



Automate Problem Detection with Operations Analytics

April 7, 2016

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Today's Speakers



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Hewlett Packard Enterprise



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Please type questions in the Questions Pane

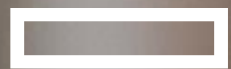


Webinar Control Panel

Toggle View Window between
Full screen/window mode.

Questions





Hewlett Packard
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Automate problem detection with Operations Analytics

Gabriel Martinez
Senior Product Marketing Manager

March 2016



Topics

- Introductions
- Overview of Operations Analytics
- Poll Questions
- Deep Dive into Automated Detection
- Poll Questions
- How HPE IT uses Big Data in IT Operations
- Q&A
- Webinar Survey

Speakers



Gabriel Martinez
Senior Product Marketing Manager
Hewlett Packard Enterprise

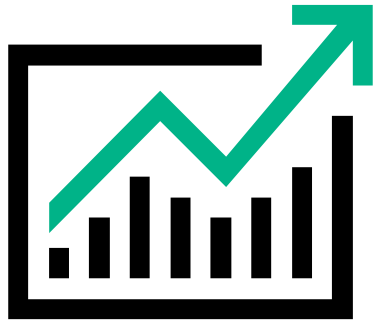


Naama Shwartzblat
Technical Marketing Manager
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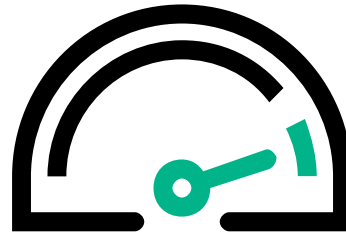
Gary Brandt
Senior Product Manager
Hewlett Packard Enterprise

Market Trends and Growth Drivers

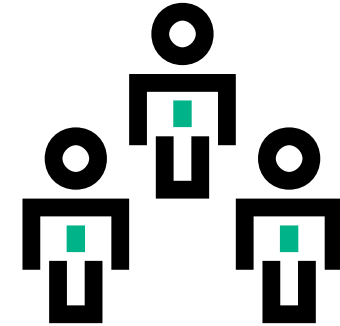


ITOA Growth Drivers

- Outdated Rule-Based Systems
- Point Tools Limitations
- Complex Diverse Environments



HPE Operations Analytics



Customer Expectations

- Flexible, Scalable Architecture
- Transform Data into Intelligence
- Problem Detection & Prediction

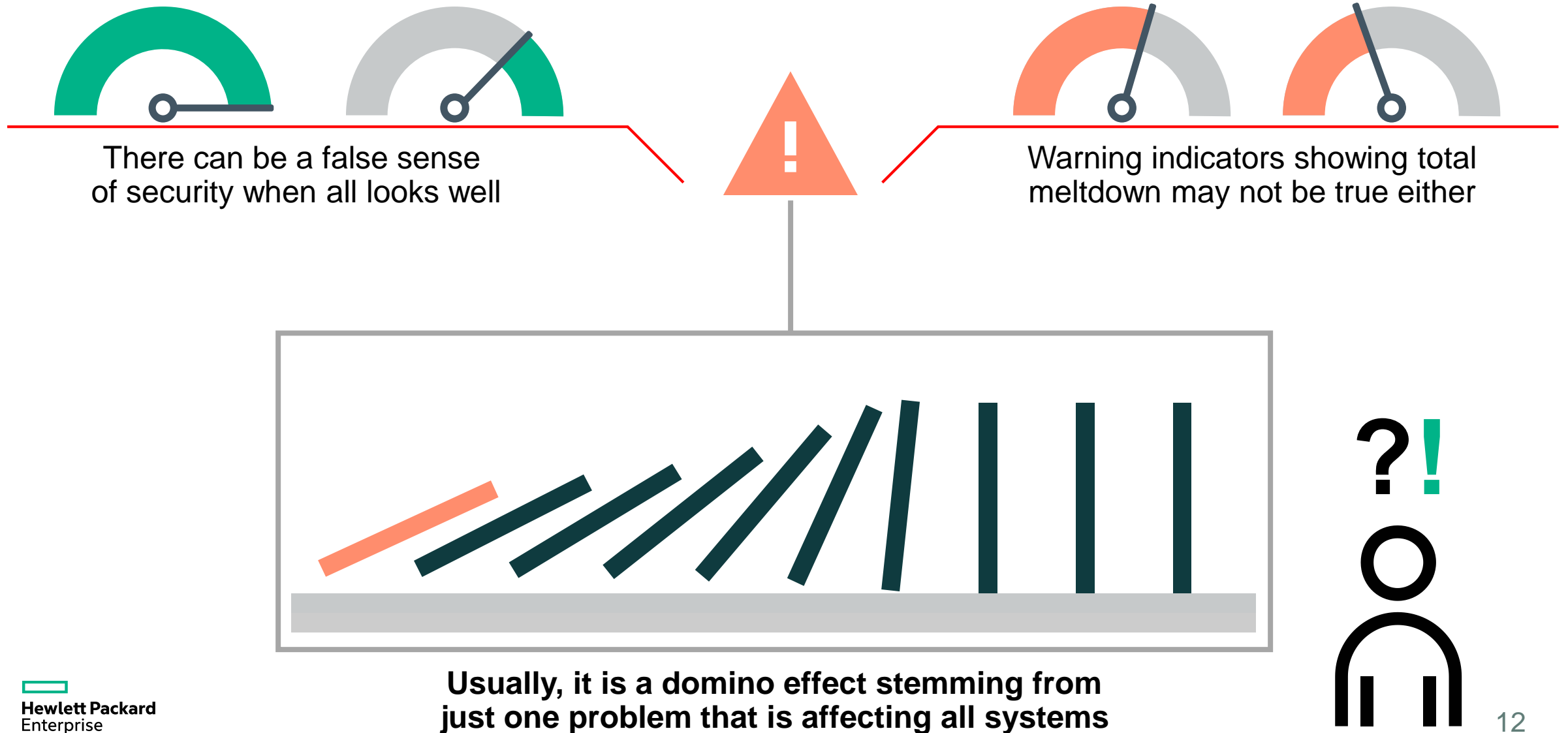


Poll question

What do you find most challenging in detecting IT issues?

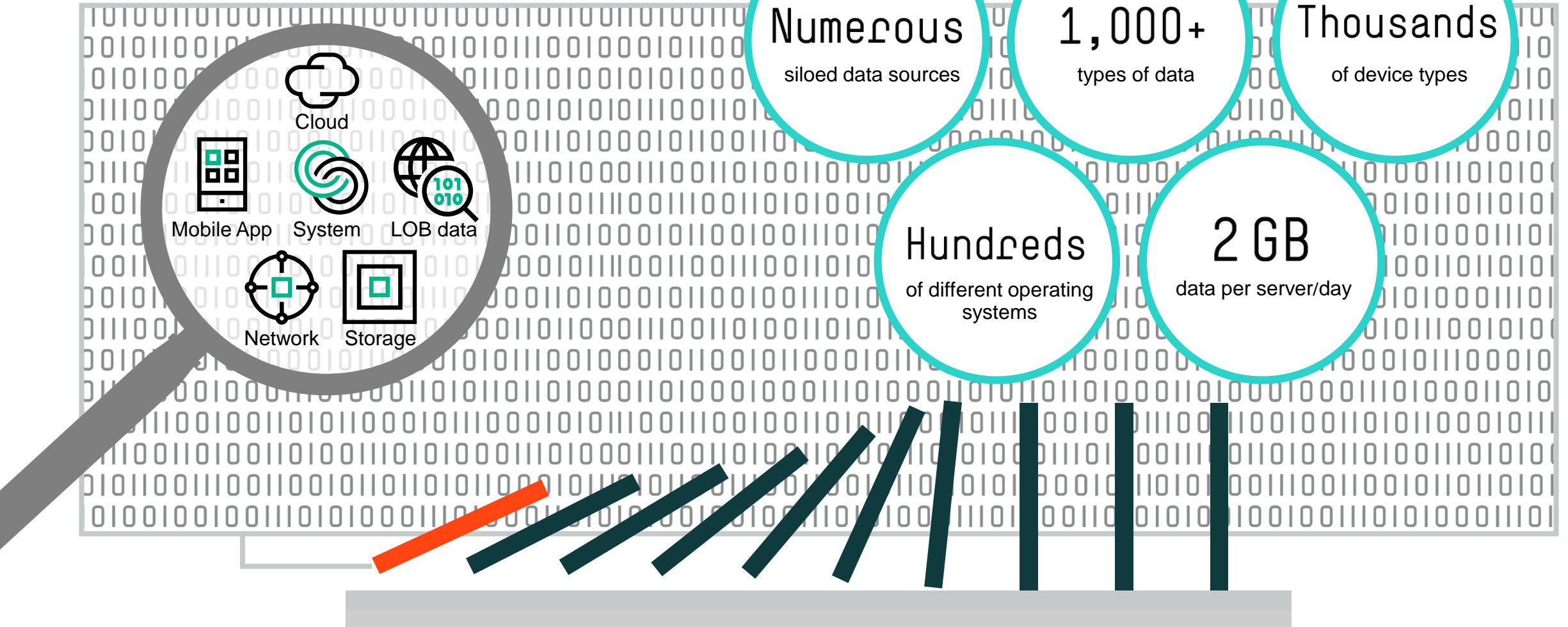
- a) Too many internal resources required**
- b) Overwhelming manual effort**
- c) Current tool doesn't easily find issue**
- d) Not sure where to begin**
- e) Other**

What caused your last outage?

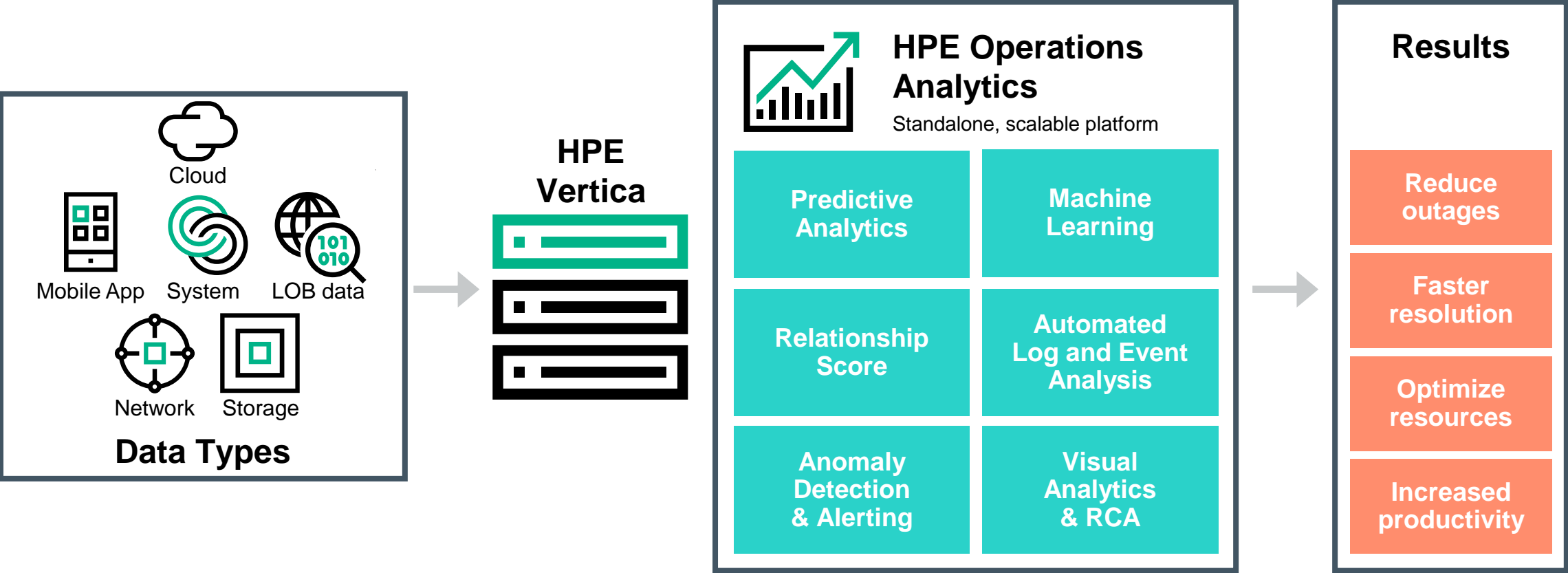


The answer lies in your data

But how do you make sense of it?

