I See Metrics: Anomaly Detection on OpenShift

AI Ops in the AI Center of Excellence

DevConf.CZ 2020

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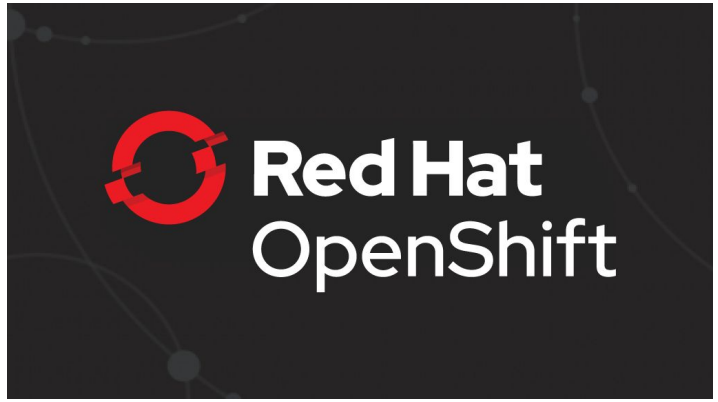

Monitoring → Applications → Prometheus

AI-backed anomaly detection for prometheus metrics.

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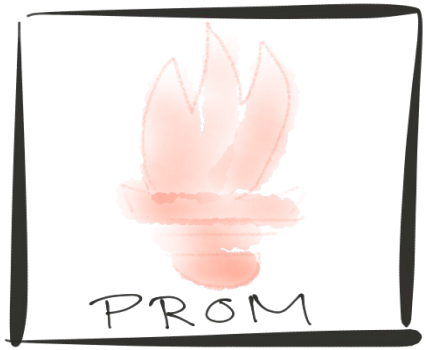
Goals of Workshop

- Understanding Prometheus
- Monitoring applications and its challenges
- Leveraging AI for better monitoring
- Data Science toolkit
- Anatomy of an anomaly
- Integrating anomaly detection pipeline into monitoring setup



Simplistic world view

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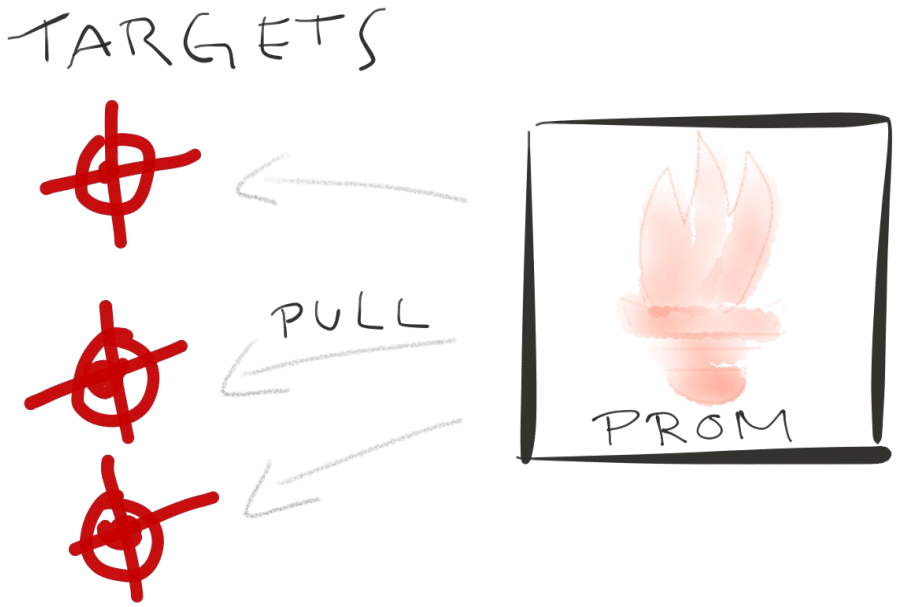

