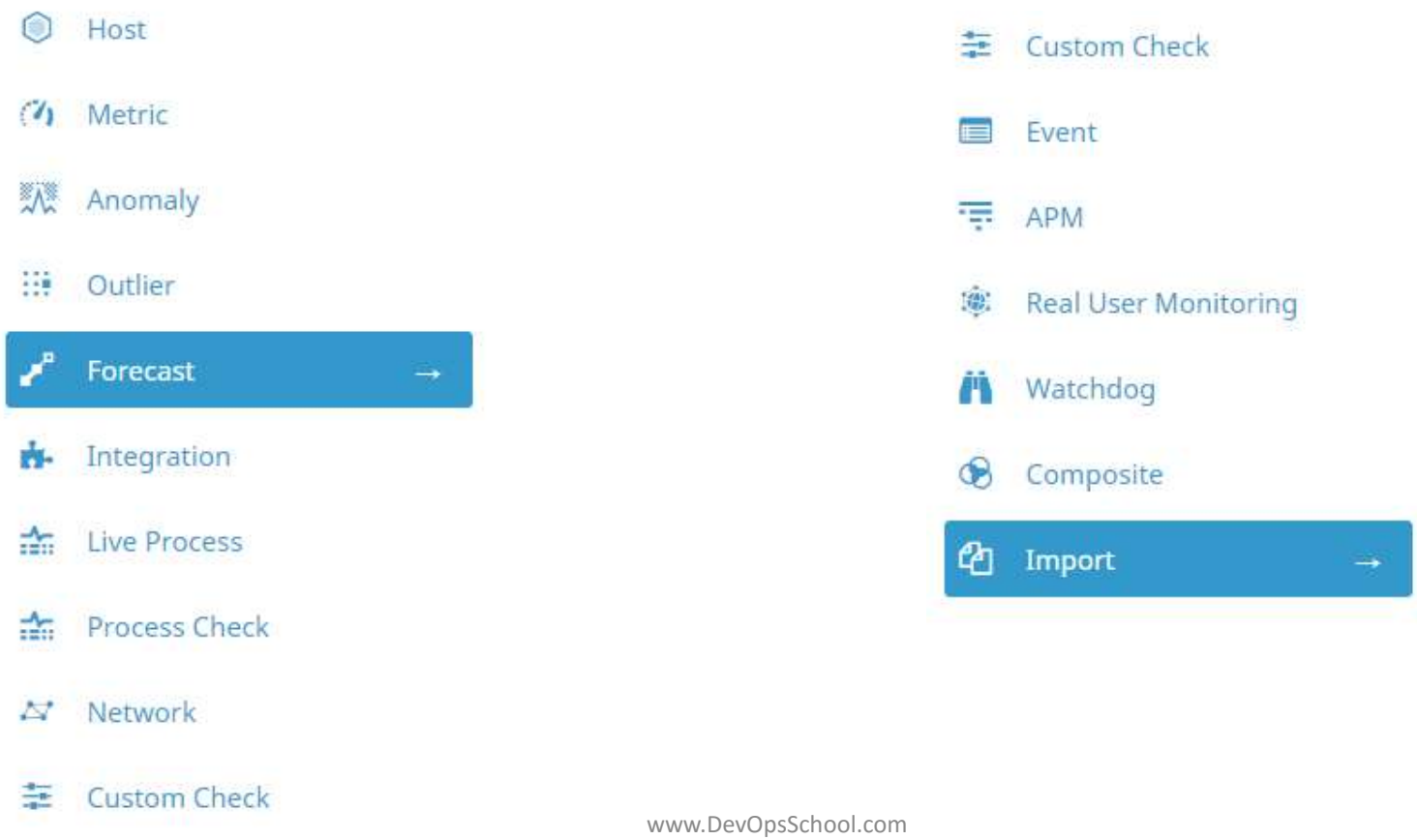
Datadog Monitoring

Rajesh Kumar

www.DevOpsSchool.com

Types of Monitoring



Types of Monitoring

- Host - Check if one or more hosts are reporting to Datadog.
- Metric - Compare values of a metric with a user-defined threshold.
- Anomaly - Detect anomalous behavior for a metric based on historical data.
- Outlier - Alert on members of a group behaving differently than the others.
- Forecast - Alert when a metric is projected to cross a threshold.
- Integration - Monitor metric values or health status from a specific integration.
- Live Process - Check if one or more processes are running on a host.
- Process Check - Watch the status produced by the process.up service check.
- Network - Check the status of TCP/HTTP endpoints.
- Custom Check - Monitor the status of arbitrary custom checks.
- Event - Monitor events gathered by Datadog.
- Logs - Monitor logs gathered by Datadog.
- APM - Compare an APM metric to a user-defined threshold.
- Real User Monitoring - Monitor real user data gathered by Datadog.
- Watchdog - Get notified when Watchdog detects anomalous behavior.
- Composite - Alert on an expression combining multiple monitors.