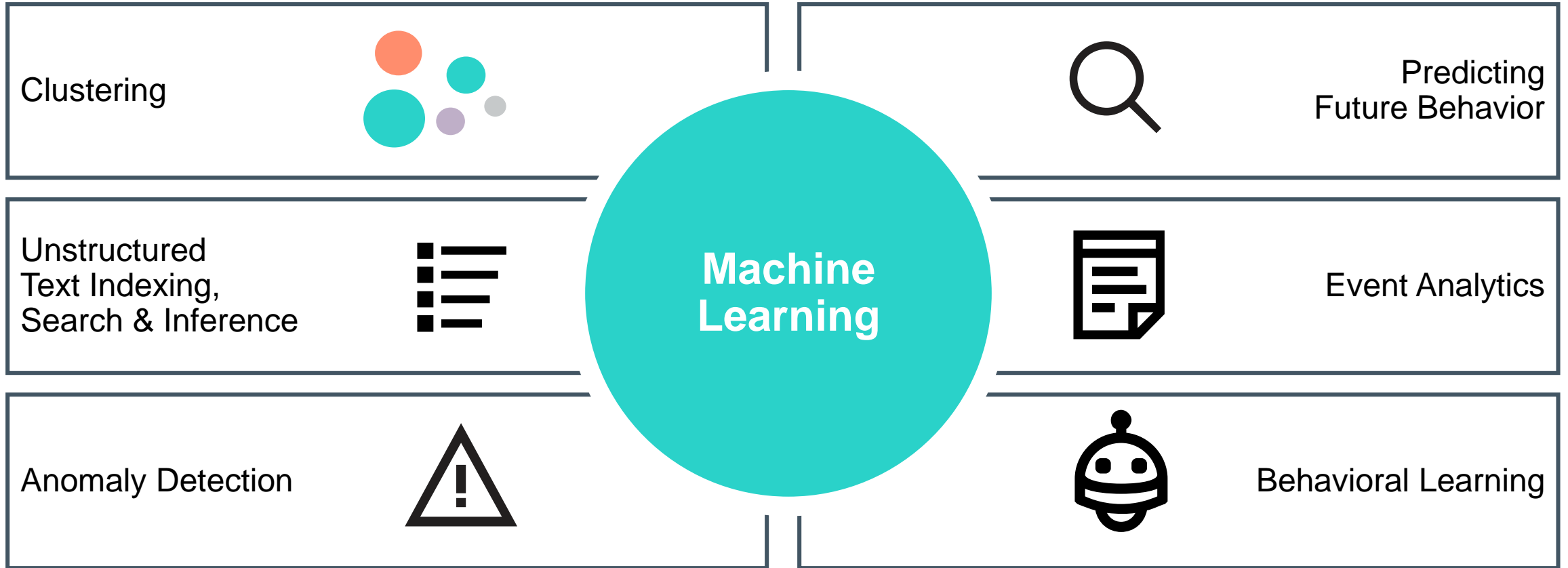


Introducing HPE Operations Analytics



Machine Learning Powers HPE Operations Analytics

Developed in collaboration with HPE Labs





Poll question

**What approach do you currently take,
related to IT issues?**

- a) Proactive**
- b) Reactive**
- c) Not sure**
- d) We don't have IT issues**



Overview of Operations Analytics

HPE Operations Analytics

Key features



Log and Event Analytics

Focus on relevant items
for quicker resolution



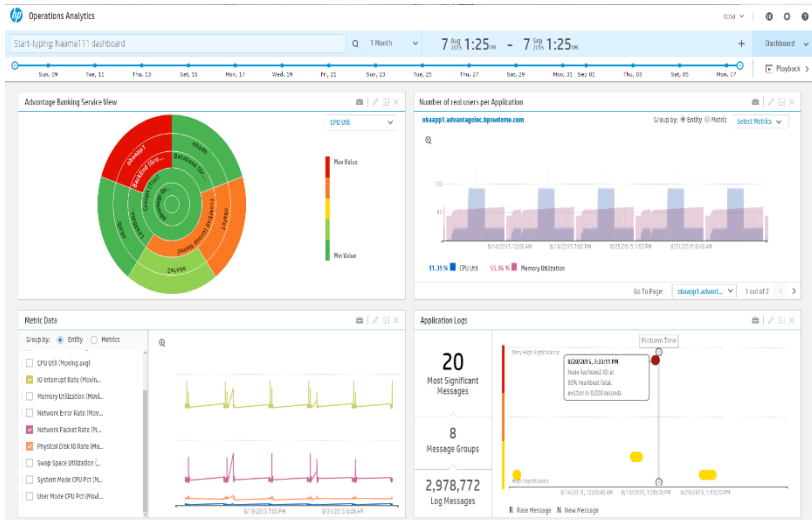
HPE Operations Analytics

Key features



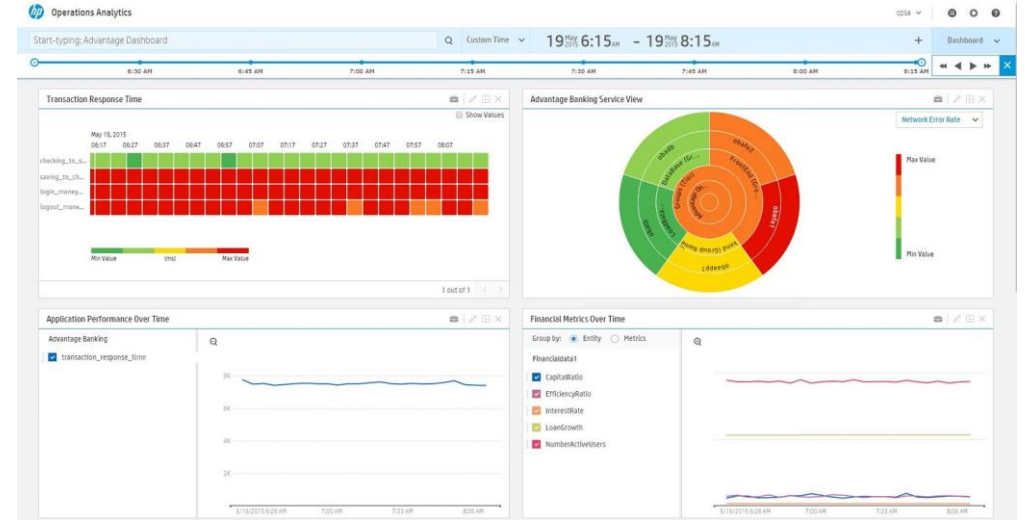
Root Cause Analysis (RCA)

Find problems with ease



Visual Analytics

Clear, intuitive dashboards



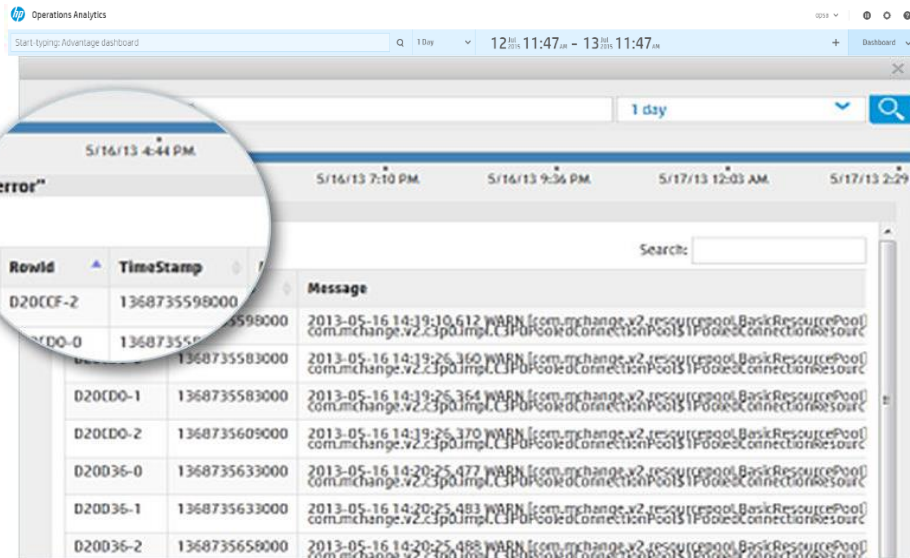
HPE Operations Analytics

Key features



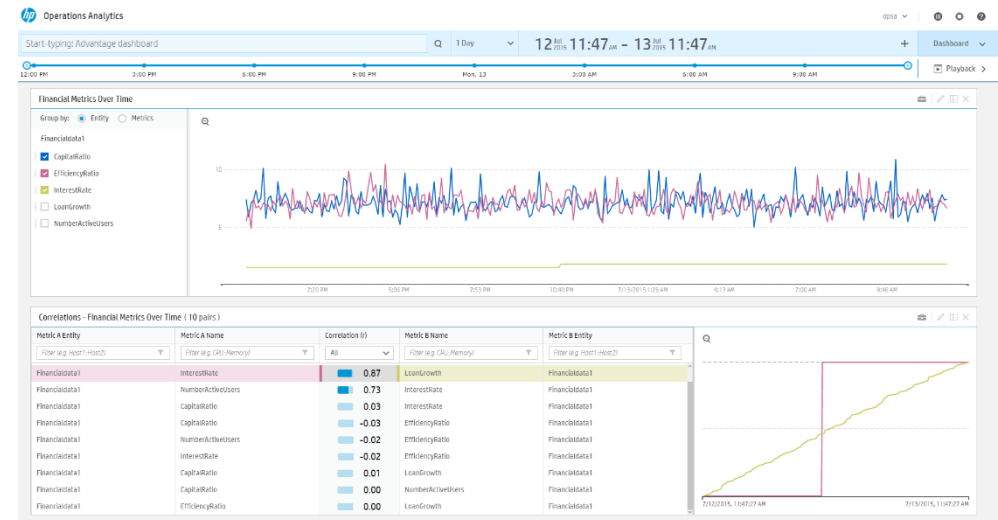
Intelligent Search

Deep-dive into messages



Relationship Score

Connection between metrics



HPE Operations Analytics

Key features



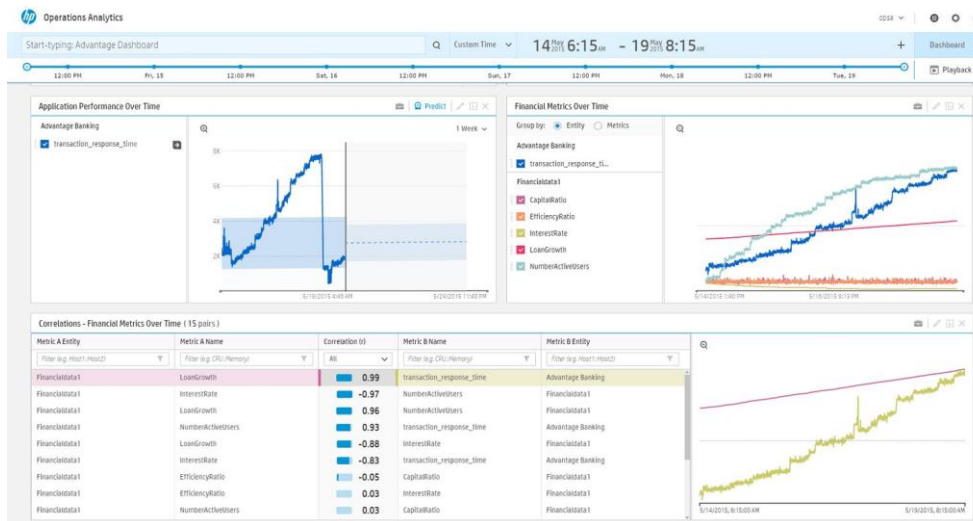
Predictive Analytics

Forecast future performance



Anomaly Alerting

Real-time problem warnings



The 'Create Alert' dialog box is shown with the 'Schedule and Trigger' tab selected. It contains the following sections:

- Schedule:** Options to 'Run every...', 'Run weekly', or 'Run monthly'. The 'Run every...' option is selected, with a frequency of '1' and a unit of 'Hours'.
- Abnormal Result Definition:** A slider to define the 'Normal range' from 'Narrow' to 'Wide'. The 'Value is' section has radio buttons for 'Above range', 'Below range', and 'Both'. The 'and also' section has a dropdown for 'Above' and a text input for 'value'.
- Trigger:** A section to define the trigger condition. The 'Trigger if number of abnormal results' is set to 'is greater than' with a value of '40'.
- Preview abnormal results count:** A link to preview the abnormal results count.
- Navigation:** Buttons for '< Prev', 'Next >', and 'Cancel'.

