dzAlerts

provide high quality, and detailed alerts on performance regressions
https://wiki.mozilla.org/Auto-tools/Projects/Alerts
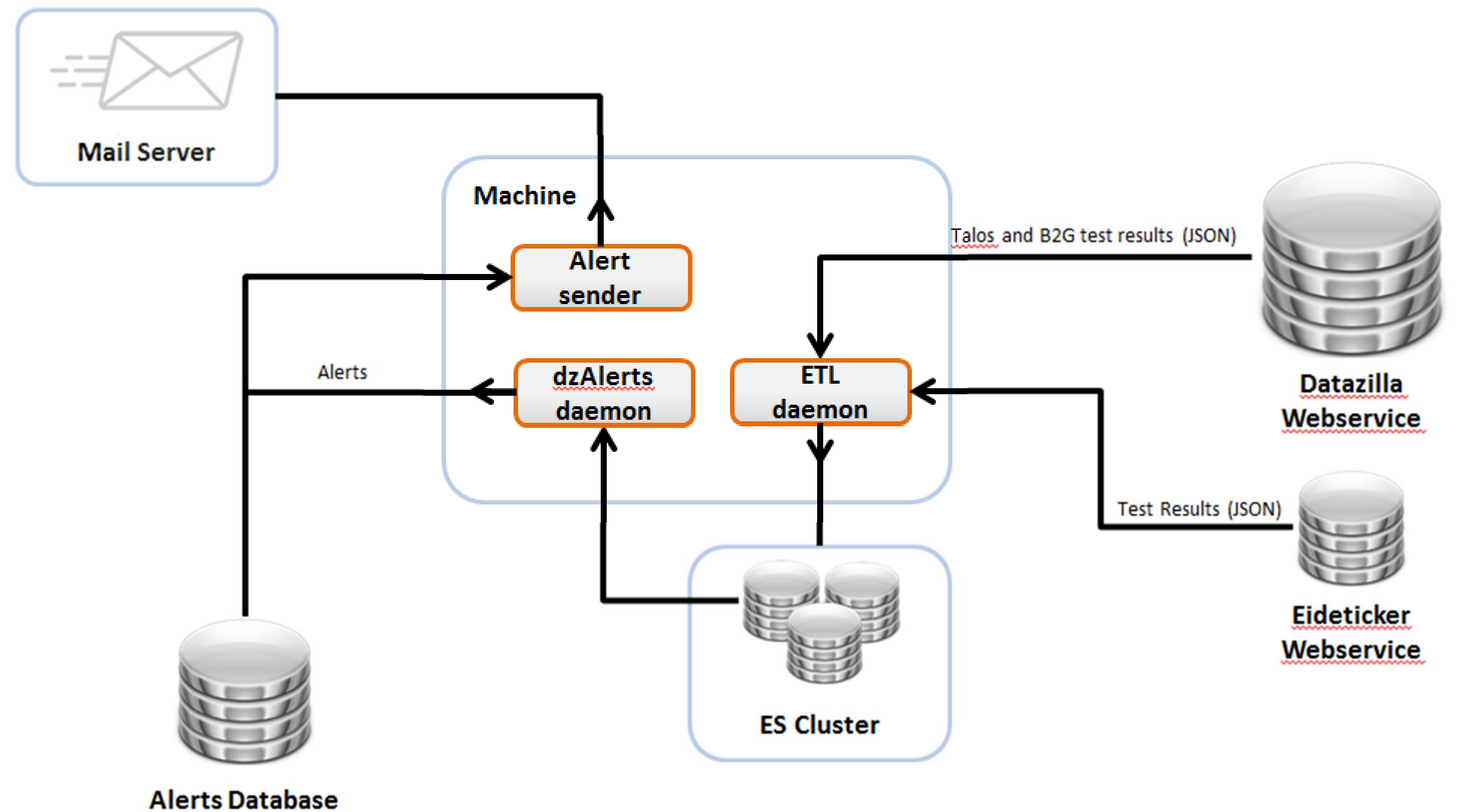
Architecture

- ETL into ElasticSearch document store
- Analyze time series
- Send alerts

Note: Arrow heads indicate which side initiates connection, and logical direction of data flow.

