Tivoli Netcool Performance Manager overview
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Introduction

IBM® Tivoli® Netcool® Performance Manager 1.4 consists of a wireline component (formerly Netcool/Provisio) and a wireless component (formerly Tivoli Netcool Performance Manager for Wireless).

The Tivoli Netcool Performance Manager overview provides a description of the product, its new features, and the steps to take if you decide to purchase IBM Tivoli Netcool Performance Manager 1.4.

Intended audience

The audience includes those considering IBM Tivoli Netcool Performance Manager as a Performance Management solution and those starting out with Tivoli Netcool Performance Manager who want an overview of the system.

What this information contains

This publication contains the following sections:

**Chapter 1, “Tivoli Netcool Performance Manager overview,” on page 1**
A product overview.

**Chapter 3, “Tivoli Netcool Performance Manager architecture,” on page 5**
A description of the product architecture, including the wireline, wireless and visualization components.

**New features**
A list of new features introduced in the 1.4 product release.

**Chapter 4, “What is next for customers,” on page 13**
A brief description of the next steps to take if you are considering IBM Tivoli Netcool Performance Manager as a performance management solution.

Service Management Connect

Connect, learn, and share with Service Management professionals: product support technical experts who provide their perspectives and expertise.


- Become involved with transparent development, an ongoing, open engagement between other users and IBM developers of Tivoli products. You can access early designs, sprint demonstrations, product roadmaps, and prerelease code.
- Connect one-on-one with the experts to collaborate and network about Tivoli and the Network and Service Assurance community.
- Read blogs to benefit from the expertise and experience of others.
- Use wikis and forums to collaborate with the broader user community.

Related information:

- Tivoli Netcool Performance Manager 1.4 community on developerWorks
Tivoli Netcool Performance Manager technical training

For Tivoli Netcool Performance Manager technical training information, see the following Tivoli Netcool Performance Manager Training website at:
https://tnpmsupport.persistentsys.com/training.

Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

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The IBM Support Assistant is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. The Support Assistant provides quick access to support-related information and serviceability tools for problem determination. To install the Support Assistant software, go to http://www.ibm.com/software/support/isa.

Troubleshooting Guide
For more information about resolving problems, see the problem determination information for this product.

Conventions used in this publication

Several conventions are used in this publication for special terms, actions, commands, and paths that are dependent on your operating system.

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This publication uses the following typeface conventions:

Bold
- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
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- Keywords and parameters in text

Italic
- Citations (examples: titles of publications, diskettes, and CDs)
- Words defined in text (example: a nonswitched line is called a point-to-point line)
- Emphasis of words and letters (words as words example: "Use the word that to introduce a restrictive clause."); letters as letters example: "The LUN address must start with the letter L."
- New terms in text (except in a definition list): a view is a frame in a workspace that contains data.
- Variables and values you must provide: ... where myname represents....

Monospace
• Examples and code examples
• File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
• Message text and prompts addressed to the user
• Text that the user must type
• Values for arguments or command options

**Bold monospace**
• Command names, and names of macros and utilities that you can type as commands
• Environment variable names in text
• Keywords
• Parameter names in text: API structure parameters, command parameters and arguments, and configuration parameters
• Process names
• Registry variable names in text
• Script names
Chapter 1. Tivoli Netcool Performance Manager overview

Tivoli Netcool Performance Manager is a Performance Management system that provides visualization and reporting of network performance data for complex, multivendor, multi-technology networks.

IBM Tivoli Netcool Performance Manager enables communication service providers, enterprises, and utilities to manage network performance of both fixed and mobile networks. It provides a comprehensive, flexible, and scalable Performance Management system that supports complex, multivendor, multi-technology networks and provides increased visibility into total network performance.

With Tivoli Netcool Performance Manager, customers can consolidate Performance Management of both wireless and wireline/IP-based networks to a single vendor solution for lower cost of ownership. The solution enables organizations to move toward convergence and next-generation networks at their own pace-while continuing to support existing mature technologies.
Chapter 2. New features and enhancements

IBM Tivoli Netcool Performance Manager, Version 1.4 offers the following new features:

**Oracle 11g support**
Support for 64-bit Oracle 11g (11.2.0.3) Enterprise Edition on Solaris (SPARC), Linux and AIX®. Oracle 11g Enterprise Edition must include the partitioning option.