Old-fashioned log search is not enough

Move beyond chance-based resolution with advanced analytics



Log Searches



Statistics



Scalable Data Store



Log Analysis



Predictive Analytics



Anomaly Detection

**HPE
Ops Analytics**



Automated

Others



HPE Operations Analytics

Standard use cases



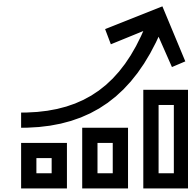
Big Data store and analysis



**Anomaly detection
and troubleshooting**



**Historical and
predictive analytics**



Business insights



Poll question

**Do you feel your current IT process
requires better automation?**

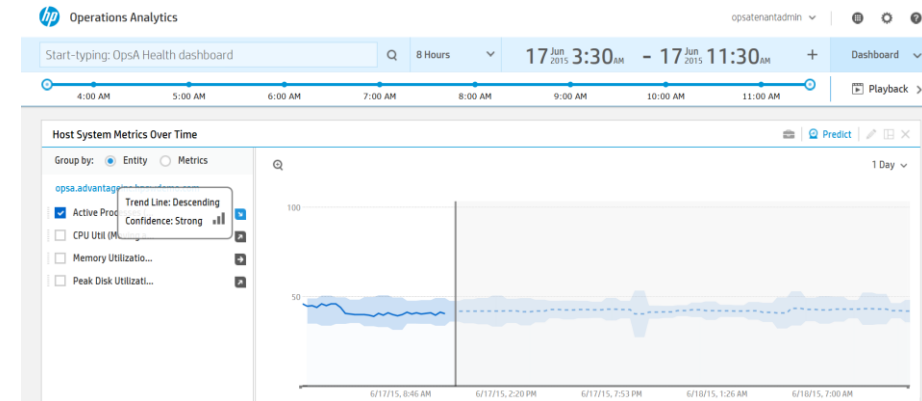
- a) Yes**
- b) No**
- c) Unclear/Not Sure**



Deep dive into automated detection

Prevent downtimes with predictive analytics

- Self-learning engine to establish baselines in real-time
- Compare past behavior to forecast behavior
- Comprehensive predictive analytics
- Analytics include insights from log files

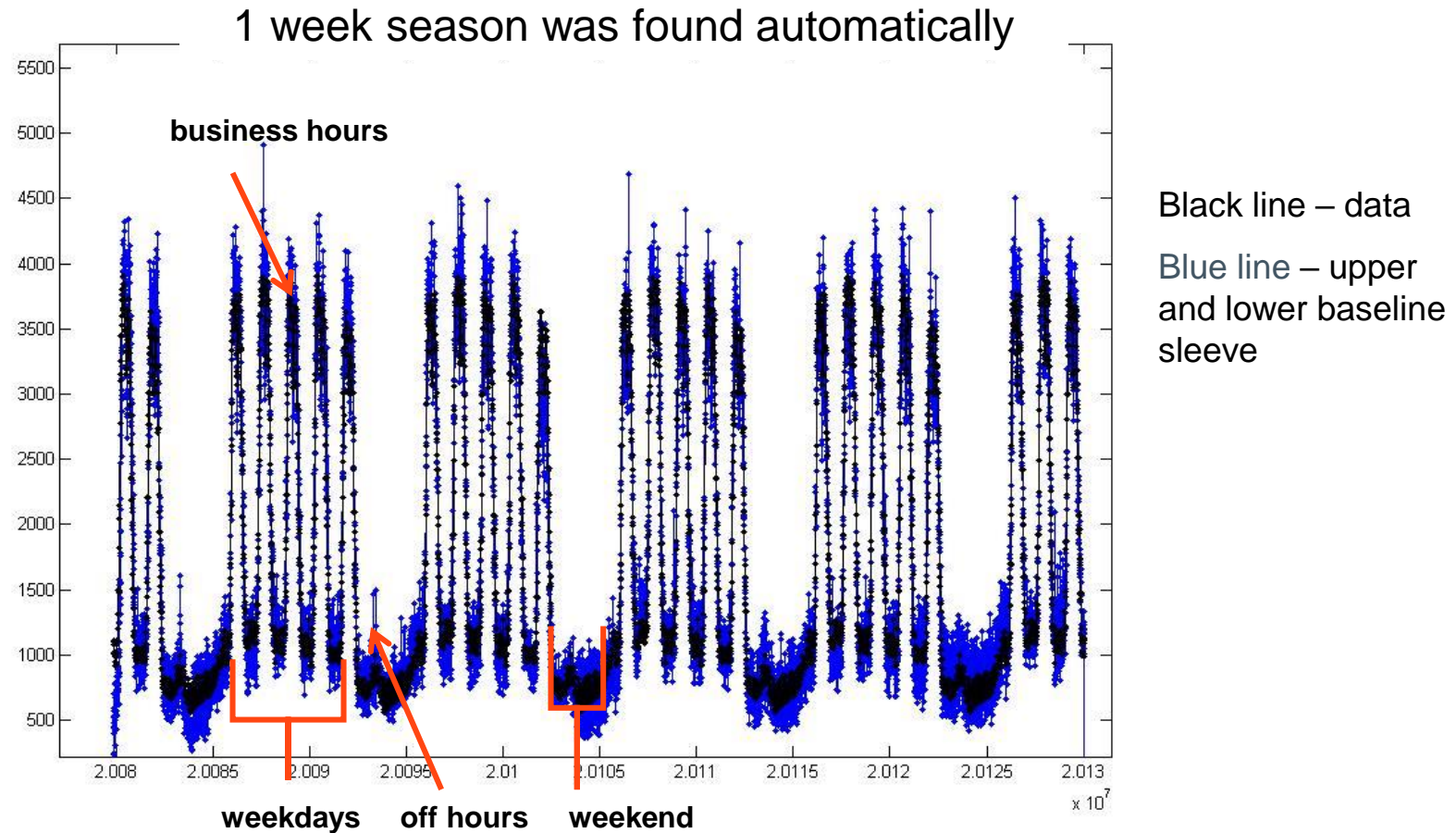


Establish baselines of acceptable performance



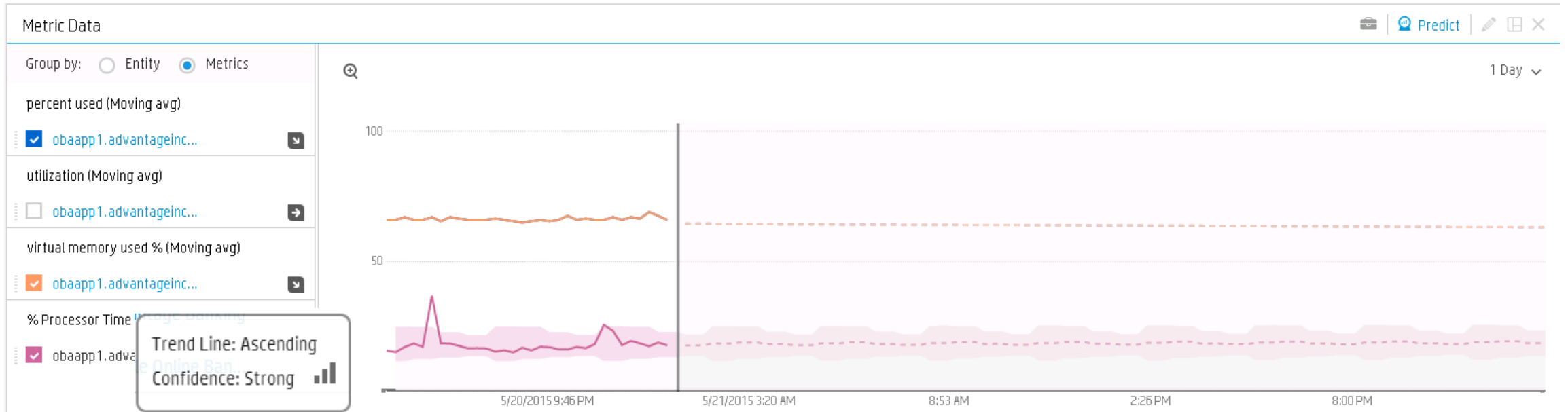
Predict future performance trends

Detection of metric seasonality



Predict and trend analysis

- Generate a prediction line for multiple metrics based on past behavior and seasonality
- Identify the metric trend



Abnormality based and threshold based alerts

- Identify issues proactively and send early alerts before they impact your business
- Discover issues as they occur without performing an investigation
- Execute actions (email, script execution, SNMP traps and send events to OpsB) when alert is triggered
- Can be defined for a single metrics or up to 10 metrics per alert

Create Alert

Select alert type and specify metrics before continuing to alert definition

Alert Type

- ☒ Abnormality based alert on selected metrics ?
- ☐ Threshold based alert on selected metrics ?
- ☐ Threshold based alert on all metrics ?

