

---

# Getting Started

**Operations Bridge Suite 2017.11**

## Get started

This section provides resources to help you understand the Container Deployment Foundation (CDF) and the Operation Bridge Suite and start using them.

## Overview of the Container Deployment Foundation

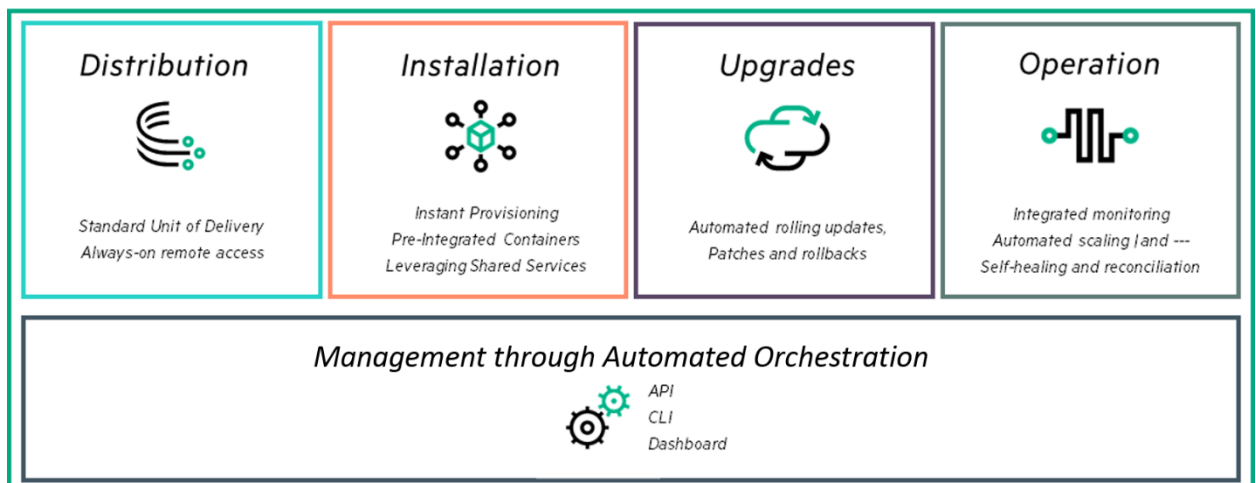
Container Deployment Foundation (CDF) powers the deployment of the following container-based software suites:

- Service Management Automation (SMA)
- IT Event Correlation and Management (OpsBridge)
- Data Center Automation (DCA)
- Hybrid Cloud Management (HCM)
- Network Operation Management (NOM)

### New and agile software delivery platform

The installation and deployment of complex software packages in an IT environment is traditionally very complex and expensive, involving many teams and additional resources (such as professional services). Time is also consumed by post-deployment activities such as integration work. The adoption of upgrades is slow, featuring very large regression cycles gated by numerous environments before updates are finally pushed to the production environment.

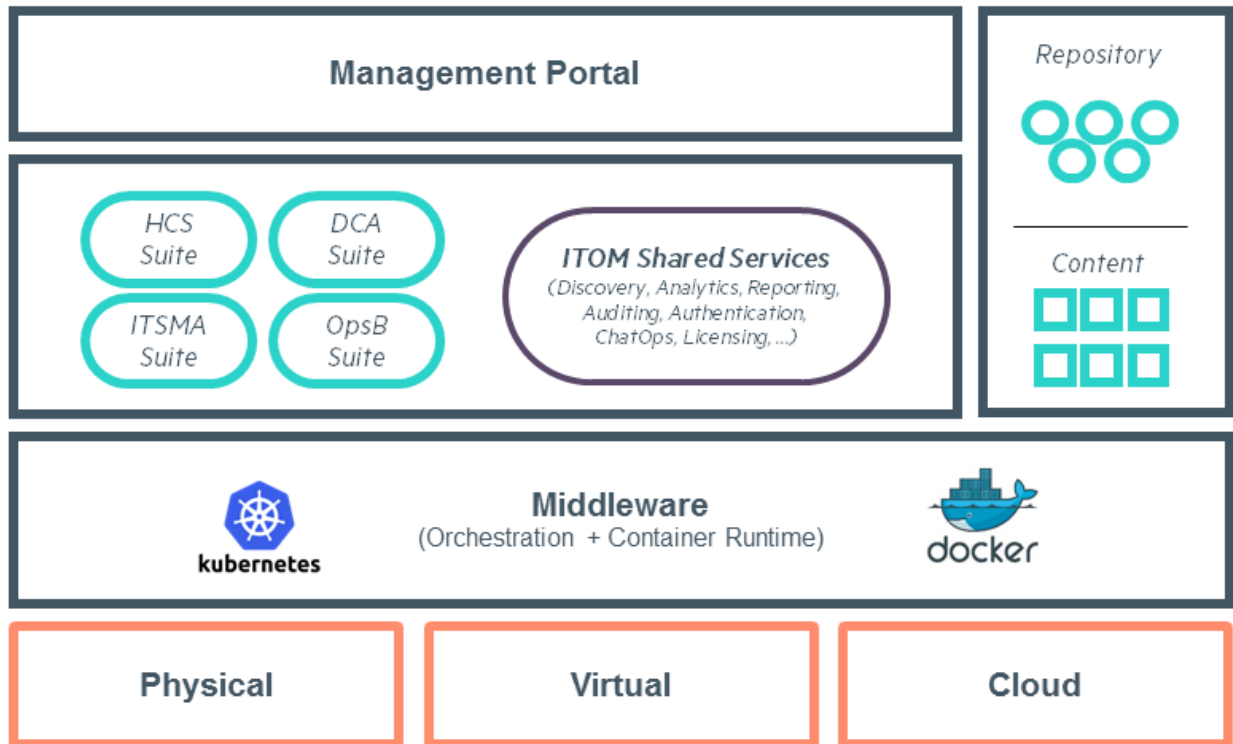
A new and agile software delivery platform, CDF allows customers to install pre-integrated suite capabilities. The distribution unit for software delivery is the container, leveraging the speed and format of the new containerized environment. By bundling an orchestration layer to bootstrap and manage the life-cycle of many suite-related containers, CDF enables you to standardize deployment, upgrade and patching, scaling, and rollbacks.



### Components

CDF is built to run on many environments. Deploy your IT Operations Management suite on bare metal or a virtual environment, or even in the cloud. CDF uses a native cloud toolset, including Docker technologies and Kubernetes from the Cloud Native Computing Foundation (CNCF), which allows the management of container-based applications at scale.

The following figure depicts the CDF architecture.



This foundation comes with additional services, including:

- A secured configuration store powered by Vault
- A networking layer managed by Flannel
- A distributed configuration database (etcd), which runs on all Docker hosts and provides a unified view
- A set of shared services such as Identity Management to plug against an existing enterprise authentication store (such as LDAP or Microsoft Director) or the Licensing service to track license consumption throughout your suite
- A Repository and Content server. A local Container registry service handles the management of container image delivery.
- A Management Portal. This is a web-based application and dashboard that enables you to install and manage suites, manage the container images required to bootstrap the suite, and manage the underlying infrastructure

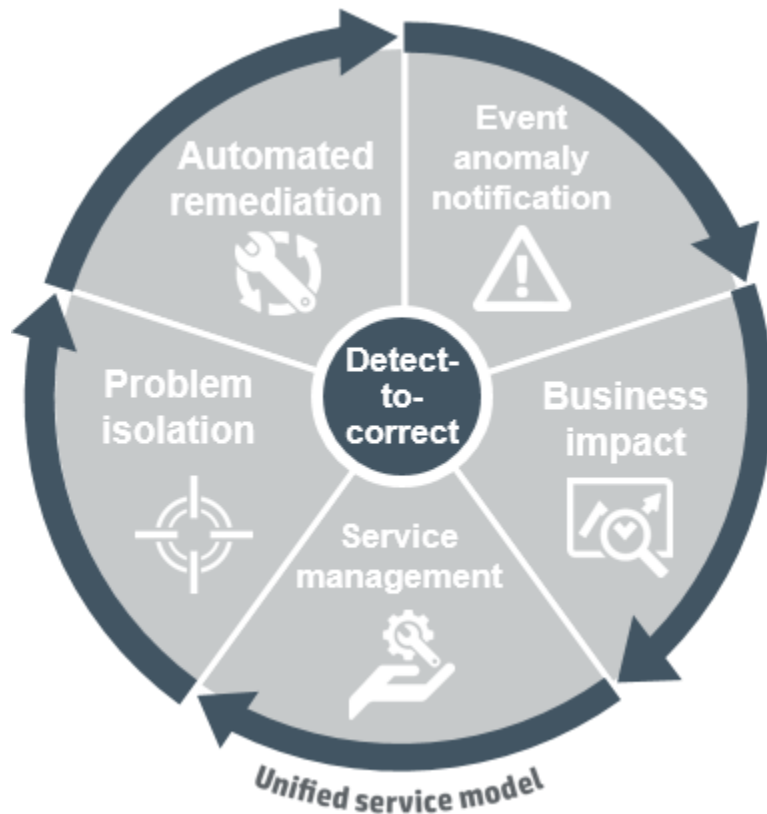
## Overview of the Operations Bridge Suite

Multiple tools. Multiple devices. Multiple locations. Managing IT operations is increasingly complex – and fragmented. Your business expects IT to do more than just keep systems running. But how can you be a strategic business partner when most of your time is spent on manual processes and issue triage?

HPE Operations Bridge Suite helps transform your IT organization from a cost function to a value creator by simplifying and automating IT operations.

With the ability to display business and IT data in rich visualizations, the Operations Bridge Suite enables you to see through the glare of all your data via a single pane of glass. Work smarter and faster with embedded analytics, simple discovery and monitoring of your environment, and automated remediation of problems. Valuable IT personnel are free to focus on the problems that matter, maximizing organizational agility and driving business value. Colorful dashboards give you a powerful way to communicate information about how the business is performing in a format that stakeholders can exploit. The result is a strong foundation to support your IT organization on its quest to become a more strategic business partner.

The Operations Bridge Suite enables you to use and follow the detect-to-correct process. This process aims to align your organization's IT with business for improved business service impact prioritization, to automate and govern critical service management processes, and to isolate problems quicker.



- **Event anomaly notification.** Events - and related events - are detected that show the symptoms of an anomaly. Alerts are generated once an anomaly is detected.

- **Business impact.** The business impact is assessed and, if required, sent on to service management as an incident.
- **Service management.** The incident can be compared with the knowledge base and, if required, sent on to problem isolation or remediation.
- **Problem isolation.** The incident is recognized and isolated as a problem, showing the correct root cause.
- **Automated remediation.** Remediation can take place in order to correct the detection process for the future.

## Operations Bridge Suite Versions

The Operations Bridge Suite is available in three versions: express, premium, and ultimate. Depending on the version, different capabilities are available.

