Sentra
STAR
White Paper

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Introduction

What Are Sentra and STAR ?

Sentra is a Service Management facility from Insider Technologies that provides Business or Operations users with a tailored view of the health of a chosen application. The product has the flexibility to provide the complete range of management views, from the transaction life cycle Business Activity Monitoring (BAM) capability necessary for a mission critical core application through to the monitoring of event logs for a small group of Windows Servers.

Insider has recently joined in partnership with Software Integrators (SI) to create a Sentra module for the SI STAR application. STAR is an automated Message Processing system for sending and receiving financial messages across public and private networks. It provides facilities to create, process and enquire upon messages and acts as a gateway between your organisation and other applications and networks such as SWIFT, FEDWIRE, Telex and Fax

This Sentra module will maintain a centralised database of transaction data from one or more STAR applications and analyse the information in real time. The outcome of the analysis will be service level alerts, graphs depicting the behaviour of nominated metrics and management reports to help set and achieve Business objectives for the STAR world.

What This Document Provides

This paper provides a technical overview of the Sentra STAR product, and includes a brief overview of the core Sentra facilities.

It describes the thinking behind the design of the product. The functionality of each of the STAR software modules is also described in detail.

Who Should Read This Document ?

The document is aimed at people with a technical background.

The document will provide an excellent introduction to new Users at an existing installation, or to individuals who are considering a product evaluation and who are looking for a more detailed product description outside of the information provided by Insider's Sales and Web site literature.

SI STAR Application

The SI STAR Application

STAR is an automated Message Processing system for sending and receiving financial messages across public and private networks.

Further information about this product can be obtained by visiting the Software Integrators web site at;

www.software-integrators.co.uk.

As part of the STAR processing, the application updates an XML format file containing queue statistics and reports any exception conditions to the native NSK EMS logs.

The objective of the Sentra STAR application is to transfer this log information to a Sentra hosted database in real time so that it can be subjected to standard Sentra processing such as the graphical representation of data, analysis of data based upon rules coupled with alerts and the escalation of alerts to Enterprise Management or mobile technologies. In addition this log database can be retained and accumulated and become the subject of trending analysis.

Sentra Overview

Sentra Overview

This section provides a brief overview of the Insider Technologies Sentra product. The level of detail available in this section will allow the reader to understand the Sentra terminology referenced in later sections of this White Paper.

If further detailed technical Sentra information is required, then this can be obtained on request from Insider Technologies at support@insidertech.co.uk.

General Sentra Principles

The basic objective of the Sentra product is to allow users to create a centralised database of information that can then be processed by a variety of other Sentra modules to help provide a set of Service Management facilities.

Insider Technologies already markets a number of Sentra solutions that can create a centralised database from a range of sources. In this instance the Sentra software will be accessing the STAR Statistics Collector, Payment flow and EMS log files. Equally, Sentra modules already exist to relay service related information from remote Email, payment, system log and performance counter databases.

Sentra Agents

The agent programs that read and relay the service data are known as ‘extraction clients’. The client programs are installed, started, stopped and managed from the central server that also hosts the centralised database. You can view the status of all of the remote clients through a central ‘program control’ screen.

A variety of options exist to extract information from ‘standard’ locations such as SQL tables, XML format files and structured log files. However it is sometimes necessary to create a bespoke client if the data source is of a proprietary nature.

Once the client has been created, how it is installed, started, provided with its run time parameters and how it relays information to the central Sentra database are all based on standard Sentra practices whatever the nature of the client.