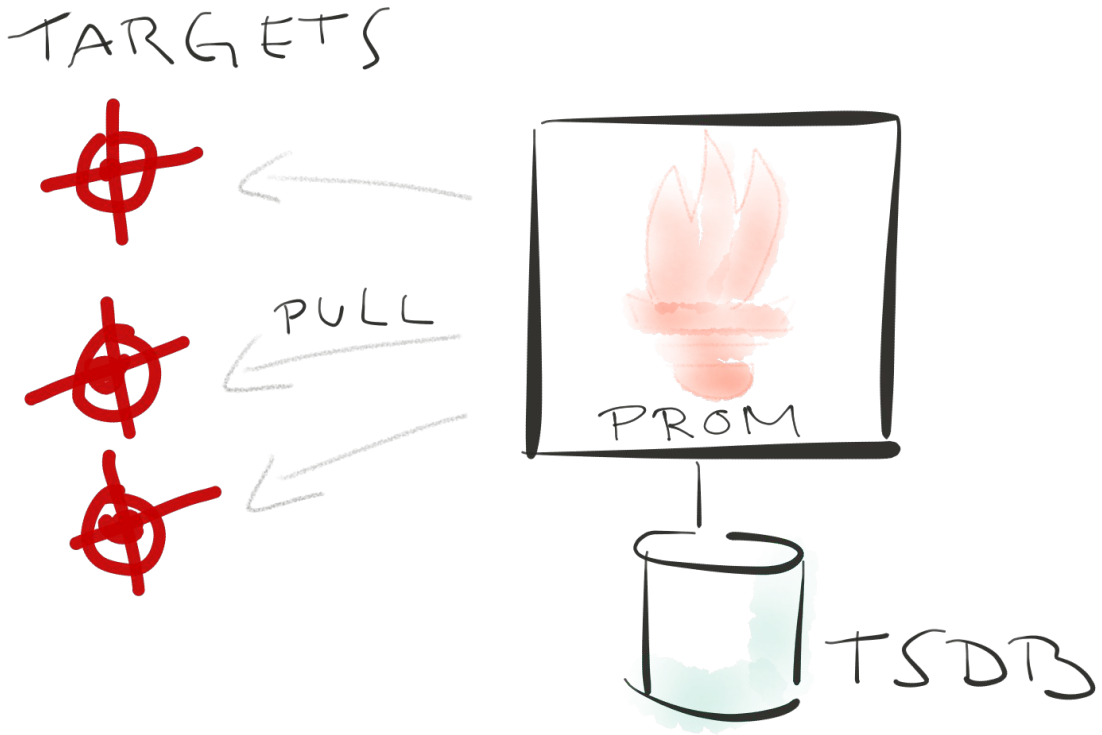

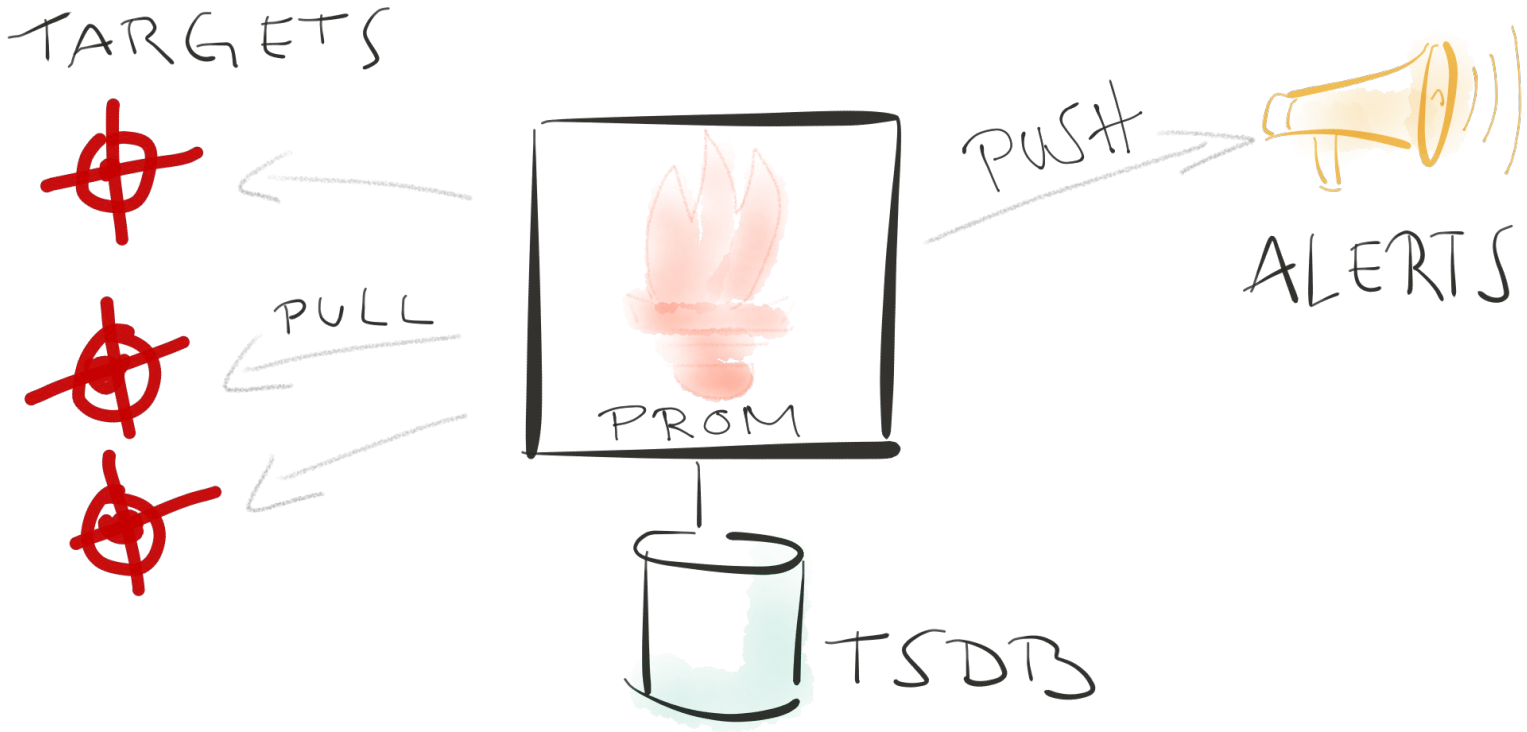

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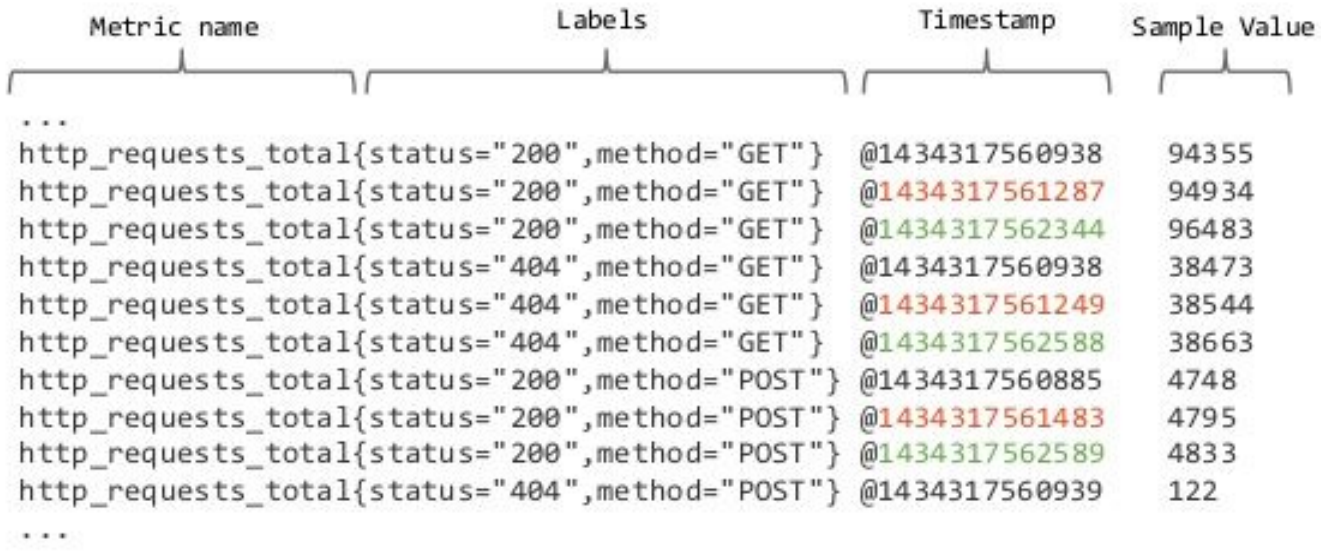
Prometheus Metrics



- **Gauge** - Arbitrary up and down value
- **Counter** - Monotonically Increasing
- **Histogram** - Cumulative samples of values
- **Summary** - Snapshot of values in a time window