**Supported Linux versions**
Red Hat Enterprise Linux 6.x if you are installing Tivoli Netcool Performance Manager for the first time.

**Important:** Install the 1.4.0.0-TIV-TNPM-IF0009 Fix Pack to resolve the library dependencies for RHEL versions greater than 6.2.

Red Hat Enterprise Linux 5.9 if you are upgrading from Tivoli Netcool Performance Manager 1.3.2.

For other supported operating systems, see *Installing Tivoli Netcool Performance Manager - Wireless Component* and *Installing Tivoli Netcool Performance Manager - Wireline Component*.

**Support for Jazz for Service Management, v1.1.0.3**
Jazz for Service Management contains the following components:

- Administration Services
- Dashboard Application Services Hub
- Security Services
- Registry Services
- Administration Services UI
- Reporting Services environment
- Tivoli Common Reporting

The supported Tivoli Common Reporting is 3.1.0.2. Dashboard Application Services Hub is replacing the Tivoli Integrated Portal.

**Note:** You can download Jazz for Service Management from the Passport Advantage web site by using the electronic image part numbers. For more information, see [http://www-01.ibm.com/support/docview.wss?uid=swg24036990](http://www-01.ibm.com/support/docview.wss?uid=swg24036990)

**Note:** For a complete list of new features and enhancements in Wireline and Wireless components, see *Release Summary*. 
Chapter 3. Tivoli Netcool Performance Manager architecture

Tivoli Netcool Performance Manager is a comprehensive, flexible, and scalable Performance Management system that supports the most complex multi-vendor, multitechnology networks while you provide end-to-end visibility into total network performance. Tivoli Netcool Performance Manager reports on all aspects of network operations, manages the data and displays it in intuitive visual representations for all users within the enterprise. Armed with the key performance metrics they need, service providers can make informed operational decisions.

When both the wireline and the wireless components are installed in a multi-technology network, the result is the following overall product architecture.

Wireline component

The wireline component can be installed separately.

Tivoli Netcool Performance Manager, Version 1.4 offers an option to use either IBM DB2 or Oracle as the database support. IBM DB2 support is for Wireline component only.

The wireline component uses a four-tiered architecture that tracks the sources from which different metrics are derived. It then collects those metrics, performs aggregations on them, stores them in a database, and reports the metrics by using a web portal.
The Wireline component consists of the following main modules:

- **DataLoad**
- **DataChannel**
- **DataMart** on page 7
- **DataView** on page 7

The following figure shows the different modules.

![Diagram of the Wireline component modules]

**DataLoad**

The DataLoad module is used to collect metric data from network resources. The DataLoad module interfaces with the network and uses SNMP and bulk collection to gather data.

The DataLoad module performs the collection of SNMP and bulk (non-SNMP) data based on policies that you have enabled for their collection. Collection is done in Coordinated Universal Time (UTC). The collected data is refined and used to create a Binary Object File (BOF). The DataLoad module places all the collected data into a directory tree, which can be understood and read by the DataChannel module.

The DataLoad modules can be loaded on lightweight servers and placed as close to the network as possible (often inside the network firewall).

**DataChannel**

The DataChannel module is used to move collected raw data from the DataLoad modules. It aggregates the data and then moves the data to storage in the wireline datastore.

The DataChannel processes provide the interface between the DataLoad module collection process and the database. The DataChannel processes handle the communication between the collectors and the database. They also perform calculations to the raw data to make it useful for reporting. The DataChannel processes load the data into the database on an hourly and daily basis. The DataChannel provides many applications responsible for transferring data from the DataLoad collectors to the database. The DataChannel provides these basic functions:
• Manages and aggregates data that is collected by the DataLoad collectors.
• Transfers data to the database on an hourly and daily basis.
• Creates logs that detail data flow from collectors to the database.
• Runs processes to start and monitor both the data loading process and aggregation process.