Sentra Overview

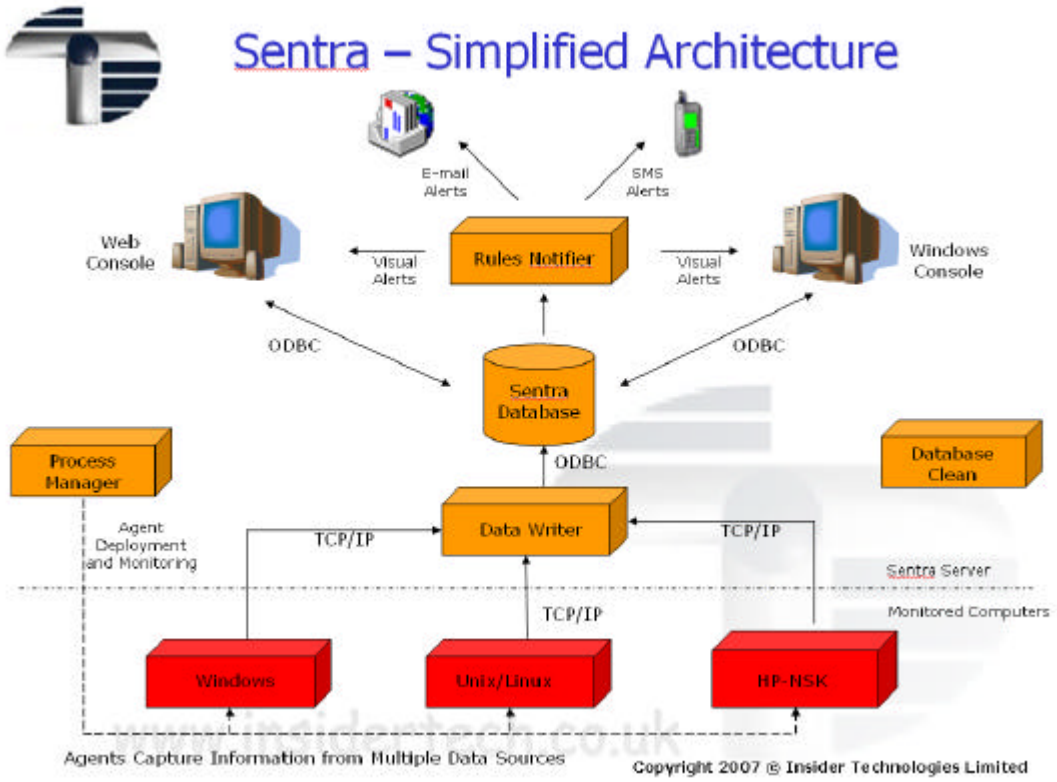
Sentra Database

As the central database is being updated by the extraction clients, the information can be processed in real time by a variety of standard Sentra techniques.

Rules can be built to analyse the data and alert to a console, an enterprise manager or a mobile technology. The alert can be a simple case of checking the level of a value in a table row. More complicated rules based on aggregating data from a number of rows, or tables, or systems, or over time can be built on request as part of a Customer installation.

Graphs or charts can be constructed to show the progression of real time metrics and alerts. An example would be transaction throughput. The charts can be linked together to create a drill down approach to identifying root causes. At the highest level, a non-technical Service oriented view, known as the Hypervisor, can be used as the entry point to the lower level charts. This graphical view is available through a browser and it is known as Sentra Web.

Finally the Sentra database can provide a wealth of intra-day or longer term Management reporting using standard SQL reporting tools such as Microsoft SQL Reporting Services™. An example report would be to trend STAR message activity during a calendar month. The product is equipped with standard reports, but users can produce their own.



Sentra STAR Architecture

Architecture Description

This section describes the Sentra STAR architecture.

Installation

Before the extraction clients are installed on the HP NSK node, the Sentra Process Management program, the Minder, needs to be downloaded and started. The HP and Windows Process Management programs will then work together to install, configure, start and stop the extraction clients.

The HP NSK Minder, which is a NonStop process pair, will also monitor the execution of the extraction clients and restart them if they fail.

The Data Extraction Process

Initially the Sentra STAR product will be equipped with two extraction clients, the statistics collector process and the EMS event log process.

(1) The Statistics Collector Process

This Statistics Collector file contains information about the number of messages processed by the STAR application and it stores the data by message type, by queue name and by country in XML format. Separate totals are maintained for inbound and outbound transactions. There will be one extraction client installed for every statistics collector log file that needs to be tracked.

