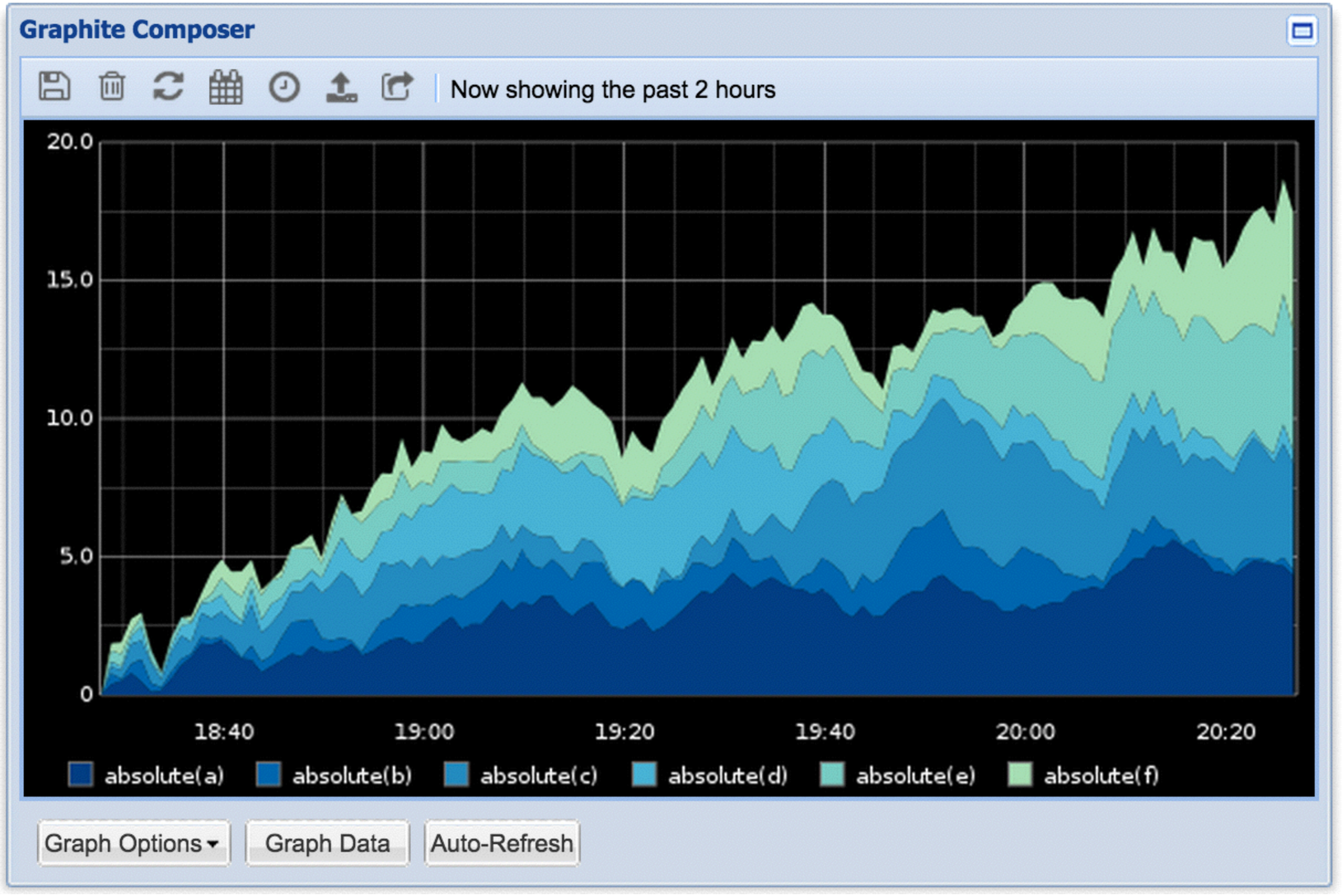
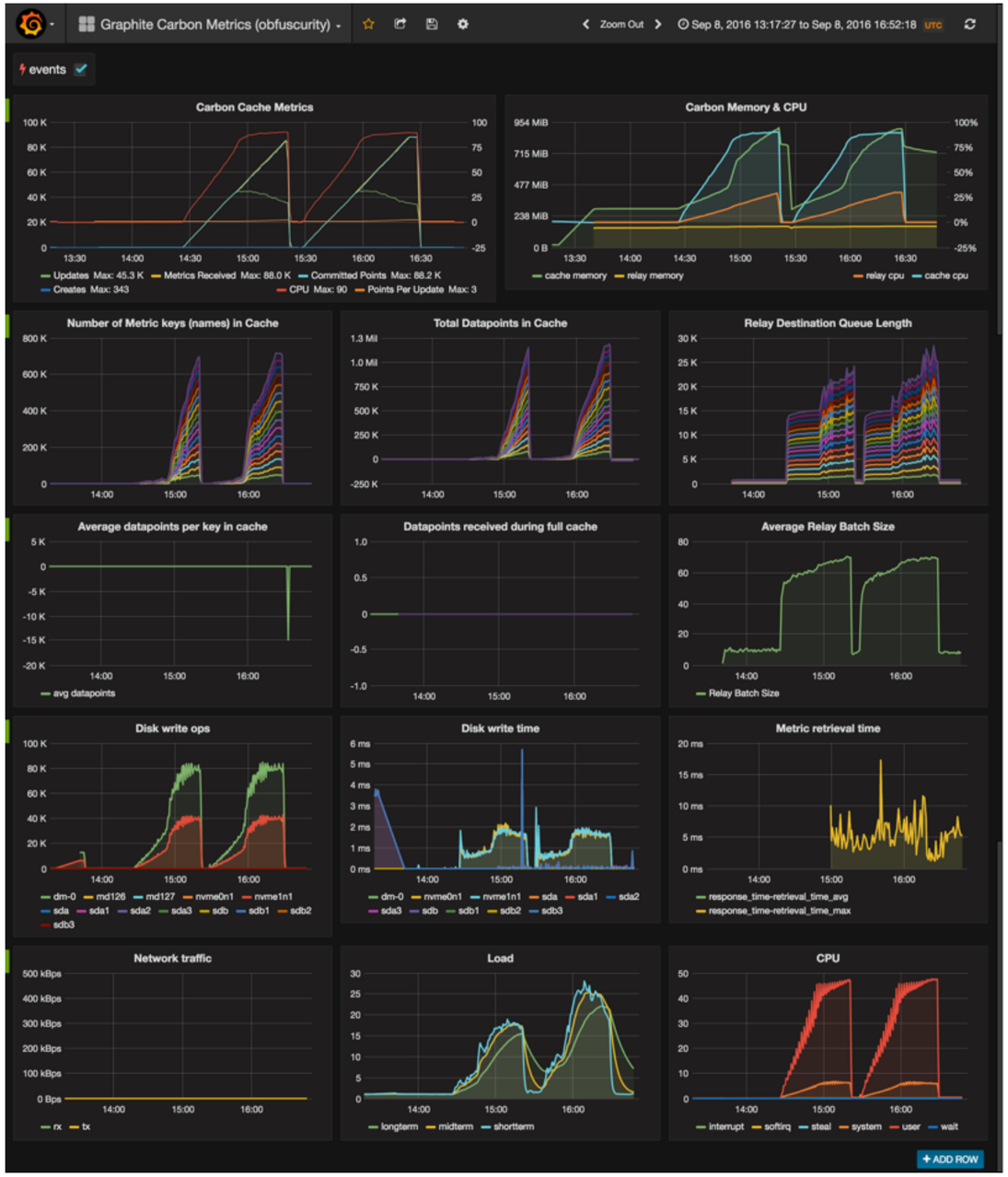
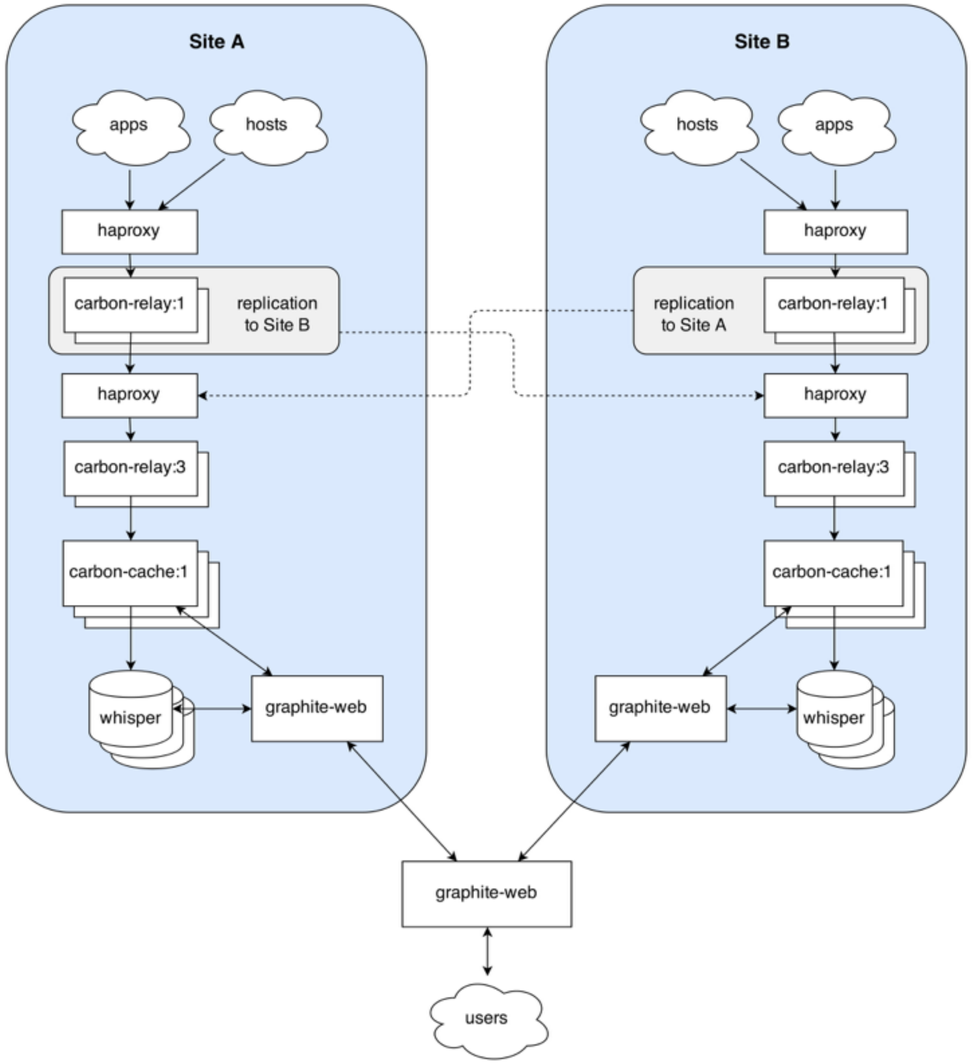
The Launch of Graphite 1.0-ish

