

HP Business Service Management

For the Windows and Linux Operating Systems

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Getting Started Guide

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Introducing This Guide

This guide provides a high-level overview of the HP Business Service Management (BSM) platform, and a workflow for setting up the BSM end-to-end solution. It also provides details on key BSM components and concepts, and on how the BSM components complement each other, and end-to-end scenarios. Every topic in the guide points you to where you can find more information in the BSM Help.

BSM administrators and implementers should read this guide before beginning the planning and installation of the BSM platform, to get an overview of the BSM solution and its implementation.

Other BSM guides referred to in this document are available from the Home page in the BSM Help, or from each specific BSM component. You can also access the documentation in the [HP Software Support Web site](#).

Part 1: Introduction to BSM

Chapter 1: Introducing BSM

The HP Business Service Management (BSM) portfolio provides a set of integrated, management-layer solutions, each employing a different combination of HP products and applications. The BSM portfolio enables the integration of application, system, network, and business transaction monitoring, helping you to manage application performance and address issues before they impact customers; and connecting dynamic cloud and virtualized services to underlying infrastructure, to provide better visibility into services.

The BSM portfolio enables effective problem-solving by the various IT teams and personas in your organization, and across the different systems, network tiers, and software layers in your IT architecture.

The BSM portfolio includes the following solutions:

- ["Service and Operations Bridge" below](#)
- ["Application Performance Management" on the next page](#)
- ["Operations Analytics" on page 13](#)
- ["Network Management" on page 14](#)
- ["System Management" on page 14](#)

Service and Operations Bridge

BSM's Service and Operations Bridge solution provides consolidated service and event management through a unified BSM console in the Operations Management (OMi) application, enabling you to monitor and manage the events that occur in your IT environment, and helping you restore disrupted services and minimize service disruptions.

The Service and Operations Bridge directs reported IT-environment events to the central event console, the Event Browser. There they are automatically correlated, relating the events to the IT services that depend on the IT infrastructure, linking infrastructure management with application and business service management.

The Service and Operations Bridge combines events from BSM components, such as SiteScope, Business Process Monitor, and Service Level Management, with events from the event-monitoring components of the BSM solution, such as Operations Manager and Network Node Manager i, and from relevant third-party products. This consolidation enables you to keep track of all the events that occur in your monitored environment.

The events are analyzed according to the Run-time Service Model data and a set of correlation rules, to determine the underlying causal event, and are prioritized based on impact to the business. Using run book automation (through integration with HP Operations Orchestration or other products), you can then launch an automated workflow that runs through the procedures to resolve the issue without the need for human intervention.

Depending on the incident management policy, an incident ticket can be either manually or automatically opened in HP Service Manager or other ticketing tools. The ticket is enriched with

status information, as well as relevant context and historical data, and events are assigned to the relevant operator for resolution.

In addition, the Service and Operations Bridge incorporates events from Service Health Analyzer. These are predictive events that can act as an early warning for an operator, enabling the operator to process an event before the full impact is felt by the business.

The Service and Operations Bridge provides a single source for what is happening in the monitored environment at any point in time. IT can pinpoint the cause of a problem, make a determination of the potential business impact, and help route the problem to the relevant group so that it gets resolved. These abilities help in avoiding duplication of effort across teams trying to deal with the same event from different perspectives, help speed up response time, and improve IT productivity.

In addition, the Service and Operations Bridge solution provides system performance management through the various dashboards available in the Service Health and MyBSM applications. The consolidation of event management with the metrics monitoring channel within BSM enables the translation of information from system events into service health resources. This consolidation is realized through usage of a shared entity called health indicators (HIs), creating a common terminology between event management and application management data.

The topology data provided by the Service and Operations Bridge data collectors is utilized by the Service Health Optimizer and Service Health Reporter components to provide capacity planning, visualization, and cross-domain reporting across your heterogeneous physical and virtual server environments.

Application Performance Management

BSM's Application Performance Management (APM) solution provides 24x7 application, service, and infrastructure monitoring, which enables you to manage your applications from an end-user perspective, realize the business impact of performance and availability issues, and diagnose application problems.

Data arriving from BSM monitoring components such as SiteScope, Business Process Monitor, Real User Monitor, and Diagnostics, as well as data arriving via integrations with other HP and third-party products, automatically populate the Run-time Service Model (RTSM), defining CIs and their relationships. In addition, you can synchronize topology between a Configuration Management System (CMS) and the RTSM, enabling topology-based integration flows with other HP or third-party centers.

APM uses the RTSM data to relate infrastructure components, business transactions, and applications to the business services and service level agreements (SLAs) they support. APM provides a unified dashboard, Service Health, for managing IT operations to meet your business objectives, enabling you to view key business process and system indicators in real time, from an end-user, business-level, and service-level perspective. Service Health also indicates when there is an anomaly on a CI, detected by Service Health Analyzer, enabling an operator to deal with a potential problem before the full impact is felt by the business.

In addition, the Service Level Management application enables you to manage your SLAs and ensure that application performance and availability meet service level goals.

The APM solution also supports Web, J2EE, .NET, SAP, and Siebel performance management, and includes alerting, diagnostics, periodic health checks, capacity management capabilities, and trend analysis.

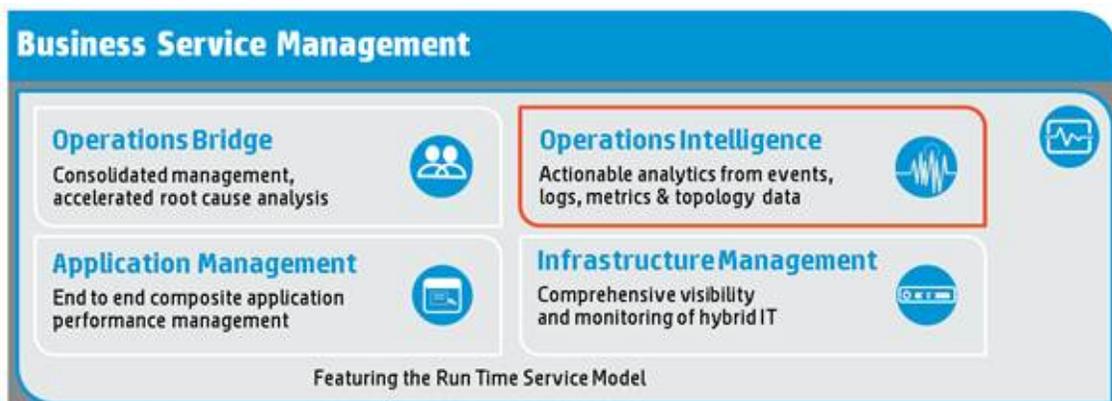
BSM's End User Management software plays an important part in APM, by proactively monitoring application performance and availability from the end-user perspective, so that you can fix issues before customers experience problems. Real-time user information filtered to your development and QA teams can help reduce MTTR, improve service-level performance and availability, and decrease application downtime.

The APM advanced solution includes Business Transaction Management capabilities provided by Business Process Insight and TransactionVision monitoring, enabling business process and transaction tracing with an enhanced solution scale.

In addition, the consolidation of application management and event management within BSM, achieved through the common use of health indicators (HIs), enables the translation of violated thresholds from end-user monitoring into events sent to the Operations Management Event Browser.

Operations Analytics

In the age of virtualization and cloud services, IT organizations can no longer know and control all the technologies in their environment; they need analytics to predict the occurrence of known problems and identify unknown issues before they occur. HP Operational Analytics combines Business Service Management and ArcSight Logger to deliver actionable intelligence about service health by automating the correlation and analysis of consolidated data—including machine data, logs, events, topologies, and performance statistics. By making it possible to collect, store and analyze operational data, HP Operational Analytics lets you automatically correlate problems with their causes.



HP Operations Analytics (OpsA) is a "Big Data" analytics solution targeted at IT operational use cases. HP Operations Analytics is a standalone solution, which brings together metrics, events, topology and log data to help you:

- **Prepare.** OpsA collects, indexes and stores all IT operational data before problems arise.
- **Predict.** Harness the power of predictive analytics to uncover trends before they become

problems.

- **Pinpoint.** OpsA delivers capability to rapidly identify root cause of IT outages.

For more details, see <http://www8.hp.com/us/en/software-solutions/software.html?compURI=1330974>.

Network Management

BSM's Network Management solution provides unified network monitoring and management coverage across network fault, availability, performance, change, configuration, and compliance enforcement. This is achieved by a set of integrated products and tools that enhance network performance, availability, and security.

Network Management component Network Node Manager i (NNMi) offers fault, availability, and performance monitoring, with real-time network monitoring and network incident management, for physical and virtualized network infrastructure. This network monitoring solution is integrated with change, configuration, and compliance management provided by the HP Network Automation component.

This unified approach enables integrated remediation, and diagnostic automation capabilities for the technology process workflow. The solution supports multi-tenancy network management capabilities to help improve your network availability, and helps you quickly adapt to changing network environments, including data center virtualization, cloud computing, and supporting advanced services.

System Management

BSM's System Management solution consolidates and correlates fault and performance events across your entire physical and virtual IT infrastructure, enabling you to identify and resolve problems with full visibility into that IT infrastructure.

The System Management solution synthesizes a number of HP products and tools, including Operations Manager, Operations Management (OMi), SiteScope, Service Health Optimizer (SHO), Service Health Reporter (SHR), and Virtual Performance Viewer (VPV). The integration of data from across these products enables centralized, comprehensive IT operations management, eliminating the duplication of effort that can result from separate consoles for each IT silo.

System Management provides automatic correlation of fault and performance events across disparate, heterogeneous IT domains, relating the events to business services and the underlying IT infrastructure on which they rely. It provides insight into the dependencies between applications, business services, and infrastructure—physical and virtual.

The SHO and SHR components utilize the collected data to provide capacity planning, visualization, and cross-domain reporting across your heterogeneous physical and virtual server environments.

Chapter 2: Overview of the BSM Solution

HP Business Service Management (BSM) provides a suite of monitoring products that offer a comprehensive methodology for monitoring and measuring IT services from a business perspective. BSM tools enable you to identify problems, understand their business impact, and prioritize the triage and remediation process. BSM thus enables your IT organization to optimize the performance and availability of applications in production, and proactively resolve problems when they arise, thus assisting your organization to deliver more effective business results with lower IT costs.

BSM contains an integrated set of applications for real-time performance and availability monitoring, providing capabilities that include Service Level Management, End User Management, System Availability Management, event handling, early-warning events, and custom reporting and alerting. These applications combine top-down, user experience management with bottom-up insight into infrastructure events and performance, by linking infrastructure to business processes, transactions, and the end-user experience. BSM is based on a common foundation of shared workflow, administration and reporting services, shared assets, and expertise.

This unified top-down and bottom-up methodology enables BSM to provide consolidated and automated service operations management for your business, reducing MTTR and helping you to more effectively honor your SLAs.



BSM's consolidated service operations approach is driven by the following processes:

- ["Detect" below](#)
- ["Consolidate" on the next page](#)
- ["Prioritize" on the next page](#)
- ["Isolate" on page 17](#)
- ["Diagnose" on page 17](#)
- ["Repair" on page 18](#)

Detect

BSM detects problems before they impact the business. BSM monitoring tools discover, detect, monitor, and measure across the IT environment, reporting events and sending alerts and metrics

back to the BSM applications. You configure the monitoring requirements and thresholds for the measurements to define what is a problem.

In order to create a model of what your IT environment looks like, BSM is able to discover your IT environment automatically, using monitoring tools, and using discovery techniques provided by Discovery and Dependency Mapping. BSM then helps you model your business processes and services, using the management tools provided in the Run-time Service Model (RTSM) Administration application; these tools map the complex and dynamic dependencies between applications and their supporting infrastructure.

The BSM solution monitoring options include:

- ["Business Process Monitor \(BPM\)" on page 21](#)
- ["Diagnostics" on page 21](#)
- ["Network Node Manager i \(NNMi\)" on page 23](#)
- ["Operations Manager" on page 23](#)
- ["Real User Monitor \(RUM\)" on page 25](#)
- ["SiteScope" on page 28](#)
- ["Storage Essentials" on page 29](#)
- ["TransactionVision" on page 30](#)

Consolidate

BSM consolidates topology, events, and performance and availability metrics from across domains and monitoring systems into the BSM management centers, enabling consolidated event and service health management for IT operations. Events and metrics from third-party integrations can be included in this "single pane of glass" approach. Cross-domain events are automatically correlated by the event-based correlation engine, to correlate a symptom with its cause.

These processes help to identify the probable cause of the events and to reduce the number of escalated incidents.

The core component for this consolidated operations approach is the embedded CMDB, the Run-time Service Model (RTSM). The RTSM defines the relationships between the infrastructure components, IT services, applications, and corresponding business services, and provides a topological configuration item (CI) storage repository that is used throughout BSM.

Prioritize

BSM prioritizes events based on their business impact, and whether the associated CI is included in an SLA, enabling IT to focus on those issues first. This prioritization is achieved using the comprehensive dependency map created in the RTSM, which gives visibility into the impact of events on business services, and on how real users are being impacted by issues.

In addition, Service Level Management capabilities allow you to compare actual application availability and performance with business goals, so that you can see the remaining time until SLAs are breached, and to prioritize problem resolution based on service level compliance.

You can define role-defined dashboards in MyBSM that track KPIs specific to a high-priority business service, to help deliver the relevant information to the right people.

Isolate

BSM provides processes to help isolate the root cause of problems, speeding up resolution time. A problem can occur at any stage of the user experience; it could be infrastructure or network related, an application issue, a transaction implementation issue, a security issue, and so forth. To manage this, BSM tracks transactions in an end-to-end manner, regardless of the technologies used to complete them. The RTSM then provides a unified service health view of the relationships and dependencies between the CIs that represent your business services and IT infrastructure.

This combination provides a complete and up-to-date picture of the managed environment, and enables the impact analysis needed to quickly isolate the problem. In the Service Health application, you can identify the impacted CI, and drill down to the domain BSM applications such as End User Management, System Availability Management, and Transaction Management to determine the root cause.

In addition, Service Health Analyzer provides predictive events, so that issues can be identified and processed before the full impact is felt by the business.

The IT teams can identify and understand the technical issues at the root of events, and the impact on customers and the overall business. IT is able to trace the problem back to the physical infrastructure or virtual application environment, or trace an event back to third-party cloud service providers.

Diagnose

The BSM platform includes tools to help diagnose anomalies across the IT environment and pinpoint bottlenecks, and provides solutions for different IT teams. For example:

On the applications side, Diagnostics can drill down into the application server stack, and peer into the tiers of an application as they relate to individual infrastructure components, providing both historical context and application-specific details at the time of the issue.

On the network side, Network Node Manager i (NNMi) can analyze network traffic and the network path, and give visibility into the network component that may be the root cause of the problem, for example, a malfunctioning router.

On the infrastructure level, Operations Manager tools can provide visibility into the infrastructure layer.

On the transaction level, Transaction Management can provide a granular view of monitored transactions and report on every step taken during a problematic transaction, for example, a failed bank transfer.

Repair

BSM provides integrated run book automation (RBA) through an out-of-the-box integration with HP Operations Orchestration. This enables an isolation flow to collect additional information on the problem, and the running of automated script actions to try and remedy the problem. BSM can also integrate with other run book automation tools.

In addition, BSM integrates with service desks and ticketing systems. You can set up a closed-loop bi-directional integration with HP Service Manager, so that events are transmitted and transformed into incidents, and both events and incidents are closed automatically once the problem is resolved.

Chapter 3: BSM Solution Components

BSM includes the following tools and solution components:

- "BSM Connector" on the next page
- "Business Process Insight (BPI)" on the next page
- "Business Process Monitor (BPM)" on page 21
- "Diagnostics" on page 21
- "Discovery and Dependency Mapping (DDMA)" on page 22
- "End User Management (EUM)" on page 22
- "MyBSM" on page 22
- "Network Node Manager i (NNMi)" on page 23
- "Operations Manager" on page 23
- "Operations Management (OMi)" on page 24
- "Real User Monitor (RUM)" on page 25
- "Run-time Service Model (RTSM)" on page 25
- "Service Health" on page 26
- "Service Health Analyzer (SHA)" on page 26
- "Service Health Optimizer (SHO)" on page 27
- "Service Health Reporter (SHR)" on page 27
- "Service Level Management (SLM)" on page 27
- "Shared Services – HP Software-as-a-Service (HP SaaS)" on page 28
- "SiteScope" on page 28
- "Storage Essentials" on page 29
- "System Availability Management (SAM)" on page 29
- "System Health" on page 29
- "TransactionVision" on page 30

- ["Transaction Management" on page 30](#)
- ["User Reports" on page 31](#)
- ["Virtual Performance Viewer" on page 31](#)

BSM Connector

BSM Connector integrates events, metrics, and topology data from third-party systems into BSM. BSM Connector uses policies to access the data sources. If the data matches the conditions defined in the policies, the data is forward in the form of events or metrics to BSM. Policies can also report topology data to BSM in order to create CIs and CI relationships in the RTSM.

You can use out-of-the box integrations that are available for BSM Connector, or develop your own custom integrations. You can obtain integrations with third-party systems through [HP Live Network](https://hpln.hp.com/group/bsm-integrations) (<https://hpln.hp.com/group/bsm-integrations>).

BSM Connector integrates out-of-the box with the following third party products:

- IBM Tivoli
- Microsoft System Center Operations Manager (SCOM)
- Nagios

In addition, BSM Connector integrates with the following HP products:

- HP ArcSight ESM
- HP ArcSight Logger
- HP Network Node Manager i

For details, see the Using BSM Connector Guide.

Business Process Insight (BPI)

BPI enables you to visualize and then track the state, or health, of business processes within your organization. It takes information, in the form of events, from both business applications and from the IT infrastructure, and presents these events in business terms; for example, rate of loss of orders, backlogs accumulating, value of these backlogs, and potential impact on key customers. Using this information, you can assess the financial and business impact of delays or blockages in a process due to an IT performance problem, or other incident such as an IT outage.

Business processes are deployed data samples that can be measured using Business Process Monitor definitions. The BPI Server sends the data to BSM to use when defining status for key performance indicators (KPIs).

BPI enables you to track the duration and value associated with any user-defined scope of the business processes. To do this, you model your IT operational resources within BSM (as CIs) and

then use BPI to link the CIs to process activities. BPI can then obtain status information relating to these operational resources for business processes that you have modeled within BPI. BPI collected data is mapped to CIs and displayed in System Health's views.

For more details, see Business Process Insight Application Overview in the BSM User Guide.

Business Process Monitor (BPM)

BPM is a BSM data collector that emulates end-users by running the transactions included in a business transaction flow or application, from various locations. By collecting synthetic-monitoring performance and availability data from various points throughout your infrastructure, as well as from external locations, BPM enables you to identify performance problems in real time.

The defined transactions automatically create corresponding CIs in the RTSM. When BSM receives samples for the monitored transactions, they are used to calculate status for the BPM CIs. You use the End User Management reports and other BSM applications to view and analyze the data, in order to monitor the performance of your business applications and infrastructure.

For more details, see the Business Process Monitor Administrator's Guide.

Diagnostics

HP Diagnostics is a composite application-monitoring, triage, and diagnostics solution that provides integrated monitored topology, metrics, and events for BSM. It uses collectors and agents to collect data across multiple technology platforms, including JAVA, .NET, Oracle and SQL Server databases, SAP environments, SOA services, and virtualized environments. This data, which is displayed in the Diagnostics application in BSM, enables you to monitor and diagnose performance problems in your application infrastructure, and identify critical bottlenecks.

The functionality provided by the Diagnostics integration with BSM includes:

- Send metrics data to BSM; the data is used to determine status for system and software KPIs and fine-grained HIs, and enables you to track the availability and performance status of business applications monitored by Diagnostics, and reduce the MTTR of problems. Diagnostics also provides event data based on CI thresholds set in Diagnostics.
- Aggregate transaction monitoring, with Diagnostics providing backend-view data for business transactions generated by other BSM applications, such as BPM. You can generate high level reports in BSM about the performance of business transactions that are monitored by Diagnostics.
- Drill down to Diagnostics data from specific BSM configuration items and reports.
- View the application infrastructure information from Diagnostics in the context of a business application or business transaction.
- Configure business transactions for monitoring in Transaction Management by selecting top level server requests from Diagnostics. You can also view business transaction data from Diagnostics, including topologies, in the Transaction Management application.

- View Diagnostics information for monitored Web services and operations included in Application Management for SOA reports.

For more details, see "Diagnostics and Business Service Management" in the Diagnostics User's Guide, part of the HP Diagnostics documentation set.

Discovery and Dependency Mapping (DDMA)

DDMA uses the Discovery process to collect information about your IT infrastructure resources and their interdependencies. Discovery discovers resources such as applications, databases, network devices, servers, and so on. Each discovered IT resource is delivered to, and stored in, the RTSM, where the resource is represented as a managed CI.

Discovery is an ongoing, automatic process that continuously detects changes that occur in the IT infrastructure and updates the RTSM accordingly. You must install the Data Flow Probe component (supplied with BSM) to run the Discovery jobs, but you do not need to install any agents on the devices to be discovered.

Following installation, CIs are created for the Data Flow Probe network, host, and host IP. These CIs act as triggers that activate a Discovery job. Every time a job is activated, the job discovers more CIs, which in turn are used as triggers for other jobs. This process continues until the entire IT infrastructure is discovered and mapped.

You manage the Discovery process and the Data Flow Probe from the Data Flow Management (DFM) component in RTSM Administration. In addition, DFM enables you to use the Data Flow Probe to synchronize the topology between RTSM and external data sources (without the need for a DDMA license).