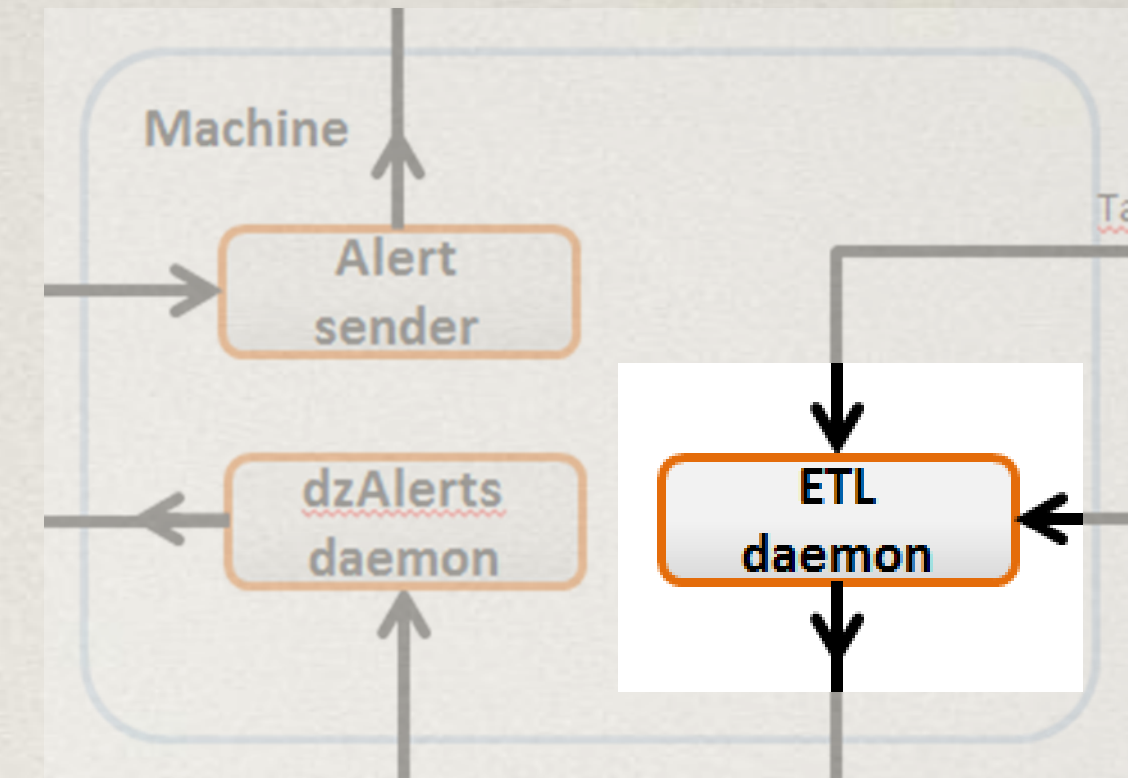

Architecture

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Architecture

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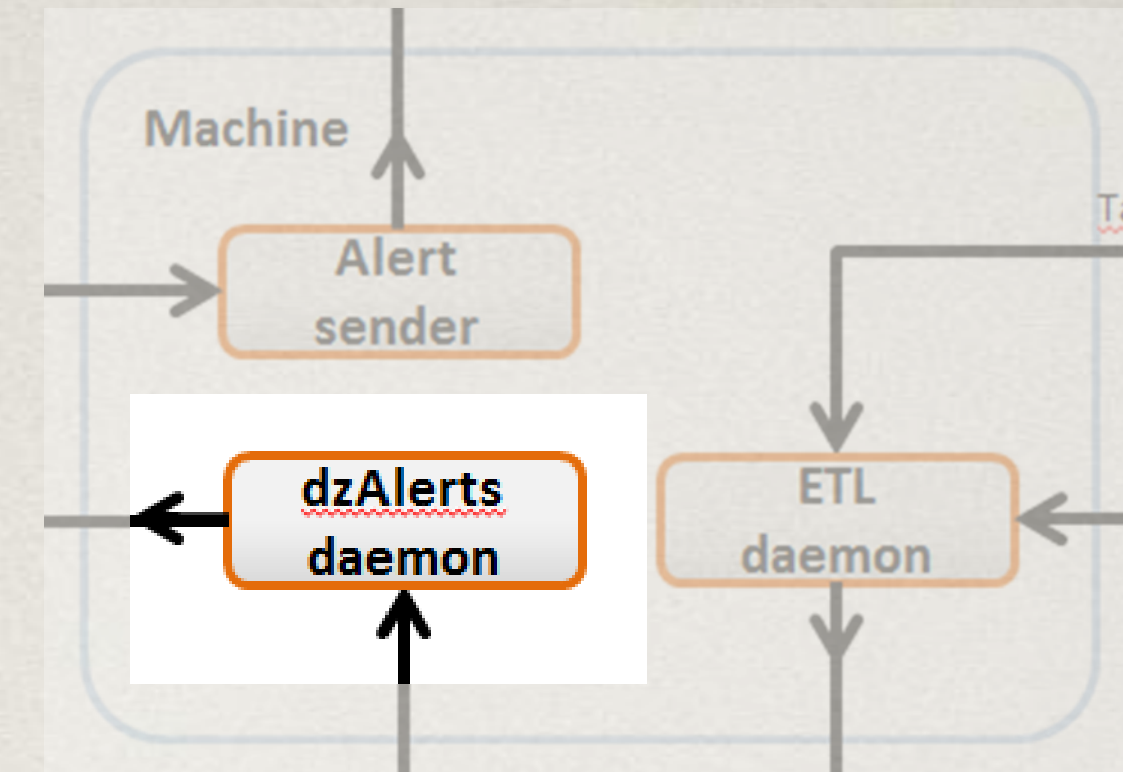- Analyze time series
- Send alerts

