

HP Service Health Reporter

Software Version: 9.40
Windows® and Linux operating systems

Concepts Guide

Document Release Date: July 2016
Software Release Date: January 2015



Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notice

© Copyright 2010-2015 Hewlett-Packard Development Company, L.P.

Trademark Notices

Adobe® is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to: <http://h20230.www2.hp.com/selfsolve/manuals>

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to: <http://h20229.www2.hp.com/passport-registration.html>

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Support

Visit the HP Software Support Online web site at: <http://www.hp.com/go/hpssoftwaresupport>

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

<http://h20229.www2.hp.com/passport-registration.html>

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

HP Software Solutions Now accesses the HPSW Solution and Integration Portal Web site. This site enables you to explore HP Product Solutions to meet your business needs, includes a full list of Integrations between HP Products, as well as a listing of ITIL Processes. The URL for this Web site is

<http://h20230.www2.hp.com/sc/solutions/index.jsp>

Contents

Chapter 1: Introduction	5
Product Overview	5
Reports	6
Cross-Domain Reports	7
Embedded Software Components	8
Data Acquisition	8
User Interfaces	8
Documentation Set	9
Reference Documentation	9
Chapter 2: Deployments	11
Deployment with BSM Service and Operations Bridge	11
OMi10 as topology source	13
Deployment with Application Performance Management	14
Deployment with HP Operations Manager	15
Chapter 3: Architecture	17
Components	17
Platform	17
Content Packs	17
Components of a Content Pack	18
SHR Collectors on Remote Systems	20
Work flow	20
Data Collection	21
Collection Framework	21
Data Processing	21
Work-flow Streams	22
Reporting	23
Chapter 4: Reports	24
Web Intelligence Reports	24
Prompts	25
Simple Report Filter	25
Time-based Drill	26

Hyper-linked Reports	26
Related Reports	26
Shift-based Reports	27
Downtime Support in Reports	27
Report Tabs	27
Reports via Email	28
Report Formats	28
Send Documentation Feedback	29

Chapter 1: Introduction

This guide provides information about key concepts, features, components, deployments, and architecture of HP Service Health Reporter (SHR). Read this guide before you install and configure the product.

Product Overview

SHR is a cross-domain historical infrastructure performance reporting solution. It generates top-down reports from Business Service Management (BSM) Business Service and Business Application, HP Operations Manager (HPOM) Node Group or HP Operations Manager i (OMi)10 to the underlying infrastructure. It also generates bottoms-up reports from the infrastructure to the impacted Business Services and Business Applications or Node Groups. It leverages the topology information to show how the underlying infrastructure health, performance, and availability affects your Business Services and Business Applications or Node Groups over a period of time. You can navigate from higher level cross-domain reports to detailed domain level reports.

You can use the interactive reports in SHR to:

- Report and analyze the pattern of problems in your IT environment.
- Forecast IT resource performance based on historical data.
- Drill down across time boundaries for the available data. For example, you can drill down from yearly level reports to monthly and daily level reports and vice versa to analyze the pattern of problems in a specific period of time.
- Perform a custom analysis of the data using report filters.

You can use SHR to determine the changes that you can make in your IT environment to improve the performance of your business services.

SHR has high data retention capability. This makes it possible to maintain high performance data over a long period of time and aid in decision making.

The reports in SHR are available in content packs. A content pack is a collection of reports of different infrastructure availability and performance metrics for systems, applications, business transactions, key performance indicators (KPIs), and health indicators (HIs). Content packs contain the rules that define how the metrics will be collected, transformed, and aggregated in the reports. A typical content pack defines the metrics for a specific domain along with the necessary rules for analysis required in that domain.

SHR allows you to perform the following functions:

- Create your own content packs
- Customize and extend the out-of-the-box content packs provided in the product.

- Create your own groups for reporting. For example, you can create groups based on the business management chain or business functions.

SHR provides a Content Development Environment (CDE) to create new content packs and customize existing content packs.

Reports

The reports in SHR are grouped as follows:

- **Business Service Management**
 - End User Management
 - Real User Monitor
 - Synthetic Transaction Monitoring
 - Service Health
- **Infrastructure Management**
 - Service and Operations Bridge (OMi)
 - Enterprise Application Management
 - Microsoft Active Directory
 - Microsoft Exchange
 - Microsoft SQL Server database
 - Oracle database
 - IBM WebSphere
 - Oracle WebLogic
 - Operations (HPOM)
 - Network
 - System Management
 - Virtualized Environment Management

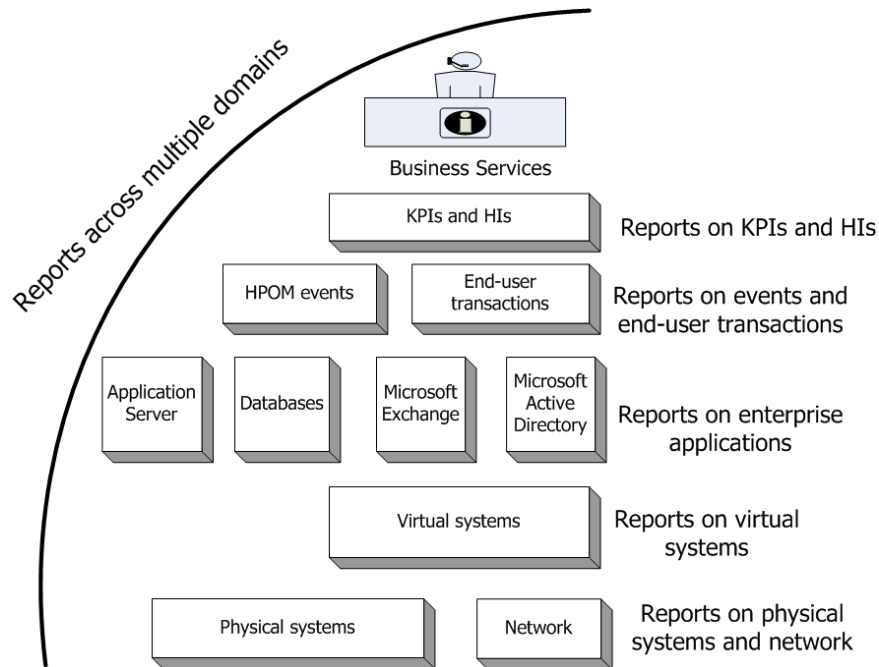
An important capability of SHR is that you can create new reports and customize the existing reports according to your business requirements.

