
HP OpenView Service Quality Manager



Mobile Data Services Value Pack User's Guide

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Preface

This document describes how to install and configure the Mobile Data Services Value Pack, version 2.0, used in combination with the HP OpenView Service Quality Manager (SQM) platform. It also explains how to use the Mobile Data Services Value Pack 2.0 to design the data model and reports for use by the HP OpenView SQM platform, and provides troubleshooting information.

Intended audience

This document is intended for HP OpenView SQM integrators and administrators.

Required knowledge

It is assumed that the reader is familiar with the functionality of HP OpenView SQM and has previous experience of the following:

- System administration and operations
- Service level management.

It is assumed that the reader is familiar with the concepts described in the following books:

- *HP OpenView Service Quality Manager Overview*
- *HP OpenView Service Quality Manager Administrators Guide*
- *HP OpenView Service Quality Manager Information Modeling Reference Guide*

The goal of this document is not to describe Mobile Data Services. It is assumed that the reader is already familiar with this domain.

Software versions

The software versions referred to in this document are specified in chapter 2.1, “Software and hardware requirements”.

Typographical conventions

The following typographical conventions have been used throughout this document.

Courier font:

- Source code and examples of file contents
- Commands that you enter on the screen
- Pathnames

Italic text:

- Filenames, programs and parameters in the text
- The names of other documents referred to in this guide

Bold text:

- New terms
- Emphasized words
- Keyboard key names

Associated documents

For a full list of HP OpenView SQM user documentation, see the *HP OpenView Service Quality Manager Product Family Introduction*.

The MDS Value pack uses several 3rd party products as primary data source. The following user documentation may be necessary to deploy the MDS Value Pack in a production environment:

- *HP OpenView mFormation Service Adapter Installation, Configuration and User's Guide*
- *HP OpenView MDS 3G Probes Service Adapter Installation, Configuration and User's Guide*
- *Service Adapter for HP OpenView Internet Services Installation, Configuration and User's Guide*
- *HP OpenView TeMIP Alarm Service Adapter Installation, Configuration and User's Guide*

Support

You can visit the HP OpenView support web site at:

<http://support.openview.hp.com/support.jsp>

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

HP OpenView online software 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 site to:

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

Chapter 1

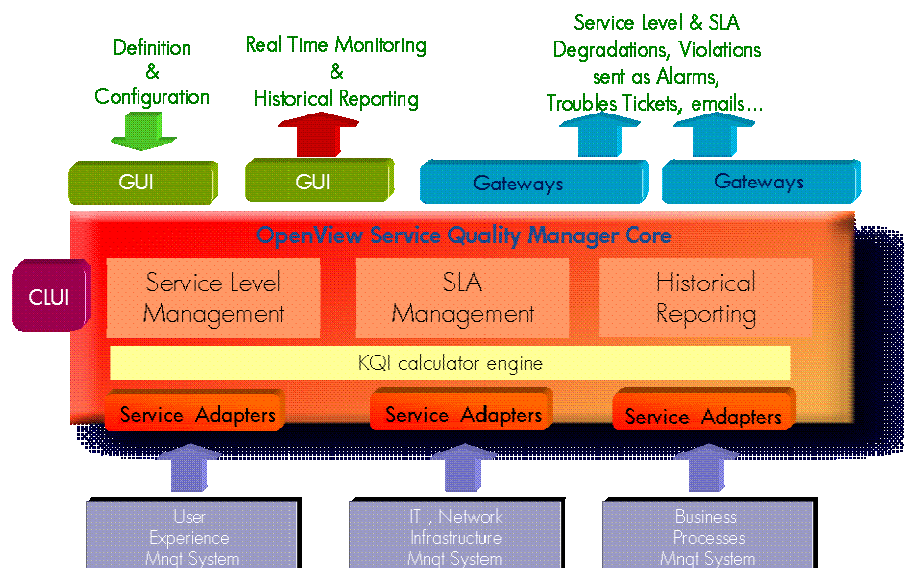
Value Pack description

1.1 HP OpenView Service Quality Manager

HP OpenView Service Quality Manager (SQM) provides a complete service quality management solution. It consolidates quality indicators across all domains—telecom, IT networks, servers, and applications—providing end-to-end visibility on service quality. HP OpenView SQM links service quality degradations to potential effects on business, allowing network support personnel to address problems and prioritize actions proactively.

HP OpenView SQM monitors the service quality by aggregating information coming from all data sources, such as the network, the IT infrastructure, and the service provider's business processes. Using this information, service operators can pinpoint infrastructure problems and identify their potential affect on customers, services, and service level agreements (SLAs).

Figure 1 HP OpenView SQM main components



For a detailed description of HP OpenView SQM, see the *HP OpenView Service Quality Manager Overview*.

1.2 What is a Value Pack?

1.2.1 Objective

The HP OpenView Service Quality Manager Value Pack software extends the value and benefits of the HP OpenView Service Quality Manager.

The objective of each Value Pack is to:

- Provide optimized time to value through preconfigured platforms
 - Reduce time to deployment through pre-implemented best practices
 - Facilitate integration within the customer environment
- Leverage from projects, partners and industry standards
 - Include Service Management specialist expertise and recommendations
 - Provide pre-defined service models with a full set of Key Quality Indicators
- Improve the value delivered by the HP OpenView Service Quality Manager product
 - Enrich engine capabilities with customer-centric, predefined specialized added value
 - Provide an operational foundation for a solution that can easily be customized and extended to map customer contexts
- Ensure a secure cost of operations
 - Include a multi-technology/vendor catalogue of solutions and components that constantly develop in line with new services

1.2.2 HP OpenView SQM Value Pack approach

1.2.2.1 Defining the service model and KQIs

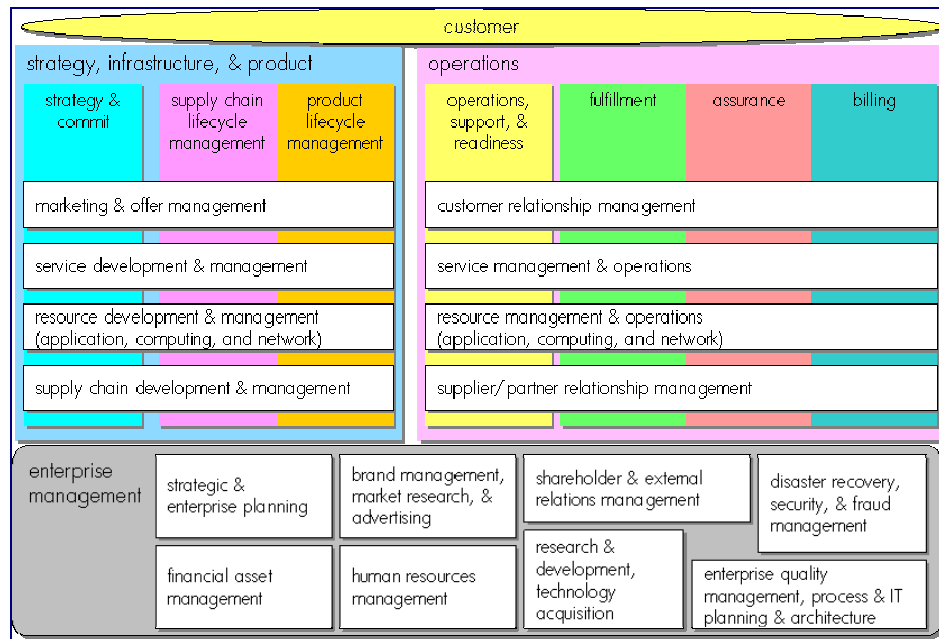
The methodology generally used to develop SLA and service management solutions consists in repeatedly performing the following steps in order to constantly improve the solution.

1. Define the scope of requirements by looking at the various use cases. For example, you can use the key operational processes defined in the Enhanced Telecom Operation Map (eTOM) produced by the Telemanagement Forum (www.tmfcentral.com) as a reference to analyze what would be the most suitable metrics for characterizing those processes.

A use case would then consist in:

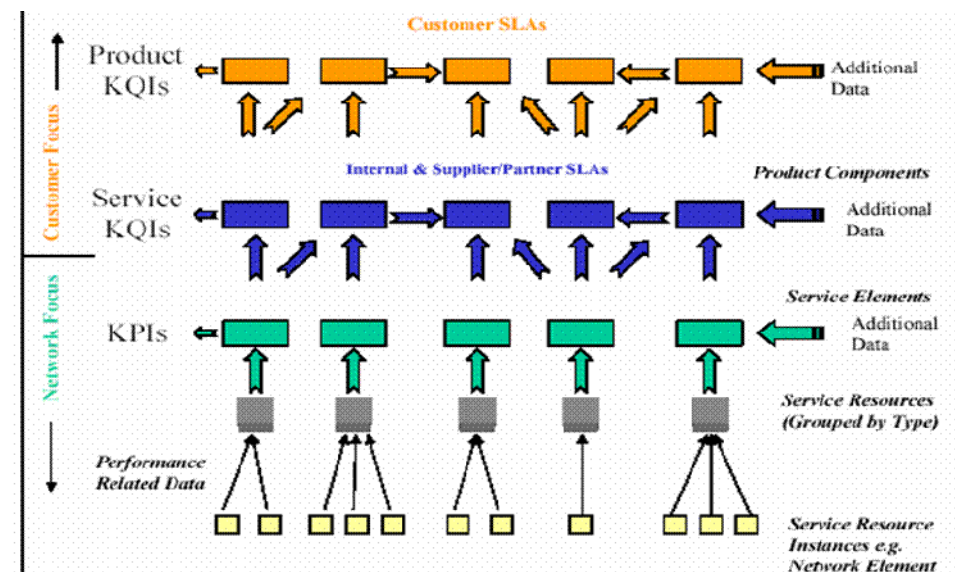
- Describing the standard activities of people using the system.
- Identifying the key metrics and policy that describe both the operator's business (i.e. the process aspects) and how the domain operates (i.e. the technological aspects).
- Defining a set of KQIs (Key Quality Indicators) that can continually provide the current and historical status of those metrics.
- Defining how these KQIs can be used by other systems, and specifying those systems.
- Specifying how those KQIs can be computed or collected from underlying existing data sources.

Figure 2 eTOM (TeleManagement Forum)



2. As the following figure illustrating how KQIs can be defined at the top of an indicator hierarchy shows, the second step consists in analyzing all available data sources and defining how the KQIs are computed and/or aggregated from the raw data.

Figure 3 Key Indicator hierarchy

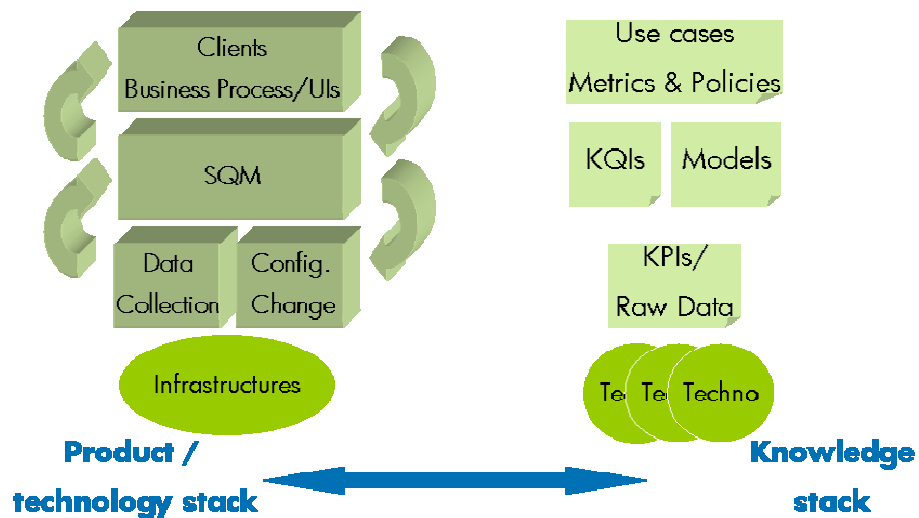


3. The third step consists in designing a service model which structures the KQIs providing data on service components into a service, to provide a consistent and comprehensive view of that service.

The purpose of a service model is to provide a solution catering for many different domains, ranging from access devices, service access points, transport networks, and applications to activation and maintenance processes, each of which contributes to a service and its management. A service model ensures that all views provided to interested parties are consistent.

4. The final step consists in doing the following for the service model concerned:
 - Deploying real services as individual instances of the service model.
 - Defining service levels (“classes of service”) in line with objectives of the different types of users (Customer Relations personnel, Planning Department, Account Managers, Service Managers, etc.)
 - Defining SLAs in terms of contracts binding a particular service instance and a particular Service Level for a customer.
 - Defining reports that provide specific views of services, service availability, SLA status, etc.
 - Deploying data collection and integration with Third Party Products.

Figure 4 Conceptual integration of SQM and data source



1.2.2.2 Data source analysis

There are many potential sources of raw data from which KQIs can be computed. These data sources can be categorized as follows:

- Fault Management systems, providing:
 - Fault statistics analyzed by network element group, service resource group, severity, age, etc.
 - Statuses and status changes for network elements and service resources
- Performance management systems, providing:
 - Performance data from all domains involved in service delivery
 - Comparisons between delivered performance and performance commitments
- Mediation/usage systems, providing:
 - Information on data traffic and volumes, based on the number of users and applications, and the service profiles
- Probes, providing:
 - End-to-end performance metrics (using active probes to simulate users)

- Detailed experience of service access and use by users (using passive probes to decode signaling protocols)
- Application log files, providing:
 - Error codes and volumes providing information on application sessions and service consumption
- Trouble ticketing systems, providing:
 - Information on customer outages and problem resolution delays, from which service data including MTTRs and MTBFs, etc. can be calculated
- Service Provisioning systems, providing:
 - Service ordering and activation information, from which data such as the Mean Time To Deliver (MTTD) can be calculated

You must therefore analyze the data sources to select, combine and aggregate the most significant and economical metrics needed to compute the required KQIs.

