



BY Developers FOR Developers

Storage Developer Conference
September 22-23, 2020

Predictive Analysis of Storage Health and Performance for Heterogeneous Environment

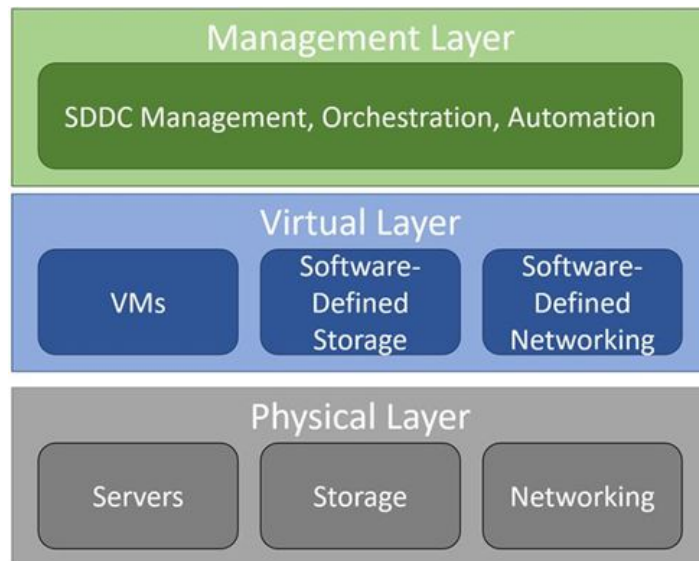
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Huawei Technologies



Agenda

- A glance to modern data center
- Need for telemetry on Infrastructure
 - Delfin – an open source Infrastructure monitoring and alerting framework
- Predictive analytics using ML
 - Anomaly detection algorithms
- SODA
 - Bringing telemetry and anomaly detection together