Cross-Domain Reports

SHR provides cross-domain reports that are available in one or more report groups. Cross-domain reports display data from related domains to give an end-to-end picture of the health and performance of your IT infrastructure aligned to the business services. The IT infrastructure could be the applications and the underlying physical and virtual system resources utilized for those applications.

Apart from cross-domain reports, you have individual domain reports that display data from single domains. From the cross-domain reports, you can navigate to the individual domain reports for further analysis.

The following figure illustrates the different domains for which SHR provides domain reports. The cross-domain reports display data from one or more of these domains.



The following are examples of cross-domain reports:

- End-User Management (applications and transactions) information along with the information on underlying physical and virtual systems.
- Service Health (KPIs and HIs) information with the related applications and underlying systems.
- Event data from HP Operations Manager (HPOM) or HP Operations Manager i (OMi) with the underlying systems data.
- Information from enterprise applications and the physical or virtual systems on which the applications are running, displayed in a model driven contextual manner instead of manual navigation.

Embedded Software Components

The following embedded software product components are included:

- SAP BusinessObjects for reporting
- Sybase IQ database for storing, processing, and managing the performance data of your IT environment
- PostgreSQL database for storing and managing the data processing streams at run-time

Data Acquisition

SHR uses data collected by diverse set of products that are part of the HP BSM products portfolio. Based on the topology service definition that you configure, the relevant content packs enable you to collect data from these data acquisition products. The following are examples of data acquisition products:

- HPOM with Smart Plug-ins
- BSM Operations Management (OMi)
- BSM Business Process Monitor (BPM)
- BSM Real User Monitor (RUM)
- HP SiteScope
- HP Operations agent
- Network Node Manager i SPI Performance for Metrics

User Interfaces

SHR provides user interfaces for administration and reporting.

As an administrator, you can use the Administration user interface to configure your SHR system to collect the required data. You can use this interface to manage the platform and the installed content packs. You can also use this interface to monitor your SHR installation over time. For more information, see the *Online Help for Administrators*.

As an end-user, you can use the embedded SAP BusinessObjects reporting user interface, called the InfoView, to view, customize, and create new reports. For information about the reports available in SHR and their features, see "[Chapter 4: Reports](#)".

Documentation Set

In addition to this Concepts Guide, the documentation for SHR consists of the following:

- **Release Notes:** Use this document before you start installing the product. It specifies the new features, fixed defects, known issues, and limitations of the product.
- **Support Matrix:** Use this document to learn different hardware and software versions that are supported by SHR.
- **Interactive Installation Guide:** Use this guide to learn the prerequisites and detailed steps for installing SHR in your environment. It also covers common issues encountered with installation and methods to resolve them.
- **Configuration Guide:** Use this guide to plan your deployment scenarios and configure SHR in the supported deployments.
- **Online Help for Administrators:** Use this Online Help if you are an administrator of SHR. Click the help icon on the Administration user interface to launch the context-sensitive help for a page.
- **Online Help for Users:** Use this Online Help if you are an end-user of SHR. This help explains the typical usage and detailed description of the reports. Click the help icon on any report to launch its context-sensitive help.
- **Handbook of Reports:** Use this document to get overall information of the types of reports available in SHR and a very short description of each report.
- **Content Development Guide:** Use this guide to get an overview of content development and the process of creating a content pack. Use the sample files available in your SHR installation media and the instructions in this guide to create a sample content pack.
- **High Availability Guide:** This guide provides information on installing and configuring SHR in a high-availability cluster environment for fail-over and load balancing.
- **Disaster Recovery Guide:** Use this guide for taking a backup of your SHR data and how to restore it when a disaster occurs.
- **Troubleshooting Guide:** Use this guide to troubleshoot issues encountered with different aspects of SHR.

Reference Documentation

In addition to the SHR manuals and online help, you can refer to the SAP BusinessObjects documentation available in your installation at the following location:

```
<drive>:\Program Files (x86)\Business Objects\BusinessObjects Enterprise 12.0\Web Content\Enterprise12\Help\en
```

For information on Central management console(Administration of Business objects), go to:

```
http://<BO_FQDN>:8080/CmcApp/help/en/administration/html/default.htm
```

For information on Infoview (creation of reports, report functions and other admin tasks like scheduling), go to:

http://<BO_FQDN>:8080/InfoViewApp/BSMRHelp/en_US/WebHelp/Default.htm

For the latest SAP BusinessObjects documentation, see http://help.sap.com/businessobject/product_guides/.

Chapter 2: Deployments

The reports in SHR enable you to view the historical performance, health, and availability of the underlying IT elements to understand their impact on related business services over time. SHR manages the relationship of infrastructure elements to the business services at run-time by using the same topology services that are used by the products that collect the performance data from the managed nodes.

A topology model or a view, logically maps and relates business services to IT elements. You can define a topology service and collect infrastructure data from the nodes that are part of the topology. Any changes in the topology information is automatically reflected in the reports at run-time.

SHR provides support for the following topology service definitions:

- BSM Run-time Service Model (RTSM)
- HP Operations Manager (HP OM)
- VMware vCenter

SHR can connect to only one topology service definition at a time.

