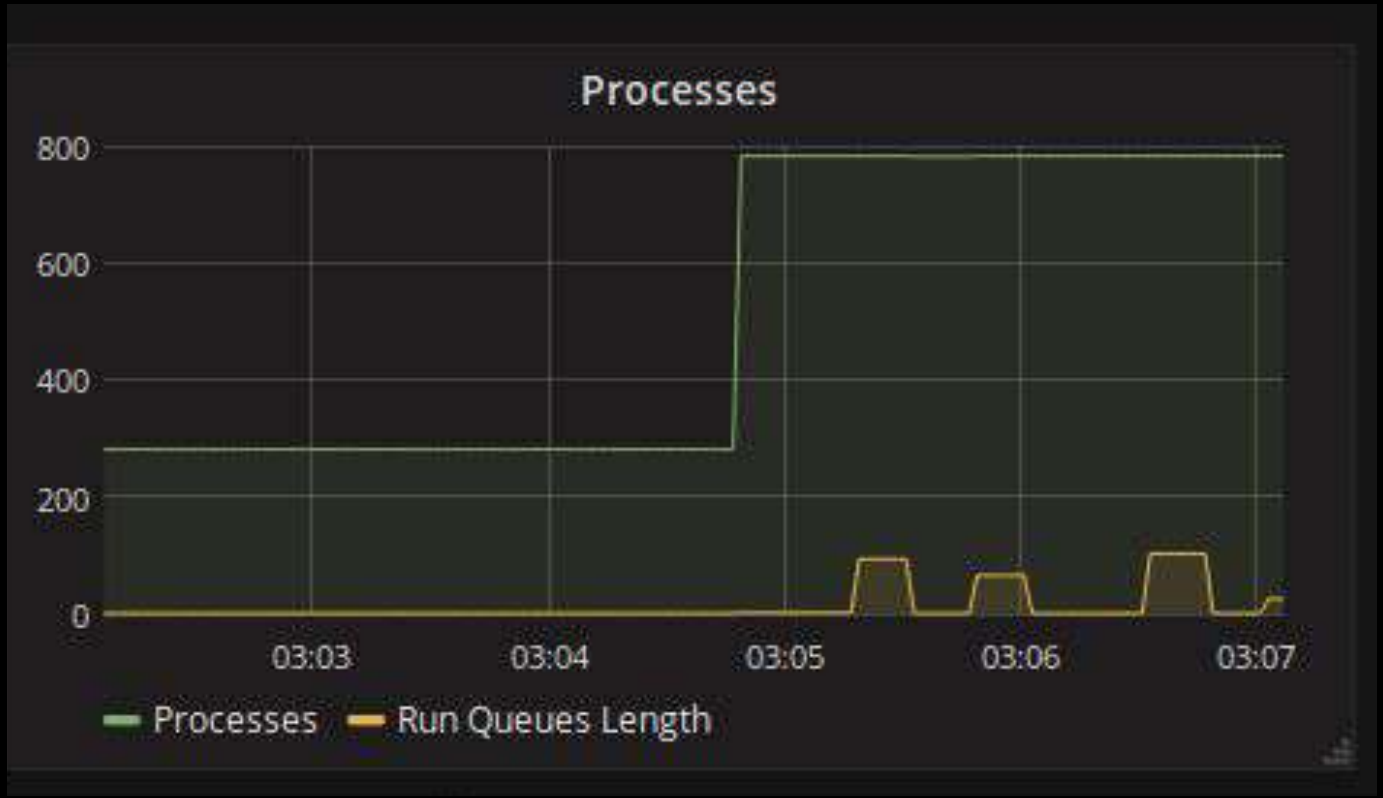
1. What is the overall system health?
    a. Common VM metrics
2. What are the trends?
    a. Observability
    b. Tooling
3. Why did that that request take so long?
    a. Monitoring
    b. Tooling