As queue information is updated in the statistics log file, the information is retrieved by the extraction client and relayed to a co-operative Sentra extraction process on the Windows server.

This extraction layer is a generic application that can process any XML file. Prior to the extraction layer being deployed, the associated XML schema definition or XSD file is pre-processed by Sentra and the field names and associated attributes listed in the file are retrieved. This information is then used to automatically create the SQL database tables required to store the XML data and also to derive the application processing required to parse the original XML file.

(2) The EMS event log process

The EMS extraction process will retrieve nominated STAR EMS events from one or more EMS collectors. The standard tokens such as timestamp, node, subject and manager will be extracted along with tokens specific to the STAR application such as queue name. This information will be stored in the Sentra SQL database and can be processed by the reporting or rules engines.

A third extraction layer, which will process payment images held in XML format, is at the design stage and it will be introduced at a later date. The same generic XML extraction layer described earlier in this section will be used to retrieve and store this data.

Sentra STAR Architecture

The Sentra Database

The central database tables are held under the control of the Microsoft SQL Server product. The retention period for the database is set by the Sentra Administrator; data older than 'x' days will be deleted automatically by the Sentra 'database clean' module.

Sentra is equipped with its own database replication facilities; alternatively RAID technology can be used to protect data.

The Sentra Web facilities can be used to construct a top-level service view of the STAR application. The underlying charts can show alerts that have been configured in the rules engine or the progression of a performance metric such as a throughput rate, over time. If the alert has been generated for a specific transaction, e.g. a targeted queue, then the full record image can be displayed.

The content, style and display sequence of the charts are totally at the discretion of the user. Example alerts and charts can be found at the end of this paper.

Users can also build and submit ad-hoc database queries by creating a filter consisting of a selection of database fields and values. This query can be saved for regular submission.

The Sentra STAR product is also equipped with a standard set of reports, produced using the Microsoft SQL Reporting Services facility. Users can create their own reports using an ODBC compliant application. Reports executed by Sentra can be scheduled to run automatically and the results can be emailed if required.

Example reports can also be found at the end of this paper.

Sentra STAR Architecture

Performance

When Insider Technologies investigated the requirements for the Sentra STAR module, it was evident that irrespective of the graphical views and alerts that could be made available, of equal importance to users was the need to create an extraction client that would not adversely impact the core HP NSK STAR application.

This section provides details of the design that was implemented to help achieve this key product objective.

Windows Server Storage

Historically, the architecture of the core Sentra product means that the vast majority of the processing and storage of captured data takes place on the central Windows Server. Conversely, this means that the extraction client and a non-intrusive management process are the only pieces of HP NSK software required and this represents the thinnest possible layer of the processing cycle.

The only objective of the STAR extraction clients is to read new logging file data and relay it to a co-operative process on the central Sentra server. The parsing and reformatting of the record data and the subsequent committal of the record to a local SQL table is the responsibility of Windows based Sentra software.

