



# Auditec

## Newtest™ Overview

Introduction  
General  
Views

*February 2006*

## **Contents**

<b>FOREWORD</b>	<b>4</b>
<b>GENERAL CONCEPTS AND TERMINOLOGY</b>	<b>5</b>
1.1. SLA / SLM / SLO	5
1.2. SERVICE	5
1.3. ROBOTS (ACTIVE AGENTS) AND OBSERVERS (PASSIVE AGENTS)	6
1.4. TRANSACTION	6
1.5. END USER / END-TO-END	6
<b>PRESENTATION OF NEWTEST™</b>	<b>7</b>
<b>1. NEWTEST™ SOLUTIONS</b>	<b>7</b>
<b>2. WHO BENEFITS FROM NEWTEST™?</b>	<b>8</b>
<b>3. WHAT NEEDS DOES NEWTEST™ ADDRESS?</b>	<b>9</b>
3.1. REAL-TIME SUPERVISION	9
3.2. DASHBOARDS AND STATISTICS	10
3.3. ANALYSIS, TROUBLESHOOTING	10
<b>4. NEWTEST™ COMPONENTS</b>	<b>11</b>
4.1. NEWTEST™ ENTERPRISE PORTAL	12
4.2. NEWTEST™ PROBE	12
4.3. NEWTEST™ MULTI-PROBE	13
4.4. NEWTEST™ ROBOT FOR TESTING	13
4.5. NEWTEST™ OBSERVER	13
4.6. NEWTEST™ TRANSACTION BUILDER	14
4.7. NEWTEST™ COLLECTOR	14
<b>5. NEWTEST™ SOLUTION ARCHITECTURE</b>	<b>15</b>
<b>NEWTEST™ ENTERPRISE PORTAL</b>	<b>17</b>
<b>1. NEWTEST™ MANAGEMENT CONSOLE</b>	<b>17</b>
1.1. NMC: REAL-TIME MONITORING	19
1.2. ALARM ROUTING CENTER	21
1.3. NMC: CENTRALIZED ADMINISTRATION	21
1.4. NMC: DATA COLLECTION AND PROCESSING	22
<b>2. NEWTEST™ REPORTING</b>	<b>23</b>
2.1. INDICATORS	23
2.2. BUSINESS INDICATORS CENTER	24
2.3. E-REPORTING CENTER	24
2.4. NEWTEST™ REPORTING EXAMPLES	25

<b>NEWTEST™ ROBOT</b>	<b>31</b>
<b>1. HOW DO NEWTEST™ ROBOTS WORK?</b>	<b>31</b>
1.1. CLIENT ENVIRONMENTS	32
1.2. SCENARIOS	32
1.3. LEARNING	32
1.4. QUEUES AND GROUPS	32
1.5. MEASUREMENTS	33
1.6. ALARMS	33
1.7. AUTONOMY	33
1.8. CONSERVATION OF RESULTS	33
1.9. DIAGNOSTIC	34
<b>2. TECHNICAL CHARACTERISTICS</b>	<b>34</b>
2.1. TECHNICAL DIFFERENTIATION BY ROBOT	34
2.2. CLIENT APPLICATIONS SUPPORTED	35
<b>3. RESULTS COLLECTED BY NEWTEST™ ROBOT</b>	<b>36</b>
3.1. STATUS OF SCENARIO AND MEASUREMENT EXECUTIONS	36
3.2. RESPONSE TIME MEASUREMENTS	37
3.3. DATA RETRIEVED BY NEWTEST™	37
<b>4. IMPLEMENTATION EXAMPLE</b>	<b>38</b>
<b>NEWTEST™ OBSERVER</b>	<b>40</b>
<b>1. HOW DOES THE NEWTEST™ OBSERVER PASSIVE AGENT WORK?</b>	<b>40</b>
1.1. MEASUREMENTS CONDUCTED	40
1.2. PRESERVATION OF THE USER'S WORK ENVIRONMENT	41
1.3. THE DEVELOPMENT MODULE	41
<b>2. OPERATING PRINCIPLES OF PASSIVE AGENTS</b>	<b>42</b>
2.1. DEPLOYMENT OF AGENTS	42
2.2. CENTRALIZED ADMINISTRATION	42

## *FOREWORD*

This overview is an introduction to the Newtest™ product line. It covers a number of technical topics which will familiarize you with the main characteristics of these products.

To begin with, a glossary explains the definitions and terminology used generally in quality of service measurement and monitoring, and applies them more specifically to the context of Newtest™ implementation.

The overview then presents the characteristics of the offer, the positioning and role of components of the suite, and the general conditions of implementation.

The next part is a tour of the supervision interface and results provided by the Newtest™ solution.

Finally, the last part of the overview describes the technical aspects of the operation of measurement elements of the Newtest™ product line.

We hope you will enjoy discovering the Newtest™ suite.

### IMPORTANT REMARKS AND LIMITATIONS (March 2006):

Newtest™ for Passive Monitoring, the solution based on the implementation of passive agents, is at present limited to a pilot phase in metropolitan France only. The commercial availability of this offer will be announced at a later date.

The combined offer, Newtest™ Transaction Builder for Robots and Newtest™ Robot for Testing, replaces and expands the operational scope of Newtest™ Development Kit. This new offer will be available in 2006 with Newtest™ Robot version 7.4.0.

# GENERAL CONCEPTS AND TERMINOLOGY

The purpose of this chapter is to clarify some of the concepts and terms that are generally applied to quality of service measurement, and which are used throughout this overview.

General notions which may be used in a variety of contexts are described below as they apply to implementation of the Newtest™ solution.

## 1.1. SLA / SLM / SLO

- SLA (Service Level Agreement): contract which defines the service provider's obligations with respect to the quality of service provided and the penalties incurred in case of non-compliance. Quality must be measured according to objective criteria agreed on by both parties. Examples: application availability target during office hours; maximum time to restore service in case of an incident.
- SLM (Service Level Management): the procedures and tools which serve to manage the processing and feedback in the context of resolution of problems associated with an application identified as a service. A number of applications or groups of users/clients may experience simultaneous incidents. The service provider must prioritize according to how vital the application is and in accordance with the terms of the service level agreement.
- SLO (Service Level Objective): determines for indicators set forth in the SLA the objectives that show whether or not obligations are enforced.

## 1.2. Service

SLAs drawn up between the provider and the client define the precise terms of the services to be monitored, the conditions of monitoring, the associated indicators and the objectives or thresholds characterizing the expected level of service.

In the context of implementation of the Newtest™ solution, scenarios and events make it possible to model the representative transactions of the service to monitor from a variety of locations. Within the Newtest™ solution transactions can be grouped by application and by business process. The statuses of the scenarios and measurements performed by passive agents make it possible to infer the general status of the service. This "real time" supervision, combined with the calculation of indicators and the generation of alarms, facilitates the setup of SLM policies.

### **1.3. Robots (active agents) and Observers (passive agents)**

A robot, also called an active agent, is software which carries out measurements by simulating actions that a user would perform. There are two types of robot in the Newtest™ product line: Newtest™ Multi-Probe and Newtest™ Probe. Newtest™ robots use scenarios to conduct measurements.

The notion of robot can be contrasted with that of passive agents which are software components located on a workstation or server. These capture information as regards the activities of a user or applications. Passive agents can also measure transactions that create or edit in production environments. Newtest™ Observer is the passive agent component offered by Newtest™ that runs on workstations.

The robot makes it possible to “proactively” establish a baseline of the behavior of monitored applications 24/24.

The Newtest™ product line, with its two types of measurement agent technologies, offers a complete view of the availability and performance of applications provided to users.

### **1.4. Transaction**

A transaction is characterized by a series of more or less complex actions that are representative of functional processing carried out by a user. For instance, “buying stocks”, “reading mail in the inbox”, “accessing an Internet portal” or “checking a bank statement on a voice server” are all transactions. These and others show the diversity of operations that are carried out by a company’s internal or external users. It is by identifying these characteristic transactions that Newtest™ scenarios can be elaborated for robot and events can be defined for passive agents.

For solutions based on robots, Newtest™ wizards perform “learning”. In connection with passive agents, Newtest™ wizards are used to record and define events and transactions.

### **1.5. End user / End-to-end**

Monitoring the quality of service provided to the end user can be understood in several ways. It is possible to observe the status of the component parts of the delivery infrastructure that are involved in the execution of the monitored transaction, and draw conclusions about its overall state. Although it is true that the total failure of one element will reflect as an “unavailability” of the service, it cannot be concluded that the service is functioning correctly just because each of the “links” in the infrastructure shows “available” status.

The basic idea of end-to-end (end user viewpoint) monitoring is that the technical elements are only to enter into consideration insofar as they contribute to delivering a service to the end user. Thus, observation from the standpoint of the user, either directly or by emulating a user’s execution of a whole transaction, makes it possible to obtain a perception of the quality of service delivered to the user.

# PRESENTATION OF NEWTEST™

## 1. NEWTEST™ SOLUTIONS

**NEWTEST™** is a product whose purpose is to measure, monitor and improve the quality of applications and the level of service delivered to the user on his/her workstation.

The technical basis of Newtest™ Enterprise Portal includes:

- a Newtest™ Reporting portal which displays interactive reports in a web interface and offers options for sending reports by e-mail
- a centralization tool, Newtest™ Management Console, which collects measurement results and provides real-time or historical display in a web interface; it also monitors, manages and administers robots and passive agents
- Newtest™ Datawarehouse, a data storage module

This product is built on components which conduct measurements:

- active agents or robots (Newtest™ Probe, Newtest™ Multi-Probe, Newtest™ Multi-Probe Voice depending on your needs) operating on dedicated computers
- passive agents (Newtest™ Observer) operating on users' workstations

The suite also includes development environments, Newtest™ Transaction Builder for Robots and Newtest™ Transaction Builder for Observers, as well as a concentration element called Newtest™ Collector to accommodate specific security rules.

The **NEWTEST™** full-spectrum suite comes in three commercial offers, all based on common core components:

**NEWTEST™ for Active Monitoring:** measurements are carried out 24/7 by dedicated robots installed at representative points in the company. By simulating the behavior of end users, robots make it possible to measure the availability and performance of the company's critical transactions.

**NEWTEST™ for Passive Monitoring:** measurements are carried out by passive agents installed on user workstations. These agents measure the level of service provided to users and the factors of malfunction. They can also operate in campaign mode to take measurements of specific applications in the deployment phase or in analyzing incident resolution.

**NEWTEST™ Voice:** this solution, which functions with deployed dedicated robots, is designed to monitor the availability of transactions that are available to the company's internal and external users through interactive voice response (IVR) services: call center, telephone banking, reservation services, automated switchboards, etc.

## 2. WHO BENEFITS FROM NEWTEST™?

The **Newtest™** product line is designed primarily for three audiences:

- corporate information system and business line managers
- fixed and mobile telephone operators
- service providers (ISPs, ASPs, outsourcing companies, MSPs)

IT and BUSINESS DECISION-MAKERS	SLA/SLM, service level management, compliance with obligations	→ Service level agreement
	Global indicators, business process-related indicators	→ Budget planning → Justification of investments
	Matching of service levels provided with service costs, quality of service dashboards	→ Return on investment

IT TECHNICAL MANAGERS	Monitoring and computer-aided diagnostics	→ Improvement of service
	Measurement of overall, application and network response times	→ Definition of responsibilities
	Metrology and audit campaigns	→ Analysis, diagnostic
	Assessment of application service, telecoms	
	Response time baseline	

OPERATION CENTER	User alarms, response time deterioration, observatory...	→ Prevention and monitoring
---------------------	--	-----------------------------

### Decision-makers

Newtest™ makes it possible to assemble availability and performance indicators that represent the quality of “application” services as perceived by the end user. These indicators are used in the context of service level agreements between IT management and the company’s business unit managers. Newtest™ provides a quality of service baseline and summary dashboards to facilitate monitoring of trends in the service that the IT department delivers to end users.