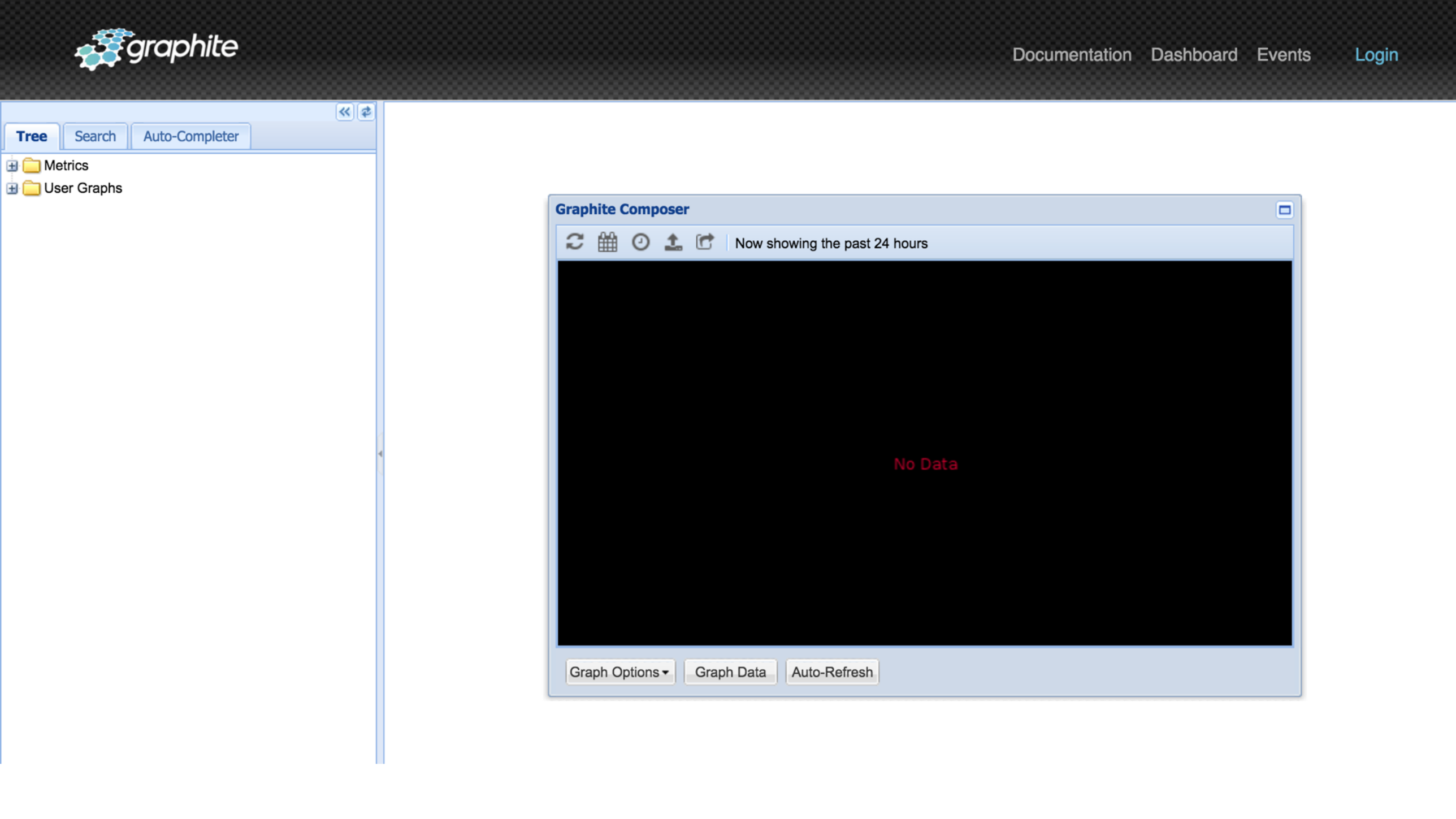
aka the cage match between 0.9.x and 0.10.0

what is graphite?


Graphite Composer
Now showing the past 2 hours
20.0
15.0
10.0
5.0
0
18:40
19:00
19:20
19:40
20:00
20:20
absolute(a)
absolute(b)
absolute(c)
absolute(d)
absolute(e)
absolute(f)
Graph Options
Graph Data
Auto-Refresh


Graphite Carbon Metrics (obfuscurity)
Zoom Out
Sep 8, 2016 13:17:27 to Sep 8, 2016 16:52:18 UTC
events
Carbon Cache Metrics
Updates Max: 45.3 K
Metrics Received Max: 88.0 K
Committed Points Max: 88.2 K
Creates Max: 343
CPU Max: 90
Points Per Update Max: 3
Carbon Memory & CPU
cache memory
relay memory
relay cpu
cache cpu
Number of Metric keys (names) in Cache
Total Datapoints in Cache
Relay Destination Queue Length
Average datapoints per key in cache
avg datapoints
Datapoints received during full cache
Average Relay Batch Size
Relay Batch Size
Disk write ops
dm-0 md126 md127 nvme0n1 nvme1n1 sda sda1 sda2 sda3 sdb sdb1 sdb2 sdb3
Disk write time
dm-0 nvme0n1 nvme1n1 sda sda1 sda2 sda3 sdb sdb1 sdb2 sdb3
Metric retrieval time
response_time-retrieval_time_avg
response_time-retrieval_time_max
Network traffic
rx tx
Load
longterm midterm shortterm
CPU
interrupt softirq steal system user wait
+ ADD ROW

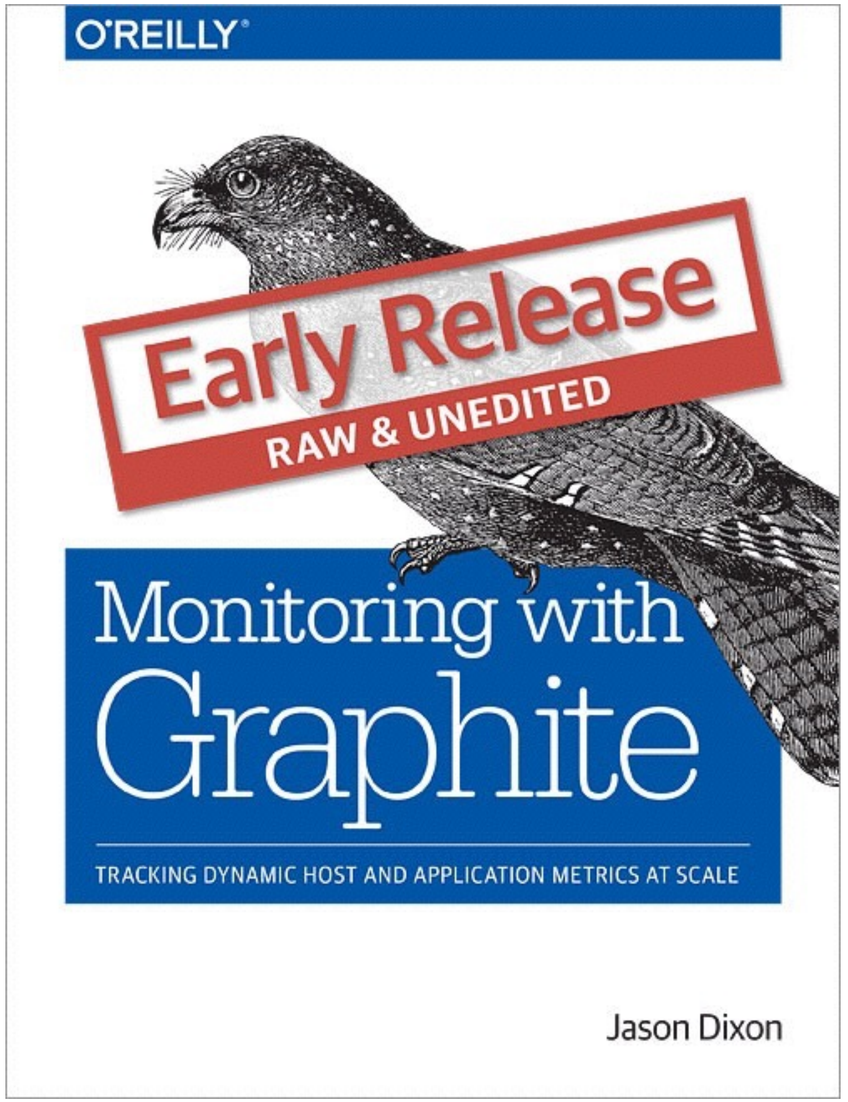

Site A
apps
hosts
haproxy
carbon-relay:1
replication
to Site B
haproxy
carbon-relay:3
carbon-cache:1
whisper
graphite-web
Site B
hosts
apps
haproxy
replication
to Site A
carbon-relay:1
haproxy
carbon-relay:3
carbon-cache:1
graphite-web
whisper
graphite-web
users


graphite
Documentation
Dashboard
Events
Login
Tree
Search
Auto-Completer
Metrics
User Graphs
Graphite Composer
Now showing the past 24 hours
No Data
Graph Options
Graph Data
Auto-Refresh

how did we get here?