Select Metrics (6 selected, 10 max)

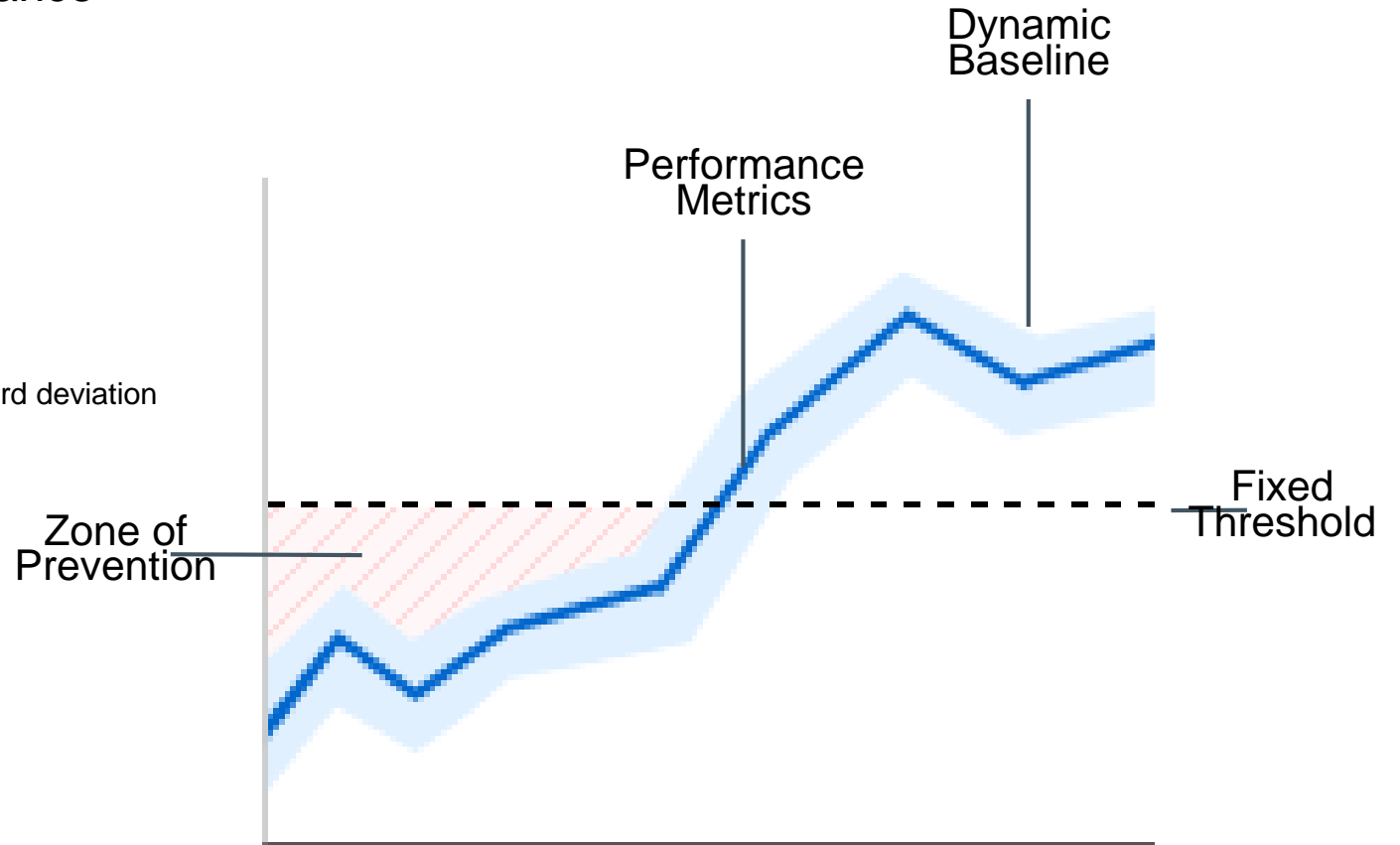
Group by: ☒ Entity ☐ Metrics

| | |
|-------------------------------------|--|
| 2, opsa-aob.hpswlab.adapps.hp.com | <input type="checkbox"/> utilization cpu (Moving avg) |
| 2, opsa-aob2.hpswlab.adapps.hp.com | <input checked="" type="checkbox"/> utilization cpu (Moving avg) |
| 2, opsa-aob2.hpswlab.adapps.hp.com | <input checked="" type="checkbox"/> utilization cpu (Moving avg) |
| 2, opsa-aobdb.hpswlab.adapps.hp.com | <input type="checkbox"/> utilization cpu (Moving avg) |

Define Alert > **Cancel**

Proactive management with early warning alerting

- Near real-time alerting when performance exceeds dynamic baseline
- Alert on multiple metrics
- Flexible alerting parameters
 - Normal range defines the baseline sleeve width in standard deviation multiplies
 - Above/below/both the baseline sleeve
 - Optional - additional condition for static threshold
- Preview analysis of alert



Power of analyzed data hidden in log messages

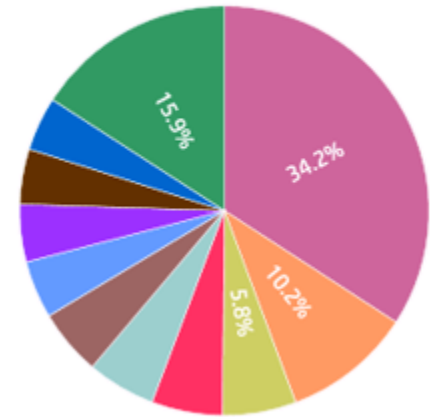
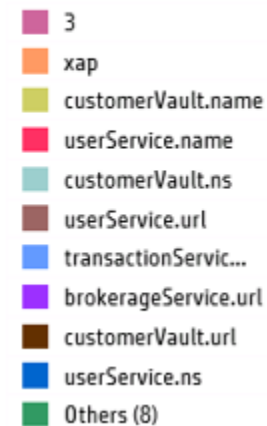
Valuable information is hidden in the log message behavior as well as the log message data itself

- Analyze log file data as metrics
- Track message group statistics over time
- Track parameter distribution
- Use baseline, prediction, correlations and alerts on information coming from log files

Message Text

Threshold violation(s) for latency [/ configService/parameter/wSDL . brokerageService.url (774.5ms > 524.9ms)]. Impacting applications: <Advantage Banking Premium> on Advantage-Banking-Premium-Java-Agent:obapremium.advantageinc.hpswdemo.com

Parameter Distribution - pie (1033 occurrences)



Expose log & event count as metric

Understanding the message behavior over time

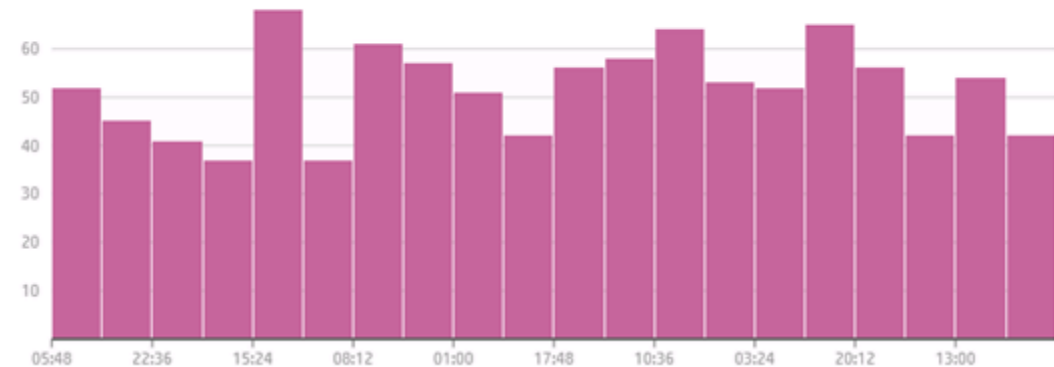
- Analyze log message group count as metric
- Ability to baseline, predict and alert based on log behavior over time
- Ability to correlate log behavior against system and performance metrics as well as non IT metrics

Message Text

Threshold violation(s) for `latency [/configService/parameter/wsdl.brokerageService.url (596ms > 524.9ms)]`. Impacting applications: <Advantage Banking Premium> on Advantage-Banking-Premium-Java-Agent:obapremium.advantageinc.hpswdemo.com