Newtest™ is positioned as an assessment tool for planning, justifying and optimizing investment in IT and telecoms as regards the level of service provided to end users.

### Technical managers

Newtest™ is a tool for analysis and diagnostics. It helps determine the causes of unavailabilities, malfunctions, errors, and deterioration of response times.

Newtest™ is a metrology tool. It meets the needs of measurement campaigns and audits as well as evaluations of non-regression of service or application performance.

## Operation Center

Newtest™ is a monitoring and prevention tool. Its proactive system makes it possible to predict malfunctions, such as excessive response times or unavailability, and issue alarms to Newtest™ Management Console or other media (telephone, messaging, SMS, SNMP, etc.) before problems are noticed by users. It offers a permanent view of business processes and internal and external application services.

Because of its ability to launch measurement campaigns aimed at groups of users, Newtest™ makes it possible to react efficiently and speedily to problems encountered by users in their daily use of computer applications.

### 3. WHAT NEEDS DOES NEWTEST™ ADDRESS?

#### 3.1. Real-time supervision

##### Foresee, React, Communicate

Being alerted to problems and deteriorations in the service level of the company's critical applications makes it possible to launch corrective operations and communicate before users are seriously affected.

Implementation of the Newtest™ solution provides real-time information about the status of applications as they are perceived by the end user. Real-time monitoring primarily meets the needs of supervision centers and application managers.

The combined installation of Newtest™ robots, operating proactively, with Newtest™ Observer passive agents, which build knowledge of how problems impact actual users, produces in the real-time supervision interface the information needed to evaluate problems, classify incidents by severity and orient decision-making to accelerate resolution.

##### Advantages offered by the Newtest™ solution

Reduction of downtime → gain in productivity  
Option to notify users → optimization of support team's tasks

##### Information supplied by the Newtest™ solution

The measurements and information produced by the Newtest™ Robot and Newtest™ Observer measurement agents are accessed through the web interface of the Newtest™ Management Console's supervision module.

This information can also be made available for display in the company's other tools such as network administration systems or frameworks (HP Openview, Tivoli, BMC Patrol, CA, etc.). Data is available in a MIB (Management Information Base) and can be accessed remotely (via SNMP) as well as through exchange modules at the level of the result storage datawarehouse.

The basic information supplied:

- measurement results (response time, numeric or character string value)
- the status of transactions monitored by the scenarios (available, unavailable, warning, alarm, etc.)
- the list of alarms
- information on current operation

It is possible to create Business and Location hierarchies in Newtest™ Management Console. These allow high-level supervision suited to a variety of modes of business organization and taking into account the definitions specific to each service level agreement.

### 3.2. *Dashboards and statistics*

#### Analyze, Predict, Decide

Deployment of applications and infrastructures at the corporate level calls for major investment which must be optimized in order to meet the expectations and needs of business managers at the lowest cost. Dashboards and statistics help to identify points for resource improvement or optimization, budget for and justify investments, and draw up reports on the various parties' fulfillment of mutual commitments.

Implementation of the Newtest™ solution offers quick, intuitive access to dashboards and statistics in line with the different types of needs represented within the company.

#### Advantages offered by the Newtest™ solution

Display of reference indicators	→	improvement of service provided
	→	verification of conformity with commitments
Option to identify points of improvement	→	investment optimization

#### Information supplied by the Newtest™ solution

Newtest™ Enterprise Portal offers reports suited to various types of user: executive management, IT management, and IT operations.

Statistics are presented in various forms:

- summaries or dashboards providing an overall view of one or more aspects of the results
- statistics on the basis of availability or performance axes
- response time statistics (average, distribution, max., min., etc.) in the form of graphs or tables

Reports generated in different formats (PDF, XML, CSV, TXT, etc.) can be exported directly from the interface for use in other processing systems (an Excel spreadsheet, for instance). It is also possible to automate forwarding of reports by e-mail.

The Newtest™ solution is also an open system which can process results collected by industry-standard reporting tools or insert data into third-party data collection and correlation products.

### 3.3. *Analysis, troubleshooting*

#### Understand, Diagnose, Treat

The operation of distributed applications on workstations spread out over a number of locations makes it difficult for IT specialists to analyze the problems that users report.

The importance of information technology in the production cycle of all sectors of business makes it vital to better understand users' needs and working methods, and to be able to provide timely answers to malfunctions experienced by users.

Implementation of the Newtest™ solution provides automatic and centralized generic information about workstation use, and collects diagnostics, traces and elements for analyzing the factors of risk of malfunction for the workstations and applications made available to users. Because of their mode of operation in a dedicated, circumscribed environment, robots help you to determine the origin of problems in real time more easily.

Analysis may also be conducted later on by highlighting disparities of operation in a comparison of results of different orders (location, business, PC characteristics, etc.).

## Advantages offered by the Newtest™ solution

- |   |   |  |
|---|---|--|
| Analysis of factors of risk of malfunction    | → | cost-effective optimization of service level |
| Automatic capture of information for analysis | → | improved qualification of incidents          |
|   | → | gain in productivity                         |

## Information supplied by the Newtest™ solution

Newtest™ for Passive Monitoring gathers information on the use of computer resources and applications on the user's workstation. The display of this information by location, type of workstation or groups defined according to the users' functions highlights disparities in operation and help to orient investment.

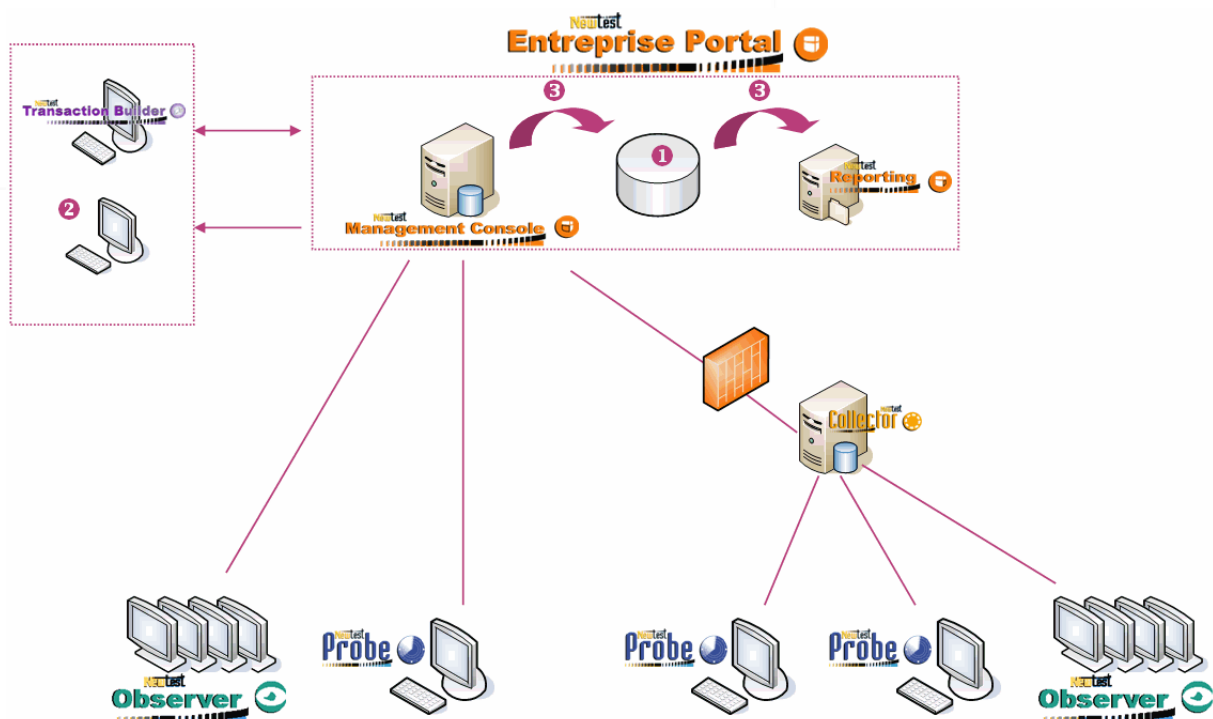
Automatic capture of information associated with incidents on the workstation and centralization of this information facilitate troubleshooting by IT specialists and eliminate the need for on-site intervention.

The possibility of performing measurement campaigns with specific targets, whether in response to user complaints or to monitor an application's rollout phase, allows you to compare several successive periods and thereby highlight improvements or degradations brought about by changes.

## 4. NEWTEST™ COMPONENTS

NEWTEST™ implementation is based on components whose respective roles are described in this chapter.

The diagram below shows the relationship between the various components.



Key:

- ① datawarehouse
- ② test robot
- ③ ETL: datawarehouse DTS packages

## 4.1. *Newtest™ Enterprise Portal*

In the implementation of a system to monitor and control the quality of service as perceived by end users, NEWTEST™ products are deployed to various geographical locations to meet the requirements of corporate business lines; thus “a network of Newtest™ robots” and deployment of Newtest™ passive agents is referred to.

Newtest™ Enterprise Portal is the central component which supervises and remotely acts on the elements that make up the network, and also displays results.

Newtest™ Enterprise Portal is built on two main components: Newtest™ Management Console and the Newtest™ Reporting service.

Newtest™ Management Console conducts installation and centralized administration of robots and passive agents through its web interface.

In addition, the service level agreements (SLAs) that bind “IT / telecom” departments (IT suppliers) to internal or external “business units” make it necessary to have immediate access to verification and control elements in order to manage service level commitments (SLM – service level management). Newtest™ Management Console offers real-time supervision of the status of monitored services.

The Newtest™ Reporting service enables all parties involved to access in near real-time (programmable refresh; frequency every 15 minutes or less), via a web interface, statistical reports showing the availability and performance of sensitive applications in addition to programmed SLA indicators, among other elements. It is also possible to schedule automatic e-mailing of reports.

Newtest™ Datawarehouse is available for Microsoft SQL Server and ORACLE. Extension to other database management systems is possible on request for the time being, and will be part of the offer in forthcoming versions. Data is accessible to industry-standard reporting tools (Business Objects, Cognos, Hyperion, etc.).

Optional modules supplement the Newtest™ Enterprise Portal offer. (These modules are described in greater detail elsewhere in this document.)

- Business Indicators Center: provides for configuration of business indicators that accommodate the company’s specificities (critical hours, business hours, relative weighting of applications and locations, etc.)
- Alarm Routing Center: a module for conditional routing of alarms in SNMP or SMTP format
- E-Reporting Center: module for automated e-mailing of reports
- Data Import: module for inserting XML-format data into NMC

Modules for importing or exporting data in particular formats may be made available.

## 4.2. *Newtest™ Probe*

Newtest™ Probe is a Newtest™ suite measurement acquisition product which acts like a “virtual user”.

It is located on a user workstation with its client applications. It takes into account the entire delivery infrastructure, from the workstation to the remote application (end-to-end measurement) by sequentially running representative scenarios. Newtest™ Probe is the suite’s single-queue robot which runs one scenario at a time.

### 4.3. *Newtest™ Multi-Probe*

Newtest™ Multi-Probe is a Newtest™ suite measurement acquisition product which acts like several “virtual users” working simultaneously.

The system is located in a production room or control room. Its extended capabilities enable it to measure and monitor a large number of applications housed on servers and mainframes by simultaneously running several scenario queues.

This product is in many cases used to monitor the availability of mission-critical services and applications or sensitive communications links. Newtest™ Multi-Probe is the suite’s multiple-queue robot which can run several scenarios at once.