For more details, see "Data Flow Management Overview" in the Data Flow Management Guide.

End User Management (EUM)

EUM is a centralized solution for configuring and managing the applications and associated entities you want monitored by the end-user data collectors—Business Process Monitor (BPM) and Real User Monitor (RUM).

By using both BPM and RUM to monitor the same applications and associated entities, you can obtain an overall picture about your applications from both a real user (RUM) and synthetic user (BPM) perspective.

You can view the collected data in End User Management reports and in Service Health.

For more details, see End User Management Administration Overview in the BSM Application Administration Guide.

MyBSM

MyBSM is a customizable Web 2.0 user environment for working with BSM. In MyBSM, you can create role-based workspaces (dashboards) for different types of users such as operations users,

and senior management. The MyBSM workspace provides smooth interactions between different BSM applications and reports.

Each page includes components based on BSM applications and reports, that are of interest to specific users or groups of users. For each page, you can define the layout of components on the page, and their interaction with other components.

For more details, see MyBSM Overview in the BSM User Guide.

Network Node Manager i (NNMi)

NNMi's data collectors and Smart Plug-In add-on modules (iSPIs) provide discovery and monitoring of your physical and virtual network infrastructure, enabling fault, availability, performance, and advanced network services management. As part of the BSM solution, NNMi integrates with the BSM environment, acting as a data source for BSM for events and topology from the BSM applications.

The integration provides the following:

- Display NNMi events in the Event Browser in Operations Management.
- Corresponding out-of-the-box health indicators for NNMi events; the health indicators affect the status of the Network CIs in applications such as Service Health and Service Level Management. The integration also provides the relevant out-of-the-box KPIs for Network CIs.
- Populate the RTSM with the NNMi topology. BSM stores each device in the NNMi topology as a CI.
- Drill down from various EUM reports, MyBSM, and other locations to NNMi, where you can display trace route information between the client and the destination machine, to gain visibility into network components that may be the root cause of problems.
- Connect to the NNMi Management server and further analyze incoming events in NNMi.

For details, see the BSM - NNMi Integration Guide in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

Operations Manager

Operations Manager (HPOM) uses agent-based and agentless monitoring, including application Smart Plug-Ins (SPIs) to collect events, alerts, and performance data from the monitored IT environment. As part of the BSM solution, Operations Manager integrates with the BSM environment, acting as a data source for BSM and enabling you to manage events, restore services, and minimize service disruptions from the BSM applications.

Both Operations Manager for Windows and Operations Manager for UNIX (HP-UX and Linux) are supported.

The integration provides the following:

- Integration of Operations Manager data into BSM:
 - If you have an Event Management Foundation license, the events are displayed in the Event Browser in Operations Management. The integration uses a bi-directional synchronization of events between Operations Manager and Operations Management.
 - If the Operations Manager events have corresponding health indicators, the health indicators affect the status of the relevant CIs in applications such as Service Health and Service Level Management.
 - If you have the Event Management Foundation license enabled, the Operations Manager topology can synchronize with the RTSM topology.
- Drill down from Service Health and the Event Browser to the Operations Manager application, to run event-related actions, and to provide additional visibility into the infrastructure layer. This speeds problem resolution through the use of Operations Manager guided procedures, embedded knowledge, and tools.
- Enables the display of events triggered by the BSM alerts and by health indicator status changes, within Operations Manager.

For details, see the BSM - Operations Manager Integration Guide in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

Operations Management (OMi)

The Operations Management application (also known as OMi) provides a single event console for consolidated events arriving from different monitored data sources. It combines events generated within BSM (for example, events generated by EUM or SLM based on triggered alerts, or events triggered by threshold breaches of EUM or SiteScope measurements) with events arriving from the data collecting components of the BSM solution (for example, events from Operations Manager or NNMi), and other third-party applications.

In the Operations Management Event Browser, operators can see an overview of all the active events that need to be worked on in a single screen. They can see such things as the event severity, the type and category of event, the source of the event, the time and location of the event, and the affected configuration item. Additionally, BSM health data, such as event type indicators (ETIs), health indicators (HIs), and key performance indicators (KPIs) are used to evaluate the health of related CIs in the context of the events.

Events can be automatically correlated and filtered to display only those that need to be acted upon to maintain availability of your IT services. Topology-based event correlation (TBEC) enables the correlation of symptoms with cause events. When the problem reported by the cause event is solved, all related symptom events are also closed. For any device, such as a server, the severity of the problems directly associated with the server are collated, and combined with information about 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.

Monitoring Automation provides a complete management solution for an application or service, enabling you to create a management solution for the entire set of configuration items (CIs)

comprising the application. The solution can be made to respond dynamically to changes in the topology, making the monitoring solution independent of the hardware and platform running the application.

User Engagement feature applies game dynamics to add extra stimulation to Operations Management users by providing business-enhancing challenges, accelerating operations bridge efficiency and user know-how. Successful progress through the various activities is rewarded with Achievements and real-time notifications of great performance, helping to provide extra motivation to better engage with Operations Management which improves users' performance in their daily work. Timelines are available to record each user's progress and collection of Achievements. Almost everyone is motivated by at least one of the types of challenges that game dynamics includes, for example, achievement, competition, status, and closure, and this makes User Engagement such a powerful feature.

For details on the role of Operations Management as part of the BSM Service and Operations Bridge solution, see ["Service and Operations Bridge" on page 11](#).

For more details on Operations Management, see the Operations Manager i Concepts Guide.

Real User Monitor (RUM)

RUM is a BSM data collector that monitors both user- and system-initiated network traffic between client machines and servers, and between servers, collecting network, server performance, and availability data in real-time.

RUM provides information on:

- End users from all locations, providing end-user experience.
- Application-related network performance.
- Application backend protocols.

This data enables you to pinpoint the cause of delays and quantify the business impact of detected performance issues related to end users.

For more details, see Real User Monitor Administration in the BSM Application Administration Guide.

Run-time Service Model (RTSM)

The RTSM is BSM's embedded, customized CMDB. It acts as the central repository for configuration information that is collected and updated from the various BSM data collection processes: BSM data collectors, the Discovery process, and third-party data collectors and tools. The RTSM defines the relationships among infrastructure components, IT services, applications, and corresponding business services.

The RTSM stores and handles information on the services, their components, and configuration items (CIs), as well as details about the CI attributes, history, and relationships. The RTSM also contains the object repositories used to define CIs and KPIs, which are used throughout BSM.

The RTSM supports federation with the HP CMS solution (an external configuration management system working with an HP Universal CMDB), and with third-party CMDB solutions. Consequently, it can easily be leveraged in use cases outside BSM.

For more details, see "RTSM Overview" in the RTSM Administration Guide.

Service Health

BSM includes two applications for managing the service health of your business processes: Service Health and CI Status.

The Service Health application dashboards provide a central location to view and analyze performance data collected by BSM data collectors and stored in the BSM database. The collected and aggregated data is used by the Health Indicators (HIs) and Key Performance Indicators (KPIs) to provide quantifiable measurements that help you monitor how well your business is achieving objectives.

The KPIs and HIs provide real-time assessment of the present state of your business and processes, enable you to track critical performance variables over time, and help you assess the business impact of problems in the system.

At the top level, Service Health provides an integrated view of critical applications and business processes; from there, you can drill down to the underlying IT infrastructure associated with these critical business processes. This drilldown view can be laid out in any number of ways, such as by data centers, by technology clusters, by geographical locations, and so on.

For more details, see Service Health Overview in the BSM User Guide.

The CI Status application enables you to analyze the performance data using reports, which display information on KPI statuses over time, and CI status alerts. For details, see CI Status Reports in the BSM User Guide.

The Service Health Administration tool services both of these applications, enabling you to customize how BSM calculates KPIs and HIs.

Service Health Analyzer (SHA)

Service Health Analyzer (SHA) enables you to be more proactive in managing your data center's physical and logical infrastructure, helping you to prevent or reduce downtime. It uses a self-learning algorithm to analyze historical and current data, and if certain criteria are met, reports on the current state of abnormal IT services and their topology location. Abnormal behavior is determined by comparing CI metrics against dynamic baseline thresholds.

SHA uses a run-time analytics engine that can anticipate IT problems before they occur, by analyzing abnormal service behavior and alerting IT managers of real service degradation before an issue impacts their business.

SHA enables you to investigate an anomaly using information from the RTSM, displaying affected IT components in their associated topologies. This assists in the remediation of SHA events. It also enables you to compare and correlate metrics in an anomaly using several algorithm types, to investigate whether abnormal metric behavior is connected.

For more details, see Service Health Analyzer Overview in the BSM User Guide.

Service Health Optimizer (SHO)

HP Service Health Optimizer software enables business-service-driven capacity management for dynamic virtualized and physical IT infrastructures. SHO provides out-of-the-box integrations with the RTSM and SHR, utilizing BSM-collected metrics and topology information, and utilizing the data from the SHR Performance Management Database, to provide capacity management, resource optimization, and workload placement from a business service perspective.

Using SHO, you can visualize heterogeneous virtual and physical server environments, optimize use of virtual resources, and forecast the impact of future growth or projected changes in the virtual IT infrastructure.

For more details, see the [HP Service Health Optimizer](http://www8.hp.com/us/en/software/software-product.html?compURI=tcm:245-937079&pageTitle=service-health-optimizer) page on the HP Software Site (<http://www8.hp.com/us/en/software/software-product.html?compURI=tcm:245-937079&pageTitle=service-health-optimizer>) or contact your HP sales representative.

Service Health Reporter (SHR)

HP Service Health Reporter software enables business-service-driven, cross-domain reporting in dynamic IT environments. SHR provides out-of-the-box integration with the RTSM, gathering and consolidating BSM-collected resource and response-time metrics, topology information, and business service context information. The composite data is saved in the SHR Performance Management Database (PMDB).

SHR provides comprehensive reports for a variety of heterogeneous IT infrastructure components, applications, and virtualization technologies, giving a unique understanding and perspective on the behavior of dynamic virtualized IT infrastructure and the way it impacts end users. In addition, SHR provides cross-domain linkages from these IT infrastructure reports to the business service that they support.

For more details, see the [HP Service Health Reporter](http://www8.hp.com/us/en/software/software-product.html?compURI=tcm:245-937080&pageTitle=service-health-reporter) page on the HP Software Site (<http://www8.hp.com/us/en/software/software-product.html?compURI=tcm:245-937080&pageTitle=service-health-reporter>) or contact your HP sales representative.

Service Level Management (SLM)

The SLM application provides a service level management capability within BSM:

SLM determines compliance with your Service Level Agreements (SLAs) by measuring your business applications. You can define business service entities (Business Service and Infrastructure Service CIs) that represent the service offerings in your service catalog, and map measurements for service-related processes and network components to each service CI. The service CIs are added to your SLAs. You can also add CIs representing service-related processes and components, directly to your SLAs.

The data produced by the service-related measurements helps you determine whether the availability and performance requirements of users and infrastructure are being met. SLM calculates key performance indicator (KPI) and health indicator (HI) values from the received availability and performance data, and compares them with required service level objectives. The

results are displayed in a dashboard and in reports which show you how well actual service levels compare with your goals.

For more details, see Service Level Management Overview in the BSM User Guide.

Shared Services – HP Software-as-a-Service (HP SaaS)

HP SaaS for BSM provides a managed-service solution for your enterprise applications and end-user monitoring processes. By leveraging a pre-deployed BSM infrastructure, maintained by application experts, HP SaaS provides the requisite infrastructure, resources, and expertise you need to monitor your environment, with high a level of security (ISO 27001 standards). You can use this hosted solution to manage the business impact of application issues, through a tight integration with back-end monitoring.

SaaS also helps accelerate BSM adoption through guided expertise, best practices, and ongoing mentoring, and helps you set up integrations between BSM and other products.

The SaaS solution enables you to reduce investment in infrastructure and staff training, and helps you maximize the full value of the BSM platform, with 24/7 support for your applications. The solution is delivered through the Internet, and uses system tickets to communicate with customers about problems or scheduled maintenance.

For more details on implementing HP SaaS for BSM, see the [HP Software as a Service](https://h10078.www1.hp.com/cda/hpms/display/main/hpms_content.jsp?zn=bto&cp=1-23%5E24428_4000_100__&jumpid=reg_R1002) page on the HP Software Site (https://h10078.www1.hp.com/cda/hpms/display/main/hpms_content.jsp?zn=bto&cp=1-23%5E24428_4000_100__&jumpid=reg_R1002) or contact your HP sales representative.

SiteScope

SiteScope is a BSM data collector providing a Web-based, agentless monitoring solution. SiteScope monitors the availability and performance of distributed IT infrastructures—for example, servers, operating systems, network devices, services, and applications.

SiteScope has the following features:

- Provides individually configurable monitors for reporting key performance data on a wide range of components in the network environment.
- Provides alerting and reporting capabilities, along with a dashboard for a real-time picture of the monitored environments. It can also be used to create baselines and schedule specific thresholds based on a time period or date.
- Can generate events based on triggered alerts and metric status changes which can be managed with BSM, NNMi, or Operations Manager.
- Provides integrated monitored topology and metrics for BSM, and provides RTSM based-views for the monitored systems and services.
- Enables checking or enforcing your monitoring policies using SiteScope templates.

- Enables managing multiple SiteScope instances through SAM Administration in BSM, and easy distribution of monitoring between different SiteScope servers.

For more details, see "Introduction to SiteScope" in the HP SiteScope Deployment Guide, part of the SiteScope Documentation Library.

Storage Essentials

HP Storage Essentials is an industry-leading storage resource management solution that provides comprehensive application to storage views of heterogeneous infrastructure in physical, cloud and virtual environments. HP Storage Essentials is a single tool that provides storage optimization and capacity planning, which allows your enterprise to gain control of all its storage assets and deliver full path awareness of the environments connecting its applications to storage.

For more details, see <http://www8.hp.com/us/en/software-solutions/software.html?compURI=1173741>.

System Availability Management (SAM)

SAM Administration is a centralized solution for accessing SiteScopes from within BSM. It enables you to register, configure and maintain your SiteScope servers. You can configure and manage multiple SiteScopes from within SAM Administration.

You can configure SiteScope monitors, alerts, and reports and make any other configuration changes for the SiteScope. All the configuration changes that are done from SAM Administration are reflected in the SiteScope itself.

The SAM application utilizes data collected by SiteScope and enables you to:

- Monitor system availability across the entire enterprise infrastructure from a centralized, real-time perspective.
- Apply a business perspective to system management view data at the application level rather than viewing numerous low-level system metrics.
- View information about events collected from external applications or software and SiteScope events.

For more details, see System Availability Management Overview in the BSM User Guide.

System Health

The System Health component uses SiteScope monitors to enable monitoring of the servers, databases, and data collectors that make up your BSM system.

You use System Health to:

- Measure system performance and monitor areas of the databases that influence performance.
- Display problematic areas for the servers, databases, and data collectors.
- Perform operations on your environment, such as moving and configuring backup services, and starting and stopping BSM processes.
- View log files and other status information on specific components in a variety of formats.

For more details, see the System Health Guide.

TransactionVision

TransactionVision is a BSM data collector that delivers a transaction tracing solution to the Transaction Management application. TransactionVision non-intrusively records individual events related to transactions flowing through a system. Then, TransactionVision's patented "Transaction Constructor" algorithm assembles those events into coherent business transactions.

TransactionVision collected data is mapped to configuration items (CIs) and displayed in Service Health's views.

For more details, see Transaction Management Overview in the BSM Application Administration Guide.

Transaction Management

A business transaction is a real-world transaction executed by a business application, such as ordering a book online or withdrawing money at an ATM. In BSM, a business transaction is mapped to a Business Transaction CI.

The Transaction Management application adds business context and impact to business transactions, by providing the following:

- **Transaction monitoring.** Provides aggregate statistics about all transaction instances in the application environment. It relies on data collected by any of TransactionVision, RUM, and HP Diagnostics. When HP Diagnostics is used, it can provide insight into all tiers of the application environment.
- **Transaction tracing.** Provides statistics for each individual business transaction instance across all tiers of the application environment. It relies on data collected by the TransactionVision data collector. Payload information is also captured. The reports and topologies of Transaction Management show the interaction of a business transaction among all the components of your system in tables and graphs.

When a Transaction Management report has more than one data source, it presents a combined view of the data from all of the sources. Transaction Management reports and topologies provide the following transaction information:

- The state of the transaction. For example, a stock buy transaction would fail if the account balance was less than \$10,000, which is required to do the purchase, or a margin buy would fail if the account ratio is below a minimum balance threshold.
- A business value associated with the transaction.
- Whether the transaction has exceeded its threshold.

For more details, see Transaction Management Overview in the BSM User Guide.

User Reports

The User Reports application provides two main areas of functionality:

- **Report Manager.** This is a central location where you can manage selected reports from throughout BSM. In Report Manager, you can create customized reports, such as Custom Reports, Trend Reports, and Service Reports, containing user-defined data and formatting. These reports can help you focus on specific aspects of your organization's application and infrastructure performance.

In Report Manager, you can also define schedules for the automatic generation of reports, to be sent to specified recipients at set times. These can be customized reports defined in the User Reports application, or reports from other BSM applications saved as favorites.

For more details, see Using Report Manager to Manage Reports in the BSM User Guide.

- **Custom Query Builder.** This is a Web interface that assists in creating queries to the profile database. The queries are used to run reports, or can be used together with third-party tools or proprietary tools to extract data from the profile database.

For more details, see Building a Custom Query Using Custom Query Builder in the BSM User Guide.

Virtual Performance Viewer

HP Virtualization Performance Viewer (vPV) is a real-time diagnostics tool for managing both virtualized and cloud IT components. It can help you quickly troubleshoot performance issues and bottlenecks. HP vPV can be rapidly deployed and easily used in a wide range of organizations. It is a heterogeneous, enterprise-class tool that complements existing operations management and cloud solutions. This powerful, yet easy to use product is highly scalable. It delivers fast time to value and works efficiently with other HP Business Service Management (BSM), cloud, and performance management solutions. For more details, see <http://www8.hp.com/us/en/software-solutions/vpv-server-virtualization/index.html>.

Chapter 4: Modeling Components

BSM includes the following modeling components:

- ["Configuration Items \(CIs\)" below](#)
- ["Content Packs" on the next page](#)
- ["IT Universe Model" on the next page](#)
- ["TQL Queries" on page 34](#)

Configuration Items (CIs)

A configuration item (CI) is a component stored in the RTSM that represents a physical, virtual, or logical entity in your IT environment. For example, CIs can represent lines of business, applications, provided services, network hardware, users, and so on. A CI can also be a logical container for a hierarchy of CIs.

Information about each CI is recorded in a configuration record within the RTSM, which is maintained throughout the CI's lifecycle. The RTSM also contains the Configuration Item Type (CIT) model, a repository for the CIT and relationship templates used to create the CIs, CI relationships, and associated attributes.

For more details, see "Configuration Items (CI)" in the RTSM Administration Guide.

The link between two CIs is defined by the relationship between them. Relationships represent the dependencies and connections between the entities in your IT environment. For details, see "CI Type Relationships" in the Modeling Guide.

The CIs and the relationships stored in the RTSM typically include:

- **Business assets, business services, processes, and activities.** These include services that a business provides to another business (or one organization provides to another within a business) and that an IT organization provides to support business services or IT operations. A business service typically has an associated end user or customer, a business application, and an SLA. Examples include payment processing, backup and recovery, and self-service help desk.
- **Application, services, and their core components.** These support a business activity, which is seen as a whole and is known by a specific name. This group also includes infrastructure services that support business services and processes. Examples include voice and network, database, backup and restore, desktop, and Windows administration services.
- **Software.** This includes individual installations of software elements. These are executables that are deployed on a logical system.
- **Infrastructure.** This includes logical systems such as virtualization and clustering, and physical

systems such as storage devices, network devices, and servers.

- **Facilities.** This includes locations, sites, buildings, rooms, racks, and so on.

Content Packs

Content packs contain information that BSM uses to describe and enrich the CIs that represent what you are monitoring in your IT environment. A content pack can contain all, or part of, what you need to monitor and manage a specific domain. Content for a specific management area is typically contained in dedicated content packs consisting of, for example, CI types, mapping rules, correlation rules, ETIs and HIs, graph family definitions, and tool definitions.

You can also use content packs to exchange customized data between instances of BSM, for example in test and production environments.

Use the Content Packs Manager to create content packs, save them, install or update them, take content from one installed instance of BSM and upload it to another using the export and import features, and manage dependencies between content packs.

BSM provides out-of-the-box content packs definitions for Smart Plug-ins (SPIs) that you can either use in the default configuration or, if necessary, modify to suit the demands of your environment.

For more details on content packs, see Content Packs in the BSM Platform Administration Guide.

For more details on content packs for Operations Management, see Content Packs in the BSM Application Administration Guide.

IT Universe Model

The RTSM houses a map of all the technology components associated with any service your business runs or utilizes. The components are represented by configuration items (CIs), mapped to each other by their inter-dependencies (called relationships), and together they form a service model of the IT universe in which your business functions. This model is referred to in BSM as the IT Universe model.

Having a defined IT Universe model of your organization enables you to see what applications are being monitored, and to determine which other CIs are impacted by problems—for example, whether a service suffered outages due to a problem with its database server.

The IT Universe model can be very large, containing millions of CIs. To facilitate their management, and focus on specific IT areas, you work with the CIs in "views." Views are a subset of the overall components in the IT Universe, and contain topologies of CIs that meet the requirements for a logical grouping, defined in the templates (based on TQL Queries, below) for the views.