Extract ~40 test results per second from Datazilla (whole suites)

Transform test suite results into individual test results

Load into ElasticSearch

Architecture

- ETL into ElasticSearch document store
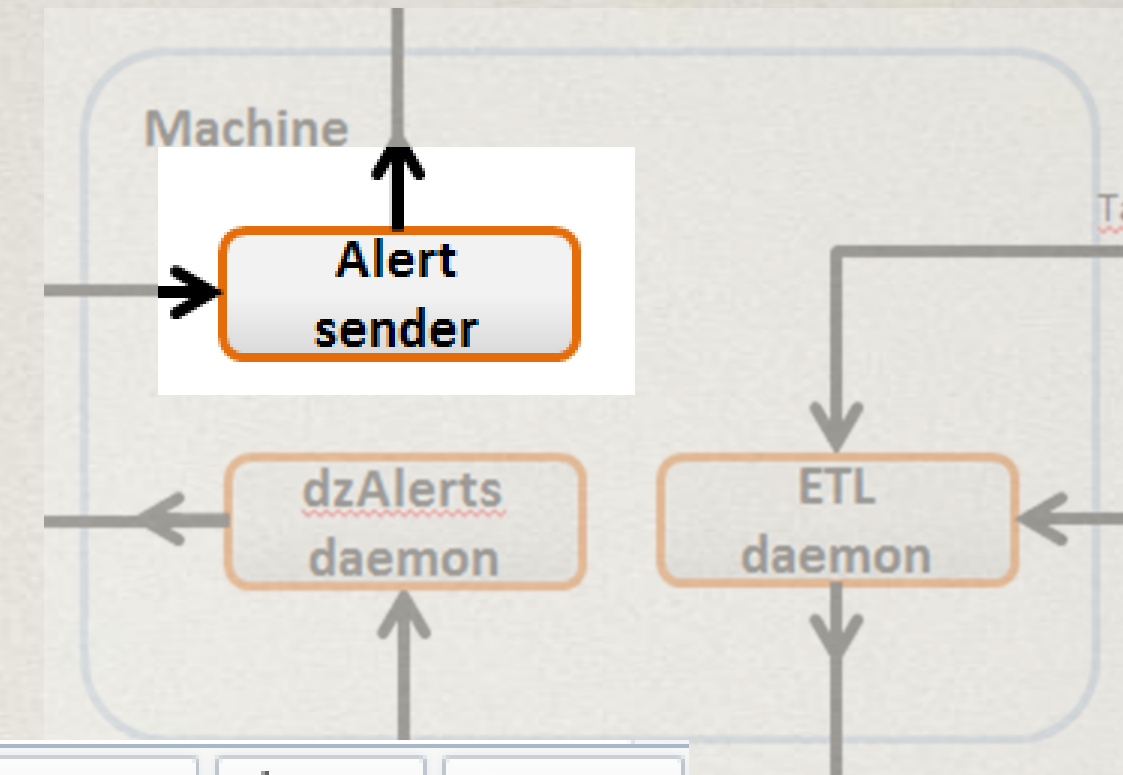- Analyze time series
- Send alerts