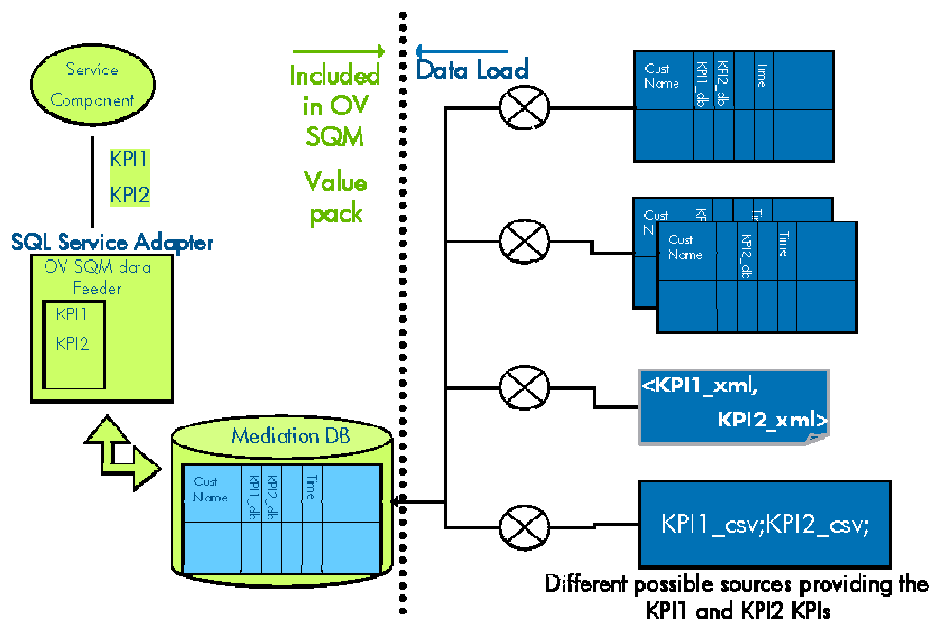
1.2.2.3 Data collection

As integration of Service Quality Management systems with data sources to collect service related metrics is always complex to implement, one of the OpenView SQM Value Pack's aims is to provide a quick and easy way to simplify this process by:

- Normalizing interfaces by providing a mediation database (Mediation DB) included in the OpenView SQM core product.
- Providing a set of tables in which the predefined collected metrics are loaded.
- Providing suitable dedicated Service Adapters to connect to the mediation database and retrieve the predefined metrics feeding the service model.

In some cases, the OpenView SQM Value Pack includes additional tools used to load data from major Third Party Products.

Figure 5 OV SQM Value Pack: data collection through a mediation database



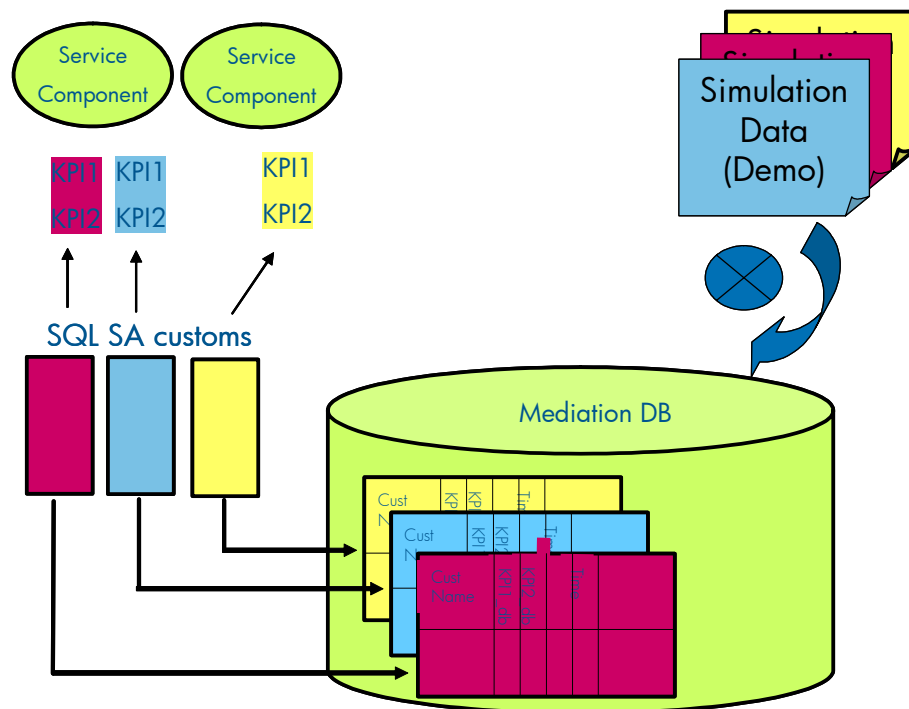
1.2.2.4 Data validation and simulation

Once you have installed your OpenView SQM Value Pack, you can load a set of parameter values in the mediation database tables for that Value Pack.

These parameter values are intended to represent one day's realistic data and are used to do the following:

- Validate the installation and populate the screens and reports with data.
- Demonstrate the product for education or training purposes.

Figure 6 Mediation database data validation and simulation



1.2.2.5 Predefined reports

The OpenView SQM software produces a variety of reports containing service quality, service metrics, trends, and SLA status information. OpenView SQM uses Business Objects to report this service quality information.

OpenView SQM contains a collection of predefined reports including the following:

- Reports on OpenView SQM data, such as service definitions, SLAs, and service levels.
- Reports showing the Mean Time Between Faults and data on the mean time required to repair the faults, service degradation, and the availability of each service and service component.

1.2.3 Typical content of a Value Pack

An OpenView SQM Value Pack contains the following:

- Software add-ons to the OpenView SQM core products
- Tools to install and run the Value Pack on an operational OpenView SQM system

- Documentation on the Value Pack's contents, and information on how to supplement the solution when needed

1.2.3.1 Software add-ons

- Service Model and KQIs, with calculation expressions
- Service Levels, and basic SLAs
- Custom SQL Service Adapters
- Scripts, and one day of data to populate the mediation database
- Scripts to set up the solution set and load the sample into the Service Repository Manager (SRM)

1.2.3.2 Documentation

- *Mobile Data Services Value Pack Users' Guide* (this document)
- *Service Model Reference Manual* (HTML)
- *Release Notes*

1.2.4 An open solution

HP OpenView SQM Value Packs provide a quick way to deploy a solution in a specific use case. A Value Pack can also be thought of as a starting point for customers wishing to deploy a more comprehensive and specialized solution. The solution has been designed to enable you to expand on the package by leveraging standard OpenView SQM features.

It enables you to do the following, among many other possibilities:

- Create new service instances, new service levels based on the predefined service model, and KQIs customized to different use cases, using the graphical user interface to perform these and other administrative tasks.
- Easily add new KQIs based on the predefined collected data, using the OpenView SQM graphical service designer.
- Add new tables containing new raw data from a new source in the mediation database and create a new Service Adapter, using the HP OpenView SQL SA Toolkit. From these new raw data parameters, you can then define new KQIs for existing or new service components.
- Load real data or collect similar raw data but from another source of data, by modifying the data load scripts.
- Deploy new custom service adapters that connect directly to a data source, so removing the mediation tables and replacing the SQL Service Adapter.
- Create new reports.

1.3 Introduction to the HP OpenView SQM Mobile Data Services Value Pack

1.3.1 OpenView SQM Mobile Data Services Value Pack software add-ons

The HP OpenView Service Quality Manager Mobile Data Services Value Pack is supplied with the following software add-ons.

1.3.1.1 Service models

The Mobile Data Services Value Pack includes service models for monitoring WAP services like WAP, MMS, Internet or Corporate roaming over 2.5 and 3G wireless networks.

Service models include a set of service components with pre-defined Key Quality Indicators that provide an end-to-end view of delivered Quality of Service for mobile data services.

The service component sharing concept, a key HP OpenView SQM feature, means that different services once deployed and monitored can share 'common' service resources / service components with their specific KQIs values. This ensures consistency between all service status views while minimizing calculation workload.

The MDS 2.0 value pack is made out of a set of modules that cover all service components involved in mobile data services delivery chain:

- End-user devices
- Radio access network, with geographical information
- Core packet network
- Backbone IP Services (Radius, DNS, and DHCP)
- Internet infrastructure
- Internet services (Radius, DNS, and DHCP)
- MMSC, HTTP, FTP, POP3, SMTP, and WAP servers
- IT servers
- Customer Care
- Service Activation

1.3.1.2 Service Levels, and basic SLAs

The Mobile Data Services Value Pack is provided with a set of Service Levels and SLAs corresponding to various use cases described below.

Those SLA are provided as examples for use in monitoring the simulation data through the OpenView SQM monitoring interface.

Table 1 Available SLAs

| SLA | Service example | Use case |
|---------------------------|----------------------|---|
| HP SLA | Mobile Data Services | SLA for Corporate fleet |
| PhoneCom Coverage | MVNO | SLA for multi network vendors, Metrics coming from handsets |
| WAP Operation Premium | WAP | Operational SLA for WAP |
| MMS Operation Premium | MMS | Operational SLA for MMS |
| Private Data Service Gold | Mobile Intranet | SLA for Corporate using mobile access to Intranet |

1.3.1.3 Predefined reports

Like any service model deployed in HP OpenView Service Quality Manager, the special Mobile Data Services software delivered in the Value Pack uses predefined WebIntelligence reports that are provided by HP OpenView Service Quality Manager. Your HP OpenView Service Quality Manager platform is configured to include the *slreporting* director and its related Business Objects software.

Several categories of information are available in the SQM predefined reports:

- Compliance reports
- Health reports
- Incident reports
- Inventory reports

For further details, see the *HP OpenView Service Quality Manager, Reporting Customization and User's Guide*.

1.3.1.4 Custom SQL Service Adapters

The Mobile Data Services Value Pack contains a set of service adapters adapted from the SQL Service Adapter, for collecting all raw data as described and requested in the service models.

1.3.2 OpenView SQM Mobile Data Services Value Pack: KQIs

1.3.2.1 Requirement for high level Key Quality Indicators

Ideally, a small set of end-to-end historical and real time Key Quality Indicators (KQIs) can provide an instant view of the services, and the SLA health and status. These high level KQIs are effectively composite indicators constructed from primary performance or quality indicators, each of which is provided by different domains and/or different geographies.

Even though the primary input indicators differ, coming from different contexts (technology, vendors, etc.), the same categories of KQIs can be defined (ITU-T Rec. I.350, Eurescom P806-GI, TMF Application notes) characterizing the different service management aspects, irrespective of the use case concerned. These KPIs are classified as either Technical KQIs, or Non-technical KQIs.

Technical KQIs:

- **Speed** characterizes the time related QoS aspects associated with a function, such as data transfer or user authentication, showing time related efficiency characteristics. Speed parameters are defined based on statistics calculated from sets of “duration times”. This function may potentially not be produced with the desired accuracy, however.
- **Accuracy** characterizes the degree of correctness with which a given function is performed. Accuracy parameters are defined based either on the ratio between the number of failures and the number of total attempts, or on the number of failures during an observation period.
- **Compliance** characterizes the percentage of the time, during a contractual period of time, when a KQI objective is not met.

These technical KQIs are available for both the service access (“access”) phase and the actual service consumption (“information transfer”) phase.

Non-technical KQIs:

- **Service provisioning** KQIs relate to parameters for processes involved in providing services or charging services to customers.
- **Service Repair** KQIs relate to parameters for processes involved in restoring services to customers.

1.3.2.2 Multiple data sources

The following tables list some parameters (Key Performance Indicators – KPIs) collected from the various systems and used as input data to compute Key Quality Indicators (KQIs) in service models.

1.3.2.3 Fault management system (FMS)

The MDS 2.0 service model includes 2 categories of fault-related KPIs, collected through 2 different service adapters:

- Real time ‘problem’ related indicators. Those ‘problems’ are service impacted alarms having been identified as such by the underlying fault management system.

Please refer to the **OV SQM TeMIP Fault Service Adapter** user guide to better understand how to integrate and collect those parameters with OV TeMIP as the Fault Management System.

- Statistics about faults, also computed by the underlying fault management systems.

Please refer to the **OV SQM TeMIP Fault Statistics Service Adapter** user guide to better understand how to integrate and collect those parameters with OV TeMIP as the Fault Management System.

1.3.2.4 Customer trouble ticketing system

The MDS 2.0 service model includes customer care KPIs. Those metrics as defined in **TMF GB923a** are typically available from a Trouble Ticketing system.

1.3.2.5 End-to-end performance system (active probes)

The MDS 2.0 service model includes end-to-end service parameters collected as a result of active polling of TCP, DHCP, DNS, FTP, HTTP, ICMP, POP3, RADIUS, SMTP, WAP, MMS and Web servers.

Those parameters can typically be collected from the OpenView Internet Services applications thanks to the off-the-shelf service adapter for OpenView Internet Services.

1.3.2.6 xDRs system (passive probes)

The MDS 2.0 service model includes a list of KPIs dedicated to services observed on Gb, Iu-PS, Gn, Gp and Gi interfaces of a GPRS/UMTS network.

KPIs are available according to the E.800 classification: Network availability, Network accessibility, Service accessibility, Service integrity, service retainability.

Those KPIs are used to characterize following objects available in the service model:

- APNs
- Applications (WAP, MMS, HTTP...)
- Groups of customers (IMSI)
- Handset device (user agent)
- URL (site, content provider)
- SGSN, GGSN

- Operators (roaming IN and OUT)

1.3.2.7 Service ordering

The MDS 2.0 service model includes service ordering KPIs. Those metrics as defined in **TMF GB923a** are typically available from a Service activation/order management system.

Service ordering KPIs have been split into KPIs that are relevant for the activation of the shared infra-structure and KPIs that are relevant to the end-user specific components (customer premises equipment).

1.3.2.8 IT health (applications)

The MDS 2.0 service model includes KPIs that represent applications or systems status as available for example from the OpenView Service Navigator.

The purpose of those KPIs is to leverage any existing service models that could exist already in an IT department and do not need to be fully re-designed into OVSQM. This IT sub-service model can be seen as one section of a more complex service model representing a whole delivery chain and its status would then contribute to the overall service status.

1.3.2.9 IT system performance

The MDS 2.0 service model includes low level, system related performance metrics such as CPU, network, memory or disk performance.

Individual system metrics are typically aggregated through the MDS 2.0 service to provide monitoring of clusters, server farms... supporting mobile data services.

1.3.2.10 Handset QoS monitoring agent

The MDS 2.0 service model includes what can be called Quality of Experience indicators collected from end-user handsets.

Those KQIs provide allow for monitoring of radio signal availability (cell coverage, signal strength...), device capabilities (software version, battery, memory...) data and voice service availability and application performance (HTTP, MMS, SMS...).

Aggregation of those handset KQIs is done through a service tree that can be dedicated to a group of devices (like for a corporate account, or for device manufacturers) or a for the purpose of operational service monitoring from metrics capturing the actual users experience.

1.3.2.11 Platforms log files

The MDS 2.0 service model includes application specific metrics collected from applications MIBs or log files on MMSC or WAP servers.