In the BSM applications you select a specific view to focus on, enabling you to monitor the status of the KPIs and events attached to the CIs. This enables you to manage the specific area of your business that is represented by the CIs and relationships in the view.

BSM supplies out-of-the-box views for the IT Universe, or you can define your own views, to display specific information relevant for your organization's business needs. For more details, see "Modeling Studio Overview" in the Modeling Guide.

TQL Queries

Topology Query Language is a language and tool that extends the standard SQL language, discovering, organizing, and managing the IT infrastructure data, and enabling you to draw conceptual relationships between CIs to represent their actual interdependencies.

The TQL queries stored in the RTSM help structure the way that CIs are organized and managed in the RTSM, creating the IT Universe model. The TQL also constantly checks for changes that impact the IT Universe model structure.

A TQL query builds a business service model that acts as a template for view content. You can create your own TQL queries to retrieve the specific business service data that you need from the RTSM, and to display the data in views.

For information on TQL queries, see "Topology Query Language (TQL) Overview" in the Modeling Guide.

Chapter 5: Measurement Components

BSM includes the following measurement components:

- ["Health Indicators \(HIs\)" below](#)
- ["Key Performance Indicators \(KPIs\)" on the next page](#)
- ["Measurement Management" on the next page](#)

Health Indicators (HIs)

Data collectors such as Operations Manager, RUM, SiteScope, and so forth, send event or metric samples to the BSM servers, containing information about your monitored applications and business services. Each sample is mapped in BSM to its relevant health indicator (HI), and the event or metric in the sample is used to set the HI's status.

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 specific aspects of performance and availability such as CPU load or disk space.

There are two types of data sources that can contribute to an HI's status and value: events and metrics. Some data collectors send event samples to BSM (for example, CPU load has exceeded a threshold), while other send samples containing metrics (for example, response time = 6 milliseconds). A sample is translated to HI status as follows:

- **Event-based HIs.** An event sample contains an event type indicator (ETI), which is a categorization of events according to the type of occurrence (for example, CPU load passing a threshold).

In the above example, when the CPU load threshold is breached on a server, an event sample is sent to BSM. Based on the text string in the event sample, it is assigned an ETI of CPU Load. This ETI is mapped to the CPU Load HI, and the status of this HI is updated accordingly.

- **Metric-based HIs.** Metric-based HIs apply calculation rules to the samples generated by the data collectors, to create a calculated HI value. For example, if a data collector collects several response time samples over a 15 minute period, Service Health calculates the average response time and sets the HI's status (for example: Minor) and value (for example: 11 ms).

You can also configure HIs within the indicator repository so that when the status of a specific metric-based HI changes, an event is generated in BSM. This event then appears in the Event Browser, showing you that the HI's status has changed.

After an HI's status is set, the key performance indicator (KPI) that is associated with the HI is calculated based on the KPI's definitions.

For details, see Health Indicators and KPIs and Event Type Indicators in the BSM User Guide.

Key Performance Indicators (KPIs)

In the Service Health application, you can monitor status for your CIs using key performance indicators (KPIs). KPIs are high-level indicators of a CI's performance and availability. Each KPI represents an aspect of domain health such as System Performance, System Availability, Application Performance, Application Availability, and so on.

KPIs are calculated using statuses of health indicators (HIs), KPIs, or a combination of both. For example, you can specify a business rule that sets the severity of a KPI on a CI to the worst status of all the HIs assigned to that CI.

The resulting measurement for the KPI is translated into a color-coded status indicator displayed in Service Health, where the color represents a more desirable or less desirable condition for the KPI. A KPI's severity can be normal, warning, minor, major, or critical.

KPIs and HIs are also used to calculate SLA performance within Service Level Management.

You can define a KPI to only use specific HIs that are of interest to you. For example, the BPI Backlog KPI has two HIs: Backlog Value and Backlog Count. If you are interested only in the financial aspects, you can set the KPI to only include the Backlog Value HI in its calculation.

For details, see Health Indicators and KPIs in the BSM User Guide.

Measurement Management

- **KPI and HI assignments.** When a new CI is added to your monitored system, the assignment mechanism automatically assigns the appropriate KPIs and HIs to the CI. For details about modifying KPI and HI assignments, see Customizing KPI and HI Assignments in the BSM Application Administration Guide.
- **Configuring indicator and rule templates.** You can view and modify the templates used to define KPIs, HIs, ETIs, and business rules, using the indicator repositories available from Service Health, SLM, and Operations Management.

The business rules associated with HIs and KPIs define how the HIs and KPIs are calculated. Some business rules are based on sample data, and are used to calculate HIs. Other rules calculate KPIs based on the status or value of HIs and of other KPIs.

For details, see Repositories Overview in the BSM Application Administration Guide.

Chapter 6: BSM End-to-End Workflow

This workflow provides an overview of the major tasks required to set up Business Service Management (BSM). It is designed as a step-by-step guide for installing and configuring all the BSM components. For more information on BSM platform capabilities, see ["Overview of the BSM Solution" on page 15](#).

This chapter includes:

- ["Step 1. Plan the BSM Deployment" below](#)
- ["Step 2. Deploy Databases and Servers" on the next page](#)
- ["Step 3. Set Up Data Sources" on page 39](#)
- ["Step 4. Integrate with Other Products" on page 43](#)
- ["Step 5. Create and Enrich Data Model" on page 45](#)
- ["Step 6. Configure BSM Applications" on page 48](#)
- ["Step 7. Monitor Business Status" on page 55](#)

Step 1. Plan the BSM Deployment

Tip: The following is a high-level workflow. For detailed instructions on planning your BSM deployment, see ["Part 2: Preparing to Install BSM" on page 78](#).

Before you install BSM, you should plan your BSM deployment and order the relevant hardware and licenses.

- Plan your deployment by determining your individual requirements, including addressing the following topics:
 - Calculate hardware requirements
 - Choose server deployment
 - Determine number of machines
 - Choose operating system
 - Determine database setup and disk space requirements
 - Determine disaster recovery options
 - Determine network requirements
 - Choose web server

Note: If you are upgrading from a previous version, refer to the HP Business Service Management Upgrade Guide for detailed workflows.

Step 2. Deploy Databases and Servers

BSM Deployment

Deploy the BSM databases and servers as specified in the BSM Installation Guide. This includes the following main steps:

1. **Prepare hardware.** All BSM servers and database servers must meet the system requirements for installation.
2. **Install BSM on the servers.** Install BSM using the installation, post-installation, and configuration wizards.
3. **Run the Setup and Database Configuration Utility.** This configures your BSM database servers.
4. **Enable servers and log on.** Enable the servers to allow user access and log on for the first time.
5. **Perform post-installation tasks.** A number of additional settings are required after installation, such as reserving specific ports and disabling your firewall on certain directories.
6. **Register additional licenses.** The main license is registered during the installation wizard, however certain component licenses (for example, Operations Management, HP Diagnostics) require you to manually register additional licenses using the License Manager.

System Health Deployment

The System Health component monitors the servers, databases, and data collectors that make up your BSM system. If you are going to use System Health, deploy System Health on a standalone machine with access to BSM, so that System Health continues to run if BSM servers are down.

For details, see "How to Deploy System Health" in the System Health Guide.

Note that System Health can also be deployed on any BSM Gateway server; this should be done only if a standalone machine is not available.

To learn more about System Health, see "[System Health](#)" on page 29.

Business Process Insight Deployment

If you plan to work with Business Process Insight (BPI), you install the server used by BPI on a server machine. BPI provides you with visibility into the health and performance of the business processes that are running over your IT infrastructure.

For details, see "Summary of BPI Installation Steps" in the Business Process Insight Server Administration Guide.

To learn more about BPI, see ["Business Process Insight \(BPI\)" on page 20](#).

Step 3. Set Up Data Sources

Install the following HP components (if they are not already installed) and configure them to monitor your business and communicate with BSM.

This section includes:

- ["Business Process Monitor" below](#)
- ["Real User Monitor" on the next page](#)
- ["SiteScope" on the next page](#)
- ["Service Health Analyzer" on page 41](#)
- ["TransactionVision" on page 41](#)
- ["Diagnostics" on page 41](#)
- ["Operations Manager" on page 42](#)
- ["Network Node Manager i" on page 42](#)
- ["BSM Connector" on page 42](#)
- ["Data Flow Probe" on page 43](#)

Business Process Monitor

Business Process Monitor (BPM) emulates end users by running the transactions included in a business transaction flow or application from various locations.

These transactions are contained within HP Virtual User Generator scripts, which are later stored in the BSM database for consumption and usage by the BPM monitors. If you own HP Software load testing tools like HP LoadRunner or HP Performance Center, you can consider reusing some of the scripts made for these tools for initial use in your BPM monitors.

To learn more about BPM, see ["Business Process Monitor \(BPM\)" on page 21](#).

1. **Record scripts.** Record scripts using either HP Virtual User Generator or HP QuickTest Professional. For details, see the HP Virtual User Generator User's Guide or the HP QuickTest Professional User Guide.
2. **Install BPM instances.** Install required number of BPM instances on host machines. For details, see the Business Process Monitor Deployment Guide.

3. **Install a script recording tool.** Install either HP Virtual User Generator or HP QuickTest Professional. For details, see "Supported Recording Tools" in the Business Process Monitor Administrator's Guide.
4. **Configure BPM data collection.** Define BPM entities (applications, business transaction flows, and transactions) to monitor the business processes in your IT environment. For details, see "How to Set up Business Process Monitors" in the BSM Application Administration Guide.

Real User Monitor

Real User Monitor (RUM) monitors both user- and system- initiated network traffic between client machines and servers, and between servers. RUM passively collects network and server performance and availability data in real time.

To learn more about RUM, see ["Real User Monitor \(RUM\)" on page 25](#).

1. **Install RUM engines.** Install RUM engines on host machines. For details, see "Installing the HP Real User Monitor Engine" in the the Real User Monitor Administration Guide.
2. **Install RUM probes.** Install RUM probes on host machines to listen to network traffic. For details, see "Installing the HP Real User Monitor Probe" in the the Real User Monitor Administration Guide.
3. **Configure RUM data collection.** Define the applications and associated entities (business transaction flows, transactions, actions, events, and so forth) that you want Real User Monitor to monitor. For details, see "How to Discover and Define Real User Monitor Applications" in the BSM Application Administration Guide.

SiteScope

SiteScope monitors collect key performance measurements and report topology on a wide range of back- and front-end infrastructure components.

To learn more about SiteScope, see ["SiteScope" on page 28](#).

1. **Install SiteScope.** Install SiteScope on one or more server machines. For details, see the "Installing SiteScope" part of the HP SiteScope Deployment Guide.
2. **Connect SiteScope to BSM.** Set up communication between SiteScope and BSM. For details, see "Connect SiteScope to a BSM Server" in the Using SiteScope Guide.
3. **Configure SiteScope data collection.** Create SiteScope groups and subgroups to organize the monitors to be deployed, and then create monitors in these groups.
 - For details on configuring SiteScope to report metrics to BSM, see "HP Integration Settings" in the Using SiteScope Guide.
 - For details on configuring SiteScope to send events to BSM, see How to Configure SiteScope to Communicate with BSM in the BSM Application Administration Guide.

Service Health Analyzer

Service Health Analyzer (SHA) provides predictive events, so that issues can be identified and processed before the full impact is felt by the business.

To learn more about SHA, see ["Service Health Analyzer \(SHA\)" on page 26](#).

If you plan to work with SHA, you may need to install the following data collectors:

- SHA Data Collector for Network Node Manager i
- SHA Data Collector for Performance Agent

For details, see the Service Health Analyzer Data Collector Installation Guide.

TransactionVision

TransactionVision delivers a transaction tracing solution to the Transaction Management application.

To learn more about TransactionVision, see ["TransactionVision" on page 30](#).

1. **Plan your installation and install TransactionVision Processing Servers and Agents:** Install TransactionVision-specific components in the BSM deployment environment. For details, see the TransactionVision Deployment Guide.
2. **Configure TransactionVision data collection:** Deploy and configure the TransactionVision Analyzers, Job Managers and Query Managers. Define communication links, data collection filters, and business transaction rules. For details, see How to Administer TransactionVision in the BSM Application Administration Guide.

Diagnostics

HP Diagnostics monitors performance and availability of your enterprise applications and BPM transactions, providing visibility across your enterprise's application infrastructure.

To learn more about HP Diagnostics, see ["Diagnostics" on page 21](#).

1. Install HP Diagnostics. Install the HP Diagnostics servers, Java and .NET agents, and remote monitoring collectors. For details, see the Diagnostics Server Installation and Administration Guide (supplied with the HP Diagnostics software).
2. Configure HP Diagnostics data collection. For Java agents, instrument the application servers; for .NET agents, instrument the application domains for monitoring; for collectors, define the specific instances on the remote systems to be monitored. You then configure the agent and collector data collection settings for your environment. For details, see the Diagnostics Server Installation and Administration Guide.
3. Connect HP Diagnostics with BSM. Register and set up communication between HP

Diagnostics and BSM. For details, see the BSM - Diagnostics Integration Guide in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

Operations Manager

Operations Manager (HPOM) monitors physical and virtual infrastructure, and consolidates detected fault and system performance events.

To learn more about Operations Manager, see "[Operations Manager](#)" on page 23.

1. **Install Operations Manager and configure data collection.** For details, see the Operations Manager documentation (supplied with the Operations Manager software).
2. **Connect Operations Manager with BSM.** Set up communication of events and topology between Operations Manager and BSM. For details, see the BSM - Operations Manager Integration Guide in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

Network Node Manager i

Network Node Manager i (NNMi) monitors fault, availability, performance, and advanced network services for your physical and virtualized network infrastructure.

To learn more about NNMi, see "[Network Node Manager i \(NNMi\)](#)" on page 23.

1. Install NNMi and configure data collection. For details, see the NNMi documentation (supplied with the NNMi software).
2. Connect NNMi with BSM. Set up communication of network performance-related events and topology between NNMi and BSM. For details, see the BSM - NNMi Integration Guide in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

BSM Connector

BSM Connector integrates events, metrics, and topology data from third-party systems into BSM.

To learn more, see "[BSM Connector](#)" on page 20.

1. **Install BSM Connector.** Install BSM Connector locally on the third-party system that provides the integration data. Alternatively, install BSM Connector on any system that meets the installation requirements if you want to access remote data sources such as databases or log files, or receive SNMP traps or Web service messages. For details, see How to Create a Connection to a BSM Connector Server in the BSM Application Administration Guide.
2. **Configure BSM Connector data collection.** Within BSM Connector, create and activate policies that collect the integration data from the third-party domain manager or application.

Alternatively, you can set up and activate policies from within BSM using the BSM Connector Integrations user interface. For details, see BSM Connector Integration Administration in the BSM Application Administration Guide.

Data Flow Probe

The Data Flow Probe is required to run the Discovery process, which discovers the IT resources and components on your network, and saves them as CIs and relationships in the Run-time Service Model (RTSM). The Probe is also required for topology synchronization between the RTSM and other data sources, such as a CMS.

To learn more, see ["Discovery and Dependency Mapping \(DDMA\)" on page 22](#).

1. **Install the Data Flow Probe.** Install the Data Flow Probe on a server machine. For details, see "Installing the Data Flow Probe on Windows" or "Installing the Data Flow Probe on Linux" in the Data Flow Probe Installation Guide.
2. **Configure Discovery data collection.** Launch the Data Flow Probe and activate Discovery jobs. For details, see "Get Started with the Data Flow Probe" in the Data Flow Management Guide.

Step 4. Integrate with Other Products

BSM integrates with additional HP and third-party products. It uses these products and applications as data sources and brings in their topologies, metrics, and events.

This section lists some of the more common integrations. For more information about supported integrations, see Integrating with Other Applications - Overview in the BSM Application Administration Guide.

You can find detailed information about supported BSM integrations in the [HP Software Integrations site](http://support.openview.hp.com/sc/solutions/index.jsp#tab=tab3) (<http://support.openview.hp.com/sc/solutions/index.jsp#tab=tab3>).

Instructions on setting up specific integrations can be found in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

This section includes:

- ["HP CLIP" below](#)
- ["CMS" on the next page](#)
- ["HP Service Manager" on the next page](#)
- ["HP Operations Orchestration" on page 45](#)

HP CLIP

Closed Loop Incident Process (CLIP) is an integrated solution that brings together HP offerings for BSM, HP Service Manager, HP Universal CMDB, and HP Operations Orchestration. It helps customers achieve their major goals of: IT efficiency, increased automation levels and "focus on

the business". The CLIP solution helps IT organizations achieve these goals by implementing the Event and Incident Management ITIL processes and by focusing on the inter-connection between them. CLIP addresses the business needs to reduce the MTTR, and increase the MTBF parameters allowing higher levels of Service Availability.

For details on implementing the CLIP solution, access the latest version of the CLIP documentation under the CLIP page that can be found in the [Solutions Portal](#) (<http://support.openview.hp.com/sc/solutions/index.jsp#tab=tab1>). To enter the site, you must log on with your HP Passport ID.

CMS

You can integrate the BSM Run-time Service Model (RTSM) with a standalone HP Configuration Management System (CMS). The integration synchronizes CIs and relations between the central HP Universal CMDB and the RTSM in BSM, while retaining the original UCMDB global IDs.

For details, see "Perform Initial Synchronization" in the Data Flow Management Guide, and the HP RTSM Best Practices Guide.

To learn more about RTSM, see "[Run-time Service Model \(RTSM\)](#)" on page 25.

HP Service Manager

HP Service Manager enables a lifecycle approach to IT service management, providing incident management, problem management, change, configuration and release management (CCRM), and knowledge management services.

The bi-directional integration of BSM with Service Manager can impact the following components of BSM (the actual functionality depends on how you configure the integration):

- **RTSM.** The relevant topology for Service Manager incidents is added to the RTSM.
- **Operations Management (OMi).** The integration enables the following functionality:
 - Automatically or manually forward Operations Management events to the Service Manager system, and create a corresponding incident.
 - Synchronize Operations Management event changes to the corresponding Service Manager incident.
 - Synchronize back Service Manager incident changes to the corresponding Operations Management event, for example, closure of a Service Manager incident automatically closes the corresponding Operations Management event.
 - Enable Operations Management operators to cross-launch the Service Manager Web UI from the context of an Operations Management event, displaying the corresponding Service Manager incident.
 - Enable Service Manager operators to cross-launch the Operations Management Web UI from

the context of a Service Manager incident, displaying the corresponding Operations Management event.

- **Service Health.** The integration enables the following functionality:
 - View incident metrics in Service Health, such as number of open tickets, based on Service Manager incident data collected by SiteScope EMS monitors.
 - View information on planned changes and incident details received from Service Manager, in the 360° View page in Service Health. This is done by federating the incidents and planned changes data from Service Manager.
 - Drill down from Service Health CIs to the relevant incident in the HP Service Manager software.
 - Drill down from the HP Service Manager software to the Service Health Business Impact report.
- **Service Level Management.** In the Service Level Management application, you can create SLAs based on Service Manager incidents, and view incident data metrics, such as mean time to repair and mean time between failures.
- **Alerts.** Alerts triggered in BSM can automatically open incidents in HP Service Manager.

For more details on the integration of BSM with HP Service Manager, see the BSM - Service Manager Integration Guide in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

HP Operations Orchestration

The integration of BSM with HP Operations Orchestration (OO) utilizes the OO capabilities for building investigation tools or service remediation scripts. These capabilities enable an operator to validate a problem, investigate it, or automatically correct it.

BSM provides a number of predefined mappings between CIs and OO run books. This mapping and the integration procedure enable you to automatically or manually launch OO run books from the Service Health, Operations Management, and Service Health Analyzer applications.

For details about the integration with HP Operations Orchestration, see the BSM - Operations Orchestration Integration Guide in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

Step 5. Create and Enrich Data Model

After setting up your data collection environment, the data sent to BSM populates an extensive set of application infrastructure, Web service, and business transaction CIs in the RTSM, and provides information on relationships between the CIs. Using common data models, BSM automatically creates a data model (the IT Universe Model) representing the overall monitored IT environment.

You can customize the data model implementation according to your business needs, as described in the following topics.

This section includes:

- ["Create Business Model" below](#)
- ["Customize Views and Performance Indicators" below](#)
- ["Manage Downtime" on the facing page](#)
- ["Define Custom Locations" on the facing page](#)
- ["Customize Content Packs" on the facing page](#)
- ["Extend the Data Model" on page 48](#)

Create Business Model

You can manually define logical business CIs to represent your business entities, such as Business Service or Line of Business.

- You map the business CIs to a topology of CIs that represent the underlying processes and infrastructure supporting the business entity. The business CIs are added to your business views, so that the views display information organized according to your organization's business needs. You can manually create CIs and relationships that represent logical and physical elements of the business using IT Universe Manager in RTSM Administration. For details, see "Working with CIs" in the Modeling Guide.
- You define service CIs (Business Service and Infrastructure Service) that represent the services provided by, or consumed by, your organization, such as project management services, or directory services. These CIs are used as the basis of your model, and also to build service level agreements, and can be defined from the Service Level Management application (in addition to defining them within the RTSM Administration application). For details, see How to Define a Service for an SLA – Use-Case Scenario in the BSM Application Administration Guide.

Tip: If you have a CMS system with a central UCMDB, it is recommended that you create and model the Business Service CIs in the CMS, and then synchronize them into BSM.

Customize Views and Performance Indicators

BSM provides out-of-the-box business views containing CIs, and performance indicators (KPIs and HIs) to monitor and manage the status of your IT infrastructure and business processes. You can define customized views and performance indicators to provide the specific monitoring information required by your organization's BSM users.