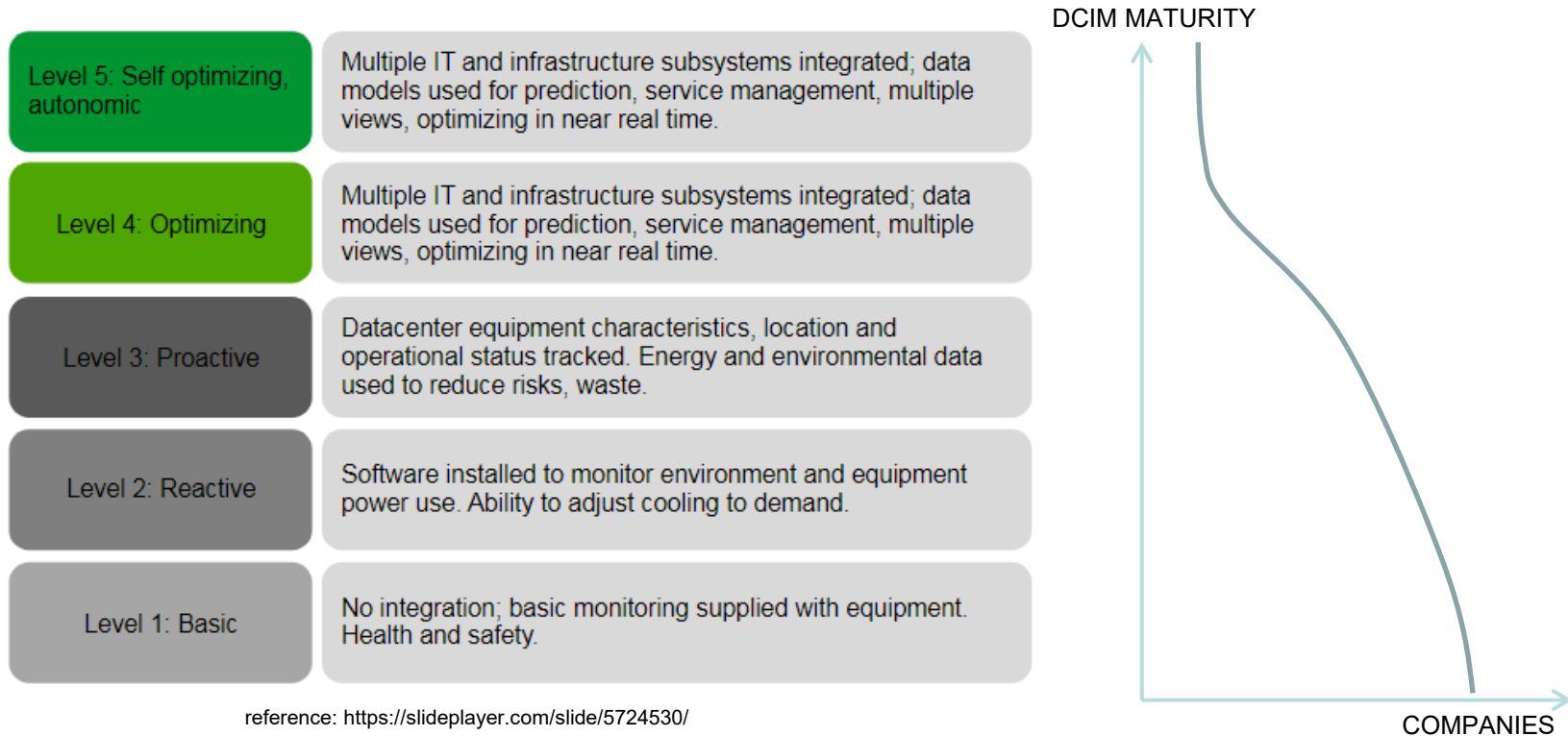
A glance to modern data center



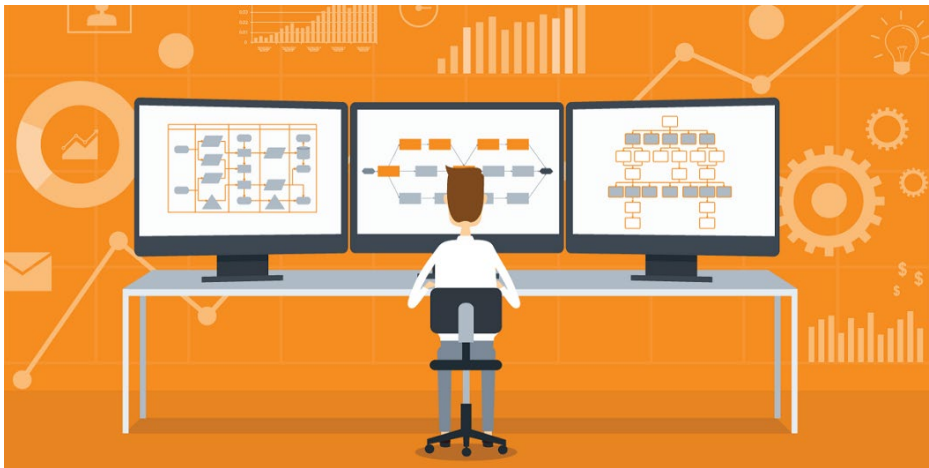
Pain points

- Complex infrastructures: switches, servers, storages...
- Different technologies to manage
- Low resource utilization
- No recycling of resources
- Inefficient fault detect
-

DCIM maturity model

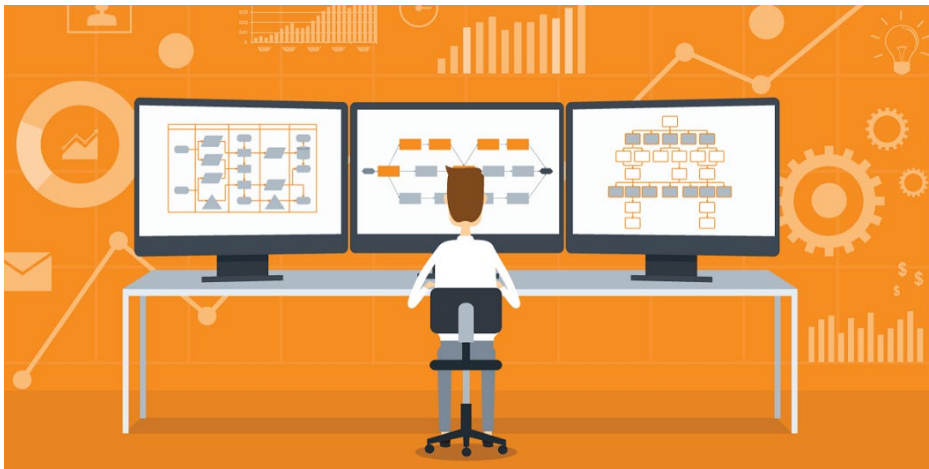


Need for Telemetry



- storage resource management tools can be invaluable to organizations that need to simplify and optimize their storage infrastructure.
- Every vendor has monitoring and reporting software for visualizing and analysing.
- Different metrics of Capacity, Performance and configuration updates are to be monitored .