Those KQIs provide statistical information about the way applications are delivering from the server perspective.

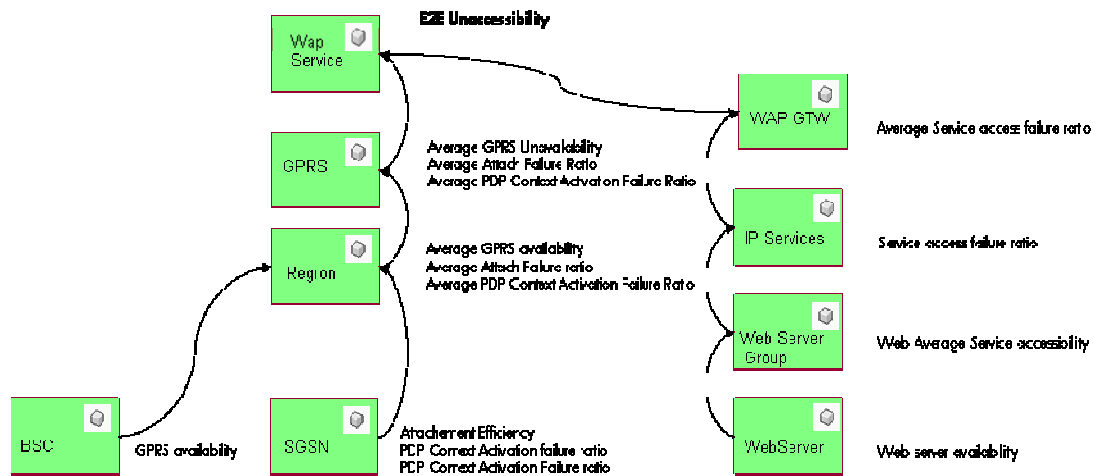
1.3.3 Value added key quality indicators

1.3.3.1 Service “Accessibility” example

The following figure shows how service models are used to define different levels of aggregation, based on geography (grouping together cells in a region, for example) or on function (grouping together servers in a web farm, for example, or combining two functions such as network access and application access). At the top of the model, the

OpenView SQM platform finally computes an accessibility parameter providing a synthetic, composite KQI offering a snapshot of end-to-end accessibility.

Figure 7 Service model integration diagram



1.3.3.2 Key time-aggregated quality Indicators

OV SQM provides with ‘time-aggregation’ functions. Those functions help defining KQIs as a function that can apply to KPIs values that are collected over a user defined period of time.

An example is the “Supporting staff too busy” KQI that is provided with the Customer care package of the MDS 2.0 service model.

That KQI is regularly computed as any other KQI and is set to ‘true’ if the the percentage of CallsNotAnswered KPI values that are collected from a trouble ticket system is greater than 50% during the last running hour.

1.3.3.3 Key Historical Indicators and baselines

Additional historical indicators are automatically computed by the OV SQM applications. Those indicators, like daily service resource availability or maximum weekly parameter value, etc... can also be included in the MDS 2.0 service model for monitoring purposes of as reference (baseline) parameters to compare other parameters against.

1.3.4 MDS value pack packaging and options

The MDS 2.0 value pack includes a full service model with associated SQL SA customs connecting to the value pack mediation database.

Two optional Service Adapters are available for point to point integration with:

1. Tekelec SA (Passive probe vendor)

Integration with Tekelec IAS solution

2. mFormation SA (device management solution vendor)

Integration with mFormation Customer Experience management application module.

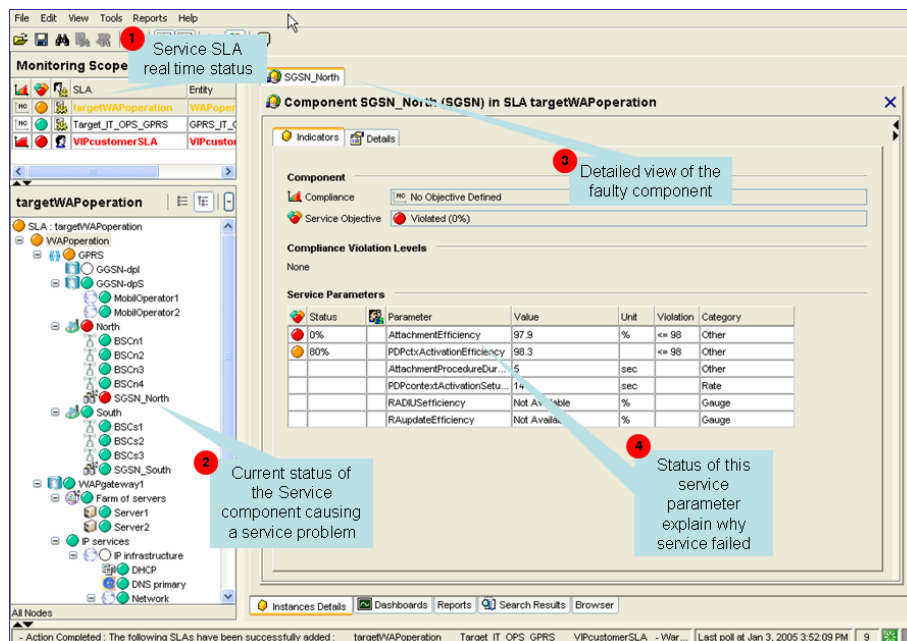
1.3.5 Solution in use

The following sections show how HP OpenView Service Quality Manager can help its users to be more efficient in their daily activities monitoring network resources, end-to-end services, or customer SLAs.

1.3.5.1 Service Level management

The HP OpenView Service Quality Manager real-time monitoring interface provides a quick and simple way to investigate service problems, as shown in the following figure.

Figure 8 HP OpenView Service Quality Manager interface

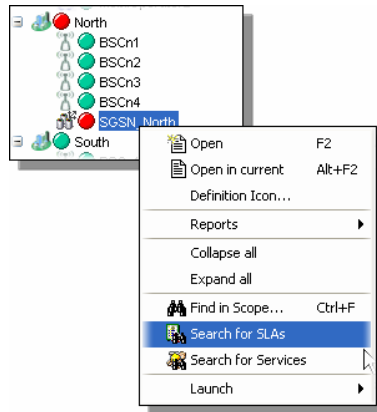


This window displays the following information, as numbered in the figure above:

1. The Monitoring Scope window showing the current status of each monitored service.
2. By selecting one of the monitored SLAs, Operators see a detailed view of that SLA or service. They can define filters to focus on faulty (degraded or violated) components that impact the SLA or service status.
3. A detailed view of the selected component lists the current values of all indicators attached to that component.
4. Parameter statuses, enabling the Operator to see which conditions caused a service failure.

Once they have used HP OpenView Service Quality Manager to find out which service component is causing the problem, the Operator can use a contextual menu to identify each SLA potentially impacted by the service resource concerned, as shown in the following figure.

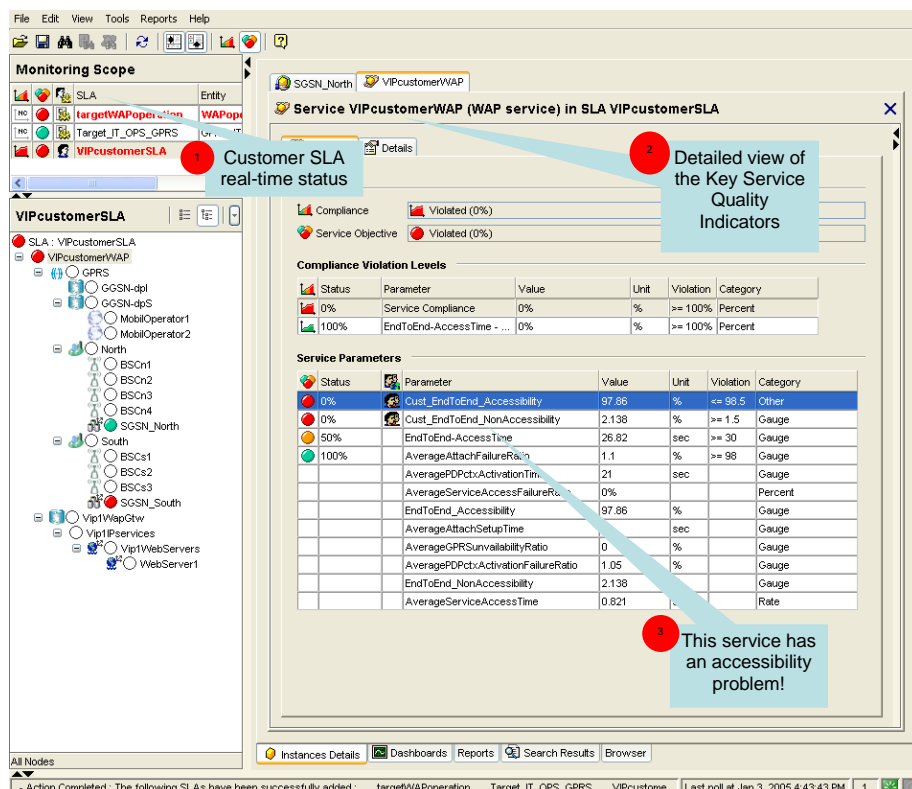
Figure 9 Service component contextual menu



1.3.5.2 Customer SLA management

HP OpenView Service Quality Manager enables those interfacing with customers to meet customer expectations better, by giving them a comprehensive, end-to-end view representing how those customers perceive service utilization, as shown in the following figure.

Figure 10 Monitoring Scope example window



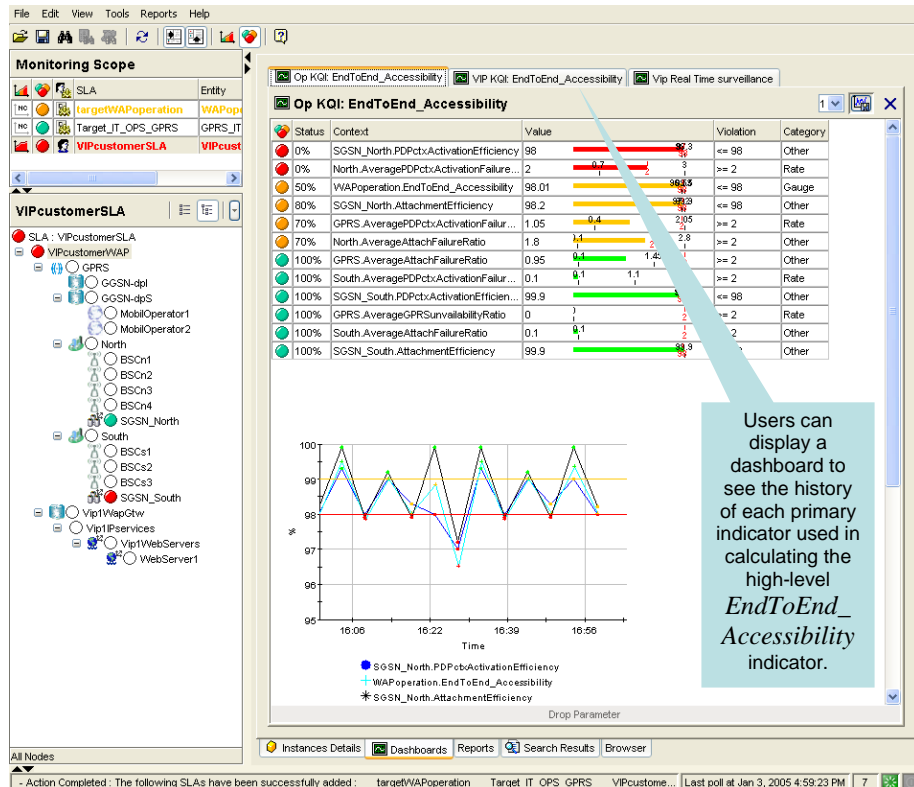
The Monitoring Scope window displays the following information, as numbered in the figure above:

1. The Monitoring Scope window shows the current status of each monitored SLA.
2. A detailed window of the service linked to that customer SLA lists all Key Quality Indicators included in the customer contract and best describing the customer experience regarding the service.

- The current status of each indicator relative to the objectives set for that customer helps the Operator to understand what problem the service user is currently facing: in this example, there is a problem in accessing the service.

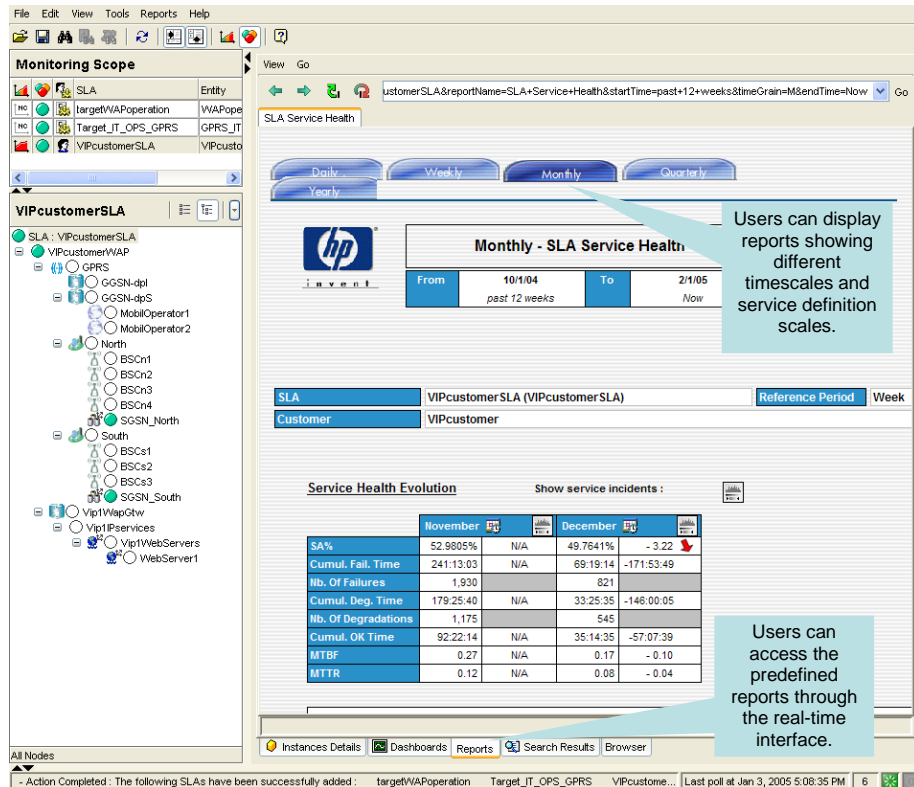
The Operator can use various dashboards to investigate the details behind the *EndToEnd_Accessibility* aggregate indicator, by looking at the history and current status of each primary indicator used in calculating the high-level *EndToEnd_Accessibility* aggregate indicator, as shown in the following figure.