- **Define views:** There are two types of views: global views in RTSM and local impact views.
 - For details on creating global views in RTSM, see "Modeling Studio Overview" in the Modeling Guide.
 - For details on creating local impact views, see Creating Global Views and Local Impact Views (LIVs) with View Builder in the BSM Application Administration Guide.

When creating any type of view, you can use the impact perspective to see the application and its underlying transactions and infrastructure.

- **Define KPIs and HIs:** For details, see Configuring KPIs and HIs - Overview in the BSM Application Administration Guide. For an overview of working with KPIs and HIs, see How to Customize Calculations in Service Health in the BSM Application Administration Guide.

Manage Downtime

Downtime in your IT environment, or scheduled maintenance and other events, can skew CI data. You can exclude these periods of time from the indicator performance calculations for your applications and infrastructure.

You configure downtime for CIs in Downtime Management in Platform Administration. For details, see How to Create and Manage Downtimes in the BSM Platform Administration Guide.

Define Custom Locations

Define geographical and logical location CIs to attach to other CIs. These locations can be used to organize and filter CIs by location. Each location can be assigned ranges of IP addresses that have been designated for use by devices in a certain geographical area.

Create the locations to monitor using Location Manager in Platform Administration. For details, see Location Manager in the BSM Platform Administration Guide.

Customize Content Packs

Content packs contain enrichment information for configuration items (CIs) used in BSM.

BSM provides a number of content packs for Smart Plug-ins (SPIs) that help you to use data provided by Operations Manager and start monitoring your environment. You can use content packs in the default configuration or, if necessary, modify to suit the demands of your environment. Content packs placed in the content packs folders are uploaded automatically during installation and subsequent restarts of the BSM Gateway Server. For details on content packs for Operations Management, see Content Packs in the BSM Application Administration Guide.

You may need to import additional content packs for other SPIs communicating with Operations Management. You may also need to import content packs for BSM integrations with external products, or create and customize content packs for BSM according to your organization's requirements. Content packs are managed using the Content Packs Manager. For details, see Defining Content Packs in the BSM Platform Administration Guide.

To learn more about content packs, see ["Content Packs" on page 33](#).

Extend the Data Model

BSM provides you with various ways to extend the data model repositories and components stored in the RTSM, and to customize the out-of-the-box RTSM modeling structures:

- **Enrich the topology.** You can integrate RTSM with other data sources to enrich the topological data in the RTSM. The data source can be another RTSM instance, another HP product such as HP Service Manager (integrated through a CMS), or a third-party product.

For details, see "Integrating Multiple CMDBs" in the Data Flow Management Guide, and the HP RTSM Best Practices Guide.

- **Create TQLs.** You can create TQL queries to retrieve business service data from the RTSM, and to display the data in views.

For details, see "Define a TQL Query" in the Modeling Guide.

- **Define enrichment rules.** You can use the Enrichment Manager to define enrichment rules that add CIs, CI attributes, and relationships to the RTSM. Enrichment query nodes and relationships are created within a TQL query context, and the received data is used to insert new information, that cannot be discovered automatically by the Discovery process, into the RTSM.

For details, see "Define an Enrichment Rule – Scenario" in the Modeling Guide.

- **Create CITs and relationships.** You can use the CI Type Manager to create new CI types, and new relationships between CIs in the RTSM, to match your business needs.

Note: You should carry out a planning phase before you actually create new CITs and relationships, as they are likely to impact the rest of your data model.

For details, see "Create a CI Type" and "Create a Relationship Type" in the Modeling Guide.

- **Manage packages.** Packages are used to discover specific IT assets and CI types. You can use the Package Manager to edit packages, or create custom packages, if the factory packages do not contain the resources you need for the tools you develop or if you want to export resources from one system to another.

For details, see "Create a Custom Package" in the RTSM Administration Guide.

To learn more, see ["Run-time Service Model \(RTSM\)" on page 25](#) and ["Modeling Components" on page 32](#).

Step 6. Configure BSM Applications

Configure how BSM manages and displays the incoming data in the different BSM applications.

This section includes:

- ["Set User Permissions" below](#)
- ["Define Alerts" below](#)
- ["Configure Operations Management \(OMi\)" on the next page](#)
- ["Configure Service Health" on page 51](#)
- ["Define MyBSM Workspaces" on page 51](#)
- ["Define Service Level Agreements" on page 52](#)
- ["Configure End User Management" on page 52](#)
- ["Configure System Availability Management" on page 53](#)
- ["Configure Service Health Analyzer" on page 53](#)
- ["Configure System Health" on page 53](#)
- ["Configure Business Process Insight" on page 54](#)
- ["Configure Transaction Management" on page 54](#)
- ["Define Customized Reports and Report Scheduling" on page 55](#)

Set User Permissions

In User Management in Platform Administration, you can define permissions and recipients:

1. **Define user permissions.** To restrict the scope of user access to defined areas, create users and user groups, and assign permissions for your application's views and pages, according to the type of user. For details, see [How to Configure Users and Permissions — Use-Case Scenario](#) in the BSM Platform Administration Guide.
2. **Create recipients of alerts or reports.** You can create the recipients of emails, pager, or SMS messages triggered by alerts, or scheduled reports, while creating the users. You can also create recipients separately and assign them to users later. For details, see [Recipient Management](#) in the BSM Platform Administration Guide.

Define Alerts

You define triggers for alerts in various BSM components, to proactively inform defined recipients when predefined performance limits are breached:

- **Application alerts.** There are two types of application alerts: CI Status alerts for high level information, and End User Management (EUM) alerts for low level of information. Both types of

alerts can be configured to generate events (which are displayed in Operations Management).

- **CI Status alerts** are triggered by a change in status of the relevant KPI, calculated in Service Health. For details, see *How to Create a CI Status Alert Scheme and Attach it to a CI in the BSM Application Administration Guide*.
- **EUM alerts** can be triggered based on Business Process Monitor and Real User Monitor data, including synthetic transactions and real user transactions, and the events application servers. For details, see *How to Create EUM Alert Schemes in the BSM Application Administration Guide*.
- **Service level agreement (SLA) alerts** are configured in Service Level Management Administration. The SLA alerts are triggered by the relevant change in SLA status. The alerts can be configured to generate events (which are displayed in Operations Management). For details, see *How to Define an SLA Alert Scheme in the BSM Application Administration Guide*.
- **SiteScope alerts** are triggered by an event or change of status in some element or system in your infrastructure. An alert definition contains settings that tell SiteScope what monitors can trigger the alert, what condition to watch for, and what information to send to recipients. For details, see "How to Configure an Alert" in the *Using SiteScope Guide* in the SiteScope Help.

Configure Operations Management (OMi)

You can customize and streamline the way Operations Management (OMi) handles events, and automate event handling. Some of the more commonly used configuration options are as follows:

- **Configure event forwarding to and from Operations Management.** You configure event forwarding by specifying the following as event forwarding targets: Operations Manager servers, external event-processing servers, servers connected using BSM Connector, and other BSM servers. For details, see *Connected Servers* in the *BSM Application Administration Guide*.
- **Configure alerts.** By default, threshold breaches of EUM and SiteScope measurements generate events in Operations Management. In addition, you can set the alerts triggered by various BSM applications to generate events that are consumed in Operations Management. For example, Operations Management can collect, view, correlate, and manage events generated from EUM alerts triggered on EUM components.
- **Configure topology-based event correlation rules.** BSM provides many out-of-the-box correlation rules to enable the correlation of symptoms with cause events. You can also configure additional rules that will accommodate correlating events based on customer-specific business logic. For details, see *How to Configure Topology-based Event Correlation Rules* in the *BSM Application Administration Guide*.
- **Configure event forwarding to users or groups.** Incoming events can automatically be assigned or forwarded to the people responsible for handling the problems. For details, see *How to Create an Event Forwarding Rule* in the *BSM Application Administration Guide*.
- **Configure automatic execution.** You can configure the automatic execution of tools, custom

actions, performance measurements, and Run Books, to help Operations Management end-users manage the events, and to automate and streamline problem solving. For details, see [How to Create Tools](#), [How to Create a Custom Action Script](#), and [How to Create a Run Book Automation Rule](#) in the BSM Application Administration Guide.

- **Configure actions to be executed on events.** Actions are carried out when an event matches a user-defined set of criteria after a specified time. For details, see [How to Create a Time-Based Event Automation Rule](#) in the BSM Application Administration Guide.
- **Synchronize the topology.** To populate RTSM with CI topology and service data from HPOM, you need to perform Topology Synchronization. Synchronization regularly updates all specified servers with the topology and service data from the HPOM management server. For details, see [How to Run Dynamic Topology Synchronization](#) in the BSM Application Administration Guide.

Note: To learn more about Operations Management, see ["Operations Management \(OMi\)" on page 24](#).

Configure Service Health

You can customize the way BSM calculates information in Service Health. This customization can be done on different levels:

- Within the repositories you can modify the templates or building blocks of Service Health calculation.
- Within assignment administration, you can modify the automatic KPI and HI assignments and propagations.
- Within a specific view, you can modify KPI and HI settings on one or more CI instances.

For details, see [How to Customize Calculations in Service Health](#) in the BSM Application Administration Guide.

Note: To learn more about Service Health, see ["Service Health" on page 26](#).

Define MyBSM Workspaces

In MyBSM, you can create role-based workspaces for different types of users, such as operations users, and senior management. Workspaces provide smooth interaction between different BSM applications and reports.

MyBSM contains out-of-the-box pages from different BSM applications; you can also create pages to suit your needs.

For each page, you can:

- Select from a list of components that are of interest to the specific users or user groups. Components include available reports, views, diagrams, graphs, summaries, and other types of data displays.
- Define the layout of components on the page, and their interaction with other components.
- Organize pages and components by categories.

For details on how to set up MyBSM, see [How to Set Up the MyBSM Workspace](#) in the BSM User Guide.

Note: To learn more about MyBSM, see ["MyBSM" on page 22](#).

Define Service Level Agreements

In Service Level Management (SLM) administration, you can define services and service level agreements (SLAs):

Tip: If you have a CMS system with a central UCMDB, it is recommended that you create and model your Business Service CIs in the CMS, and then synchronize them into the RTSM for consumption in the SLM module.

1. **Define your organization's business services.** Define the services provided by, or consumed by, your organization, that represent the service offerings in your service catalog; for example, project management services, application development for departmental applications, Web development services, email services, backup services, and so forth. For details, see [How to Define a Service for an SLA – Use-Case Scenario](#) in the BSM Application Administration Guide.
2. **Create your application-related SLAs.** Create and manage SLAs, OLAs (operational level agreements), and UCs (underpinning contracts) that represent contracts entered into by your organization or department with service providers and customers. For details, see [How to Use SLM to Monitor Your Service Agreements](#) in the BSM Application Administration Guide.

Note: To learn more about Service Level Management, see ["Service Level Management \(SLM\)" on page 27](#).

Configure End User Management

In End User Management Administration, configure the applications, business transaction flows, and transactions for monitoring by Business Process Monitor, Real User Monitor, or both.

For details, see [How to Set up Business Process Monitors](#) and [How to Install Real User Monitor Components](#) in the BSM Application Administration Guide.

Note: To learn more about End User Management, see ["End User Management \(EUM\)" on page 22.](#)

Configure System Availability Management

In System Availability Management Administration, you can access and manage SiteScopes from within BSM:

1. **Add SiteScopes.** You can register and configure one or more SiteScopes. For details, see [Configuring the Connection in the BSM Application Administration Guide.](#)
2. **Manage multiple SiteScopes.** You can configure SiteScope monitors, alerts, and reports and make any other configuration changes for the SiteScope. All the configuration changes that are done from System Availability Management Administration are reflected in the SiteScope itself. For details, see [How to Manage Multiple SiteScopes in System Availability Management in the BSM Application Administration Guide.](#)

Note: To learn more about System Availability Management, see ["System Availability Management \(SAM\)" on page 29.](#)

Configure Service Health Analyzer

Configure the following in Service Health Analyzer (SHA), so that it can analyze the current and historical data for CIs, detect anomalies, and send out SHA events.

- Define the CIs to be monitored by SHA. For details, see [How to Select CIs to be Monitored by Service Health Analyzer](#)
- Configure the SHA event template to determine the structure of the SHA event. For details, see [How to Configure the Service Health Analyzer Event Template](#)
- Configure verification tools to assist in identifying suspect CIs. For details, see [How to Configure Verification Tools](#)

The topics above can be found in the BSM Application Administration Guide.

Note: To learn more about SHA, see ["Service Health Analyzer \(SHA\)" on page 26.](#)

Configure System Health

If you are using System Health to monitor your BSM environment, there are a number of things you can configure. These include configuring the server's remote connection, and configuring backup servers from one Data Processing Server to another if the server machine is not functioning properly or requires downtime.

For details, see "Setting Up System Health" and "Configuring a Backup Server" in the System Health Guide.

Configure Business Process Insight

You configure Business Process Insight (BPI) by defining business activities to represent business processes within your business. You then attach existing monitor CIs that receive data from one of the BSM data collectors, such as BPM or RUM monitors, to critical points in the business process, in order to learn about the actual metrics.

1. Use the BPI Modeler component to create and deploy business processes. For details, see How to Model Your Business in the BSM Application Administration Guide.
2. Use the BPI Monitor Definer component to map business data to your business processes and business process activities. For details, see How to Manage the BPI Monitor Definer in the BSM Application Administration Guide.
3. BPI sends data samples to BSM by configuring the Data Sample settings in the BPI Server Admin Console. Sending data samples to BSM enables you to use the BPI application to report and view the health of the business processes that you create. For details on configuring the Data Sample settings, see the "Component Configuration - HP Business Service Management Settings" section in the Business Process Insight Server Administration Guide.

Note: To learn more about BPI, see ["Business Process Insight \(BPI\)" on page 20](#).

Configure Transaction Management

In Transaction Management Administration, configure transaction monitoring and tracing for business transactions, as follows:

1. **Define the Business Transaction CIs and Transaction Management workflow.** Create new (or use existing) Business Transaction CIs to represent the transactions you want to monitor, and determine which products are used to collect the transaction data: Real User Monitor, Diagnostics, TransactionVision. For details, see How To Choose a Transaction Management Workflow in the BSM Application Administration Guide.

For RUM Business Transaction CIs, you must also ensure that the required Business Transaction CIs are configured for monitoring in the EUM application. For details, see Viewing TransactionVision Data From End User Management Reports in the BSM User Guide.

2. **Set up transaction tracing on business transactions.** Define transaction tracing rules and properties on the Business Transaction CIs. The tracing rules control the process by which unclassified transactions become business transactions. For details, see How to Set Up a Business Transaction for Tracing in the BSM Application Administration Guide.
3. **Set up custom event correlation for a business transaction.** Define the correlation and modification rules to expand or modify event collection criteria. For details, see Custom Correlation in the BSM Application Administration Guide.

Note: To learn more about Transaction Management, see ["Transaction Management"](#) on page 30.

Define Customized Reports and Report Scheduling

In the User Reports application, you can:

- **Define customized reports for your organization's requirements.** Use the Report Manager to define Custom Reports, Trend Reports, and Service Reports, to focus on the data you are most interested in tracking. For details, see [How to Create and Manage User Reports Using Report Manager](#) in the BSM User Guide.
- **Send scheduled reports to recipients.** Use the Report Manager to set schedules for sending automatically generated reports to specified recipients. For details, see [Scheduling Reports](#) in the BSM User Guide.
- **Create queries to the profile database.** Use Custom Query Builder to assist you in creating queries to run reports. For details, see [How to Create a Custom Query](#) in the BSM User Guide.

Note: To learn more about User Reports, see ["User Reports"](#) on page 31.

Step 7. Monitor Business Status

View the incoming data and monitor the business status in the different BSM applications.

This section includes:

- ["Monitor Events" on the next page](#)
- ["Monitor Customized Role-Based Workspaces" on the next page](#)
- ["Monitor Application Status" on page 57](#)
- ["Monitor Service Level Agreements" on page 57](#)
- ["Monitor End User Experience" on page 57](#)
- ["Monitor System Infrastructure" on page 58](#)
- ["Monitor BSM System Health" on page 58](#)
- ["Monitor Business Process Insight" on page 58](#)
- ["Monitor User Reports" on page 58](#)
- ["Monitor Diagnostics Data" on page 59](#)

- ["Monitor Business Transactions" on page 59](#)
- ["Monitor Anomalies" on page 59](#)
- ["Monitor Siebel Data" on page 60](#)
- ["Monitor SOA Data" on page 60](#)
- ["Monitor SAP Data" on page 60](#)

Monitor Events

The Operations Management (OMi) Event Browser is a central event console enabling you to manage the lifecycle of events. Use the Event Browser to:

- View an overview of all the active events that occur in the monitored environment, including event severity and type, event time and location, event source, and the affected CI.
- View events automatically correlated and filtered, to determine priority for actions.
- Display, monitor, and manage the events using graphs and tables, including display of alternative perspectives of the events.
- Launch HP Operations Orchestration run books.

For details, see Event Perspective in the BSM User Guide.

Note: To learn more about Operations Management, see ["Operations Management \(OMi\)" on page 24](#).

Monitor Customized Role-Based Workspaces

MyBSM displays role-based workspaces that are of interest to specific users or groups of users, such as operations users, and senior management. The MyBSM workspace enables you to view:

- Out-of-the-box pages from different BSM applications. For details on the predefined pages, see Predefined Pages in the BSM User Guide.
- Customized pages containing BSM components and external components relevant to your business tasks. For details on the different applications components that can be added to MyBSM pages, see Available Components in the BSM User Guide.

Note: To learn more about MyBSM, see ["MyBSM" on page 22](#).

Monitor Application Status

Service Health provides an integrated view of critical applications and business processes; from there, you can drill down to the underlying IT infrastructure associated with these critical business processes.

- You can use Service Health directly as a stand-alone application (select Application > Service Health). For details, see *Monitoring your Environment with Service Health* in the BSM User Guide.
- You can combine Service Health components with components from other applications. These components can interact with one another, so that if for example you select a CI in a Service Health component, information on this CI can be displayed in a component from another application, such as End User Management or Operations Management. For details, see *How to Open Pages and Components in Service Health* in the BSM User Guide.

Note: To learn more about Service Health, see ["Service Health" on page 26](#).

Monitor Service Level Agreements

You monitor your service level agreements in the Service Level Management application. The Service Level Management reports show you how well actual service levels compare with your objectives.

- Use the reports to determine whether the availability and performance requirements of users and infrastructure are being met, by checking service level agreement (SLA) compliance.
- You can also get an early warning of potential problems by generating a forecast status, to determine if current service levels may lead to a future breach of the SLA. For details, see *How to View SLA and Outage Reports* in the BSM User Guide.

Note: To learn more about Service Level Management, see ["Service Level Management \(SLM\)" on page 27](#).

Monitor End User Experience

You use the End User Management application to view and analyze reports based on performance data collected by the end-user data collectors. The End User Management reports enable you to proactively monitor network and application performance and availability in real time, from the end-user perspective. For details, see *End User Management Reports Overview* in the BSM User Guide.

Note: To learn more about End User Management, see ["End User Management \(EUM\)" on page 22](#).

Monitor System Infrastructure

System Availability Management utilizes data collected by SiteScope, and enables you to monitor the health and status of the entire system infrastructure from a centralized, real-time perspective in:

- **System Availability Management Reports.** View reports and analyze performance data collected by the SiteScope data collector and stored in the BSM database. For details, see SAM Reports in the BSM User Guide.
- **Event Logs.** View information about events collected by SiteScope (generated alerts and status changes in some element or system in your infrastructure), as well as events collected from external applications or software by enterprise management systems using SiteScope. For details, see How to View the Event Log in the BSM User Guide.

Note: To learn more about System Availability Management, see "[System Availability Management \(SAM\)](#)" on page 29.

Monitor BSM System Health

You can use the System Health component to monitor the health of the servers, databases, and data collectors that make up your BSM system. System Health enables you to detect problematic areas, perform various operations, and view status information on your BSM environment. For details, see "Monitoring System Health" in the System Health Guide.

Note: To learn more about System Health, see "[System Health](#)" on page 29.

Monitor Business Process Insight

Use the Business Process Insight reports to view and analyze the data of the deployed Business Processes. In addition, KPI status displayed in Service Health provides an indication of how well a business process or system is meeting your business objectives.

For details, see How to View and Analyze Data Using the BPI Application Reports in the BSM User Guide.

Note: To learn more about BPI, see "[Business Process Insight \(BPI\)](#)" on page 20.

Monitor User Reports

Use the Report Manager in the User Reports application to view and manage selected reports, including customized reports containing user-defined data.

For details about the Report Manager, see User Reports Overview in the BSM User Guide.

Note: To learn more about custom reports, see ["User Reports" on page 31](#).

Monitor Diagnostics Data

Use the HP Diagnostics integration to:

- **View HP Diagnostics in BSM.** You can see the performance status of applications monitored by HP Diagnostics from your BSM console (select Application > Service Health, and select the Diagnostics View in Model Explorer).
- **Access HP Diagnostics from BSM.** Drill down directly to Diagnostics data from BSM CIs and reports for detailed performance analysis.

For details, see the HP Diagnostics online help or the section on "Integrations" in the Diagnostics User's Guide (supplied with the HP Diagnostics software).

Note: To learn more about HP Diagnostics, see ["Diagnostics" on page 21](#).

Monitor Business Transactions

The Transaction Management application provides reports and topologies to present the information that has been collected from the TransactionVision agents and processed by the TransactionVision Analyzers. Some reports and topologies can also include HP Diagnostics or RUM information related to the business transaction. When this is the case, you can drill down to the relevant page in the Diagnostics or End User Management applications.