Daemon is run every 10min, and has significant startup/shutdown times:

- ~60 seconds to load (determine which tests to analyze)
- ~1.7 time series per second (~50 stats each, but does not matter)
- ~30 seconds to write alerts to database

Works out to about 10 test suites per minute

Architecture

- ETL into ElasticSearch document store
- Analyze time series
- Send alerts

Machine

Alert sender

dzAlerts daemon

ETL daemon

From	Me⭐		Reply	Reply All ▾	Forward	Archive	Junk	Delete

Subject **[ALERT][Fx-Team] query.html.2 regressed by -24.0% in dromaeo_dom**   6:03 PM

To Me⭐, Joel Maher⭐, Avi Halachmi⭐   Other Actions ▾

Performance Regression Alert

Score: 2.12142451807

[0685c59d2e94] [Previous] [TBPL]

1 exceptional events:

Branch	Platform	Suite	Test Name	Diff	Date/Time	Before	After	Diff
Firefox Fx-Team-Non-PGO	win (6.1.7601)	dromaeo_dom query.html.2 Datazilla! charts! DIFF			2014-07-04 12:19:48	92920.0	70960.0	-22000.0

Understanding this alert

Mail

- Send alerts

From	Me⭐		Reply	Reply All ▾	Forward	Archive	Junk	Delete
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Understanding this alert