This product is available in several models which are specific to the type of application whose availability it measures:

- NEWTEST™ MULTIPROBE AVAILABILITY (5 or 8 queues): application availability
- NEWTEST™ MULTIPROBE IP AVAILABILITY (20 queues): availability of IP access to applications
- NEWTEST™ MULTIPROBE TELECOM (8 queues): availability of remotely accessed (mobile) services
- NEWTEST™ MULTIPROBE VOICE (2 or 4 queues): availability of interactive voice services

### 4.4. *Newtest™ Robot for Testing*

Newtest™ Robot for Testing is a complementary product of the Newtest™ suite. Its purpose is to test the operation of scenarios in a pre-production environment. It is connected to NMC in the same way as other robots, but the results that the test robot generates are not exported to the datawarehouse.

### 4.5. *Newtest™ Observer*

Newtest™ Observer is the Newtest™ suite passive agent whose purpose is to acquire measurements directly on the end user’s workstation.

Newtest™ Observer can be installed on a large number of corporate workstations and remain “dormant” until a campaign is carried out. Measurement campaigns on a passive agent or group of passive agents are activated from the administration interface of Newtest™ Management Console in accordance with the rights acquired for simultaneous activation. Several measurement campaigns may be launched simultaneously on one or more groups of passive agents.

Newtest™ Observer surveys each workstation’s process usage which is associated with applications usage. In this way it is possible to know which applications are in use on the workstations and to determine, in light of the duration of use, the statistical usage on a workstation or a group of workstations in accordance with criteria of geographical, technical or functional grouping.

Newtest™ Observer activates measurement of the workstation’s activity and resource usage (CPU, RAM, etc.) depending on which application is in use. These measurements are supplemented by analysis of factors of risk, which determines the causes likely to degrade the service delivered to the end user.

The measurements performed on transactions yield information on response times, and supply accessibility and performance indicators for the transactions. Statistical data about the causes of error is also available.

The Newtest™ Reporting service displays results from Newtest™ Observers to supplement or to compare with measurements conducted by Newtest™ robots. It is also possible to generate reports that compare the results of several measurement campaigns.

#### **4.6. *Newtest™ Transaction Builder***

Newtest™ Transaction Builder comprises two complementary products of the Newtest™ suite. It is designed for development and trial runs prior to rollout.

Newtest™ Transaction Builder for Robots allows you to program scenarios for all the robots in the suite (Newtest™ Probe, Multi-Probe and Voice). Its standard package includes a deployment module which allows centralized management of robot network configurations by interfacing with Newtest™ Management Console.

Newtest™ Transaction Builder for Observers is designed to operate in expert mode for Newtest™ passive agents. It enables you to program basic or complex transactions corresponding to particular exchanges in applications. It also includes a remote recording module called Newtest™ Transaction Recorder.

#### **4.7. *Newtest™ Collector***

Newtest™ Collector is an optional additional product of the Newtest™ suite. It is designed as an interface between Newtest™ Management Console and robots or passive agents when security rules prohibit direct communication. It also provides for organizations in which the administered robots or passive agents belong to different types of networks.

## 5. NEWTEST™ SOLUTION ARCHITECTURE

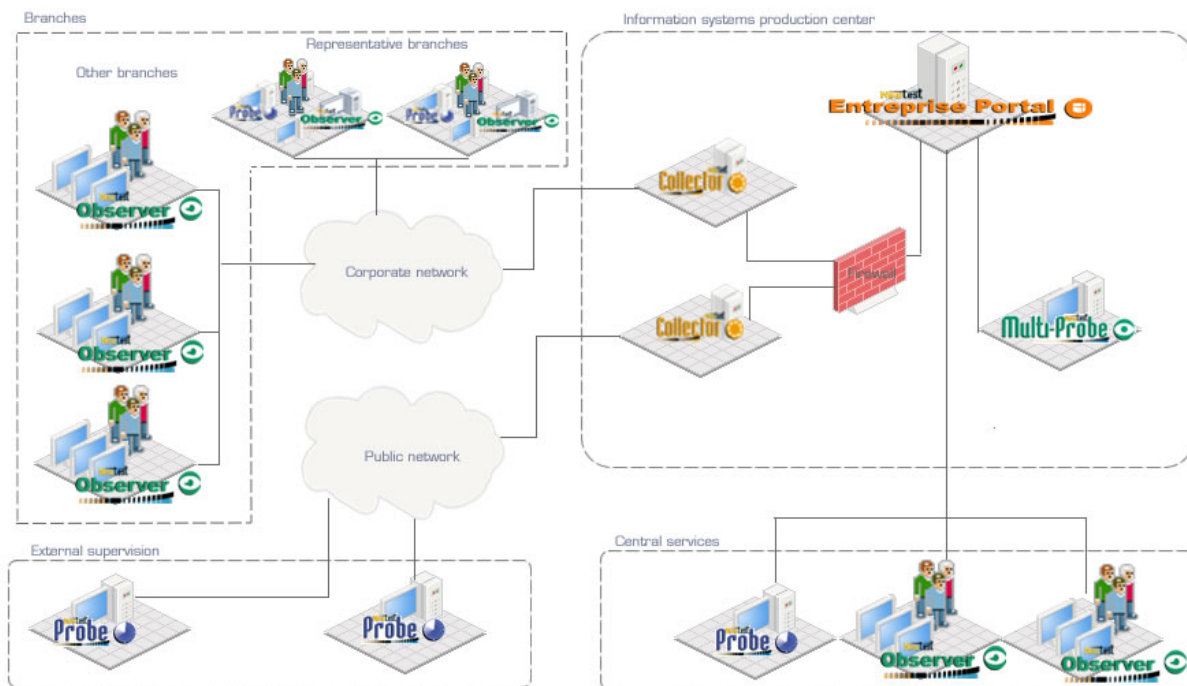
The diagram below shows the typical organization of the Newtest™ solution, with the respective roles of the various elements of the suite.

Newtest™ Observer passive agents can be deployed to user workstations at local branches as well as to those at central services.

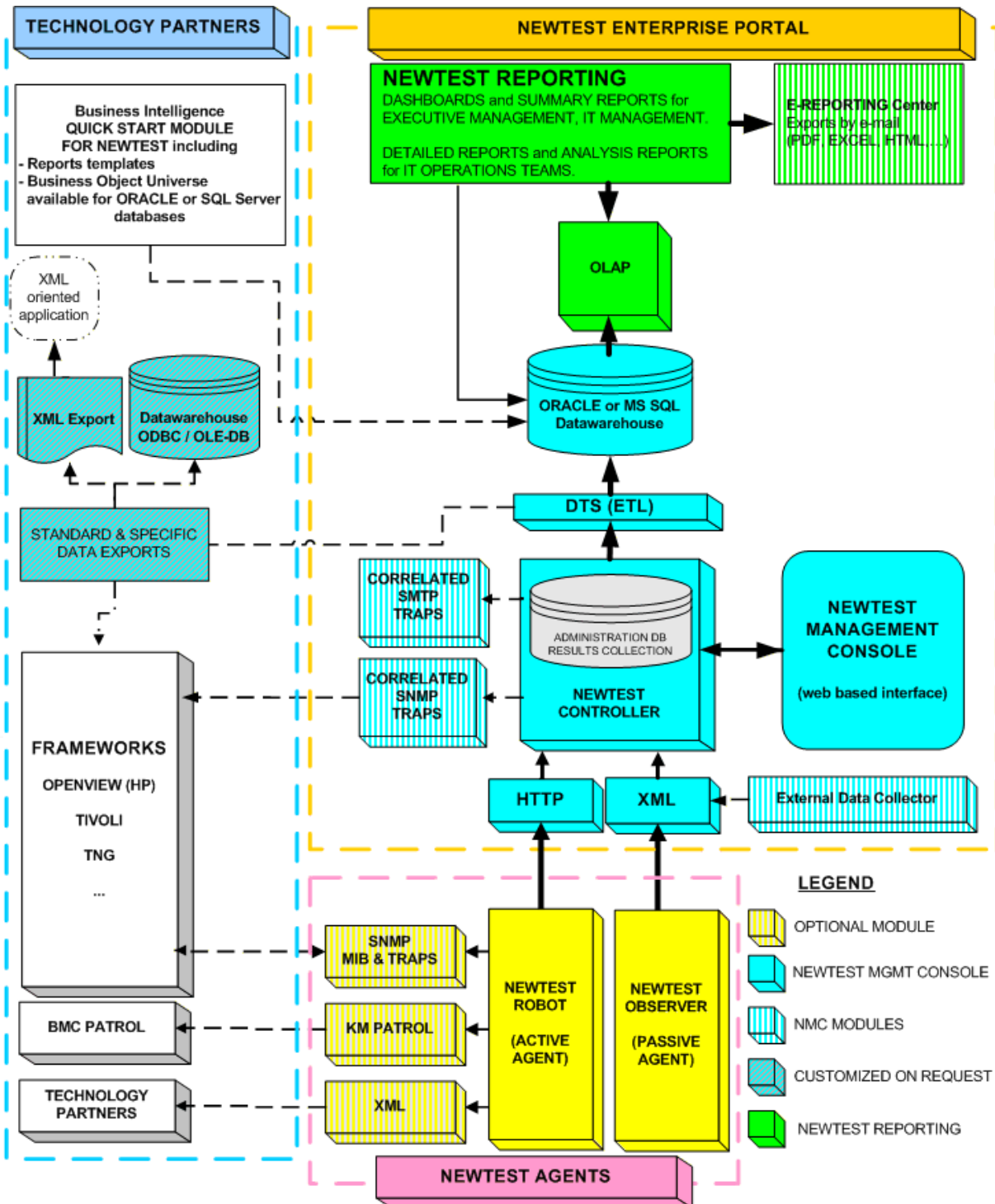
NEWTEST™ Probe robots are deployed to representative local branches and at central services to supervise the company's critical applications. Other Newtest™ Probe robots are deployed at the level of the public telecommunications network to monitor external services (web, remote access, etc.) that the company provides for its customers or itinerant personnel.

NEWTEST™ Multi-Probe robots at the company's information systems production center measure the availability of critical applications independently of constraints inherent in passing through the private or public communications network.

NEWTEST™ Collectors accommodate security rules set up at the level of the company's firewalls.



The diagram below shows the Newtest™ interaction with third-party products. These third-party products are indicated by way of example, without being exclusive or limited. Possibilities of exchange between Newtest™ and these products are not contractual, and are determined by the technical limitations and respective product versions, as specified in the corresponding solution sheets.



# NEWTEST™ ENTERPRISE PORTAL

Newtest™ Enterprise Portal (NEP) is the offer common to the various solutions offered based on Newtest™ measurement agents. Newtest™ Enterprise Portal comprises modules including Newtest™ Management Console (NMC) and Newtest™ Reporting which offers users a web interface. This chapter briefly describes these modules.

## 1. NEWTEST™ MANAGEMENT CONSOLE

Newtest™ Management Console is the Newtest™ module that centralizes and displays all information needed to implement a system to monitor the quality of service experienced by end users. All access is via a web browser.

Newtest™ Management Console performs three main functions:

- “Real-time” supervision of the status of services delivered to end users allows early detection of deteriorations or incidents encountered, and makes it possible to guarantee commitments.
- Organization of data: information gathered by Newtest™ agents is grouped and processed to provide customized, summary displays of meaningful data to each operator.
- Centralized management: the web interface facilitates administration and management of the configurations of all Newtest™ software deployed in a quality of service monitoring system.

Newtest™ Management Console's technical characteristics:

- HTTP-based communication with robots; frequency of information feedback is programmable
- communication with passive agents via exchange of XML files; frequency of information feedback is programmable
- installation, upgrades, centralized management of robot and passive agent configurations and licenses
- fully web-optimized access interface, except for server configuration, with access control by login/password and customization of user rights
- possibility of defining Location and Business hierarchies to organize the display of results, for real-time supervision and statistical reports
- administration of aliases for all measurements carried out
- time zone selection for correlation of all measurements
- Overview for “real-time” supervision and follow-up of alarms, with acknowledgement capabilities; interface for commands to robots and scenarios
- centralized administration for activating measurement campaigns on passive agents

## Interface of the Newtest™ Management Console home page

Welcome to Newtest Management Console, Sysadmin.