Capabilities		Express	Premium	Ultimate
	Event Automation & Reduction	✓	✓	✓
	Service Impact & KPI assessment	✓	✓	✓
OMi	Guided & Canned Remediation	✓	✓	✓
	Automated monitoring	✓	✓	✓
	110+ Integrations	✓	✓	✓
OBR	Cross Domain Reporting		✓	✓
BVD	Business Value Dashboards		✓	✓
OBR	Advanced Reporting			✓
OMi	Advanced Correlation			✓
OO	Flexible runbook remediation			✓
OBA	Predictive & Anomaly detection			✓
UD/ASM	Discover Hybrid IT Environment			✓
	Business Service Modelling			✓
CO	Capacity planning & Optimization			✓

OMi Foundation
+OBR & BVD
+Analytics, OO, UD, ASM, CO

### Important

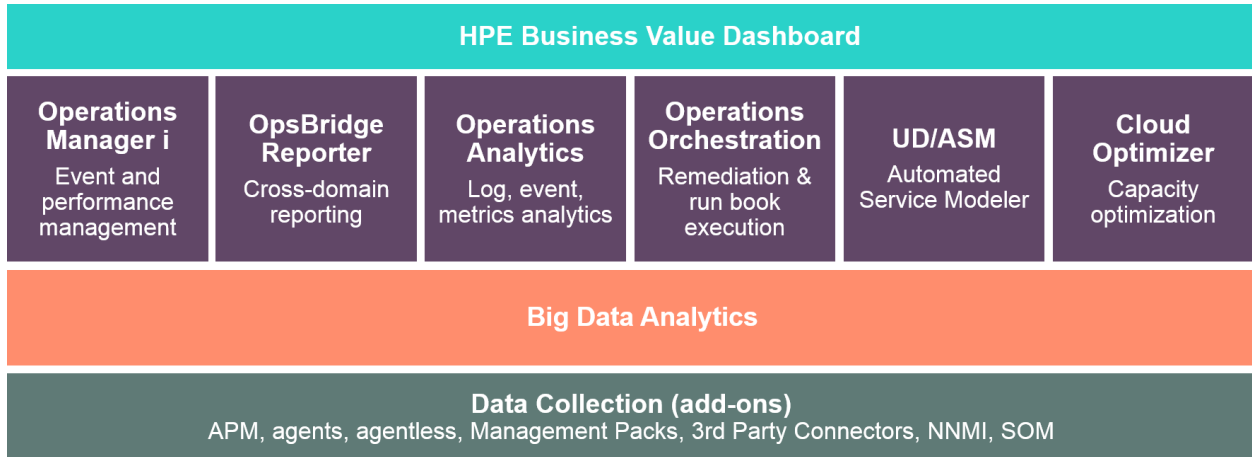
At the moment, only the Express and Premium versions of the Operations Bridge Suite can be deployed in a container. The Premium version includes the base products Operations Manager i, Business Value Dashboard, Performance Engine (as part of OMi), and Operations Bridge Reporter.

For details on the content of the individual versions, see the Additional License Authorizations for HPE Systems Management Center software products. For the most up-to-date version, go to <http://softwaresupport.hpe.com>.

## Overview

The Operations Bridge Suite enables you to sense your environment through automated discovery and monitoring. The activities in your environment can be analyzed to predict and solve critical problems and increase performance.

The following graphic shows how the single products included in the Operations Bridge Suite Ultimate work together to deliver the capabilities you need to view your operations through a business lens:



## Product to capability mapping

The following table maps each Operations Bridge Suite capability to the specific product that is part of the suite, states if the product is available as a container as part of the Operations Bridge Suite, and includes the product version that is included in the Operations Bridge Suite 2017.08.

## Product to capability mapping

The following table maps each Operations Bridge Suite capability to the specific product that is part of the suite, states if the product is available as a container as part of the Operations Bridge Suite, and includes the product version that is included in the Operations Bridge Suite 2017.08.

Base product	Product version	Capability	Available as a container?	Link to Help Center
Operations Manager i (OMi)	10.63	Event management and correlation Remediation (with Operations Orchestration) Health and KPI reporting and visualization Integrations using	Yes (Express, Premium)	<a href="#">go</a>

Base product	Product version	Capability	Available as a container?	Link to Help Center
		Management Packs and Connectors Monitoring (data collection, monitoring automation) Performance management		
Business Value Dashboard (BVD)	10.63	Business Value Dashboards	Yes (Premium)	<a href="#">go</a>
Performance Engine (PE)	10.63	Custom metrics and system metrics streaming in large scale environments	Yes (Express, Premium)	see OMi Help Center
Operations Bridge Reporter (OBR)	10.22	Cross-domain reporting System performance reporting	Yes (Premium)	<a href="#">go</a>
Operations Orchestration (OO)	10.70	Remediation Event enrichments Run book execution	No	<a href="#">go</a>
Operations Bridge Analytics (OBA)	3.03	Big Data search Anomaly detection Log analytics	No	<a href="#">go</a>
CMDB	10.33	Integrations with other CMDBs Discovery	No	<a href="#">go</a>
Cloud Optimizer	3.03	Virtualization monitoring Capacity optimization	No	<a href="#">go</a>

# Key concepts

The Operations Bridge Suite comes with a vast number of capabilities that enable and accelerate the transformation of your IT organization from a cost function to a value creator.

The following section gives an overview of some of these capabilities, including analytics, reporting, discovery, monitoring and ways to visualize and present your data:

## Dashboards and visualization

Visualize your data and create dashboards to communicate information in a colorful, modern way. Operations Bridge Suite enables you to create custom, flexible dashboards, and to display key performance indicator (KPI) and health indicator status data in a comprehensive way to provide a focused means to attract a team's attention to the right priorities.

By using dashboards and various visualization options, you can create visible business value while also increasing productivity with easy-to-use interfaces.

### Business Value Dashboard

Business Value Dashboards bring your data to life. Create custom, flexible dashboards that visualize information from different sources in an informative and appealing way. In contrast to the more operational monitoring dashboards, which are used to efficiently monitor system health, business value dashboards help you understand the value driven by your IT environment. Your dashboards can be accessed anywhere, anytime, from any device. Incorporate your own graphics, add color to identify status, and receive real-time updates.



### Anytime, Anywhere.

Create real-time dashboards. You choose how often you send data to the dashboards and they



display the data with no delay. You decide where you want to view your dashboards: PC, tablet, or phone.



### **Simple, Colorful, Flexible.**

Design your dashboards using Microsoft Visio. A Visio stencil is provided, with shapes that later become the widgets in your dashboards. The shapes include widgets for drawing charts, coloring text or values, displaying information feeds, web pages (for example, video streams), and much more. Sample dashboards are provided to help you get started.



### **Connect.**

Once uploaded, you connect your widgets to the data. You can set additional widget options, such as rules, that determine the visibility and status colors of the widgets, or you can link widgets to other dashboards to enable drill down.



### **Integrate.**

Any kind of data can be processed as long as it is sent in JavaScript Object Notation (JSON), a language-independent, open data format. Operations Connector provides policies that automatically forward data collected from various sources. Alternatively, create your own integrations for any data source by writing an adapter. The adapter must convert the source data to JSON and send the JSON-enabled data to the data receiver.

## **Health and status**

Enrich your dashboards and put your team's focus on the things that matter most to your organization by using customized health and key performance indicators. Ensure that you uphold your service level agreements (SLAs) by monitoring the relevant KPIs and tracking how they change over time. Dashboard topological views can be linked to health indicators to provide the best overview. This enables you to more quickly and easily prioritize and assign events that have the most impact.

## **Performing an initial analysis**

When setting up a new monitored application, key performance indicators (KPIs) and health indicators (HIs) need to be considered first. The following are the key questions that must be answered:

- If application availability and performance is important, how should those KPIs be measured?
- What are the SLAs that might be breached if application availability and performance thresholds are not met?

The IT organization is not only responsible for ensuring that this application is available, but also that all associated resources perform according to user expectations. All of this information must be factored into the selection of KPIs and the definition of HIs.

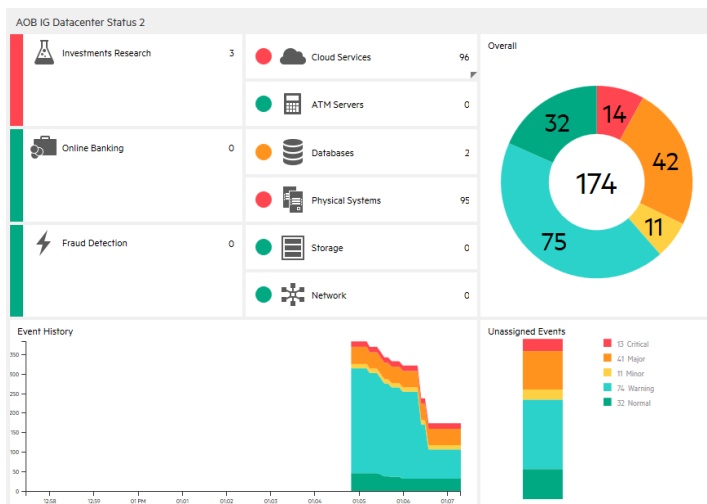
## Monitoring Dashboards

Monitoring Dashboards provide you with an at-a-glance overview of the events from your monitored environment. They enable you to quickly assess the health of the environment and to identify areas that require your attention.

Monitoring Dashboards display status information by using widgets as building blocks (for example, stack and pie widgets). Each widget references an event filter, a view, or both, and displays only the status of those events that match the criteria of the filter and that are related to the CIs included in the referenced view, making it easy to customize.

Users can configure their own dashboards, or use default dashboards, including the 360° View dashboard, which provides a high-level overview of the status of CIs in a selected view, or the KPI Over Time dashboard, which shows the status or the value of selected KPIs and CIs over time. The Top View also enables users to see the business availability of system components at a glance.

The following figure shows a Monitoring Dashboard screen:



## Health information

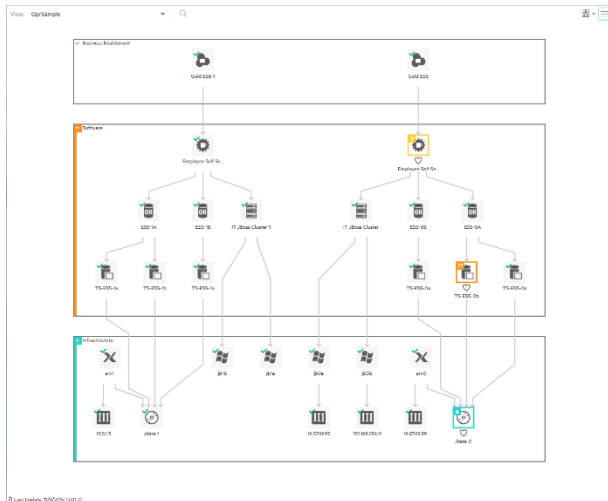
With event-based data, you can see which related CI is affected by an event. Additionally, health data, such as event type indicators (ETIs), health indicators (HIs), and KPIs, is used to evaluate the health of related CIs in the context of the event.

HIs provide fine-grained measurements on the CIs that represent your monitored applications and business services. Some HIs provide business metrics such as backlog and volume, while others monitor various aspects of performance and availability such as CPU load or disk space.

ETIs are categorizations of events. As multiple data collectors may send event samples regarding a single event to OMI, events are generalized into a common type.