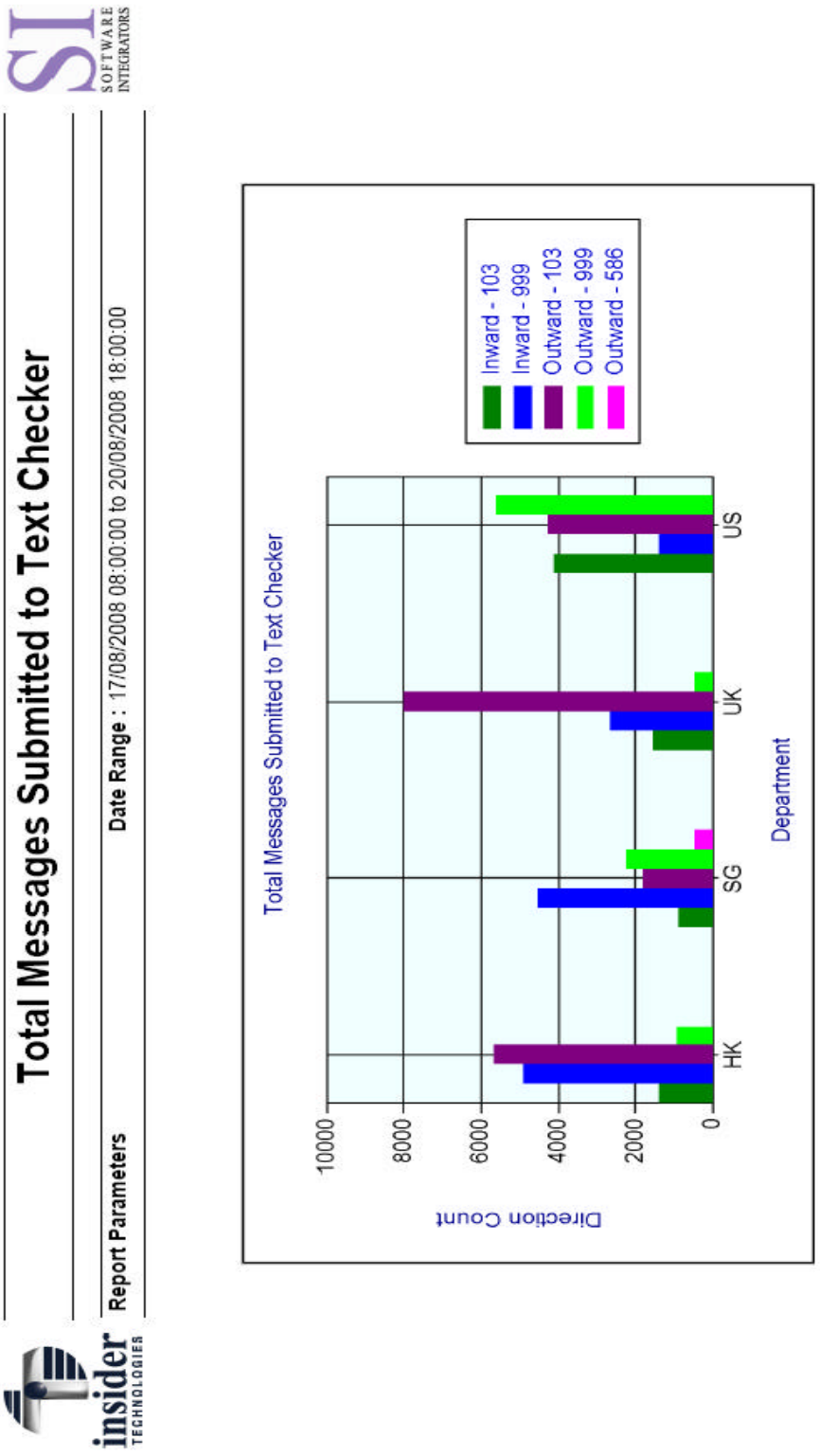
The subsequent analysis of the data for the purposes of rules evaluation, and any database queries to drive real time service views and to provide longer term management reporting, all take place on the Windows Server.

With this split of responsibilities, the impact on the HP NSK system can be minimised.

Sample STAR Alerts, Graphs and Reports

Once the data has been transferred to the Sentra Server, it is available for analysis and reporting.

