SAS® IT Resource Management

Optimize IT resource capacity and performance across the enterprise

What does SAS® IT Resource Management software do?

SAS IT Resource Management is an IT performance management and capacity planning solution. The solution accesses and reads the log files and metrics created by IT resources and creates an IT performance data warehouse. The solution then analyzes the data warehouse for the purposes of IT performance management and capacity planning and renders IT intelligence in the form of data and graphs.

Why is SAS® IT Resource Management important?

SAS IT Resource Management provides a complete and analytical view of the IT enterprise that enables IT organizations to ensure the efficient and cost-effective delivery of IT services and resources.

For whom is SAS® IT Resource Management designed?

SAS IT Resource Management is designed for use by IT organizations. The solution provides practical information to IT performance and capacity managers, system and network administrators and engineers, IT and line of business managers and leaders of those organizations.

The ability to innovate is critical for organizations. IT organizations play a role in innovation only if their services are delivered in a credible manner and they have the ability to forecast the IT resources needed to meet anticipated business demands. This is true whether those resources are physical or virtual servers, internal or external clouds, or contracted resources from a hosted provider.

IT organizations need to provide visibility into the use, availability and performance of their resources. This visibility demonstrates value to the business and other stakeholders and enables them to plan and implement new business initiatives.

SAS IT Resource Management extends the data management, analytic and business intelligence components of SAS to capture and organize IT resource measurements from IT infrastructures to create an IT performance data warehouse. The solution then analyzes the warehoused information to create unique insights that are useful for optimizing day-to-day operations and anticipating future demands for services and resources. These insights can help identify overutilized resources, consolidate underutilized resources, project exhaust dates for key aspects of IT, and plan for new acquisitions.

Key Benefits

- **Align IT and business by making better decisions**. SAS IT Resource Management produces a comprehensive IT performance data warehouse that is enriched with statistics and ready to answer questions about the current and forecasted performance and capacity of IT resources. In addition to demonstrating how IT is aligned with each business unit, this helps ensure that IT is a driving force behind the organization's success. The solution boasts a point-and-click administration, reporting and report delivery environment for building, executing and maintaining reusable processes – helping you get the most out of IT performance data.

- **Reduce IT costs through better resource use**. With a fact-based approach to managing your IT infrastructure, SAS IT Resource Management delivers the utilization, availability and performance information required to know and forecast IT resource needs. These facts enable efficient IT planning and operational activities. The information made available through SAS IT Resource Management allows organizations to rationalize personnel, facilities, hardware and general IT operating costs.

- **Plan for IT infrastructure demand and reduce risks**. SAS IT Resource Management helps predict when you might exceed IT resource capacity so you can plan for changing business requirements. Likewise, concise reporting of IT resource performance data helps identify underutilized IT resources that can be repurposed – and brings insights to infrastructure consolidation or virtualization projects without negatively affecting the quality of IT service and business continuity.

- **Measure and manage all IT resources and services**. SAS IT Resource Management gathers and consolidates the IT resource data available throughout the IT infrastructure. SAS IT Resource Management analyzes and reports on that data, identifies and communicates statistical exceptions, and uses a web-based report management and delivery application to enable the distribution and consumption of IT intelligence. Using one platform to manage all IT-related data reduces costs, saves time, shortens learning curves, and facilitates the development and use of common analysis methodologies throughout the IT organization. In the end, it gives decision makers the information they need for quick and accurate analysis of IT resources.

Product Overview

SAS IT Resource Management is designed to access, integrate, aggregate, analyze and manage large quantities of IT resource performance data about hardware, operating systems, networks, web servers, databases and applications, whether they are used in physical, virtual or cloud infrastructures.

The IT resource performance data is generated by logging mechanisms that are inherent to IT resources or that are created by the enterprise systems management tools used to manage IT infrastructures. Everything needed to analyze IT resource performance data from multiple sources for performance management, capacity planning, IT resource forecasting, seasonality analysis and enterprise IT performance summaries is provided, including:

- IT-specific data warehousing tools and wizards to create, organize and manage one or many IT data marts.
- Out-of-the-box methods to deliver data for analysis and reporting.
- Standard aggregations (data summarizations) and the ability to create custom aggregations.
- Standardized and descriptive labels for IT system measurements.
- More than 4,000 IT domain intelligence reports that can be used out of the box or customized as desired.
- A web-based application for the distribution and consumption of reports.

Interactive data integration environment

SAS IT Resource Management provides a visual design tool that enables developers or IT data analysts to construct, execute, maintain and reuse processes that manipulate IT performance data. The intuitive point-and-click design of SAS IT Resource Management allows IT data analysts to easily build and maintain process workflows for data warehousing.