For any device, such as a server, the severity of the problems directly associated with the server is collated and combined with the information about the devices associated with the server. The combined data is passed to calculation rules that evaluate and set the KPIs that indicate the overall health of the object.

The following figure shows part of a Health Perspective screen, in particular the Health Top View, which shows a hierarchical overview of the relationships among the objects associated with a selected event:



You can see the health status of an object, its KPIs, and HIs, and see how the health status of the selected object affects the health of related objects. For example, you can navigate to check the health of neighboring Cls. This information helps you analyze which events to focus on, and prioritize event handling to maximize availability and minimize negative impact on business services. Users can also select views to show only the events and Cls for which they are responsible.

## Reporting

For organizations that value analytics-driven automated operations, intelligent reporting is crucial. The Operations Bridge Suite features Big Data model-driven reporting and forecasting with more than 250+ out-of-the-box reports.

Use cross-domain reporting to consolidate performance data and metrics from multiple collectors, and look into how log analytics can help to pinpoint the cause of problems in your IT network.

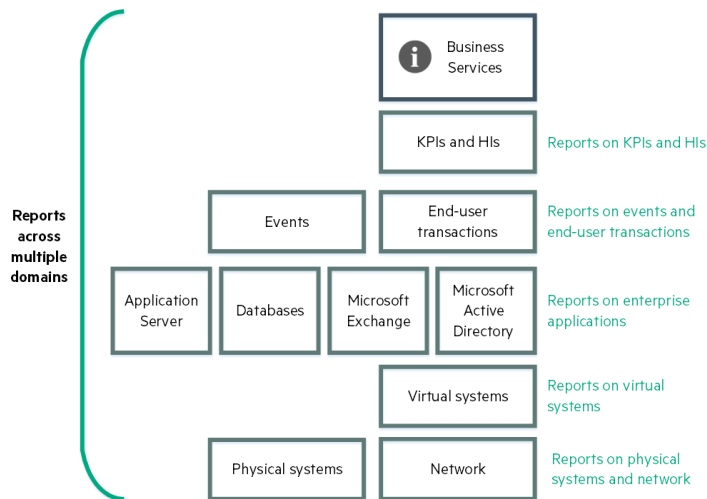
### Cross-domain reporting

Address the challenges of reporting in dynamic IT environments by consolidating performance data and metrics from multiple collectors. The Operations Bridge Suite comes with a business service-driven IT reporting software that provides resource, event, and response time reporting across server, network, and application environments. This facilitates viewing data from a number of valuable and unique perspectives.

Cross-domain reporting consolidates resource metrics, event metrics, response time data, and business service topology data. This Big Data based enterprise reporting platform is the industry's only model-driven cross-domain and consolidated reporting tool.

### Cross-domain reports

Cross-domain reports display data from related domains to give an end-to-end picture of the health and performance of your IT infrastructure aligned with the business services. Individual reports are available, which display data from single domains. You can navigate to these individual reports for further analysis.



## Usage analysis

Analyze usage trends across domains by correlating service and infrastructure metrics. For example, if your organization experiences poor response times for the HR service, could this be part of a trend or do you have similar behavior in other areas? What do you need to change to improve these response times? These type of questions can be answered using the Operations Bridge Suite.

By connecting the performance metrics to the underlying infrastructure metrics, you are able to easily determine which resources consistently present issues and plan ahead.

Apart from solving particular cases like the one described above, it is also increasingly important for organizations to be aware of changes in their infrastructure in order to react to those changes on time. The reporting software is updated by automated discovery to show you the changes in the infrastructure that supports the service. You are then able to follow your usage trends across changes in the topology. By doing this, you can easily manage the distribution of loads across your virtual environment.

## Analytics

For organizations that value analytics-driven automated operations, intelligent reporting is crucial. The Operations Bridge Suite features Big Data model-driven reporting and forecasting with more than 250+ out-of-the-box reports.

Use cross-domain reporting to consolidate performance data and metrics from multiple collectors, and look into how log analytics can help to pinpoint the cause of problems in your IT network.

## Log analytics

The Operations Bridge Suite helps your organization turn volumes of raw data into actionable insight by unifying search, reporting, alerting, and analysis across all types of IT data. Generate insights from the data in your IT environment that you choose to collect by using log analytics.

To find the root causes of problems, use the Operations Bridge Suite capabilities to prepare, predict, and pinpoint:

- **Prepare.** Collect and use all your data in a Big Data based system
- **Predict.** Identify trends as they happen by using predictive analysis

- **Pinpoint.** Pinpoint root causes of events that cause a problem in your IT network

Log analytics help to *pinpoint* — identify the root cause of a problem by creating a list of the top suspected log messages and displaying them visually in a pane.

### Algorithm for log analytics

To identify the root cause of a problem in your network, log analytics uses an algorithm to convert logs into metrics. The algorithm runs over a specific time range. Define this time range for a host or a user defined group of hosts. The algorithm uses a number of different parameters to calculate message and event significance, such as:

- Distance from problem time
- Severity
- Specific keywords
- Repetition and seasonality
- User feedback

Launch visual analysis directly from interesting metrics in log messages.

### Anomaly detection

The Operations Bridge Suite helps your organization turn volumes of raw data into actionable insight by unifying search, reporting, alerting, and analysis across all types of IT data. Generate insights from the data in your IT environment that you choose to collect by using log analytics.

To find the root causes of problems, use the Operations Bridge Suite capabilities to prepare, predict, and pinpoint:

- **Prepare.** Collect and use all your data in a Big Data based system
- **Predict.** Identify trends as they happen by using predictive analysis
- **Pinpoint.** Pinpoint root causes of events that cause a problem in your IT network

Log analytics help to *pinpoint* — identify the root cause of a problem by creating a list of the top suspected log messages and displaying them visually in a pane.

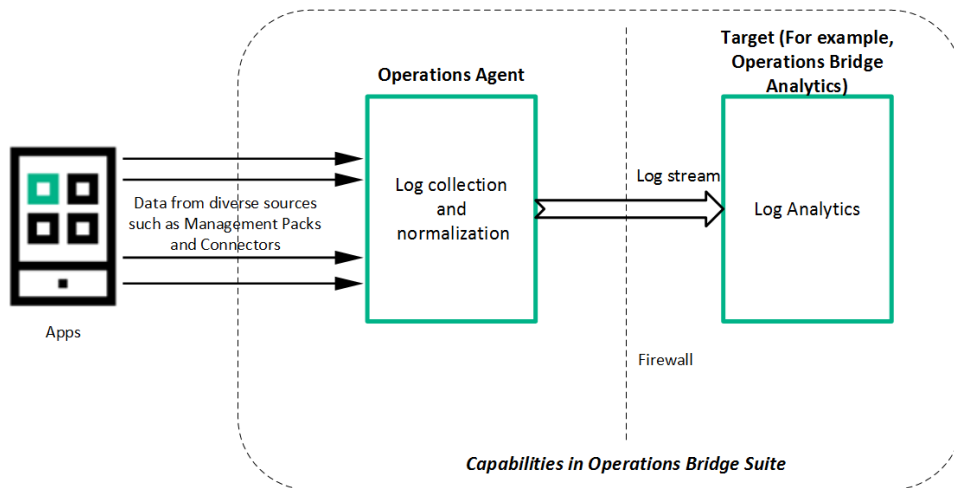
### Log streaming

The Operations Bridge Suite offers you a unified and robust mechanism to collect, process, and stream application logs in your IT environment. You no longer need to use third-party systems to collect and stream logs. Operations Bridge can collect and stream logs to multiple targets, for example, Operations Bridge Analytics. Operations Bridge Analytics can use these logs to predict trends and pinpoint issues in your IT environment.

Enable Log Streaming to:

- **Collect:** Collect and consolidate data from diverse data sources.
- **Process:** Normalize the consolidated data. For example, with value maps.
- **Stream:** Forward the logs to the required target.

The following figure shows a high level work flow for log streaming:



## Event management

For many organizations, one of the biggest challenges is how to manage the large number of events that originate from a variety of sources. The Operations Bridge solves this challenge by consolidating IT events from all of your domains into management activities. This consolidated view helps your IT operators to quickly identify the causes of IT incidents and rectify issues in less time.

Use event correlation in order to reduce the number of events in a quick and efficient way. You can suppress duplicate events, close related events automatically, use stream-based event correlation (SBEC) to identify commonly occurring events or a combination of events, or use topology-based event correlation (TBEC) to differentiate between events that are the root cause of the problem and events that are simply the symptom.

Identify and fix problems before they occur by using anomaly detection. IT operators receive notifications about metric anomalies before they become an issue, by using the Operations Bridge capability for predictive analysis.

Automate remediation in order to decrease your operators' workload. As the manual resolution of incidents can be time consuming and error prone, automated problem resolution improves the application uptime and reduces costs.

## Event information and correlation

The Operations Bridge Suite gives you the tools to dynamically and automatically discover and correlate data, events, topology, and metrics. Events of all types from multiple sources are consolidated into a centralized console.

Perspectives provide operators with different levels of information about the events for which they are responsible.

## Event information

Events report important occurrences in the managed IT environment. They are generated by domain managers and mapped to related configuration items (CIs) in the Run-time Service Model (RTSM). These events are assigned to operators for resolution. Operators can see a complete overview of all active events that must be worked on. They can see such things as the event severity, the type and category of the event, the source of the event, the time and location of the event, and the affected CI.

Events pass through a lifecycle, which is an informative way to display and monitor the status of an event. An operator's workflow is based around the lifecycle of an event. The lifecycle state of an event represents the progress of the investigation into the problem that caused the event. An operator assigned to an event opens an investigation and works on finding a solution to the event's underlying problem. Experts can then assess the proposed solution, verify that it solves the problem that caused the event, and close the event, which completes the lifecycle.

Operators can configure the user interface to suit the requirements of their typical workflows. The contents are filtered according to the selected view or CI. Operators can configure new filters or modify existing filters, according to their needs, to change the information displayed. Filtering the contents helps operators focus on the most useful information (for example, to identify the highest priority events and to determine which of these events should be worked on first to minimize their impact on business services). Administrators can also configure users and groups so that they can see only the events filtered by views associated with that user or group.

Operators can enrich events with additional information (for example, by adding annotations to the event to either aid further problem resolution or to document what action was taken).

Events that require special attention can be forwarded to the appropriate operators. For example, the system can be configured to route notifications to operators and escalations to the appropriate help desk operators who can concentrate on managing escalated events and fixing underlying problems.

### **Correlating events**

In a large environment, one of the biggest challenges is how to manage the large number of events that originate from a variety of sources. The aim is to identify the events that have a significant impact on business services. While it is essential to minimize the number of events that appear, it is even more important to highlight the events that, if not managed properly, could cause a breach in service level agreements (SLAs) and generate incidents in your help desk system.

#### **Suppressing duplicate events**

A new event may be a duplicate of an existing event. As a simple example, due to network stability problems, the same event is sent twice by the source domain manager because it did not receive an acknowledgment quickly enough for the first instance of the event. As new events are received, they are checked against existing events. If duplicates are found, new information, such as a change in severity, is used to update the existing event, and the new event is ignored. If duplicate event suppression is enabled, new events that are duplicates of an existing event are not retained and the original event is updated.