Need for Telemetry

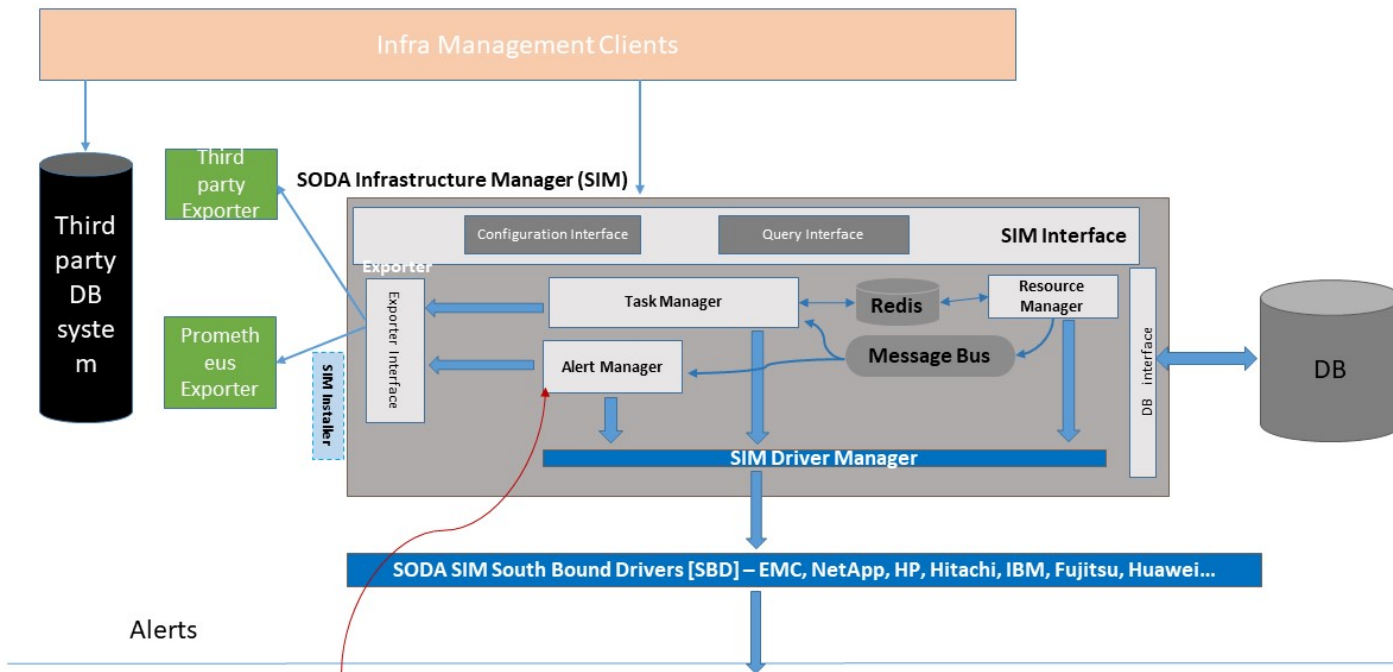


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Collecting data dynamically is a start~

Delfin – an open source Infrastructure monitoring and alerting framework

Focus the data(resource, alert and performance) collection/configuration of infrastructure for any O&M platform to help optimize the data center management.



Storage Infrastructure

What is Anomaly Detection



-Anomaly detection is a technique used to identify unusual patterns that do not conform to expected behavior, called outliers.

- Categories of anomalies:
 - Point anomalies
 - Contextual anomalies
 - Collective anomalies