Enterprise access and interpretation of IT performance data

SAS IT Resource Management offers access to all types of data sources that contain information about IT resource performance. The raw IT performance data is processed by adapters that are specific to the IT resource data being evaluated. SAS IT Resource Management provides adapters for industry-standard IT data sources and allows for the creation of user-written adapters for data sources that are not supported out of the box.

Flexible and open IT data mart

The IT data mart is a logical collection of IT-related data and metadata objects and is a key component of SAS IT Resource Management. The data mart contains jobs, staged tables, aggregation tables, SAS Information Maps and libraries. IT data marts are set up, managed and administered by the data administrator using wizards and user interfaces. Multiple data marts can be created to organize data. For example, a separate data mart might be set up for each adapter or business area.

Data staging and data aggregation

The staging transformation invoked by SAS IT Resource Management extracts raw IT resource performance data, performs any calculations and conversions that are required by that adapter (including data quality processes) and loads (stages) the resulting data into tables in the IT data mart. Staging jobs can be run interactively or scheduled to run in batch mode depending on the enterprise requirements. An aggregation transformation specifies how staged data is to be transformed and stored so that it can provide analysis and report-ready IT resource performance data.

For example, an aggregation transformation provides specifications for filtering data, calculating statistics, performing rolling
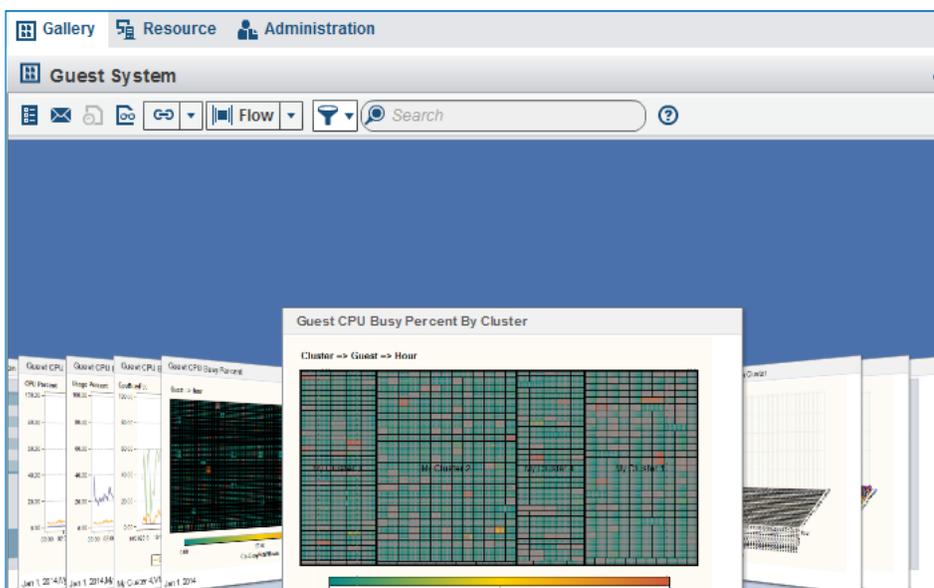

Figure 1: SAS IT Resource Management Report Center.

accumulations, ranking and grouping (classifying) the data as per user specifications, etc. For any given adapter, SAS IT Resource Management generates transformations that create information maps referencing the data needed to create and view reports.

Reporting and analysis

SAS IT Resource Management includes data visualization techniques that help make business sense of IT resource performance data. Reporting capabilities provide a single, centralized view of IT resources and services across the enterprise. Summarized and simple aggregation tables and the information maps for those tables are used as inputs to create reports such as CPU utilization, threshold analysis, peak period analysis, and exhaust forecasting. SAS offers a collection of query and reporting interfaces for different types of users and recipients (e.g., capacity planners, IT infrastructure analysts, IT operations managers, senior IT management and IT directors).

A powerful query, reporting and analysis client is used to create reports and graphics. The reporting client, SAS® Enterprise Guide®, uses SAS Information Maps as input to analysis and reporting tasks to insulate business users from complex data structures and naming conventions sometimes associated with IT performance data sources. This ensures the consistent use of IT resource performance data. A Microsoft Office add-in enables decision makers to view, analyze and share IT resource performance data directly from the Microsoft Office environment and provides easy access to the broad and deep analytic, reporting and data access functionality of SAS. For the distribution and consumption of the IT domain intelligence reports that are created, a powerful web application (IT Resource Management Report Center) is provided. Further, SAS Visual Analytics Designer is available to create visualizations from the IT performance data warehouse.

Key Features

Interactive data integration environment
- A visual design tool provides an easy-to-use GUI for enhanced data integration capabilities and administrative tasks prior to creating reports.
- Wizards are specifically designed for building IT data marts, adapters, aggregations, staged tables and columns, and ranking IT data.
- A centrally managed and shared metadata repository for data marts facilitates consistency and reuse of metadata.