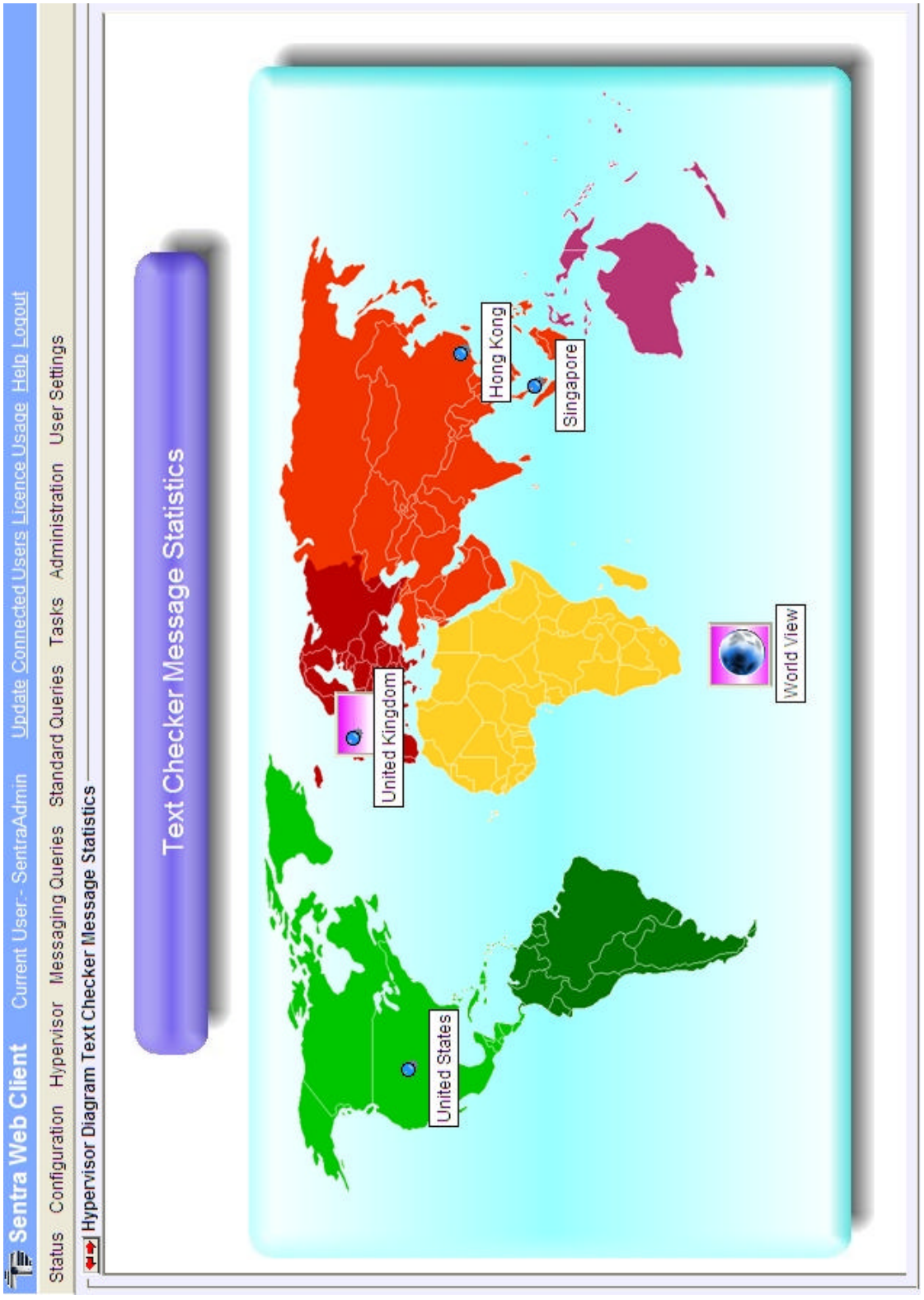
This graphic shows a report detailing the payment messages processed by the STAR text checker module