Mail

- Mercurial

Mail

- TBPL

Mail

mozilla

- Datazilla

Mail

- ## Simple Chart Tool

Debugging

Debugging

- Always chart your data points
- Visualize algorithm's statistics to get a feel for what it sees
- Bugs are not usually in the math
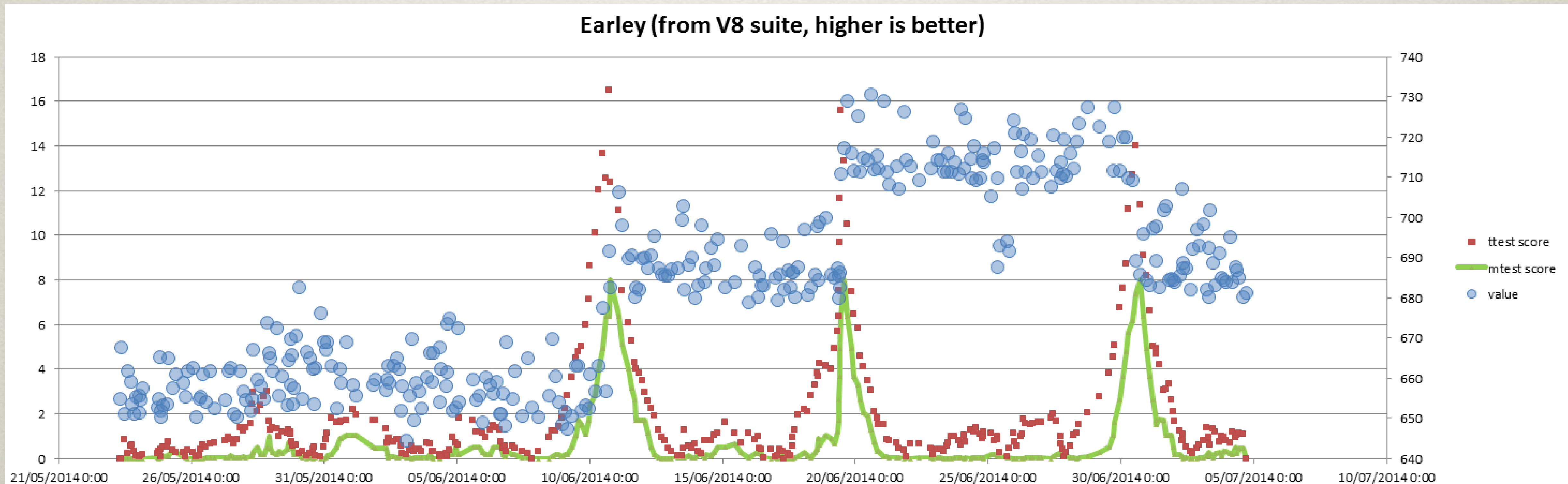
Debugging

Regression!? Where's my alert?
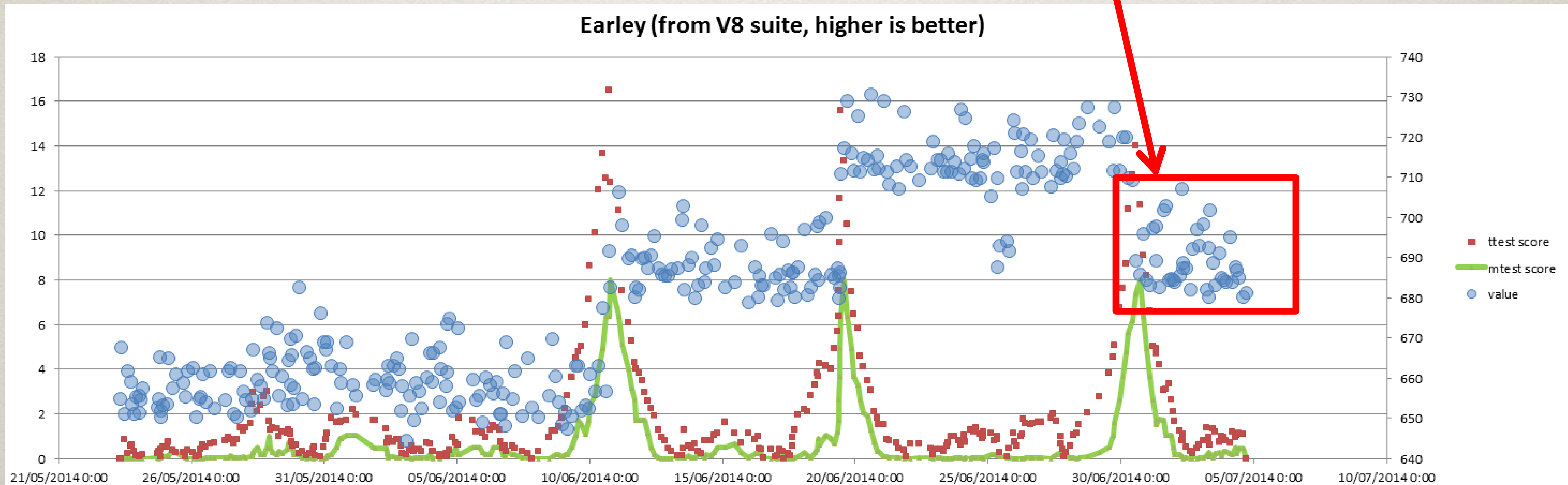
Earley (from V8 suite, higher is better)