Figure 11 *EndToEnd_Availability* dashboard



Operators can display predefined reports providing summary information on service availability over various timescales. End users can display similar reports using a Web-based interface, as shown in the following figure.

Figure 12 SLA reports window

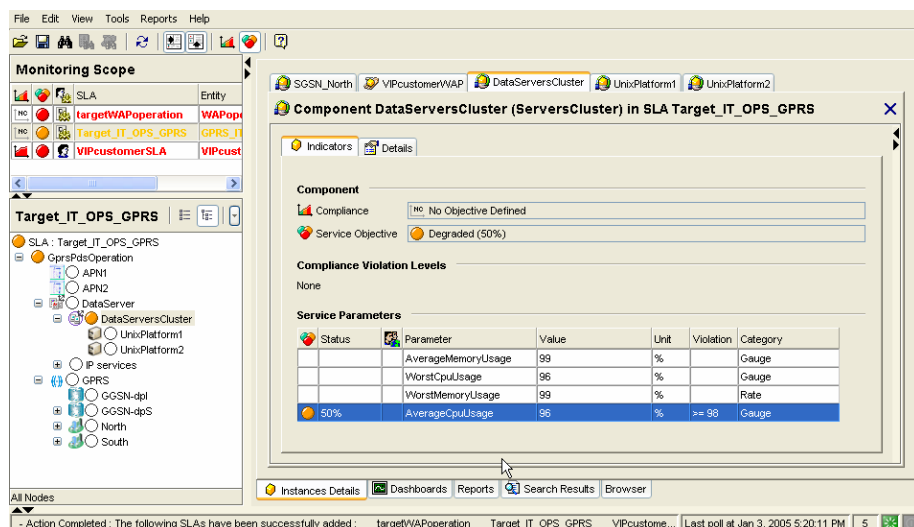


1.3.5.3 Resource management

HP OpenView Service Quality Manager provides resource managers and network planners with a better understanding of how service resources are performing against expectations, and enables them to proactively plan resource updates to meet business expectations while reducing the effect on the customer experience.

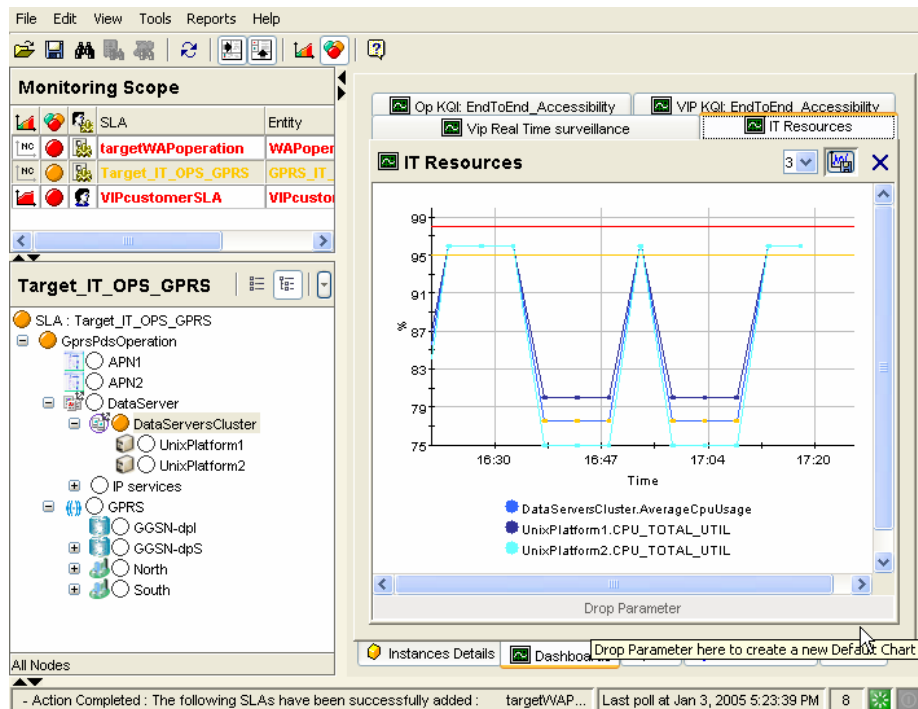
Its Monitoring Scope window shows the current status of each SLA attached to specific monitored resources (such as IT network components, for example), as shown in the following figure.

Figure 13 Component service parameters window



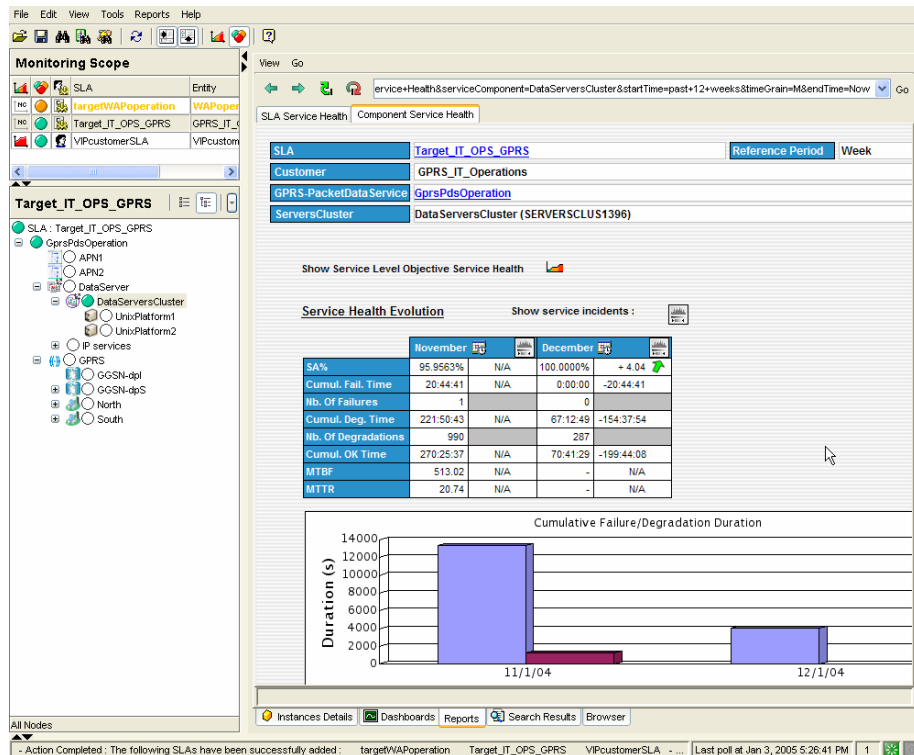
HP OpenView Service Quality Manager's real-time monitoring dashboards help you to analyze complex or aggregate indicators (such as the average CPU usage, for example) through changes in the primary indicators (such as system CPU usage on specific network components, for example), as shown in the following figure.

Figure 14 IT Resources window



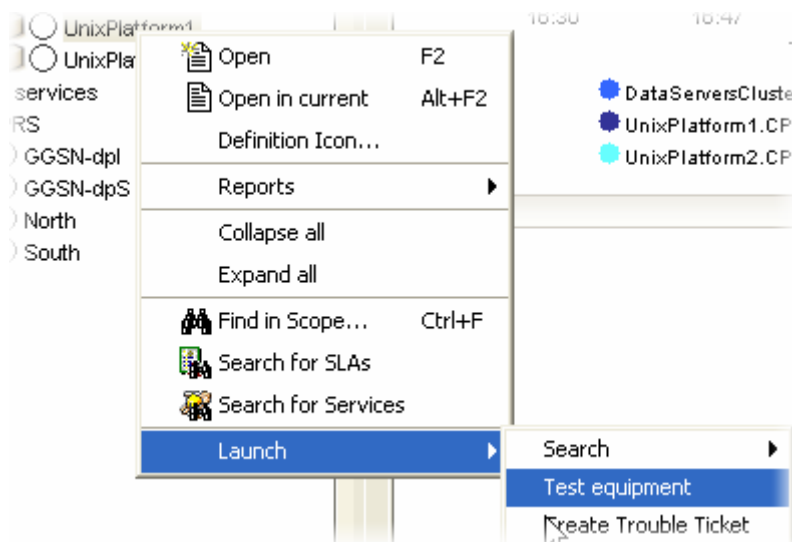
Predefined historical reports provide a comprehensive view of the Quality of Service each service component provides. HP OpenView Service Quality Manager's real-time monitoring interface enables you to access and navigate through reports directly from the service tree structure, as shown in the following figure.

Figure 15 SLA Service Health window



You can also use additional contextual or user-defined menus to simplify operator related tasks. The following figure shows a user launching troubleshooting tools to test a faulty component from within HP OpenView Service Quality Manager's real-time user interface.

Figure 16 'Launch' contextual menu



Chapter 2

Setting up the Value Pack

2.1 Software and hardware requirements

On HP-UX

The Value Pack must be installed on an HP OpenView SQM 1.4 software platform running on an HP-UX hardware platform. An Oracle database must be available on the server that is to hold the mediation database. The OpenView SQM platform must include the following elements:

- `slmonitoring` director
- SA Common V1.4 (`SQMSAGTWCOMMON`), and the SQL Service Adapter Runtime V1.4 (`SQMSADB`)
- The MDS3GProbes Service Adapter has to be installed.
- `slreporting` director
- The SQM SNMP Action Executor, if you want to send SNMP traps when an SLA is degraded or violated.

For details of the OpenView SQM software installation procedure, see the *HP OpenView Service Quality Manager Installation Guide*.

On Windows

Once you have installed the Value Pack, you must install at least the SL Monitoring graphical interface and the SL Administration graphical interface.

If you wish to develop your own Service Model based on the Service Model defined in the Value Pack, you must also install the Service Designer tool on top of the Rational Rose[®] software.

2.2 Value Pack contents

The Value Pack contains two installation kit portions for installation on the two platforms used jointly:

- Unix kit portion, for installation on an HP-UX platform
- Windows kit portion, for installation on a Windows NT, 2000, or XP platform

The contents of each of these kit portions are detailed in the following paragraphs.

You must install both of these kit portions, each on the appropriate platform, as described in “Installation” on page 27.

2.2.1 HP-UX installation kit portion

The Unix installation kit portion contains the following:

- The scripts and data used to populate the mediation database (Mediation DB):

```
$TEMIP_SC_HOME/ValuePacks/HP/MDS/populate_sqlsa_db
```

Data and SQL scripts are contained in the following directories:

```
$TEMIP_SC_HOME/ValuePacks/HP/MDS/Database/  
                                         /DTO  
                                         /MDS  
                                         /MSE  
                                         /OVIS
```

- The SQL SA toolkit projects (*.sqltk) and the generated kits (*.zip) are contained in the following directories:

```
$TEMIP_SC_HOME/ValuePacks/HP/MDS/SQLSA/
```

- The scripts that deploy and create the SQL SA, and load definitions and instances into the Service Repository Manager (SRM):

```
$TEMIP_SC_HOME/ValuePacks/HP/MDS/setup_solution
```

- The scripts and data that only register service definitions and instances, together with the Service Levels and SLAs, into the SRM:

```
$TEMIP_SC_HOME/ValuePacks/HP/MDS/load_definitions  
$TEMIP_SC_HOME/ValuePacks/HP/MDS/load_instances
```

Their input data is contained in the following directories:

```
$TEMIP_SC_HOME/ValuePacks/HP/MDS/Definition/  
                                         .../DFD  
                                         .../ExprDef  
                                         .../ServiceDef  
                                         .../ServiceLevel  
  
$TEMIP_SC_HOME/ValuePacks/HP/MDS/Instance/  
                                         .../Customer  
                                         .../SI  
                                         .../SIG  
                                         .../SLA
```

- The script that cleans up the Value Pack:

```
$TEMIP_SC_HOME/ValuePacks/HP/MDS/cleanup_solution
```

2.2.2 Windows NT/2000/XP installation kit portion

The Windows installation kit portion contains the following:

- Value Pack documentation. This is contained in the following directory:

```
%TEMIP_SC_HOME%\ValuePacks\HP\MDS\Doc
```

An HTML image of the Service Design, which does not require the Service Designer for display, is also provided, in the following directory:

```
%TEMIP_SC_HOME%\ValuePacks\HP\MDS\Doc\ModelDesign
```

- Service Model project files used as input for the Service Designer. These are contained in the following directory:

```
%TEMIP_SC_HOME%\ValuePacks\HP\MDS\Model\
```

- Source code of the Custom Expressions used by the Service Model. These are contained in the following directories:

```
%TEMIP_SC_HOME%\ValuePacks\HP\MDS\Model\CustomExpressions\java
%TEMIP_SC_HOME%\ValuePacks\HP\MDS\Model\CustomExpressions\plsql
```

2.3 Installation

2.3.1 Installation on an HP-UX platform

Logging on

Log on to the HP-UX system where you want to install the HP OpenView Service Quality Manager Mobile Data Services Value Pack, as **root** user.

Installing the kit

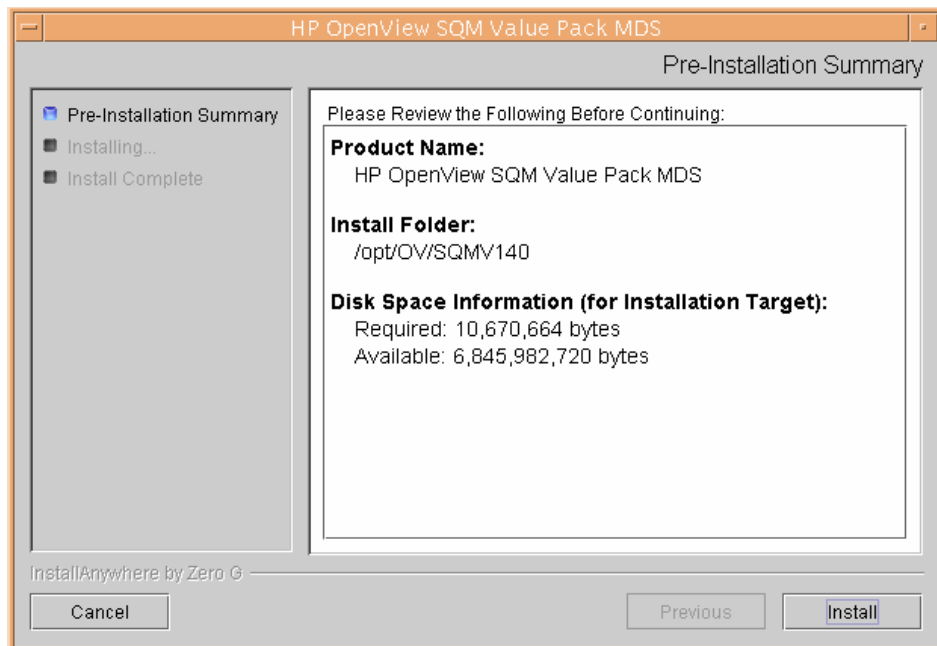
To install the Unix portion of the Mobile Data Services Value Pack kit, do the following.