Detection Methods

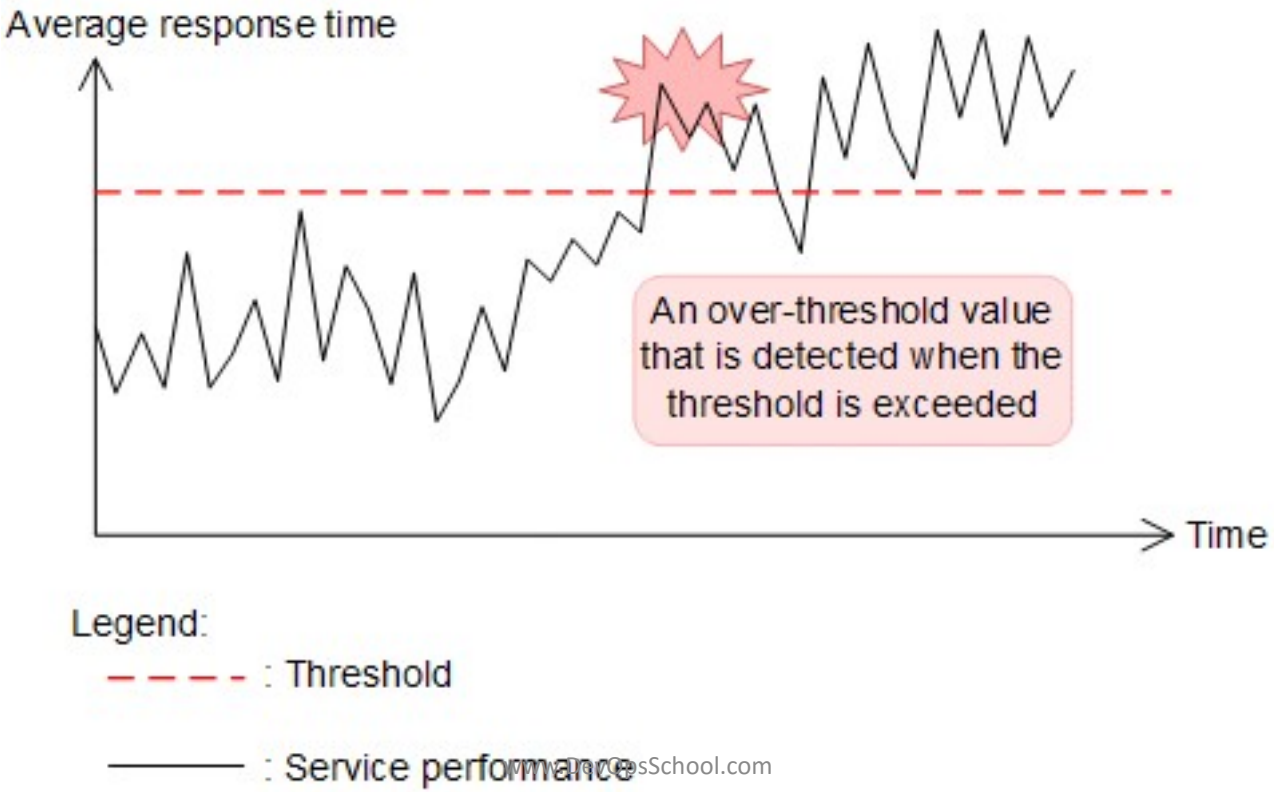
Detection Methods

- Threshold Alert
- Change Alerts
- Anomaly Detection
- Outliers Alert
- Forecast Alert

Detection Methods: Threshold Alert

- An alert is triggered whenever a metric crosses a threshold.

Detection Methods: Threshold Alert



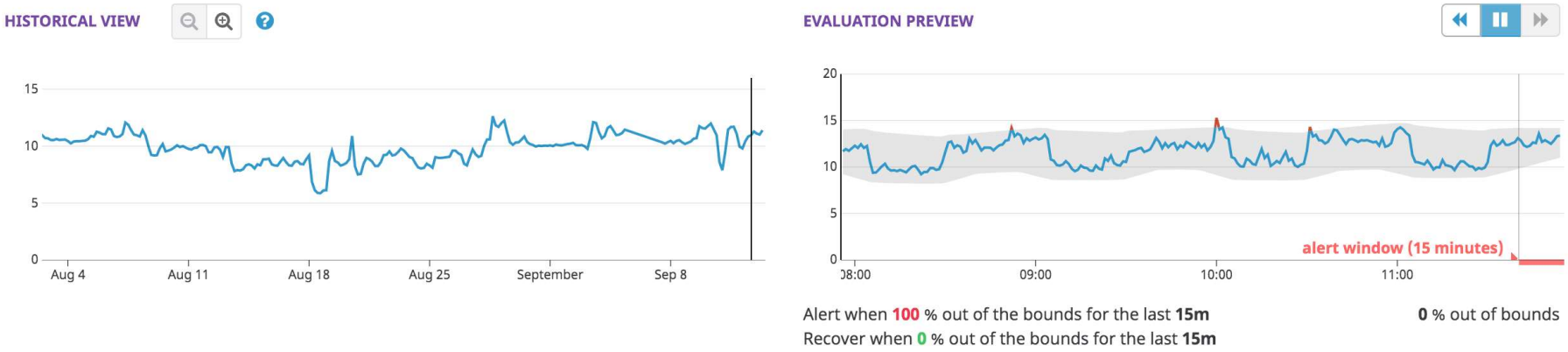
Detection Methods: Change Alerts

- An alert is triggered when the delta between values is higher than the threshold.
- **A change alert evaluates the difference between a value N minutes ago and now.**
- On each alert evaluation Datadog will calculate the raw difference (*not absolute value*) between the series now and N minutes ago then compute the average/minimum/maximum/sum over the selected period. An alert is triggered when this computed series crosses the threshold.