**Supervision**

- [Overview](#)

**Analysis**

- [Alarms](#)
- [Diagnostics](#)
- [Results](#)

**Operation**

- [Information Ranges](#)
- [Patches](#)

**Configuration**

- [Business](#)
- [Location](#)
- [Components](#)
- [Measurements](#)
- [Error Labels](#)
- [Users/Companies](#)
- [Calendars](#)
- [Alarms routing center](#)

**System**

- [Application Settings](#)
- [Integrity Check](#)

**?** Welcome to Newtest Management Console  
 When you roll the mouse pointer over an option in the menu, a brief presentation of the option appears. For further information, please refer to online documentation by clicking the Help button at the top of this page.  
 Before you deploy the Newtest solution for the first time, please refer to the document "Methodology for Implementing the Newtest Solution".

The access rights specific to each user determine the selection of menu options available.

## 1.1. NMC: real-time monitoring

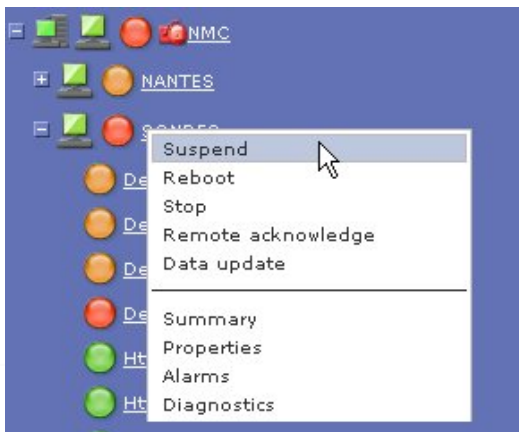
The connection profile associated with each user makes it possible to restrict viewing rights to specific elements.

### Mapping

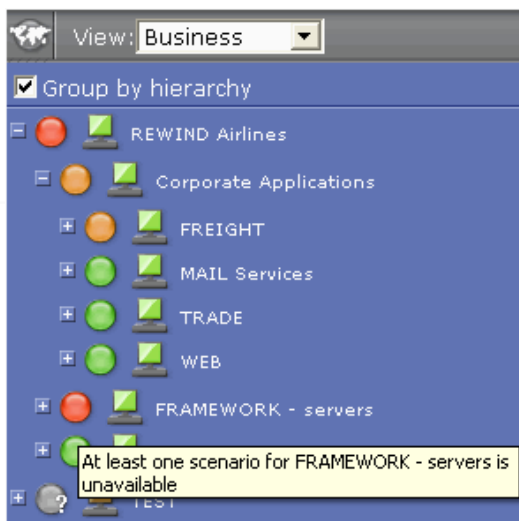
Views: Components, Agents / Location, Scenarios / Business, Custom groups

Mapping icons show the status of the various monitored elements that represent the services and applications monitored. Views of geographical location, application domain, or other specified criteria can be selected; view selection is fully adaptable to the needs of each user.

This supervision tool also has an interface for administering commands to agents and scenarios.



View showing the status of a robot's scenarios with a pop-up for selecting commands to send to that robot



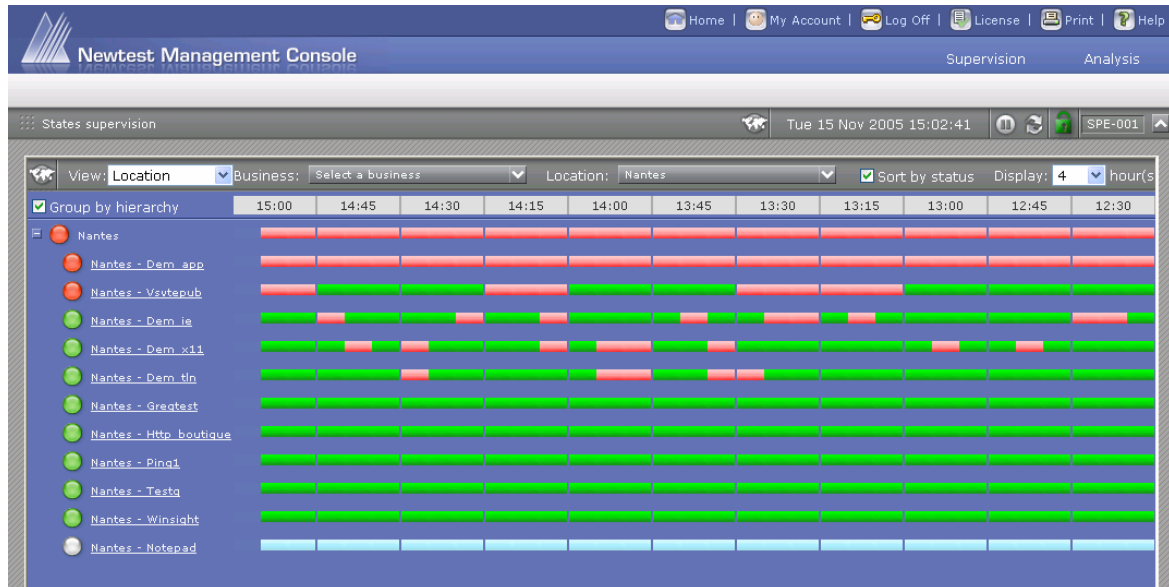
View of Business hierarchy and information and a status information box

Of particular interest is the possibility of implementing these functions with standard frameworks that support SNMP. In this case, the framework monitors status by reading the MIB of each Newtest™ robot. The heartbeat function in the protocol allows automatic recognition of the monitored robots.

## Status monitoring

Views: Agents / Location, Scenarios / Business, Custom groups

Status monitoring offers a chronological display of the past few hours of the status of the various elements supervised and representative of monitored services and applications. This summary view identifies situations of malfunctions or highlights unstable behavior of services or applications.



## Reception of alarms

The alarms issued to the Newtest™ Management Console appear in an alarms display window and animate the object(s) in question with a flashing alarm signal which also appears at the highest level of the group to which the object belongs.

Type	Level	Origin	Start (local)	End (local)	Nb	Text
A	Critical	Dem_x11/SONDE2	23/02/2005 17:09:00	23/02/2005 17:12:00	1	The X11 server is out of order
A	Critical	Dem_ie/SONDE4	23/02/2005 17:01:00	23/02/2005 17:12:00	2	can't reach the HTTP server
A	Critical	Dem_ie/SONDE1	23/02/2005 16:50:00	23/02/2005 16:54:00	1	can't reach the HTTP server

Alarms can be generated by scenarios running on Newtest™ robots or by Newtest™ components themselves. Alarms can be programmed to indicate different degrees of severity: information, warning and critical.

A supervision module for managing alarms is available in Newtest™ Management Console, in which alarms can be processed by acknowledging them. An end-of-alarm signal signals the termination of alarm status.

It is possible to map alarms on an existing framework (Tivoli NetView, HP OpenView, TNG, etc.) in order to centralize and view the status of network and system elements and Newtest™ robots at a single point. Mapping icons and the framework's alarm correlation engines help to deduce which elements have failed or are responsible for performance deterioration.

Robots can issue alarms to frameworks using SNMP or to Newtest™ Management Console via HTTP. Newtest Management Console's optional module, the "Alarm Routing Center", allows automatic correlation and rerouting alarms in the form of SNMP traps or as SMTP mails.

## 1.2. Alarm Routing Center

The module "Alarm Routing Center" allows the setup of automated alarm transmission by e-mail to users or user groups or by SNMP trap to third-party supervision tools (HP OpenView, Tivoli, CA, TNG, etc.). This module is optional.

Alarms may originate in scenario executions or be issued as a result of faulty components (failed robot, problem processing a batch of results, insufficient disk space, and so forth). Alarms that appear in the NMC interface can be "routed" according to two activation criteria: number of times an alarm is repeated or how long an alarm remains unresolved.

## 1.3. NMC: centralized administration

Newtest™ Management Console administers all of the elements required for the setup of a measurement solution: Newtest™ robot and Newtest™ Observer agents, centralization of measurement configuration, distribution of configurations.

Newtest™ Management Console handles the initial distribution of agents as well as upgrades when new releases become available.

### Interface for management of Newtest™ robot installation parameters

The screenshot shows the Newtest Management Console interface. At the top, there is a search criteria section with a dropdown menu for 'Type of robot' set to 'All' and an empty text box for 'Robot name'. A 'Search' button is to the right. Below this, a status bar indicates '3 record(s) found'. A 'New robot' button is located in the top right corner of the table area. The table below lists the installed robots with the following columns: Name, Type, Status, Identifier, Release, Location, and Description.

Name	Type	Status	Identifier	Release	Location	Description
NMC Controller	Master		000-000-000-111	2.0.1 R0	TECHNICAL	
NANTES	Probe	Not installed	000-000-000-103	-	Nantes	
PCJACK	Multi-Probe	Active	000-000-000-401	7.3.1 R2	Test	
SONDES	Multi-Probe	Active	000-000-000-303	7.3.1 R2	Barcelone	

Newtest™ Management Console oversees licenses for deployed agents and distributes the configurations that correspond to the measurements to carry out.

## 1.4. NMC: data collection and processing

Newtest™ Management Console provides for centralization of the results of measurements. The NMC interface makes it possible to enhance results by proposing location hierarchies and application domains for organizing measurements, custom groups for clustering results, and options (alias, order, exclusion, etc.) for qualifying measurements prior to export to the datawarehouse.

### Business hierarchy configuration interface

Search criteria

Business hierarchy: Lombard Bank View Overview Search

Status: 7 record(s) found

Delete Availability Performance New Business Hierarchy

Business	Level	Availability	Performance
Lombard Bank	Enterprise	98.00	95.00
Internet Services	Business	98.00	95.00
WEB	Application	98.00	95.00
Private	Transaction	98.00	95.00
Lombard2	Scenario		
Public	Transaction	98.00	95.00
Lombard1	Scenario		

### Interface for management of measurements associated with a scenario

Save Delete Purge Cancel Back

Status: Data successfully loaded

General information

Scenario name: Agencies\_access \* Required field

Scenario alias: Agencies\_access \*

Name of the business transaction: /Auditec company/Internal Services/WEB Applications/IP access to servers \*

Description:

Associated measurements

Delete measurements

Rank	Name	Alias	Threshold	Unit	Description
1	* port_test	port_test	* 200	* Millisecond	
10	* port1_dns	port1_dns		Millisecond	
11	* port2_connect	port2_connect		Millisecond	

## 2. NEWTEST™ REPORTING

The Reporting service is the Newtest™ module that allows viewing of dashboards and statistical reports which are built with the results that Newtest™ measurement agents obtain from scenario executions on robots and from the measurement of resources or transactions on the workstations where passive agents are installed.

As the Newtest™ agents feed information back to Newtest™ Management Console, data is exported to Newtest™ Datawarehouse and made available for statistics.

The database can be accessed by industry-standard reporting products in accordance with the choices made previously by the company. Nevertheless, the standard Newtest™ Reporting package includes some hundred reports that optimize the use of Newtest™ results.

### 2.1. Indicators

An indicator is a summary that enables the viewer to assess the situation and make informed decisions. Indicators are characterized by the status that they display (good, unsatisfactory, improving, warning, etc.) and the rules that determine these statuses.

With regard to Newtest™, the rule of calculation is an arithmetical, logical or statistical formula elaborated on information collected by scenarios (status, response time, duration, number of executions, etc.) and associated with a target and thresholds.

The standard Newtest™ packages offer indicators showing user satisfaction, availability and performance. In the module “Business Indicators Center” you can set new indicators with weighting and more than one reference period (24/7, business hours, critical hours) in line with service level agreements drawn up between customers and providers.

#### User satisfaction

The user satisfaction indicator is calculated from the results of measurements conducted by Newtest™ scenarios. This is a high-level indicator which reflects both the successful execution of scenarios (availability) and the response time of the scenario executions (performance). The user satisfaction indicator is calculated at the level of Newtest™ Reporting, and corresponds to a formula whose standardization is underway by software vendors in the field of quality of service (QoS) measurement.