1. If the OpenView SQM kernel is not already installed on the server, do so by following the procedure described in the *HP OpenView Service Quality Manager Installation Guide*.
2. If the OpenView SQM Kernel is not already initialized, you must set up the environment variables by entering the following commands. For further details, see the *HP OpenView Service Quality Manager Installation Guide*.

```
# cd $TEMIP_SC_VAR_HOME
# . $TEMIP_SC_VAR_HOME/temip_sc_env.sh
```

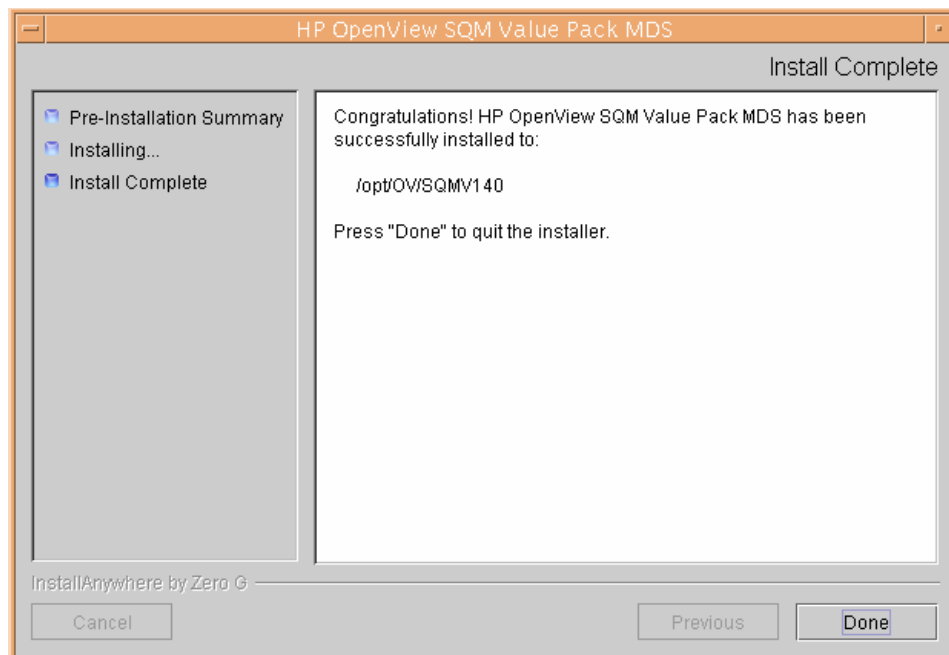
3. Ensure that SQMSSET3GPROBES-1.40.00 is installed. For this check \$TEMIP_SC_HOME/fileset directory
4. Insert the Mobile Data Services Value Pack CD-ROM into your CD-ROM drive, and then execute *SQMSSETMDS-1.40.00.bin*

The following output is displayed.



Click **Install** to start the installation.

When the Unix portion of the Mobile Data Services Value Pack has been installed, the following screen is displayed.



Click **Done** to end the installation process on the Unix platform.

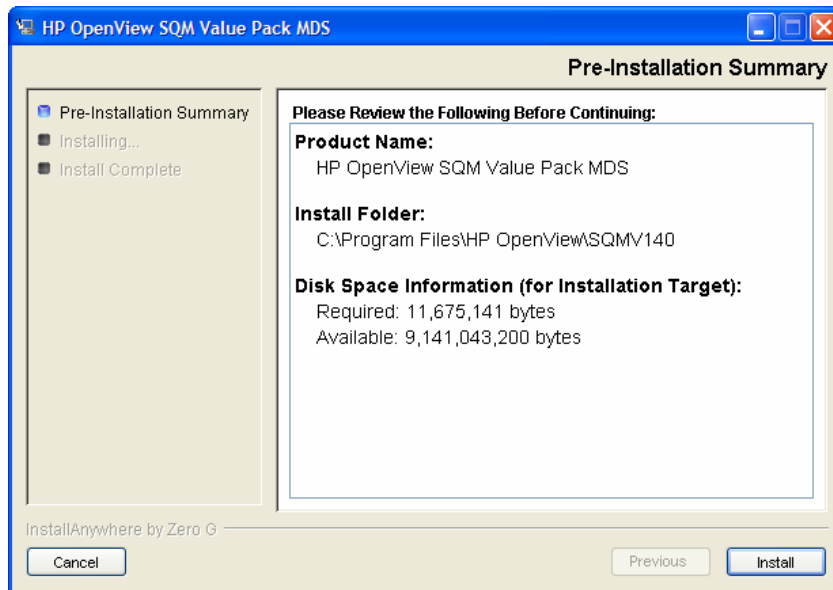
2.3.2 Installation on a Windows XP platform

To install the Windows portion of the HP OpenView Service Quality Manager Mobile Data Services Value Pack kit, do the following.

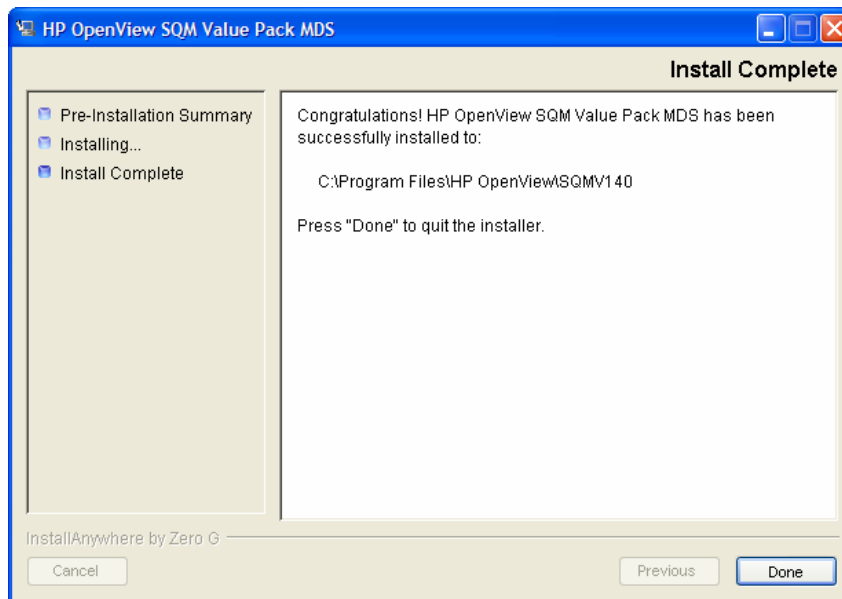
1. Insert the Mobile Data Services Value Pack CD-ROM into your CD-ROM drive, and then open the SQM-1.40.00\Windows folder.

2. Run the *SQMSSETMDS-1.40.00.exe* installer.

The following Pre-installation summary is displayed. Click **Install** to start the installation



When the Windows portion of the Mobile Data Services Value Pack has been installed, the following screen is displayed.



3. Click **Done** to end the installation process on the Windows platform.

2.4 Setting up the Value Pack

To set up the Value Pack, you must execute the three following steps. These have been differentiated so that the mediation database (Mediation DB) can be created if it does not exist, and so that Mediation DB can be populated on a remote HP-UX server.

Note

You must perform each of the following steps under the **root** account. You must do so in order to set up each SQL Service Adapter and set up the **oracle** and **squadm** users as necessary.

1. Create the mediation database (i.e. the *sqlsa* database). This step is invoked by executing the *temip_create_database* script.
2. Populate the mediation database with data that has been collected from the different Data Feeder Instances (DFIs) used by the Value Pack. This step is invoked by executing the *populate_sqlsa_db* script.
3. Set up each SQL Service Adapter that collects data from the mediation database, and then register the Service Definitions, Service Levels, Service Instances, and SLA(s) provided by the Value Pack. This step is invoked by executing the *setup_solution* script.

Each of these steps is described in detail below.

2.4.1 Creating the mediation database

The mediation database, *sqlsa*, must be created before the Value Pack is set up. It can be created either on the local HP-UX server or on a remote HP-UX computer, using the Oracle scripts provided with SQM to deploy and delete the Oracle databases used by the *OpenView SQM* applications. For more details of the installation procedure, see the *Service Adapter for HP OpenView Operations Installation, Configuration and User's Guide*.

2.4.1.1 *temip_create_database sqlsa*

This tool is used to deploy all databases used by the HP OpenView SQM system. You must invoke this tool to create the *sqlsa* database on the HP-UX computer that will host it.

Note

You can display help text for this tool by invoking the tool as follows:
`$TEMIP_SC_HOME/oracle/scripts/temip_create_database -h`

To create the mediation database, run the *temip_create_database* tool by doing the following.

1. Enter the following command:

```
$ TEMIP_SC_HOME/oracle/scripts/temip_create_database
```

By invoking the tool without specifying parameters, you run the tool in an interactive mode that asks you to choose which database you wish to create and guides you through the installation process by asking you basic questions.

The *temip_create_database* tool first displays a choice of available databases, as shown below.

temip_create_database will deploy a database for one of the following OpenView SQM products:

| | | |
|----------------------------|----------|-----|
| - TeSC logger | (logger) | [1] |
| - TeSC SPDM | (spdm) | [2] |
| - TeSC SRM | (srm) | [3] |
| - TeSC Datamart production | (dmprod) | [4] |
| - TeSC Datamart staging | (dmstag) | [5] |

```

- TeSC SQL SA                (sqlsa)      [6]
- TeSC BO repository         (borepos)    [7]
- Exit      (terminate the session)      [e]

```

Please enter the database you want to install:

2. Select `sqlsa` [6] to create the mediation database.

The *temip_create_database* tool next asks you which predefined size of database you wish to create (*SMALL*, *MEDIUM*, *LARGE* or *USER*).

3. Select *SMALL*. This size is sufficient to hold the mediation database.

2.4.2 Populating the mediation database

Once you have created the mediation database as described above, execute the following script on the HP-UX computer that hosts the *sqlsa* database.

```
# $TEMIP_SC_HOME/ValuePacks/HP/MDS/populate_sqlsa_db
```

This script loads the data that has been collected from each DFI used by the Mobile Data Services Value Pack into the mediation database, *sqlsa*. If the *sqlsa* database is not on the same host as the OpenView SQM platform, you must also install the Mobile Data Services Value Pack on the HP-UX computer hosting the *sqlsa* database so that the *populate_sqlsa_db* script is installed on that computer.

The mediation database then contains all data collected from each DFI during one day of operational running, together with a view of each table that updates the record's timestamp to the current date.

2.4.3 Setting up the Mobile Data Services Value Pack

Once you have populated the mediation database as described in the previous paragraph, execute the following script on the HP-UX computer hosting the OpenView SQM platform:

```
# $TEMIP_SC_HOME/ValuePacks/HP/MDS/setup_solution
```

This script does the following.

1. It creates the SQL Service Adapters that collect the data from the mediation database and publish the Key Performance Indicators to the OpenView SQM platform.

At this stage of the setup process, you are asked to enter the Java DataBase Connectivity (JDBC) parameters used to connect the SQL Service Adapters to the mediation database containing their source data. You must enter the following information:

```

Please enter the
database URL [jdbc:oracle:thin:@haltere.vbe.cpqcorp.net:1521:sqlsa]:
    jdbc:oracle:thin:@yourMediationDBhost.vbe.cpqcorp.net:1521:sqlsa
Please enter the database username [sqlsa]:    sqlsa
Please enter the database password [*****]:  sqlsa
Please enter the database JDBC Driver [oracle.jdbc.driver.OracleDriver]:
Enter the required DB connection for SAI: [2]

```

2. Register the Service Definitions and Service Levels in the Service Repository Manager.

3. Load the Service Instances and SLA into the Service Repository Manager.

2.4.4 Configuring the Mobile Data Services Value Pack Runtime license

Before you run the HP OpenView Service Quality Manager Mobile Data Services Value Pack, you must configure the SQM-VPACK-MDS license.

The Mobile Data Services Value Pack is supplied with a temporary license, under which it can be used for a trial period of 90 days. This license is activated when the application is executed for the first time.

For details of how to use the *temip_sc_license* utility to retrieve HP OpenView SQM licenses and import them into Autopass, see the *HP OpenView Service Quality Manager Administration Guide*.

2.4.5 Running the Mobile Data Services Value Pack

Once you have executed the *setup_solution* script, you can run the acquisition director. The Mobile Data Services Value Pack director is called *acquisitionMDS*.

Note

Before you invoke the *temip_sc_start_director* command described below, you must ensure that the *setup_solution* script has set the JDBC 'CLASSPATH' environment variable in the SQM environment file *\$TEMIP_SC_VAR_HOME/temip_sc_env.sh* if this has not already been done. In this case, you must also source this file, and then stop and start the kernel by executing the commands *temip_sc_stop_kernel* and *temip_sc_start_kernel*. You do not need to restart the OpenView SQM platform itself.

The final message displayed when the *setup_solution* command is executed shows whether or not it is necessary to re-source the *\$TEMIP_SC_VAR_HOME/temip_sc_env.sh* OpenView SQM environment file before you restart the OpenView SQM kernel and start the *acquisitionMDS* director.

To run the HP OpenView Service Quality Manager Mobile Data Services Value Pack director, do the following.

1. Log on as **sqmadm** user.
2. Execute the following command.

```
# temip_sc_start_director -plat slmv14 -direc acquisitionMDS
```

This enables you to monitor the statuses of Services and SLAs provided by the Mobile Data Services Value Pack, using the SL Monitoring graphical interface.

SLAs, Customers, Service Instances, and Service Level management tasks are performed using the SL Administration graphical interface, however.

2.4.6 Configuring the HP OpenView SQM platform to run the Mobile Data Services Value Pack

2.4.6.1 Predefined monitoring user profile

The Mobile Data Services Value Pack provides a predefined user profile for the HP OpenView Service Quality Manager real-time monitoring interface. The user name associated to this predefined user profile is **sqmMDS**. The HP_UX administrator has

to create this user before you can login to the HP OpenView Service Quality Manager real-time monitoring interface using this identity.