The DataChannel module uses a File Transfer Engine (FTE) to pull in files that are collected and compiled by the DataLoad module.

It performs statistical calculations on the data by using the Complex Metric Engine (CME). Depending on your chosen frequency, the Hourly Loader or Daily Loader are used to aggregate the CME data based on time and load it into the database. The DataChannel module also manages the state of components and maintains application logging information.

**DataMart**

The DataMart module provides administration for the wireline database and other aspects of the wireline component.

The database can store large volumes of data and retrieve the data quickly and efficiently. It accomplishes those tasks by using database partitioning. The DataMart database uses range partitioning to divide the database into partitions that are based on a range of date values.

The DataMart module includes the Discovery Server tool that is used to discover the network resources for which the wireline component provides reports. It also includes GUI tools for administering the wireline component installation.

**DataView**

The DataView module is used to gather resource and resource group data from the database and other sources. This data is presented in the form of charts and tables in Resource Views in the Tivoli Netcool Performance Manager console.

The DataView module provides a framework for configuring a wide variety of resource views and reports.

Users can set various report parameters, view reports from different time periods, and navigate through the various resources on the reports.

Administrators can install Technology Packs, associate users with reports and assign permissions and properties.

Content designers can modify and extend the function of technology packs by using the DataView Page Design Toolkit.

DataView and Jazz for Service Management security processes ensure that only users that are authorized to access a report have access to that report. For more information, see "Visualization" on page 8.
Visualization

Visualization is provided by using the Tivoli Netcool Performance Manager console.

The Tivoli Netcool Performance Manager console facilitates the execution of administration tasks. Its main job however is to allow the user browse DataView resource views and reporting. In addition, it provides access to Tivoli Common Reporting, and co-location and integration with other Tivoli products.

Jazz for Service Management

Jazz for Service Management brings together the Open Services for Lifecycle Collaboration (OSLC) community’s open specifications for linking data and other shared integration services, including administrative, dashboard, reporting, and security services. It underpins client-defined management scenarios such as cloud, performance monitoring, and IT Service Management.

Through these facets, Jazz for Service Management accelerates deployment, integration, and workflow automation across IBM, partner, and third-party tools. Its open and standardized approach to linking data means that clients and partners can rapidly deploy and improve collaboration across interdependent roles and functions with less labor and cost, and regardless of the source and the management scenarios applied. Furthermore, this approach significantly reduces the risk of broken integrations, because it is not version or vendor API specific.

Jazz for Service Management has a number of integration services:

Administration services
Administration Services in Jazz for Service Management is an integration service that simplifies the administration of Tivoli products, solutions, or third-party solution in your environment. Through Administration Services, you can manage various aspects of these products and solutions in your environment, such as health, configuration, availability, lifecycle, and serviceability.

Dashboard Application Services Hub
Dashboard Application Services Hub provides visualization and dashboard services in Jazz for Service Management. It has a single console for administering IBM products and related applications.

Registry services
Registry Services is an integration service that provides a shared data repository for products in an integrated service management environment.

Security services
Security Services in Jazz for Service Management enable the servers of non-WebSphere based IBM and partners to participate in LTPA based single sign-on with WebSphere servers.

Tivoli Common Reporting
Reporting Services is an integration service for users to administer, run, edit, and create Tivoli reports. It is a follow-on implementation of the Tivoli Common Reporting component. Reporting Services provide web-based, launch-in-context report administration, and editing.
Wireless component

The wireless component can be installed separately.

The Wireless component consists of the following main modules:

- "Gateways and mediation" on page 10
- "Loaders" on page 10
- "Application server" on page 11
- "Wireless database" on page 10
- "Visualization" on page 8

The following figure illustrates the system in a client-single server deployment model.

Figure 2. Tivoli Netcool Performance Manager - Architecture
Gateways and mediation

Gateways and mediation transform raw data form (such as ASN1, CSV, XML) into standardized LIF format.

A rules-based engine transforms the vendor source data to a standardized format. The engine runs every collection period as configured, for example, every 15 minutes, or hourly.