Debugging

Past mean 717
Future Mean 689
Difference 28 (3.9%)

Earley (from V8 suite, higher is better)
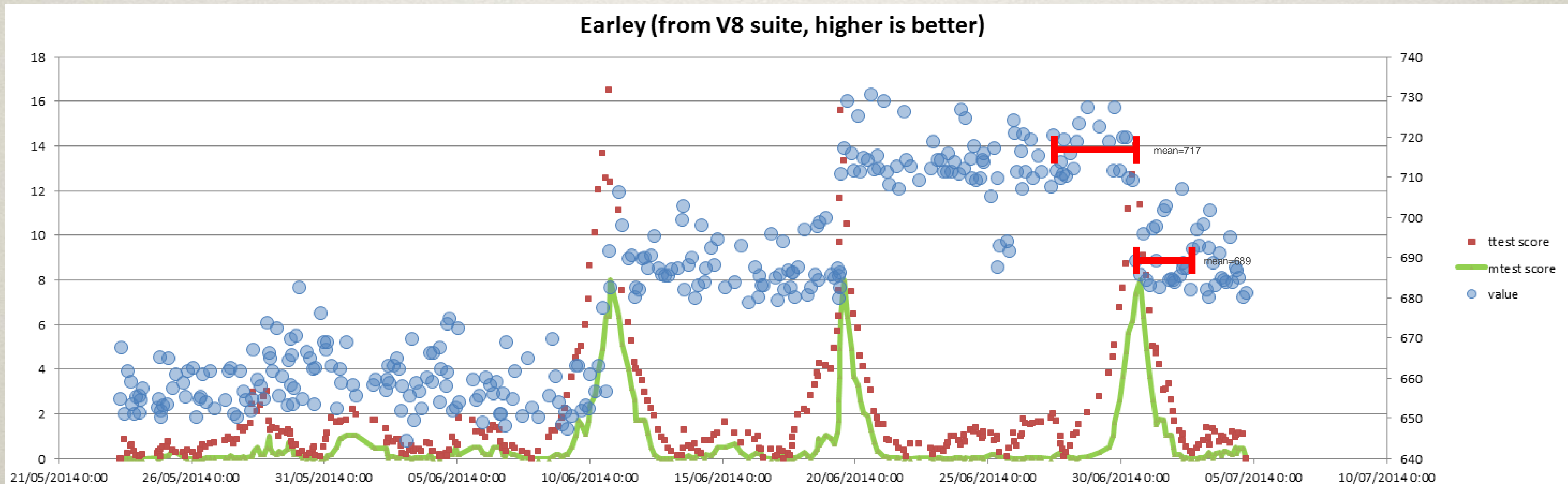
Debugging