anomaly-detection

release v0.10.0

license Apache-2.0

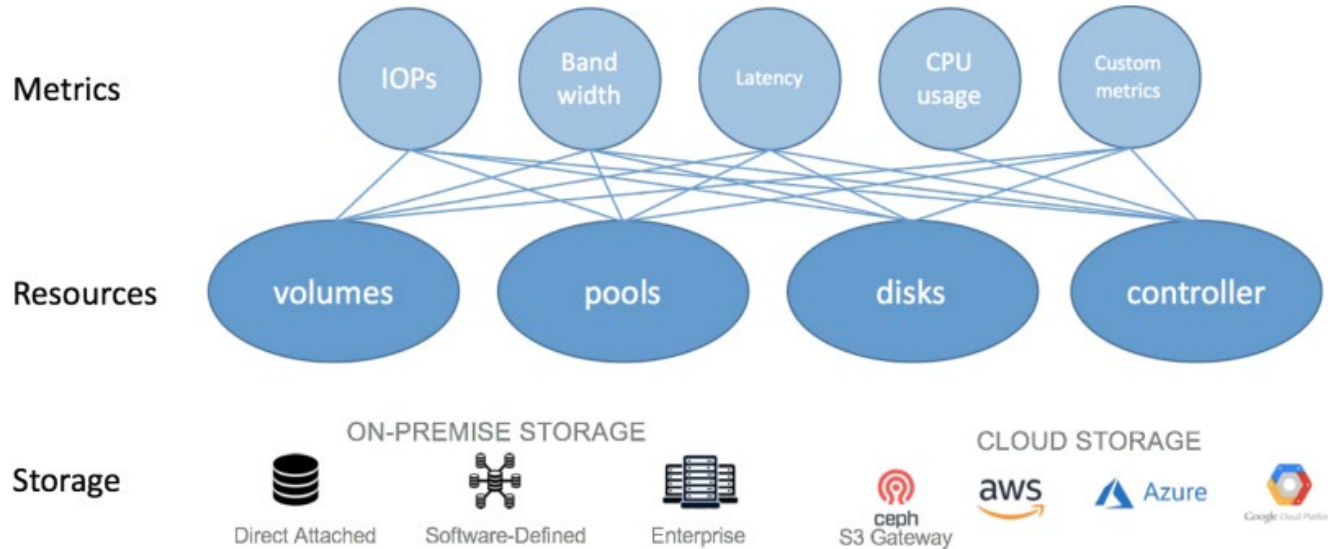
Introduction

It is a reference implementation of intelligent monitoring which can utilize SODA Telemetry data, through exporters with Kafka (or similar) and a standard ML algorithm.

Any machine learning algorithm based on the use case can be integrated to this framework for specific data analysis and prediction.

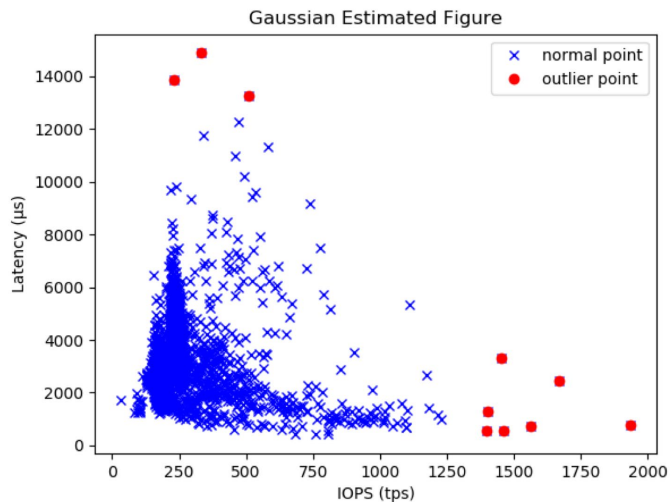
This is one of the SODA Core Projects and is maintained by SODA Foundation directly. However there can be other SODA Compliant Anomaly Detection or intelligent telemetry projects from partners in future which can be part of SODA Foundation Project Landscape.