2.4.6.2 Acquisition period

You do not need to configure the HP OpenView Service Quality Manager platform manually to run the Mobile Data Services Value Pack unless you regenerate the custom SQL Service Adapter (SA) kits. If this is the case, you must then adjust each modified Service Adapter's acquisition period so that it is longer than the data collection period for data provided by the mediation database. The minimum acquisition periods for Service Adapters provided in the Mobile Data Services Value Pack are as follows:

- *Glance SA*: 5 minutes
- *InternetServices SA*: 5 minutes
- *TroubleTicket SA*: 10 minutes
- *dpS SA*: 5 minutes
- *IUM SA*: 5 minutes
- *TeMIP SA*: 5 minutes
- *dpI SA*: 5 minutes

For details of how to use the TIBCO Designer graphical interface to edit the configuration used by the Central Repository provided with the OpenView SQM Kernel, see the *HP OpenView Service Quality Manager Administration Guide*.

2.5 Cleaning up the Mobile Data Services Value Pack

You can remove the SQL Service Adapter from the HP OpenView SQM platform and deregister the Service Definitions, Service Levels, Service Instances, and SLAs provided with the Mobile Data Services Value Pack from the Service Repository Manager by executing the following HP-UX script:

```
# $TEMIP_SC_HOME/ValuePacks/HP/MDS/cleanup_solution
```

2.6 Uninstalling the Mobile Data Services Value Pack

2.6.1 Uninstalling the Mobile Data Services Value Pack from HP-UX

Note

Before you uninstall the Mobile Data Services Value Pack, you must execute the *\$TEMIP_SC_HOME/ValuePacks/HP/MDS/cleanup_solution* script to remove related data from the Service Repository Manager and from the SQM Central Repository. For further details, see “Cleaning up the Mobile Data Services Value Pack”, above.

Logging on

To log on to the HP-UX computer in order to uninstall the Mobile Data Services Value Pack, do the following.

1. Log on to the HP-UX system as **root** user.
2. Load the OpenView SQM environment variables by entering the following commands.

```
# cd $TEMIP_SC_VAR_HOME
# . $TEMIP_SC_VAR_HOME/temip_sc_env.sh
```

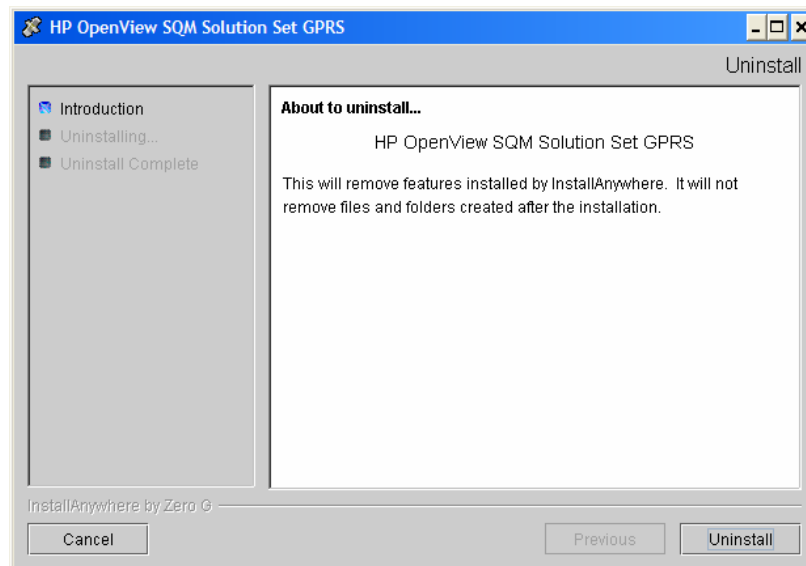
Uninstalling the kit

On the OpenView SQM platform on which the Mobile Data Services Value Pack has been installed, do the following.

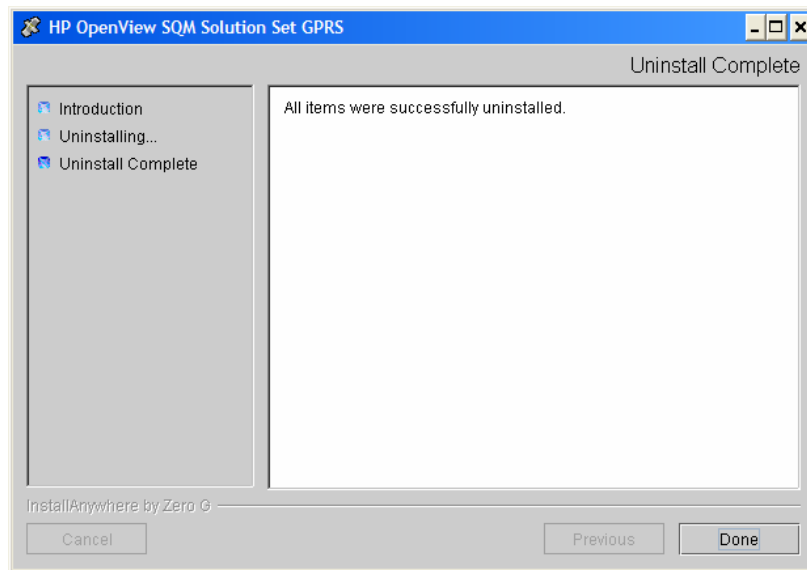
1. Enter the following commands.

```
# cd $TEMIP_SC_HOME/ValuePacks/HP/MDS/Uninstaller
# ./Uninstall_GPRS
```

The **Uninstall** window is displayed.



2. Click **Uninstall** to remove the software from your system. When all of the software has been removed, the following window is displayed.



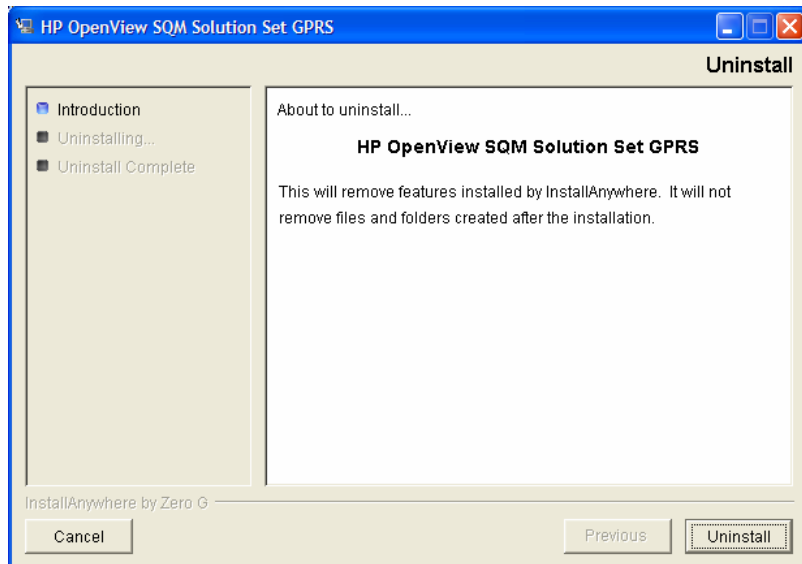
3. To finish, click **Done**.

2.6.2 Uninstalling the Mobile Data Services Value Pack from Windows

To uninstall the Mobile Data Services Value Pack from Windows, do the following.

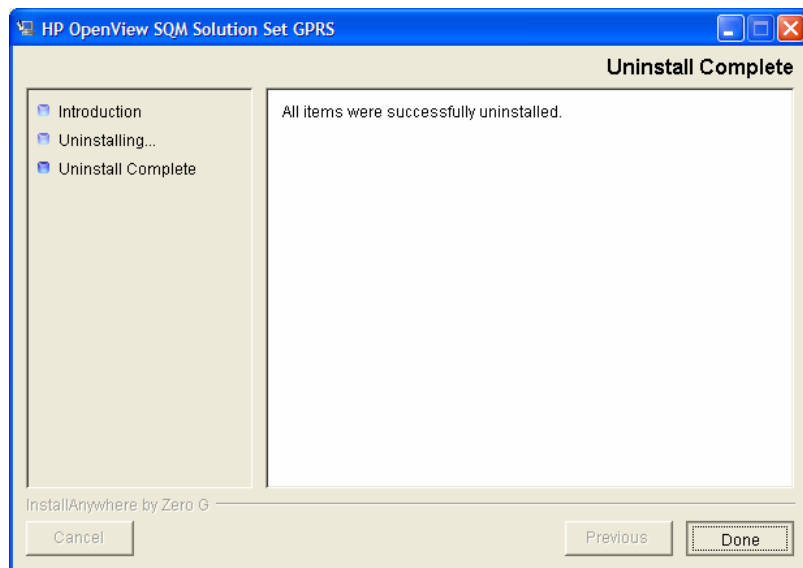
1. From the Windows *Start* menu, select *All programs* → *HP OpenView* → *SQM* → *ValuePacks* → *MDS* → *Uninstall*.

The **Uninstall** window is displayed.



2. Click **Uninstall**.

The software is uninstalled from your system. When all of the software has been removed, the following window is displayed.



3. To finish, click **Done**.

Chapter 3

Mobile Data Services Value Pack model design

The MDS Value Pack is a complex solution that addresses and aggregates several use cases. To handle this complexity and to augment the re-usability of the product, the Value Pack has been structured into a set of individual packages.

This chapter describes how the MDS Value Pack Model is structured in order to help you to navigate through the Mobile Data Service model.

Its intention is not to describe all elements in the model, since these can be easily retrieved and understood using the HP OpenView Service Quality Manager Service Designer.

Instead, it describes the model structure and explains the main Class Diagrams, Sequence Diagrams, and Custom Expressions to help you to understand the key points of the design.

Note

Users that do not intend to customize the Service Definitions provided by the Mobile Data Services Value Pack do not need to read this chapter.

It is assumed that readers of this chapter are familiar with the information modeling concepts described in the *HP OpenView Service Quality Manager Information Modeling Reference Guide*.

3.1 Service Designer project structure

3.1.1 MDS Rose files

The entire MDS Value Pack model is defined in the same Rose Model file located in `%TEMIP_SC_HOME%\SolutionSet\HP\MDS\Model\MDS.mdl` Rose Model.

To structure the MDS Value packs, services, services components, datafeeders, diagrams are grouped into **Rational Rose packages**. Some packages are defined just to organize the modeling, but some others packages defines some consistent and independent units that addresses a specific domain of the solution (the GPRS infrastructure, Internet Services, and hardware platform domains). These specifics Rose Packages are stored as **Rose Control Units** files.

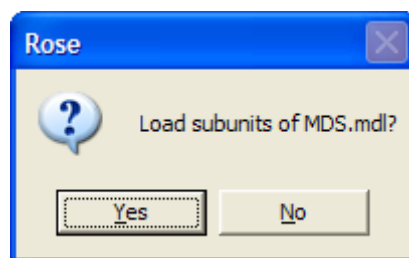
The Mobile Data Services Value Pack installs the following **Rose Control Units** in the `%TEMIP_SC_HOME%\ValuePacks\MDS\Model` directory:

- Expressions_MDS.cat
- package_Active_Probes.cat
- package_Cluster.cat

- package_Customer_care.cat
- package_IS_Applications.cat
- package_Mobile_Subscriber_Experience.cat
- package_RAN_faults.cat
- package_Service_Activation.cat
- package_Service_Navigator.cat
- package_TeMIP_Fault.cat
- segment_Core_Packet_Network.cat
- segment_IP_Connectivity_backbone.cat
- segment_MMS_Service_Platform.cat
- segment_Radio_Access_Network.cat
- segment_WAP_Service_Platform.cat

All these **Rose Control Units** are used in the MDS.mdl. You can also use them individually in your own models. How to import **Rose Control Units** in your own model is explain in the Service Designer user guide.

When you open the MDS.mdl model, the following window is displayed:



Click **Yes** to load MDS subunits and load the entire MDS model.

At the end of the model, check in the log that the Service Designer has been able to load all the provided **Rose Control Units**.

```
...
15:32:50| Loading unit Logical View::segment IP Connectivity backbone from file
C:\Program Files\HP
OpenView\SQMV140\ValuePacks\HP\MDS\Model\segment_IP_Connectivity_backbone.cat
15:32:50| Loading unit Logical View::package IS Applications from file C:\Program
Files\HP OpenView\SQMV140\ValuePacks\HP\MDS\Model\package_IS_Applications.cat
15:32:51| Loading unit Logical View::package Service Activation from file C:\Program
Files\HP OpenView\SQMV140\ValuePacks\HP\MDS\Model\package_Service_Activation.cat
15:32:52| Loading unit Logical View::package Customer care from file C:\Program
Files\HP OpenView\SQMV140\ValuePacks\HP\MDS\Model\package_Customer_care.cat
15:32:52| Loading unit Logical View::package TeMIP Fault from file C:\Program
Files\HP OpenView\SQMV140\ValuePacks\HP\MDS\Model\package_TeMIP_Fault.cat
15:32:53| Loading unit Logical View::package Active Probes from file C:\Program
Files\HP OpenView\SQMV140\ValuePacks\HP\MDS\Model\package_Active_Probes.cat
15:32:56|
15:32:56| [Update Model Properties]
```

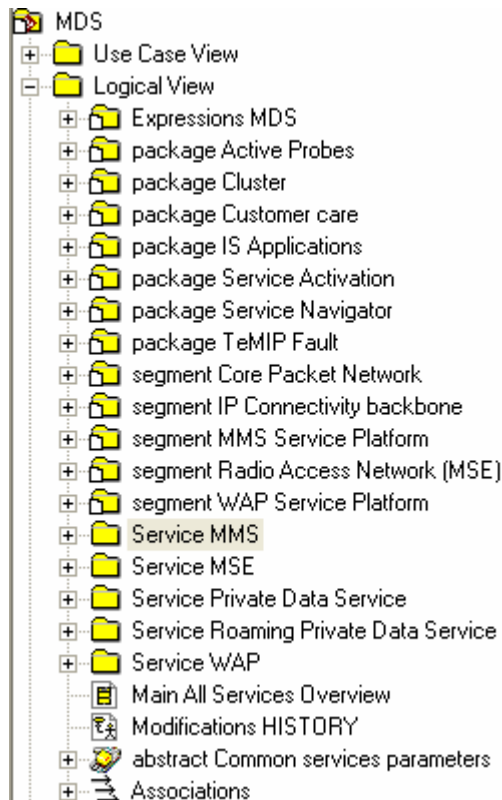
3.1.2 MDS Rose Model

As shown in the figure bellow, the upper level of the Mobile Data Services Value Pack contains the following Rose Packages:

- Each Service is defined in its own package:
 - Service MMS

- Service MSE
- Service Private Data Service
- Service Roaming Private Data Service
- Service WAP
- An *Expressions* package containing predefined SQM expressions and global custom expressions.
- Packages from the imported **Rose Control Units** (i.e. package XXX or segment XXX).