ORBITZ

http://www.aosabook.org/en/graphite.html


O'REILLY
Early Release
RAW & UNEDITED
Monitoring with
Graphite
TRACKING DYNAMIC HOST AND APPLICATION METRICS AT SCALE
Jason Dixon

the changing tsdb landscape

the not-so-secret secret about tsdb's

the ~~future~~ now of graphite

not 0.9.x

but I love 0.9.x

ok, so what now?

live demo 💥

highlights

pluggable storage finders

- standard (whisper, rrd)
- ceres
- Cyanite (external, Cassandra-based)
- KairosDB (external)
- OpenTSDB (external)
- < your custom finder here >

pluggable carbon protocols

zomg so much test
coverage special thanks
to @brutasse @cbowman0

improved brace expansion and globstar support

NICK
MAKE GIFS AT GIFSOUP.COM

improved unicode,
timezone, and special
char support throughout

updated requirements

- Python 2.7
- Django 1.9 (graphite-web)
- Twisted 13.2+ (carbon)

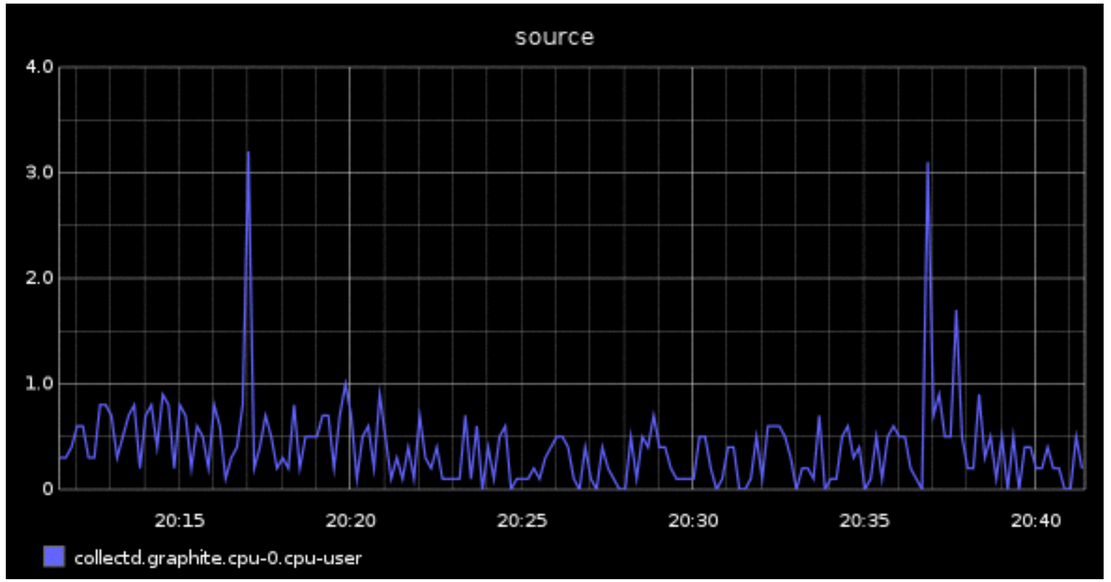
new (optional) components

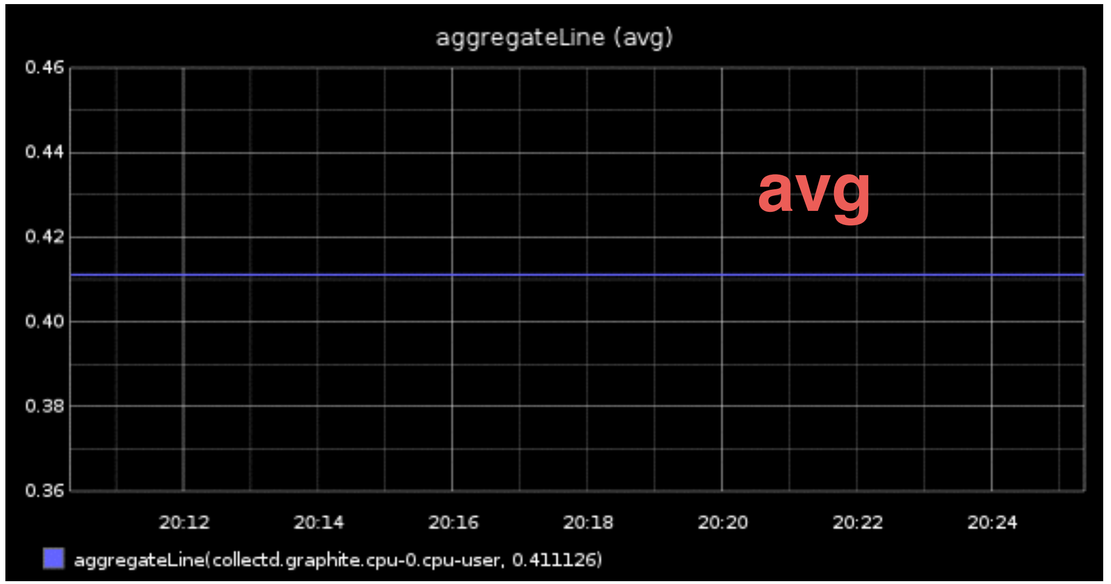
- Carbonate (rebalancing suite)
- Ceres (experimental tsdb)

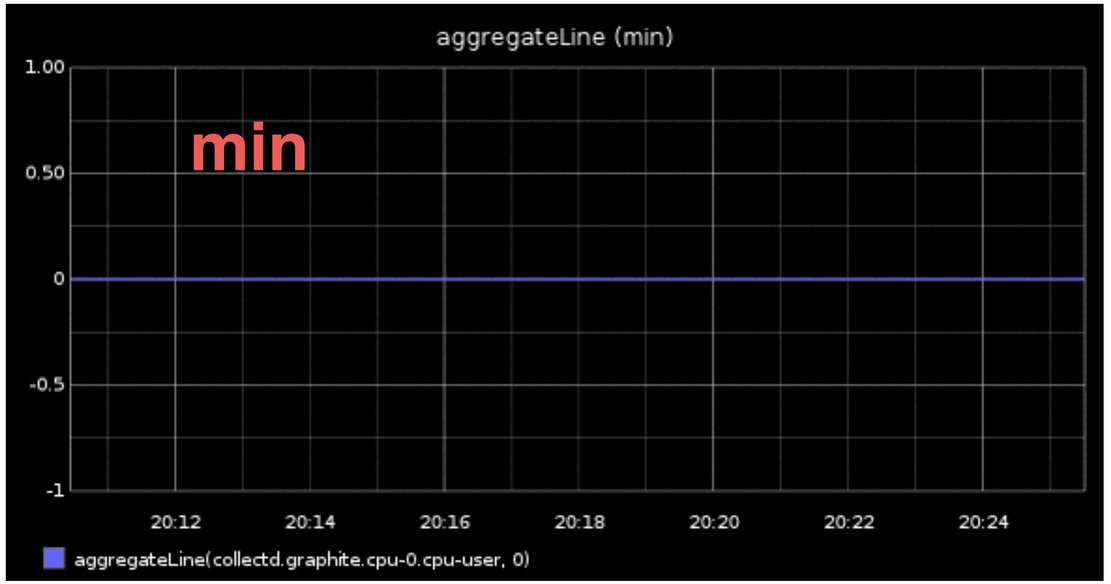
zomg new functions

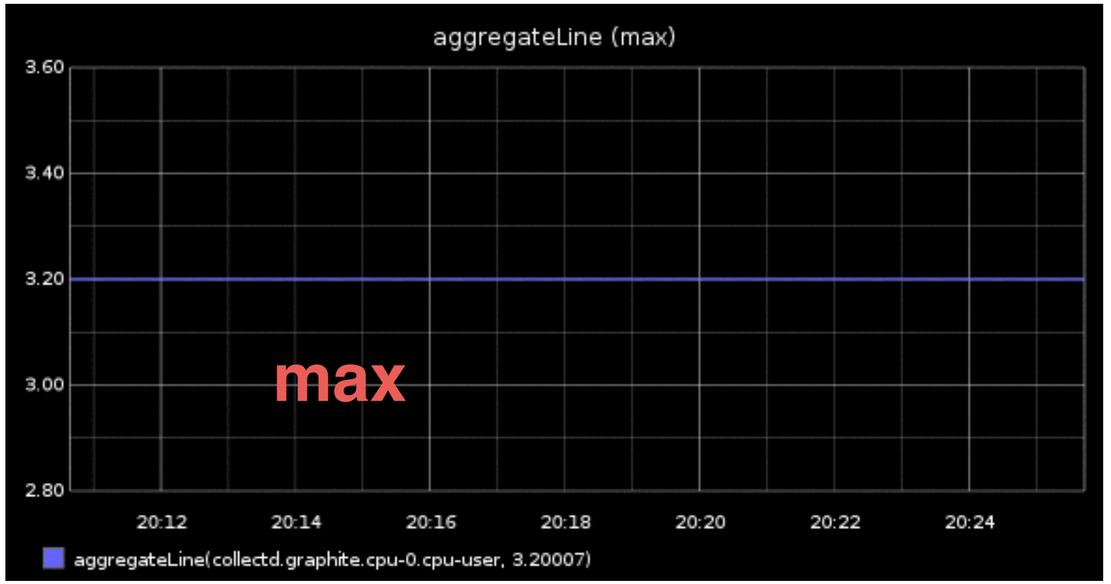
MORE RENDER FUNCTIONS
EVERYONE GETS A RENDER FUNCTION
imgflip.com

aggregateLine


source
4.0
3.0
2.0
1.0
0
20:15
20:20
20:25
20:30
20:35
20:40
collectd.graphite.cpu-0.cpu-user


aggregateLine (avg)
0.46
0.44
0.42
0.40
0.38
0.36
avg
20:12
20:14
20:16
20:18
20:20
20:22
20:24
aggregateLine(collectd.graphite.cpu-0.cpu-user, 0.411126)