Past mean 717
Future Mean 689
Difference 28 (3.9%)
Threshold 36 (5.0%)
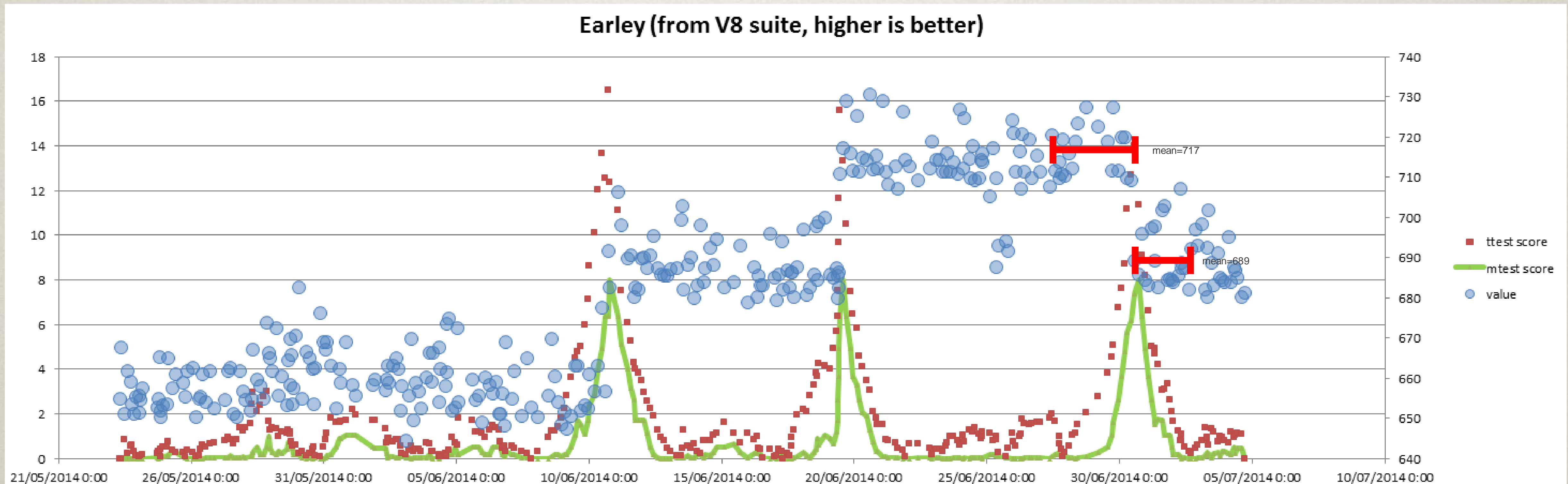
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Debugging

Problems usually with
- Setting thresholds
- Dealing with settings
- Managing alert life cycle