The advantage of correlating events using duplicate event suppression is that it reduces the number of events displayed in the console, but without losing any important information.

Suppressing duplicate events can result in additional correlations of the original event (both as a cause and as a symptom). When a duplicate is identified, the timestamp for the original event is updated to the time when the duplicate was received. The event is then correlated again and may now be related to other events which were not available for correlation when the original event was received.

### **Closing related events automatically**

A new event can automatically close one or more existing events. When a new event arrives, a search is made for existing related events. Some specific information contained in the new event is used to match the new event to any existing events, and the new event closes the existing event.

For example, an existing event may be a notification of a problem or abnormal condition (a bad event) for a particular device. The bad event could be `SQL Query Performance SLOW`. Consider a new event matching this existing related event which notifies that the abnormal condition no longer exists (a good event). The good event could be `SQL Query Performance OK`. The new (good) event closes the existing (bad) related event.

You can track related events that were closed automatically in the event history.

### Stream-based event correlation

Stream-based event correlation (SBEC) uses rules and filters to identify commonly occurring events or combinations of events and helps simplify the handling of such events by automatically identifying the events that can be withheld, removed, or need a new event to be generated and displayed to the operators.

The following types of SBEC rules can be configured:

- **Repetition Rules:** Frequent repetitions of the same event may indicate a problem that requires attention.
- **Combination Rules:** A combination of different events occurring together or in a particular order indicates an issue and requires special treatment.
- **Missing Recurrence Rules:** A regularly recurring event is missing, for example, a regular heartbeat event does not arrive when expected.

### Topology-based event correlation

The event management process is simplified not only by consolidating events from all sources in a central console, but also by categorizing events using topology-based event correlation (TBEC). Dependencies between events are analyzed to determine whether some events can be explained by other events. For example, consider a database server (`DB Server`) that is running on a server (`Server1`). If the CPUs of `Server1` are persistently overloaded, the resulting event `SLA for DB Server breached` can be explained by the causal event `Server1: CPU persistently overloaded (100% for more than 10 minutes)`.

The key is to pinpoint the underlying causal events that are responsible for other symptom events so that you can prioritize the resolution of these causal events based on the impact to your business.

If two events occur concurrently (within a configurable time span), TBEC correlation rules identify one event as the cause and the other event as the symptom. Rule-based event management enables you to manage large numbers of similar (related) symptom events in a large network.

When any combination of the cause and symptom events occurs in the monitored environment, the correlated events are flagged. You can configure the user interface to display the root cause event and a separate overview of all the symptom events, thus enabling you to drill down into the correlation process and browse through the hierarchy of correlated events.

Events can also be correlated across technical domains, such as databases, hardware, networks, and web applications. This comprehensive scope enables you to correlate events that, at first sight, might not seem to have any connection. The cross-domain functionality also increases productivity by reducing the amount of overlap between operators responsible for monitoring different technical areas. For example, by correlating events relating to database problems, network problems, and



storage problems, you can avoid the scenario of operators from the different technical areas all separately investigating different events that are the symptoms of one root cause event.

TBEC offers a number of benefits related to resolving complex events:

- Reduces the number of events displayed in the console, without ignoring or losing important data that enables users to drill down through the hierarchy of related events.
- Supports event correlation across multiple domains to simplify the root cause analysis of events that generate symptom events.
- Changes to topological data do not require changes to correlation rules.

### **Event storm suppression**

If a problem is experienced on a managed system that results in the generation of an abnormally high number of events within a relatively short period of time, this is known as an event storm. It is very probable that the root cause is already known and is being addressed. However, related events are also being generated. These events do not provide any useful information but may result in significantly increased loads on the servers. To avoid this situation, you can configure the software to look for event storms from managed systems and discard all subsequent events until the event storm condition for a particular system is over.

When an event storm is detected on a system, events from this system are discarded until the rate of incoming events drops below the event storm end threshold. You can configure exception rules to select events from a system under event storm conditions that match a filter and either display these events or close them. The event storm end event automatically closes the associated event storm begin event.

## **Monitoring**

Manage your operations through a single pane of glass that provides an end-to-end infrastructure monitoring view of the IT landscape.

Collect data from multiple agent-based or agentless sources to turn volumes of raw data into actionable insight. Use Monitoring Automation to detect new IT infrastructure resources, deploy best-practice-based monitoring templates and activate them. Virtualization monitoring helps to better organize, plan, and predict any changes in your virtual environment.

### **Data collection**

The Operations Bridge includes multiple connector mechanisms that allow data to be collected. Metrics, events, topology, and log file data is collected from a diverse set of sources. The resulting analytical capabilities help your organization increase the added value of sorted information by unifying search, reporting, alerting, and analysis across all types of IT data. This insight enables your team to prepare, predict, and pinpoint emerging issues before they impact the organization.

The data is gathered from agent-based or agentless collectors and can be streamed in a performance dashboard for real-time graphing, alerts, and analytics. You can also collect data from third party domain managers.

## Agent-based data collection

Agent-based data collection is supplied by a wide variety of management packs that work through Operations Agent. The management packs are installed on target nodes. By leveraging management packs, you can further automate discovery and monitoring, create domain-specific rules and perform cross-domain reporting.

For a full list of the available Operations Bridge management packs, see the [ITOM Marketplace](#).

## Agentless data collection

Agentless data collection is supplied by SiteScope. SiteScope is a monitoring solution that enables you to remotely monitor the availability and performance of your IT infrastructure.

For more information about SiteScope, see the [Using SiteScope Guide](#).

## Collecting data from third party domain managers

Operations Connector enables you to collect event, metric, and topology data from a third party domain manager and transfer it to OMi, Operations Bridge Reporter (OBR), and Operations Bridge Analytics (OBA).

For more information about Operations Connector, see the *Operations Connector User Guide*.

## Monitoring Automation

Monitoring Automation simplifies the configuration and deployment of monitoring for infrastructure and composite applications. Your team creates blueprints of your IT environment and desired monitoring configuration, and monitoring automation does the rest, from discovery, to updating the model, to deploying the right monitoring configuration at the right time.

**Modeling and monitoring design.** Monitoring automation enables you to predefine a standard model for a service or composite application and decide how to monitor it. These models and monitoring standards serve as the blueprint for automating the process of discovering and monitoring your constantly changing IT environment.

**Automatic onboarding of servers and applications.** Using the models you've already defined for the components of your environment, monitoring automation can automatically discover new IT infrastructure resources, add them to your model, and immediately deploy monitoring policies.

For example, an Operations Agent is added to your environment, and a node is automatically created. An automatic assignment rule triggers the deployment of an Oracle discovery policy, which discovers an Oracle database. Another automatic assignment rule deploys an Oracle monitoring policy, without any operators having to get involved. This flow also works for more complex applications, where you might discover multiple servers, databases, and so on. In this case, monitoring for different components can also be deployed using an automatic assignment rule. Regardless of whether the monitoring tool used is agent-based or agentless, monitoring automation deploys the appropriate monitoring configuration to the target instances.

When you automate the process of discovering and monitoring your IT environment, you avoid the risk of not monitoring an important application or continuing to monitor an application that no longer exists.

**Easy-to-tune monitoring.** Users don't need a deep knowledge of the specific monitoring policies to tune the monitoring configuration. They just need to tune the parameters.

## Virtualization monitoring

Analyze the performance trends of elements in virtualized environments with near-real-time and historical data analysis and interactive dashboards.

When monitoring virtualized environments, it is crucial to receive alerts when there is an unexpected change in the state of the Virtual Machines (VM). With the Operations Bridge, you can analyze and generate smart alerts for abnormalities in the environment.

Configure the VM states for which you would like to receive alerts. Stop the alert generation for some Virtual Machine states, for example when the VMs are part of a planned maintenance activity.

You can monitor and view different aspects of your Virtual Machines in dashboards:

- Monitor the **environment performance** – display the VMs and their states filtered by the alerts you receive about them, or filtered by the VM resource usage (CPU and memory).
- Monitor the **environment capacity** – display the capacity and usage data of entities in a summarized or detailed analysis of your existing infrastructure, in order to improve the efficiency of resources by optimal sizing and placements of the VMs.
- View **forecast data** – get an overview of the entities that reach their capacity in the next few days, and analyze the data to plan the resource allocation effectively.
- View **alerts** – display any alarming issues in the environment that need immediate attention in order to troubleshoot the problem or draw graphs for the particular metrics.

## Performance management

Analyze and diagnose performance data to view trends, compare current metrics with historic data, diagnose issues, and compare multiple big data components simultaneously in the same graph.

You can choose to use out-of-the-box dashboards or customize your own for the configuration items (CIs) that you are using.

Additionally, the Performance Engine enables you to stream custom and system metrics in large scale environments.

The Operations Bridge also includes the capability of cloud capacity optimization – this allows you to maximize the efficiency and resource utilization of your cloud environment.

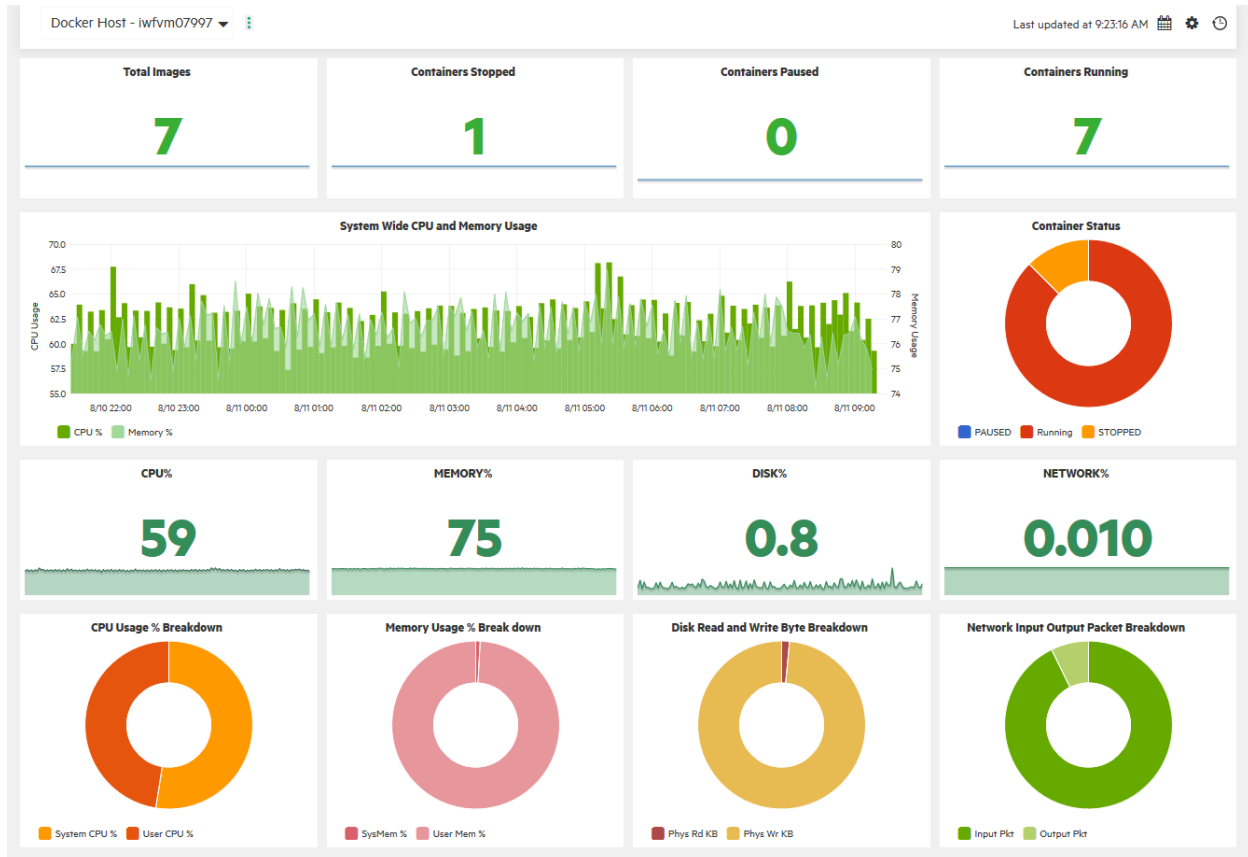
## Performance dashboards

Use performance dashboards to visualize system metrics and custom application metrics. By default, out-of-the-box dashboards are available. In addition, you can create and customize performance dashboards for the CIs that you are monitoring.