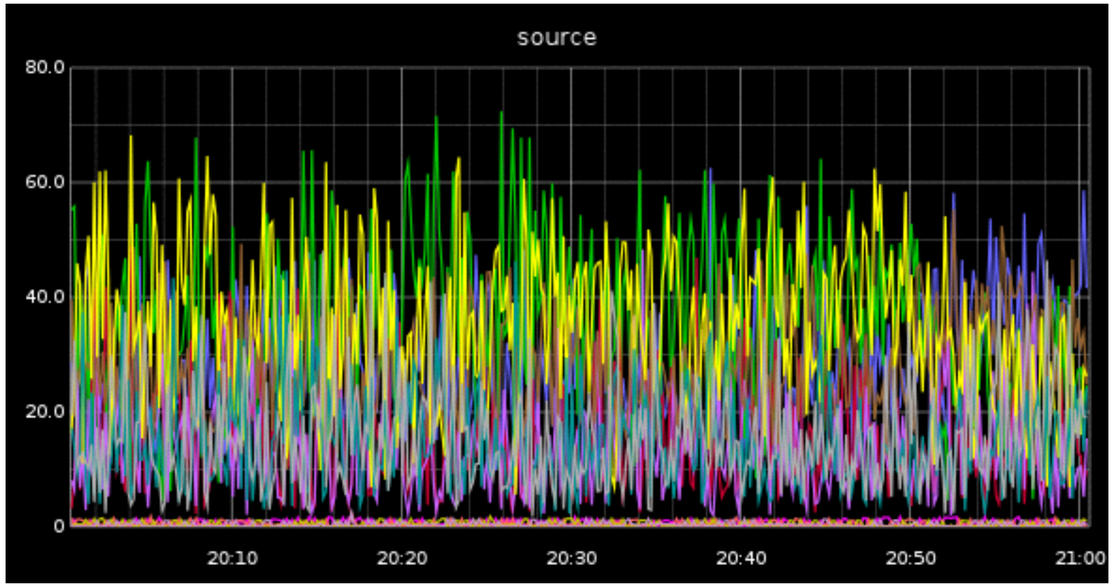

aggregateLine (min)
1.00
0.50
0
-0.5
-1
min
20:12
20:14
20:16
20:18
20:20
20:22
20:24
aggregateLine(collectd.graphite.cpu-0.cpu-user, 0)

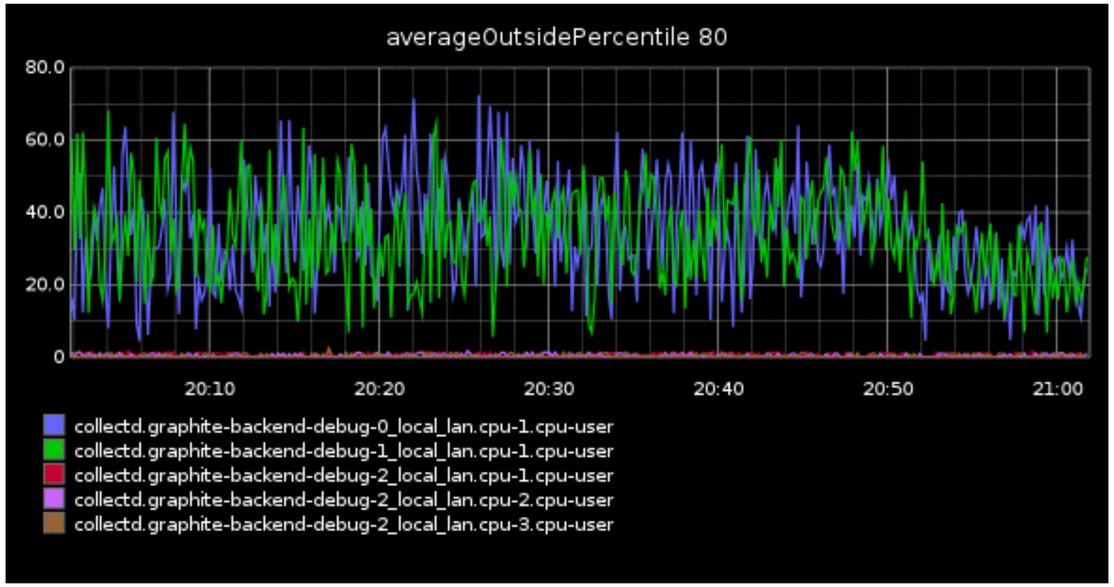

aggregateLine (max)
3.60
3.40
3.20
3.00
2.80
max
20:12
20:14
20:16
20:18
20:20
20:22
20:24
aggregateLine(collectd.graphite.cpu-0.cpu-user, 3.20007)

applyByNode

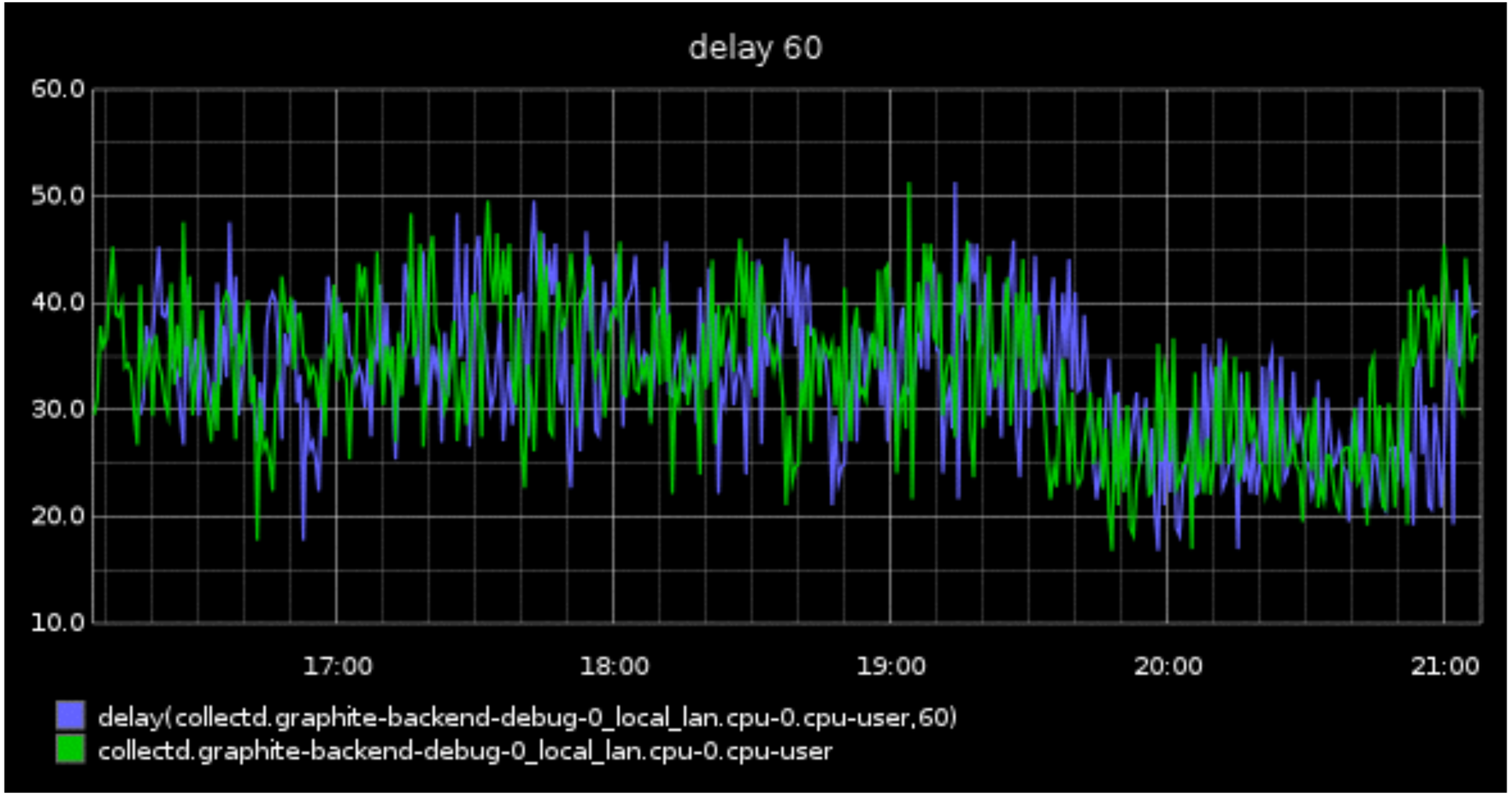
i tried i really did but you
should just go read the
`applyByNode` function docs
because omg i can’t even

averageOutsidePercentile


source
80.0
60.0
40.0
20.0
0
20:10
20:20
20:30
20:40
20:50
21:00


averageOutsidePercentile 80
80.0
60.0
40.0
20.0
0
20:10
20:20
20:30
20:40
20:50
21:00
collectd.graphite-backend-debug-0_local_lan.cpu-1.cpu-user
collectd.graphite-backend-debug-1_local_lan.cpu-1.cpu-user
collectd.graphite-backend-debug-2_local_lan.cpu-1.cpu-user
collectd.graphite-backend-debug-2_local_lan.cpu-2.cpu-user
collectd.graphite-backend-debug-2_local_lan.cpu-3.cpu-user