SHR supports the following deployments:

- ["Deployment with BSM Service and Operations Bridge" below](#)
- ["Deployment with Application Performance Management" on page 14](#)
- ["Deployment with HP Operations Manager" on page 15](#)

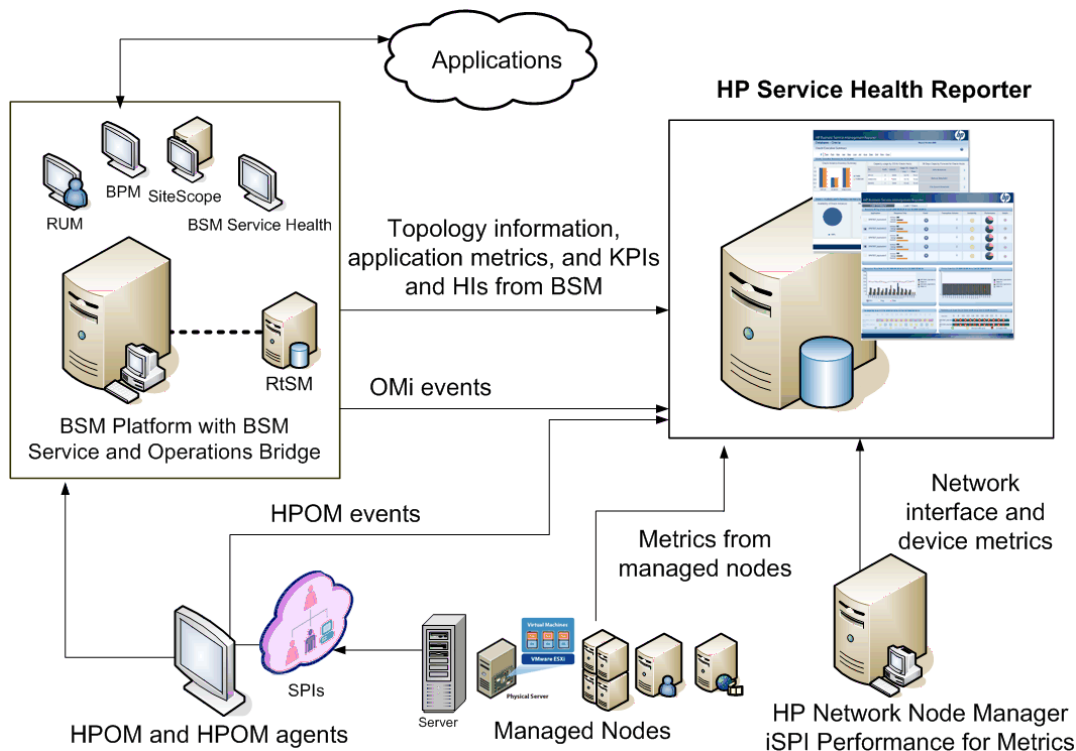
Deployment with BSM Service and Operations Bridge

In this deployment, RTSM is the source of topology information. SHR, by default, leverages the OMI dynamic topology synchronization technique for the discovery and synchronization of topology. This synchronization technique receives discovered topology data from multiple HPOM systems and updates the Configuration Items (CIs) and CI relationships in the RTSM as soon as changes are discovered. However, you can also use the HPOM D-MoM dynamic topology synchronization technique to discover and synchronize the topology information in RTSM.

HP products supported in this deployment scenario include:

- BSM platform with one or more of its applications such as HP SiteScope, Real User Monitor (RUM), and Business Process Monitor (BPM) as the data acquisition products
- HP Operations Manager (HPOM) which monitors the following domains:

- Oracle database
- Microsoft SQL Server database
- IBM WebSphere Application Server
- Oracle WebLogic Application Server
- Microsoft Active Directory
- Microsoft Exchange
- Systems Infrastructure
- Virtualization Infrastructure
- HP Performance Agent or HP Operations agent
- Network Node Manager iSPI Performance for Metrics Software
- BSM Operations Management (OMi) as the operations bridge in the BSM solution
- HP OMi10



The service and operations bridge for BSM consolidates all events from the underlying components regardless of the source of the data. SHR, as a reporting solution, fetches these events from OMi over

a long term. In this deployment, you can also view the application metrics from the BSM applications such as BPM and RUM, the KPIs and HIs from BSM Service Health, and the physical and virtual system metrics from SiteScope, HP Performance Agent, and HP Operations agent. In addition, you can view the event information from HPOM.

SHR processes the heterogeneous information and displays it in the reports in the form of graphs and tables. It provides cross-domain reports that provide a unified view of the health, performance, and availability of the underlying infrastructure. This unified view shows how the underlying infrastructure is impacting your business services in the long-term.

The following report folders are available in this deployment:

- Service and Operations Bridge (OMi)
- Service Health
- Real User Monitor
- Synthetic Transaction Monitoring
- System Management
- Virtualized Environment Management
- Operations
- Network
- Oracle Database
- Microsoft SQL Server Database
- IBM WebSphere Application Server
- Oracle WebLogic Application Server
- Microsoft Active Directory
- Microsoft Exchange

OMi10 as topology source

You can configure BSM and OMi10 as standalone topology and data sources. You can also setup BSM to synchronize topology data with the OMi10 system.

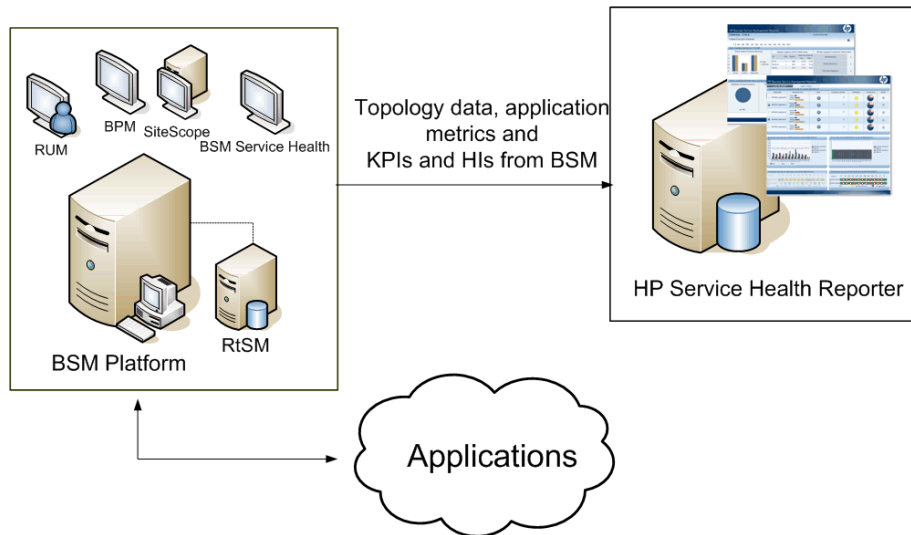
In this configuration, the OMi10 system provides topology data for all nodes and fact data for Operations Events and KPI. The BSM system provides fact data from RUM, BPM, and SiteScope that are directly monitored by it. For enabling topology sync between BSM and OMi10, see the BSM and OMi10 documentation.