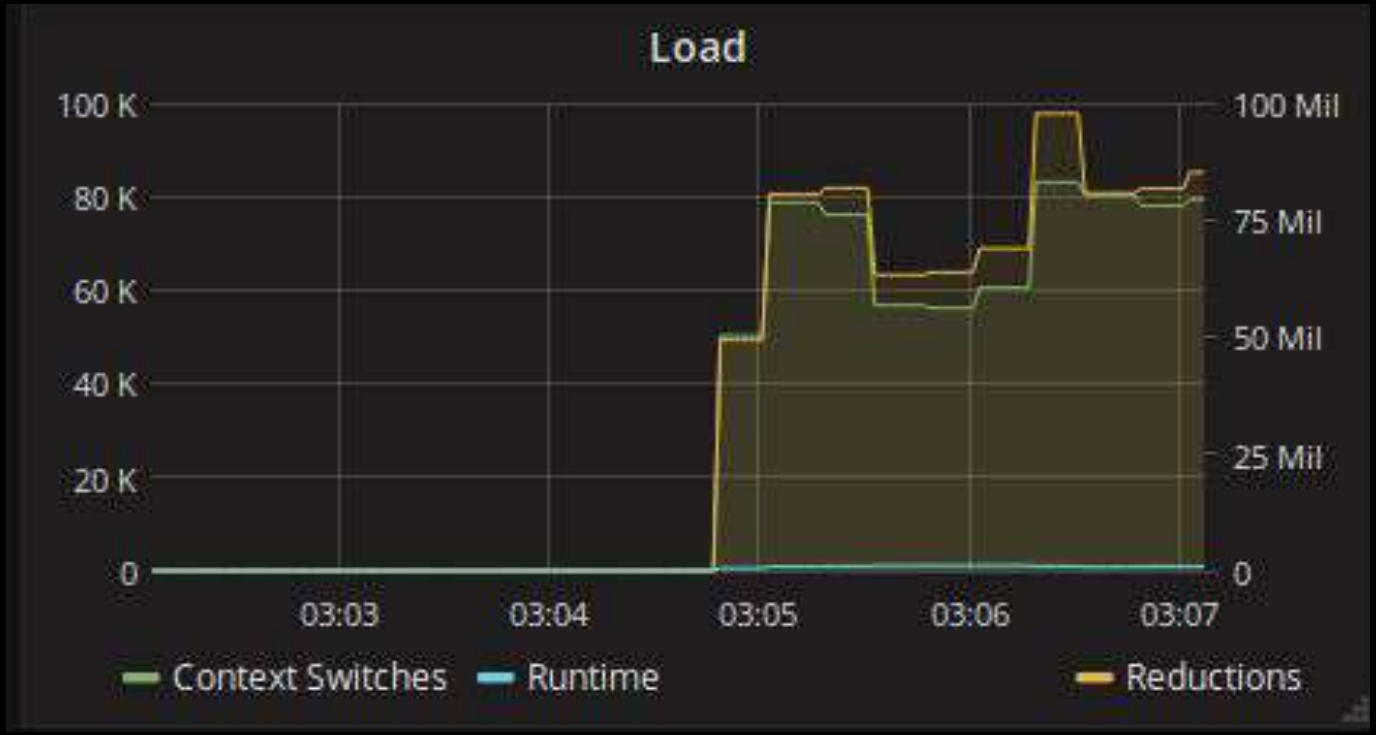

Why is ____ slow?
Why did _____ requests fail?

Who?
What?
Where?
When?
Why?

github.com/deadtrickster/beam-dashboards


VM Memory
572 MiB
477 MiB
381 MiB
286 MiB
191 MiB
95 MiB
0 B
03:03
03:04
03:05
03:06
03:07
Processes Memory
Atoms
Binary
Code
ETS


Processes
800
600
400
200
0
03:03
03:04
03:05
03:06
03:07
Processes
Run Queues Length


Load
100 K
80 K
60 K
40 K
20 K
0
100 Mil
75 Mil
50 Mil
25 Mil
0
03:03
03:04
03:05
03:06
03:07
Context Switches
Runtime
Reductions