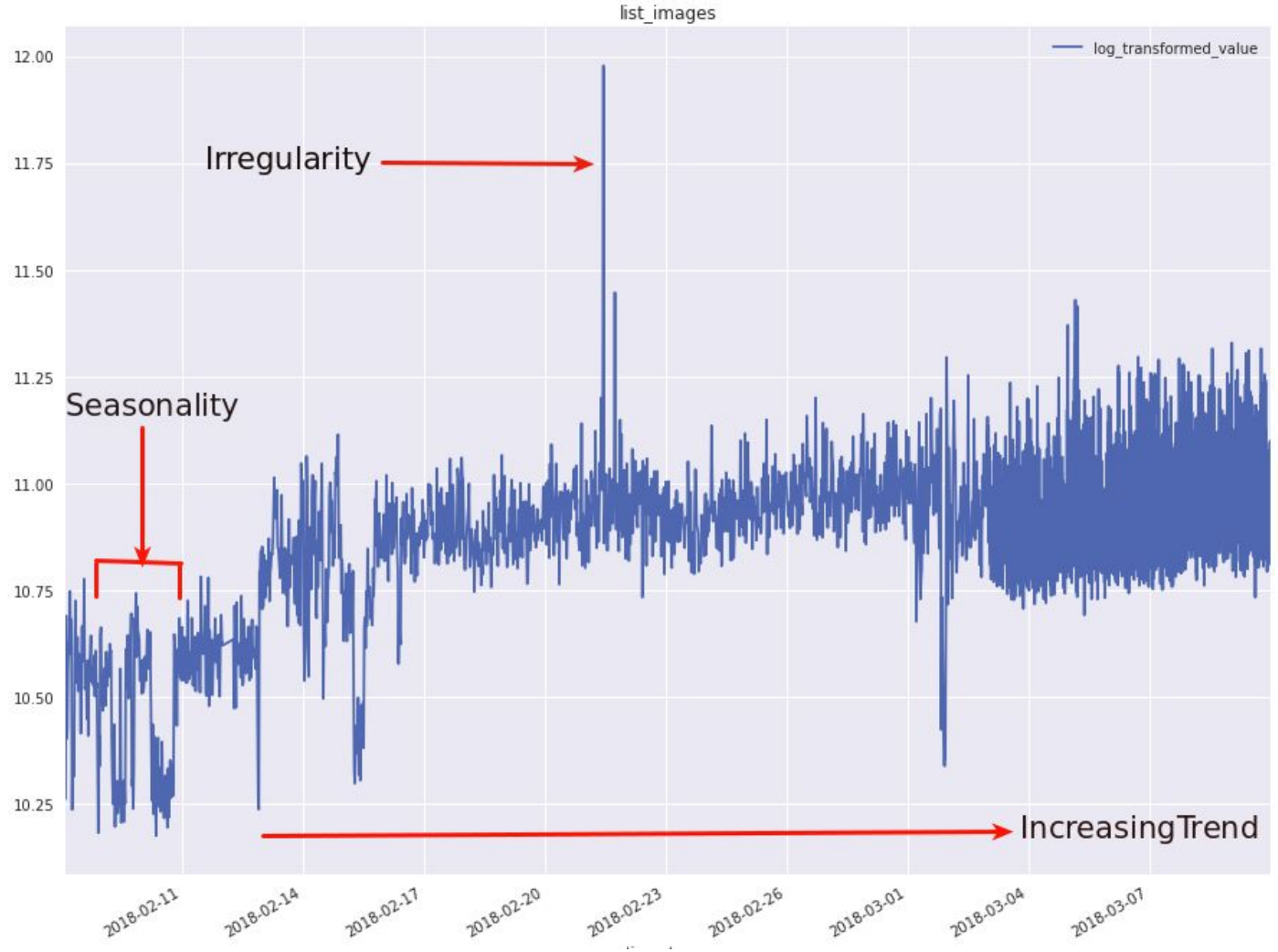
Components of Time Series

Trend

Increase or decrease in the series over a period of time.

Seasonality

Regular pattern of up and down fluctuations. It is a short-term variation occurring due to seasonal factors.