Figure 17 MDS service design packages



These packages contain other packages organized as shown in the figure bellow, which shows the packages contained in the MDS package, so that the following are grouped together in the same package:

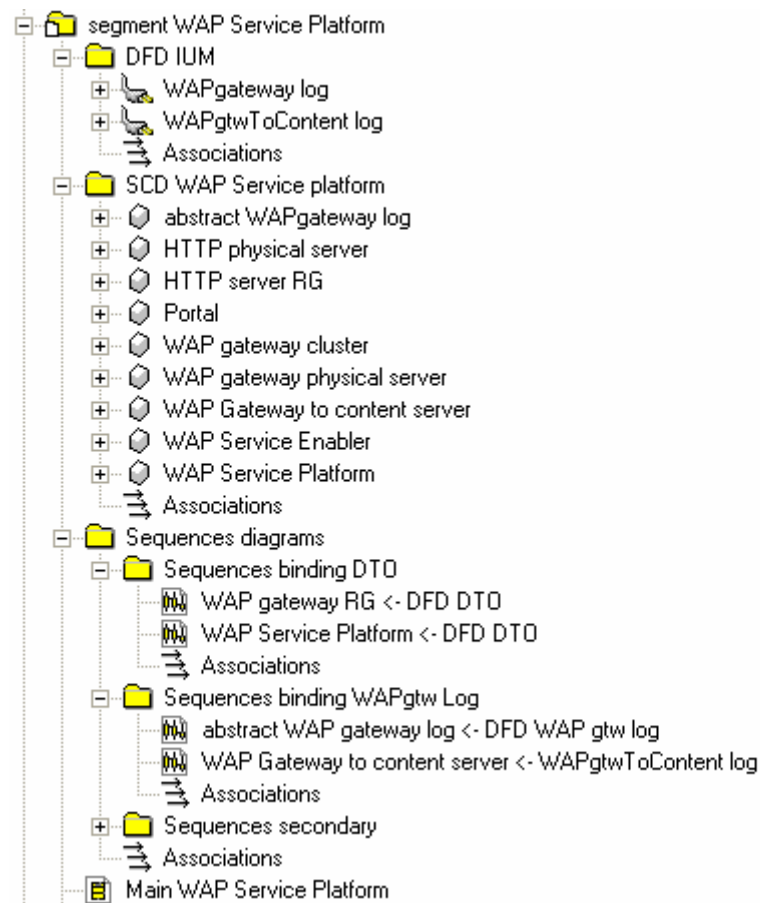
- Data Feeder Definitions (DFDs) provided by a given Service Adapter (SA), such as the *DFD TeMIP* package, for example.
- Sequence diagrams binding the parameters of DFDs provided by a given SA to the primary parameters of the SCDs. Those packages are named *Seq <SAname> binding*, such as *Seq TeMIP binding*, for example.
- Sequence diagrams specifying how secondary parameters are computed. These packages are named *Seq secondary*.
- Custom expressions used in the sequence diagrams specified in the current petal. This package is named *Expressions*.
- Any data types specified in the current petal. This package is named *DataTypes*. The *InternetServices* petal contains a *DataTypes* package, in which the enumerated *AvailabilityOvis* parameter is declared, for example.

- Packages may also include another level of packages used to group together objects provided by the same KPI provider. For instance, some KPIs bound to the GPRS SCDs are provided by the *dpS* Service Adapter while others are provided by the *dpI* Service Adapter. The nesting packages are named *data provider* <providerName>.

Each package, together with the main package, contains at least the main class diagram labeled **Main Diagram**.

A sequence diagram is identified by the name of the SCD target of the bindings it specifies.

Figure 18 Packages within the “segment WAP” package



3.2 MDS Key Features

This section describes the key feature of the MDS model.

3.2.1 Expressions MDS

This package regroupes all the expressions used in the model.

3.2.2 Active Probes

One set of the MDS value pack KPIs are collected from Active Probing Systems. Active Probing Systems allow you to monitor a customer's data services like WAP or MMS in an organized way. Once installed and configured, Active Probes measures the availability, response time, service level conformance and other metrics of specific monitored service activity from an end-to-end perspective. You use Active

Probes as a way to simulate the use of a service, such as accessing a WAP page server or sending an MMS and waiting for an acknowledgement, and measure the performance and availability of the service. Active probes are usually deployed in multiple locations from which they probe the service automatically at set intervals. Measurements from the probes are sent back to the appropriate Management Server where they are stored in a database and made ready to use for the SQM application.

3.2.3 Package Cluster

This package provides DataFeeders and the Service Component that collect hardware server performance indicator using the Glance Plus probes.

The aim of the package is not provide a fine diagnostic and analysis of the system but to provide platform health indicators in SQM, thus only a small subset of the Glance metrics is collected.

Data are collected through the mediation DB using the MDS SQLSA Customization.

3.2.4 Customer care

This package provides Customer Care KQIs, as per TMF GB923a recommendation.

Data are collected through the mediation DB using the MDS SQLSA Customization.

3.2.5 IS Applications

This package provides Internet Services indicator using the HP Open View Internet Services (OVIS) probes.

Consult the *Service Adapter for HP OpenView Internet Services Installation, Configuration and User's Guide* for more details on collected data.

3.2.6 Package Service Activation

This package provides service ordering KQIs as described in TMF GB 923A 1.5 documentation.

Data are collected through the mediation DB using the MDS SQLSA Customization (OVSA DataFeeder).

3.2.7 Package Service Navigator

This package provides the primary binding for the HP Open View Service Navigator Service Adapter.

Consult the *Service Adapter for HP OpenView Service Navigator Installation, Configuration and User's Guide* for more details on collected data.

The package provides the “abstract OVSN status” Service Component designed to be used in others Service Component using the inheritance.

3.2.8 Package TeMIP_Fault

This package provides the primary binding for the TeMIP Fault and TeMIP Fault Statistics Datafeeders.

Consult the *OV SQM TeMIP Fault Service Adapter Installation, Configuration and User's Guide* for more details on TeMIP Fault data.

Consult the *OV SQM TeMIP Fault Service Adapter Installation, Configuration and User's Guide* for more details on TeMIP Fault Statistics data.

The package provides the “abstract TeMIP Managed Entity Fault Statistics” and the “abstract TeMIP Fault” Service Component designed to be used in others Service Component using the inheritance.

3.2.9 Segment Radio Access Network

3.2.9.1 Mobile Subscriber Experience

This package provides the Datafeeder for the mFormation probes.

More details on the data collected by the mFormation probes can be found in the *HP OpenView mFormation Service Adapter Installation, Configuration and User's Guide*.

The collected information for each cell services (Email, HTTP, MMS, Wap...) are aggregated at Cell level then at Area Level, Region Level and finally for the entire network.

Data can be collected directly in the mFormation database if or for demonstration purpose through the mediation DB.

3.2.9.2 Package RAN faults

This package provides a hierarchy of components to monitor the Radio Access Network with TeMIP Alarm Fault Statistic Service Adapters.

This package uses the TeMIP Fault package.

3.2.10 Segment IP Connectivity backbone

This package merges data from “TeMIP Faults” package and “IS Application” packages to provide an enhanced monitoring of the IP Infrastructure.

3.2.11 Segment Core Packet Network

This package provides a hierarchy of components to monitor the Core Network using the Tekelec Service Adapter.

More details on the data collected by the mFormation probes can be found in the *HP OpenView MDS3G probes Service Adapter Installation, Configuration and User's Guide*.

The components of the “IP Connectivity backbone” package are used to collect IP indicators.

3.2.12 Segment WAP Service Platform

This package re-uses Mobile Subscriber Experience (Tekelec), IS Application, Cluster, TeMIP Fault packages to provide a hierarchy of components dedicated to the monitoring of the WAP Infrastructure.

Some additional DataFeeder (WAPgateway log , WAPgtwToContent log) that collect data from WAP gateway log data are also used in the WAP component.

For these DataFeeder, data are collected through the mediation DB using the MDS SQLSA Customization.

3.2.13 Segment MMS Service Platform

This package re-uses the WAP Segment with some additional data from uses Mobile Subscriber Experience (Tekelec) and OvSN packages to provide a hierarchy of components dedicated to the monitoring of the WAP Infrastructure.

An additional DataFeeder (IUM MMS-C log) that collect data from MMC-C log data is also used in the MMS components.

For this DataFeeder, data are collected through the mediation DB using the MDS SQLSA Customization.

3.3 SQL Service Adapter

3.3.1 Data sources, and KPIs

The following data sources are used in the Data Feeder Definition (DFD) integrated within the MDS Service Definitions. This DFD is shown in the class diagrams above.

- The UNIX operating system KPIs provided by the Glance tools (found in the `/opt/perf/bin/glance` directory on HP-UX). This data is also available via OpenView Operations (OVO).
- Alarm statistics that TeMIP provides for the specified managed objects (the BSCs, in this case).
- Data provided by a Trouble Ticket subsystem used to collect the number of customer Trouble Tickets opened for the GPRS radio access network.
- HTTP error statistics, if these are collected by a customized HP OpenView Internet Usage Manager (IUM).
- Performance data (such as DNS lookup times, connection setup times, transfer times, etc.) that the OVIS probes measure for various Internet protocols (HTTP, HTTPS, WAP, SMTP, FTP, Telnet, TCP/IP, etc.).
- GPRS KPIs provided by the KPI providers, which we label *dpS* and *dpI* in our model and include as examples of third-party providers of GPRS KPIs. These KPI providers, which are intended to represent all those found in that domain, can be integrated into an operational solution. Such third-party systems usually build or retrieve xDR (passive probe) data on GPRS interfaces such as the Gn or Gb interface.

3.3.2 SQL SAs deployed by the Value Pack

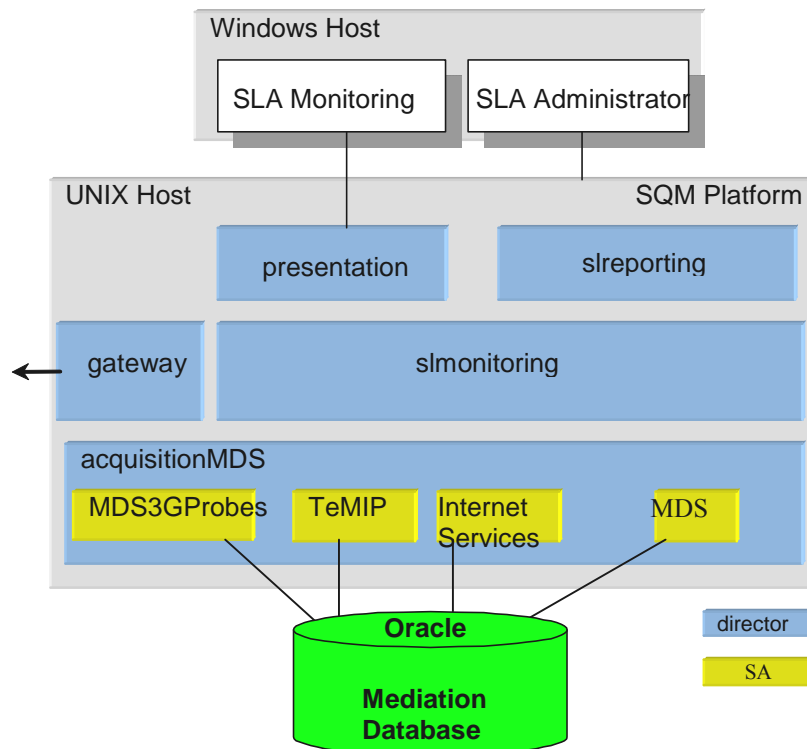
The following figure shows how each runtime component provided by the Value Pack is integrated into the SQM platform. These components are:

- Mediation database
- *acquisitionMDS* director
- SQL Service Adapters (SQL SAs) embedded in the *acquisitionMDS* director

Note

These SQL SAs are not the actual SAs that the OpenView SQM provides to collect data on your physical service resources. The SQL SAs retrieve data from the mediation database into which the Value Pack loads data collected in one day from a predefined set of resources used to build the Value Pack. The InternetServices SA installed by the Value Pack is effectively an image of the actual OVIS SA, for example.

Figure 19 Value Pack runtime components



Several SQL SAs are used to collect the KPIs described in the previous paragraph from the Value Pack mediation database in which the live data collected in one day is loaded for the Service Instances and their Service Component Instances deployed by the Value Pack. These SQL SAs, which were built using the SQM SQL SA toolkit, are:

- *MDS 3G Probe*: The custom SQL SA that collects from the mediation database the data for 3G probes. See below for detail on MDS 3G Probe.
- *Internet Services SA*: The custom SQL SA that collects from the mediation database the Internet Services performance data measured by the HP OpenView Internet Services (OVIS) probes and any HTTP error statistics retrieved by a customized HP OpenView IUM.
- *TeMIP SA*: The custom SQL SA that retrieves from the mediation database the alarm statistics provided by OpenView TeMIP on the managed entities.
- *MDS SA*: This custom SQL SA is a stub to manage DFD/DFI for demonstration scenario. It can also be used in production if the integrators provide the suitable script to populate (and manage the clean up) of the mediation database with collected data.

Only the MDS Service Adapter content is described below since the others service adapters are described in their respective user documentation.

3.3.3 MDS Service Adapter

The MDS Service Adapter is a SQL SA customization that contains the datafeeders to use with the MDS Mediation database.

This mediation database contains the table and the views that are used by the MDS Service adapters use to collect data.

3.3.3.1 Demonstration scenario

This database can be setup with the data and the views designed for the MDS demonstration scenario. This is the default dataset when you setup the solution.

These data permits to validate the collection chain, help to acquire knowledge on MDS value pack by visualizing real-time scenario, and of course to show the demonstration scenario.

The views provides cyclic scenario by altering the column used for timestamp.

3.3.3.2 Production scenario

A simple way to switch from a demonstration scenario to a production scenario is to change the definition of the views used to collect data and provide scripts that populate the table with suitable data collected on the production platform.

The tables bellow describes the table to feed in order to collect real-time data.

The integrator is responsible to load data inside and to perform the clean up of old data.

The user can use Oracle SQL Loader (sqlldr) and the control file (file with .ctl suffix) delivered in \$TEMIP_SC_HOME/ValuePacks/HP/MDS/Database/MDS/ to achieve this integration.