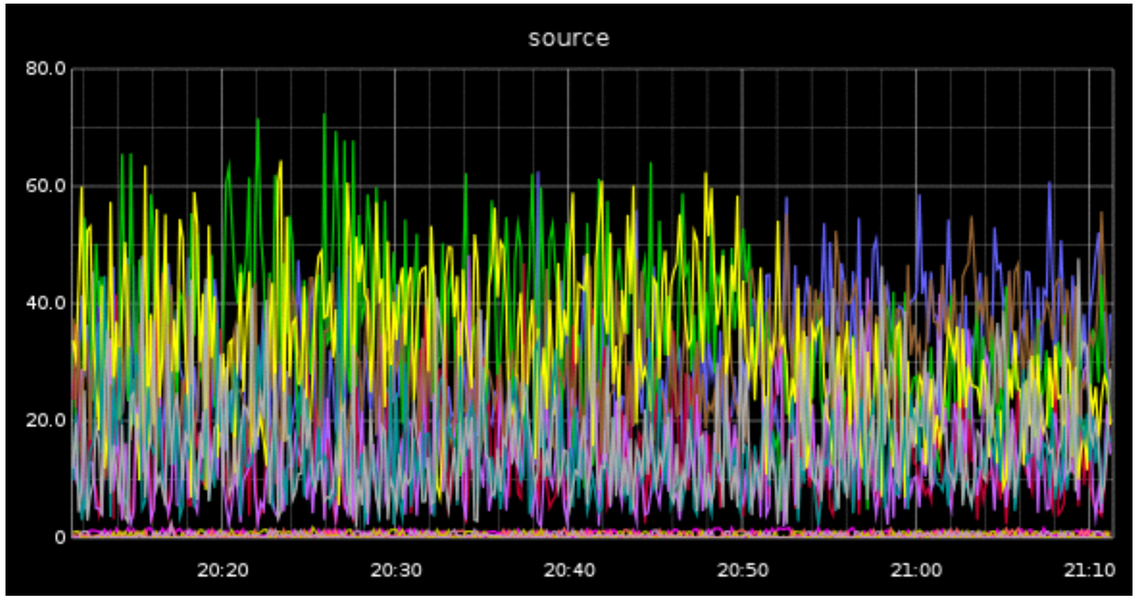
delay

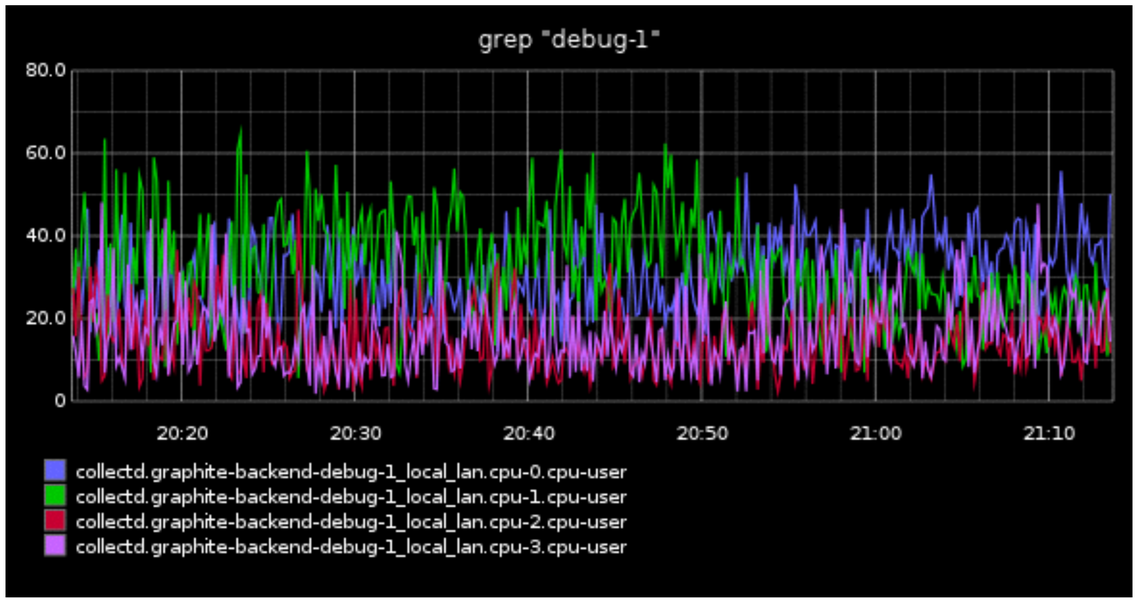

delay 60
60.0
50.0
40.0
30.0
20.0
10.0
17:00
18:00
19:00
20:00
21:00
delay(collectd.graphite-backend-debug-0_local_lan.cpu-0.cpu-user,60)
collectd.graphite-backend-debug-0_local_lan.cpu-0.cpu-user

fallbackSeries

```
fallbackSeries(foo.requests,
    constantLine(0))
```

grep

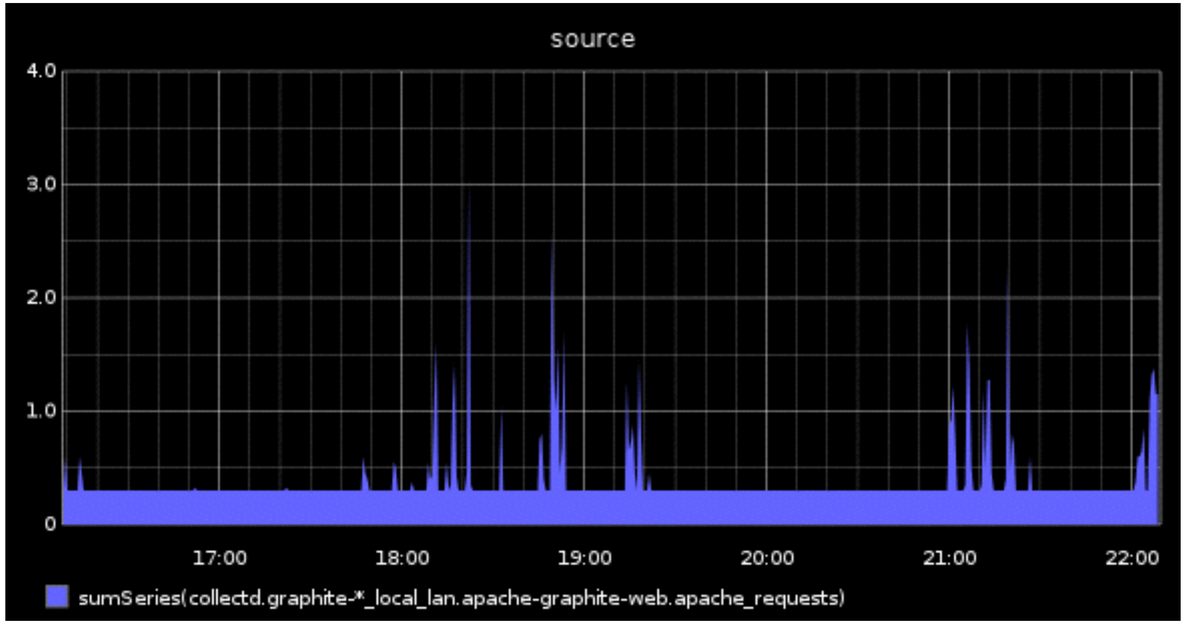

source
80.0
60.0
40.0
20.0
0
20:20
20:30
20:40
20:50
21:00
21:10

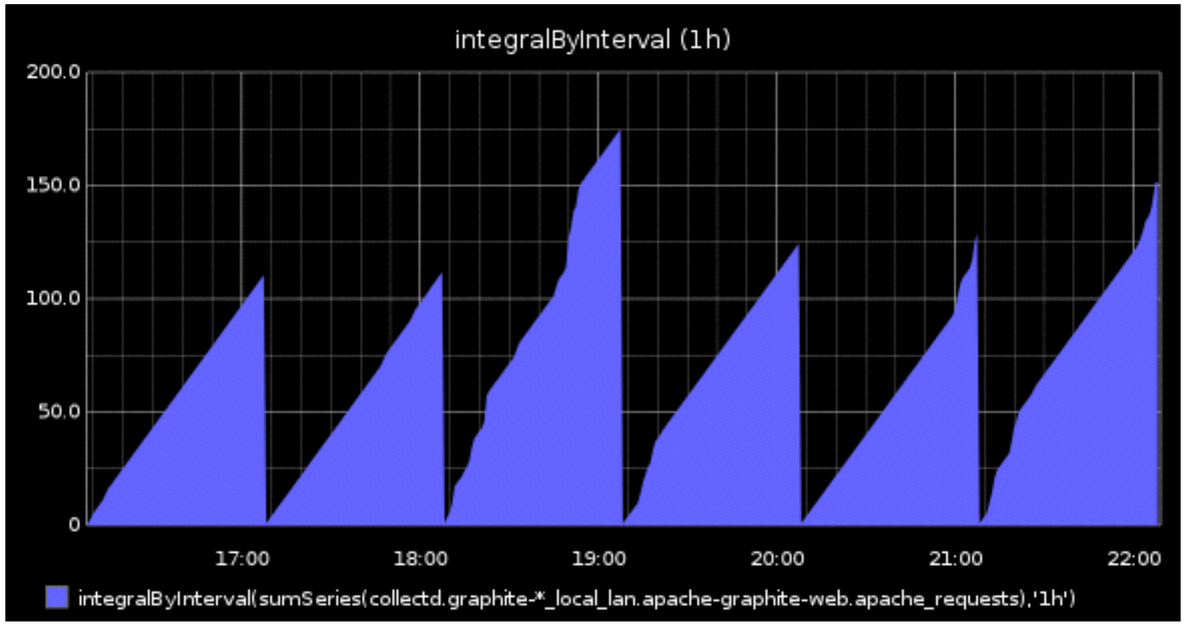

grep "debug-1"
80.0
60.0
40.0
20.0
0
20:20
20:30
20:40
20:50
21:00
21:10
collectd.graphite-backend-debug-1_local_lan.cpu-0.cpu-user
collectd.graphite-backend-debug-1_local_lan.cpu-1.cpu-user
collectd.graphite-backend-debug-1_local_lan.cpu-2.cpu-user
collectd.graphite-backend-debug-1_local_lan.cpu-3.cpu-user

groupByNodes

```
groupByNodes(app.server*.*.reqs.*,
"sumSeries",1,4)
```

integralByInterval


source
4.0
3.0
2.0
1.0
0
17:00
18:00
19:00
20:00
21:00
22:00
sumSeries(collectd.graphite-*_local_lan.apache-graphite-web.apache_requests)