Message Count Over Time

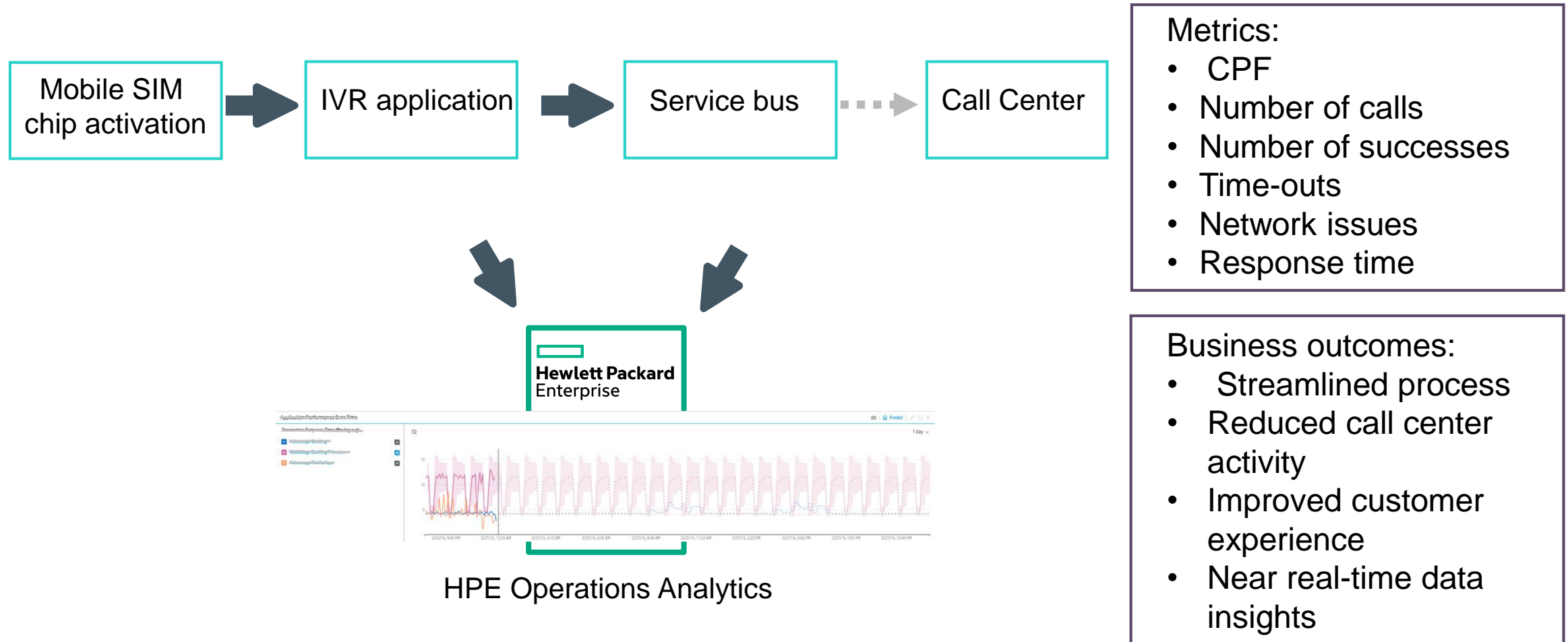
Track Message Group



Using IT data for operational business insights

Global Telco Company

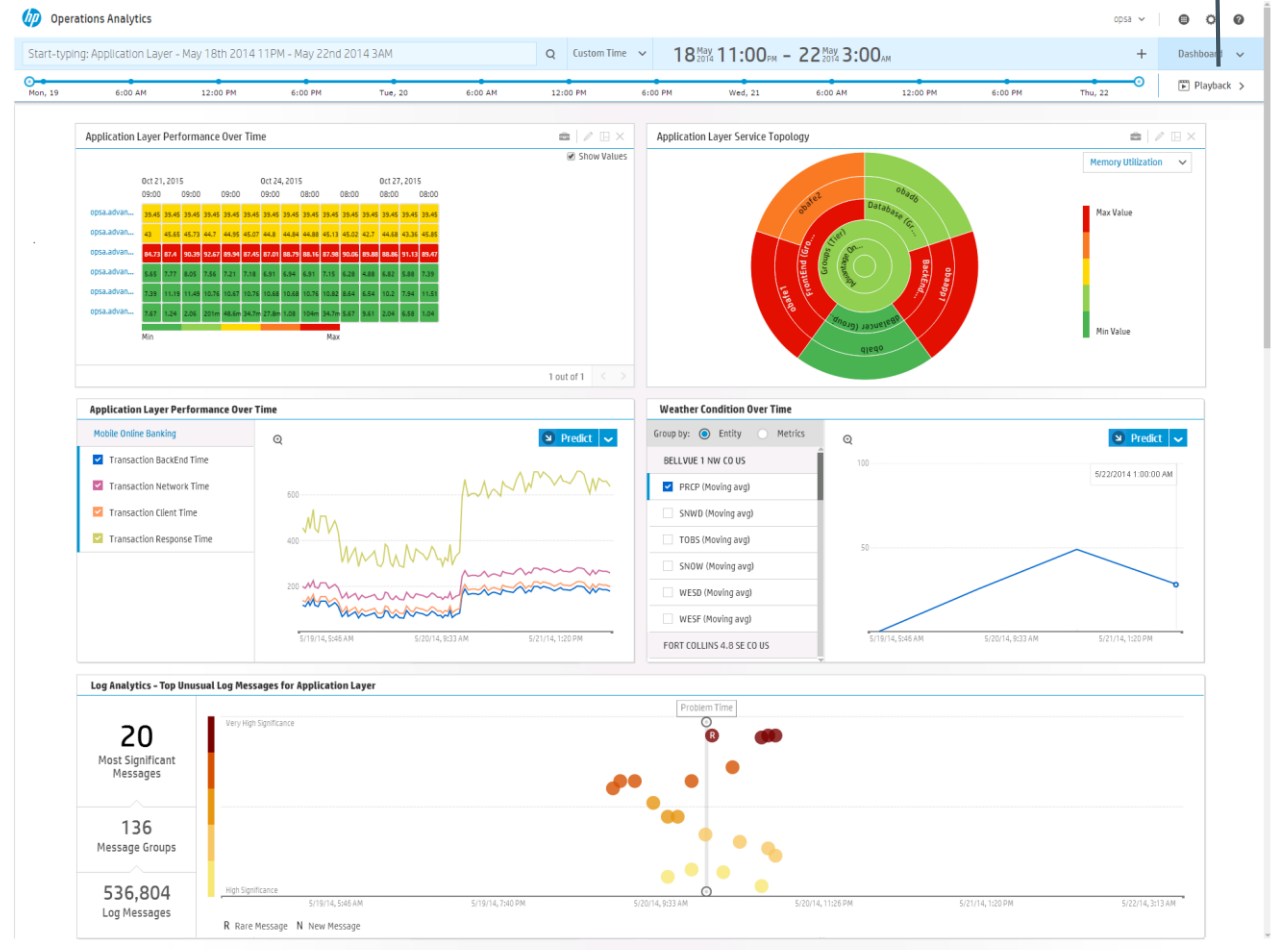
Operational visibility to revenue, customer experience, and cost



Fast root cause analysis

- Visualizations of multiple data sources, data types, in the same time-window context, leads to better understanding of complex problems
- “Time machine for the Data Center” guides you to faster problem resolution through play-back and play-forward of IT data
- Get to the most significant log and event messages with the advanced analytics
- Combining analytics of all data (metrics, events, topology, logs) reduces the time to identify and correct problems