Sample STAR Alerts, Graphs and Reports

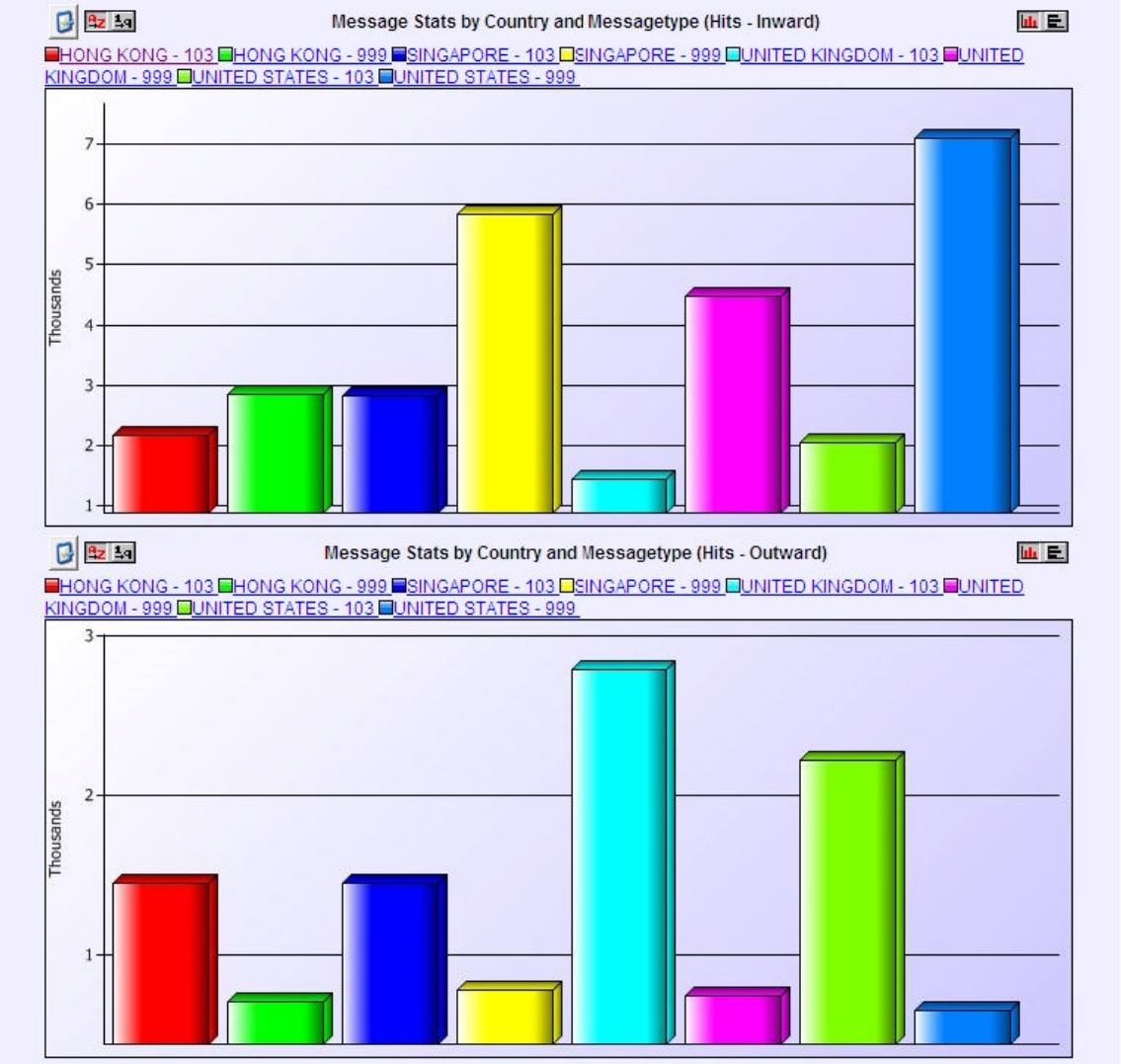
The top level service view is called the Hypervisor and this screen can be built to reflect the structure of your Software Integrators application as shown below. This view is used as an entry point into lower level performance metrics and alerts.

In this example the top level view shows a world map that provides access to lower level graphs depicting the processing of four specific currencies.