For more information on OMi10 as topology source, see *HP Service Health Reporter Configuration Guide*.

Deployment with Application Performance Management

In this deployment, RTSM is the source of topology information. SHR uses the HPOM D-MoM dynamic topology synchronization technique to discover and synchronize the topology information in RTSM.

HP products supported in this deployment scenario include BSM platform with one or more of its applications such as HP SiteScope, RUM, BPM and Service Health as the data acquisition products.



SHR fetches the application data collected by the various BSM products. It processes the data over a long-term to display the required information on its reports.

The following domain report folders are available in this deployment:

- System Management
- Virtualized Environment Management
- Real User Monitor
- Synthetic Transaction Monitoring
- Service Health

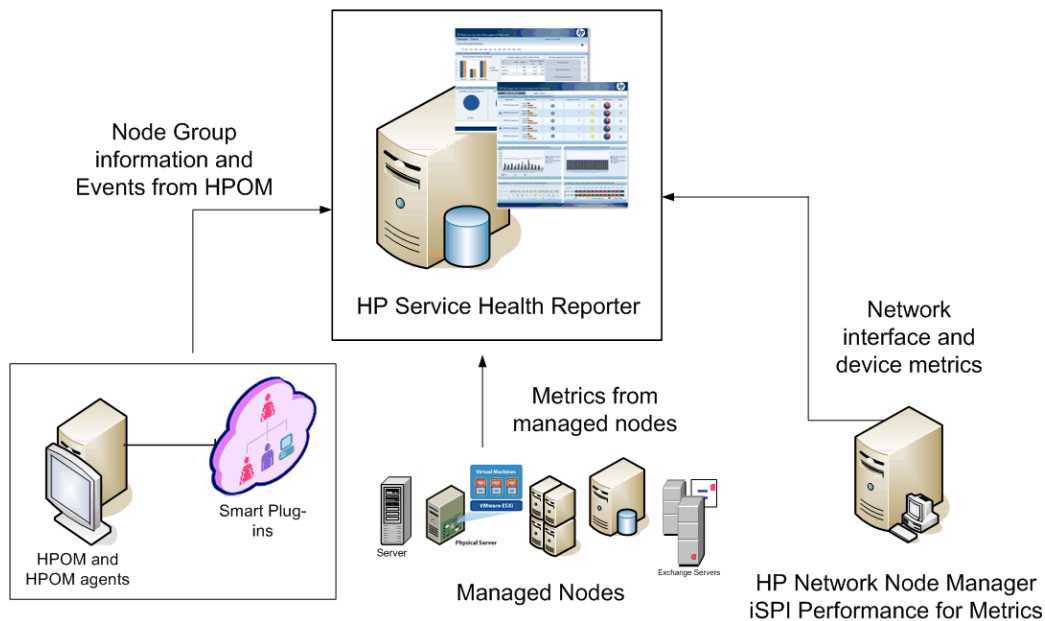
Note: The Operations report folder is supported in this deployment scenario only if HPOM coexists with the BSM platform. In this case, SHR only collects Event data from HPOM.

Deployment with HP Operations Manager

In this deployment, the topology information is a group of managed nodes defined in HPOM that are logically combined for operational monitoring. These logical node groups are created by HPOM users to classify the nodes as specific organizations or entities within their enterprise. For example, a group called APJ-Exchange Servers can be created in HPOM to organize the APJ-specific Exchange Servers and Active Directory nodes for reporting or monitoring purposes. SHR uses the node groups from HPOM for its topology information.

HP products supported in this deployment scenario include:

- HP Smart Plug-ins and Management Packs for the following applications:
 - Oracle database
 - Microsoft SQL Server database
 - IBM WebSphere Application Server
 - Oracle WebLogic Application Server
 - Microsoft Active Directory
 - Microsoft Exchange
 - Systems Infrastructure
 - Virtualization Infrastructure
- HP Performance Agent or HP Operations Agent
- Network Node Manager i SPI Performance for Metrics Software



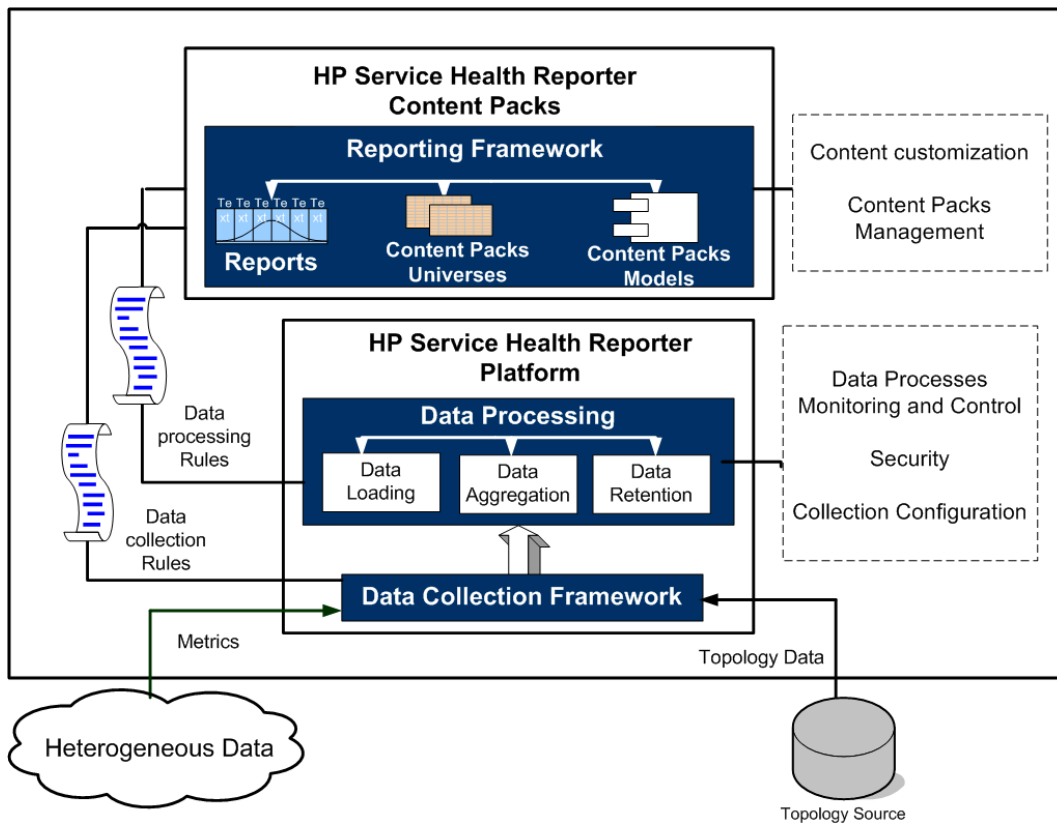
The following domain report folders are available in this deployment:

- System Management
- Virtualized Environment Management
- Operations
- Network
- Oracle Database
- Microsoft SQL Server Database
- IBM WebSphere Application Server
- Oracle WebLogic Application Server
- Microsoft Active Directory
- Microsoft Exchange

Chapter 3: Architecture

Components

SHR consists of the **platform** and **content packs**.



Platform

The platform is a performance management database or data store of SHR. This data store is a common repository of the health, performance, and availability data of the IT elements in your environment. Based on the metadata specification in the content pack, the platform data store contains performance data that is processed, transformed and aggregated in the data store.

Content Packs

The content packs create data marts in the performance management database. SHR fetches the data from its data sources and loads it into different data marts as defined by the metadata specifications in the content packs. Data marts are logical and physical subsets of the performance management

database. The data store enables to analyze information such as availability, throughput, error rates, usage statistics, and response times of the IT elements.

Content packs are the domain or application specific data marts deployed on the SHR platform. The content packs enable the platform to collect, store, process, and report the data. The content packs determine what metrics to collect, how to process those metrics, and display the processed data on the reports. A typical content pack defines the facts and dimensions associated with the particular domain content. SHR uses conformed dimensions that are common across multiple facts, and a unified topology bridge based on the conformed dimensions. The conformed dimensions together with the topology bridge defined in the content packs, enable the cross-domain reporting and report-to-report navigation.

Components of a Content Pack

A content pack consists of three components - the Domain, Extraction Transformation Loading (ETL), and Reports component.

- **Domain:** The Domain component defines the data model of the domain you are reporting on along with the logic to perform processing on the data. It requires domain experts to model the data according to the business requirements. This component is independent of the data source.
- **Extraction, Transformation, Loading (ETL):** The ETL component is data source dependent; it defines the collection of data from the specified data source, followed by transformation and loading of the data into the data warehouse. Therefore, for a particular domain, each data source application has a separate ETL content pack component. Before you start creating the ETL component you must identify the data source that provides the metrics suitable to be fed into the domain data model.
- **Reports:** The Reports component contains the SAP BusinessObjects Web Intelligence reports and universes. A content pack universe provides a business-oriented meaningful mapping of the underlying complex database and simplifies the creation of reports. It is a logical view of the underlying data model that you define in the Domain component.

For more information on content pack components, see the *HP Service Health Reporter Content Development Guide*.

Content packs contain work-flow streams in the domain and ETL components. These streams define the sequence of steps from data collection through processing to reporting. For more information, see ["Work-flow Streams" on page 22](#).

The data fetched from the data sources is of two kinds – fact data and dimension data - defined in the metadata specifications of each content pack.

- **Fact:** Facts are the numerical business performance measurements fetched by SHR from the different data acquisition sources. Examples of facts are CPU, memory, and file system utilization values, and database instance availability value. Fact data is numeric and additive. You can perform calculations using fact data. For example, you can calculate the average, minimum, and maximum values for the CPU utilization measurement. A fact table contains the facts for a particular business purpose. Each row in a fact table is one measurement. Each of the content

packs has one or more fact tables associated with it. SHR has the following two kinds of fact tables:

- **Transaction fact tables:** These fact tables contain events that occur at an instantaneous point in time. Transaction fact is also called as-pollled data. A row exists in the fact table only if a transaction event occurred. Examples include events from HPOM and OMi, and Health Indicators from BSM Service Health.
- **Periodic snapshot fact tables:** These fact tables contain time-series data fetched at periodic intervals from the data acquisition source. Periodic snapshots are required to see the cumulative performance of the business at regular, predictable time intervals. Examples include the data fetched by default, every five minutes from HP Performance agent, HP Operations agent, and HP SiteScope.
- **Dimension:** Dimensions are the entities associated with the facts. Examples of dimensions are host systems for which the utilization of CPU or memory is collected and the name of the database instance for which the availability is monitored. Time is a dimension as the value of any fact is associated with a particular time. A fact can be associated with one or more dimensions. SHR has the following two kinds of dimensions:
 - **Conformed Dimension:** Dimensions common across all the facts in the data marts are conformed dimensions. For example, time or host system name are conformed dimensions. The time dimension connected to the CPU utilization fact is identical to the time dimension connected to memory utilization fact. Conformed dimensions enable reporting across multiple data marts in SHR.
 - **Local Dimension:** Dimensions that are local to a data mart and not conformed across the facts are local dimensions. These dimensions enable the reporting for specific data marts.

SHR provides content packs for various domains such as enterprise performance for servers or applications, Microsoft Exchange, databases such as Oracle and Microsoft SQL Server, and Web Application Servers. The content packs available in SHR compliment the data collected by products such as HPOM Smart Plug-ins, HP Operations agent, and BPM. A navigation logic included in each content pack data model enables you to navigate from one report to another related report in the same domain.

Apart from reports in the same domain, content packs also enable you to view reports across the domains for a complete insight into the health, performance, and availability of your IT environment. For example, from an Oracle instance availability report, you can launch the report for CPU or memory utilization of the host system that runs the particular Oracle database instance.

The following section explains the functioning of a typical content pack.

- When you deploy a content pack, the metadata specifications create the database schema for that content pack.
- The particular universes get deployed along with the available Web Intelligence reports. The reports typically have navigation rules that specify the reports that can be launched from a particular report.