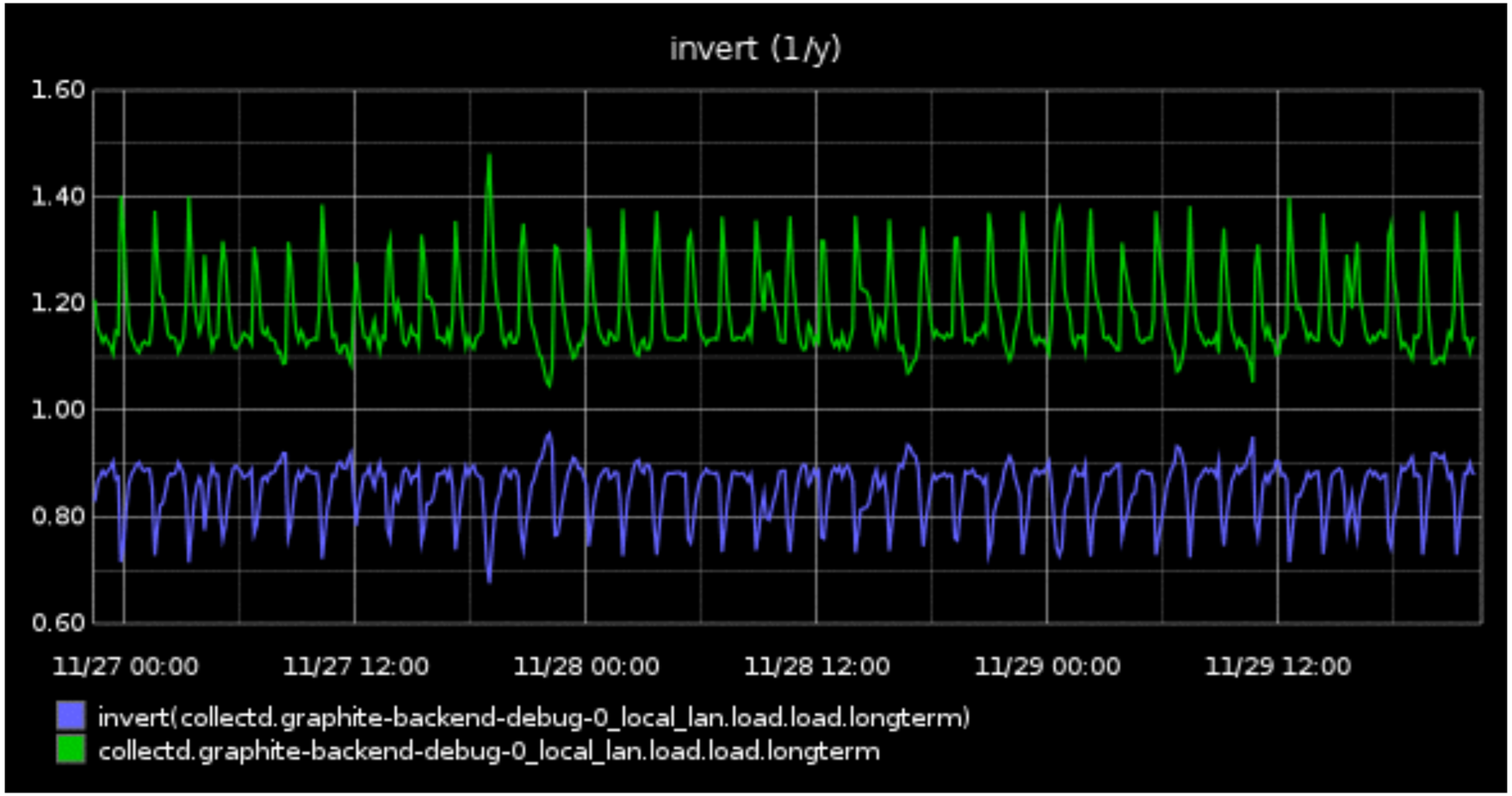

integralByInterval (1h)
200.0
150.0
100.0
50.0
0
17:00
18:00
19:00
20:00
21:00
22:00
integralByInterval(sumSeries(collectd.graphite-*_local_lan.apache-graphite-web.apache_requests),'1h')

interpolate

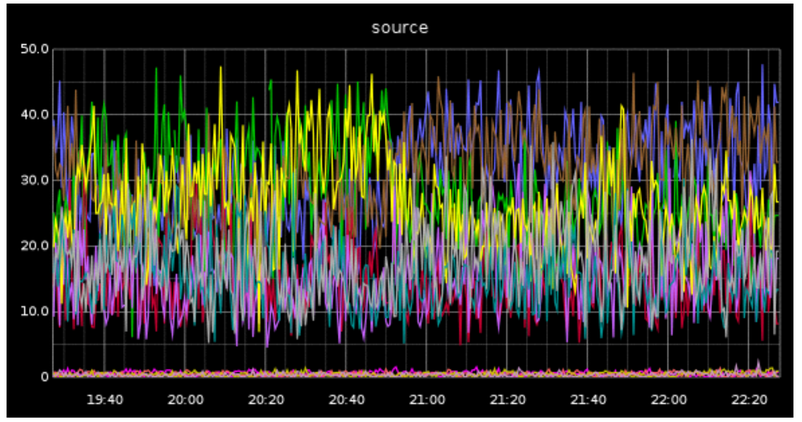
sorta behaves like
`lineMode=connected` except it
also supports a **`limit`** arg for how
many null values to interpolate over

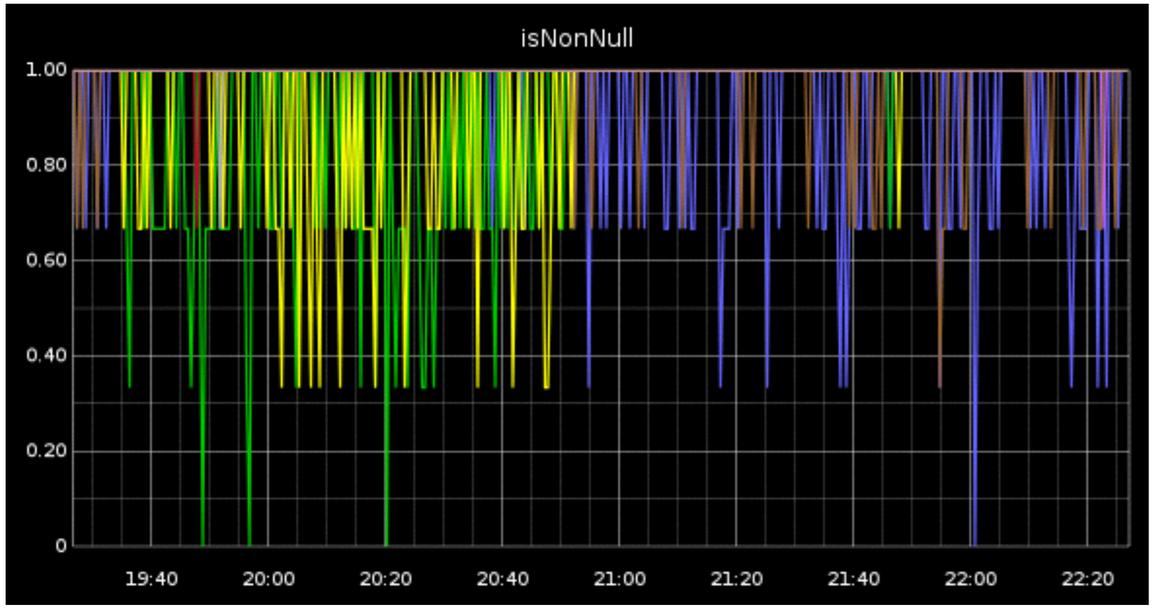
invert

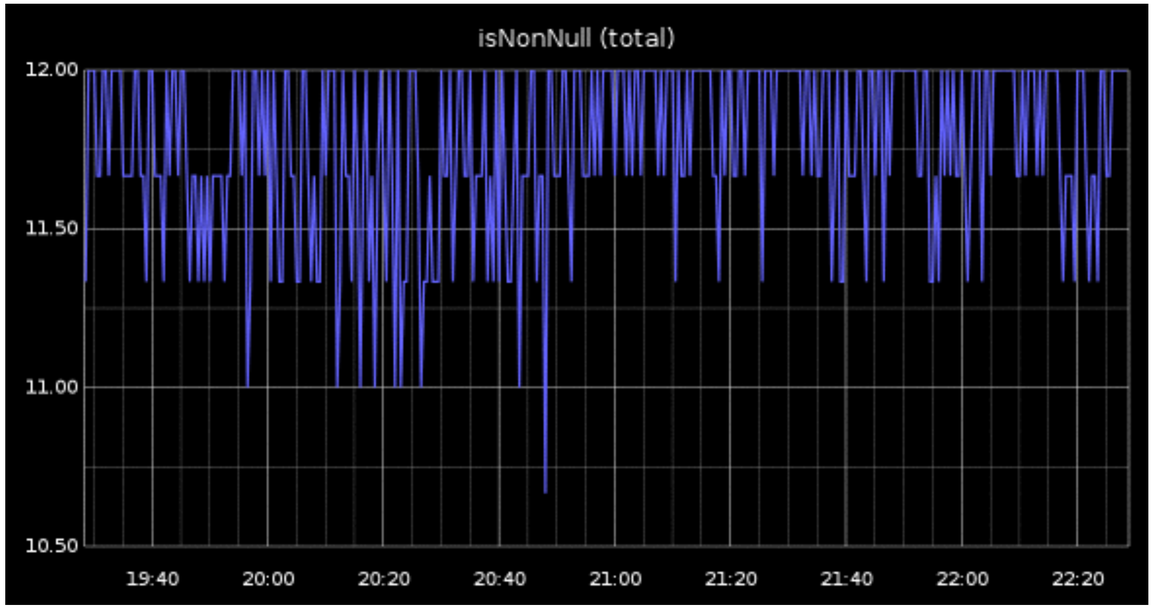
MOVIECLIPS.com
MakeAGIF.com


invert (1/y)
1.60
1.40
1.20
1.00
0.80
0.60
11/27 00:00
11/27 12:00
11/28 00:00
11/28 12:00
11/29 00:00
11/29 12:00
invert(collectd.graphite-backend-debug-0_local_lan.load.load.longterm)
collectd.graphite-backend-debug-0_local_lan.load.load.longterm