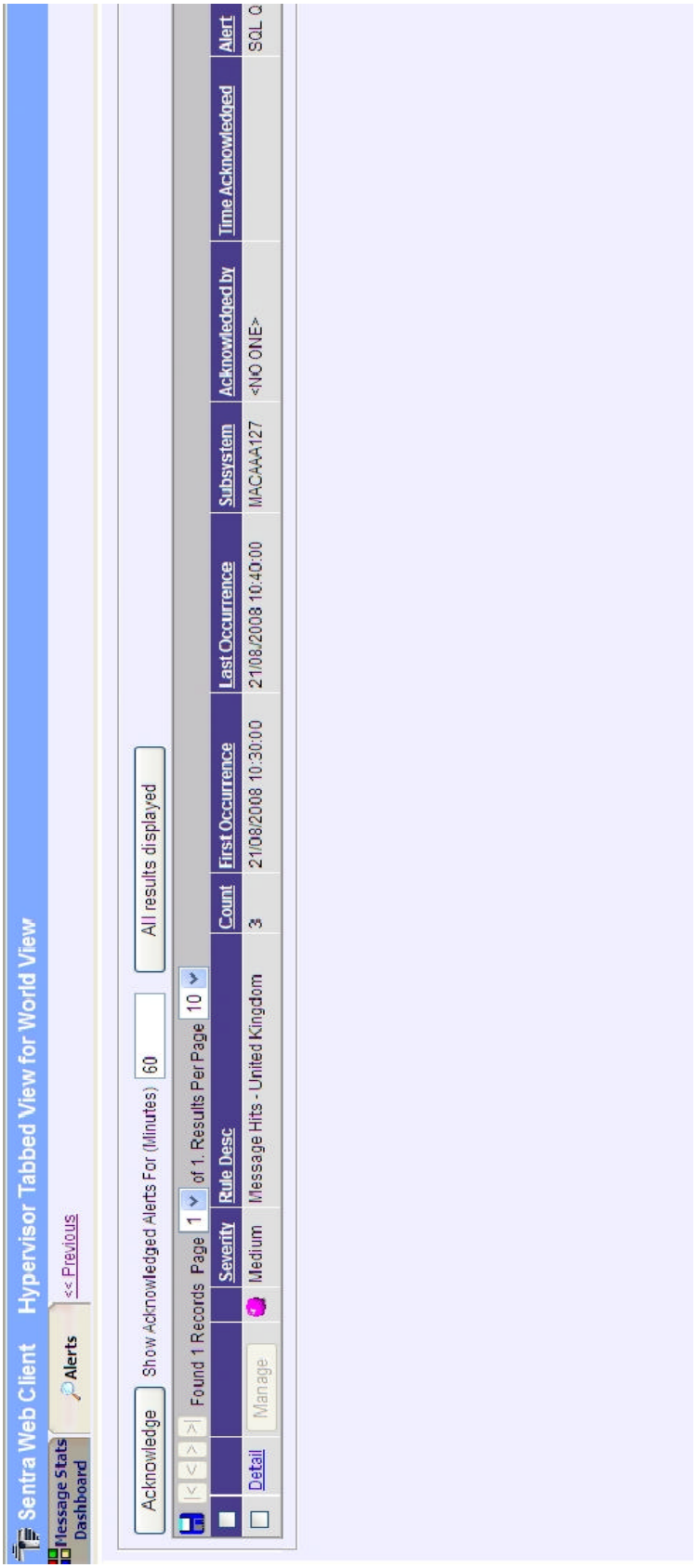
Sample STAR Alerts, Graphs and Reports

From the previous Hypervisor view, users can access charts that display performance metrics or service level alerts. The content of the underlying charts and the sequence in which they are displayed is at the discretion of the user.