- SHR enables the data collection and reporting for the CIs across their relationship as defined in the topology service definition. For example, you can generate reports of high-level CIs such as the servers and then drill-down to the lower level CIs such as the applications running on those servers. The available topology service defines this relationship. The content packs may define a subset of the topology definition for the specific reporting requirements. In the BSM Service and Operations Bridge and the Application Performance Management deployments, the applicable content packs contain the topology definitions to be manually deployed on the BSM system to enable the data collection.
- The collection policies defined in the content pack list the metrics to be collected for that particular domain. You can configure the connection to the topology data source using the administration user interface.
- A content pack may also contain data transformation rules and reconciliation rules to make the heterogeneous data suitable for processing and reporting.
- The sequence of actions such as data transformation, reconciliation, processing, and reporting is controlled by the database processing or work flow streams available in the content packs. These streams define a relationship between the different steps at run-time. The administration user interface enables you to view and monitor the sequence of the steps using the data processing streams. You can use the streams to troubleshoot problems during data processing and reporting.

SHR Collectors on Remote Systems

The **collector** component helps SHR collect data from various data sources across the network. By installing a collector on a remote server, you can enhance the performance of SHR. You can install the collector on as many remote servers as you like, and thereby, you can distribute the load across a group of servers.

You can install a collector on a remote system that runs on any of the operating systems supported by SHR. The SHR system and the remote collector system need not run on the same operating system. You can also install the collector on multiple remote servers running on different operating systems.

The SHR installer always installs a collector instance on the SHR system. You cannot skip the collector installation on the SHR system even when you choose to install the collector on remote servers.

Work flow

The work-flow of SHR consists of the following steps:

- Data collection
- Data processing
- Reporting

Data Collection

The data collection policies are defined in the content pack that you install. The content packs define the metrics to be collected from the specified data source. SHR provides a set of out-of-the-box content packs. You can choose to install and enable one or more content packs according to your reporting and data collection requirements. You can configure the default frequency at which you want to fetch the data from the topology source and the available data sources. SHR provides a set of data collectors to fetch data from the different data sources. You can configure and monitor the data collectors using the administration user interface. The content packs provide different collection policies for the different data collectors.

Collection Framework

SHR provides a collection framework with specific collectors for the data and the topology. The following are examples of data collectors provided by SHR:

- **Data collector for BSM Management database and Profile database:** This collector fetches the data collected by BSM applications such as BPM, RUM, and HP Service Health. The data includes system availability and performance, real-user and synthetic user transaction performance, KPIs, and HIs.
- **Data collector for HP SiteScope, HP Performance Agent, and HP Operations agent:** This collector fetches the data such as system and application performance metrics.
- **Data collector for Operations Manager i (OMi):** This collector fetches the events from OMi.
- **Topology data collector for RTSM:** This collector fetches the CI and topology information from RTSM, which includes CI types, attributes and topology views.
- **Data collector for HPOM:** This collector fetches the HPOM node groups created by HPOM users and the HPOM events data.
- **Data collector for OMi10 Operations Database:** This collector fetches the events from OMi10 operations database.

SHR also provides the capability to extend the collection framework to collect data from external sources such as .csv files.

To enable data processing, the data fetched by SHR must be associated to the CI defined in the topology source. Since SHR fetches data from heterogeneous data sources, this association may not always be available. Using the data reconciliation process, SHR, in such scenarios, reconciles the data to map to the appropriate CIs. This data alignment or reconciliation process enables SHR to report across domains.

Data Processing

Once the data is collected and reconciled, it is loaded into the performance management database tables. Based on the metadata specifications defined in the content packs, the data is aggregated into

hourly, monthly, and yearly summary data. The data is also aggregated into averages, minimum, maximum, percentiles, and forecast values.

SHR collects data from different data sources based on the collection policies predefined in the content packs. The collected data is stored in the performance management database in various fact tables in GMT format.

The SHR database performs summary routines on the data. The summary routines convert the data into hourly, weekly, monthly, and yearly data. This data is then stored in the following data tables:

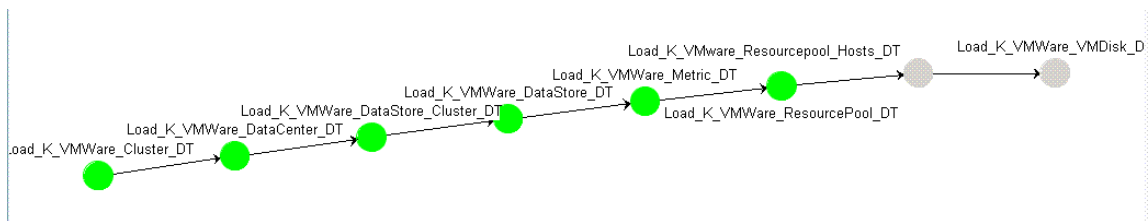
- Hourly - Contains raw data aggregated at an hourly level.
- Daily - Contains hourly data aggregated at a daily level.

The content packs also provide data retention rules and the default time period till which the data can be retained in the tables. You can use the administration user interface to modify any of these default data retention values.

The various database processes, such as loading and aggregation over time periods, are monitored and controlled by work-flow streams defined in the content packs.

Work-flow Streams

SHR provides a work-flow framework to control and monitor the work-flow of the various data processes. This framework is made up of work-flow streams. A stream is made up of steps that are related to one another in a sequential relationship. Each of the available content packs contains a set of streams that define and control the flow of data from one step to another. The following figure shows a sample stream with its steps.



When you install a content pack, the work-flow streams defined in the content pack get deployed on your SHR system. After you configure your system to collect the data from the available data acquisition products, these pre-defined streams begin to control the flow of data through various steps such as transformation, reconciliation, and aggregation.

SHR provides a framework to manage the work-flow streams. The framework provides fine-grained control of the work-flow streams that processes, transforms, and reconciles the data. The work-flow streams framework provides:

- Intelligent control of the work-flow streams and corresponding steps.
- Intelligent resource allocation to the work-flow steps.
- Parallelism and sequencing of the work-flow steps.

- Summarized view of the data audit information of the work-flow steps.

The information can include the number of files or rows that were processed, passed, and failed and the time taken for the audit step.

- Detailed view of the data movement in the past.