Rules typically involve:
- Retrieve the raw data from the datasource, for example OMC.
- Transform the data:
  - Insert hierarchy data.
  - Merge files into larger files for better performance.
  - Unpeg data (for rolling Counters).
  - Transform counters (such as add, split, subtract).
  - Generate LIF output.
- Push/publish to loader.
- Transfer LIFs to loader input directory for loading.
- Generate statistics.

Loaders

Loaders extract, transform, and load (ETL) the measurement data into traffic and hierarchy tables.

Load LIF data to populate:
- The measurement counters into the raw tables. This is the raw vendor generated statistics.
- The hierarchy data, that is, all the physical and logical entities on the Network and their relationships.
- Load Cells, their parent information, related attributes.
- Manage rehoming (A cell that is moving from one parent to another).

Track information on the interval of the loaded data per table (is the raw data that is being loaded at 15, 30 min or hourly intervals).

Track statistics on the amount of data that is loaded per table. The amount of data that is loaded per block (in the LIF).

Generate alarms that are based on thresholds on raw counters that are being loaded.

Wireless database

An Oracle database provides the wireless datastore to store performance data. Time series data (raw, summary, busy hour) is stored in partitioned tables.

Core system metadata:
- System dictionary (the KPIs available for reporting) and ETL rules.
- Reports and report results.
- Scheduled jobs (system and user defined for reports).
Performance data: Hierarchy data, Raw data, Summary, and Busy Hour

**Application server**

The JBoss Application server runs scheduled jobs, analytics services, reporting, and manages the system dictionary for the wireless component.

Authentication is implemented by using LDAP in the Tivoli Directory Server, which is bundled with the product.

Major services:

**Scheduler**
- Manages the scheduling of system jobs (such as summarization) and user defined (scheduled reports).

**Dictionary**
- Logical -> Physical model mapping.

**Report Generation**
- Engine to transform report definitions into SQL statements to produce report results.

**AlarmService**
- Store and forward alarms that are generated during data loading.

**VMM**
- Technology pack installation and uninstallation.

**Summarization**
- Stored Summaries and Busy Hours.

**Partition Maintenance**
- Database maintenance.
Chapter 4. What is next for customers

What to do if you would like to install or upgrade to Tivoli Netcool Performance Manager 1.4.

If you are considering installation or upgrade to Tivoli Netcool Performance Manager 1.4, the next steps are generally as follows:

1. The customer contacts Technical Sales. You can contact an IBM representative by filling out a contact form.

2. The customer with the aid of Tivoli Services/Technical Sales outline the Topology that they require.

3. Technical Sales request Budgetary Sizing. The Budgetary Sizing is performed by an IBM body and is created to provide the customer an estimate of the approximate cost of the proposed Tivoli Netcool Performance Manager system.

Note: Under no circumstances must a Budgetary sizing be used to define the dimensioning and acquisition of Tivoli Netcool Performance Manager customer production hardware.

4. Based on agreement, Technical Sales request Full Sizing. The Full Sizing is performed by an IBM body and is the final communication to the customer stating the total hardware required to fulfill the outlined Topology.

Note: It is essential that this process is completed before any hardware is purchased or the customer designates existing hardware for Tivoli Netcool Performance Manager.

5. The customer with the aid of Tivoli Services installs the system. The documentation that outlines the requirements and procedures of an installation or upgrade of Tivoli Netcool Performance Manager can be found on the IBM Knowledge Center from here: http://www-01.ibm.com/support/knowledgecenter/SSBNJ7/welcome

The process is more simple in the case of an upgrade.

Further information

For specific information on the requirements and procedures of Tivoli Netcool Performance Manager wireline:

Wireline

Installing Tivoli Netcool Performance Manager - Wireline Component.
Upgrading Tivoli Netcool Performance Manager - Wireline Component.

For specific information on the requirements and procedures of Tivoli Netcool Performance Manager wireless:

Wireless

Installing Tivoli Netcool Performance Manage - Wireless Component.
Upgrading Tivoli Netcool Performance Manage - Wireless Component.
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