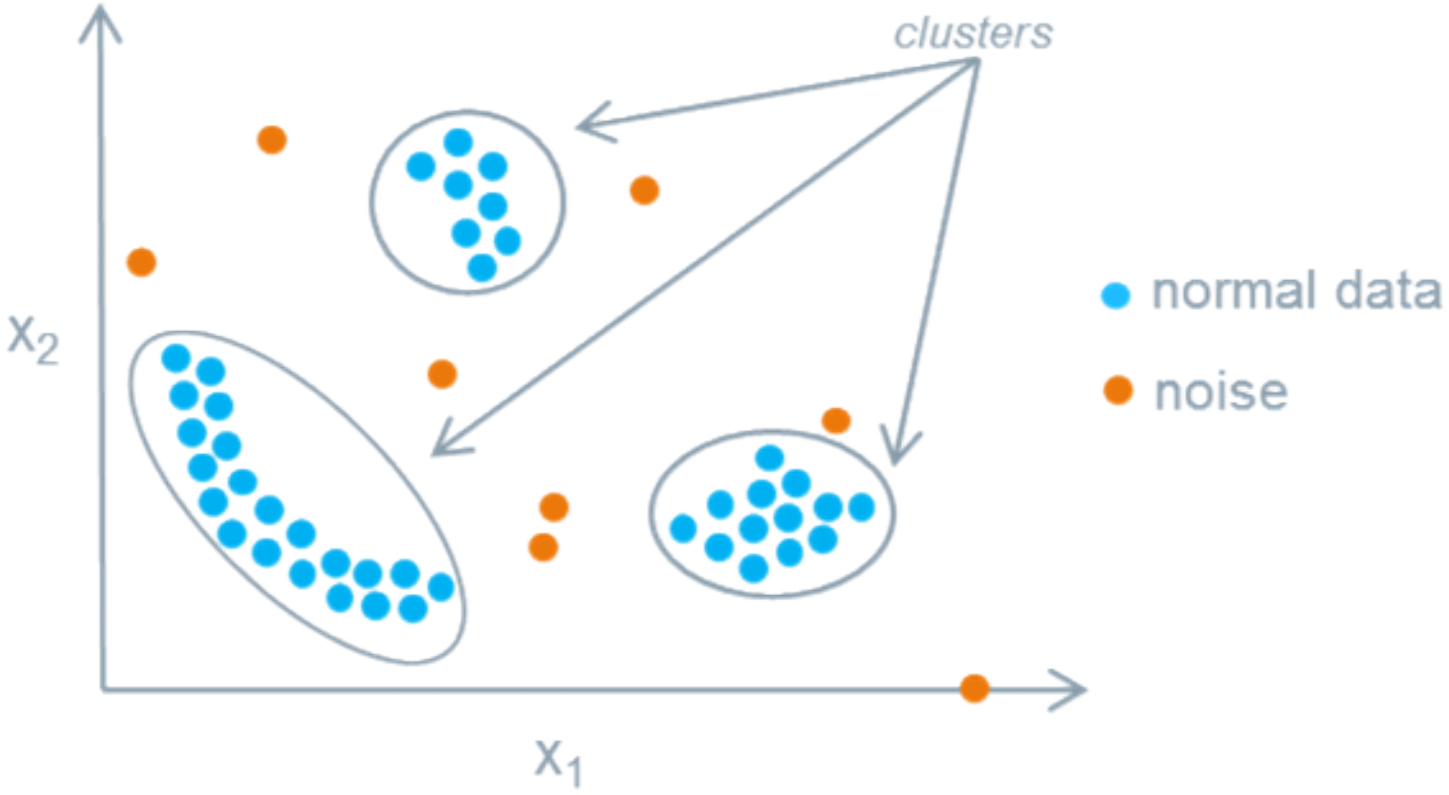
Detection Methods: Anomaly Detection

- An alert is triggered whenever a metric deviates from an expected pattern.
- Anomaly monitors detect when a metric is behaving differently than it has in the past, taking into account trends, seasonal day-of-week, and time-of-day patterns.
- To Detect anomalous behaviour for a metric based on historical data