#### Availability

The notion of availability determines the possibility of using the service to which it refers. In the context of Newtest™, availability is a standard indicator. The formula for calculating this indicator is based on executions. It is derived from the number of successfully completed executions or executions completed in warning status against the total number of executions in a given period.

#### Performance

Performance reflects the time required to access a given service with respect to set objectives. In the context of Newtest™, performance is a standard indicator. For the total number of executions that have not failed in a given period, performance is the percentage of those whose response time measurements are lower than the reference time associated with each of those measurements. It is calculated from the number of executions successfully completed against the total number of executions having successful or warning status in a given period.

## 2.2. Business Indicators Center

The module "Business indicators center" is an optional module of the Newtest™ Enterprise Portal.

It offers availability and performance indicators in line with calendars. The calendar that is associated with the Transaction hierarchy level allows you to set different periods in a typical week: 24/7, business or office hours, and critical hours. It will be possible for reports displayed in NEP to restrict or expand the view and the calculations to these different periods. SLA availability or performance objectives can be assigned separately to each of the periods defined in the calendar.

The "Business indicators center" also offers availability and performance indicators that take into account the weight assigned to locations where robots are located and to transactions measured by scenarios.

The weight associated with a location or transaction is a multiplier coefficient which is applied to availability and performance calculations for the results dependent on that location and/or transaction. Only the elements at the lowest level of location and business hierarchies can be weighted. The default weight is 1, having no influence on the overall result.

**Important:** the weights applied to a location and to a transaction are taken into account simultaneously. Therefore a location weighted 2 combined with a transaction weighted 5 will have a multiplying effect of 10 on the execution results associated with this transaction for this location.

## 2.3. E-reporting Center

The module "E-Reporting center" implements automatic e-mailing of reports to users or groups of users. This module is optional.

## 2.4. Newtest™ Reporting examples

The purpose of this section is to provide examples that illustrate the diversity of available reports rather than a full catalog of them. New report models are offered on a regular basis to customers who have subscribed to Newtest™ maintenance.

Reports are arranged according to user function: executive management, IT management, IT operations.

### SLA Overview

This report shows availability and performance with respect to SLA targets. The multiple-level display helps to single out operation anomalies by transaction and/or by location.

**Newtest Enterprise Portal - Microsoft Internet Explorer**

Account Admin Help Logout

CUSTOM HOUR DAY WEEK MONTHS QUARTER YEAR 60 MN 24 H 7 DAYS 30 DAYS 3 MONTHS 12 MONTHS

From 07/02/2005 00:00 To 13/02/2005 23:55 24/7

BUSINESS/LOCATION: Rewind Airlines Business Level: Business Location Level: Continent VIEW REPORT

1 of 1 100% Select a format Export

**SLA Overview** IT Indicators  
 Monday 07 February 2005 00:00 - Sunday 13 February 2005 23:55  
 Rewind Airlines - Rewind Worldwide User Satisfaction Executions

	Availability	Performance	Trend
	98.54 % ↗ +0.57 %	100.00 % → +0.00 %	
<b>Rewind Airlines</b>			History
<u>Corporate Applications</u>	95.02 % ↗ +0.18 %	100.00 % → +0.00 %	
<u>FRAMEWORK - Servers</u>	99.62 % ↗ +1.33 %	100.00 % → +0.00 %	
<u>NETWORK</u>	98.97 % ↗ +0.17 %	100.00 % → +0.00 %	
<b>Rewind Worldwide</b>			History
<u>Asia &amp; Pacific</u>	98.86 % ↗ +0.81 %	100.00 % → +0.00 %	
<u>Europe &amp; Middle East</u>	98.20 % ↗ +0.49 %	100.00 % → +0.00 %	
<u>North America</u>	98.53 % ↗ +0.62 %	100.00 % → +0.00 %	
<u>South &amp; Central America</u>	98.77 % ↗ +0.39 %	100.00 % → +0.00 %	

● OK ● Failed ● No Data

This report displays the availability and the performance against the SLA. Data drilldown allows to quickly detect disparity in performance by location or business. Green colour indicates the objective is reached. Red colour indicates the objective is not reached.

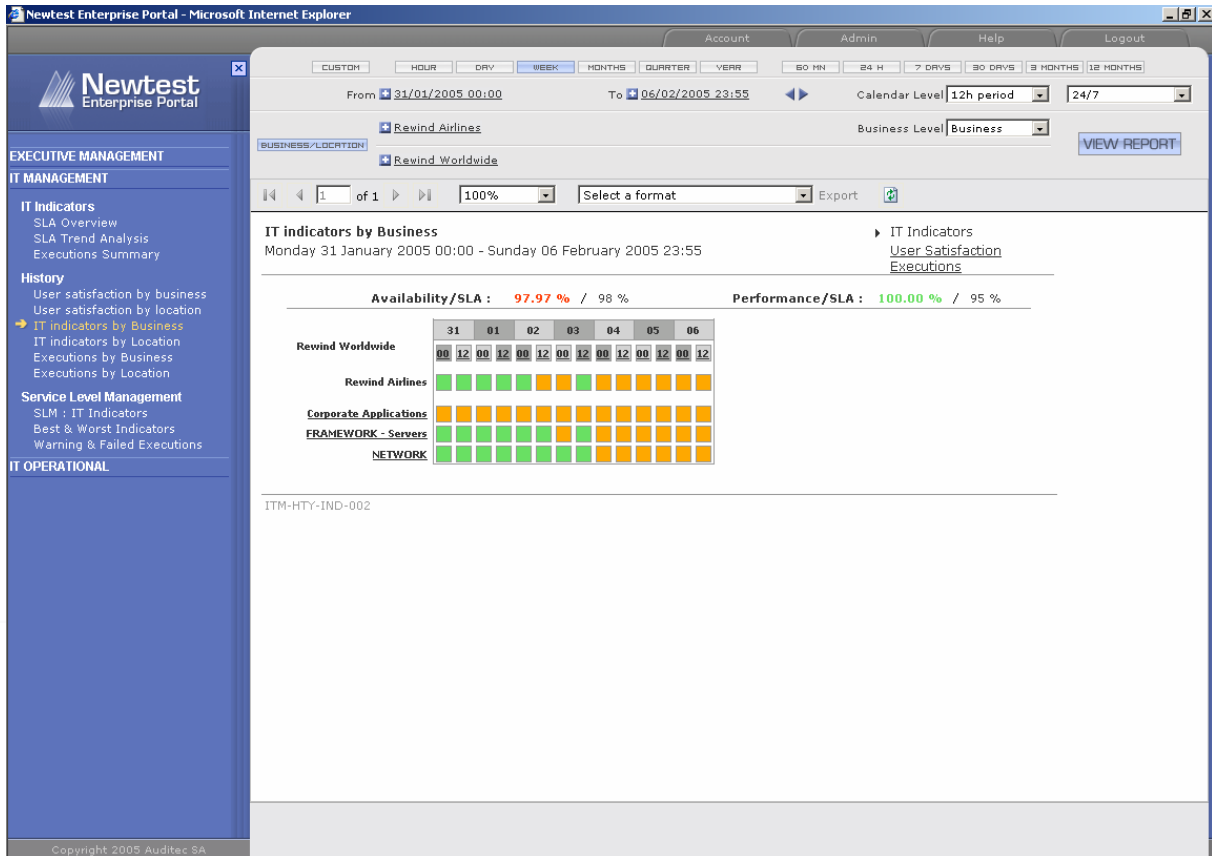
ITM-IND-OVW-002

Copyright 2005 Auditec SA

Elements appearing in GREEN signify that the value of the indicator is greater than or equal to the target objective. RED means the value falls below the objective. The arrow's direction shows whether the indicator's value has improved, deteriorated or stayed the same compared to the preceding period. The color of the arrow indicates the value of the indicator as regards the objective for this period.

## IT Indicators by Business

This report offers a synoptic view of availability and performance indicators of applications or transactions over time. The grid display helps to pinpoint circumstances of deterioration over time for various applications or transactions, with respect to SLA objectives.



Elements appearing in GREEN signify that availability and performance indicators comply with target objectives. YELLOW means the performance indicator is not in line with the set objective. ORANGE means the availability indicator is not in line with the set objective. RED indicates that both the availability and the performance indicators fall short of target. BLACK signifies total unavailability. WHITE denotes an absence of results for that period.

## Executions summary

This report shows the breakdown of scenario execution results without reference to SLA objectives. The number of executions facilitates detection of any irregularity in execution frequency. Possible results are: Completed – the scenario ran completely within reference time; Warning – the scenario ran completely but went overtime; Failed – there was an execution error.

**Newtest Enterprise Portal**

Account Admin Help Logout

From 04/02/2005 12:00 To 04/02/2005 23:55 24/7

BUSINESS/LOCATION: Rewind Airlines Business Level: Business Location Level: Continent

VIEW REPORT

1 of 1 100% Select a format Export

### Executions Summary

Friday 04 February 2005 12:00 - Friday 04 February 2005 23:55  
Rewind Airlines - Rewind Worldwide

IT Indicators: User Satisfaction, Executions

	Execution Total	Completed	Warning	Failed
Period	51,113	97.00 %	0.00 %	3.00 %
Previous	26,774	96.87 %	0.00 %	3.13 %

Rewind Airlines	Execution Total	Completed	Warning	Failed	History
Corporate Applications	8,429	95.31 %	0.00 %	4.69 %	
FRAMEWORK - Servers	17,415	96.74 %	0.00 %	3.26 %	
NETWORK	25,269	97.74 %	0.00 %	2.26 %	

Rewind Worldwide	Execution Total	Completed	Warning	Failed	History
Asia & Pacific	72,728	98.53 %	0.00 %	1.47 %	
Europe & Middle East	71,936	98.52 %	0.00 %	1.48 %	
North America	71,754	98.55 %	0.00 %	1.45 %	
South & Central America	72,117	98.56 %	0.00 %	1.44 %	

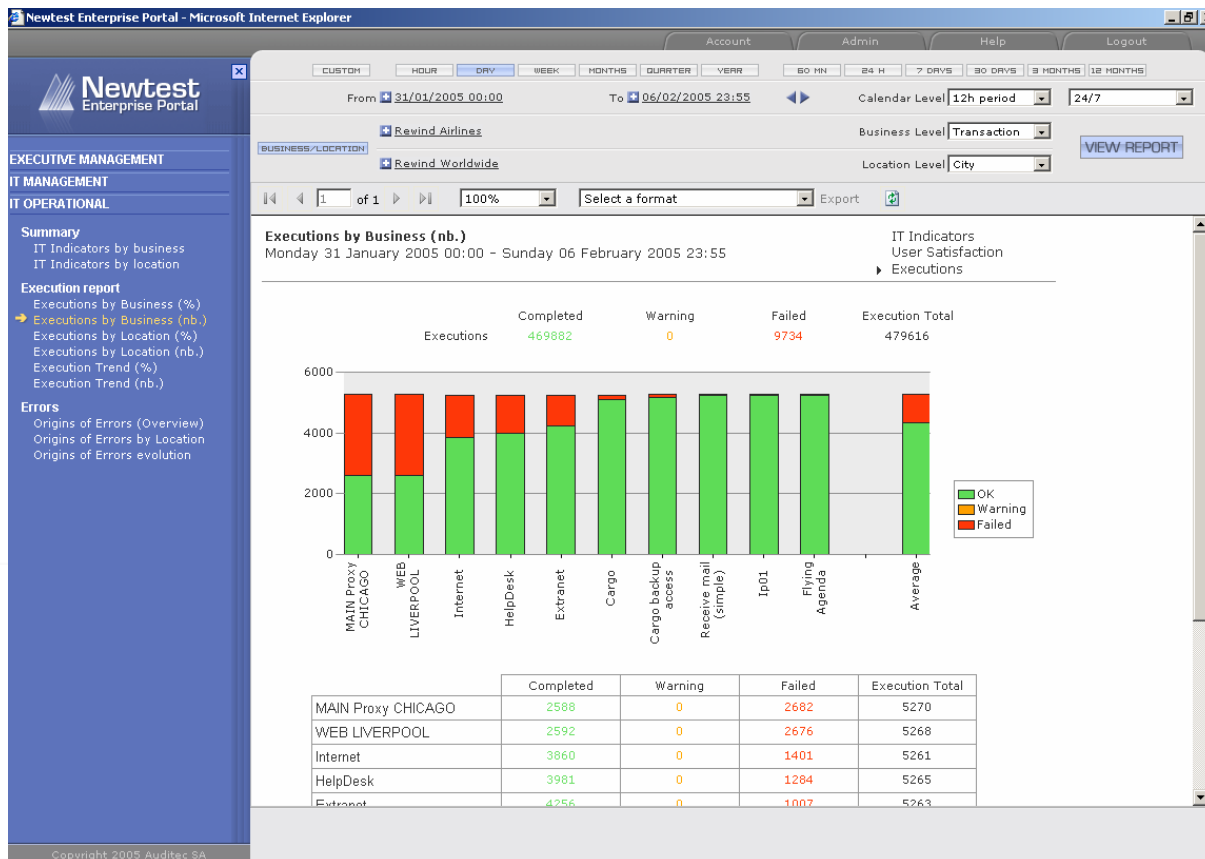
This report displays execution results. The number of execution permit to quickly detect possible variation of execution frequency. Execution should be completed regarding the reference time, it should be in warning if above the reference time, or failed otherwise.