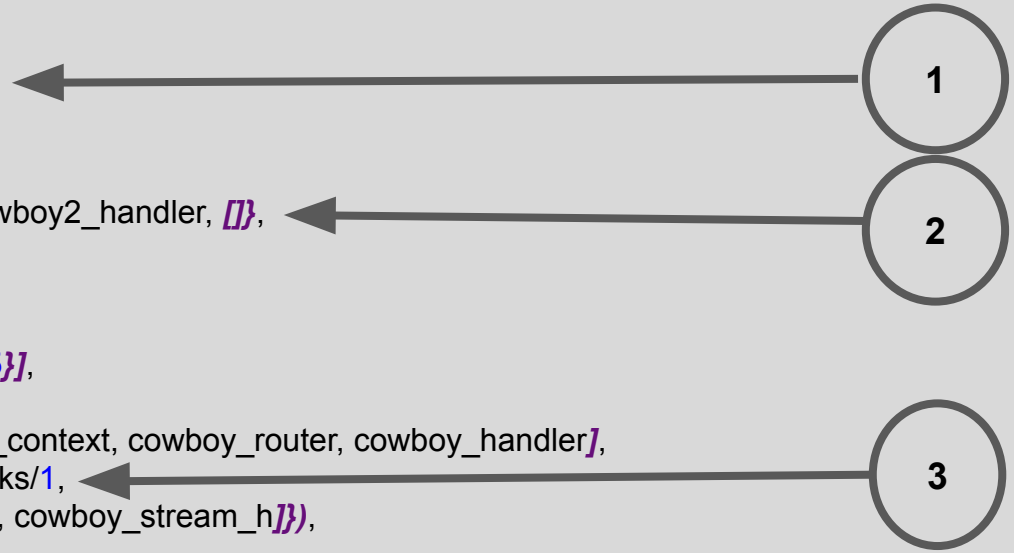
Setup

*_app.erl

```
start(_Type, _Args) ->
  opencensus_cowboy2_instrumenter:setup(),
  prometheus_cowboy2_instrumenter:setup(),
  Dispatch = cowboy_router:compile([
    {'_', [
      {"/metrics/[:registry]", prometheus_cowboy2_handler, []},
      {"/request", request_handler, []}
    ]}
  ]),
  {ok, _} = cowboy:start_clear(http, [{port, 4445}],
    #{env => #{dispatch => Dispatch},
      middlewares => [opencensus_cowboy2_context, cowboy_router, cowboy_handler],
      metrics_callback => fun metrics_callbacks/1,
      stream_handlers => [cowboy_metrics_h, cowboy_stream_h]}),

  monitoring_sup:start_link().

metrics_callbacks(Metrics) ->
  prometheus_cowboy2_instrumenter:observe(Metrics),
  opencensus_cowboy2_instrumenter:observe(Metrics).
```



Application Initialization

~/rebar.config

```
{deps, [cowboy, prometheus_cowboy, opencensus_cowboy]}.
```

**.app.src*

```
{applications,[kernel, stdlib, cowboy, prometheus_cowboy,
opencensus_cowboy]},
```

Prometheus

~/prometheus.yml

```
global:
  scrape_interval:     15s

scrape_configs:
  - job_name: 'erlang'
    static_configs:
    - targets: ['localhost:4445']


> ./prometheus --config.file=prometheus.yml
```