Performance dashboards help you perform the following:

- Explore and visualize performance metrics of a host of components such as applications, systems, and network.
- Quickly visualize the performance of important CIs by using personalized favorites.
- Share user-defined favorites as public favorites.

- Embed charts such as graphs, tables, texts, process tables, and pies into the performance dashboard.
- Embed performance dashboards or single charts into any UI mashup page.
- Parameterize instances to manage multiple instances across systems.
- Visualize event information in the performance dashboard through Event Overlay.
- Visualize time-specific data in the Date Range Panel.
- Assign performance dashboards to CI Types (CITs).
- Enjoy real-time visualization of performance metrics.
- Forward critical performance metrics to Business Value Dashboards.
- Compare CIs that belong to similar CITs by using the CI Comparison dashboard.



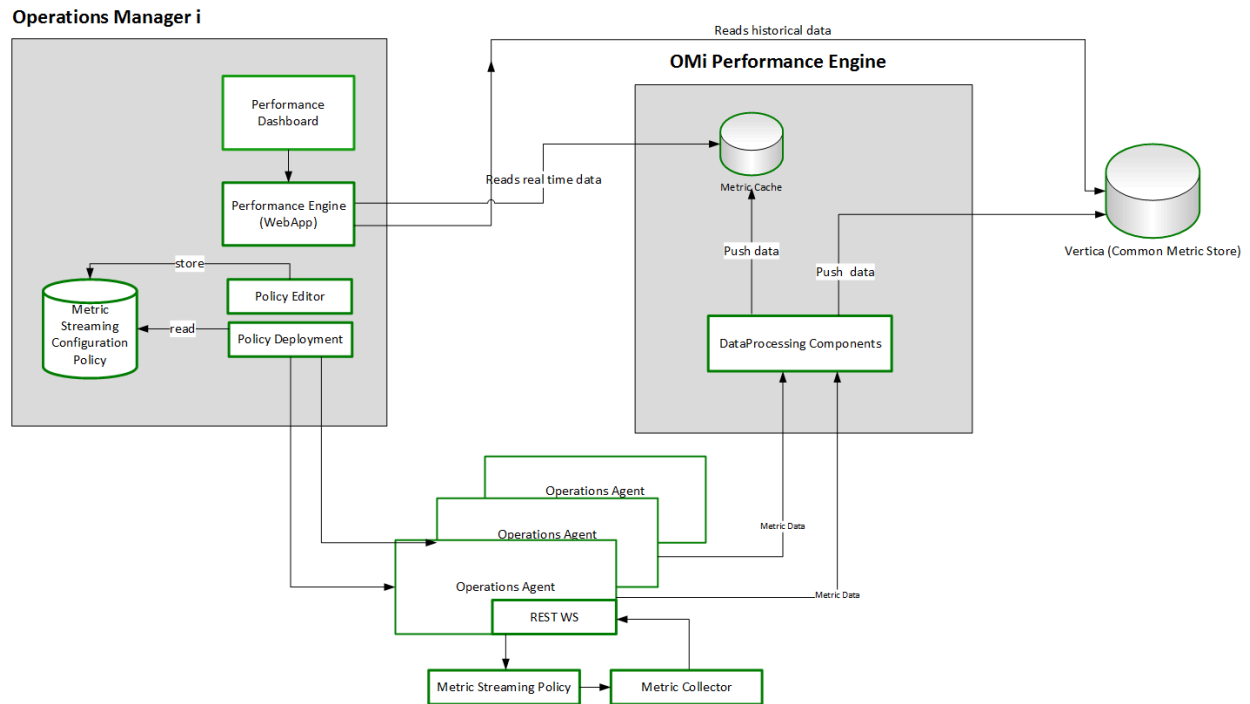
## Performance Engine

To enrich and expand the performance management capability, you can install the OMi Performance Engine. The Performance Engine is an add-on component that provides streaming of custom metrics and system metrics in a large scale environment. It aggregates streamed data from different collectors, which receive data by using the RTCM-REST Web Service interface, and acts as the central store for all the data collected by these data collectors. The Operations Bridge Suite supports distributed stores of performance data in agents, as well as a centralized performance store.

Management Packs also use the Operations Agent REST Web Service interface to submit metrics data for metric streaming. By using the OpsBridgeStore datasource, you can visualize the metric data in your performance dashboards. If the collection and forwarding interval is configured for five seconds, then the cache will hold one hour of data. The metric data is stored for one hour and can be displayed as real-time data in your performance dashboards. If a Vertica database is installed

and configured, you can also store metrics for longer than an hour and display them in your dashboards.

OMi Performance Engine comes with Transport Layer Security (TLS) support for PE Kafka message bus. Kafka TLS provides additional security by authenticating connections to Kafka brokers from clients (OMi Performance Engine producers and consumers) and other brokers. It also encrypts the data transferred between brokers and clients, and between Kafka brokers. If required, you can disable Kafka TLS either during installation or post installation. For more information about enabling and disabling Kafka TLS, see the *OMi Performance Engine Installation and Configuration Guide*.



Performance dashboards, in combination with the Performance Engine, provide the following capabilities for users:

- Visualize, investigate, and review the performance of specific system infrastructure metrics as well as custom application metrics in real-time.
- Aggregate and stream custom metric data and system metric data for more than 25000 data points/sec from managed nodes.
- Install the Performance Engine separately on an additional server to support additional real-time data sources and thus providing a scalable environment.

## Cloud capacity optimization

Maximize the efficiency and resource utilization of your cloud environment. Plan for growth and optimize placement with historical usage data, forecasting, and what-if-modeling.

Optimize the capacity of your cloud with the following information:

- **Virtualization infrastructure overview.** Identify the over- and under-utilized resources and idle virtual machines in your cloud.

- **Sizing recommendation.** Get recommendations on how to optimize your current resources without impacting the service levels or product performance. These recommendations are based on the historical resource usage, demand trends and available capacity.
- **Entity usage overview.** View the usage summary pages for each entity in your virtualization environment.

By using this information, you will be able to analyze the capacity, usage, and allocation trends for various resources in the cloud. You can draw reports based on the utilization and consumption of the resources and tune your infrastructure for maximum efficiency by reclaiming unused resources.

Forecast the resource utilization of entities in your environment and determine the use of underutilized resources. This way, you can efficiently plan the allocation of resources in your environment and determine the impact of adding additional resources.

Recommendations can help you uphold the health of the hosts and data stores, as well as resolve incorrect virtual machine sizing problems and achieve better virtual machine performance.

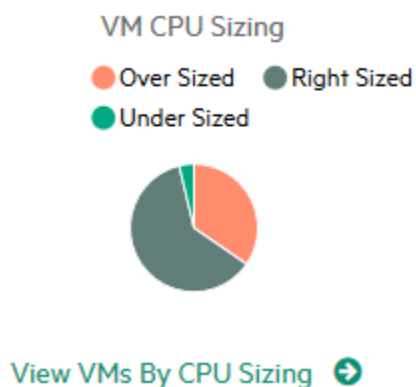
### Virtualization infrastructure overview

Get a cohesive view of the resource capacity, usage, allocation, remaining capacity, and opportunity to use the resources more effectively.

You can use horizontal bar charts and pie charts to represent the data graphically. These charts can show the allocation, usage, and capacity of the virtual machines' CPU, memory, or data store.

### Example

The example below shows a Right Sized pie chart which shows only the undersized and oversized VM CPU data.



## Discovery

The Operations Bridge provides fast, accurate, and continuous discovery of your IT environment. Gain a real time understanding of application service models with Automatic Discovery. Discover topology information that relates objects and their dependencies in your IT landscape. Automated Service Modeling automatically discovers and models critical business services and business application in a top-down manner, starting from an entry point, such as the URL of the service.

This discovered information is used to build and continuously update a model of the IT environment that supports business services. This dynamically updated model, called the Run-time Service Model (RTSM), is an important differentiator for the Operations Bridge.

Discovery is enabled by agent-based and agentless data collectors, as well as third-party connectors that include identity and topology information from your existing legacy management tools. Discovery can also be driven by a specific discovery engine called Universal Discovery, with which the RTSM is compatible, accelerating the creation of that model.

### Use case 1: Validating the availability of cloud providers

**Scenario:** Validate the availability of your cloud provider.

**Solution:** Discover available Virtual Machines (VMs) to assure yourself that you are monitoring the appropriate VMs. In succession, manage your VMs by using Operations Bridge capabilities, for example a management pack. You can then display the KPI over time for server availability, the service and application performance and availability, and the metrics that are used by the management pack.

### Use case 2: Cloud resources are suffering from repetitive disruption

**Scenario:** You have a repetitive issue with one of the applications in your private cloud, and want to find out what the cause is.

**Solution:** Use discovery to relate the infrastructure of your IT environment to the monitored application. Alerts regarding the application issue are generated and shown as events in your monitoring environment. Event correlation then relates those events with the events detected on the infrastructure.

By using this solution, you will be able to see what the root cause is, and evaluate if the service provided by your cloud supplier is delivered as promised.

## ChatOps

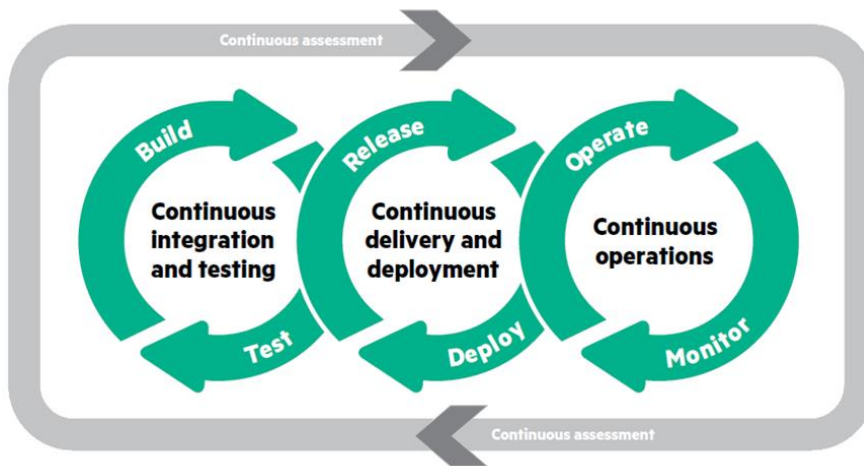
Use ChatOps with Operations Bridge to enable IT professionals to collaborate with the various systems they use. The collaboration is tied to the IT systems and processes, therefore making it more contextual, more efficient, more visible, and more traceable.