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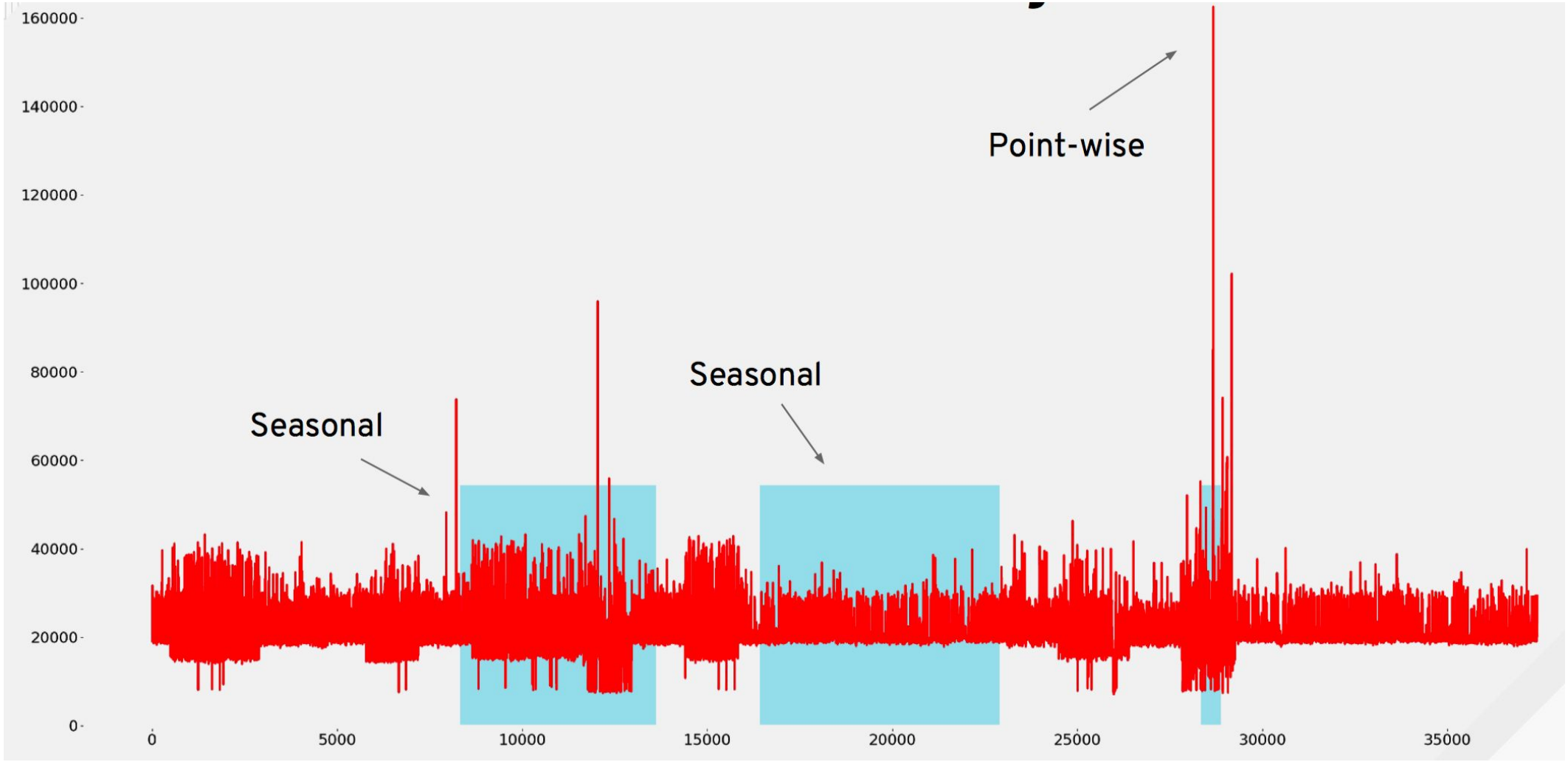
Anomaly Types



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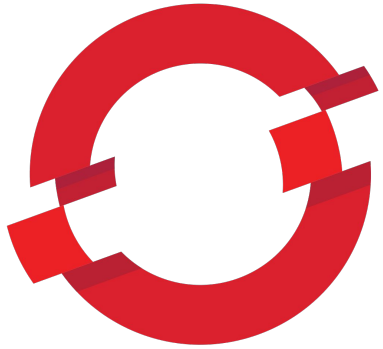
Toolkit