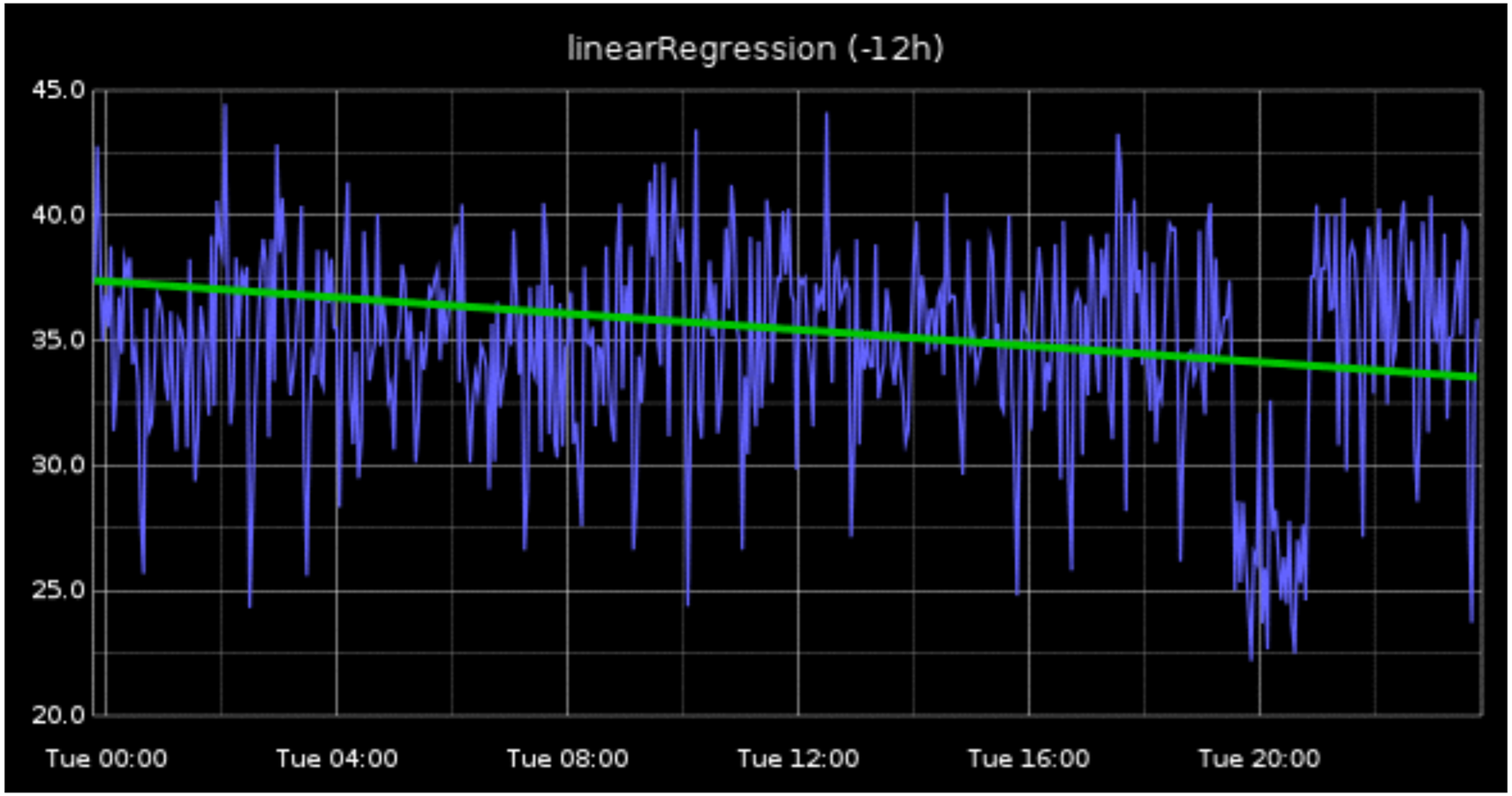
isNonNull


source
50.0
40.0
30.0
20.0
10.0
0
19:40
20:00
20:20
20:40
21:00
21:20
21:40
22:00
22:20


isNonNull
1.00
0.80
0.60
0.40
0.20
0
19:40
20:00
20:20
20:40
21:00
21:20
21:40
22:00
22:20


isNonNull (total)
12.00
11.50
11.00
10.50
19:40
20:00
20:20
20:40
21:00
21:20
21:40
22:00
22:20

linearRegression


linearRegression (-12h)
45.0
40.0
35.0
30.0
25.0
20.0
Tue 00:00
Tue 04:00
Tue 08:00
Tue 12:00
Tue 16:00
Tue 20:00

linearRegressionAnalysis

Please disperse.

mapSeries
reduceSeries

map and reduce,
nbd (again, rtd)

multiplySeriesWithWildcards

just like the other
`*SeriesWithWildcards`
functions but more fun,
because multiplication

offsetToZero

basically treats the lowest value in a series as the floor and subtracts that from all values in the series

offsetToZero
50.0
40.0
30.0
20.0
10.0
Tue 04:00
Tue 08:00
Tue 12:00
Tue 16:00
Tue 20:00
Wed 00:00
offsetToZero(collectd.graphite-backend-debug-0_local_lan.cpu-0.cpu-user)
collectd.graphite-backend-debug-0_local_lan.cpu-0.cpu-user

zomg are we done yet

pow

```
power(foo.bar, 10)
```

factor

removeBetweenPercentile

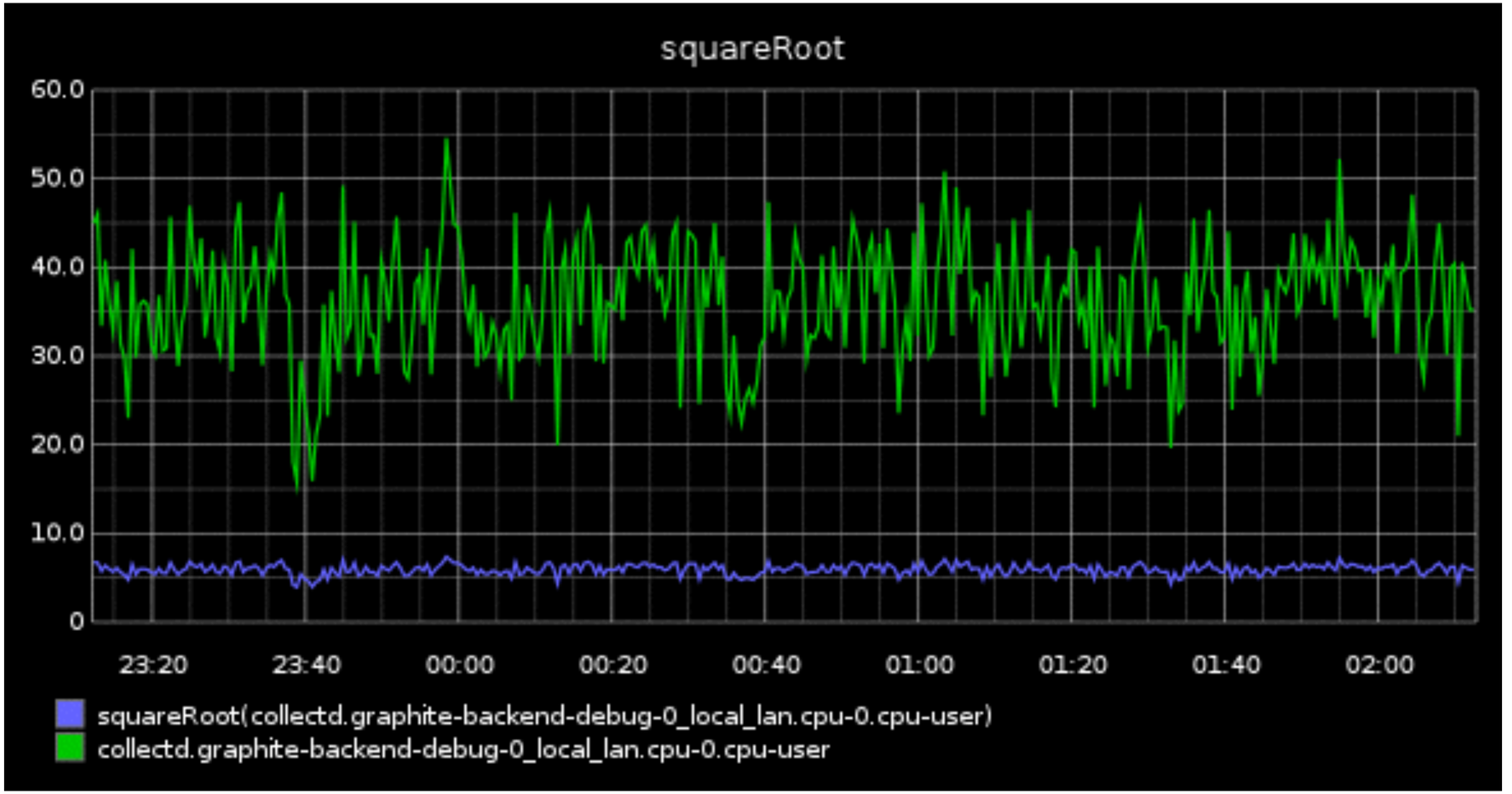
only render series that have a value outside the Nth percentile of all values within an interval

removeEmptySeries

sortByTotal

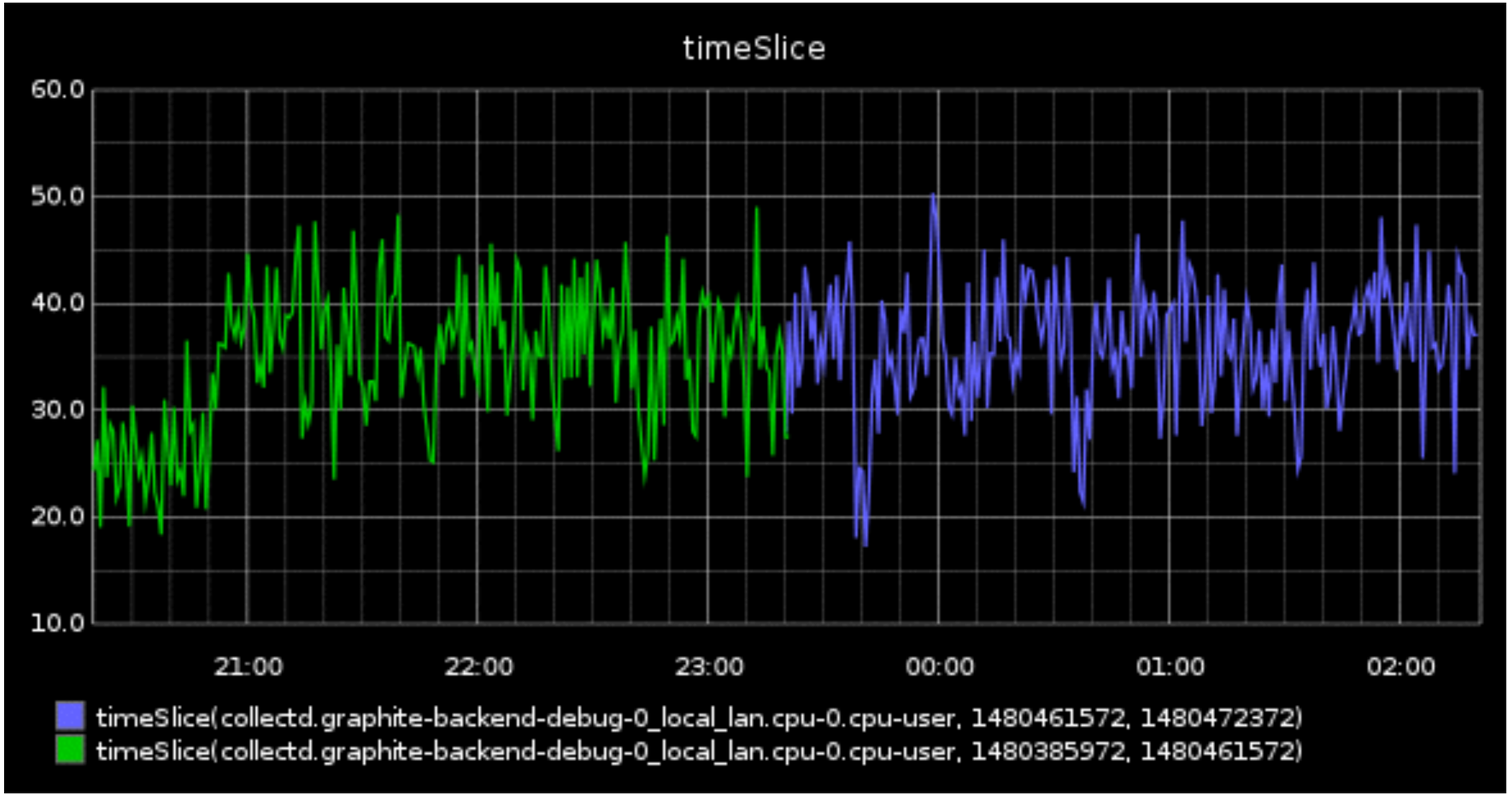
sort series by the sum
of their total values