Use ChatOps to automatically publish selected events into dedicated channels, request reports, execute tools directly from the chat, and escalate events to a ticketing system. The benefits of using ChatOps are as follows:

- Incidents are resolved faster
- Changes can be implemented with less risk
- Triage, remediation actions, and production changes are better audited
- End-users are introduced to a new medium with which they can interact with IT
- IT systems are more accessible through mobile devices

You can integrate Operations Bridge with a chat tool of your choice - multiple are available - in order to use ChatOps in the way best suited to the needs of your organization.

With ChatOps, you can further automate your monitoring environment while at the same time eliminate the barriers between your development and operations teams. This increases your IT's agility across the complete application lifecycle, which results in a faster time to market, higher quality applications, and reduced cost of application delivery.



For more information about the process and the released files, see [Bot integration with OpsBridge](#).

## Streaming Edition of Operations Agent

Streaming edition of is a light weight deployment option (streaming agent) which is a subset of . Streaming agent package is available in Operations Agent media. If you have the requirement to only stream data then you can choose to install the streaming edition from the media.

Streaming agent provides the following benefits along with streaming capabilities:

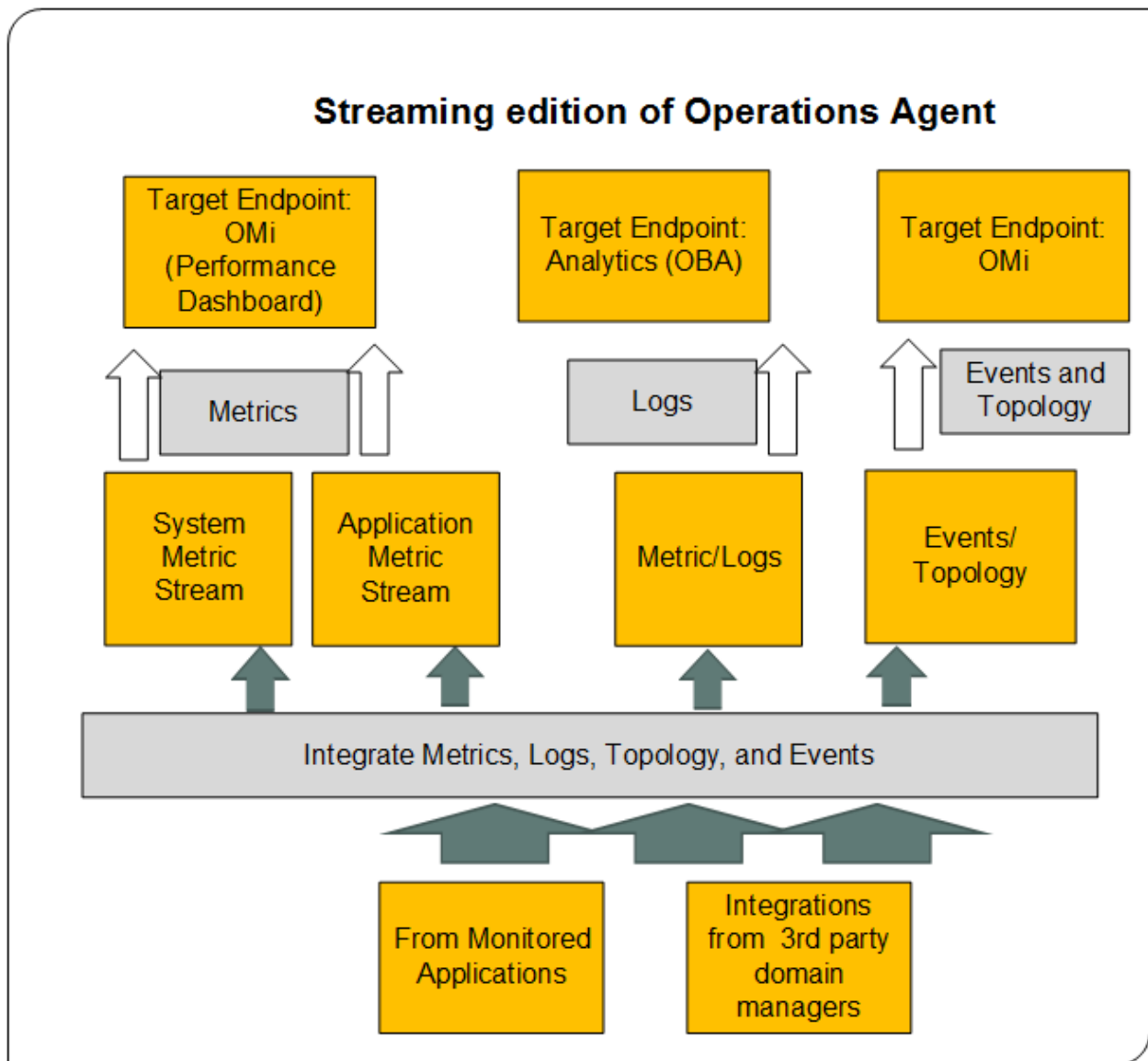


- Light weight package (less than 50 MB size)
- Simple installation
- Time to value (install and view the results in less than one minute)
- Seamless end to end functionality (install, configure, stream and view data)

Streaming agent uses policies to stream metrics, logs, events, and topology to Operations Bridge. You can use out of the box policies available in OMi MP for Infrastructure to stream system metrics and logs. You can also submit metrics, logs, events, and topology from third party domain managers and application monitoring components.

Streaming agent offers a comprehensive and efficient monitoring solution that helps to collect system metrics and integrate application metrics, logs, events and topology and visualize the same in the configured target end points.

Overview of streaming agent:



There are two ways to stream data if you are using :

- Direct Streaming - is used to stream system performance metrics and application metrics which do not require any processing and you can view the results immediately in the configured target end points.
- Normalized Streaming – is used to stream metrics, events, logs, and topology from the domain managers and from the application monitoring components. This type of streaming requires processing of data (example- mapping to target fields, set rules, conditions, and so on) before streaming and then only you can view the results in the configured target end points.

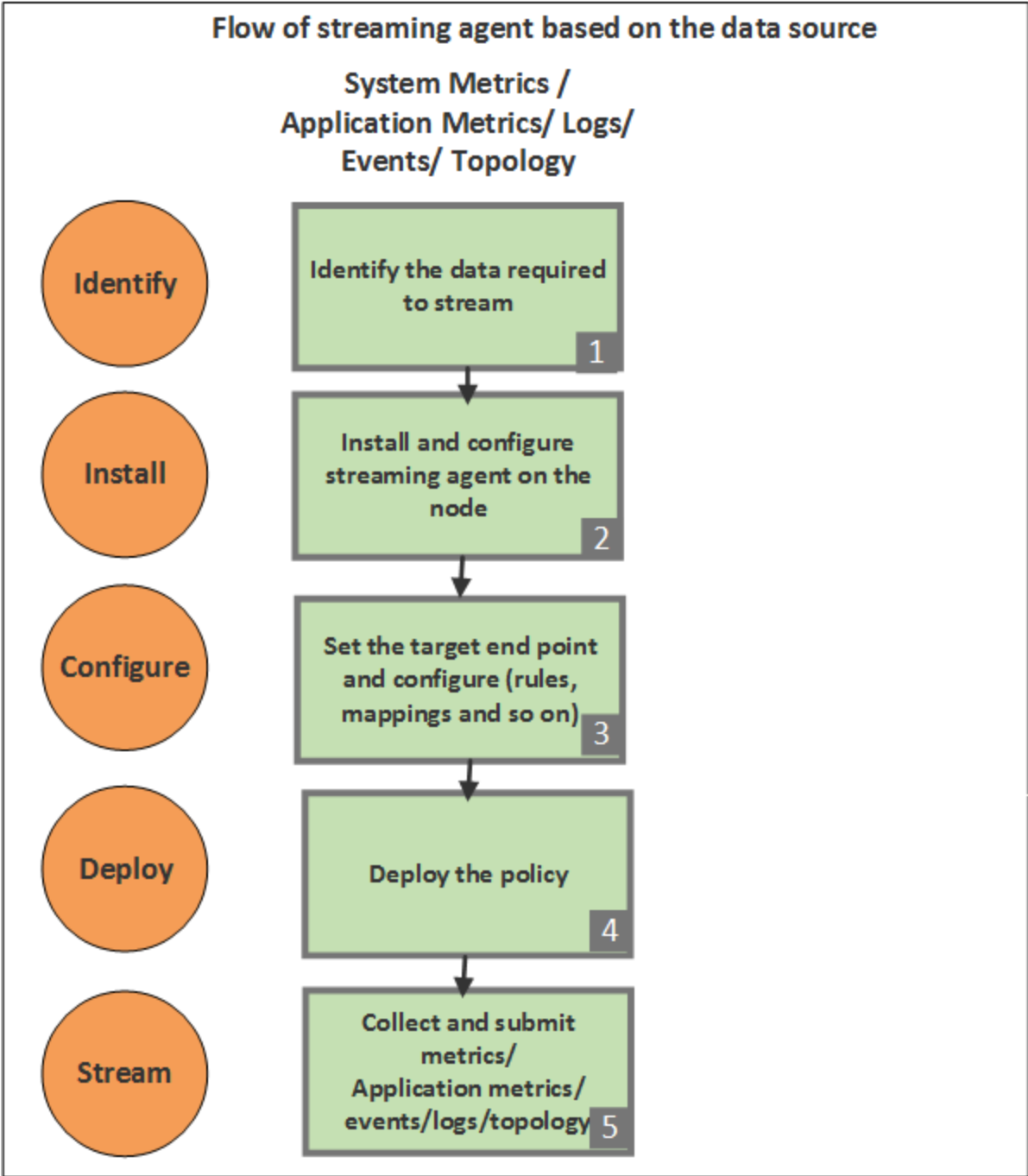
You can view the streamed data in the following configured end points:

- Metrics – Performance Engine (target end point) and visualize in Performance Dashboard (OMi)
- Logs - Operations Bridge Analytics
- Events and Topology – OMi

### **Working of streaming agent**

Streaming agent collects and streams system performance metrics, application metrics, logs, events, and topology from third party domain managers and application monitoring components. The data processing and streaming functions are completely policy driven.