Prometheus



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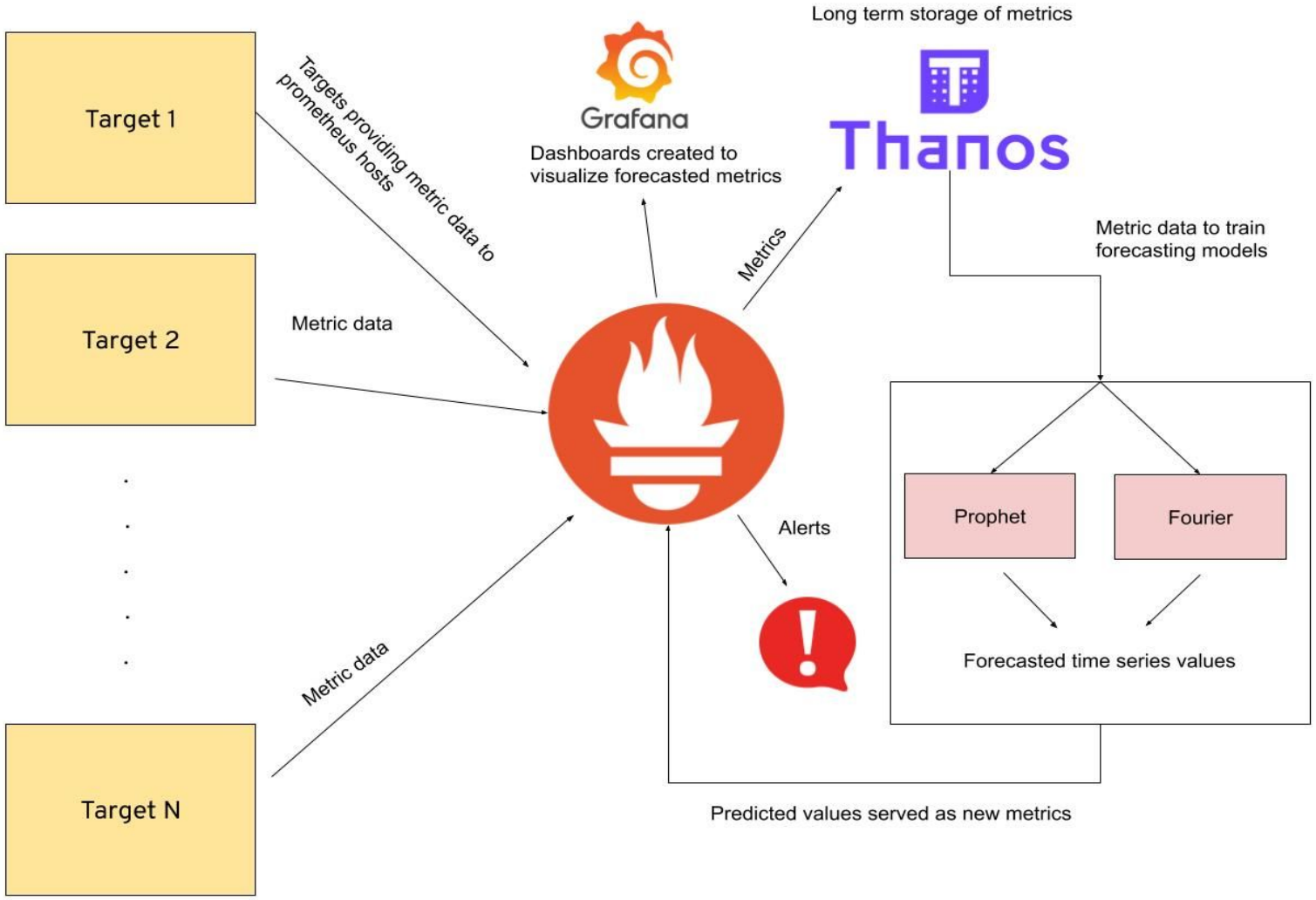
Implementation setup so far