Reporting

Once the data is processed in the data store, it must be made suitable for business reporting. The underlying data is complex and difficult to comprehend by end-users. SHR has content pack universes to provide a business view of the underlying data and make the data simple enough to understand and reuse on reports by business users. These universes, deployed on the performance management database, map the underlying data in the tables to the corresponding business oriented user-friendly content. The universes can be linked with one another to provide the required cross-domain reports.

Once the data is mapped, you can use the InfoView reporting user interface to query the business data and generate reports. You can provide the required parameters such as the systems or applications for which you want to generate reports. You can select the time period, using filters, to generate the report for the specified time period.

SHR uses the reporting capabilities and features provided by SAP BusinessObjects. The SAP BusinessObjects Web Intelligence reports provide interactive features such as filters for analyzing the data and comparing different parameters. You can drill down or roll up on time to view the historical information on a single report. You can also launch one report from another report using the in-built navigation logic defined in the data model of the content packs. You can copy the available reports and use the SAP BusinessObjects InfoView tool to customize the reports. You can also create new reports according to your business requirements. For information about the features of Web Intelligence reports, see "[Chapter 4: Reports](#)" on the next page.

Chapter 4: Reports

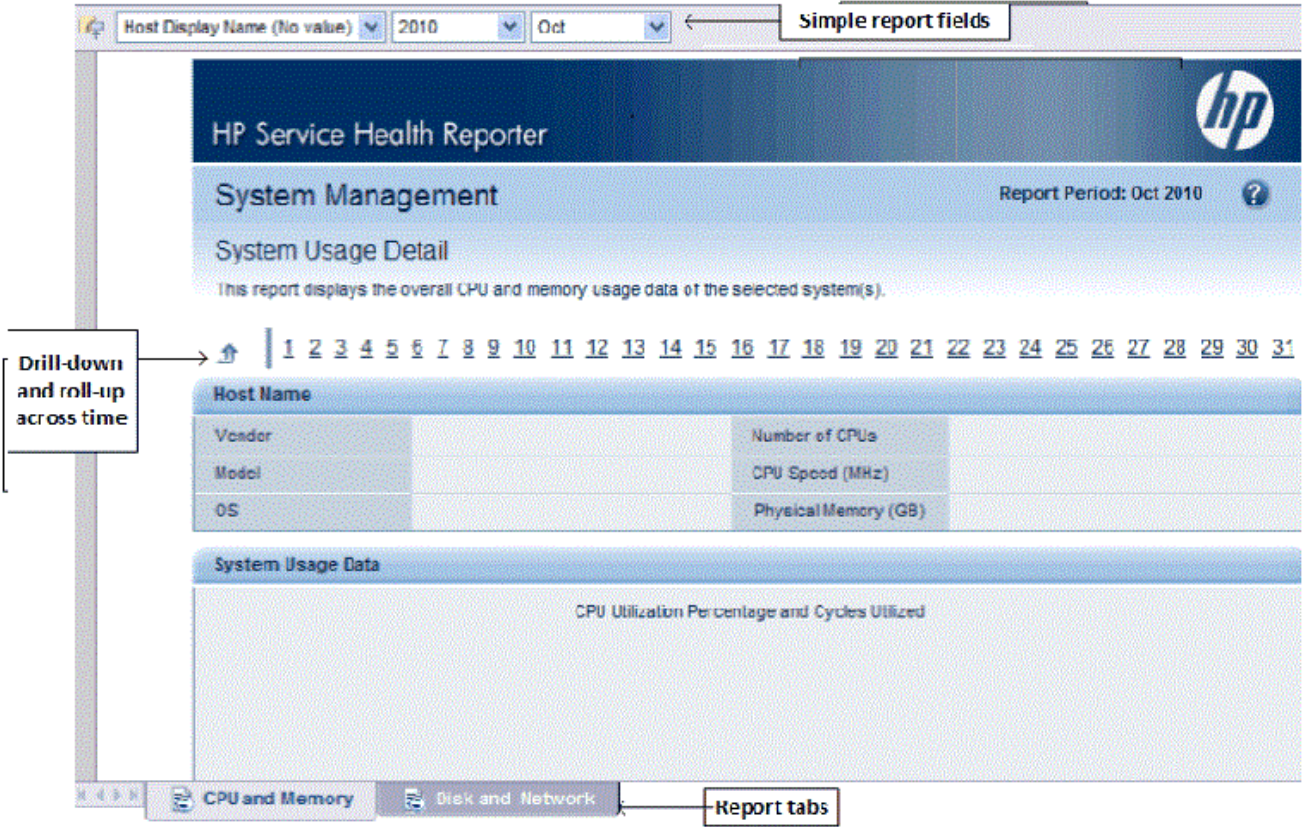
SHR provides an interactive user interface - the InfoView interface that runs within the browser - to view the available reports. You can create copies of your reports and customize them according to your business requirements. You can also use the InfoView interface to create new reports.

SHR provides out-of-the-box Web Intelligence reports. You can create your own Web Intelligence reports and customize the existing reports.

Web Intelligence Reports

A Web Intelligence report is a document generated by running a query on the underlying data. A typical Web Intelligence report in SHR displays one or more components such as graphs, tables, or charts. These components display the required data over selected time periods. A Web Intelligence report may have one or more pages based on the parameters that you selected. Each page is called an index.

The following figure shows a typical Web Intelligence report with some of its common features that are discussed later in this section.



The following figure shows a sample cross-domain Web Intelligence report:

The screenshot displays the HP Service Health Reporter interface for a 'Real User Monitor' report covering the period from 2/1/15 to 2/28/15. The report is titled 'Service Infrastructure Summary' and is filtered for 'Business Service(s): Banking', 'Business View(s) / Group(s): All', and 'Shift: Default_Shift'.

Key sections include:

- KPI status Duration (in percentage) for Business Service: Banking:** A table with columns for Business KPI Name, Critical, Major, Minor, Warning, OK, and Unknown.
- Application Performance by Response Time:** A table showing 'MobileBanking' with 100% availability, a response time of 12,801.18 ms, 3 transactions, and 1 end user group.
- Infrastructure Summary for Business Service: Banking:** Two line graphs showing 'Average CPU Utilization (%)' and 'Average Memory Utilization (%)' over 28 days for node 'iwft089077.ind.hp.com'. CPU utilization fluctuates between approximately 6% and 8%, while memory utilization remains consistently high, near 100%.
- Infrastructure View:** A table with columns for Node Name, Node Type, Average CPU Utilization (%), and Average Memory Utilization (%).

