Revolutionize IT Operations Management with Real Time Big Data

Bernd Harzog
Founder and CEO

OpsDataStore
Before Bernd Started OpsDataStore....

Strategy Consultant

- VMware
- AppDynamics
- AppNeta
- CloudPhysics
- CRITICISM
- dynatrace
- Intel
- ExtraHop
- New Relic
- NETuitive
- Prelert
- VMTurbo
- Virtual Instruments
- virtustream
- Zenoss
- Gigamon
- SevOne
- Enterprise

Product Selection Consultant

- Credit Suisse
- Deutsche Bank
- Chevron
- Human Energy
- SVB
- Silicon Valley Bank
- Aetna
- UBS
- Nordea
- Allianz
- Global Assistance
- OpsDataStore
Our Questions for You

Does every system and application that you depend upon work as well as you need it to all of the time?

Are you running IT Operations as efficiently and as cost effectively as you need to?

Is it easy for you to get IT data and analytics into the hands of key decision makers and business constituents?
Why Not?
Network Complexity
Virtualization Complexity
Application Complexity
What Has Not Worked?
Frameworks made a promise that could not be kept – that one product can monitor everything. Frameworks are out of date with respect to current application and infrastructure environments. Frameworks stand no chance of keeping up with the accelerating pace of innovation. Best of breed tools are replacing the frameworks.
Market Share Shifts for IT Operations Management Tools

11% share (of a $20B market) lost by the Big 4 went to new best of breed vendors (creating the problem OpsDataStore solves)
Frameworks Have Been Replaced by Best of Breed
Best of Breed Results in Franken-Monitors!

- Franken-Monitors are redundant siloed management tools that do not integrate with each other and that each store their data in their own proprietary datastores.
- Franken-Monitors happened because customers bought best of breed point tools to address gaps left by IBM, BMC, HP and CA.
- Franken-Monitors cannot cope with the rapid pace of change driven by Agile, DevOps, and hybrid/private clouds.
- Franken-Monitors make it impossible for management to keep up with the pace of innovation.
- With Franken-Monitors there is no architecture for management and monitoring.
- Franken-Monitors cost you revenue, reputation and customer retention.
An Increasing Pace of Innovation, Diversity, Complexity, and Rate of Change at all Layers of the Stack

Rapidly arriving and changing code in production

In many different languages

In many different run-times and containers

Everything virtualized

Many Clouds

Compute Virtualization  Network Virtualization  Storage Virtualization
Data Driven IT Operations to the Rescue

OpsDataStore
The Architecture for Data Driven IT Operations

<table>
<thead>
<tr>
<th>Visualization</th>
<th>Live Custom Dashboards – Specific to use cases, domains, and user requirements – Choice of BI Tools</th>
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<td>Use Cases</td>
<td>Data Driven IT Operations</td>
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<td>End-to-End Monitoring</td>
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<td>Capacity Analytics</td>
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<td>Automated Root Cause</td>
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<td>Automated Remediation</td>
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<td>IT Operations Analytics</td>
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<td>Cost Management</td>
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<td>Data Platform</td>
<td><strong>OpsDataStore</strong></td>
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<td>Data Sources</td>
<td>Physical and Virtual Storage Instrumentation</td>
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<td>Physical and Virtual Server Instrumentation</td>
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<td>Physical and Virtual Network Instrumentation</td>
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<td>Operating System Instrumentation</td>
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<td>Application and Transaction Instrumentation</td>
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<td>Data Types</td>
<td>Data from Management API’s</td>
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<td>Agent Data</td>
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<td>Wire Data</td>
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<td>Synthetic Data</td>
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<td></td>
<td>Manual and Configuration Data (CMDB)</td>
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</tbody>
</table>
## Instrument for Response time (Latency), Throughput and Congestion at Every Layer

### Data Sources

<table>
<thead>
<tr>
<th>Layer</th>
<th>Data Sources</th>
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</thead>
<tbody>
<tr>
<td>Application</td>
<td>Transaction and application response time and throughput</td>
</tr>
<tr>
<td>Server OS</td>
<td>CPU, memory, network and disk contention (queuing)</td>
</tr>
<tr>
<td>Virtualization</td>
<td>CPU, memory, network, and disk contention (queuing)</td>
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<tr>
<td>Network</td>
<td>Network performance and behavior of network users (apps)</td>
</tr>
<tr>
<td>Router/WAN</td>
<td>WAN performance and End User Experience</td>
</tr>
<tr>
<td>Storage Array</td>
<td>Latency, throughput and contention</td>
</tr>
</tbody>
</table>

### OpsDataStore

- IT Operations Analytics
- Performance Management
- Capacity Management
- Service Troubleshooting
- Live Custom IT Dashboards
Evaluate Metrics based upon their Value, Breadth of Applicability and Cost to Implement