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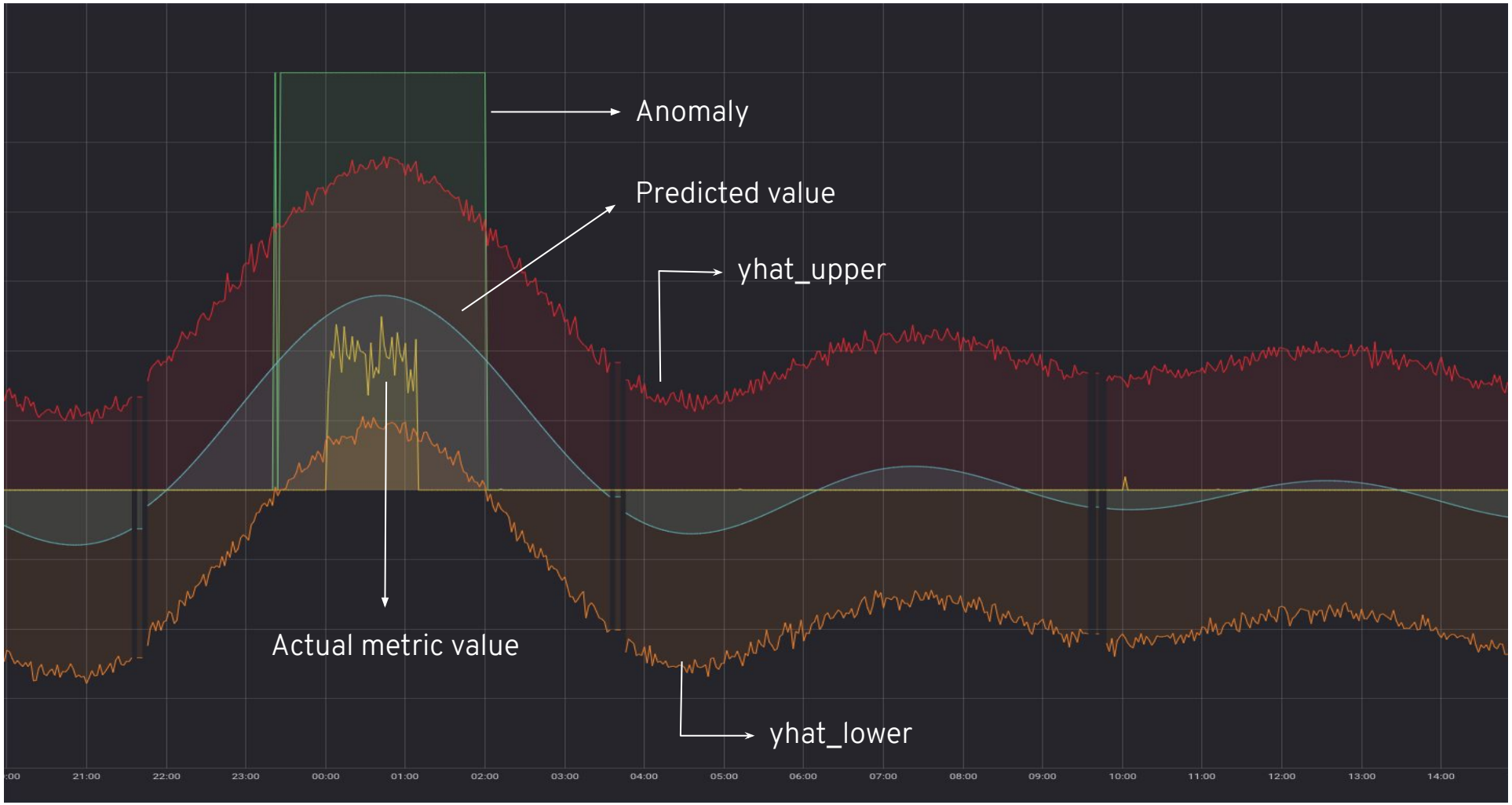
Grafana Dashboard Visualization