You can choose the streaming flows based on the data type (metrics/ logs/ events/ topology). The following diagram shows the workflow of streaming agent:



You can integrate data using one of the supported policy types based on data that you want to stream:

Type	Policy NamePolicy
	Metric Streaming Configuration

Metrics ( system and application metrics)	Metrics from Structured Log File and Data forwarding
	Metrics from REST WS
	Metrics from XML file
	Metrics from Perl script
Generic ( metric/ log/ event)	Generic Output from Structured Log File and Data forwarding
	Generic Output from REST Web Service
	Generic Output from XML file
	Generic Output from Perl Script
	Generic Output from Windows Event Log
Event	Event from Structured Log File
	Event from XML file
	Event from Perl Script
	Event from REST Web Service
Topology	Topology from REST Web Service
	Topology from XML file

# Integrations

Expand your IT management capability by integrating products that are part of the Operations Bridge Suite or establishing cross-suite integrations with products from other HPE Software suites.

Integrations between the Operations Bridge Suite products are crucial to combine each product's capabilities and fully leverage the Operations Bridge. Integrating the products creates an interactive product environment that supports your organization's needs.

For cross-suite integrations, you can either integrate the Operations Bridge Suite with other suites or with other software products. Connect the products of your Operations Bridge Suite with other products that are not part of the suite in order to process data generated outside of the Operations Bridge. Cross-suite integrations are available depending on the lead Operations Bridge product and the product you want to integrate it with.

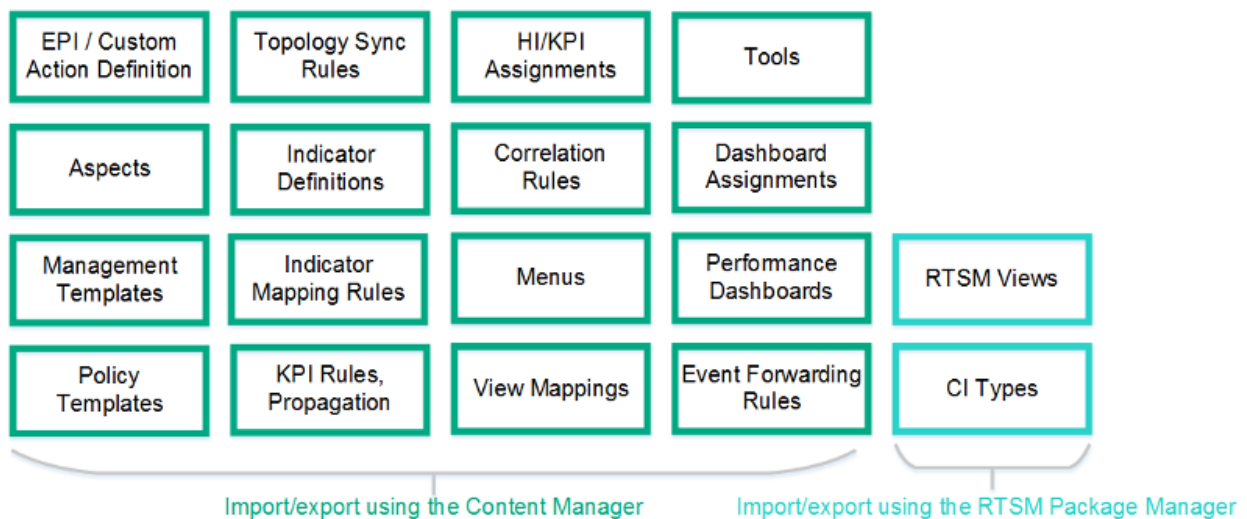
Operations Connector also enables you to integrate your Operations Bridge Suite with third party domain managers, making it easier for you to take advantage of the suite capabilities in an existing environment and to expand the reach of your operations bridge.

For information about supported product integrations, see the [HPE Integrations Catalog](#).

# Content management

To get additional content, you can use management packs. They deliver automatic and end-to-end monitoring solutions of infrastructure and applications. Management packs enable users to monitor, detect, troubleshoot, and remediate issues in the IT domain. They increase the productivity of the user by optimizing and automating various tasks and reduce the mean time to resolve (MTTR) incidents.

The following figure shows an overview of the content that can be included in a set of management packs.



**Note:** A management pack provided by HPE typically consists of an RTSM package, a content pack, manuals, and the online help. All this content is automatically uploaded during the management pack installation. To use a management pack, a separate license may be required.

## Content management tools

A set of tools helps you manage your own content. These tools are the RTSM Package Manager and the Content Packs Manager. You can use them to package your own content and to exchange the content between systems. For example, you can prepare content in a test environment and then transfer the tested content to a production environment when the tests confirm that the content works as expected.

Export and import tools also enable you to exchange content between systems so that you can keep snapshots or backup images of the content you developed. In addition, they make sure that different instances remain synchronized and up to date.

## Additional resources

This section lists additional resources that should help you understand how to make the most out of the Operations Bridge Suite capabilities.

## Operations Bridge Evolution

### Free License Exchange

Many customers have experienced years of success with Operations Manager, but the surging complexity of IT operations sparked the inspiration to create Operations Bridge, our next-generation, analytics-driven operations solution. We recommend that all OM customers evolve to Operations Bridge (Premium Edition) with a free license exchange.

### Why evolve?

Operations Bridge is a holistic product suite designed to help shift IT from a cost function to a strategic business partner. With OMi incorporated directly into Operations Bridge, it delivers all the capabilities of Operations Manager and much more:

- True single pane of glass with expansive technology coverage
- Business Value Dashboard
- Adaptive event management and event reduction
- Automated discovery and monitoring
- Cross-domain reporting

To get started today, download the [Operations Bridge Evolution Starter Pack](#) and browse the resources below for more information and technical guidance. Also see the *Operations Bridge Evolution Guide* for more information on the evolution process.

## Presentations

<i>Customer deck.</i> <b>OM to Ops Bridge Evolution Program:</b> How to successfully evolve to a greater value (July 2017)	<a href="#">go</a>
<i>Technical customer deck.</i> <b>OM to Ops Bridge Evolution Program:</b> How to successfully evolve to a greater value (July 2017)	<a href="#">go</a>

## Webcasts

<b>What is an IT Operations Bridge and who benefits from it?</b> High-level Operations Bridge overview including a short product demonstration. (December 2013)	<a href="#">go</a>
<b>Darwinian Evolution of Operations Manager.</b> OM to Operations Bridge evolution overview and case study of how Fidelity started their evolution and their return on the investment. (January 2015)	<a href="#">go</a>
<b>Operations Bridge Evolution Overview.</b> See how to move from Operations Manager to OMi, including adding OMi on top of OM, reusing the exiting investment in agents and policies, and switching off OM.	<a href="#">go</a>
<b>OMi 10 Best Practices.</b> Whitlock has developed a custom deployment kit that walks you through a value-based planning process and guides you on best practices for deployment and integrations. It also provides basic event process design, as well as initial integrations to existing processes, and facilitates knowledge transfer with a transition support plan to allow you to come up to speed on the new interface and features of OMi 10. (September 2015)	<a href="#">go</a>

## Case studies

Canada's biggest credit union leverages our software for visibility, proactive control	<a href="#">go</a>
Single view makes monitoring easier for GE Money Bank	<a href="#">go</a>

## White Papers

<b>Moving to Service Centric Management with OMi.</b> Recommended implementation steps when moving to Service Centric Management with OMi. Technical White Paper	<a href="#">go</a>
--	--------------------

developed for new OMi customers, which can also be helpful for OM to OMi evolution customers, in order to learn more about the OMi deployment best practices.	
---	--

## Blog Posts

Grow your IT monitoring by evolving to the OpsBridge Suite	<a href="#">go</a>
OM users - Here is why and how to move to OMi	<a href="#">go</a>
Darwinian evolution of OMi Management Pack	<a href="#">go</a>
OM-to-OpsBridge Evolution: Evolve to OMi Management Pack with "SPI to MP Evolution Tool"	<a href="#">go</a>
Evolve to OMi: How to keep your OM policy investment and when to use OMi Management Packs	<a href="#">go</a>
Evolve to OMi: How to smoothly move hundreds of Operations Agents to OMi	<a href="#">go</a>
Evolve OM Unix to OMi: Simple command Line tools admins need to know	<a href="#">go</a>
Evolve to OMi: How to set up user permissions similar to those in OM	<a href="#">go</a>
Evolve to OMi: Implementing instruction text lookup and addressing other policy import warnings	<a href="#">go</a>
Operations Manager i: Unlock the value of stream-based event correlation	<a href="#">go</a>

## Tools

Policy Statistics Tool for Operations Manager	<a href="#">go</a>
Policy Reporter for OMi	<a href="#">go</a>
SPI to MP Evolution Tool	<a href="#">go</a>

## Blog Posts

Experts in the Operations Bridge community have created a wide variety of blog posts to help you get the most out of your Operations Bridge Suite.

## Operations Bridge Dashboards



Business Value Dashboard: Data integration (part 1)	<a href="#">go</a>
Business Value Dashboard: Data integration (part 2)	<a href="#">go</a>
Business Value Dashboard: Get started now!	<a href="#">go</a>
Building your Business Value Dashboard using tags and dimensions	<a href="#">go</a>
Using Business Value Dashboard with the Internet of Things	<a href="#">go</a>
Power up Business Value Dashboard with Cloud Optimizer!	<a href="#">go</a>
Speedy Cape2Cape globe trotting - connecting you to the driver experience	<a href="#">go</a>
Visualize OMi event pipeline performance in the OMi Performance Dashboard	<a href="#">go</a>
Making metrics sing with OMi Performance Analytics dashboards	<a href="#">go</a>
Fasten your seat belts: Performance Engine to take off!	<a href="#">go</a>
Real-time metric streaming of application and custom metrics	<a href="#">go</a>

## Operations Bridge Evolution

Grow your IT monitoring by evolving to the OpsBridge Suite	<a href="#">go</a>
Evolve to OMi: Implementing instruction text lookup and addressing other policy import "warnings"	<a href="#">go</a>
Evolve to OMi: How to smoothly move hundreds of Operations Agents to OMi	<a href="#">go</a>
Evolve OM Unix to OMi: Simple Command Line Tools admins need to know	<a href="#">go</a>
Evolve to OMi: How to keep your OM policy investment + when to use OMi Management Packs	<a href="#">go</a>
Evolve to OMi: How to Setup User Permissions similar to those in OM	<a href="#">go</a>
Darwinian evolution of OMi Management Pack	<a href="#">go</a>
OM-to-OpsBridge Evolution: Evolve to OMi Management Pack with "SPI to MP Evolution Tool"	<a href="#">go</a>
OM users - here is why and how to move to OMi	<a href="#">go</a>

Successfully upgrade from Operations Manager to Operations Bridge: The myths, truths and expert tips	<a href="#">go</a>
The perfect pass - The evolution of Operations Manager to OMi	<a href="#">go</a>

## Big Data

New age monitoring solution for your Big Data technologies	<a href="#">go</a>
A BIG brother for your BIG data environment	<a href="#">go</a>