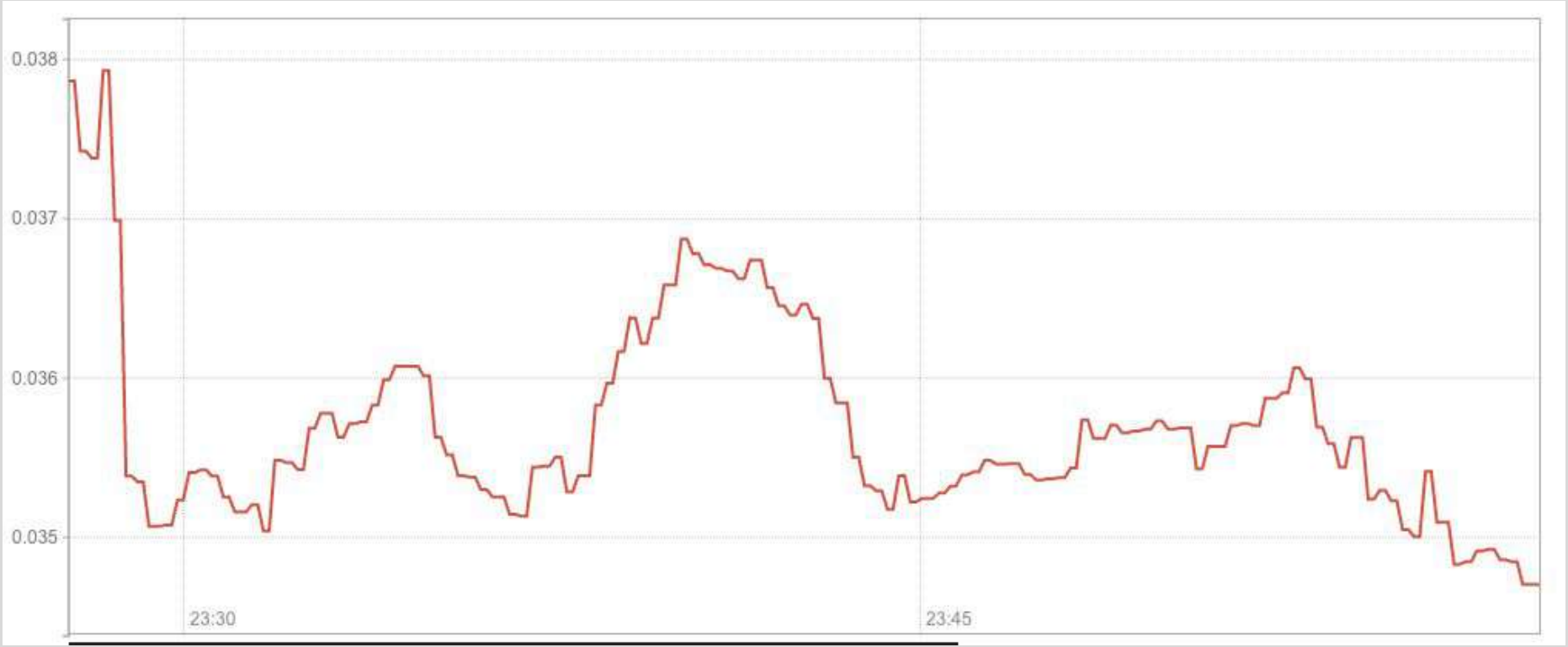
Metrics Observed

Prometheus:

cowboy_early_errors_total
cowboy_protocol_upgrades_total
cowboy_requests_total
cowboy_spawned_processes_total
cowboy_errors_total
cowboy_request_duration_seconds
cowboy_receive_body_duration_seconds