For details about these reports and the topology, see Transaction Management Overview in the BSM User Guide.

Note: To learn more about Transaction Management, see ["Transaction Management" on page 30](#).

Monitor Anomalies

Use the Service Health Analyzer application to investigate an anomaly detected for a CI, and to identify lead suspects for the issue. An anomaly represents abnormal behavior for the CI.

You can investigate the anomalies using the Topology views and the Metrics view. You use these views to investigate the root cause of an anomaly, and solve potential business performance and systems issues before they escalate.

For details, see Investigating with the Topology View and Investigating with Metrics View in the BSM User Guide.

Note: To learn more about SHA, see ["Service Health Analyzer \(SHA\)" on page 26](#).

Monitor Siebel Data

You can view information about the Siebel IT entities in:

- **Service Health.** You can view and analyze data in the Siebel Enterprises view and other views in Service Health. For details, see How to Display Siebel Information in BSM in the BSM User Guide.
- **Application Management for Siebel.** You can use the various Siebel diagnostics tools to process the data, and view it in the Application Management for Siebel reports. For details, see Diagnostics Tools in the BSM User Guide.

Monitor SOA Data

You can view information about the SOA environment in:

- **Service Health.** You can view and analyze data in the SOA Monitored Web Services View and other views in Service Health. For details, see How to View SOA Data in BSM in the BSM User Guide.
- **Application Management for SOA.** You can view and analyze the health of Web services or operations access in the Application Management for SOA reports. For details, see Application Management for SOA Reports in the BSM User Guide.

Monitor SAP Data

You can view SAP information in the SAP Systems view in Service Health. For details, see How to Display SAP Information in BSM in the BSM User Guide.

Chapter 7: Quick Start Examples

This section shows how you can quickly set up different areas in BSM to achieve fast results.

This chapter includes:

- "Quick Start - General" below
- "Quick Start - Service Health" on the next page
- "Quick Start - SLM" on page 65
- "Quick Start – SiteScope" on page 68

Note: For more detailed information on setting up Real User Monitor, refer to the Getting Started With RUM - Best Practices document, available at the HP Software Product Manuals web site (<http://h20230.www2.hp.com/selfsolve/manuals>).

Quick Start - General

First-time users of BSM are often overwhelmed by the numerous ways in which you can use BSM to monitor your environment. The following section provides some suggestions on a few areas in BSM where many users choose to focus their attention; this is of course not a comprehensive list, but is intended more as a starting point that you may find useful.

End User Management:

After setting up End User Management, we suggest that you use the **End User Monitors view** to monitor your environment. The End User Monitors view is the default view in EUM Administration. The view displays only the applications (and their related CIs) that are actually configured for BPM or RUM. For details, see End User Monitors View in the BSM Application Administration Guide.

You may want to look at the following pages:

- **360 by BPM.** This page displays online application status, together with status over time of transactions and related locations, from synthetic user perspectives. For details, see How to Troubleshoot Problems Using the 360 by BPM Page in the BSM User Guide.
- **360 by RUM.** Displays online application status, together with status of the application tiers, transactions, and related locations, from real user perspectives. For details, see How to Troubleshoot Problems Using the 360 by RUM Page in the BSM User Guide.

From BSM version 9.22, for each alert in BPM or RUM there is a direct link to the relevant report providing details on the root cause of the alert.

SiteScope

After setting up SiteScope, we suggest you look at the following pages:

- **SiteScope Multi-View Page.** If you are working with SiteScope 11.22 and later, this page enables you to create a Watch List of important SiteScope profiles. You can then select a profile and view its details in the SiteScope Multi-View component. For details, see "SiteScope Multi-View" in the Using SiteScope Guide.
- **Top View** page, focused on the **System Infrastructure** view. For details, see Top View in the BSM User Guide.
- Create a page with a **View Selector** and **Cross-Performance Report**. This report displays data from SiteScope servers, filtered by monitored servers, monitor types, and measurements. For details, see Cross-Performance Report in the BSM User Guide.

Operations Manager i

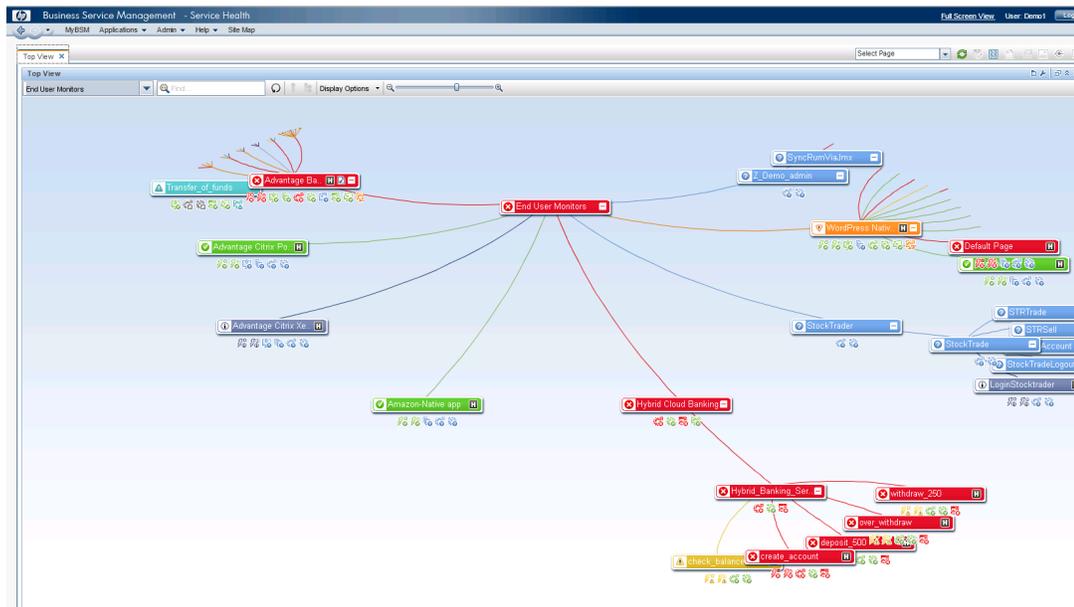
We suggest you look at the **Event Perspective** page, focused on the **System Infrastructure** view. The Event Browser pane displays an overview of the active events that exist in the IT environment you are monitoring. Events report important occurrences in the managed environment, and are generated by source managers. These are forwarded to Operations Management and are assigned to operators for resolution. For details, see Event Perspective in the BSM User Guide.

Quick Start - Service Health

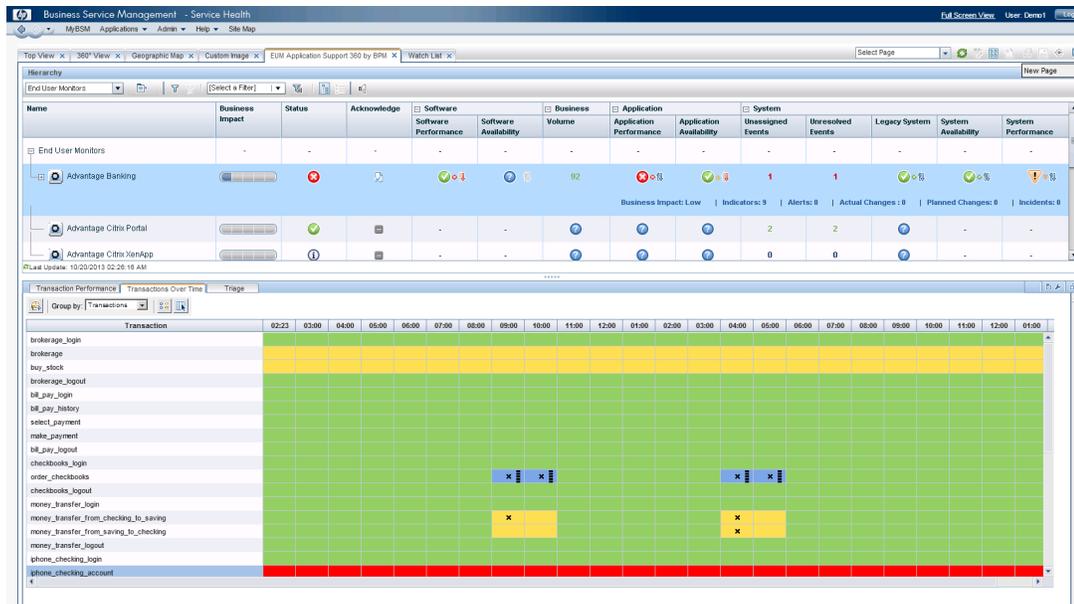
The Service Health application provides a convenient entry point into BSM, giving you an integrated view of critical applications and business processes. From there, you can drill down to the underlying IT infrastructure associated with these critical business processes. This drilldown view can be laid out in any number of ways, such as by data centers, by technology clusters, by geographical locations, and so on. For more details, see Service Health Overview in the BSM User Guide.

The following example provides a quick glance at what Service Health can offer you; it is important to note that this is not comprehensive, and only serves as a brief introduction to how you can quickly utilize BSM using the Service Health application.

1. The BSM administrator has set up monitors on various hosts, and a NOC user is monitoring these using the Service Health Top View page. Top View provides us with a high-level view of the monitored environment, enabling us to focus at a glance on problematic areas. To use Top View, we first select a view in the upper left corner. We select the End User Monitors view because the applications are monitored by EUM (BPM and RUM):

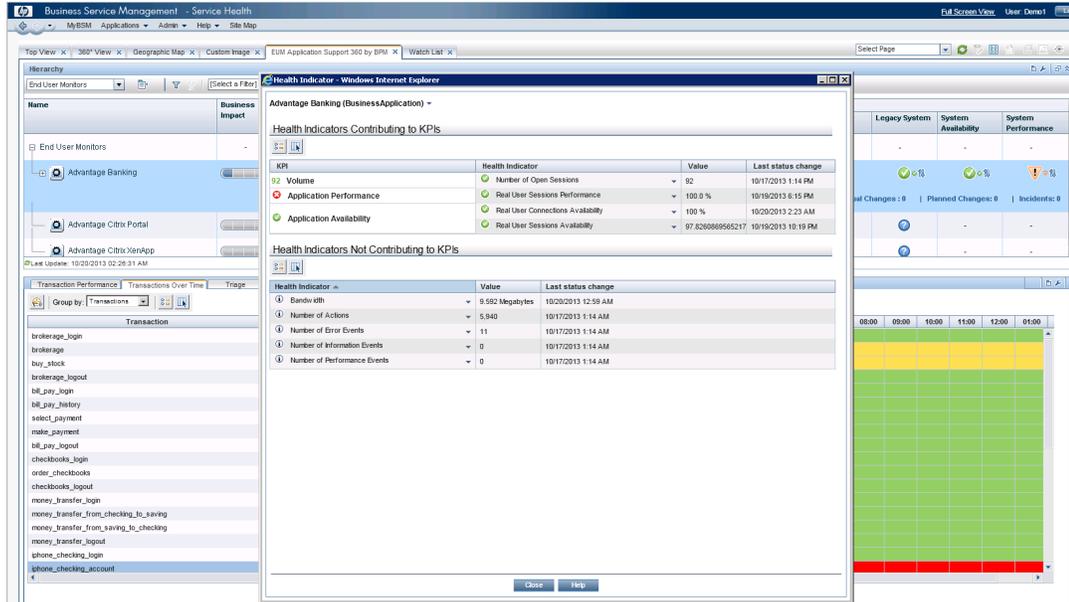


2. In the upper left area, we see there is a problem in the Advantage Banking application. To further explore the problem, we open the 360 by BPM page, which displays online application status, together with status over time of transactions and related locations, from synthetic user perspectives:

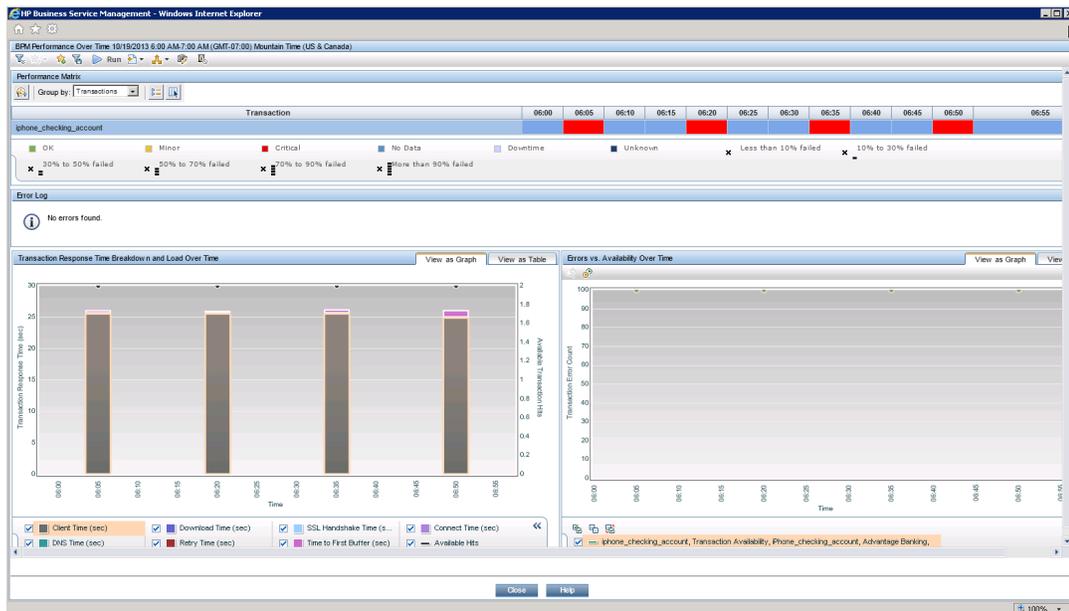


The upper section of this page contains the Hierarchy component, which shows the application hierarchy, and the status of each CI's KPIs. The lower section shows transaction performance over time, giving us an indication of the history of a problem. We see that the `iphone_checking_account` transaction is problematic.

- To get more details about the root cause, we click the Indicators link for the Advantage Banking application, opening the Health Indicators component. This component shows the granular measurements which contribute to the KPI's statuses:



- To get more details on the problematic transaction, we double-click the row in the Transactions Over Time pane. This drills down to the BPM Performance Over Time report for the specific transaction:



Now that we have information on the root cause we can progress to solving the problem.

Quick Start - SLM

In Service Level Management (SLM) administration, you define service level agreements (SLAs) that represent the formal and informal contracts your organization has with your service providers and customers. SLM determines compliance with your SLAs by measuring by measuring availability and performance of your IT entities. For details, see Service Level Management Overview in the BSM Application Administration Guide.

SLM calculates health indicator (HI) and key performance indicator (KPI) values from the received availability and performance data, and compares them with required service level objectives. The results are displayed in reports within the SLM application.

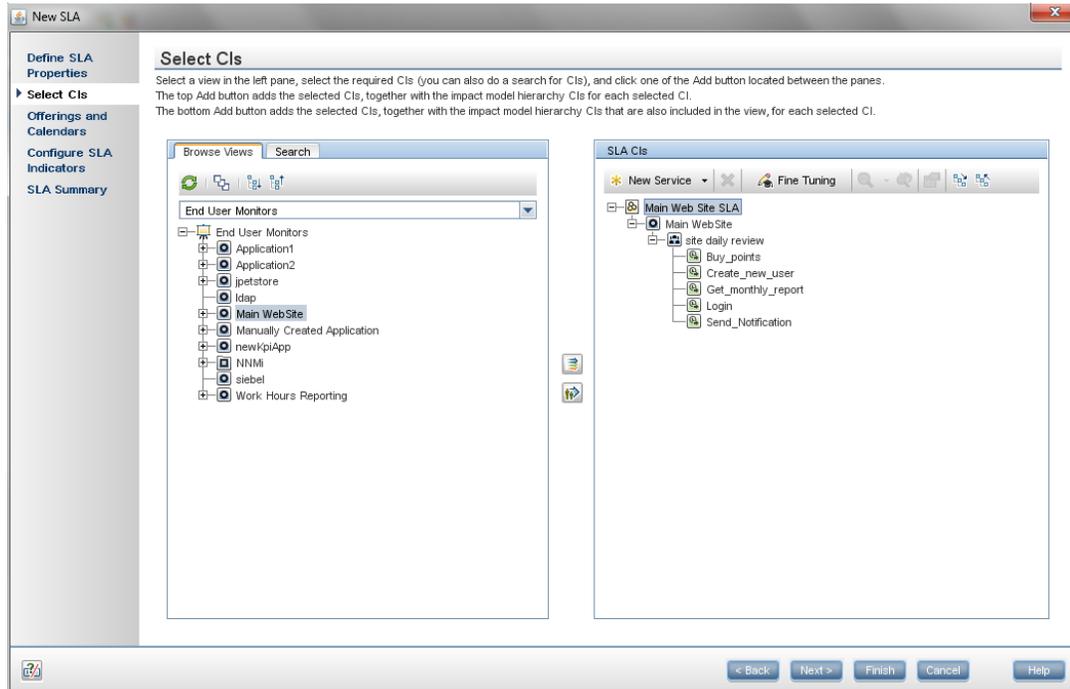
The following example shows how you can quickly set up an SLA; note that this is not comprehensive, and only serves as a brief introduction to how you can quickly implement SLM in your BSM environment. In this example, the BSM administrator has already set up application monitoring by Business Process Monitor (BPM) to monitor a web site. We will use default SLM settings to quickly create an SLA, and monitor compliance with this SLA.

1. In SLM administration, we click **New SLA** on the Agreement Managers page to open the New SLA Wizard.
2. In the **Define SLA Properties** page, we name our SLA. The only other setting we change on this page is the SLA start date, which we define as two days ago. This enables us to see data in SLM reports as soon as we finish creating the SLA, rather than waiting a few days for data to be collected.

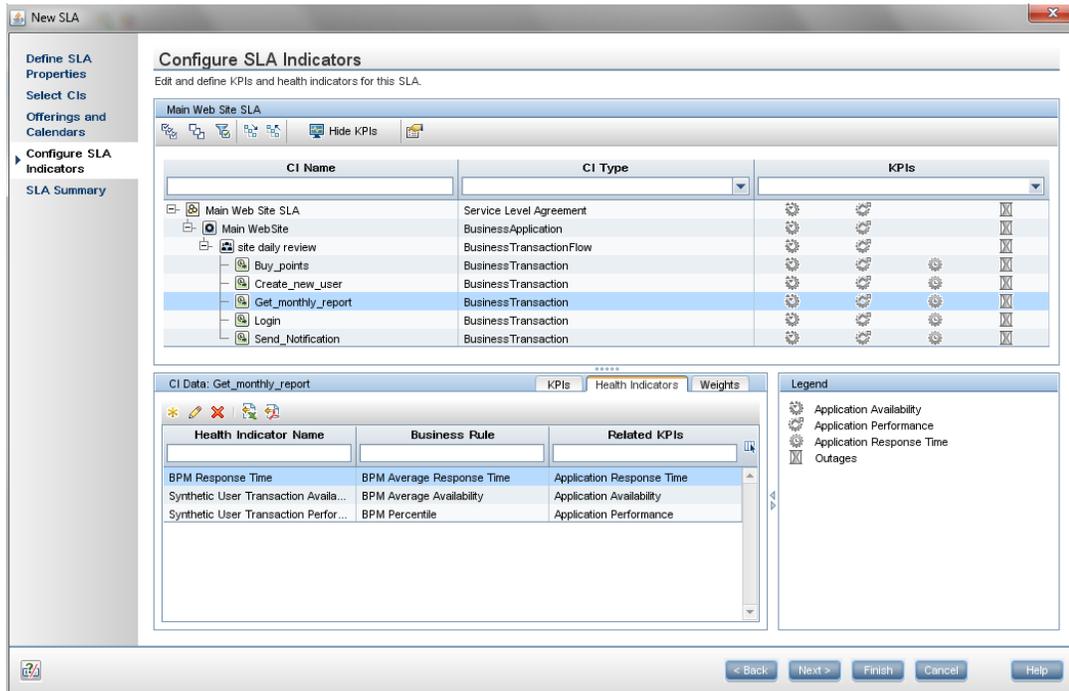
The screenshot shows the 'Define SLA Properties' wizard. The 'Name' field is filled with 'Main Web Site SLA'. The 'Start date' is set to '1/14/14 8:00 AM' and the 'End date' is '1/16/14 8:00 AM'. The 'Type' is 'SLA' and 'Classification' is 'Formal'. The 'Creator' is 'administrator'. The 'Tracking period(s)' is 'Day, Week, Month' and 'Targets' is 'Exceeded, Failed'. The 'Finish' button is highlighted in blue.