Annotations on the left side of the screenshot link specific parts of the interface to descriptive text:

- 'Selected Service Health KPI' points to the KPI status table.
- 'Application belonging to the service and their belongings' points to the Application Performance table.
- 'Usage of resources supporting the service' points to the Average CPU Utilization graph.
- 'Memory usage of resources' points to the Average Memory Utilization graph.
- 'Infrastructure resources supporting the service' points to the Infrastructure View table.

Following are some important features of Web Intelligence reports.

Prompts

Prompts are dynamic filters that display a question before you run the query or refresh a report. Prompts limit the data retrieved from the database by a query. Prompts dynamically filter the required data from the total data set based on your selections. Not all reports require you to enter prompt values. Some prompts are mandatory whereas others are optional.

Simple Report Filter

A simple report filter enables you to interact with the report data. Simple filters do not influence the data retrieval from the universe. They only limit the data displayed on the generated report. Simple report filters are always available on the report, so you do not have to specify them each time you are creating a query. Example of simple filters include time period such as year or month, names of host systems, names of database instances and so on.

Time-based Drill

The Web Intelligence reports in SHR enable you to drill down and roll up on time periods. You can drill down from yearly to monthly to daily level of data. Similarly, you can roll up from daily to monthly to yearly level of data. The time based drill option enables you to view the historical information over a period of time and if required drill down to granular level of data for effective problem analysis. On a typical report you must select the year, month or date for which you want to view the information.

Hyper-linked Reports

SHR provides navigation patterns or hyperlinks within the reports that enable you to navigate from one report to another. Using the report hyperlinks you can launch detailed reports that further help you to analyze the problems at a more granular level. The prompt values that you select before running the query are passed from one report to another.

Related Reports

In addition to hyperlinks on reports, SHR enables you to launch related reports of the particular CI in context. The related reports are listed in a drop-down list. You can select a report from the list to launch the specified reports. The following figure shows a sample report with a list of its related reports.

The screenshot displays a report titled "System Availability" with a subtitle "This report displays the total and average duration of availability of the selected node system(s)". Below the subtitle is a navigation bar with page numbers 1 through 31. The main content is a table titled "System Up Time and Down Time Details". The table has five columns: "Node Name", "Average UpTime Percentage", "Average Down Time Percentage", "Total UpTime in Minutes", and "Total Down Time in Minutes". The rows listed are bsmr-vm16, bsmr-vm9, bsmrwint3, and scdl7-vm1. A context menu is open over the bsmr-vm16 row, listing several related reports such as "System Quick View", "System Grade of Service", "System Usage Details", "System Exception Details", "Logical System Performance Comparison", "Logical System Entitlement Configuration", "Logical System Executive Summary", "Logical System Details", and "Navigation Viewer".

Node Name	Average UpTime Percentage	Average Down Time Percentage	Total UpTime in Minutes	Total Down Time in Minutes
bsmr-vm16	99.7	1.3	6,825	90
bsmr-vm9			11,010	0
bsmrwint3			15,270	0
scdl7-vm1			6,915	0

Shift-based Reports

Shifts in an organization indicate the different working hours that are defined by that organization, such as morning, afternoon, or night shift. These shifts can vary across organizations and time zones.

SHR uses shift-based reporting to help you make better business decisions by displaying data from a shift perspective. For example, as an administrator, you might want to identify the best times to perform a system backup. Although the resource utilization reports in SHR display the average resource usage at a daily level, the data might not be sufficient to decide on when to run the backup. By filtering the data to the shift level, you get a better view of the resource utilization across shifts, which in turn can help you identify the best period to run the system backup.

Using SHR, you can configure the shift timings and enable shift-based reporting for the different CIs in your environment. You can define multiple shifts in the Administration Console. The time ranges can include weekdays and weekends. For example, you can define the period from 12:00 A.M. on Saturday to 12:00 A.M. on Monday as a weekend shift. The time ranges defined across shifts can overlap. Any time range that is not a part of the defined shift is referred to as the non-shift period. This non-shift period is also considered as a shift and is used in shift-based reporting.

When the collected fact data is aggregated, the defined shift information is also applied and additional shift-based records are created in the aggregation tables. In the WebIntelligence reports, you can view the shift-level data by selecting a shift prompt value in the Prompt dialog box.

Downtime Support in Reports

Downtime refers to periods when a system, network, or application is not available to the user because of known or unknown reasons. Downtime is important for calculating the availability of a system, application, or network, which is typically expressed as the percentage of up-time in a given period. When using SHR to generate service-level agreement (SLA)-based reports, there is a need to exclude the predefined downtime to provide accurate availability information. In addition to availability, downtime is also used for accurately calculating the response times of an application or network.

SHR provides support for various types of downtime such as planned and excused downtime. For information about configuring downtime, see the *HP Service Health Reporter Online Help for Administrators*.

Report Tabs

Many of the WebIntelligence reports in SHR are grouped together to display similar kind of information. Such reports are called report tabs. For example, the detailed utilization information of CPU, memory, and file system can be grouped as tabs on a report as all the three tabs provide utilization details. The prompt values that you enter before running the report query are used by each of the tabbed reports. That is, the same context is passed across each of the tabbed reports. However, the drill down and roll up on time is specific to the report tab that you are viewing.

Reports via Email

SHR enables you to generate and send your reports via email, in any of the output formats supported by SAP BusinessObjects such as PDF or Microsoft Excel. SHR depends on the rich reporting framework of SAP BusinessObjects for this capability. You can also schedule your reports to run at a specific time of the day.

Report Formats

You can save your reports in multiple formats such as PDF, Microsoft Excel Worksheet, and CSV files. You can also save your most frequently used or important reports in your favorite folders.

Send Documentation Feedback

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

Feedback on Concepts Guide (Service Health Reporter 9.40)

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to docfeedback@hp.com.

We appreciate your feedback!