ITM-IND-EXE-001

Copyright 2005 Auditec SA

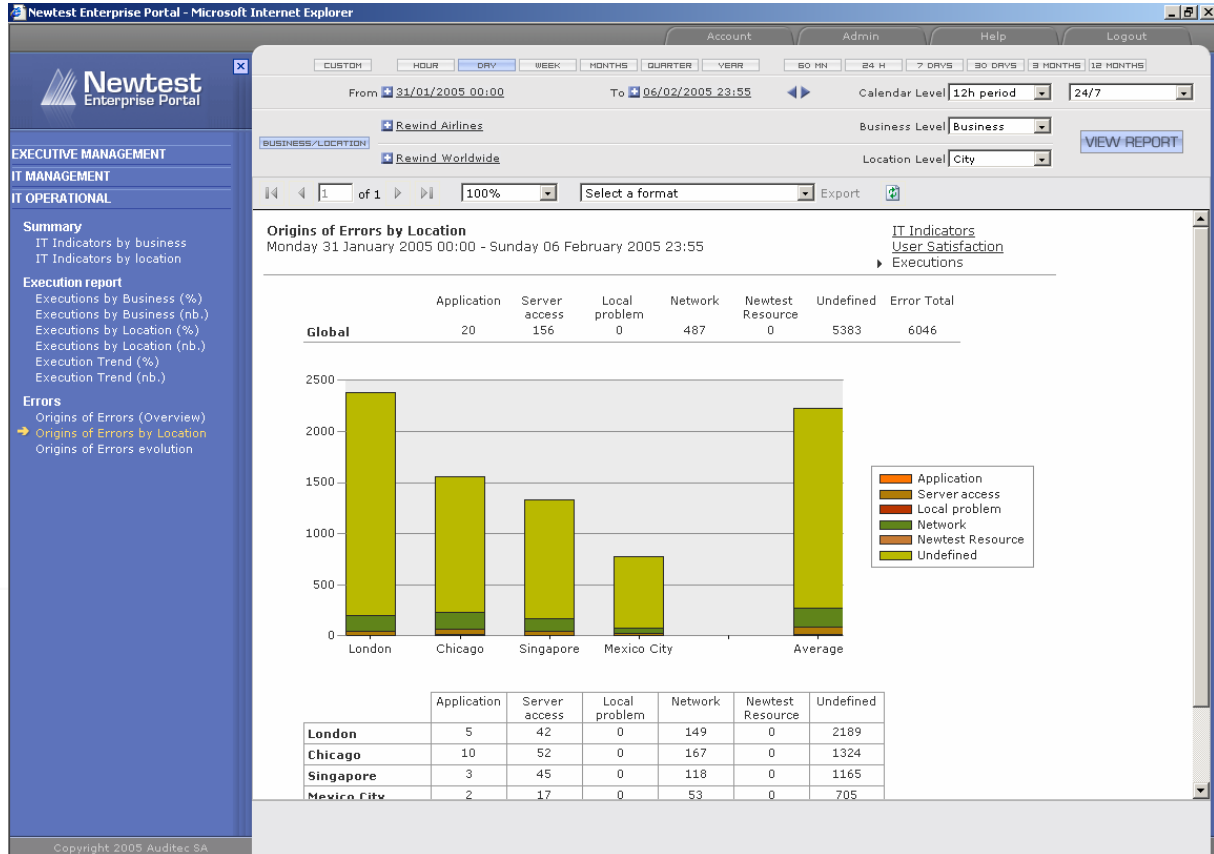
## Executions by Business

This report shows the breakdown of scenario execution results compared by application or transaction. Results are indicated as percentages, to facilitate detection of any irregularity in the behavior of executions by application or transaction. Possible results are: Completed – the scenario ran completely within reference time; Warning – the scenario ran completely but went overtime; Failed – there was an execution error.



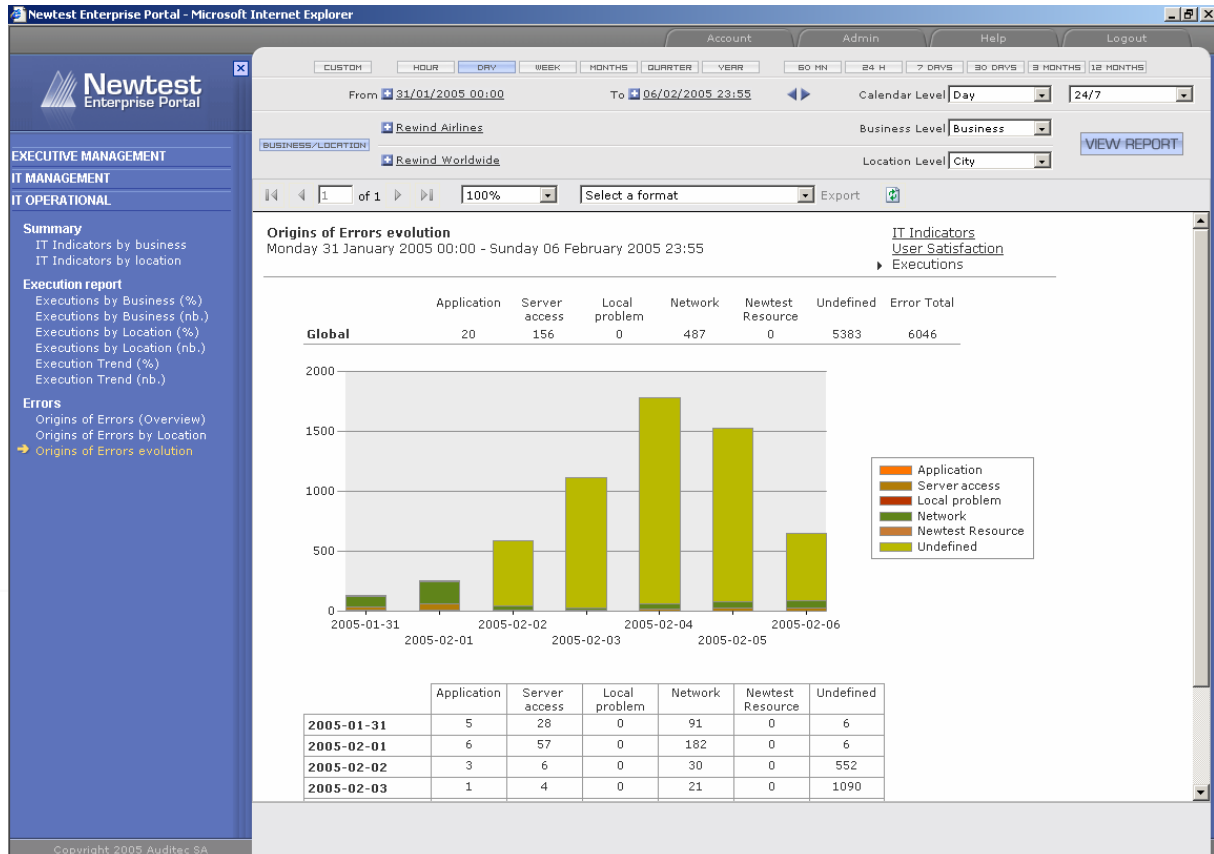
## Origins of Errors by Location

This report offers a breakdown of errors recorded during scenario executions, arranged by type and compared by location. The general breakdown by type of error helps to identify the main causes of unavailability for the applications under consideration. It displays the number of errors recorded for each location to facilitate detection of differences in operation from one location to another.



## Origins of Errors (Evolution)

This report shows the evolution over time of the breakdown by type of error recorded during scenario executions. The general breakdown by type of error helps to identify the main causes of unavailability for the applications under consideration. Their evolution over time is displayed in terms of the number recorded, to enable speedy identification of periods of anomalies and their origins.



# NEWTEST™ ROBOT

## 1. HOW DO NEWTEST™ ROBOTS WORK?

Newtest's operation is based on programmable controllers (robots) whose task is to check applications, run commands, and test the services you wish to measure and monitor. They do so by emulating one or more end users, reproducing the operations you have programmed in order to check and test elements which make up the delivery infrastructure or technical components.

You can program conditional reactions: depending on events and conditions, Newtest™ can execute specific actions in real time (send alarms, perform automated corrections and detailed diagnostics, etc.).

Every action a user may carry out on a given workstation can be automated to enable Newtest™ monitoring of applications (Internet and Intranet applications, Windows applications, thin clients, emulators, ERP, and more).

The set of parameters that determine the actions to be carried out by the robot (time and day scheduling of these actions, conditions for triggering alarms, resetting of applications, etc.) constitutes a scenario.

Each Newtest™ scenario has a script, a series of instructions and functions that define the actions to be carried out by the Newtest™ robot.

Newtest™ Basic programming functions can be used to configure measurements as well as to synchronize actions in accordance with events. This script programming language allows you to program complex transactions if needed.

The automated part of a robot is known as the Execution Module. It offers a real-time viewer (Local Observer) which may be enabled or disabled. It allows you to track measurements and monitor the status of executions underway. It also includes a Security Module that guarantees the autonomy and integrity of the robot's operation.

Newtest™ Management Console allows remote surveillance of the operation of robots, and can issue commands to them remotely. An SNMP agent, available as an option, offers the same type of management actions via an industry-standard framework supporting the SNMP standard (HP OpenView, Tivoli, CA, Patrol, etc.).

The data that is generated by robots' running of scenarios are collected in Newtest™ Datawarehouse. Communication between Newtest™ robots and Newtest™ Management Console is based on HTTP. Each robot has two transmission "channels", a rapid channel and a slower one, each of which handles a different priorities of generated messages (alarms, change in status, measured data, etc.). The data generated can also be retrieved by an SNMP collection agent via the MIB offered at the level of the Newtest™ robot.

Alarms issued by the various robots are displayed on Newtest™ Management Console's alarm supervision interface. Alarms can also be issued in other formats such as SNMP to be issued to a standard framework.

Partnerships with InfoVista, Concord, SAS Institute and BMC Software have led to the creation of modules to interconnect Newtest™ with their products (VistaView Newtest™, Newtest™ KM for Patrol, ITSV interface, and others).