3. In the **Select CIs** page, we add the CIs that represent the application monitored by BPM.

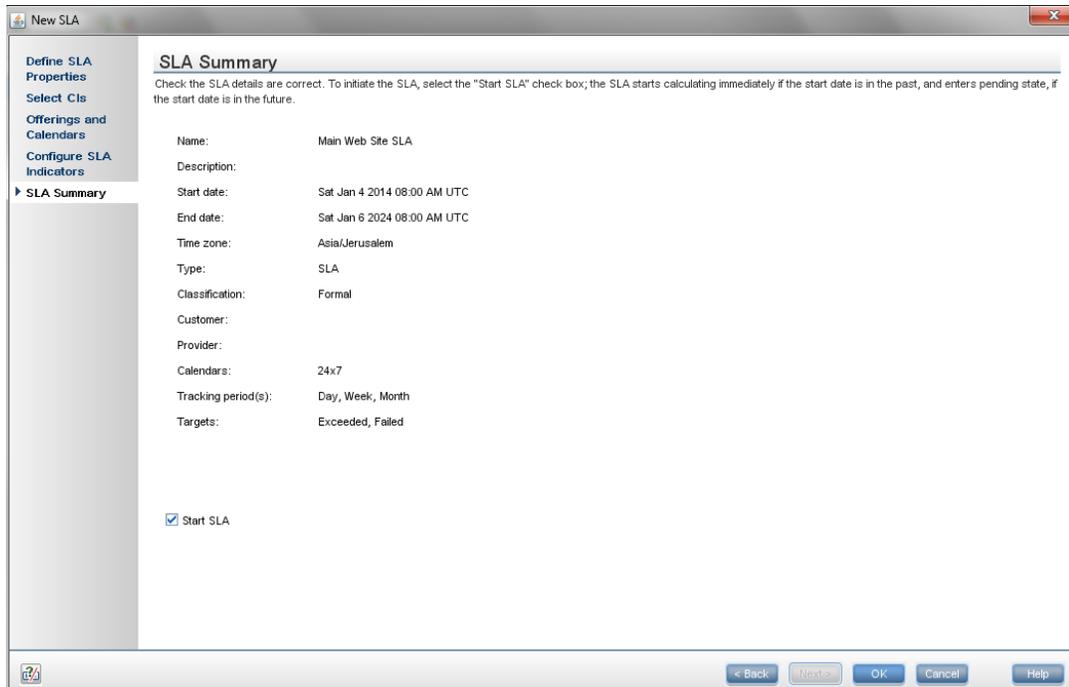
We selected the **End User Monitors** out-of-the-box view since it contains our business application which has been configured for BPM monitoring.



4. In the **Offerings and Calendars** page, we use the default offerings and calendars.
5. In the **Configure SLA Indicators** page, we use the default indicators that are defined by the indicator assignments (KPIs and HIs) and offering level (Objectives). Note that you can view or modify indicators by selecting a CI in the upper pane, and editing its indicator settings in the lower pane.

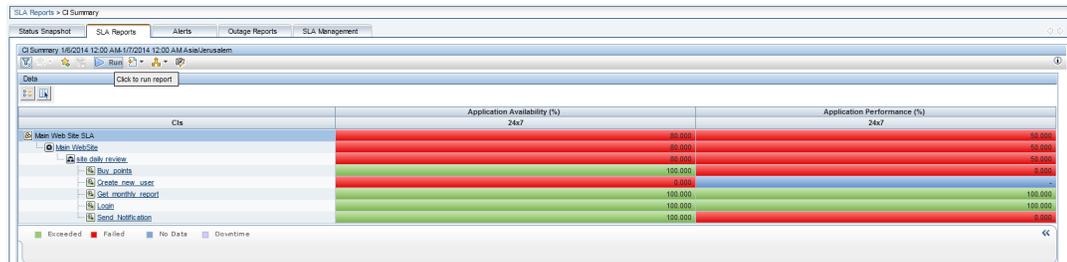


6. The **SLA Summary** page shows the SLA we have just defined.



7. BSM then takes a few minutes to calculate the SLA. When calculation is complete, we can view details on the SLA's status in the SLM application. The **Status Snapshot** shows a summary of the SLA's status. More detailed information on the SLA's CIs and KPIs can be

found in **SLA Reports > CI Summary**. We run the report on our SLA for all KPIs, during the last week.



Quick Start – SiteScope

SiteScope is an agentless monitoring solution designed to help you ensure the availability and performance of distributed IT infrastructure and applications. SiteScope continually monitors IT components through a web-based architecture that does not require installing data collection agents on your production systems.

This example is designed to lead you through the process of creating a basic monitoring structure in SiteScope, and seeing how data collected by SiteScope monitors can be used in BSM. BSM receives data about end-users, business processes, and systems and uses the data in reports and analysis.

In this example you will learn:

- How to deploy the SiteScope Windows template example to monitor CPU utilization and memory resource usage in your environment.
- How metrics data collected by these SiteScope monitors is used in various applications in BSM.

Note: This example describes how to set up a basic monitoring structure using the SiteScope template example. For a comprehensive guide on working with SiteScope, refer to the Using SiteScope Guide (available on the HP Software Support Online [Product Manuals site](#)).

How do I Configure SiteScope to be Used as a Data Collector for BSM?

When configured as a data collector for BSM, the metrics and topology data collected by SiteScope monitors can be passed on to BSM for analysis and for use in reports. (You can also use SiteScope to send events to BSM, as described in "Integrating SiteScope with HP Operations Manager Products" on the [HP Software Integrations site](#).)

BSM includes a System Availability Management (SAM) Administration page, that enables you to manage SiteScope monitor configurations for one or more SiteScope servers through a central console.

1. Download and install SiteScope

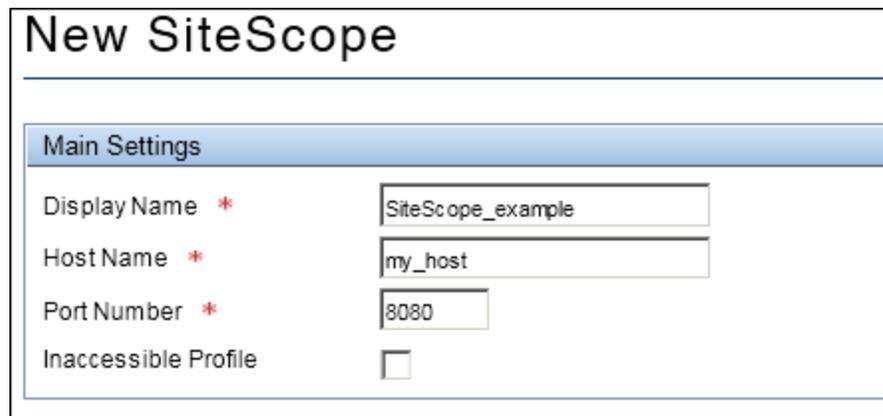
In BSM, navigate to **Admin > Platform > Setup and Maintenance**, and click **Downloads**. Download and save the SiteScope installation files (for Windows or Solaris) to a local or network drive.

Install SiteScope on machines designated to run the SiteScope data collector. You can run multiple SiteScopes from multiple platforms. For more information, see the HP SiteScope Deployment Guide.

Note: This guide assumes that SiteScope has been fully installed and configured, and that you are a user with authenticated access to the remote server. For more information, contact your SiteScope administrator.

2. Connect the installed SiteScope with BSM

In BSM, navigate to **Admin > System Availability Management**, and add the SiteScope to SAM Administration.



New SiteScope	
Main Settings	
Display Name *	SiteScope_example
Host Name *	my_host
Port Number *	8080
Inaccessible Profile	<input type="checkbox"/>

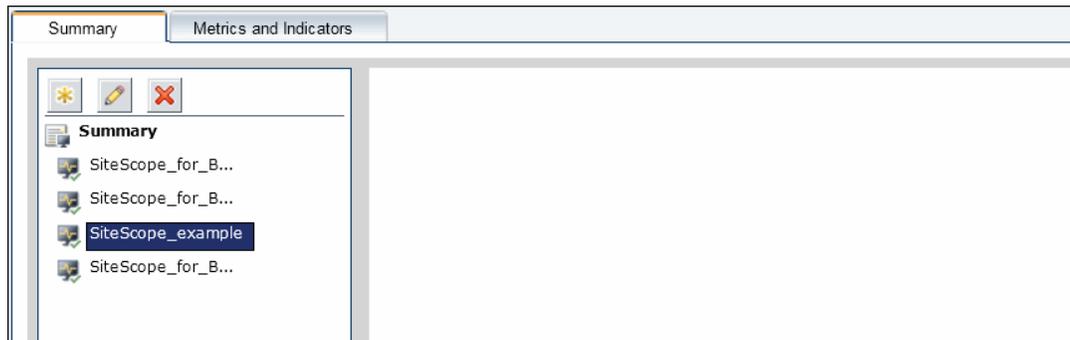
After activating the BSM integration, SiteScope data flows to BSM.

Now that you have configured SiteScope to communicate with BSM, you can create a monitoring structure in SiteScope.

How do I Create a Monitoring Structure in SiteScope?

1. Access SiteScope

In the System Availability Management Administration page in BSM (**Admin > System Availability Management**), select the SiteScope server in the left pane.



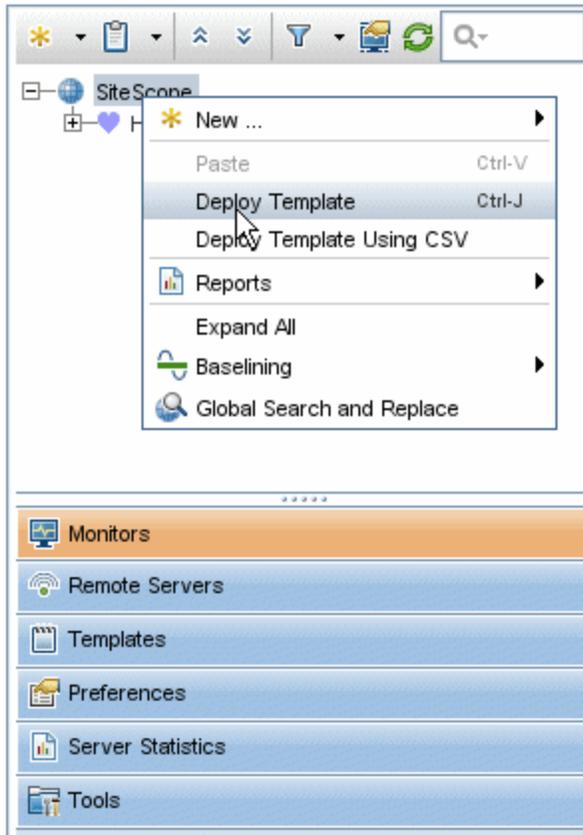
When you select a SiteScope in the tree, the right pane displays that SiteScope's Dashboard and you can perform any function within the SiteScope.

Tip: You can also access SiteScope directly by entering the SiteScope address in a Web browser. The default address is: **http://<server name>:8080/SiteScope**.

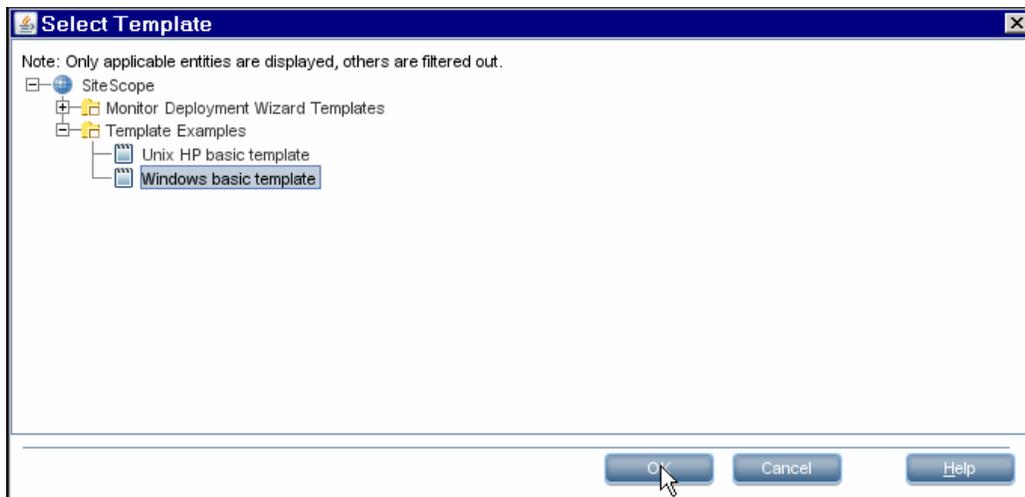
2. Deploy the Windows template example

Templates are used to standardize a set of monitor types and configurations into a single structure. This structure can be repeatedly deployed and updated through a single operation.

- a. In the SiteScope monitor tree, right-click the **SiteScope** root folder, and select **Deploy Template**.



- b. In the Select Template dialog box, select **Windows basic template** from the **Template Examples** container and click **OK**.

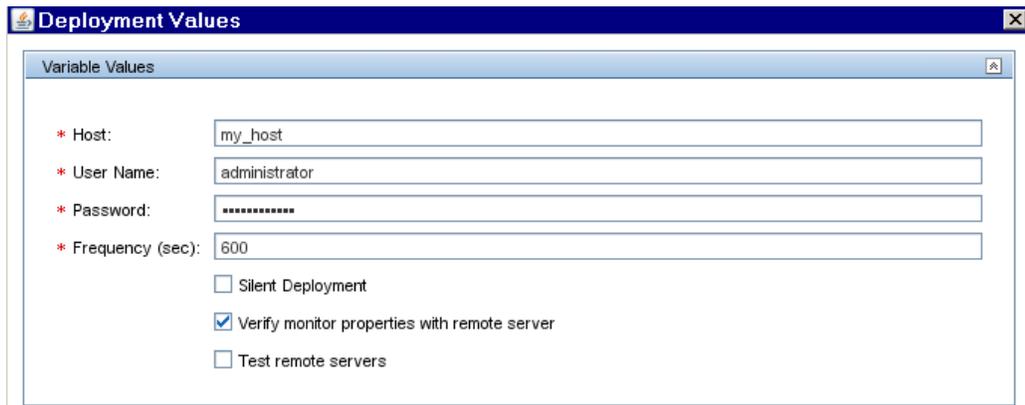


- c. In the Deployment Values dialog box, enter the required variable values in the entry boxes displayed. The entry boxes correspond to the template variables used in the template objects.

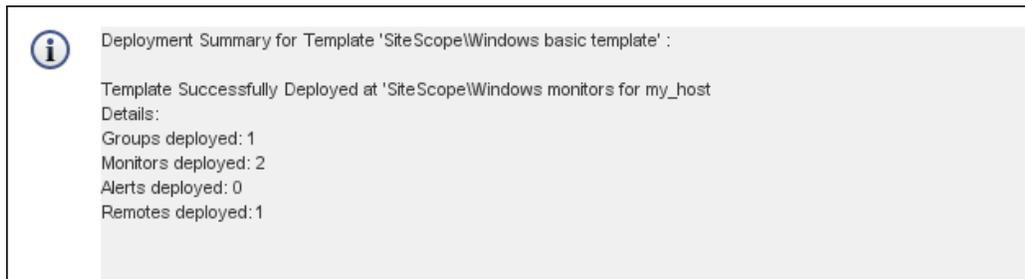
Host: Name or IP address of the remote server that should be monitored by SiteScope.

User Name: Login name to access the target server.

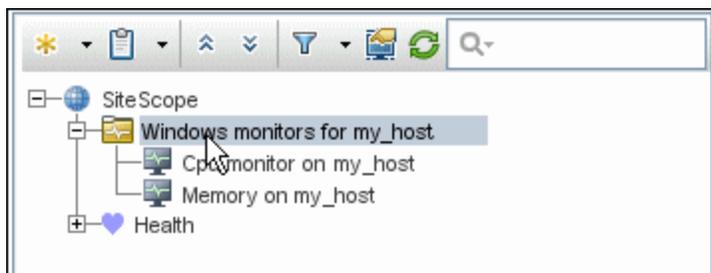
Password: Password to access the target server.



- d. A summary of the template deployment is displayed.

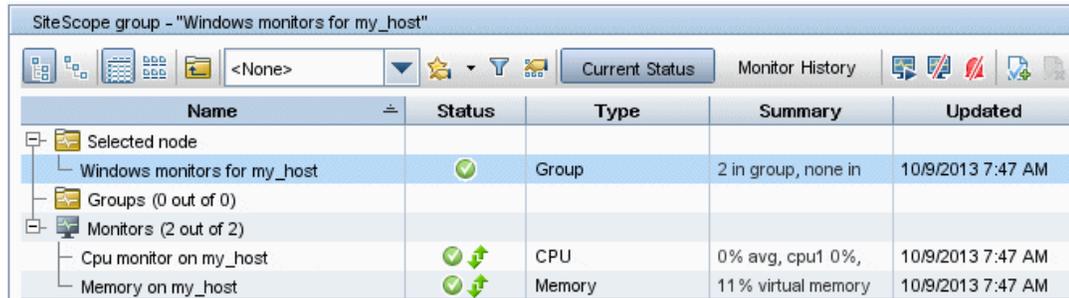


If the deployment is successful, the template objects are added to the monitor tree and the monitors are scheduled to run.



3. View monitoring data in SiteScope

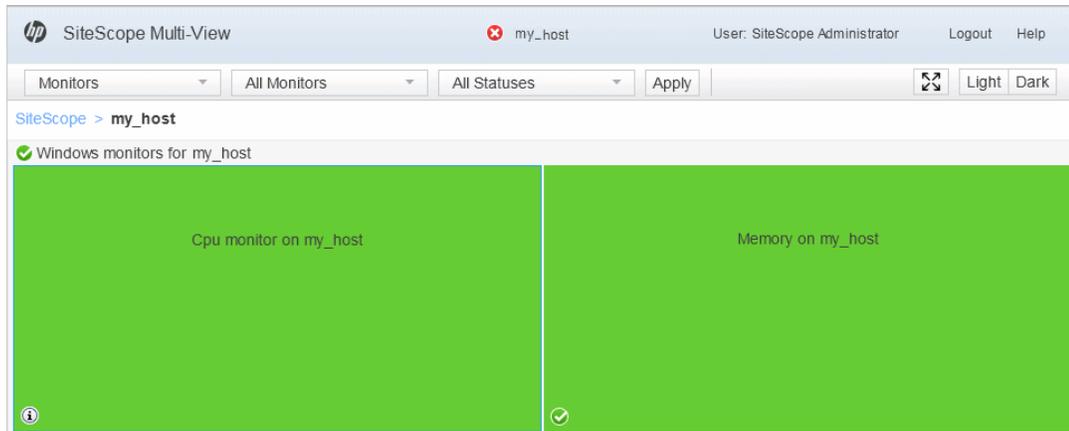
You can view current performance data for the CPU and Memory monitors in the SiteScope Dashboard. The Dashboard displays availability, status and metrics information for these monitors.



The screenshot shows the SiteScope Dashboard for a group named "Windows monitors for my_host". The dashboard includes a toolbar with icons for navigation and actions, and a table displaying the following data:

Name	Status	Type	Summary	Updated
Selected node				
Windows monitors for my_host	✓	Group	2 in group, none in	10/9/2013 7:47 AM
Groups (0 out of 0)				
Monitors (2 out of 2)				
Cpu monitor on my_host	✓ ↑	CPU	0% avg, cpu1 0%,	10/9/2013 7:47 AM
Memory on my_host	✓ ↑	Memory	11 % virtual memory	10/9/2013 7:47 AM

You can also view performance data in SiteScope's Multi-View. It fully utilizes the screen to display the near-real time status of all groups and monitors without losing the hierarchical relationship between the data. Groups and monitors are color-coded to provide quick, at-a-glance information on performance status. Objects can be grouped in various different ways to fit the perspective of different personas.



How do I View Monitoring Data in BSM?

After you have configured SiteScope to communicate with BSM and you have created a monitoring structure in SiteScope, you can run the monitor.

Note: By default, SiteScope sends all monitor data to BSM for each time that the monitor runs. If necessary, you can change this setting (to disable reporting, report monitor status only, or report monitor status and metrics with thresholds) in the SiteScope monitor properties (**HP Integration Settings > BSM Integration Data and Topology Settings**).

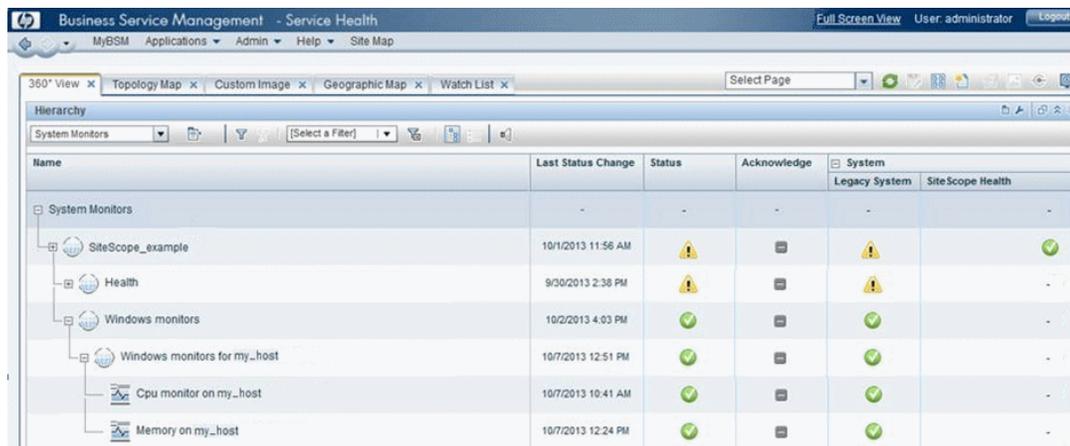
After the monitor run has finished, you can view the results in the following BSM applications:

- **Service Health.** You can see the statuses corresponding to metric samples reported by SiteScope monitors in the System Monitors view and System Hardware Monitoring view.
- **System Availability Management Reports.** You can use the SiteScope Over Time reports to view and analyze infrastructure machine-related data collected by SiteScope. You can cross-reference this data with transaction performance problems, such as slow transaction response times and failed transactions, to understand the root cause of application performance issues. In the different reports, specify a filter for the data that you want to be displayed in the graphs.

1. Check Service Health:

In BSM, navigate to **Applications > Service Health > 360° View**.