Table CUSTCARE

| Col # | Column Name | Data Type |
|-------|---------------|-------------------|
| 1 | REFTIMESTAMP | DATE |
| 2 | CCLOCATION | VARCHAR2(16 BYTE) |
| 3 | CCALLNOTANSW | NUMBER |
| 4 | CCCALLQLGTH | NUMBER |
| 5 | CCCUSTCALLTE | NUMBER |
| 6 | CCCALLSUNOLV | NUMBER |
| 7 | CCCALLREFAL | NUMBER |
| 8 | CCCALLESC | NUMBER |
| 9 | CCCALLFWUPS | NUMBER |
| 10 | CCTIMEFWUP | NUMBER |
| 11 | CCSERCALLS | NUMBER |
| 12 | CCUSTTTBYSV | NUMBER |
| 13 | CCFIXINTIME | NUMBER |
| 14 | CCREPEATFLTS | NUMBER |
| 15 | CCNOPBFOUND | NUMBER |
| 16 | CCPEMTNACCF | NUMBER |
| 17 | CCPETKNOCPLTD | NUMBER |

Table GLANCE

| Col # | Column Name | Data Type |
|-------|-------------------------|-------------------|
| 1 | HOSTNAME | VARCHAR2(32 BYTE) |
| 2 | TIMESTAMP | DATE |
| 3 | GBL_MEM_UTIL | NUMBER |
| 4 | GBL_MEM_PAGE_FAULT_RATE | NUMBER |

| | | |
|----|--------------------------|--------|
| 5 | GBL_MEM_SWAP_RATE | NUMBER |
| 6 | GBL_MEM_SWAPIN_RATE | NUMBER |
| 7 | GBL_MEM_SWAPOUT_RATE | NUMBER |
| 8 | GBL_CPU_TOTAL_UTIL | NUMBER |
| 9 | GBL_CPU_IDLE_UTIL | NUMBER |
| 10 | GBL_DISK_UTIL | NUMBER |
| 11 | GBL_DISK_TIME_PEAK | NUMBER |
| 12 | GBL_DISK_PHYS_WRITE_RATE | NUMBER |
| 13 | GBL_DISK_PHYS_READ_RATE | NUMBER |
| 14 | GBL_NET_COLLISION_RATE | NUMBER |
| 15 | GBL_NET_ERROR_RATE | NUMBER |
| 16 | GBL_NET_IN_ERROR_RATE | NUMBER |
| 17 | GBL_NET_IN_PACKET_RATE | NUMBER |
| 18 | GBL_NET_OUTQUEUE | NUMBER |
| 19 | GBL_NET_OUT_ERROR_RATE | NUMBER |
| 20 | GBL_NET_OUT_PACKET_RATE | NUMBER |
| 21 | GBL_NET_PACKET_RATE | NUMBER |

Table MMSC_LOG

| Col # | Column Name | Data Type |
|-------|--------------|-------------------|
| 1 | REFTIMESTAMP | TIMESTAMP(6) |
| 2 | MMSC_ID | VARCHAR2(16 BYTE) |
| 3 | MMSCSSR | NUMBER |
| 4 | MMSCNOTIFSR | NUMBER |
| 5 | MMSCDELIVSR | NUMBER |
| 6 | MMSCSTOREAV | NUMBER |
| 7 | MMSCDELIVDLY | NUMBER |
| 8 | MMSCGETDLY | NUMBER |
| 9 | MMSCNOTIFDLY | NUMBER |

Table MMS_QOS_ACTIVE_AGENT

| Col # | Column Name | Data Type |
|-------|------------------------------|-------------------|
| 1 | REFTIMESTAMP | NUMBER |
| 2 | AGENTID | VARCHAR2(20 BYTE) |
| 3 | SERVICEAVAILABILITY | NUMBER |
| 4 | EXECUTIONSTATUS | NUMBER |
| 5 | SENDTIME | NUMBER |
| 6 | SENDSUCCESS | NUMBER |
| 7 | RETRIEVALTIME | NUMBER |
| 8 | RETRIEVALSUCCESS | NUMBER |
| 9 | SMSNOTIFICATIONTIME | NUMBER |
| 10 | SMSNOTIFICATIONSUCCESS | NUMBER |
| 11 | TOTALROUNDTRIPMMSTIME | NUMBER |
| 12 | TOTALROUNDTRIPMMSTIMESUCCESS | NUMBER |

Table MMS_QOS_ACTIVPROBE

| Col # | Column Name | Data Type |
|-------|------------------------------|-------------------|
| 1 | REFTIMESTAMP | NUMBER |
| 2 | IDENTIFIER | VARCHAR2(20 BYTE) |
| 3 | SERVICEAVAILABILITY | NUMBER |
| 4 | EXECUTIONSTATUS | NUMBER |
| 5 | SENDTIME | NUMBER |
| 6 | SENDSUCCESS | NUMBER |
| 7 | RETRIEVALTIME | NUMBER |
| 8 | RETRIEVALSUCCESS | NUMBER |
| 9 | SMSNOTIFICATIONTIME | NUMBER |
| 10 | SMSNOTIFICATIONSUCCESS | NUMBER |
| 11 | TOTALROUNDTRIPMMSTIME | NUMBER |
| 12 | TOTALROUNDTRIPMMSTIMESUCCESS | NUMBER |

Table OVSA

| Col # | Column Name | Data Type |
|-------|----------------|-------------------|
| 1 | MANUFACTURER | VARCHAR2(64 BYTE) |
| 2 | TYPE | VARCHAR2(32 BYTE) |
| 3 | TIMESTAMP | DATE |
| 4 | TIMETOACTIVATE | NUMBER(10,4) |
| 5 | NBOFMODIF | NUMBER(10,4) |
| 6 | NBOFACTIV | NUMBER(10,4) |
| 7 | NBFLTYACTIV | NUMBER(10,4) |

TEMIP_FAULT: Use TeMIP Fault SA instead.

Table WAP_GTW_LOG

| Col # | Column Name | Data Type |
|-------|-----------------|-------------------|
| 1 | REFTIMESTAMP | TIMESTAMP(6) |
| 2 | ENTITY_NAME | VARCHAR2(16 BYTE) |
| 3 | NO_REQUESTS | NUMBER |
| 4 | NOREQUETSFAIL | NUMBER |
| 5 | NBSUCCREQ | NUMBER |
| 6 | REQSUCCRATIO | NUMBER |
| 7 | REQFAILRATIO | NUMBER |
| 8 | OPENSESSFAILRA | NUMBER |
| 9 | FAILMAXSESSION | NUMBER |
| 10 | OPENSESSDURA | NUMBER |
| 11 | NBOPENSESSREQ | NUMBER |
| 12 | NBESTABLISHSESS | NUMBER |
| 13 | NBCLOSESESSRQ | NUMBER |
| 14 | WAPGTWPULLFAIL | NUMBER |
| 15 | WAPGTWPUSHFAIL | NUMBER |
| 16 | NBWAPGTWPULL | NUMBER |
| 17 | NBWAPGTWPUSH | NUMBER |

Table WAP_GTW_TO_CONTENT_LOG

| Col # | Column Name | Data Type |
|-------|---------------|-------------------|
| 1 | REFTIMESTAMP | TIMESTAMP(6) |
| 2 | WAPGTWID | VARCHAR2(16 BYTE) |
| 3 | CONTENTSERVID | VARCHAR2(16 BYTE) |
| 4 | NBSUCPUSHRQ | NUMBER |
| 5 | NBFAILPUSHRQ | NUMBER |
| 6 | NBFAILPULLRQ | NUMBER |
| 7 | NBSUCPULLRQ | NUMBER |

Table WAP_QOS_ACTIVE_AGENT

| Col # | Column Name | Data Type |
|-------|------------------------|-------------------|
| 1 | REFTIMESTAMP | NUMBER |
| 2 | AGENTID | VARCHAR2(20 BYTE) |
| 3 | PORTALSUCCESSRATE | NUMBER |
| 4 | PORTALRESPONSETIME | NUMBER |
| 5 | WAPGTWCONNECTTIME | NUMBER |
| 6 | SERVSUCCESSRATE | NUMBER |
| 7 | WAPTRANSFERTTIME | NUMBER |
| 8 | WAPGTWAVAILABILITY | NUMBER |
| 9 | PORTALACCESSIBILITY | NUMBER |
| 10 | ATTACHMENTFAILURERATIO | NUMBER |
| 11 | PDPACTIVATIONFAILURE | NUMBER |
| 12 | ATTACHMENTTIME | NUMBER |
| 13 | PDPACTIVATIONTIME | NUMBER |

Table WAP_QOS_ACTIVPROBE

| Col # | Column Name | Data Type |
|-------|--------------|-------------------|
| 1 | REFTIMESTAMP | NUMBER |
| 2 | IDENTIFIER | VARCHAR2(16 BYTE) |
| 3 | QOSWTCGWG | NUMBER |
| 4 | UNUSEDPARAM1 | NUMBER |
| 5 | UNUSEDPARAM2 | NUMBER |
| 6 | UNUSEDPARAM3 | NUMBER |
| 7 | QOSTCG | NUMBER |
| 8 | QOSGATTAN | NUMBER |
| 9 | QOSGPCATAG | NUMBER |
| 10 | UNUSEDPARAM4 | NUMBER |
| 11 | QOSWTCGG | NUMBER |
| 12 | QOSWTRTGG | NUMBER |
| 13 | AVGWGCT | NUMBER |
| 14 | AVGSERVICEA | NUMBER |
| 15 | AVGWADTT | NUMBER |
| 16 | AVGWAGA | NUMBER |
| 17 | QOSTEAP | NUMBER |

Chapter 4

Solution building guidelines

4.1 Introduction

You can use the Value Pack as a starting point from which to develop your own solution.

In all cases, you must do at least the following when you transform the Value Pack into an operational solution:

1. You must replace the SQL Service Adapters provided by the Mobile Data Services Value Pack with Service Adapters that collect KPIs for your own service resources.
2. You must use the SL Administrator graphical interface to create the appropriate Service Instances and groups, customers, and SLAs for your own case.

If necessary, you can modify the Service Definitions via the Service Designer, and then load the new model into the SRM before instantiation. You may also need to redefine the Service Levels for your own case, using the SL Administrator graphical interface.

4.2 Modifying the Mobile Data Services Value Pack SQL SA

In most of the cases, you can use the SQL Service Adapter provided by the Mobile Data Services Value Pack, but you must customize it so that it can connect to the database in which the KPIs for your own service resources are stored. You can do this operation using the SQL Service Adapter Toolkit provided with the HP OpenView Service Quality Manager.

For details on how to use the SQL SA Toolkit to customize the SQL SA, see the *HP OpenView Service Quality Manager SQL Service Adapter Toolkit Installation, Configuration and User's Guide*. You can use the SQL SA Toolkit's graphical interface to define the mapping between the DFD parameters and the database's TABLE columns. The Value Pack includes the SQL SA toolkit project used to build the initial SQL SA. This project is defined in the file with the *.sqltk* suffix.

Note

When you use the SQL Service Adapter Toolkit's graphical interface to modify the SQL SA projects provided by the Value Pack, you must set up the properties of the project at least to set your own project paths, and specify the JDBC connector parameters enabling you to access your KPI database.

In all other cases, you must replace an SQL Service Adapter provided by the Mobile Data Services Value Pack by a different type of Service Adapter. This is the case with the *InternetServices* Service Adapter, for example.

The Mobile Data Services Value Pack provides DFD names prefixed with *IS_** that are exact copies of the DFDs from the OVIS Service Adapter provided with HP OpenView Service Quality Manager.

To switch from the SQL Service Adapter connected to the Mobile Data Services Value Pack mediation database to one that collects Key Performance Indicators from your own Internet Service resources, you can simply replace the Internet Services DFD with the OVIS DFD in the *InternetServices* package of the GPRS Services models, and then set up the OVIS Service Adapter on your Service Quality Manager platform.

Appendix A

Troubleshooting guide

This appendix describes basic methods you can use to check the condition of Value Pack components.

A.1 Installation

You must check that the following Value Pack components are set up correctly on the Service Quality Manager platform:

- The mediation database must be populated and accessible.
- The Service Adapter provided by the Value Pack must be running.
- The Service Definitions and Service Instances must be registered in the Service Repository Manager.

In addition to checking these components, you can verify the contents of the following setup log file created when the Value Pack is set up:

`$TEMIP_SC_VAR_HOME/trace/Setup_SolutionSet_MDS.log`

A.1.1 Service Repository Manager

Diagnostic check

You can check whether the Service Repository Manager has correctly registered the Service Definitions delivered by the Value Pack, by entering the following commands. Each command must return the required definitions. Alternatively, you can use the SL Administrator graphical interface to browse these definitions.

- To check that all definitions required by the *MDS-WAPservice* Service Definition have been registered, enter the following command:

```
temip_sc_get_sd -sd MDS-WAPservice
```

Use the same command to check that *MDS-MMSService*, *MDS-PrivateData*, *MDS-RoamPrivData* are loaded.

- To check whether the Service Repository Manager has correctly registered the Service Instances, Service Levels and SLAs delivered by the Mobile Data Services Value Pack, you can either enter the following commands or use the SL Administrator graphical interface to browse the SLA:

```
temip_sc_get_sla -sd MDS-WAPservice
```

This command must return the list of the loaded SLA. Use the same command for the other service definitions.

A.1.2 Mobile Data Services Value Pack Service Adapters

Diagnostic check

- To check that the Service Adapters delivered by the Mobile Data Services Value Pack have been set up correctly, enter the *start director* command as follows:

```
temip_sc_start_director -plat slmv14 -dire acquisitionMDS
```

- Next, check that all Service Adapters are running by entering the following command:

```
temip_sc_show_director -plat slmv14 -dire acquisitionMDS
```

The *MDS3Gprobes*, *MDS*, *mdsOVIS* and *mdsTeMIPFaultSta* applications must each be running.

A.1.3 Mediation database

Diagnostic check

Connect to mediation database with MDS user and check that the following *VIEWS* are not empty:

- CUSTCARE_VIEW
- GLANCE_VIEW
- MMS_QOS_ACTIVE_AGENT_VIEW
- MMS_QOS_ACTIVPROBE_VIEW
- MMSC_LOG_VIEW
- OVSA_VIEW
- TEMIP_FAULT_VIEW
- WAP_GTW_LOG_VIEW
- WAP_GTW_TO_CONTENT_LOG_VIEW
- WAP_QOS_ACTIVE_AGENT_VIEW
- WAP_QOS_ACTIVPROBE_VIEW