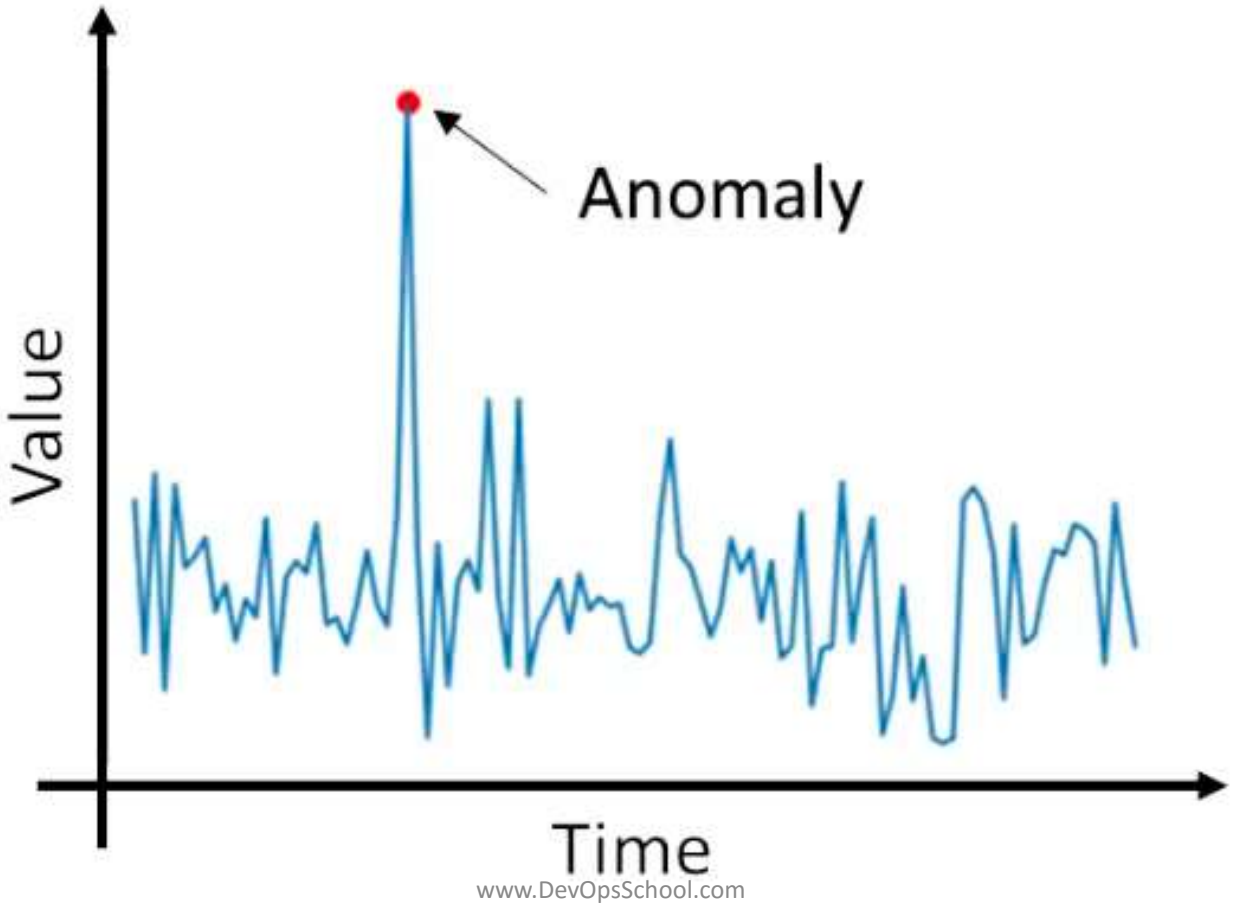
Detection Methods: Anomaly Detection



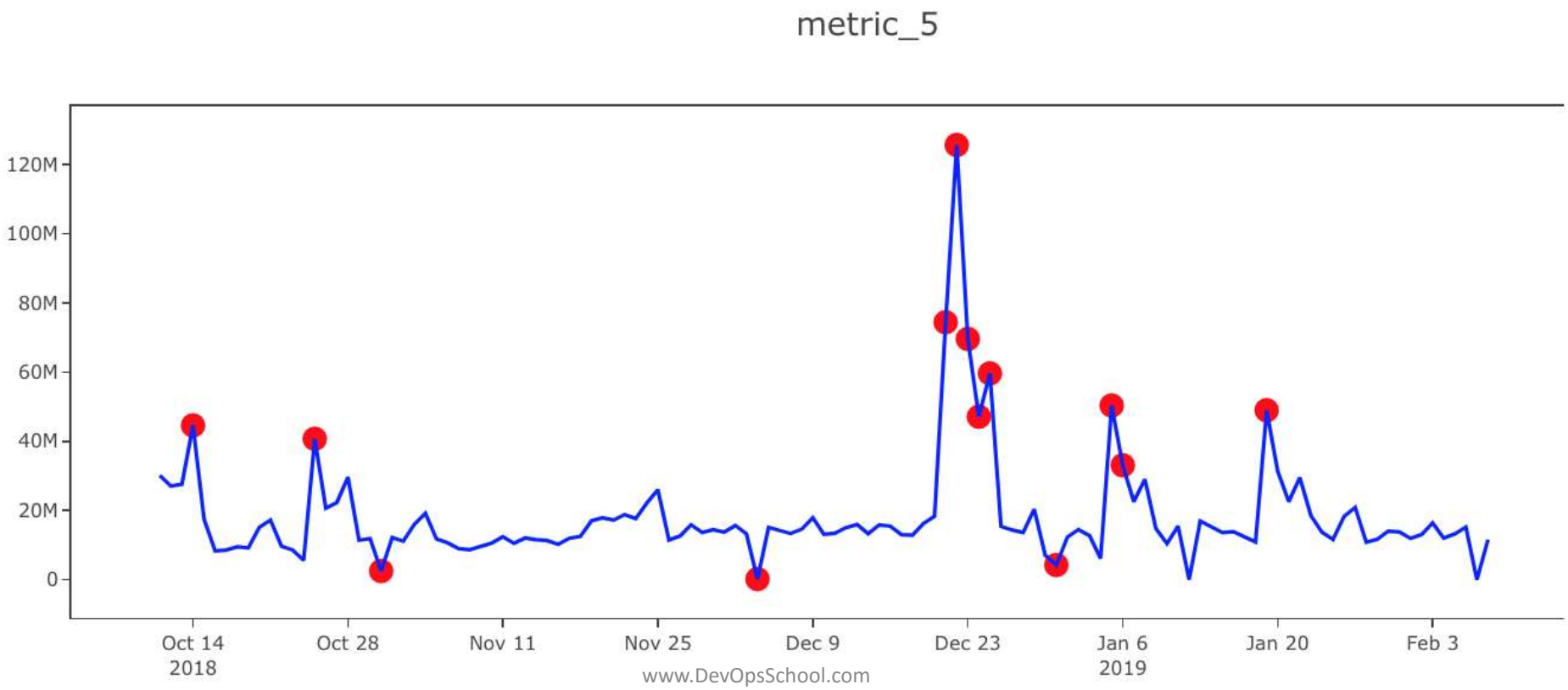
Detection Methods: Anomaly Detection



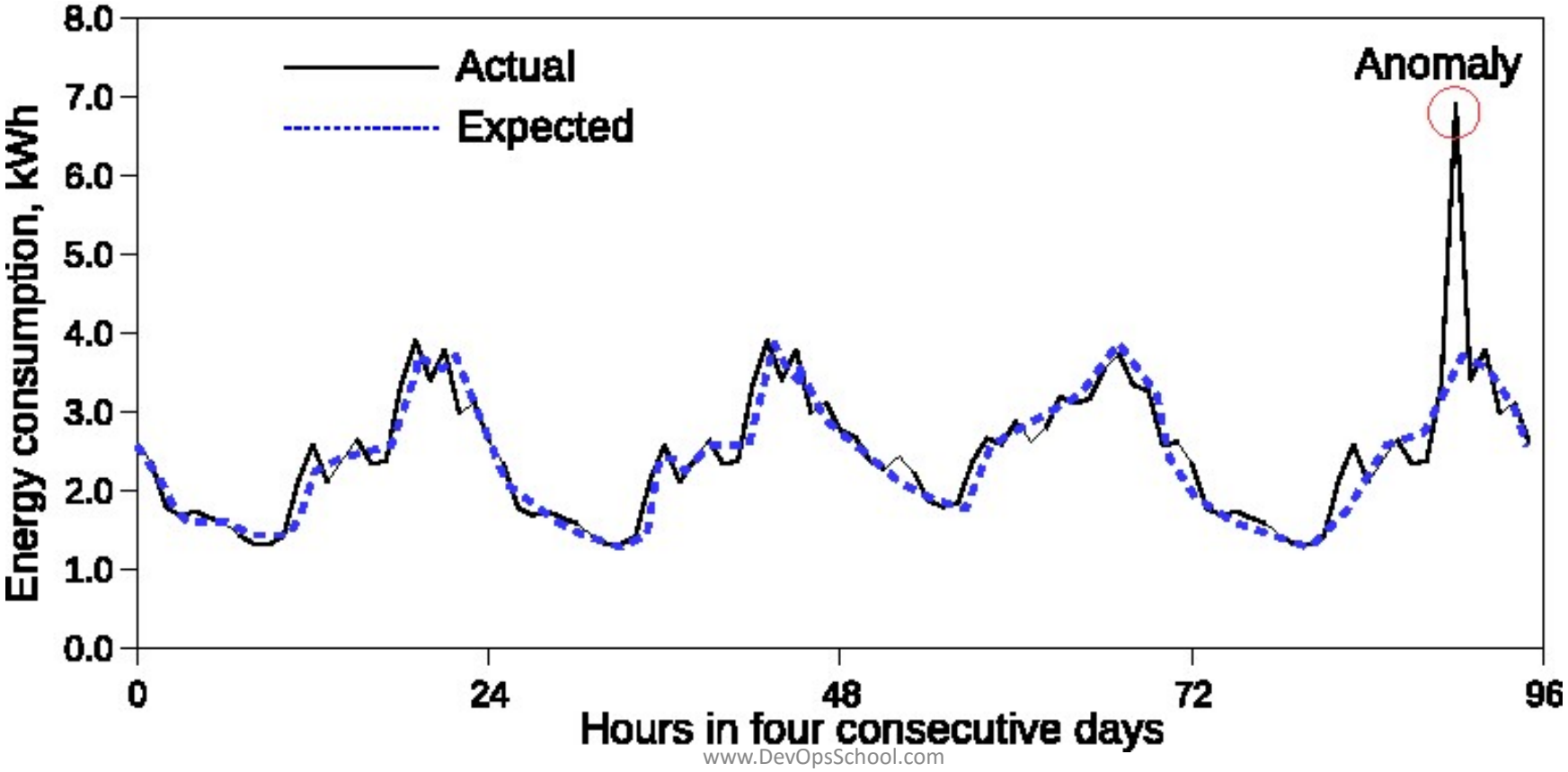
Detection Methods: Anomaly Detection



Detection Methods: Anomaly Detection



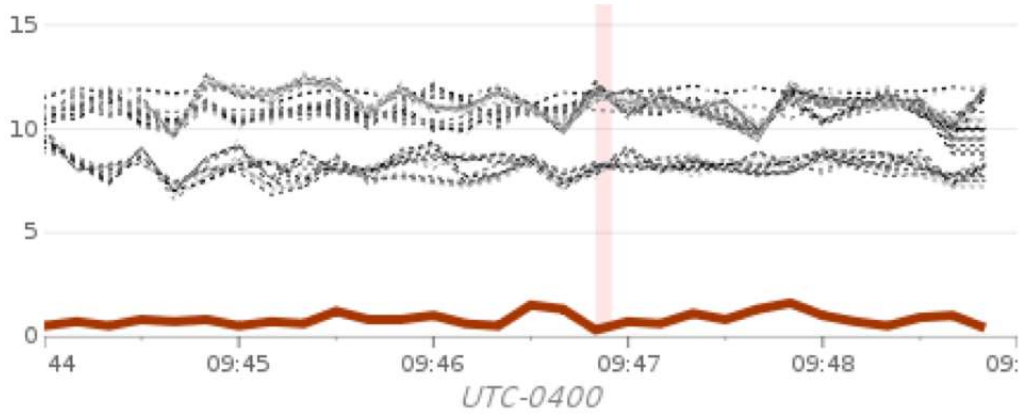
Detection Methods: Anomaly Detection



Detection Methods: Outliers Alert

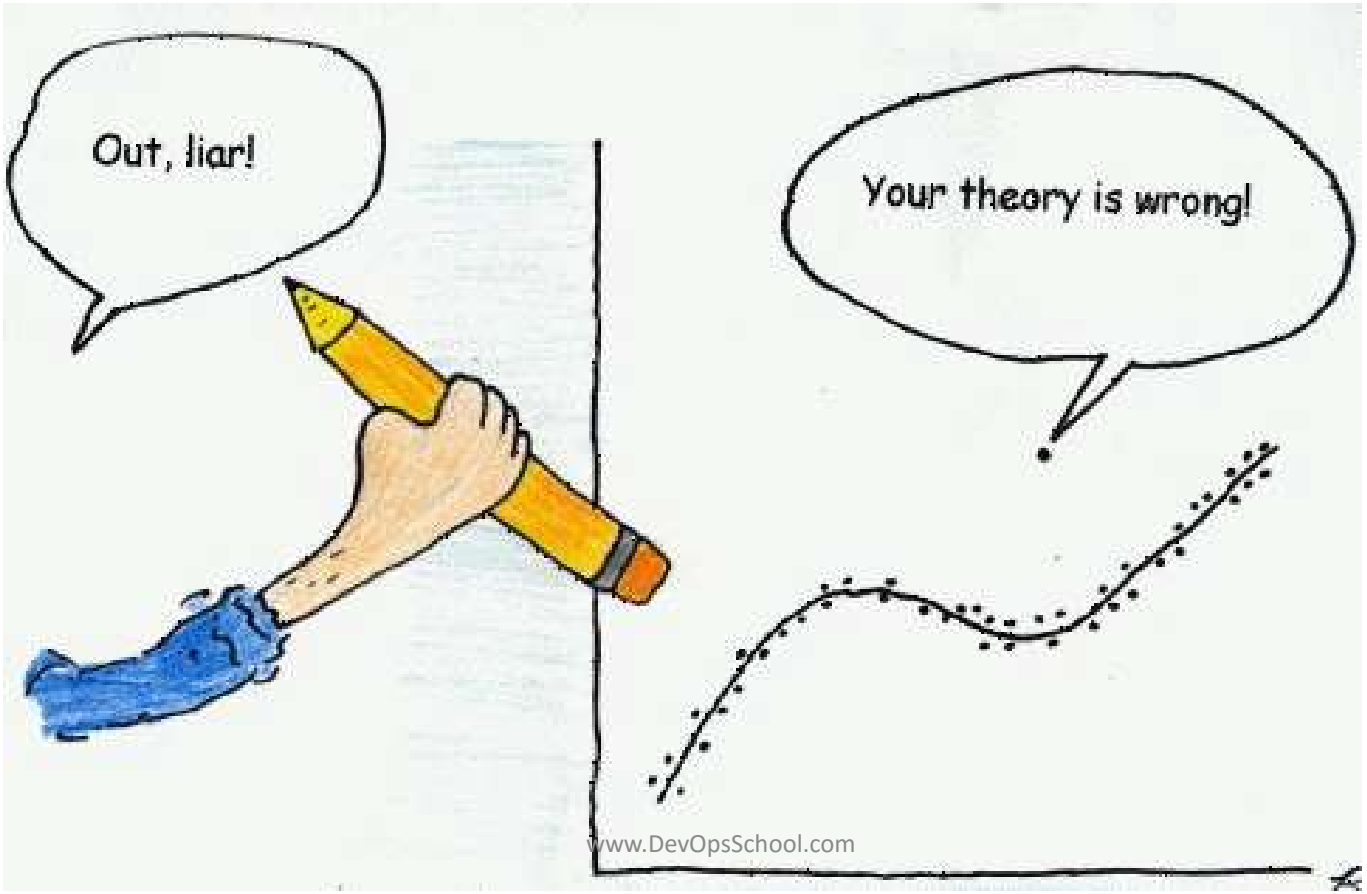
Datadog Event

[Outlier Detected on {host:i-0a15f5f7}] [outliers] Gunicorn workers MAD #host:i-0a15f5f7 #monitor

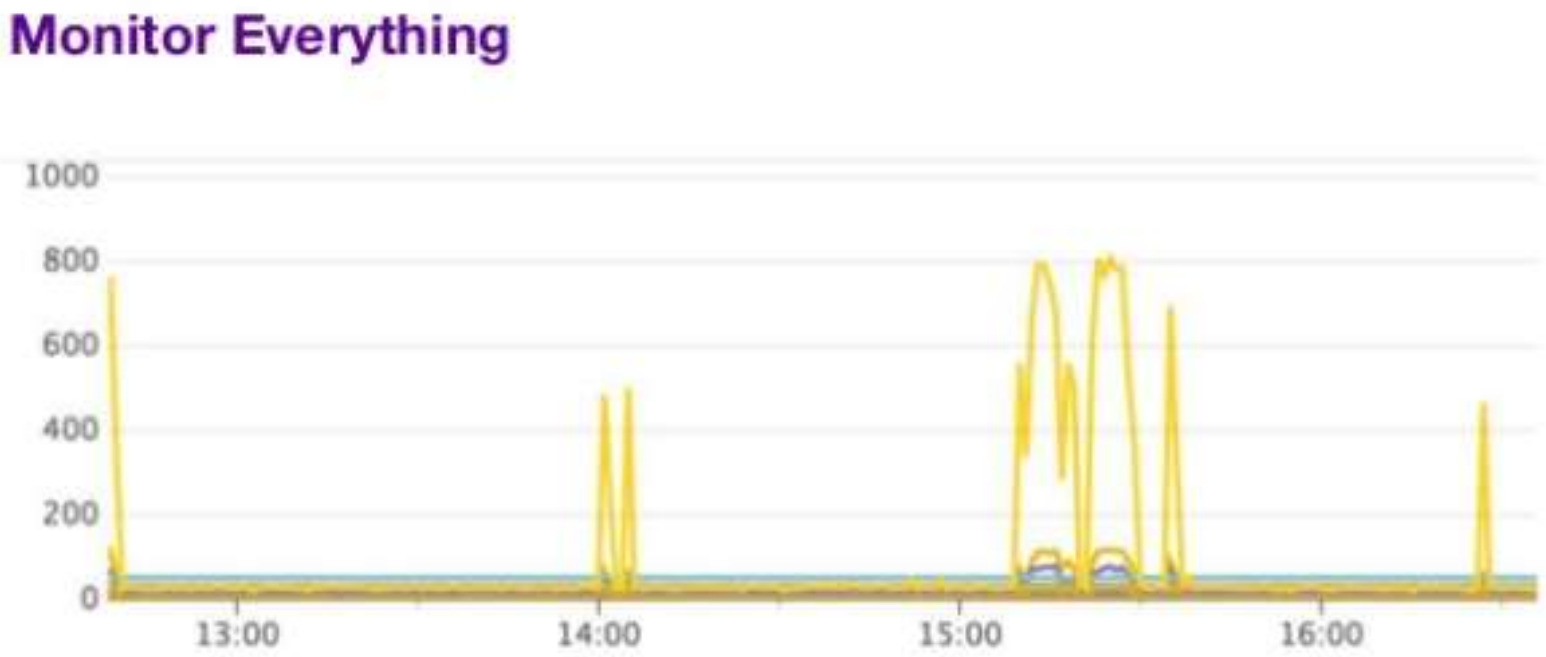


A web host is serving an unusual number of requests relative to the other web hosts. This should be investigated!

Detection Methods: Outliers Alert



Detection Methods: Outliers Alert



Detection Methods: Outliers Alert

- Outlier detection is an algorithmic feature that allows you to detect when a specific group is behaving different compared to its peers. For example, you could detect that one web server in a pool is processing an unusual number of requests, or significantly more 500 errors are happening in one AWS availability zone than the others.
- An alert is triggered whenever one member in a group behaves differently from its peers.

Detection Methods: Outliers Alert

DBSCAN MAD Scaled

DBSCAN (density-based spatial clustering of applications with noise) is a popular clustering algorithm. Traditionally, DBSCAN takes:

1. A parameter ε that specifies a distance threshold under which two points are considered to be close.
2. The minimum number of points that have to be within a point's ε-radius before that point can start agglomerating.

Detection Methods: Outliers Alert

DBSCAN **MAD** Scaled

MAD (median absolute deviation) is a robust measure of variability, and can be viewed as the robust analog for standard deviation. Robust statistics describe data in a way that is not influenced by outliers.