In the drop down list, select **System Monitors** to view each monitor and its status.

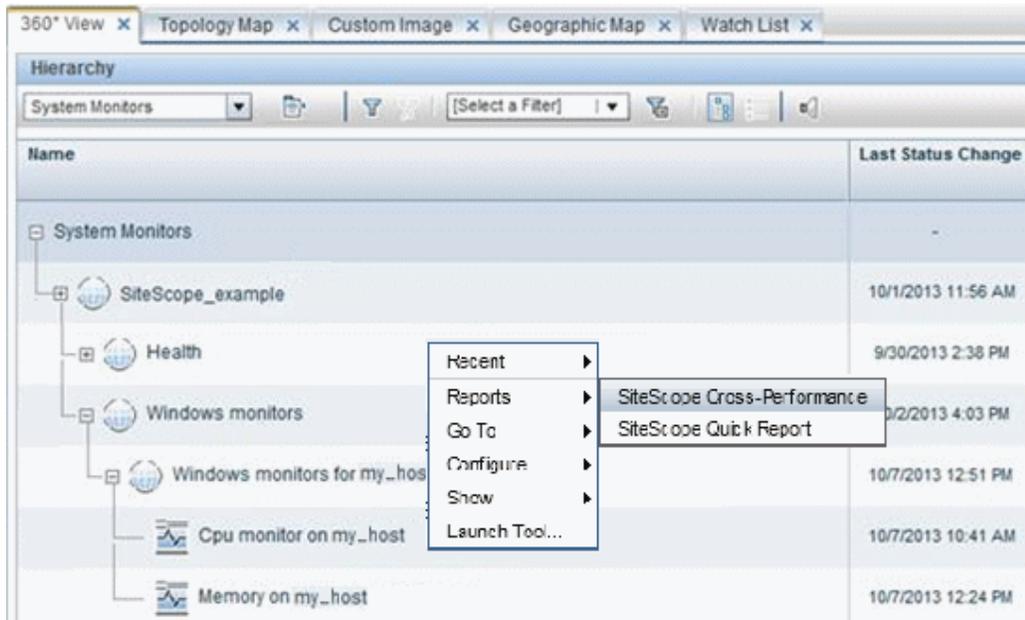


The screenshot shows the HP Business Service Management interface for Service Health. The main content area displays a table of System Monitors. The table has columns for Name, Last Status Change, Status, Acknowledge, and System (with sub-columns for Legacy System and Site Scope Health). The data is as follows:

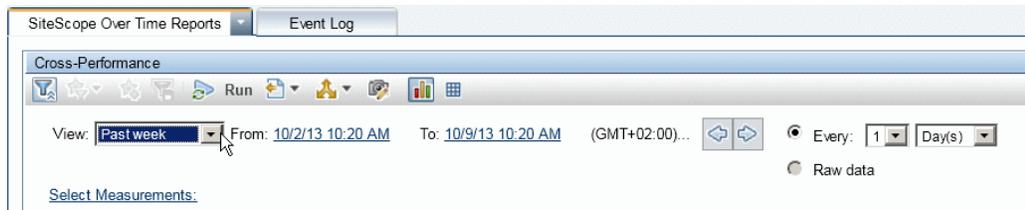
Name	Last Status Change	Status	Acknowledge	System
				Legacy System Site Scope Health
System Monitors	-	-	-	- -
SiteScope_example	10/11/2013 11:56 AM	Warning	[-]	Warning Green
Health	9/30/2013 2:38 PM	Warning	[-]	Warning -
Windows monitors	10/2/2013 4:03 PM	Green	[-]	Green -
Windows monitors for my_host	10/7/2013 12:51 PM	Green	[-]	Green -
Cpu monitor on my_host	10/7/2013 10:41 AM	Green	[-]	Green -
Memory on my_host	10/7/2013 12:24 PM	Green	[-]	Green -

2. View System Availability Management Reports:

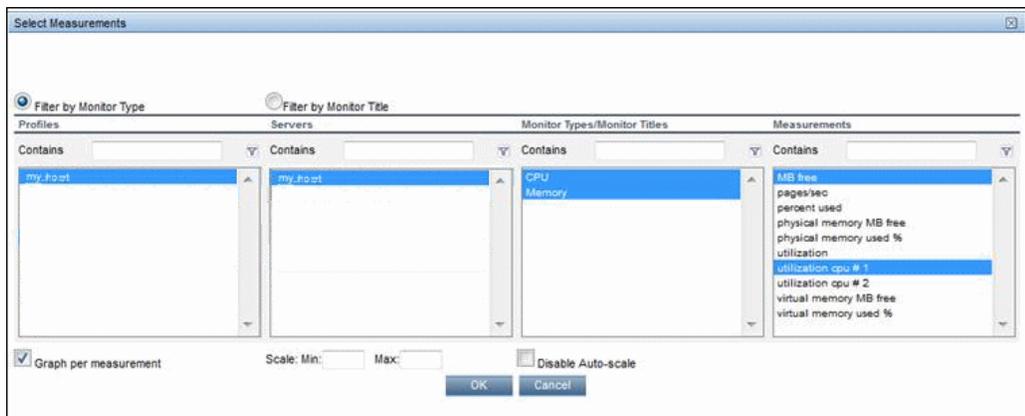
- a. You can access the System Availability Management Cross-Performance Report from 360° View in Service Health. Right-click the CI, and select **Reports > SiteScope Cross-Performance**.



- b. Select the time period and the granularity with which you want to run the report, for example, Past Week. The granularity determines how many measurement samples are displayed in the report per time interval.

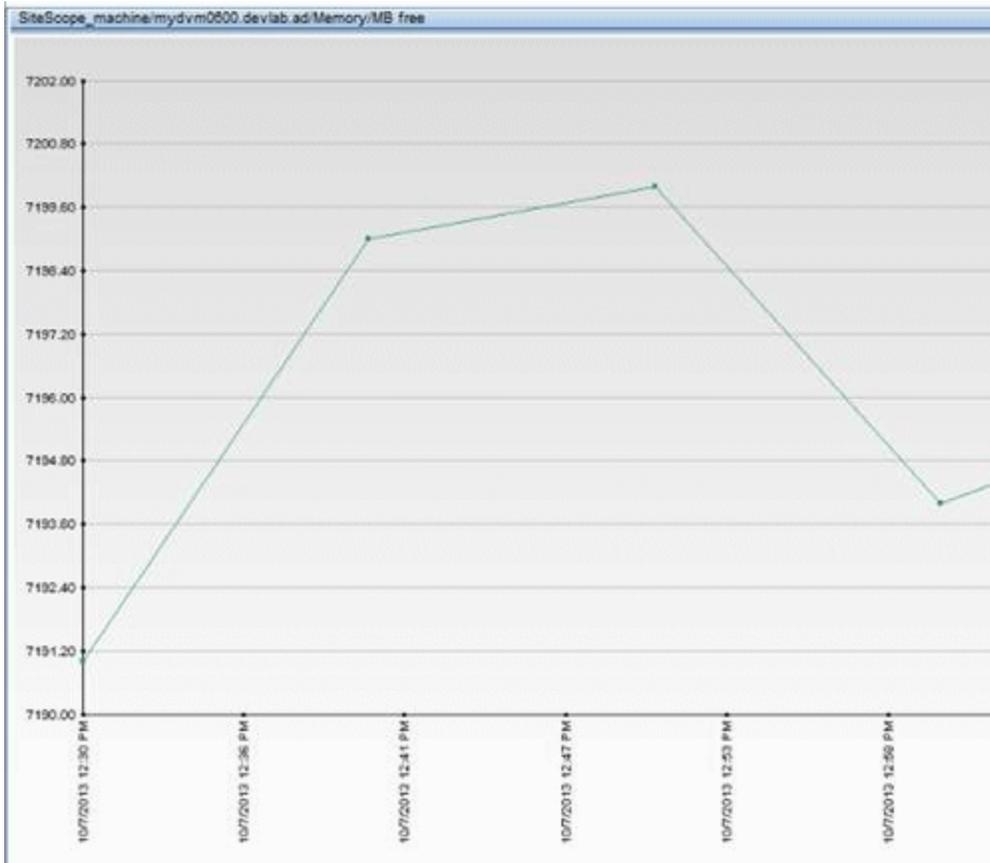
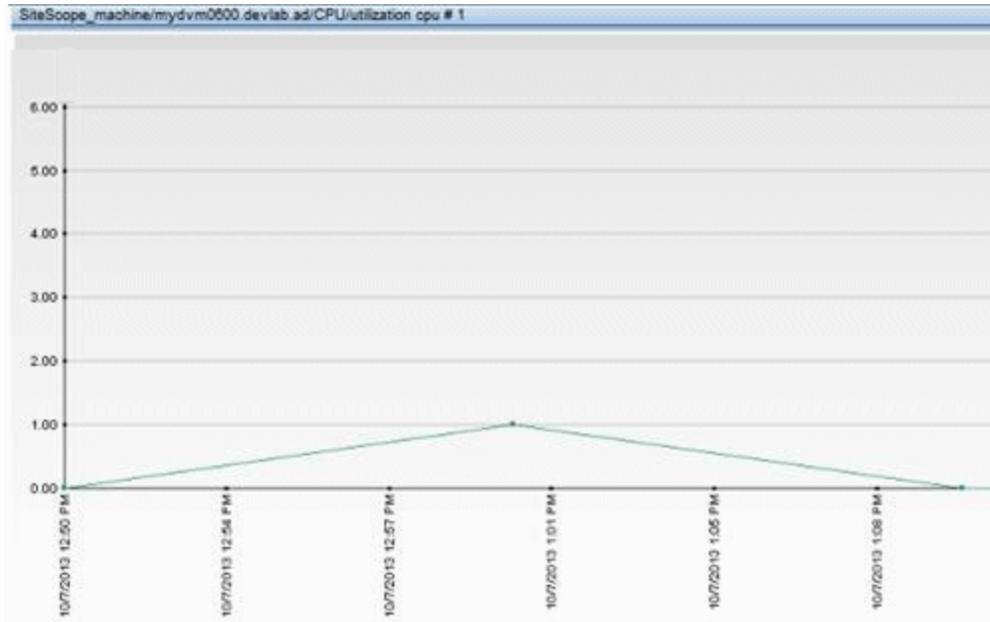


- c. Click the **Select Measurements** link to choose the measurements you want the Cross-Performance report to monitor.



- d. Click **Generate** to create the report. The filter area of the page closes and the report opens

displaying data from the SiteScope server filtered by monitored servers, monitor types, and measurements.



Where Do I Go From Here?

For more information on SiteScope, see the SiteScope documentation on the HP Software Support Online [Product Manuals site](#) or visit the HP SiteScope Product page (<http://www.hp.com/go/sitescope>).

For more information on System Availability Management, see the Using System Availability Management section of the BSM Application Administration Guide on the HP Software Support Online [Product Manuals site](#).

Part 2: Preparing to Install BSM

Chapter 8: Deployment Planning

This chapter includes:

- ["Deployment Planning Checklist" below](#)
- ["Deployment Planning Considerations" on the next page](#)
- ["Using the Capacity Calculator" on page 82](#)

Deployment Planning Checklist

Deploying HP Business Service Management (BSM) in an enterprise network environment is a process that requires resource planning, system architecture design, and a well-planned deployment strategy. The checklist below describes some of the basic issues that should be considered prior to installation. HP Software Professional Services offers consulting services to assist customers with BSM strategy, planning and deployment. For information, contact an HP representative.

Use this checklist to review the basic issues that your organization should consider when planning the BSM deployment.

✓	Step
	Analyze the IT processes and organizational structure and culture that can affect, or be affected by, the deployment.
	Map the customer environment.
	Analyze the organization's goals and identify the key IT-enabled business processes to achieve these goals.
	Identify the target users (those with a vested interest in the business processes), for example, executives, LOB managers, marketing managers, customer support personnel, support engineers, and so forth.
	Align the project with current performance management practices.
	Map the architecture of the monitored infrastructure, including identifying the processes, systems, system resources, and other infrastructure elements to monitor in each of the applications.
	Define the project deliverables, including setting expectations regarding measurements, features, the deployment scope, and maturity levels.
	Identify the appropriate HP Business Service Management functionality.
	Build a deployment roadmap.
	Define success criteria for the project.

✓	Step
	Define performance and availability objectives for each monitored business process.
	Define measurement types to be supported at each deployment stage.
	Form HP Business Service Management administration and operations team(s).
	Plan the practical aspects of the deployment, including system architecture and capacity planning using the capacity calculator; and database environment and security considerations, and so forth.

Deployment Planning Considerations

This section provides different information that may be useful while planning a BSM deployment. This section contains:

- ["How to determine the hardware requirements that will satisfy the expected capacity?"](#) below
- ["How to determine which deployment type to choose \(One-machine or distributed\)?"](#) below
- ["How many BSM machines do I need?"](#) on the facing page
- ["Should I deploy BSM on virtual machines?"](#) on the facing page
- ["What specific hardware should I purchase?"](#) on the facing page
- ["How to choose your operating system? \(Windows/Linux\)"](#) on the facing page
- ["How much disk space is required for the database schemas?"](#) on the facing page
- ["Do I need a CMS, or is RTSM enough for my needs?"](#) on page 82
- ["Which web server to choose?"](#) on page 82
- ["What disaster recovery aspects should I consider?"](#) on page 82
- ["What network aspects should I consider?"](#) on page 82

How to determine the hardware requirements that will satisfy the expected capacity?

Use the BSM 9 Deployments and Capacity Calculator for planning the BSM deployment. The calculator determines the required hardware profile per deployment type. When using the calculator, consider expected growth in the near future. For details, see ["Using the Capacity Calculator" on page 82](#).

How to determine which deployment type to choose (One-machine or distributed)?

BSM can be installed either as a one-machine deployment or as a distributed deployment (Gateway and Data Processing Servers installed on separate machines). To choose the deployment type,

consider the following:

- The hardware required for each type as reflected in the Deployments and Capacity Calculator results. For large capacities, the one-machine deployment might require a machine with a very large RAM that will not be recommended/supported by your IT.
- One-machine deployment is more economic in terms of resources since many of the common components are deployed only once.
- In terms of best practices - both are recommended and supported.

How many BSM machines do I need?

- The basic BSM deployment consists of either one one-machine installation, or one Gateway (GW) installation and one Data Processing (DPS) installation.
- To increase availability and reliability of BSM, it is recommended to deploy at least one additional one-machine installation/GW+DPS installation pair. For more information, see "[Benefits of a Multi-Server Deployment](#)" on page 94.
- To scale the number of BSM concurrent users you can add additional Gateway machines (or additional one-machine installations).
- Do not inflate your BSM deployment by adding more machines than required. The number of TCP resources consumed per machine is correlated to the number of BSM machines in the deployment and is limited.

Should I deploy BSM on virtual machines?

BSM (GW and DPS installations, either as one-machine or as a distributed installation) can be deployed on virtual machines. For more information, see "HP Business Service Management on Virtual Platforms" in the BSM System Requirements and Support Matrixes, available in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

If you plan to run a database server containing BSM databases on a virtual machine, check with your database vendor for their support policies and performance implications.

What specific hardware should I purchase?

BSM requires specific hardware profiles, but does not require specific brand.

How to choose your operating system? (Windows/Linux)

- If you are migrating from a previous version of BSM, see the BSM 9.1x Upgrade Guide for information about which migration paths are supported.
- Both operating systems are recommended and supported. For specific information regarding supported versions, see BSM System Requirements and Support Matrixes, available in the [HP Software Product Manuals Web site](http://h20230.www2.hp.com/selfsolve/manuals) (<http://h20230.www2.hp.com/selfsolve/manuals>).

How much disk space is required for the database schemas?

The required disk space for BSM schemas is influenced by many variables. For more information

about the main considerations, see the BSM Database Guide.

Do I need a CMS, or is RTSM enough for my needs?

RTSM is designed to support BSM operational use cases only. For topology-based integrations between BSM and other HP centers, it is recommended to install a central CMDB instance that will serve as the CMS instead of integrating directly with the RTSM instance. For more information, see the RTSM Best Practices Guide.

Which web server to choose?

BSM supports both Microsoft IIS and Apache web servers. The Apache web server is bundled within the BSM installation, while the Microsoft IIS web server must be installed separately prior to BSM installation. In terms of best practices, both are recommended and supported.

What disaster recovery aspects should I consider?

You can setup an additional BSM deployment that will act as a Disaster Recovery System. Such a deployment can be added at any given time on demand and does not have to be considered when planning your primary environment. For more information, see "Disaster Recovery" in the BSM Installation Guide.

What network aspects should I consider?

It is recommended that all BSM Servers are installed on the same network segment.

If BSM servers are installed on multiple network segments, it is highly recommended that the number of hops and the latency between the servers be minimal. Network-induced latency may cause adverse effects to the BSM application and can result in performance and stability issues. We recommend that the network latency should be no more than 5 milliseconds, regardless of the number of hops.

Placing firewalls between BSM servers is not supported. If a firewall is active on any BSM server machine (GW or DPS), a channel must be left open to allow traffic between the BSM machines (GW and DPS).

Using the Capacity Calculator

The capacity calculator Excel spreadsheet should be used to determine the scope and size of your BSM deployment. You input the information regarding the scope of your deployment in terms of numbers of applications running, users, and expected data. The capacity calculator calculates the configuration of your deployment and the hardware requirements of each machine in the BSM deployment. This information can be uploaded automatically while running the Setup and Database Configuration utility or the Upgrade Wizard which are run after installing or upgrading BSM.

Note: In a Linux environment, the capacity calculator Excel spreadsheet can be opened and edited using the Calc spreadsheet application of OpenOffice.org.

The capacity calculator Excel file includes the following sheets:

- **Deployment Calculator:** Use the Capacity Questionnaire to determine what applications and capacities you require. The results are displayed in the Output tables. Alternatively, you can use the Certified Deployments worksheet.
- **Certified Deployments.** You can use the one of the pre-defined certified deployments in the Certified Deployment worksheet that most closely resembles your needs. These certified deployments can be used as templates and can be modified to suit your needs.
- **Detailed Capacities.** Gives detailed data regarding the numbers used to calculate capacity levels of **Small**, **Medium**, **Large**, and **Extra Large** for each BSM application, users, metric data, and model size.
- **Level Override.** This sheet should be used only by very experienced BSM administrators. It enables the option to override the capacity levels calculated in the capacity calculator.

To use the capacity calculator:

1. Locate the Excel sheet named **BSM_9_Deployment_and_Capacities.xls** in your installation media. You can download the latest version from the HP Software Product Manuals Web site (<http://h20230.www2.hp.com/selfsolve/manuals>). Search the web site for the term "capacity calculator".
2. In the **Deployment Calculator** sheet **Capacity Questionnaire** columns:
 - Select which applications you are running by selecting **Yes** or **No** as appropriate in the cells next to the name of each application.
 - Enter the required data for each application that you are running and for the number of **Logged in Users**.

You can hover over each cell to read a tooltip description of the information required for each application.
3. After you enter your data, the **Output** tables on the right of the **Deployment Calculation** sheet automatically update to give you the required information regarding your deployment.
 - The **Output - Application/Level** table on the top right indicates the scope of your deployment, giving you sizing information. This includes users, size of your model, size of your expected metrics data, application status (on or off), and sizing for each application.
 - The **Output - Machine Requirements** table in the lower right indicates, for each installation type (one machine or distributed), the required memory in gigabytes and the number of CPU cores for each server installation.

Decide which Deployment Type (one machine or distributed) is applicable to your deployment.

4. Save the Excel file in a location that is accessible to the servers where you are installing BSM.

You can now prepare the hardware environment and install BSM based on these recommendations.

To apply the capacity calculator data during installation:

When running the Setup and Database Configuration utility in the Server Deployment page, browse to the location where you saved the Capacity Calculator with your data. Upload the file, and the data from the Excel sheet automatically updates the fields in the wizard.

For details on using the utility, see "Setup and Database Configuration Utility" in the BSM Installation Guide.

Using the Capacity Calculator After Installation

After you have BSM installed, you may want to make changes to your deployment. You can add applications, change the number of logged in users or any of the other numbers related to running applications. You can edit your capacity calculator and determine if the scope of your deployment has changed.

You can upload the data from the updated capacity calculator's Excel file directly into the Server Deployment page in Platform Administration. This page enables you to update the information that you entered in the Server Deployment page while running the Setup and Database Configuration utility without having to run the wizard.

If you do not have the appropriate license for an application, the application does not appear in the list of available applications in the Server Deployment page, either during installation or in the Platform Admin page. You can add licenses for applications after BSM is deployed in the License Management page in Platform Administration. After you add a license, you must go to the Server Deployment page to enable the application.

For details on updating a deployment, see "How to Update Your BSM Licenses, Applications, or Deployment Scope" in Platform Administration. For any changes to take effect while updating a deployment, you must restart BSM.