Playback



Automated log and event analytics

The power of pattern recognition

Clustering

From raw messages to clusters

Severity and keywords

Discovering interesting clusters

Abnormal detection

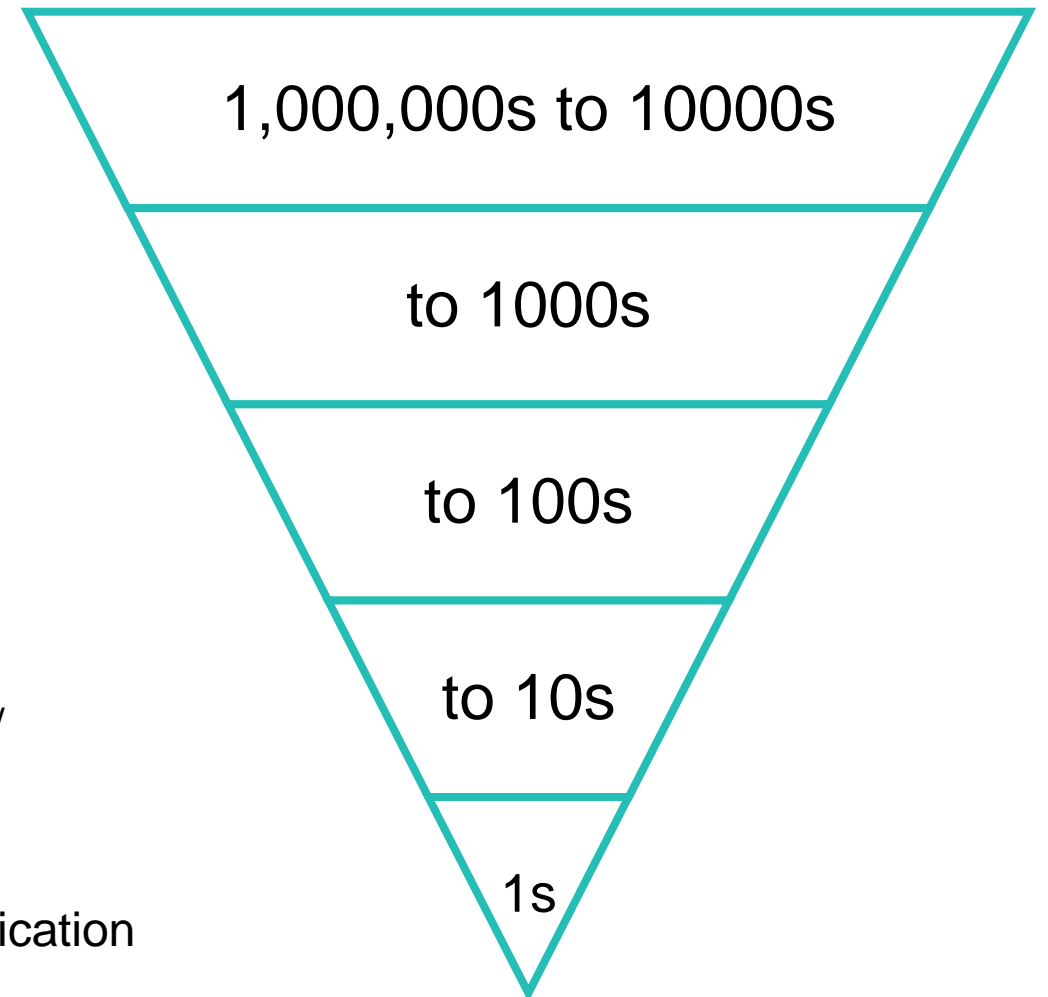
Baseline for logs / events

Expert Sourcing

Learning the importance of logs / events from SMEs

Root cause messages

Visual correlation with application performance

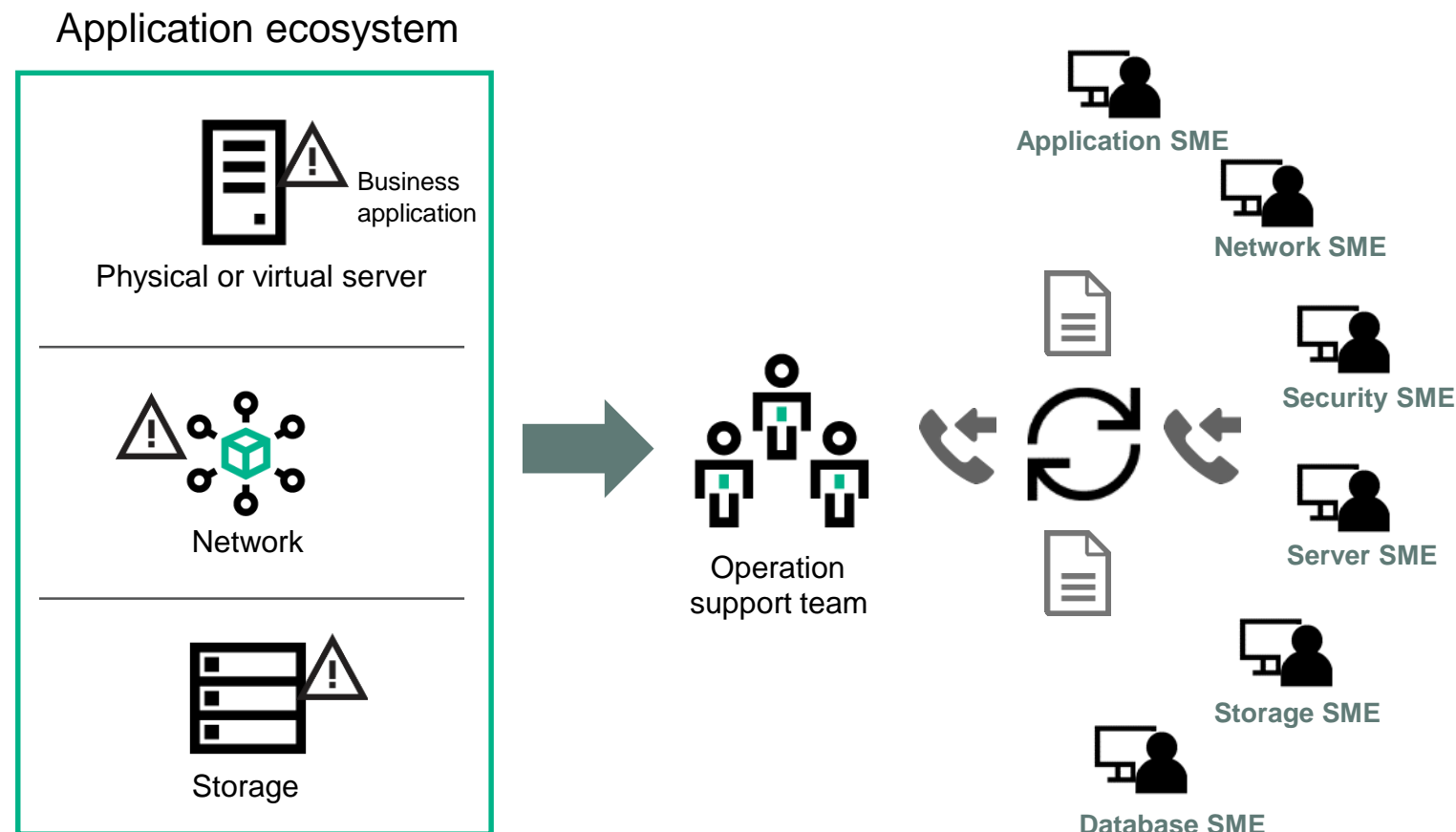




How HPE IT uses Big Data in IT Operations

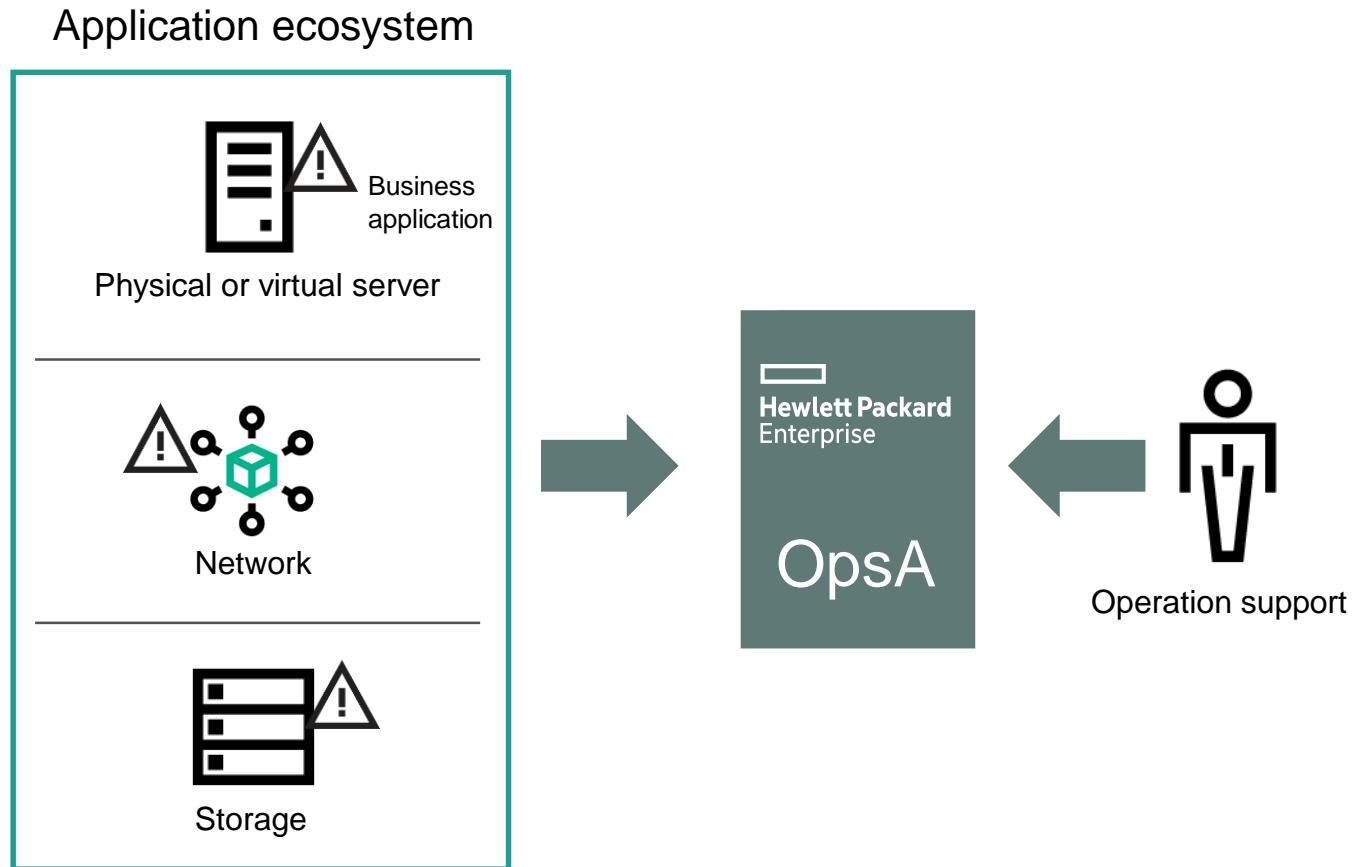
Troubleshooting without Operations Analytics in HPE IT

- Many subject matter experts involved in major incidents
- Manual analysis in isolation
- Manual correlation of data
- Long time to identify root cause

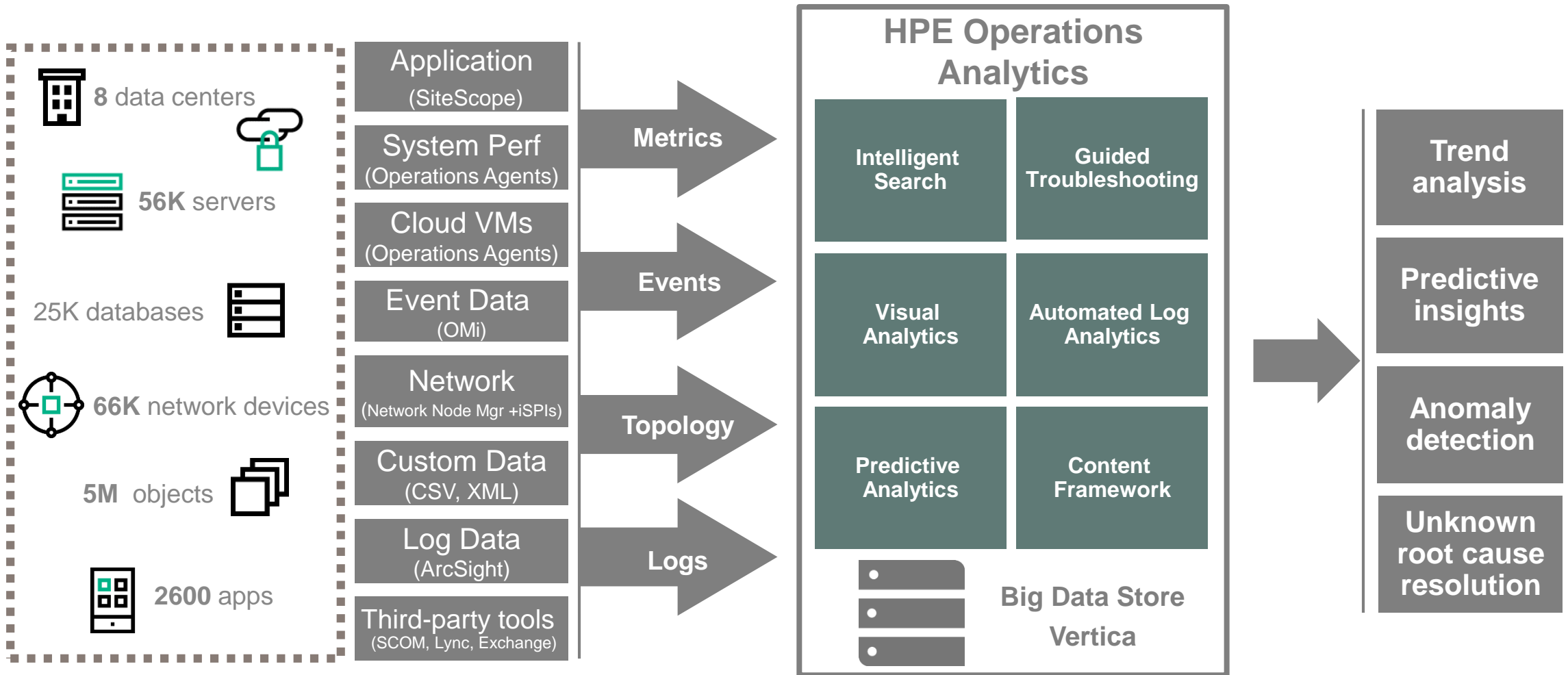


Troubleshooting with Operations Analytics in HPE IT

- All relevant data in a single dashboard
- Data is timely and correlated
- Data easily viewed in visual analytics
- Historical view of data instantly available
- Faster time to identify root cause with fewer people involved



HPE Operations Analytics in HPE-IT





HPE IT use cases and scenarios

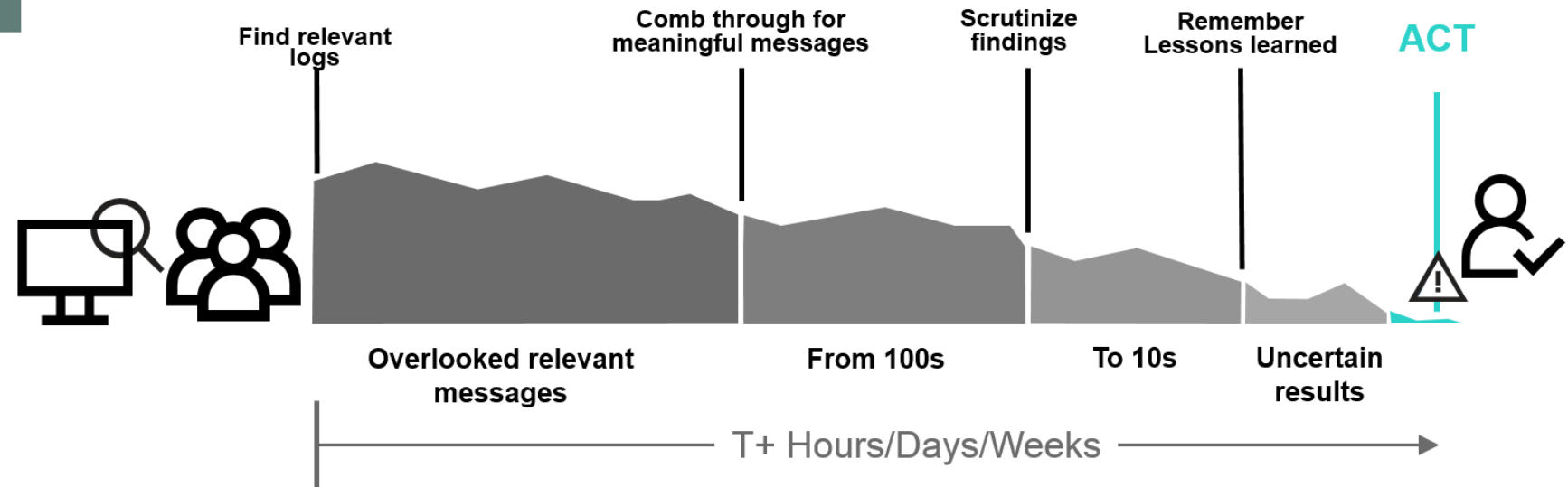
Troubleshooting application and database
production issues

Troubleshooting application and database production issues

Application performance issues detected by monitoring, pointing to database problem

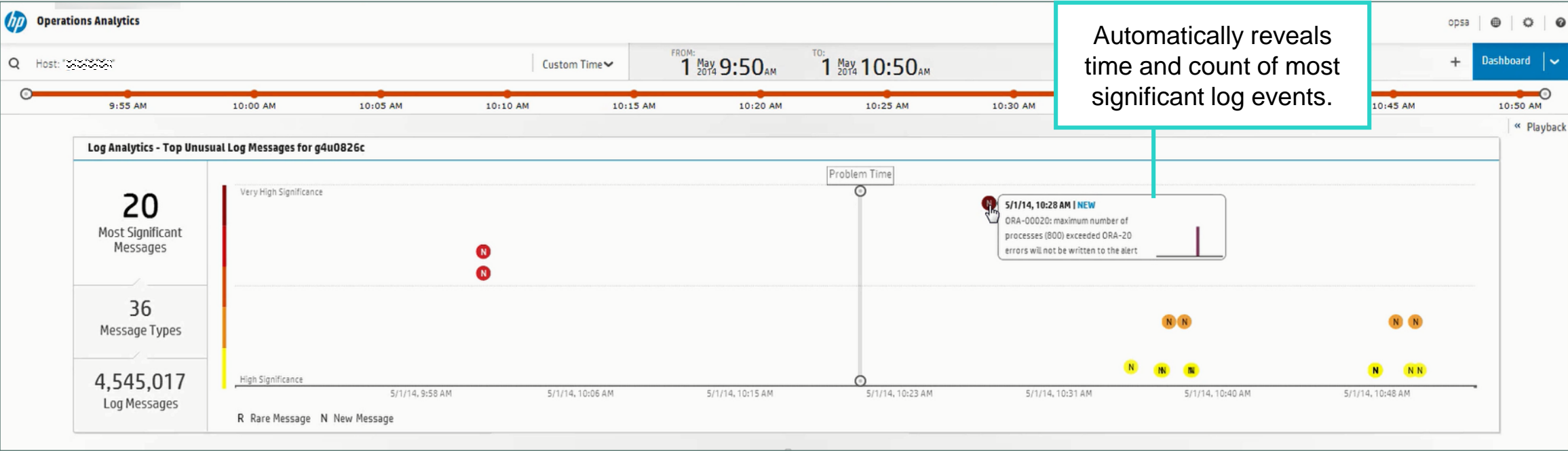
Challenges

- Solving problems before service performance is affected
- Siloed teams mean working on problem
- No one has overall picture
- Highly manual efforts