Detection Methods: Outliers Alert

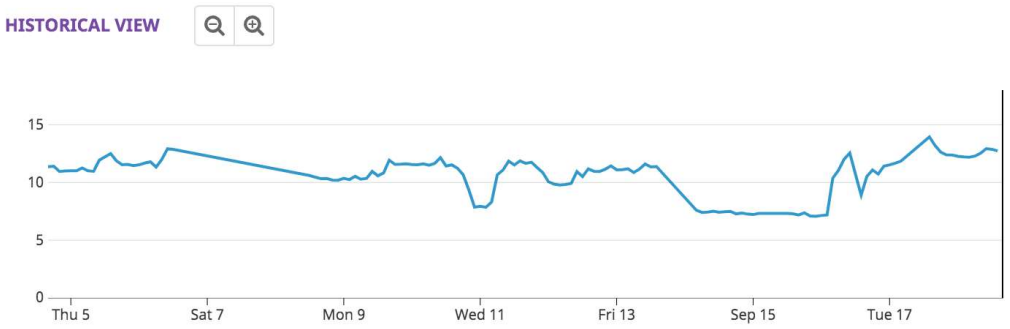
DBSCAN MAD **Scaled**

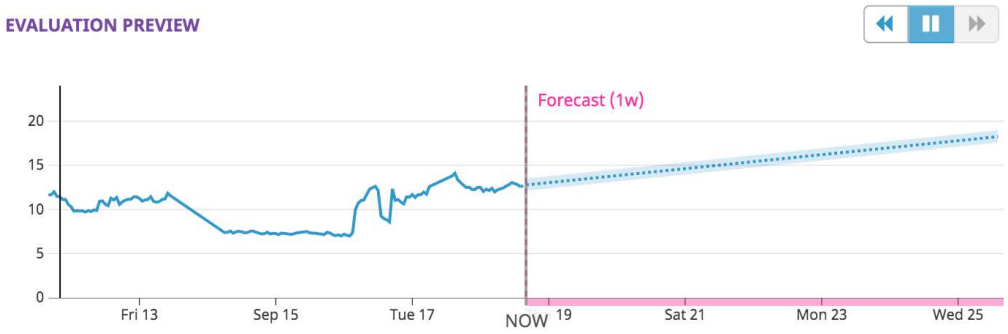
DBSCAN and MAD have scaled versions (scaledDBSCAN and scaledMAD). In most situations, the scaled algorithms behave the same as their regular counterparts. However, if DBSCAN/MAD algorithms are identifying outliers within a closely clustered group of metrics, and you would like the outlier detection algorithm to scale with the overall magnitude of the metrics, try the scaled algorithms.

Detection Methods: Forecast Alert

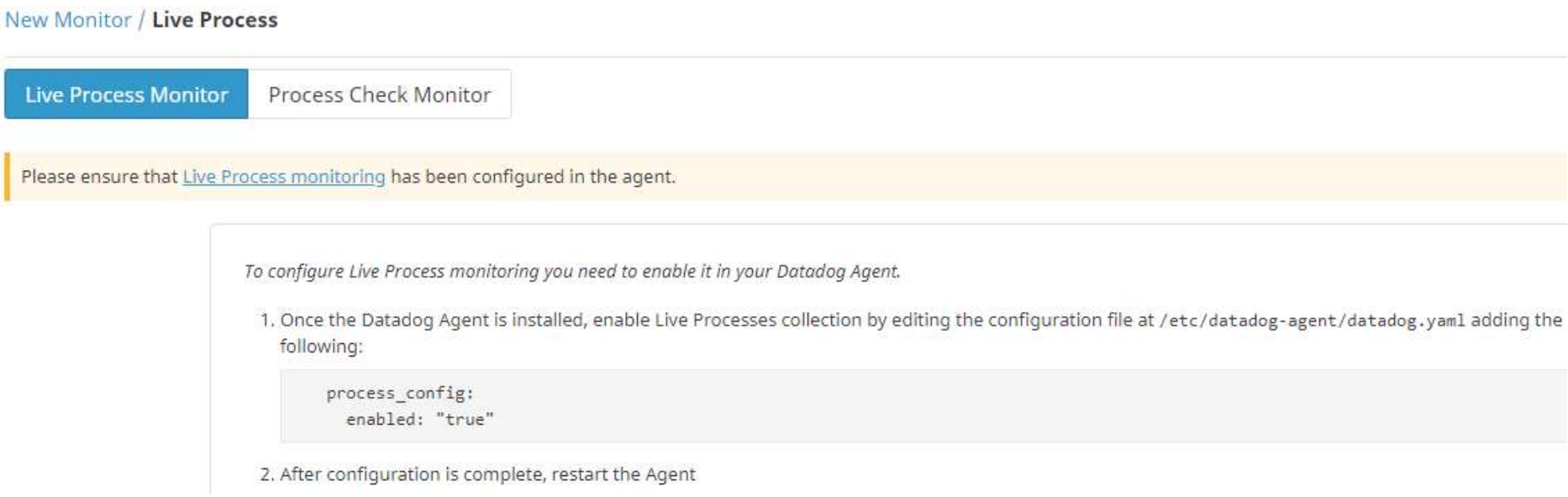
- An alert is triggered whenever a metric is forecast to cross a threshold in the future.
- Forecasting is an algorithmic feature that allows you to predict where a metric is heading in the future. It is well-suited for metrics with strong trends or recurring patterns. For example, if your application starts logging at a faster rate, forecasts can alert you a week before a disk fills up, giving you adequate time to update your log rotation policy.