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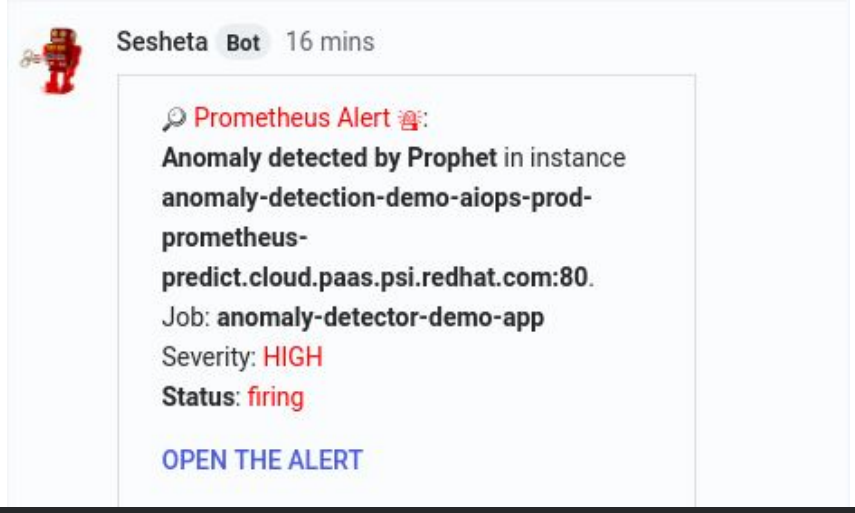
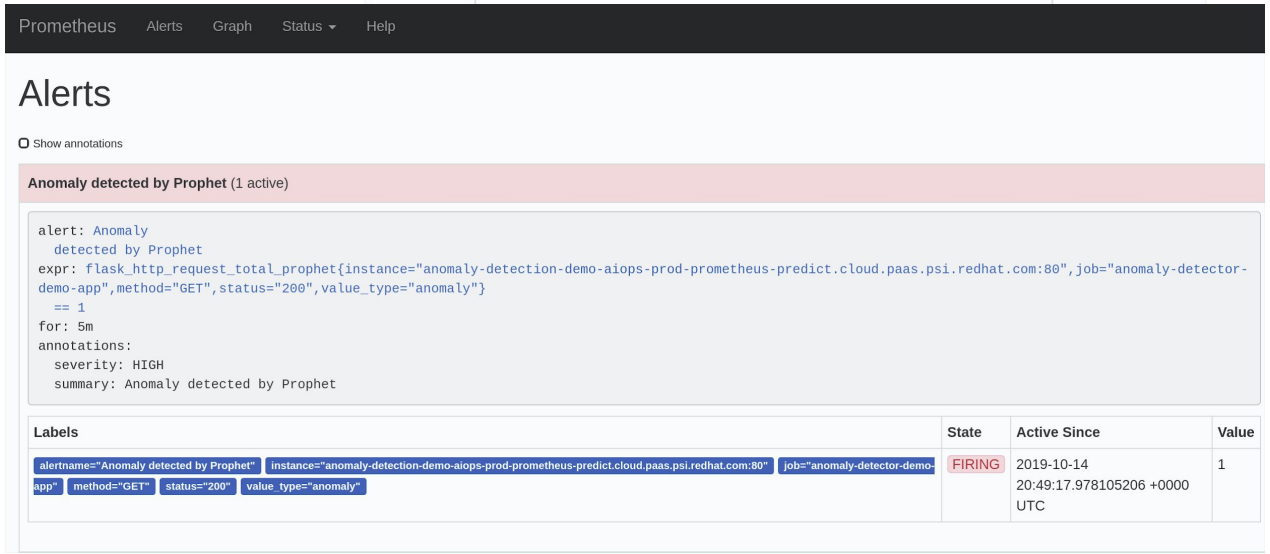
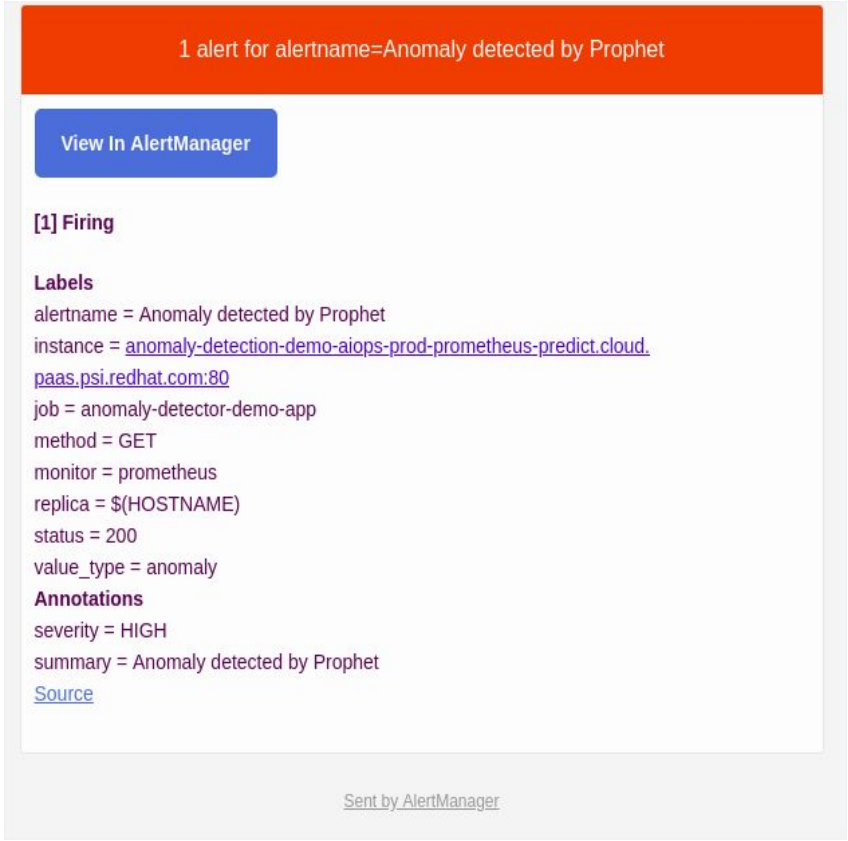
Alerting on Anomalies







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References

- Project Repository: https://github.com/AICoE/prometheus-anomaly-detector
- Prometheus API Client: https://github.com/AICoE/prometheus-api-client-python
- Mojo blog post: https://mojo.redhat.com/groups/red-hat-artificial-intelligence-center-of-excellence-ai-coe/blog/2019/09/10/prometheus-anomaly-detection-for-thoth-dgraph-metrics
- Team Mail list: aicoe-aiops@redhat.com
- GChat: AICoE - AIOps

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