Low     Value of the Metric       High
Narrow

Coda Hale, StatsD
AppDynamics
Dynatrace

ExtraHop (ITR)
CollectD (PL)
Datastore HW
VMware VASA
ExtraHop (STD)
CollectD
VMware vCenter

Corvil
AppDynamics
Dynatrace

Open Source/Free
$  
$$

Application
Server
Datastore
Network

Intel DCM
Netflow
SNMP

Value of the Metric

Narrow
Breadth of Applicability
Ubiquitous
The Solution
OpsDataStore

The Real-Time Platform for Data Driven IT Operations
Key OpsDataStore Features

- **Open Ingest** – collect data from any platform, management tool or API
- **Dynamic Object Model** – all data is related at ingest time, stored in a graph database and shown in a topology map
- **Highly Scalable Real Time Back End** – designed for infinite horizontal scalability, high ingest rate and low latency queries of metrics and relationships
- **Continuous Data Transformation** – into a form usable by BI tools
- **Open Query Architecture** – all data and topologies are accessible through ODBC/JDBC
- **Easily Extensible User Interface** - user interface (dashboards) built in the leading BI tool (Tableau)
OpsDataStore – Solution Overview

Real-Time Fabric for Data Driven IT Operations

Cross-Stack & End-To-End Troubleshooting

Continuous Capacity Optimization

Live Custom IT Dashboards
OpsDataStore Product Architecture

Configuration
- Throughput

Continuous Ingest
- Any Data Source
- VMWare
- AppDynamics
- Dynatrace
- ExtraHop
- Intel DCM

Data Collector SDK
- Object Model
- Streaming Writes

Continuous Processing
- Data Transformation
- Aggregation
- Statistical Computation
- Baseline
- Anomaly Detection

Real-Time Query
- JDBC API
- ODBC API

Graph Database & Low Latency Scale Out Time Series Database

ExtraHop
- DARWIN
- Any Data Source
- Intel DCM

Query
- Splunk
- Qlik
- SAS
- RAM DB
OpsDataStore Object Model – Organizing Streams of IT Operations Data

Objects, Metrics, Configuration Items, and Relationships through Time
Dynamic Environments Require Automatically Related Data

Attributes of Dynamic Behavior
- Continuous unrelated telemetry at each layer
- Micro-Services causes a proliferation in applications that come and go (Docker, etc.)
- VM’s and their networks move between hosts driven by automated operations
- Servers, networks and storage configured dynamically in software (automated provisioning)

Implications of Unrelated Data
- Inconsistent manual tagging cannot keep up with changing relationships and produces erroneous data
- After the fact discovery cannot be run frequently enough
- Absence of accurate relationships makes timely root cause analysis impossible
- Only real-time dynamic topology mapping can keep up
## Related Data – Datastore Latency, and the Response Times of the Transactions on those Datastores

<table>
<thead>
<tr>
<th>Time Stamp</th>
<th>Object Category</th>
<th>Source Name</th>
<th>Metric Category</th>
<th>Metric Name</th>
<th>Metric Mean</th>
<th>Object Category</th>
<th>Target Name</th>
<th>Metric Category</th>
<th>Metric Name</th>
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<tbody>
<tr>
<td>5/3/2017 16:35</td>
<td>Datastore</td>
<td>DemoD10-DemoD11</td>
<td>Performance</td>
<td>Disk Write Latency (ms)</td>
<td>0.466666667</td>
<td>Transaction</td>
<td>Collect Task: EHCollect</td>
<td>Performance</td>
<td>Normal Average Response Time</td>
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<td>User Action by Connection Type</td>
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</table>
Dynamic Map – 1 App on the Server – 1:50 PM
Metrics from the Transaction to the Datastore
Root Cause – CPU Congestion on a Host Causing Slow Transaction Response Time
Root Cause Drill Down – Which VM is Causing the High Contention on the Host (Move it)
Scalable and Automated Capacity Analytics
OPEX Cost Analysis – Hosts Consuming the Most Power

### Maximum Power Consumption (Watts)

<table>
<thead>
<tr>
<th>Watts</th>
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<tbody>
<tr>
<td>600</td>
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<td>300</td>
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<tr>
<td>250</td>
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<tr>
<td>200</td>
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</tbody>
</table>
See Anything You Want How you Want it in Tableau

- Build live dashboards in minutes in your choice of BI tool
- Empower requesters of IT data with self-service
- Improve IT decisions
Use Cases for OpsDataStore

- Platform for Data Driven IT Operations
- Platform for IT Operations Analytics
- Platform for end-to-end (transaction to hardware) monitoring and troubleshooting
- Platform for real-time and continuous capacity analysis
- Platform for live Custom IT Dashboards
Questions?

www.opsdatastore.com
bernd.harzog@opsdatastore.com

Send me an email for a copy of the slides