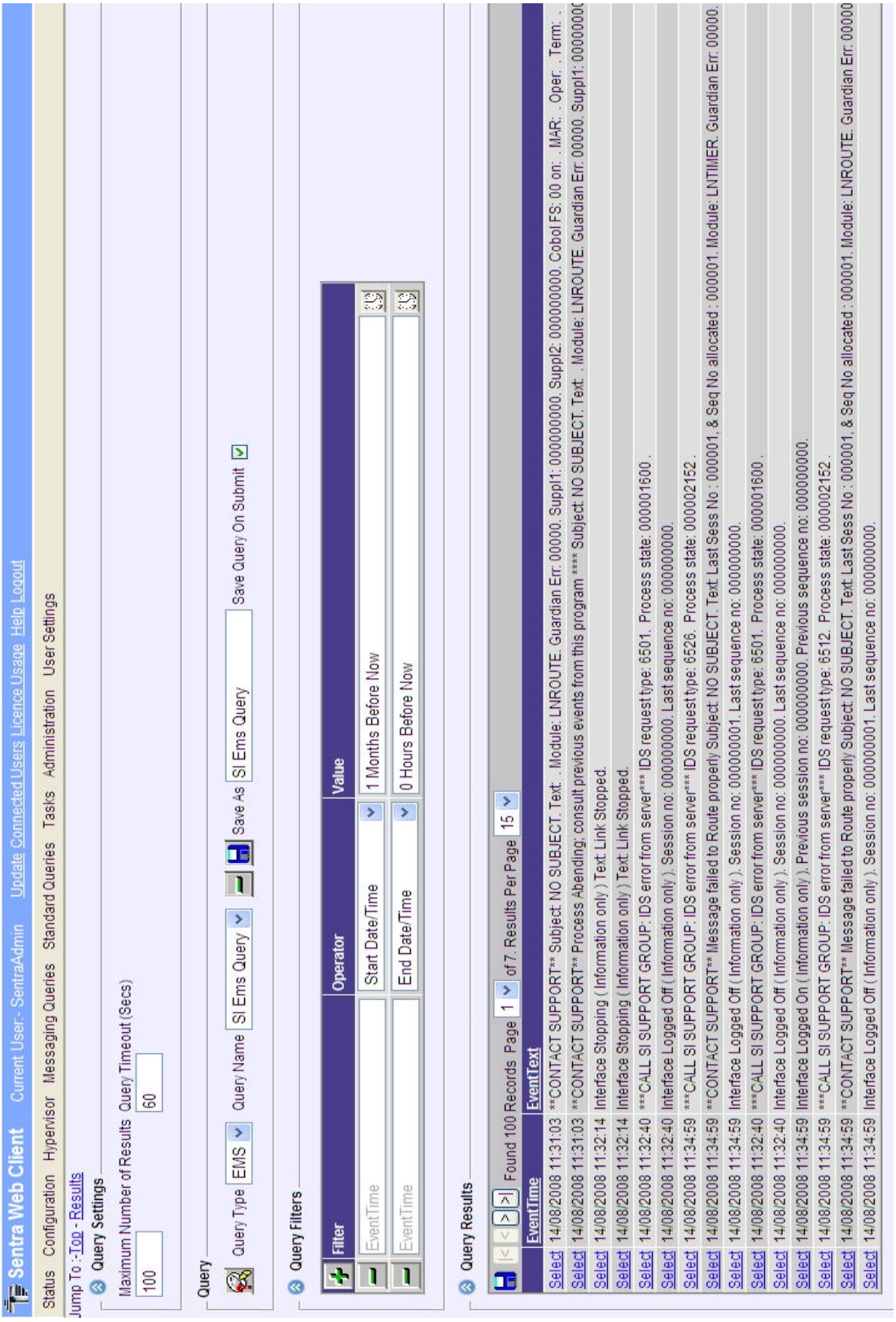
Sample STAR Alerts, Graphs and Reports

The Rules engine can trap pre-defined conditions. Associated errors can be escalated to a local console linked into the Hypervisor view as depicted below, an Enterprise Management platform or to a mobile technology such as SMS or Email



Sample RTLX Alerts, Graphs and Reports

Users can build an ad-hoc query against the collected data, using a combination of data attributes. The query can be saved and resubmitted at a later date if required. This example shows an ad-hoc query executed against the SI EMS database.



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