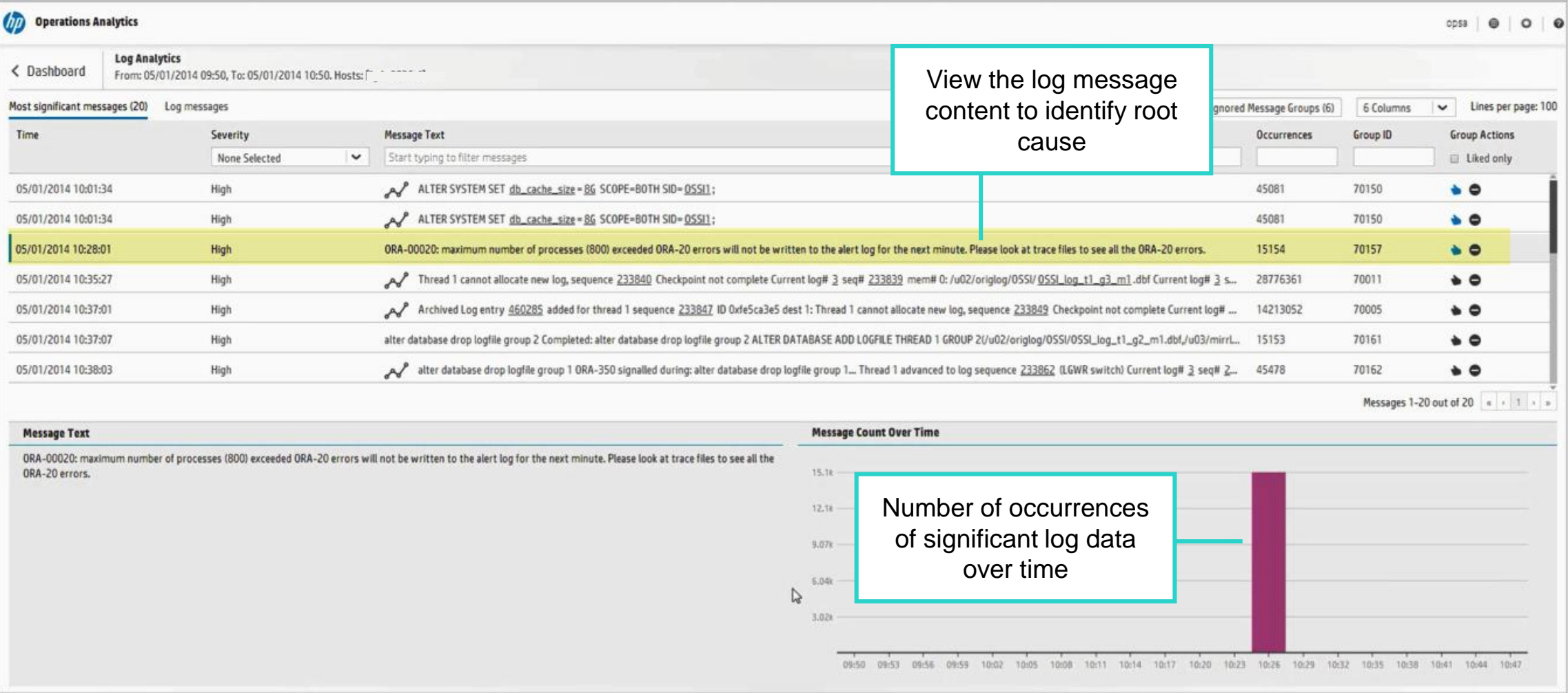


Traditional troubleshooting approach

Analyze millions of messages to reveal root cause with automated log analytics



Drill down to actual root cause log messages



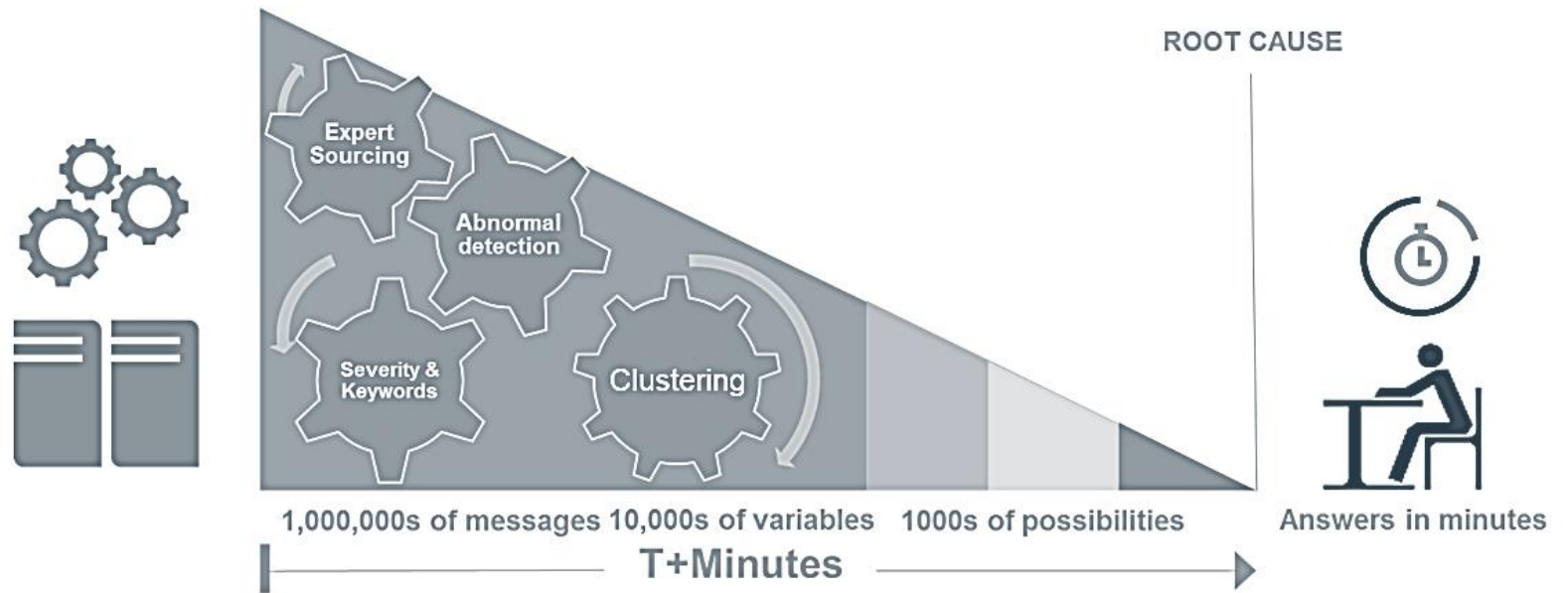
Troubleshooting application and database production issues

Solution

- Automated log analytics
- Automatic troubleshooting guidance based on machine learning
- Automated No-search analytics

Benefit

- Fast root cause identification (¼ the time)
- Fewer experts involved (5 SMEs to 1)
- Cuts order backlog by 50%



Troubleshooting with Analytics



HPE IT 3PAR use case

OpsA increasing value to LOB

Hewlett Packard Enterprise 3PAR Storage line of business



HPE premier Storage business

Proactive “phone home” monitoring service available to 3PAR customers

Service enables 3PAR customers with latest capabilities and proactive protection of potential problems

HPE IT systems enable/support “phone home” services

Optimizing HPE 3PAR Operations using Big Data Analytics

Business Challenge



- Isolate problems
- Reduction of file transfers late
- Reduce file transfer overdue
- Difficult to isolate problem
- Manually interpreting behavior

Solution



- Near real-time metric collection using OpsA
- Define & measure big-picture view of 3PAR ecosystem
- OpsA baselines defines “normal” behavior
- OpsA guided troubleshooting

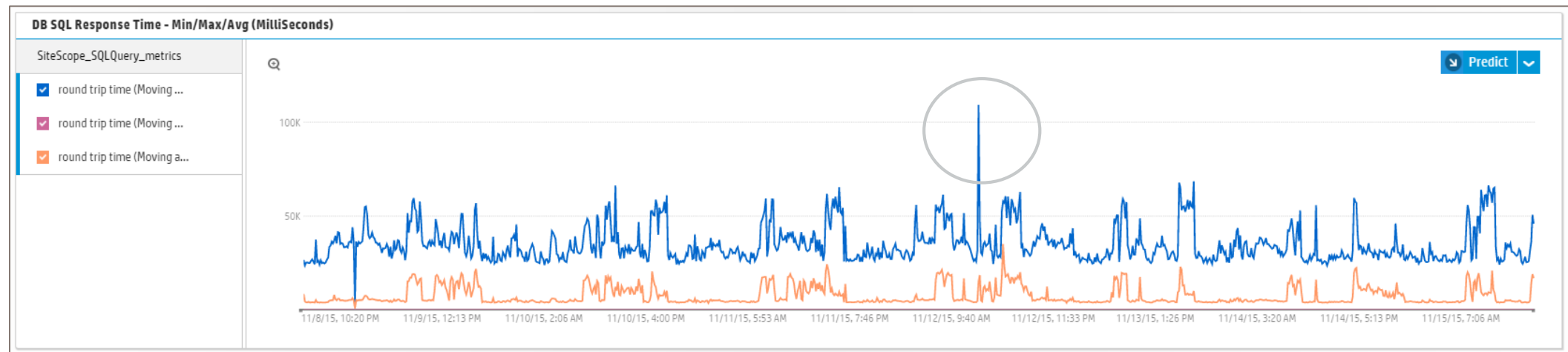
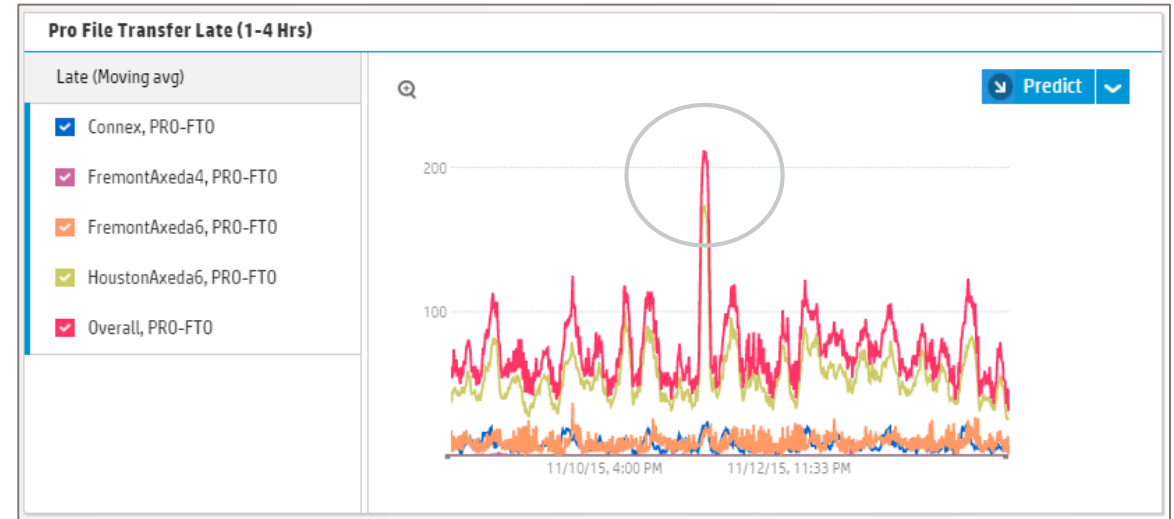
Benefits



- Quickly identify what is not ‘normal’
- Faster to diagnose problems
- Eliminated manual efforts of collecting and correlating data
- Decreased Mean Time To Recover (MTTR)