## 1.1. Client environments

In the context of Newtest™ robots, “client environment” refers to a mode of communication between a Newtest™ scenario and the application monitored (or the network functions tested). It is the interface between Newtest™ and the monitored application. At present there are over 15 client environments (Windows, thin client, Java, web, 3270 emulator, telnet emulator, etc.) for Newtest™ robots which make it possible to supervise services provided to the company’s internal and external users.

## 1.2. Scenarios

In the context of Newtest™ robots, a scenario is the element that makes it possible, globally speaking, to simulate user actions in order to reproduce the successive stages of a transaction.

Scenarios are characterized by a script that describes the successive stages of operations according to the client environment that is associated with it. A calendar, planning and frequency set the ranges of execution. Each scenario execution yields one of the following statuses, “Completed”, “Warning” or “Failed”, depending on its ability to execute the entire scenario according to programmed rules and measurements within a set reference time.

- Completed: the scenario has run in full, and none of the response time measurements that it performs has exceeded its associated reference time.
- Warning: the scenario has run in full but at least one of the response time measurements that it performs has exceeded its associated reference time.
- Failed: the scenario was unable to complete its execution.

Newtest™ also offers the possibility of executing scenarios based on IP requests. These scenarios do not actually correspond to user transactions, but are a way of assessing the general operation of services using “technical” analyses.

## 1.3. Learning

Scenarios are designed to simulate actions performed by a user in the execution of transactions. To facilitate the deployment of scenarios, Newtest™ offers a wizard which facilitates the “learning” of the transactions to be monitored. The wizard automatically generates the script for controlling the transaction. Of course it is possible for complex transactions, or for those that resort to “multiple” decision-making aspects, to enrich the generated script with manual programming.

## 1.4. Queues and groups

Queues are execution environments for scenarios. A queue encompasses a set of scenarios that run sequentially, one by one, according to their calendar and their daily plannings. The number and type of scenarios that a queue is able to contain depends the Newtest™ suite product. Newtest™ Probe is a single-file product. Newtest™ Multi-Probe can run up to 20 execution queues at a time.

Groups or “measurement groups” comprise one or more “user” queues and the scenarios associated with each of them. The group specified in the robot’s startup parameters determines the execution of scenarios.

## 1.5. Measurements

Measurements are objects that are configured in Newtest™ at the level of scenario scripts or in the definition of transactions. Measurements results are produced during the execution of the scenario or when the Newtest™ transaction's characteristic events are detected. Newtest™ provides for the setup of several types of measurements: response time, numeric values and character strings.

Each measurement bears a name. This name is displayed with the results. The term "order" is sometimes used in Newtest™ documentation to designate a measurement because the measurement declaration function in Newtest™ Basic scripts description language is "ORDER".

For response time measurements, you can associate a reference value with the measurement, corresponding to a threshold that should not be crossed. The reference time is the baseline acceptable response time. The Newtest™ performance indicator shows the service deterioration that corresponds to and overshoot of this reference time.

## 1.6. Alarms

An **alarm** is designed to supply an operator in near real time with information about an event or series of events that are the sign of anomalous operation.

The role of alarms is to provoke "corrective" actions. On the most basic level, an alarm is a way of signaling a problem underway in order to allow information to be communicated to the users impacted by the malfunction.

Newtest™ allows you to define alarms to be triggered upon a number of alarm conditions (threshold exceeded, status, value of a measurement, etc.) that occur singly or repetitively. The alarm is characterized by the issuing of an alarm message to specified users. The mode of transmission may be any or all of the following: display in a Newtest™ or third-party IT tool operating within the company (framework), e-mail, SMS, pager, telephone or other type of message.

## 1.7. Autonomy

A correctly configured Newtest™ robot should not give rise to troubleshooting or maintenance apart from that related to physical problems with the computer on which it is installed. This is why Newtest™ robots in production perform a series of tasks and automated checks that ensure their autonomy. The various autonomy-ensuring elements:

- restoration scenarios to manage application errors
- programmable daily reboot for a complete and regular reset of the system
- automatic validation of a network session after reboot and start-up of the execution module
- possibility of triggering a conditional reboot at several levels upon detection of scenario-related events (session restart, operating system restart, hardware reboot, etc.)

## 1.8. Conservation of results

Data resulting from the execution of scenarios on robots is transmitted to Newtest™ Management Console at a programmable frequency (default frequency is every 2 minutes).

Data is automatically exported to the datawarehouse at the default frequency of every 15 minutes. The basic or aggregate data stored in the database is kept for a configurable length of time. An automatic purge function runs daily to delete records dated prior to a given date.

Detailed data is kept for a default period of 90 days, except for data aggregated by day, which is kept for a default period of one year (and indefinitely, for monthly aggregated data). Clearly, it is advisable that procedures for backing up the database on an external medium be implemented according to each customer's rules.

## 1.9. Diagnostic

Problems encountered on a regular or occasional basis must be analyzed in order to avoid reoccurrences or to prepare actions to limit the problems resulting from future occurrences. To do so, it is necessary to provide “specialists” with the most complete information possible in order to determine the causes after the fact.

The standard Newtest™ package offers a number of analysis and diagnostic elements (screen shots, traceroute, system context on the workstation, traces, error messages, alarm messages, etc.). These elements can be intended for “real-time” display in the proposed observers or for “historical” use in detailed or statistical reports.

Scenarios based on the IP protocol can also be valuable diagnostic elements for analyzing the accessibility of fundamental components of the infrastructure (DNS, router, port, etc.).

## 2. TECHNICAL CHARACTERISTICS

### 2.1. Technical differentiation by robot

TYPE / CHARACTERISTICS	NEWTEST™ PROBE	NEWTEST™ MULTI-PROBE AVAILABILITY & TELECOM	NEWTEST™ MULTI-PROBE IP AVAILABILITY	NEWTEST™ MULTI-PROBE VOICE
Maximum number of groups run	1	1	1	1
Maximum number of queues per group	1	8	20	4
Maximum number of scenarios per queue	12	12	12	12
Maximum number of scenarios per group	12	96	240	48
Maximum number of client environments	4	5	1	1
Maximum number of measurements per scenario	10	10	10	10
Supports user scenarios	yes	yes	yes	yes
Supports service scenarios	yes	yes	yes	yes

## 2.2. Client applications supported

This table lists the environments and client applications supported by Newtest™ Probe and Newtest™ Multi-Probe. For applications other than those in the table, technical validation is necessary.

Technical elements relating to a company's specific configuration (security rules, specific settings of system components and so forth) may affect the functionalities offered by Newtest™.

"Revamped" applications are Windows applications developed on a terminal emulator.

"Specific" applications means all applications developed with commercially available L4G and AGL.

FAMILY OF CLIENT ENVIRONMENTS	ASSOCIATED ROBOTS	ASSOCIATED CLIENT ENVIRONMENTS	TYPES OF CLIENT APPLICATIONS SUPPORTED
EMULATOR with API	NP NMP	Mainframe IBM HLLAPI Mainframe Bull UVTI Wincom Minitel Unix emulator SAP	Emulator supporting a standard API (Extra, IBM Personal Communicator, Wincom, etc.) SAPGUI version between R3.01H and R3.2
CLIENT/SERVER	NP NMP	Windows (OCR included) Thin client	Emulator without API "Revamped" applications Windows "specific" applications Office applications Thin client, Citrix, Tarantella, Terminal Server applications ERP, SAP, People Soft, JD Edwards, Siebel, Oracle Financial, etc.
WEB TRANSACTION (single queue)	NP NMP	Java, WTC (Internet Explorer browser)	JAVA applications Applications using Internet Explorer HTTP/HTTPS navigations with Internet Explorer
WEB TRANSACTION AVAILABILITY (multiple queue)	NMP	WTA (Internet Explorer browser)	HTTP/HTTPS navigations with Internet Explorer
IP AVAILABILITY	NP NMP	IP ANALYSER	Availability tests of IP objects (URL, port, DNS, ping, traceroute, SMTP/POP3, IMAP, etc.)
TELECOM	NP NMP	WAP (WAP emulator) SMS/COM port Streaming (Media Player and RealPlayer)	Sending/Receiving SMS WAP navigation I-Mode Navigation
VOICE	NMPV	Voice	Interactive voice server applications

**NP:** Newtest™ Probe    **NMP:** Newtest™ Multi-Probe    **NMPV:** Newtest™ Multi-Probe Voice

### 3. RESULTS COLLECTED BY NEWTEST™ ROBOT

A scenario's execution determines the execution ability of application transactions. The result of the scenario's run (completed, warning, failed) is registered. It serves in the calculation of standard Newtest™ indicators (availability, performance, user satisfaction).

Newtest™ can also retrieve external data from different sources (applications, files...). This may be numeric or string data, "results" (rate, modem negotiated speed, file size, etc.) or captured data. In the case of emulators (HLLAPI, UVTI), for instance, it is possible to define actions in response to the values retrieved, or store the data in variables for archiving and future reprocessing.

#### 3.1. Status of scenario and measurement executions

The execution status depends on the ability of the scenario to run in full or carry out a response time measurement. The status may be applicable either to a scenario as a whole, to a basic exchange or set of basic exchanges within a scenario, or to a TCP/IP request.

**Successful basic exchange:** every action carried out by the Newtest™ robot must cause an event, called a "criterion", to appear, making it possible to check that the action has progressed correctly (i.e. that the application has responded appropriately). For each action, a different maximum time (timeout) can be set. The application should display the criterion before the timeout has expired. If not, the status of the basic exchange is "Failed".

**Successful response time measurement:** it is possible to configure a response time measurement that corresponds to one or more consecutive basic exchanges. The result is « Failed » if one of the basic exchanges fails. The result is "Completed" if the run was completed within the reference time associated with the measurement, and "Warning" if the execution exceeded the reference value.

**Successful scenario:** a scenario's status is "Failed" if one of its basic exchanges has "Failed" status (no criterion appears before the timeout). If one of a scenario's response time measurements shows "Warning" status, the status of the scenario as a whole is "Warning". The result is "Completed" if all the scenario's response time measurements are "Completed".

In the case of scenarios whose actions are mutually dependent, an action can run only after the preceding actions have been successfully completed. In this case, the failure of a measurement immediately causes the script to stop running (exit on error) and generates "Failed" status for the scenario. For scenarios whose actions are not interdependent, a "Failed" scenario means that at least one measurement failed during the execution.

#### "Network" scenarios based on IP tests

**End-to-end network availability:** the use of "IP test" functions (ping, port, HTTP, FTP, and others) in a scenario enables you to ensure that the corresponding service is present and measure the accessibility of the network end to end, including the operation of "network" devices (DNS, routers, etc.) all the way through to the application's access port. The execution's return code specifies the cause of any failure, and traceroute diagnostics allow further analysis of malfunctions.

## 3.2. Response time measurements

### Application response times in scenarios

In scenarios, Newtest™ sets itself in the context of an “end user”. A basic exchange between the application monitored and the application server is triggered by an action such as “pressing Enter”, a “mouse click” on a button or transmission of a request.

From that moment, the exchange has begun. It can be considered as over when a response is received in the client application. This involves the following steps:

- data entry (no measurement performed)
- transmission of entered data (START CHRONOMETER)
- transit of data on the network
- reception and processing by the application server
- transmission of the “response” to the workstation (Newtest™)
- reception of the response on the Newtest™ workstation (STOP CHRONOMETER)

A set of basic exchanges can also be measured. The only difference is the point at which the chronometer stops, i.e. upon receiving the result of the last basic exchange.

**Response time of a basic exchange:** Newtest™ starts a chronometer just after a precise action (data entry, mouse action, etc.) and retrieves the measurement as soon information (or **criterion**) appears showing the correct progression of the action (presence of a character string, a window or a control, etc.).

**Response time of a set of basic exchanges:** the response time is often mission-critical for users transacting business online (consulting an airline schedule, checking a bank account, purchasing items, etc.). In this case, the response time is the cumulative response time of several basic exchanges.