Detection Methods: Forecast Alert

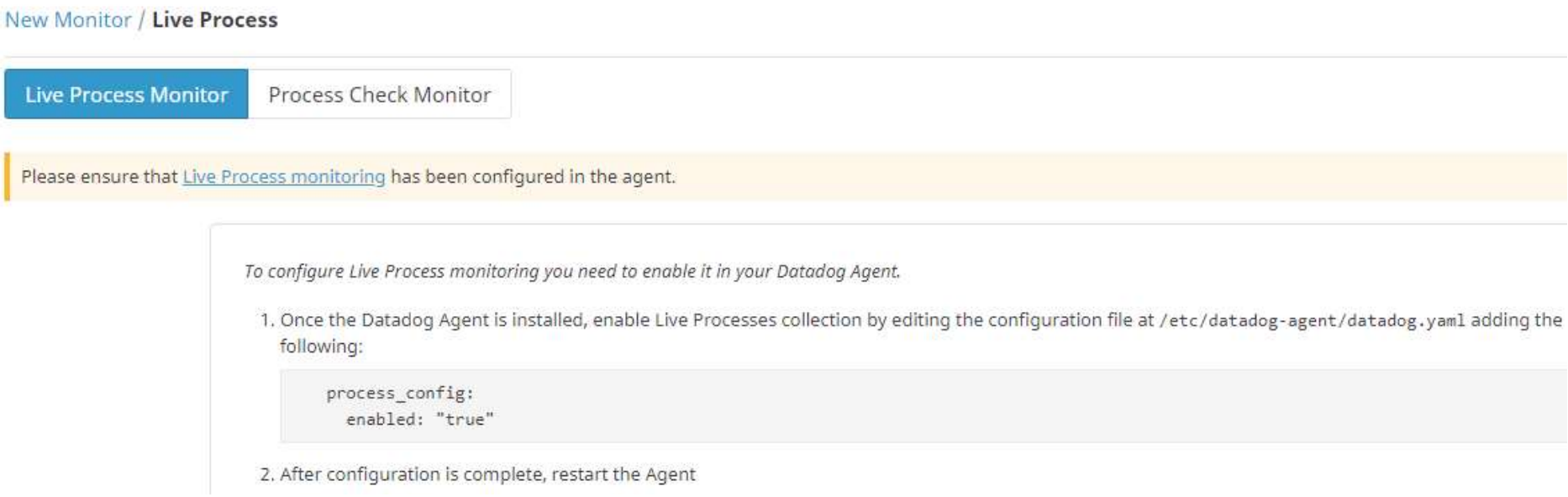




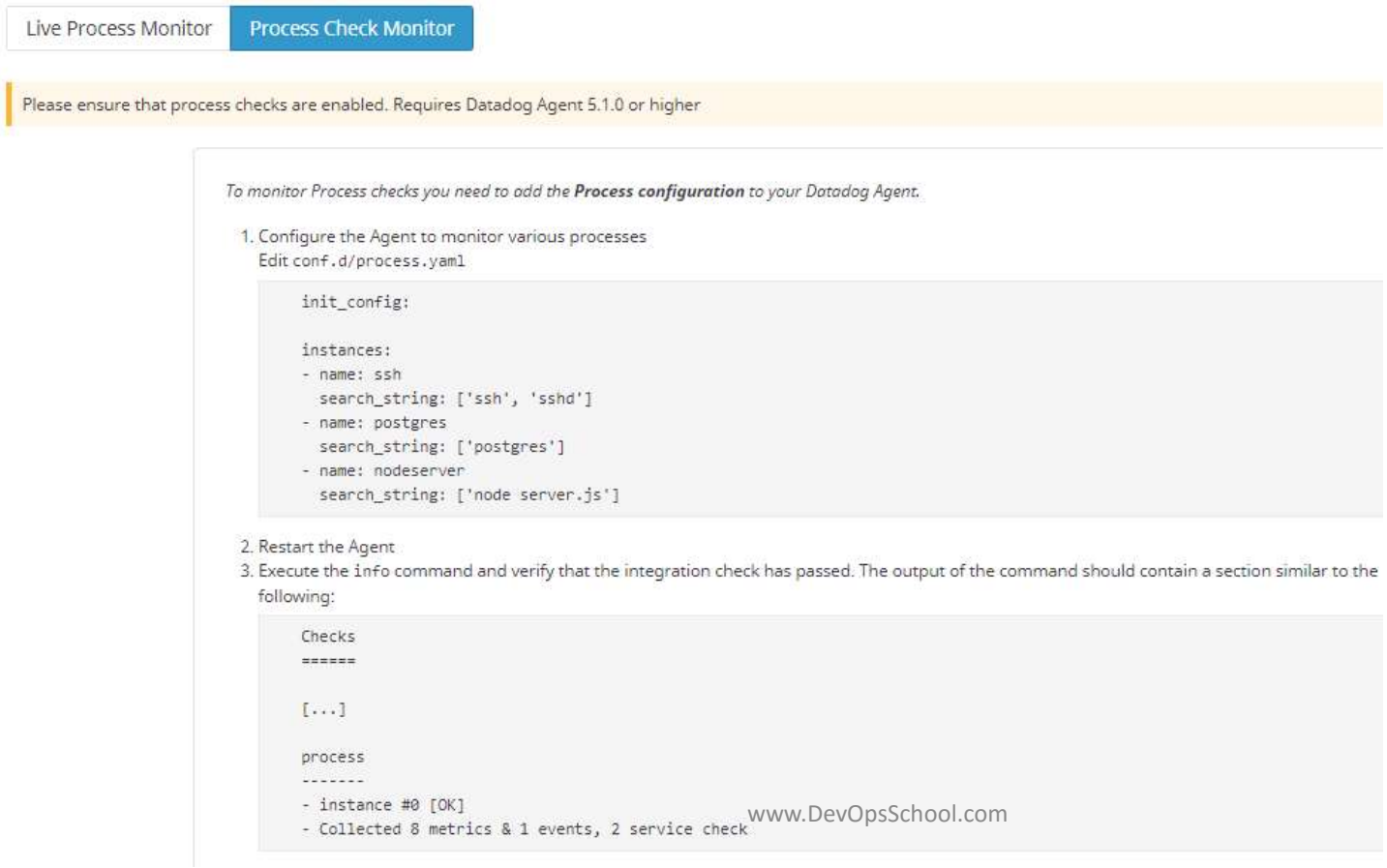
Monitor type: Live Process



Monitor type: Process Check



Monitor type: Process Check



Monitor type: Process Check

Why use Tags?

- Host Tags will automatically be added to that host's metrics and events.
- Metrics can be filtered and aggregated by Tag.
- Events can be searched by Tag.

What's a Tag?

- Tags can be any word or key:value pair, such as pool:web or test.
- Tags of the form key:value define new dimensions by which you can slice metrics or alerts.

Special Tags

- Certain integrations allow Datadog to automatically tag your hosts. For example:
- AWS instances will automatically be tagged with properties, including availability-zone and instance-type.
- Hosts managed by Chef will automatically be tagged with the right role.