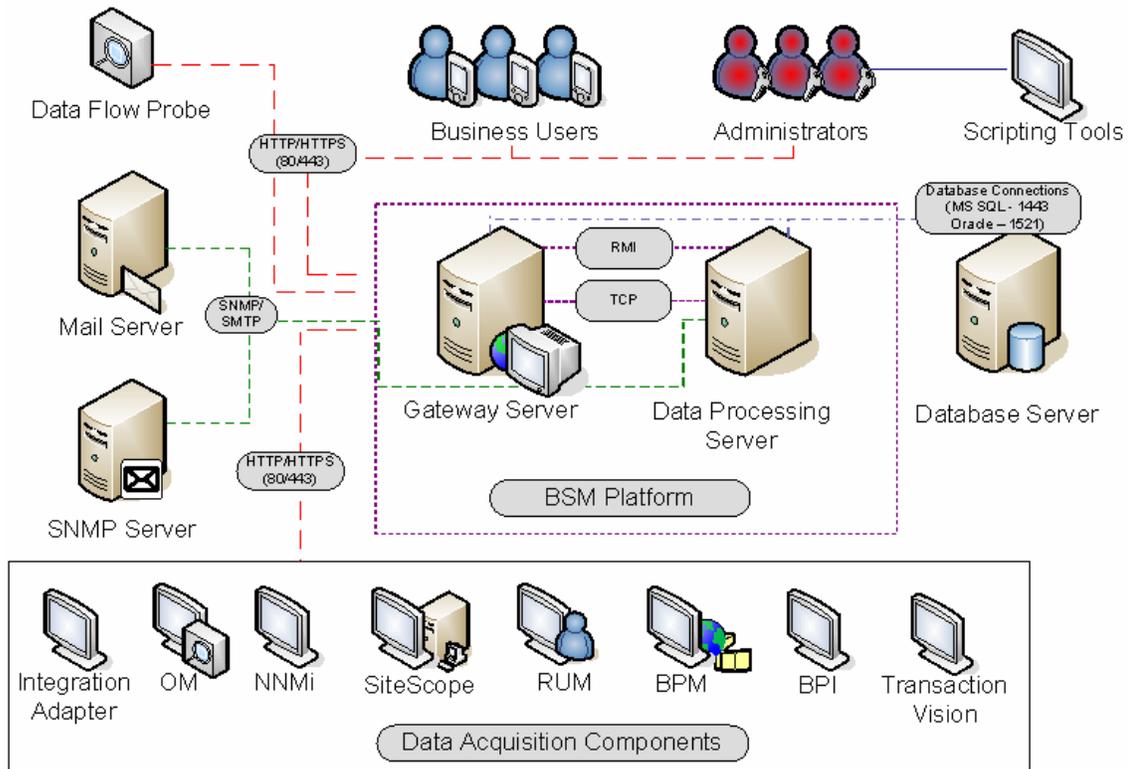
Chapter 9: Understanding the Platform and Components

This chapter includes:

- "Platform Architecture Diagram" below
- "BSM Servers" on the next page
- "BSM Database Server" on page 87
- "BSM Data Sources" on page 88
- "Additional Proprietary Components" on page 90
- "Third-Party Components" on page 91
- "Bus Communication Among BSM Components" on page 91

Platform Architecture Diagram

The diagram below illustrates the general BSM platform architecture and the communication protocols used among the components.



BSM Servers

The BSM platform consists of proprietary servers and components, data sources, scripting tools, and third-party servers, such as database and mail servers, that you set up in the enterprise network environment. This chapter provides an overview of the BSM platform and components.

BSM is powered by a set of servers that are responsible for running the applications, facilitating system management, data handling, reporting, and alerting. You install the following BSM servers on one or more Microsoft Windows or Linux machines in your enterprise network environment:

- **BSM Gateway Server.** Responsible for running BSM applications, producing reports, operating the administration areas, receiving data samples from the data collectors and distributing this data to the relevant BSM components, and supporting the bus. To work with BSM, the Gateway server machine must run a Web server.
- **BSM Data Processing Server.** Responsible for aggregating data, running the Business Logic Engine, and controlling the RTSM service.

You can install the BSM servers according to a number of different deployment strategies. Distributed deployments, in which multiple server machines are installed, can benefit from various high availability and load balancing options. For details on the recommended deployment strategies, see "[Deployment Configurations](#)" on page 93. For details on high availability and load balancing options, see "[Load Balancing and High Availability](#)" on page 93.

Notes and Best Practices for Server Deployment

Note the following when deploying BSM servers:

- Access to the BSM server machine must be available, either through HTTP or HTTPS, from any standard Internet or intranet connection.
- The BSM servers should be on dedicated machines and should not run other applications.
- BSM servers should not be installed on machines on which other HP products are installed.
- Installing BSM servers together with most other HP products on the same physical machine may result in port conflicts, performance issues, or other unexpected behavior. The coexistence of BSM servers with HP SiteScope or HP Operations Manager agent has been tested and is supported.
- Oracle Java 7 is copied onto the machine during server installation as part of the BSM installation.
- If BSM servers are installed on multiple network segments, it is highly recommended that the number of hops and the latency between the servers be minimal. Network-induced latency may cause adverse affects to the BSM application and can result in performance and stability issues. We recommend the network latency should be no more than 5 ms, regardless of the number of hops. For more information, contact HP Software Support.

- All BSM servers, as well as the database servers, must be installed in the same time zone, with the same daylight savings time configuration, and be set to the same time.
- If your BSM database server is using an SQL Server platform, make sure the Compatibility Level database setting is set to reflect the version of SQL that you are using in each of the 9.1x database schemas. For example if you are using SQL SERVER 2005, the compatibility level should be 90.
- BSM does not support setting the time zone to half hour time zones relative to GMT, for example, GMT+6:30 Indian. This may cause problems during data aggregation, which is performed on the hour.

Web Servers

To work with BSM, the Gateway server(s) must run a Web server. In Linux environments, you must use the Apache HTTP Server. In Windows environments, you can select between:

- **Microsoft Internet Information Server (IIS).** If you plan to run BSM on IIS, you should install the IIS prior to BSM installation. During BSM server installation, the IIS settings are automatically configured to work with BSM.

Note:

- When using the IIS Web Server, BSM only supports the IIS default application pool.
 - If you are installing on Windows 2008 and using IIS 7, you must create the appropriate roles for the IIS. For details, see "Working with the Web Server" in the BSM Installation Guide.
- **Apache HTTP Server.** A version of the Apache HTTP server is installed during BSM server installation. It has been adapted by HP for BSM. If you plan to use BSM with the Apache HTTP Server, you select the Apache HTTP Server during installation.

For information on setting up the Web server to work with BSM, see "Working with the Web Server" in the BSM Installation Guide.

BSM Database Server

BSM requires the following types of databases/user schemas, which you set up on either Microsoft SQL Server or Oracle Server:

- **Management database.** For storage of system-wide and management-related metadata for the BSM environment.
- **RTSM.** For storage of configuration information as configuration items (CIs) that is gathered from the various BSM and third-party applications and tools, or created/configured by BSM users. This information is used when building BSM views.

- **RTSM history database.** For storage of changes, over time, of the RTSM configuration items (CIs). This information can be viewed in the form of CI changes as well as snapshots.
- **Business Process Insight database.** For storage of the Business Process Models created using the Business Process Insight Modeler. For details on the Business Process Insight database, see "BPI Server Database Requirements" in the Business Process Insight Server Administration Guide.
- **Event database.** For storage of events and OMi topology synchronization.
- **Profile database(s).** For storage of raw and aggregated measurement data obtained from the BSM data collectors. Only one profile database is required, but more can be installed if necessary.
- **Analytics Database(s).** For storage of SHA metrics raw and aggregated data. Each Microsoft SQL Server database or Oracle user schema can host up to 1,000,000 metrics. You can create up to five SQL Server databases or Oracle user schemas. You can create SHA databases manually or by using the Manage Analytics Database page, accessible from **Admin > Platform > Setup and Maintenance**.

Part of the process of deploying BSM servers requires connecting to these databases. If you are installing BSM for the first time, you can manually create these databases directly on the database server(s) before server installation, or you can allow BSM to create the databases for you, using the Setup and Database Configuration utility.

For detailed information on deploying the database servers in your system for use with BSM, and creating the databases/user schemas manually, see the BSM Database Guide.

The procedure for setting database parameters is described in "Server Deployment and Setting Database Parameters" in the BSM Installation Guide.

Note: If you need to verify the integrity of the databases, you can run the database schema verification. For details, see Appendix D, "Database Schema Verification" in the BSM Database Guide.

BSM Data Sources

BSM data sources are responsible for collecting performance and event data from various points throughout the infrastructure, as well as from external locations, and feeding it into a central repository. The data is used to monitor and analyze events and the performance of business applications and IT infrastructure and alert staff to performance and threshold breaches. Some data collectors can also report the topology that they are monitoring to BSM.

Data Collectors

Data collectors are installed and administered separately. Downloading and running data collectors require separate licensing. Each data collector can be downloaded from the BSM Downloads page,

accessed from Platform Administration (**Admin > Platform > Setup and Maintenance > Downloads**). For details, see "Downloads Overview" in Platform Administration.

You can install the following data collectors on machines in your enterprise network environment or at remote locations:

- **Business Process Monitor (BPM)**. Emulates the end-user experience by running transactions (virtual business processes) and collecting availability and response time data.
- **SiteScope**. Collects key performance measurements and reports topology on a wide range of back-end infrastructure components, including Web, application, database, and firewall servers.
- **Real User Monitor (RUM)**. Measures the end-user experience of real users from a network/server perspective by monitoring real user traffic and collecting network and server performance data in real time.
- **Business Process Insight (BPI)**. Provides visibility into the health and performance of the business processes that are running over IT infrastructure to enable assessment of the business impact of delays or blockages in processes due to an IT performance problem.
- **TransactionVision**. Measures the health, performance and business impact of enterprise transactions and provides reporting on transaction activity.
- **SHA Performance Agent/Network Node Manager i Data Collector**. Provides predictive events, so that issues can be identified and processed before the full impact is felt by the business. The data collector sends PA/NNM data into SHA.

Note: HP Diagnostics is licensed and installed separately and can act as a data collector for BSM.

After the data collectors are installed and configured, you further define their settings in End User Management Administration (**Admin > End User Management**) and System Availability Management Administration (**Admin > System Availability Management**). End User Management Administration enables you to centrally manage your monitoring environment for Business Process Monitor and Real User Monitor. System Availability Management enables you to access hosted instances of SiteScope. Business Process Insight and TransactionVision each have their own administration areas (**Admin > Business Process Insight** and **Admin > Transaction Management**).

You can deploy monitors, configure eventing and alert schemes, and manage and organize your monitor environment all from within the BSM platform.

Data from HP Software Applications and Integrations

BSM has the ability to integrate with BTO products, with applications that are part of BSM, and with external applications.

These integrations enable the flow of data from application to application as well as the flow of events from the applications to BSM and to its Operations Management component, depending on the applications. You can drill down from BSM to some of the relevant applications.

The primary integrations with BSM are as follows:

- BSM - Operations Manager
- BSM - Service Manager
- BSM - Network Node Manager i (NNMi)
- BSM - SiteScope
- BSM - Operations Orchestration (OO)
- BSM - Diagnostics

You can find detailed information about supported integrations in the BSM section of the Integrations tab, in the [HP Software Integrations site](#).

Additional Proprietary Components

BSM administrators deploy the Discovery Probe to enable the Discovery process, which aids in modeling the IT world. In addition, administrators use HP scripting tools to create the scripts that are used by Business Process Monitor to collect data for monitored applications.

Data Flow Probe

The Data Flow Probe enables you to collect data about your IT infrastructure resources and their interdependencies. This process discovers resources such as applications, databases, network devices, servers, and so on. The Data Flow Probe is the main component responsible for receiving discovery tasks from the server, dispatching them to the IT components, and sending the results back to the RTSM through the server. For details on the discovery process and Data Flow Probe deployment, see Data Flow Management.

Scripting Tools

BSM scripting tools enable you to record the end-user actions that represent the key business transactions whose performance you want to monitor using Business Process Monitor. You save the transactions in recorded scripts. The table below describes the scripting tools that are available. For additional information on Business Process Monitor scripting tools, including script recording tips, see VuGen Recording Tips in the BSM Application Administration Guide.

HP Virtual User Generator (VuGen)

Enables you to record scripts for a large variety of protocols. This is the recommended tool for recording Business Process Monitor scripts. You download VuGen from the Downloads page, accessed from the Setup and Maintenance tab in Platform Administration. For details on using VuGen, see the HP Virtual User Generator documentation. For information on using HP LoadRunner scripts in BSM, contact HP Software Support.

QuickTest Professional (for use with Windows-based Business Process Monitor only)

Enables you to record scripts for Web-based applications that include Java applets and ActiveX. For details on using QuickTest Professional, refer to the documentation installed with the product.

Third-Party Components

- **Database Server.** BSM requires connection to a database server. The database server is used to store:
 - System-wide and management-related data, which includes administrative settings and customer-configured information
 - Profile data, which includes data collector settings and collected metrics
 - Configuration item (CI) data, which includes the CIs used to model your IT infrastructure and the relationships between them.

For more information on using database servers in BSM, see the BSM Database Guide.

- **Mail Server.** The mail server is used to send alerts and scheduled reports to designated recipients.
- **SNMP Server.** A connection to an SNMP server may be implemented to receive SNMP traps sent by the HP Business Service Management alerting mechanism.
- **SiteScope Integration Monitors.** BSM supports integration of data from third-party systems via SiteScope Integration Monitors, and to third-party systems, using BSM APIs. For more information on SiteScope Integration Monitors, see the Integration Monitors section in Using SiteScope in the SiteScope Help.

Bus Communication Among BSM Components

A bus is a virtual communications channel between BSM servers.

The following functionality is provided by the Bus:

- **High availability for communication between the Gateway and Data Processing servers.**

The bus uses a JMS-based messaging system for communication between the servers. A broker process on each server receives and delivers messages between the servers. Bus clustering allows multiple brokers to detect dropped server connections and to reconnect without data loss.

- **Transfer of monitoring data.**

Data collectors send raw monitoring data via HTTP/HTTPS protocol to the Gateway Server. The Gateway Server formats the raw data and sends it to the Data Processing Server via the Bus. In the event that the Online BLE is experiencing downtime, the bus preserves the data until the Online BLE is again operational, thus guaranteeing that the Alert Engine has all of the data to perform its calculations on. Service Health uses the online BLE to listen to the Bus, and Service Level Management uses the offline BLE to listen to the Bus. Both applications display the formatted data to the user.

- **Transfer of alerts.**

Each Data Processing Server can generate alerts as a result of the data aggregation process. These alerts are sent through the bus to the Alerts Engine and on to the user's e-mail, pager, or SMS.

Chapter 10: Deployment Configurations

This chapter includes:

- ["Best Practices" below](#)
- ["One-Machine Deployment" below](#)
- ["Distributed Deployment" below](#)
- ["Load Balancing and High Availability" below](#)
- ["APM Starter Deployment" on page 95](#)

Best Practices

We recommend installing BSM behind a load balancer or reverse proxy. This enables additional security options and can simplify disaster recovery and upgrade procedures.

It is highly recommended to use the capacity calculator to determine the scope of your deployment and the required hardware profile of each machine in your installation. For details, see ["Using the Capacity Calculator" on page 82](#).

One-Machine Deployment

A one-machine deployment has the Gateway Server and Data Processing Server installed on the same machine.

A one-machine deployment can be used for many installations scenarios as long as the machine has the required hardware to handle the capacity.

To choose a one-machine deployment, select the **Typical** setup type in the BSM installation wizard.

Distributed Deployment

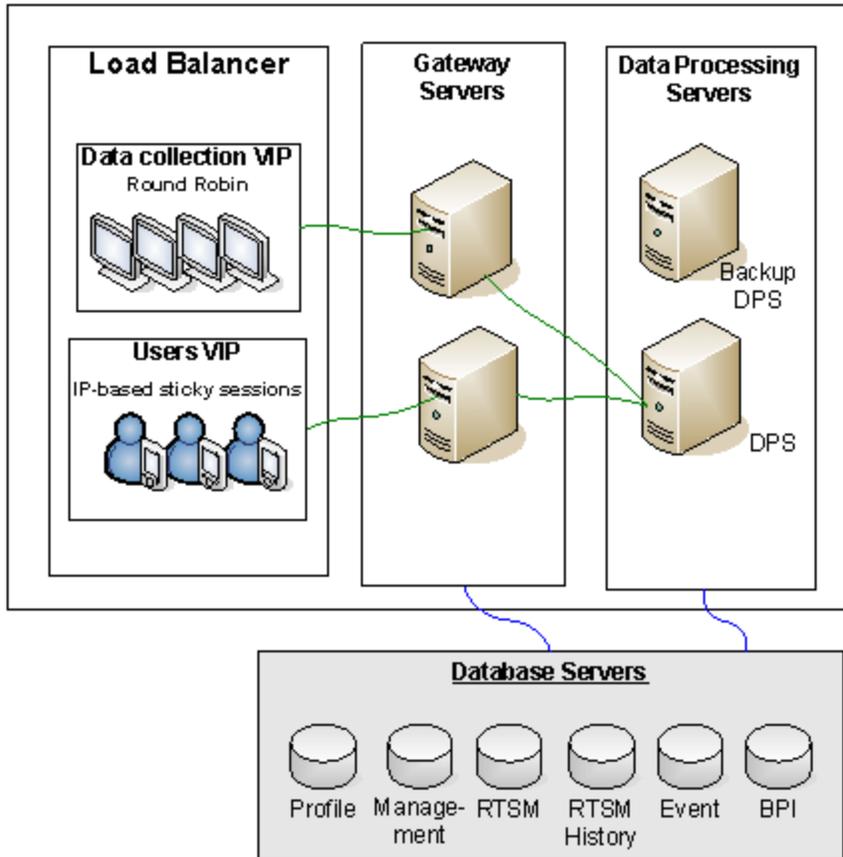
A distributed deployment is when one instance of a Gateway Server is installed on one machine and the Data Processing Server is installed on a second machine.

To set up a distributed deployment, specify the server type you want to install on each machine while running the installation wizard. You can install these servers in any order.

Load Balancing and High Availability

Load balancing and high availability can be implemented in one-machine or distributed deployments. You configure load balancing by adding an additional Gateway Server and high availability by adding a backup Data Processing Server.

The diagram below illustrates load balancing and high availability for a distributed deployment but the same configuration can be used if the Gateway Server and the Data Processing Server have been installed on one machine.



Note: Data Processing Servers can run concurrently with additional Data Processing Servers as long as the same service is not being run concurrently on more than one machine.

Benefits of a Multi-Server Deployment

Deploying multiple servers for BSM for either a one-machine deployment or a distributed deployment gives you the following benefits:

- Provides scaling solutions for your BSM system.
- Multiple Gateway Servers can be placed behind a load balancer to divide load and improve system performance. For details on load balancing, see "Load Balancing for the Gateway Server" in the BSM Installation Guide.
- Backup machines for the BSM servers allow high availability options to be used to improve system availability and reliability. For details on high availability, see "High Availability" in the BSM Installation Guide.

Deploying Multiple Servers

When deploying multiple BSM servers, you must perform the following steps:

- At the end of the server installation process, use the Setup and Database Configuration utility to establish connectivity between the server and the databases. You must specify the same database and connection parameters for each BSM server (whether the servers are at the same location or geographically separated). For details on using the Setup and Database Configuration utility, see the BSM Installation Guide.
- After installing BSM servers, point BSM data collectors (Business Process Monitor, SiteScope, Real User Monitor, TransactionVision, Business Process Insight) to the server or load balancer with which they must communicate to perform their work. For details, see "Configuring HP Business Service Management Data Collectors in a Distributed Environment" in the BSM Installation Guide.
- Ensure that the Gateway servers are accessible from any standard Internet or intranet connection, either through HTTP or HTTPS.
- Ensure that each server has a user account with administrative rights to the database servers.
- Create a common temporary directory to hold the temporary images created by the Gateway Servers when generating scheduled reports. For details, see "How to Modify the Location and Expiration of Temporary Image Files" in Platform Administration.

Notes and Limitations

If BSM servers, including the database servers, are installed on multiple network segments, it is highly recommended to minimize the number of hops and the latency between the servers. Network-induced latency may adversely affect the BSM application and can result in performance and stability issues. We recommend the network latency should be no more than 5 milliseconds, regardless of the number of hops. For more information, contact HP Software Support.

Because BSM uses Remote Method Invocation (RMI) calls between servers, placing firewalls between BSM servers is not supported.

APM Starter Deployment

The APM Starter deployment allows you to access the core functionality of BSM while using the minimum hardware. This can later be ramped up to increase performance and capacity.

APM Starter includes the following APM components: BSM one-machine server, RTSM, SiteScope and BPM deployed on the same virtual machine. More components and applications can be included at a later date. For details, speak to HP Software Support.

Note: If you anticipate that you will require greater capacity or performance within less than a year, we recommend that you plan the deployment according these requirements and not use the APM Starter deployment.

Installation Notes

Installing an APM starter deployment is similar to most BSM installations and follows the main installation workflow. For details, see the BSM Installation Guide. However, there are some differences:

- When installing the data collectors, install BPM first.
- When installing SiteScope, change the port to 8090.

System Capacity

The APM Starter deployment was tested to measure operating capacity. This section demonstrates the results of these tests.

Machine Details

Operating System	Windows
CPU cores	4
Memory	16 GB
Database	MS SQL 2008 EE SP2

Capacity

Product Area	Item	Item Type	Capacity
RTSM Capacity	CIs and relationships	Model	10000
	Active TQLs	Model	150
Users	Logged In Users	Users	25
	Service Health Users	Users	10
	Defined Users	Users	150
SLM	SLAs	SLM	10
	Total CIs	SLM	2000
BPM	Applications	MetricData	20
	Transactions	MetricData	100
	Locations	MetricData	5
	Trx-Loc Combinations	MetricData	150
	Max EPS	MetricData	1
SiteScope	Monitors	SAM	1000

Product Area	Item	Item Type	Capacity
	Measurements	SAM	4000
	Monitored CIs (Hosts + Software Elements)	SAM	150
	Max EPS	SAM	50

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