squareRoot


squareRoot
60.0
50.0
40.0
30.0
20.0
10.0
0
23:20
23:40
00:00
00:20
00:40
01:00
01:20
01:40
02:00
squareRoot(collectd.graphite-backend-debug-0_local_lan.cpu-0.cpu-user)
collectd.graphite-backend-debug-0_local_lan.cpu-0.cpu-user

timeSlice

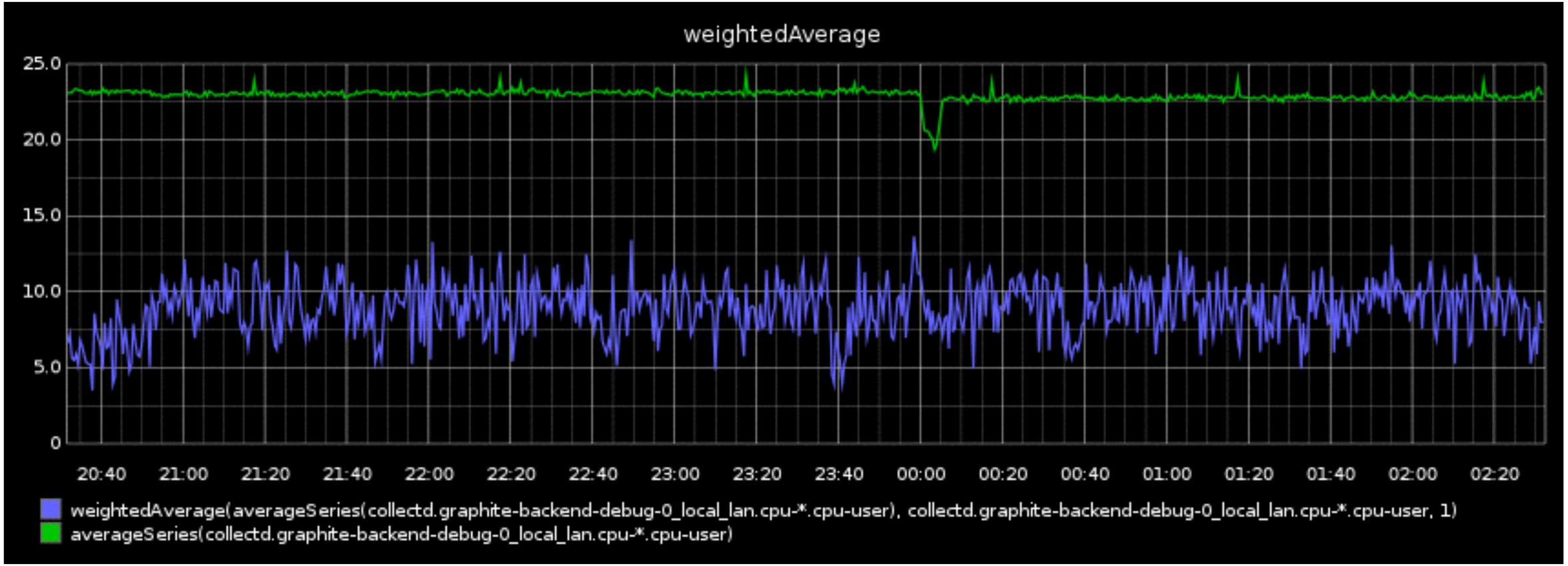
used to limit values to a specific set of intervals within the larger time range, e.g. when you’re interested in a contiguous span across disparate metrics


timeSlice
60.0
50.0
40.0
30.0
20.0
10.0
21:00
22:00
23:00
00:00
01:00
02:00
timeSlice(collectd.graphite-backend-debug-0_local_lan.cpu-0.cpu-user, 1480461572, 1480472372)
timeSlice(collectd.graphite-backend-debug-0_local_lan.cpu-0.cpu-user, 1480385972, 1480461572)

verticalLine

```
verticalLine("-1h")
```

weightedAverage

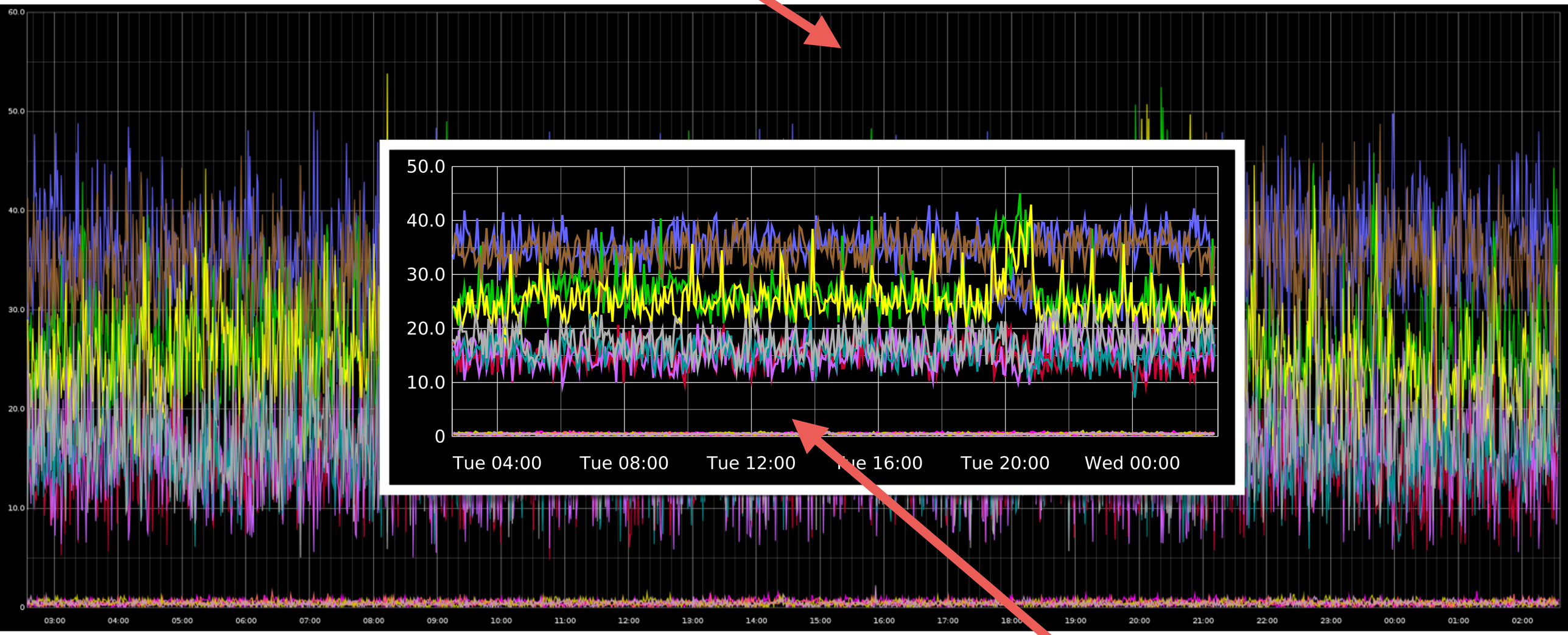

weightedAverage
25.0
20.0
15.0
10.0
5.0
0
20:40
21:00
21:20
21:40
22:00
22:20
22:40
23:00
23:20
23:40
00:00
00:20
00:40
01:00
01:20
01:40
02:00
02:20
weightedAverage(averageSeries(collectd.graphite-backend-debug-0_local_lan.cpu-*.cpu-user), collectd.graphite-backend-debug-0_local_lan.cpu-*.cpu-user, 1)
averageSeries(collectd.graphite-backend-debug-0_local_lan.cpu-*.cpu-user)

zomg new display formats

pdf

HA HA!
BUSINESS

width=2000&height=800



format=pdf

OBJECTS IN MIRROR ARE
CLOSER THAN THEY APPEAR
SweetMelissa

dygraph

rickshaw

no surprises, work as intended, useful for quick prototyping with their respective frameworks

zomg new graph options

hideNullFromLegend

hideXAxis

noNullPoints

(`format=json`)

pieLabels
valueLabels
valueLabelsColor
valueLabelsMin

HA HA!
BUSINESS

anything else because we
still have some time left
on the clock I think?

live demo 💥

new logo
graphite

zomg new settings

INTRACLUSTER_HTTPS

MAX_TAG_LENGTH

DATE_FORMAT

WHISPER_FADVISE_RANDOM

MAX_RECEIVER_CONNECTIONS

ok I think that’s all but if we have time left I guess I can answer questions or rant about Trump or whatever

thank you