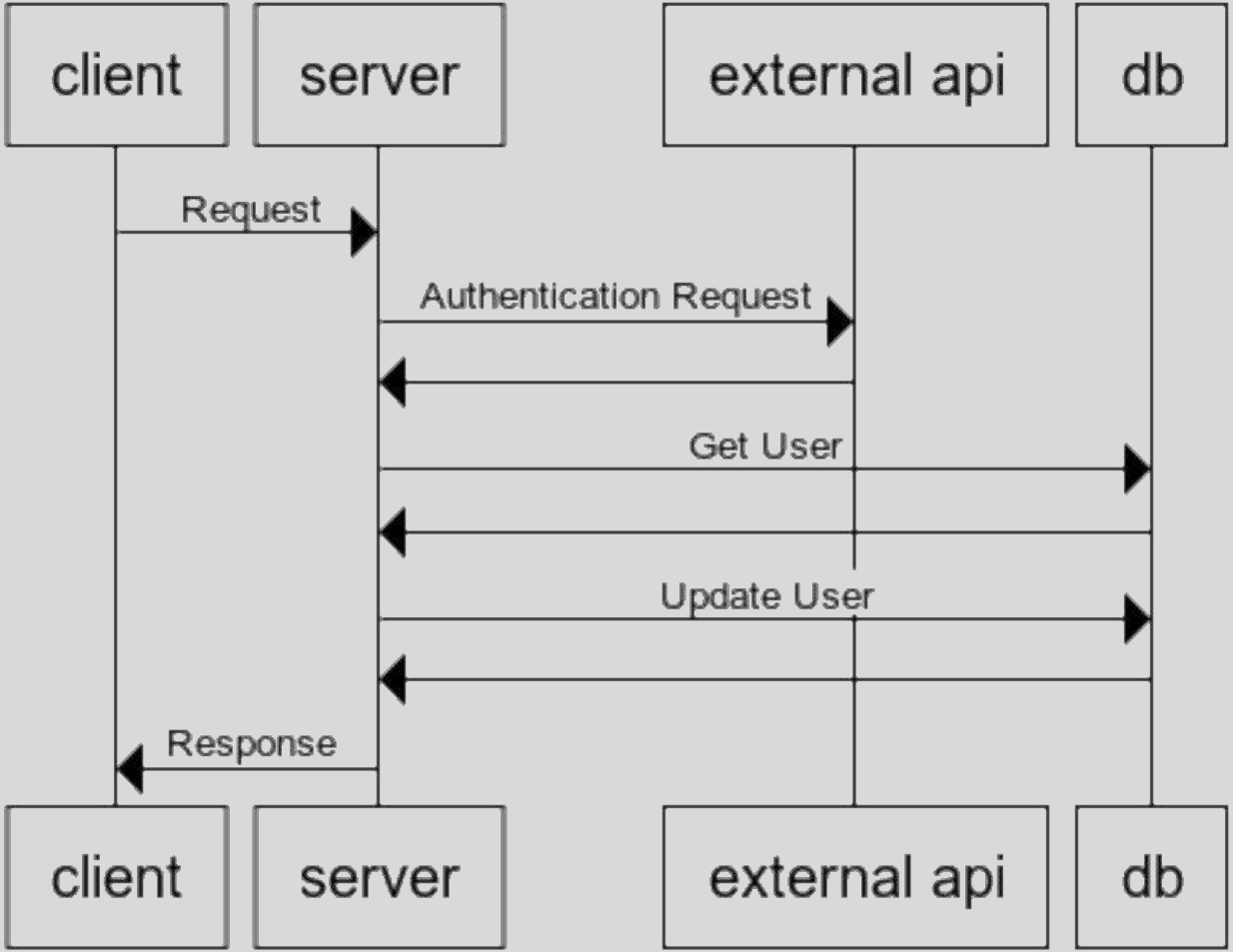
Tags

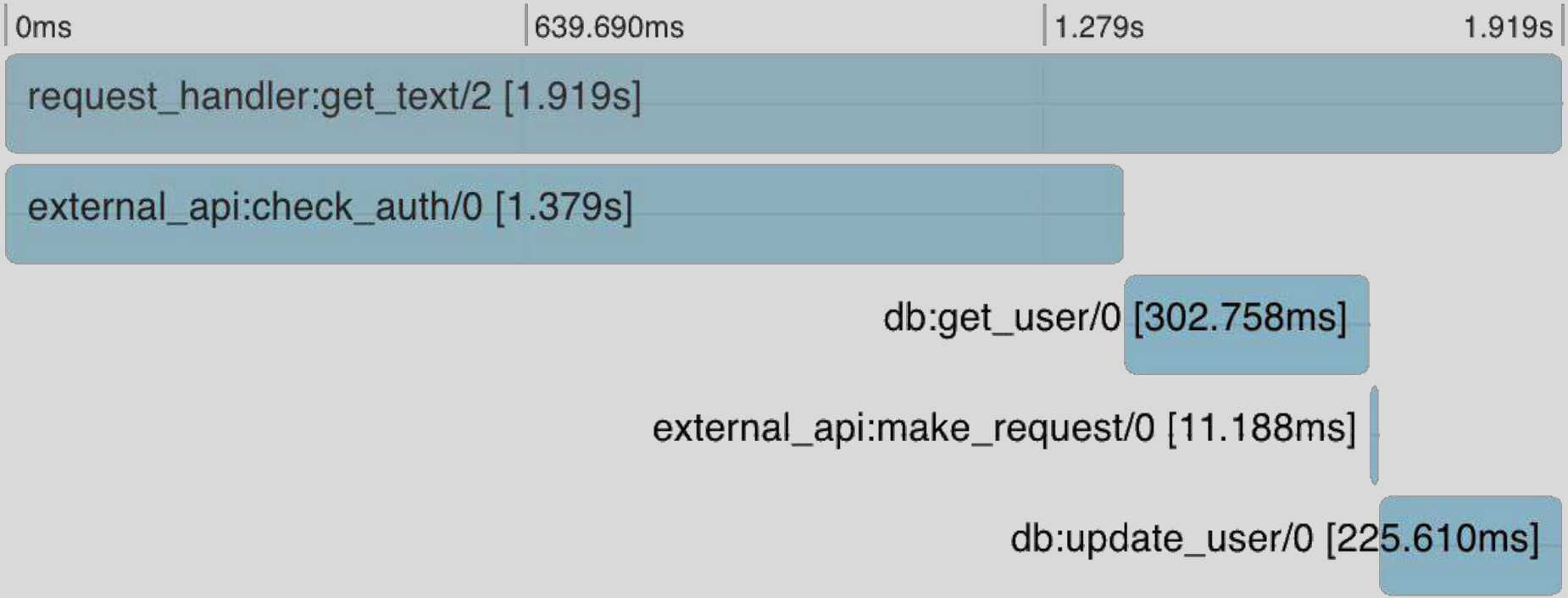
- host	216.3.128.12
- port	4445
- method	GET
- path	“/metrics”
- status	200
- status_class	“success”
- reason	internal_error
- error	timeout, closed




```
  rate(cowboy_request_duration_seconds_sum[5m])
/
  rate(cowboy_request_duration_seconds_count[5m])
```

Opencensus


client
server
external api
db
Request
Authentication Request
Get User
Update User
Response
client
server
external api
db


0ms
639.690ms
1.279s
1.919s
request_handler:get_text/2 [1.919s]
external_api:check_auth/0 [1.379s]
db:get_user/0 [302.758ms]
external_api:make_request/0 [11.188ms]
db:update_user/0 [225.610ms]

```
ocp:with_child_span(Name),

complex(),
calulations(),

ocp:finish_span()
```

```
ocp:with_child_span(Name),

complex(),
calulations(),
HTTP GET /service
    ocp:with_child_span(Name),
    more_calculations()
    ocp:finish_span()
more_calculations()

ocp:finish_span()
```

github.com/markusfeyh/monitoring

Open Source

OpenTelemetry

Try it and share

Thank you
TheRealReal

github.com/markusfeyh/monitoring

???