### RESPONSE TIMES of IP requests

While a Newtest™ IP Analyser IP request is running, measurement is made of the overall response time of that request. In addition, it is possible, depending on the type of request, to obtain a breakdown of the overall time. Among the information supplied in a breakdown of the overall response time:

- DNS resolution time
- time to connect to server
- authentication time
- time to receive the first byte of data
- data loading time
- bit rate

## 3.3. Data retrieved by Newtest™

As a programmable controller, Newtest™ can retrieve data (numeric or character string) from applications (UVTI, HLLAPI or other emulator) or external files (ASCII files or external tables). Such “external data” may correspond to technical indicators or return code for certain executions (modem connections, status of a system service, etc.).

### Use of external data

**Supply of information to Newtest™ scenarios:** by implementing data tables or .INI files. The same scenario may thus behave differently in specific situations, depending on the information contained in these files (adjustment of a scenario to a particular network environment or to an evolving application context without modifying the scenario script).

**Data exchanges between Newtest™ scenarios:** the mode of exchange is an external file as described above. The actions of a scenario can be made to depend on the information retrieved by one or more other scenarios.

**Data storage** (indicators initialized in the scenario or data retrieved in the application, etc.): the processing of external data can be used to react (by sending alarms, conditional triggering of scenarios, or other) to events of a nature other than those involving response time or availability.

### **Newtest™ tables**

For the purposes of storing, consulting and exchanging external data, Newtest™ provides a table editor (tab delimited format) and Newtest™ Basic language functions for direct, sequential or random access to these tables' fields. Tables created with Newtest™ are easily edited with any spreadsheet or DBMS.

## **4. IMPLEMENTATION EXAMPLE**

The implementation of a system for measuring the quality of service provided by corporations that are structured by branch or offer external services (Internet, voice servers, WAP, videotex, etc.) calls for the deployment of a complete architecture spanning several measurement locations.

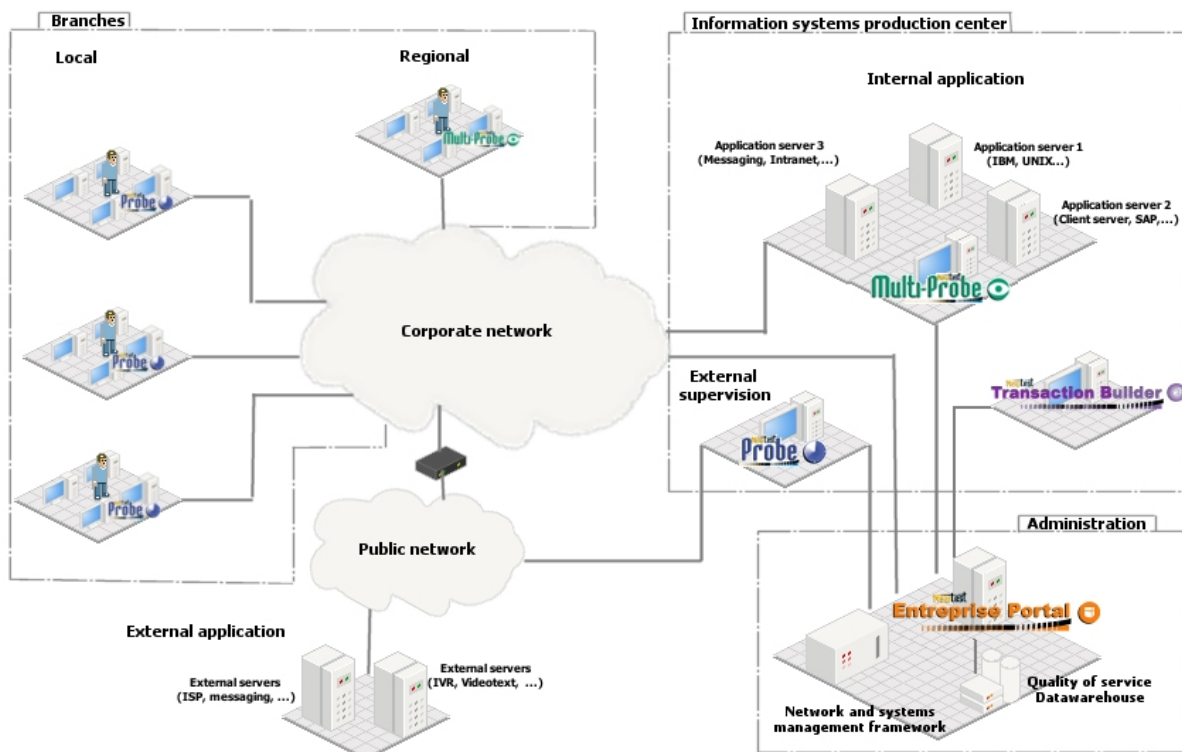
The Newtest™ for Active Monitoring solution can accommodate diverse organizations. The example set forth below illustrates a full deployment of the solution.

This configuration is organized around Newtest™ Enterprise Portal. Newtest™ development workstations are used to develop scripts and scenarios and to carry out tests prior to production rollout. Robot configurations are defined with Newtest™ Transaction Builder for Robots and are managed centrally by Newtest™ Management Console. Newtest™ centralized management enables administrators to update robot configurations and implement Newtest™ software upgrades.

The company's users (monitoring center, administrators, etc.) who are connected to Newtest™ Management Console can monitor robots' operation. They can transmit commands to remote robots and scenarios (stop, start, etc.). Alarms generated by Newtest™ scenarios are fed back to Newtest™ Management Console, but can also be transmitted to an industry-standard network and systems management platform (framework).

Measurements obtained by the scenarios running on robots are transmitted to the Newtest™ Management Console and made available to operators. The data is then exported to the datawarehouse with a view to populating Newtest™ Enterprise Portal dashboards and statistical reports.

## Implementation diagram



### Location of Newtest™ robots

In the above architecture, Newtest™ robots measure and monitor services, applications and the transport network end-to-end from the various characteristic points of the architecture:

- at the branch or agency level: supervision of the quality of service between workstation and applications, end-to-end
- at the area network level: supervision of the quality of service from the access point to the area network
- at the regional production center: supervision of the quality of service from the regional production center
- at the national production center: supervision of the quality of service from the national production center
- at the point of access to external services: supervision of the quality of service experienced by public network users

### Products contributing to the definition of quality of service

- Newtest™ Enterprise Portal
- Newtest™ robots situated at representative points
- optionally, a network and system framework in the production room

# NEWTEST™ OBSERVER

## 1. HOW DOES THE NEWTEST™ OBSERVER PASSIVE AGENT WORK?

Newtest™ Observer is the passive agent of the Newtest™ suite. Newtest™ Observer agents are implemented on user workstations to gather information in closest proximity to the user. Agents are installed on client workstations running Windows 2000 or Windows XP.

Deployment of Newtest™ for Passive Monitoring to carry out measurements on the company's workstations is a response to a number of needs. Newtest Observer performs general measurements assessing the workstation's activity and the factors of risk of malfunction, or focuses on particular business processes and locations. It can be used either for continuous supervision or for measurement campaigns. In "measurement campaign" mode it fulfils the requirement for analysis in specific contexts:

- user complaints
- before and after a change in infrastructure elements (OS, network, workstation upgrade, etc.) to measure the impact on the service delivered to the end user
- deployment of new applications

A comparison of the results of separate campaigns provides visibility into the elements involved in the improvement or deterioration of performance.

### 1.1. Measurements conducted

Newtest™ Observer carries out measurements of various types. Activation of these categories of measurements is subject to the appropriate license rights.

#### Generic measurements launched from NMC

The Newtest™ Observer offers a measurement mode that can be activated directly from the Newtest™ Management Console interface. The passive agent:

- measures the workstation's overall system resources (CPU, RAM, IO, etc.)
- polls "processes": determines the applications on which measurements are to be carried out and detects the startup of unexpected applications
- measures application activity on the workstation: highlights the usage of applications on the workstation. These measurements determine the number of users affected by faults in the application, and checks usage against the number of licenses acquired.
- identifies the servers accessed (TCP/IP only) by application and by network class (LAN, private WAN, public WAN). Option of activating generic measurements of TCP exchanges by application, which may be detailed by server depending on the network class.
- measures factors of risk of malfunction, events that are likely to affect the level of service supplied to the end user from his/her workstation.

## Measurements launched from Newtest™ Transaction Builder for Observers

The Newtest™ passive agent has event sensors built on tried-and-true Newtest™ robot technology. Events recognized during recording by Newtest™ Transaction Recorder are associated within Newtest™ Transaction Builder for Observers, yielding identifiable transactions. The configurations are then transmitted to agents for response time measurement and breakdown of response times into client/network/server times.

- measurement of basic web transactions on the user's workstation
- measurement of "business" transactions determined by Windows, Java, web and TCP events
- breakdown of response times into client time, network time and server time

### 1.2. *Preservation of the user's work environment*

Installation of an agent on a user's workstations should not affect its operation. Newtest™ Observer is designed with a view to minimal usage of the workstation's resources.

A number of checks are implemented in order to guarantee proper operation of the workstation:

- Impact on the workstation: regular measurements of the activity attributable to Newtest™ Observer on the workstation. Tests show CPU usage of below 3%. In the event the impact threshold value (calculated on CPU and memory usage) is exceeded, a self-check mechanism automatically puts the agent on hold (measurements cease) and a notification is transmitted to Newtest™ Management Console.
- Information about the context on the workstation is recorded and centralized (type of computer, OS, RAM, processor, etc.). NMC's record of this background makes it possible to highlight potential malfunctions and the applicable limitations in line with the workstations' characteristics.
- Control panel available to the user makes it possible to follow the agent's measurement activity and stop the agent in the event of a problem. Activation of the control panel in the workstation's system tray is an installation option of the agent that can be modified from NMC's central administration console.

### 1.3. *The development module*

The main purpose of Newtest™ Transaction Builder for Observers is to identify, capture and build a list of the representative events of an application transaction. Newtest™ Management Console distributes these configurations created by the Newtest administrator to agents for recognition and measurement of the transactions in a production environment.

The module's main features:

- straightforward use and configuration
- possibility of standalone installation
- pre-configured measurement models and a sophisticated editing and legacy object wizard for simplified creation and maintenance of the measurement system
- testing and validation of transactions prior to rollout

## 2. OPERATING PRINCIPLES OF PASSIVE AGENTS

### 2.1. Deployment of agents

Deployment of Newtest™ passive agents is contingent on the distribution of Newtest™ Remote Manager. This is a small executable program which is installed as a system service. It can be distributed by a remote distribution tool (SMS or other), executed by login script or installed directly. This module requires only one parameter: the address of the NMC or Newtest™ collector with which it is associated.

After it is launched, Newtest™ Remote Manager declares itself on NMC. NMC registers the workstation's identification information (OS, processor type, memory, disk space, etc.) in an administration repository. The repository is upgraded when there is a change in the workstation's characteristics.

With this information the administrator is able to distribute Newtest™ Observer installation software and, at a later date, software upgrades.

Agents are assigned to agent groups which are formed according to assignment rules that are linked to the location (branches, building, floor, etc.) or functional entity (administration, accounting, management, etc.).

Agent group properties are configured in NMC and are distributed automatically in message mode (inbox by agent and agent group). Agents regularly connect to their assigned collector to receive configurations and patches.

The configuration file also contains information on changes to agents' assignments.

### 2.2. Centralized administration

Newtest™ Management Console offers all the functions necessary for the administration of deployed agents as well as for the management and activation of measurement campaigns.

Main functionalities:

- viewing and control of the operation of the elements that make up the measurement system (passive agent and agent groups, collector, etc.)
- grouping of agents by geographical location in the form of location hierarchies
- creation of custom groups of agents according to various criteria : type of workstation, users' functions, etc.
- elaboration of measurement campaigns from a list of application transactions
- campaign start/stop – automated distribution of measurement groups to agents
- dynamic activation/deactivation of measurements on a set of passive agents
- reception of application and system alarms issued by agents