## Cloud/Virtualization

Operations Bridge and AWS: Automatic discovery and seamless Cloudwatch integration	<a href="#">go</a>
OpsBridge monitors Docker on the fly	<a href="#">go</a>
Your Private Cloud Operations through a Business Lens for more than 58,000 VMs and counting!	<a href="#">go</a>
Monitor your x86-virtualized environment for free with vPV	<a href="#">go</a>
Public Cloud Service Health Check - Simplified with Operations Bridge	<a href="#">go</a>
Keys to deploying OMi 10 on Helion Public Cloud	<a href="#">go</a>
Monitoring virtual environments - VM101	<a href="#">go</a>
Now available! Public cloud monitoring: The end-to-end hybrid view with OMi and Helion	<a href="#">go</a>

## Operations Agent

AIRVA: A new way to install the Operations Agent!	<a href="#">go</a>
OMi: Metric Streaming with Operations Agent 12.01	<a href="#">go</a>
Discover 2016: Learn how Operations Agent improves the health of your monitoring infrastructure	<a href="#">go</a>

Five questions to ask before you upgrade to the 64-bit Operations Agent 12.00 on HP-UX	<a href="#">go</a>
Operations Agent 12.00—for the new style of IT management	<a href="#">go</a>
Exploring the potential of the Operations Agent version 12	<a href="#">go</a>
Get agent health at a glance with the Health Dashboard for infrastructure monitoring	<a href="#">go</a>

## Operations Connector

How to make sure that your critical Operations Bridge integrations are always up and running	<a href="#">go</a>
Operations Connector SDK 2.0 – adding 3rd party systems into your OpsBridge just got a lot easier	<a href="#">go</a>
Using OMi to manage policies for multiple Operations Connector systems	<a href="#">go</a>

## Correlation

Operations Manager i: Unlock the value of stream-based event correlation	<a href="#">go</a>
Bring your own code: How to simplify customizing event correlation software	<a href="#">go</a>

## Event Processing

A closer look at the functionality of OMi Script Dev Kit	<a href="#">go</a>
Easier event handling for Operations Manager i (send, export/import, archive events via CLI)	<a href="#">go</a>
OMi: Looking Beyond Event Severity for Prioritization	<a href="#">go</a>
OM-OMi: Dealing with Event Duplicates, effectively	go

Configuring OMi to propagate Event KPIs with the parent displaying the sum of events	<a href="#">go</a>
--	--------------------

## Management Packs / Developing your own content

"It really was working after just a few days of development" - OMi Management Pack Hackathon report	<a href="#">go</a>
OMi Management Pack Development Kit - Overview	<a href="#">go</a>
OMi Management Pack Development Kit - Topology	<a href="#">go</a>
OMi Management Pack Development Kit - Events	<a href="#">go</a>
Meet the OMi Management Pack DevKit	<a href="#">go</a>
Meet the OMi Management Pack DevKit, Part 2	<a href="#">go</a>
Build your own OMi Management Pack Blog Series - Part 1: What is a Management Pack?	<a href="#">go</a>
Agent-based discovery with OMi	<a href="#">go</a>
Custom CI type and discovery for PostgreSQL with Operation Manager i - Part 1: Creation of a custom CI type	<a href="#">go</a>
Custom CI type and discovery for PostgreSQL with Operation Manager i - Part 2: Creating a discovery policy	<a href="#">go</a>
Custom CI type and discovery for PostgreSQL with Operation Manager i - Part 3: Creating the discovery script	<a href="#">go</a>

## Monitoring Automation and out-of-the-box Management Packs

Step by Step: OMi Management Pack for Docker	<a href="#">go</a>
Use Operations Bridge to Monitor Containerized Applications	<a href="#">go</a>
Microsoft Azure Monitoring with OpsBridge Management Pack	<a href="#">go</a>
Monitoring PostgreSQL with OMi Management Pack	<a href="#">go</a>
Monitor Microsoft Active Directory with OMi Management Pack	<a href="#">go</a>
Monitor Oracle Database with OMi Management Pack	<a href="#">go</a>

Simplified SAP Monitoring using OMi Management Pack for SAP	<a href="#">go</a>
Dock Your Docker with Operations Manager i (OMi Mgmt Pack for Docker)	<a href="#">go</a>
Everything you want to know about OMi Management Pack for TIBCO	<a href="#">go</a>
How to Configure and Monitor TIBCO using OMi Management Pack for TIBCO	<a href="#">go</a>
Switching to Monitoring Automation: How to deploy monitoring configuration	<a href="#">go</a>
OMi now includes Automation to simplify IT Monitoring	<a href="#">go</a>
Visualize, monitor and remediate your Vertica environment with OMi Management Pack for Vertica	<a href="#">go</a>
A new SQL to the IT Operations Management cockpit story	<a href="#">go</a>
3 steps to new metric collection with OMi MP for Oracle Database	<a href="#">go</a>
Monitor the job queue, ascertain system bottlenecks - best practice #1	<a href="#">go</a>
Set threshold values correctly for good monitoring since not every day is Sunday - best practice #2	<a href="#">go</a>
Gain the flexibility you need for Management Pack deployment with OMi 10.10	<a href="#">go</a>
Troubleshoot Skype for Business server performance problems with OMi	<a href="#">go</a>
Troubleshoot Microsoft SQL Server performance problems	<a href="#">go</a>

## Reporting

(Re)Introducing Operations Bridge Reporter	<a href="#">go</a>
How to easily achieve "multi-tenant" reporting with Operations Bridge Reporter	<a href="#">go</a>
Analyze your OMi events for an efficient IT Operations team	<a href="#">go</a>

## Service Health

OMi - Event Count based special KPIs (Unassigned Events and Unresolved Events KPIs)	<a href="#">go</a>
From OMi Events to CI Status	<a href="#">go</a>

## Other topics

Hidden treasures in OMi 10.11 – useful CLI and web services enhancements you might not have noticed	<a href="#">go</a>
OMi documentation – A new look, feel and simplified access to learn about Operations Bridge Suite	<a href="#">go</a>
10 points on how to visualize and manage performance with OMi	<a href="#">go</a>
Graphing Metrics Data in Hierarchical Operations Bridge Deployments	<a href="#">go</a>
Operations Manager i: Event Browser unleashed! Your guide to IT event management	<a href="#">go</a>
IT operations dashboards: OMi 10.01 new message browser features increases operator efficiency	<a href="#">go</a>
How to use Roles, Groups and Users to efficiently manage access to OMi	<a href="#">go</a>
Get to a working OMi in 35 minutes or less	<a href="#">go</a>
Over the Business Rainbow - A new Business "Heads up Display"	<a href="#">go</a>
Announcing Operations Bridge version 10 with 10 great reasons to adopt it	<a href="#">go</a>
The Why, the What and the How of the new OMi Content Extension in Service Health Reporter	<a href="#">go</a>
VMware tools and why it is important for monitoring and what-not	<a href="#">go</a>
Presenting threshold lines in PM/PMi charts	<a href="#">go</a>
Operations Agent can be deployed via CDA and CSA	<a href="#">go</a>
Certificates: The foundation of secure communication in Operations Manager i	<a href="#">go</a>
Transport Layer Security in OMi 10.10, Simplified Setup	<a href="#">go</a>
Migrating from OM UNIX OSSPI to InfraSPI & Infra MP - FAQ	<a href="#">go</a>
How to use "External Nodes" known from OM in OMi	<a href="#">go</a>
OMi event console in a 3rd party ecosystem	<a href="#">go</a>
Running a OMi proof-of-concept and other lessons from the road	<a href="#">go</a>
Recorded Webinar: Gain visibility to the user experience in your Operations Management Dashboard	<a href="#">go</a>
6 similarities between a deal aggregator and Operations Manager i (OMi)	<a href="#">go</a>

# Downloads, Support, Community, and Training

Micro Focus provides lots of support and training resources to help you learn more about using the Operations Bridge Suite, and to remedy problems when they do occur. The following is a collection of links to Operations Bridge support, training, certification and download websites.

## Downloads

Patch summary for Operations Manager i	<a href="#">go</a>
Free trial version of Operations Manager i	<a href="#">go</a>

## Support

Software support	<a href="#">go</a>
Create a support case	<a href="#">go</a>
Software support offerings	<a href="#">go</a>
Support forum for Operations Bridge specific questions	<a href="#">go</a>
Obsolete products: end of support dates	<a href="#">go</a>

## Community

Operations Bridge Community Home	<a href="#">go</a>
OMi Practitioners Forum	<a href="#">go</a>
OMi Integrations Forum	<a href="#">go</a>

## Training

OMi training schedule	<a href="#">go</a>
OMI01IT - Operations Manager i-Series 10 Interactive Training Created by ART	<a href="#">go</a>
OMI120 - Operations Manager i Software 10 Essentials	<a href="#">go</a>
OMI110 - Operations Manager i Software 10 for Operators	<a href="#">go</a>
OMI200 - Operations Manager i Software 10 Advanced	<a href="#">go</a>

## Certification

Software certification	<a href="#">go</a>
------------------------	--------------------

## Licenses

### Operations Bridge Express Edition Suite

The HPE Operation Bridge Express Edition is a suite that provides entitlement to multiple product components along with their associated license keys. These product components are represented as separate entitlements, listed below. The primary suite product does not provide a single license key. Note that different suite licenses are available that contain 5 oder 50 packs. These packs define how many nodes you have available per product component.

The following product components are part of the Operations Bridge Express edition:

- Operations Manager i Event Foundation

Restrictions: Database support is limited to PostgreSQL and a maximum of 2000 Operations Bridge Nodes are supported with one Operations Bridge Express Edition Suite implementation

- Monitoring Automation for Composite Applications



## Operations Bridge Premium Edition Suite

The HPE Operations Bridge Premium Edition is a suite that provides entitlement to multiple product components along with their associated license keys. These product components are represented as separate entitlements, listed below. The primary suite product does not provide a single license key. Note that different suite licenses are available that contain 5 or 50 packs. These packs define how many nodes you have available per product component.

- Operations Manager i Event Management Foundation
- Monitoring Automation for Composite Applications
- Operations Bridge Reporter
- Business Value Dashboard

Additionally, CO monitoring-only is included with Operations Bridge Premium. You can open a CO monitoring-only case under Infra SPI (VISPI) or Infra MP.

## Operations Bridge Ultimate Edition Suite

The HPE Operation Bridge Ultimate Edition is a suite that provides entitlement to multiple product components along with their associated license keys. These product components are represented as separate entitlements, listed below. The primary suite product does not provide a single license key. Note that different suite licenses are available that contain 5 oder 50 packs. These packs define how many nodes you have available per product component.

- Operations Manager i Event Management Foundation
- Monitoring Automation for Composite Applications
- Operations Bridge Reporter
- Operations Orchestration
- Operations Bridge Topology Based Event Correlation
- Operations Bridge Analytics
- Business Value Dashboard
- Cloud Optimizer
- Universal Discovery

## Additional licensing information

In an Operations Bridge scaling scenario with an OMi Manager-of-Manager (MoM) and multiple OMi system managers, additional licenses might be required for OMi.

To use the correct Operations Bridge licenses, get Operations Bridge Nodes licenses that are not node locked. Then load the same key into the OMi MoM and the OMi system managers. Ensure that at any time, you are not managing more nodes that you are entitled to.

Note that the information in this section might be outdated. To make sure you are referring to the latest licensing information, see the [Additional License Authorizations](#).