Enterprise access and interpretation of IT performance data
- Adapters deliver a complete data model for each IT resource data source and convert raw IT resource data to information for analysis and reporting.
- Device-independent measurement units and standardized variable-naming conventions for IT resource measurements enable complex IT metrics to be communicated and consumed by both IT and business users.
- All SAS IT Resource Management adapters conform to standards for aggregations (simple and summarized), ranks and filters for IT measurements in the context of aggregations and report groups.
- Supported adapters:
  - VMware vCenter Server
  - SNMP Simple Network Management Protocol
  - Demand Technology Performance Sentry
  - HP Performance Agent
  - HP Reporter
  - BMC Performance Manager for Servers
  - SAR System Activity Reporter
  - Microsoft System Center Operations Manager
  - RRDtool
  - Amazon CloudWatch
  - Ganglia
  - SAP ERP Enterprise Resource Planning
  - SAS Environment Manager
  - Web Log
  - ASG TMON2CIC
  - ASG TMONDB2
  - ASG TMONDB2 V5
  - BMC Mainview IMS
  - CA TMS
  - IBM OS/400 Collection Services
  - IBM DCOLLECT
  - IBM DFSMS Data Collection Facility
  - IBM Environmental Record Editing and Printing Program
  - IBM Information Management System (IMS)
  - IBM System Management Facility
  - IBM Transaction Processing Facility
  - IBM VM Monitor
  - Performance Sentry with MXG Comma Separated Value User-written adapters

Flexible and open IT data mart
- The data mart contains jobs, staged tables, aggregation tables, information maps and libraries. Multiple IT data marts can be created for each adapter or business area.
- SAS IT Resource Management data marts are designed for database-independent persistence and multithreaded ETL processes.

SAS® IT Resource Management Software Technical Requirements

Server environment

- AIX: 7.1
- HP-UX Itanium: HP-UX 11.31 Update 9
- Linux for x64 (EM64T/AMD64): RHEL 6.1 and 7, SuSE SLES 11 and 12, Oracle Linux 6
- Microsoft Windows on x64 (EM64T/AMD64): Windows 7*, Windows 8, Windows Server 2008, Windows Server 2008 R2, Windows Server 2012, Windows Server 12R2.
- Solaris on SPARC: Version 10, 11
- Solaris on x64: Version 10, 11
- z/OS: V2R1 and higher, z/OS 2.1

Middle tier

- AIX: 7.1
- HP-UX Itanium: HP-UX 11.31 Update 9
- Linux for x64 (EM64T/AMD64): RHEL6.1, SuSE SLES 11 and 12, Oracle Linux 6 and 7
- Solaris on SPARC: Version 10, 11
- Solaris on x64: Version 10, 11
- Microsoft Windows on x64 (EM64T/AMD64): Windows Server 2008, Windows Server 2008 R2, Windows Server 2012, Windows Server 2012R2.

Client environment

- Microsoft Windows (x86-32): Windows 7*, Windows 8, Windows 10, Windows Server 2008, Windows Server 2008 R2, Windows Server 2012, Windows Server 2012R2.
  - Web Browsers
    - Internet Explorer 9, 10 and 11 on Windows 7 and Windows Server 2008 R2
    - Internet Explorer 10 on Windows 8 and Windows Server 2012
    - Internet Explorer 11 on Windows 8.1 and 10 and Windows Server 2012 R2
    - Chrome 15 on Linux 64-bit (x86-64) and Windows clients
    - Firefox 6 on Linux 64-bit (x86-64) and Windows clients

Key Features (continued)

Data staging and data aggregation

- Unique staging transformations associated with each supported adapter load raw data into staged tables. Staging transformations detect and handle duplicate data and generate computed columns from the input data.
- Aggregation transformations create performance data for analysis and reporting, providing specifications for identifying the location of input data, filtering data, populating computed columns, calculating statistics, performing rolling accumulations and ranking individual class variables.
- The aggregation transformation allows IT resource data to be summarized on any time period and for as many time periods as the user desires.

Reporting and analysis

- More than 4,000 out-of-the-box IT reports are delivered for use with the adapters supported by SAS IT Resource Management. The reports can be customized for use with user-written adapters.
- The web-based Report Center facilitates the distribution and consumption of IT intelligence.
- A Windows reporting client application generates business-quality reports to communicate the results of analyses. It also can be used to create SAS Stored Processes, which can be deployed within Microsoft Office applications or a web browser.
- A web-based interface is available for ad hoc reporting of IT resource performance.
- A Microsoft Office add-in can be used by business users to access, analyze and report on IT resource performance data and distribute the results to other stakeholders in the enterprise.

Included third-party software

- MXG on SAS IT Resource Management servers licensed and installed on z/OS
- Demand Technology Performance Sentry on SAS IT Resource Management servers licensed and installed on Windows

* NOTE: Windows 7 supported editions are: Professional, Enterprise and Ultimate.

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To contact your local SAS office, please visit: sas.com/offices

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