Earley (from V8 suite, higher is better)
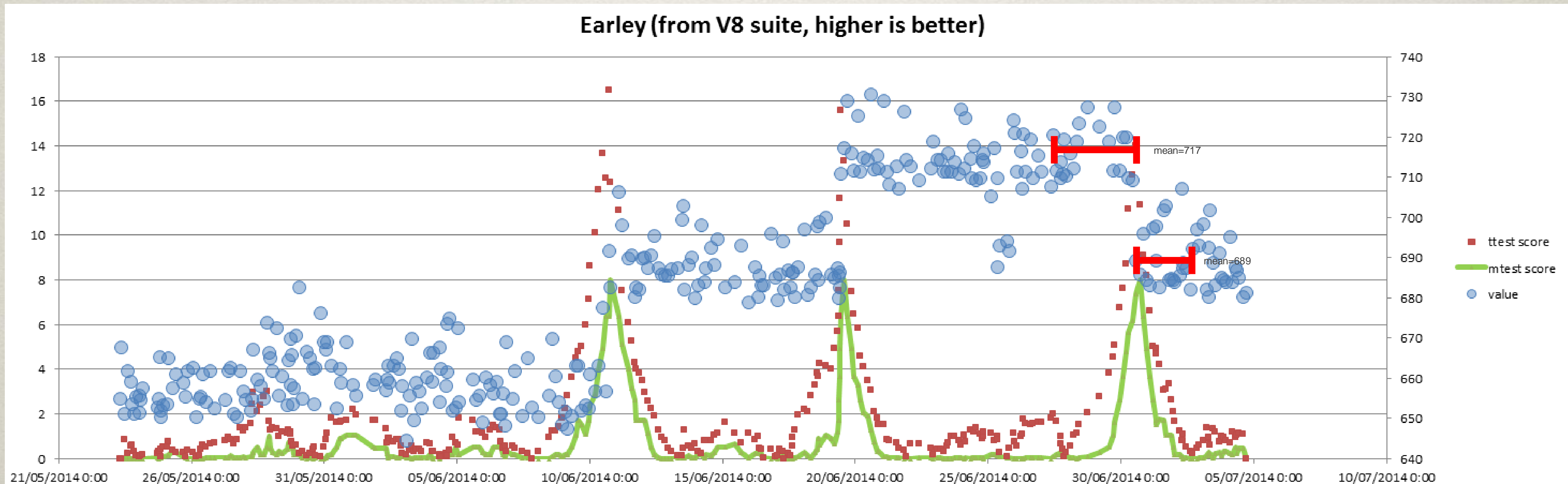
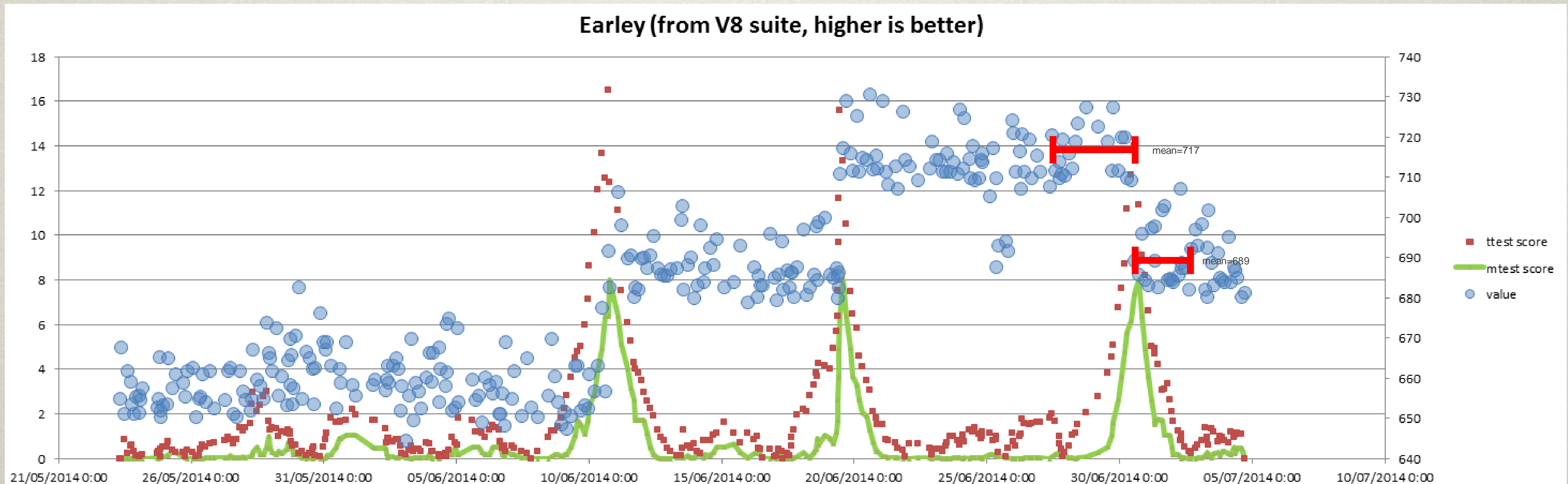# Debugging

Problems usually with
- Setting thresholds
- Dealing with settings
- Managing alert life cycle

} Programming is hard

Earley (from V8 suite, higher is better)

mean=717

mean=689

- ttest score
- mtest score
- value

Post Mortem

Talos is Big!

From May 20th to July 5th (47 days):

- `13,237,110` test results (8.4million/month)
- `147,832,161` individual tests (94million/month)

Many setbacks due to size and diversity:

- Loading was too slow → Go multithreaded
- JSON transformations too slow → Use PyPy
- SciPy calls too slow → Found pure python prequel to SciPy
- Database too slow → Use ElasticSearch

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