KairosDB and Chronix as longterm storage for Prometheus - For those who don’t want to deal with Hbase.

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Chronix - A TSDB based on Apache Solr

Chronix Ingester
Translates Metrics from Prometheus
- Labels to attributes
- Adds attribute type

Chronix Server
Solr Extension
Apache Solr
Storage Backend for Chronix Server
Chronix Grafana
Grafana DataSource

Figure 1: Chronix Stack

The Good
• Great compression compared to other TSDB
• Support of basic and high-level data transformation functions
• “Functionally-lossless” storage model
• Three stage compression model
• Suited for anomaly detection

The Bad
• Grafana datasource unmaintained, currently unreasonable for large clusters
• Filtered queries take unreasonable response time for human operators
• Lacks detailed documentation

KairosDB - A TSDB based on Apache Cassandra

KairosDB Ingester
Translates Metrics from Prometheus

KairosDB Cassandra FrontEnd

Apache Cassandra Storage Backend

KairosDB Grafana
Grafana DataSource

Figure 3: KairosDB Stack

The Good
• REST/TELNET APIs and Graphite plain text/pickle support
• Write scaling easy to scale horizontally - limited by load balancer and number of KairosDB nodes
• Read scaling based on performance of Cassandra cluster
• Tag based like Prometheus
• Grafana Datasource actively developed, works with Grafana 5
• Speaks native CQL
• Active Community

The Bad
• Large storage requirements
• Multiple small improvements needed to improve stability and usability (e.g. return proper error codes on internal error)
• Lacks native ACLs
• Uses old version of Jetty
• Unable to read from multiple Cassandra Clusters
• Has high storage requirements

Dictionary
• TSDB - Time Series Database

Conclusion
• LHCb Online chose KairosDB due to how easy it scales horizontally, Apache 2.0 license, many features of traditional TSDBs
• KairosDB has very high storage requirements - due to the nature of data storage,
• Chronix provides better storage utilization, as well as rich and powerful query language
• Chronix excels in anomaly detection
• Chronix lacks in support and community

References
1. Chronix: Long Term Storage and Retrieval Technology for Anomaly Detection in Operational Data Florian Lautenschlager, QAware GmbH; Michael Philippsen and Andreas Kumlehn, Friedrich-Alexander-Universität Erlangen-Nürnberg; Josef Adersberger, QAware GmbH
4. Poster Template - ‘RMIT SPACE poster template’ (CC BY-NC-SA 3.0) Timothy Kodikara