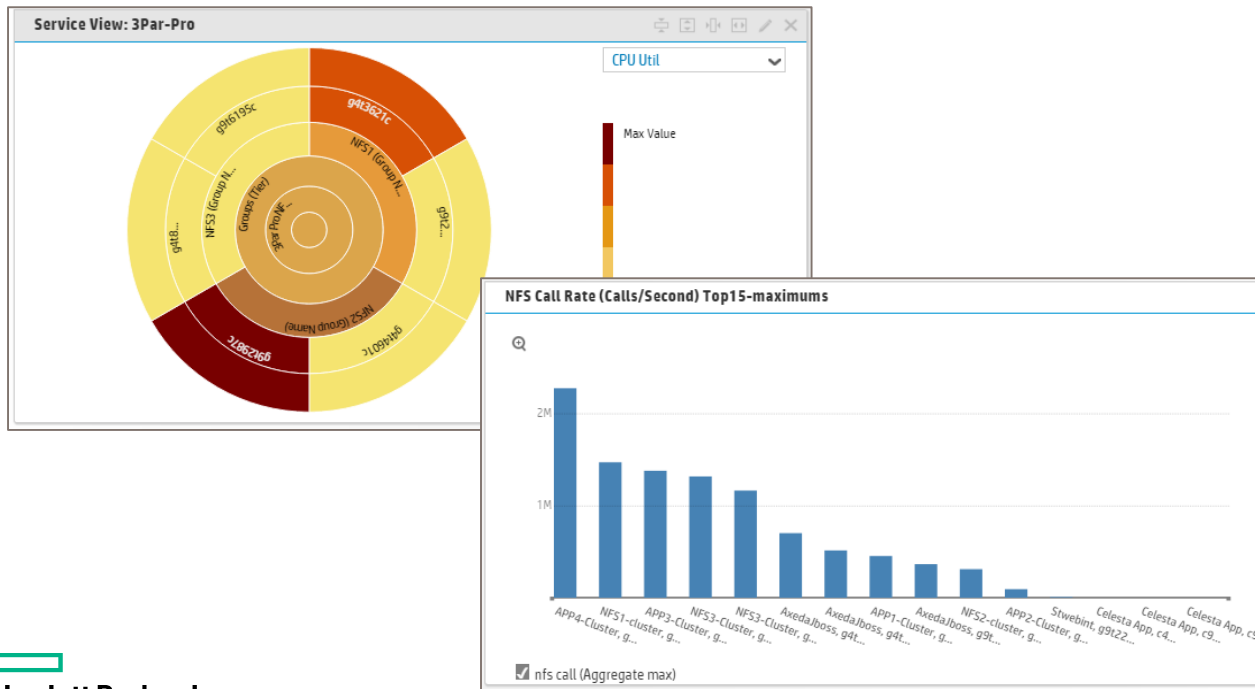
Baselines to define “what’s normal” in the environment

- Baselining metrics help IT define normal behavior of the application ecosystem.
- Quickly find outliers. Starting point for troubleshooting.



Analyze the ecosystem

- Define services that describe the application ecosystem.
- Correlate metrics from disparate areas to identify areas of impacts.



Network Metrics
(nfs call rate)

Application Metrics
(processing rate)

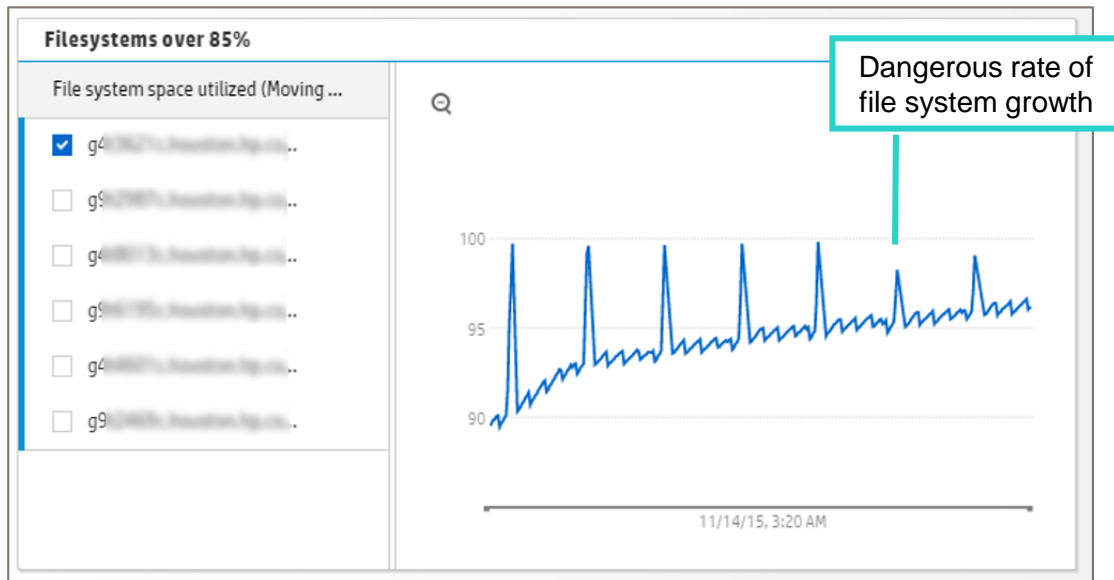
Database Metrics
(active session count)

Application Metrics
(file queues)

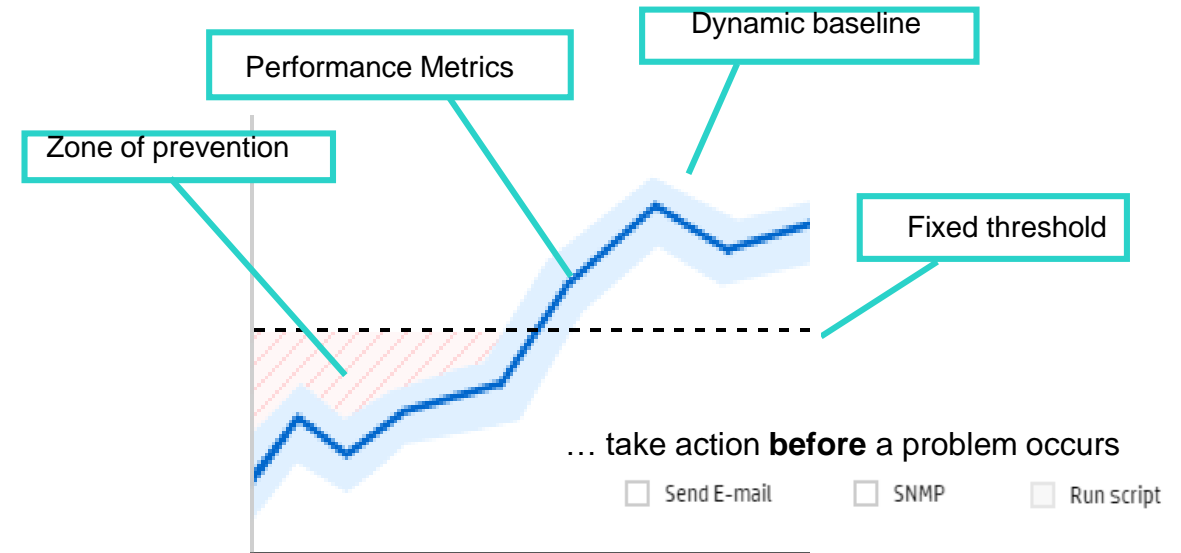
File System Metrics
(disk queues)

Identify trends and take action before problems occurs

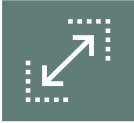
Dynamic baselines automatically created for all metrics collected



Advance notification with abnormality alerts



HPE IT realized value with Ops Analytics



“Enterprise scale” solution: multiple data centers, 50K+ servers



Automated troubleshooting / reduced manual efforts of collecting and correlating data. Faster time to identify root cause with fewer people involved.



Turn key analytics → “data scientist in a box”...“No search” analytics. Gained insights to the “unknowns” in the environment.



Decreased Mean Time To Resolution (MTTR).
80% labor reduction in troubleshooting.



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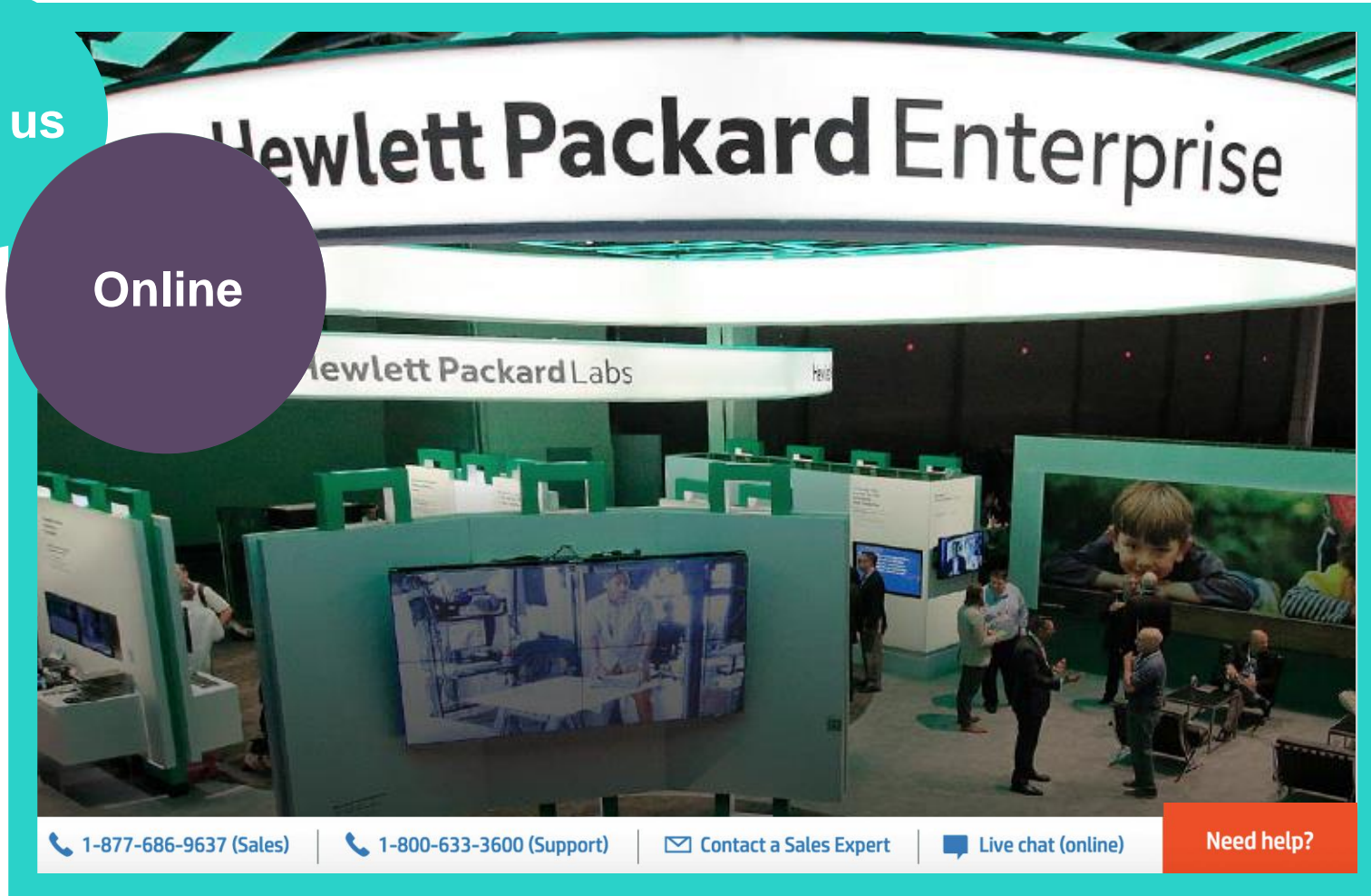
Q&A

What's Next

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Thank you



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- Explore the latest innovations from HPE in the Transformation Zone
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