Storage Performance metrics

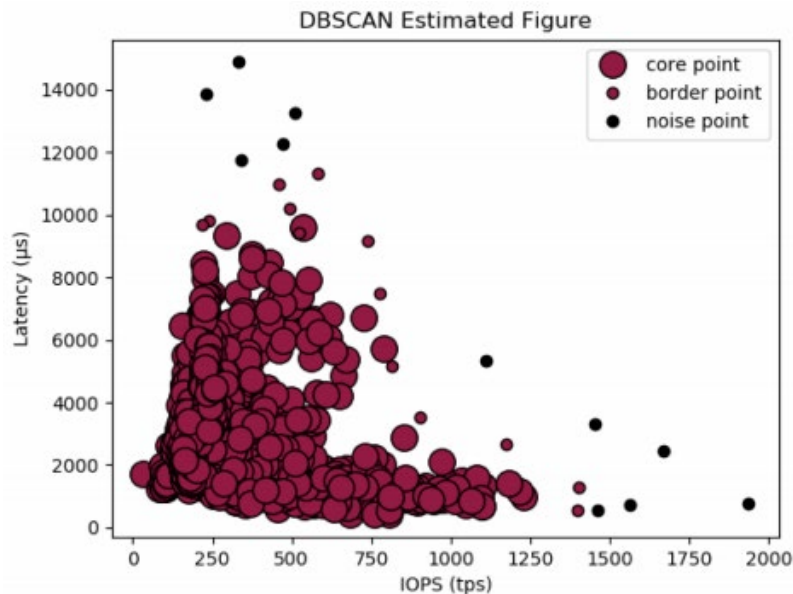


Anomaly detection : algorithms

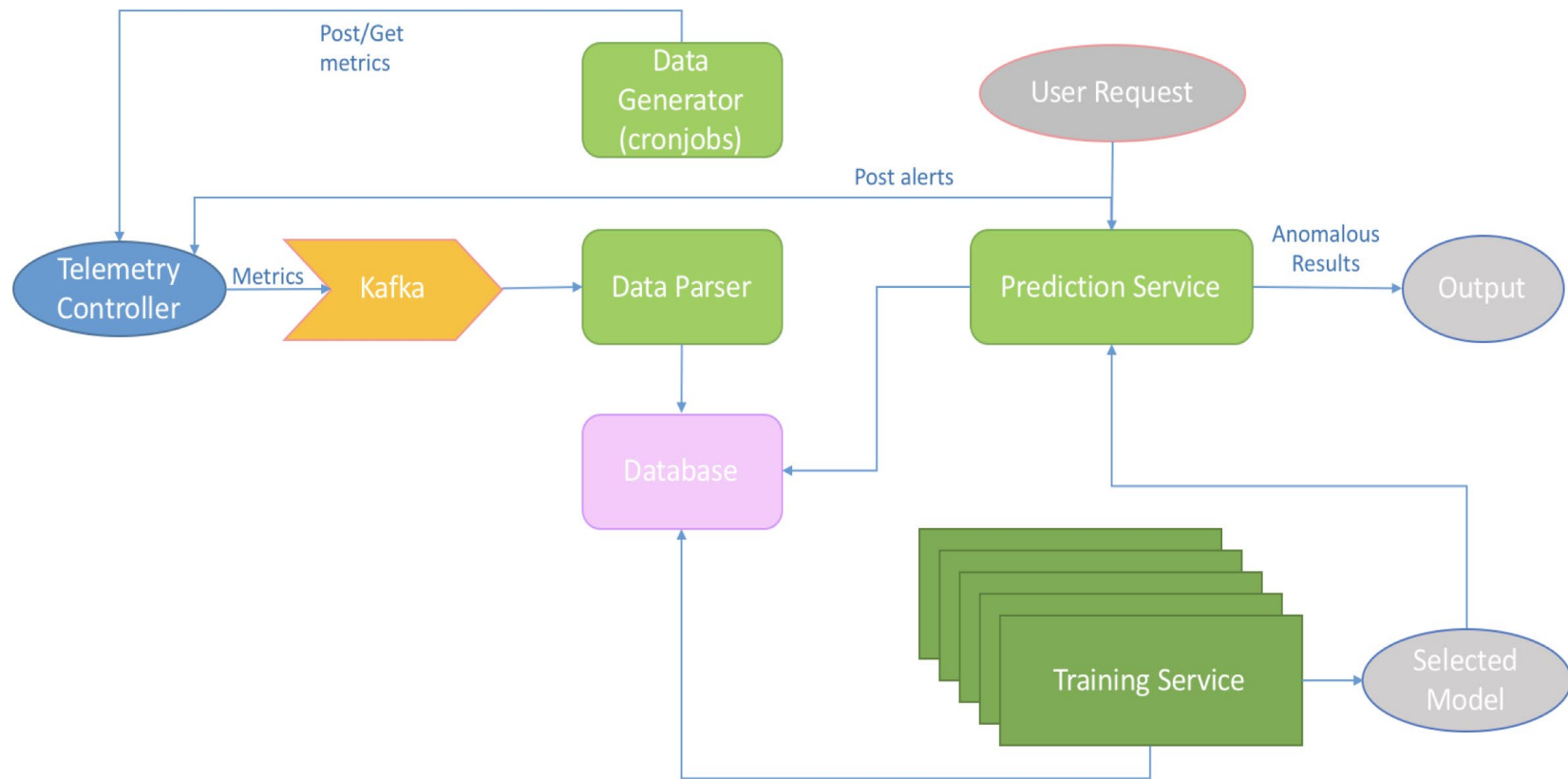
■ Guassian



■ DBScan



SODA : Bringing telemetry and anomaly detection together





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