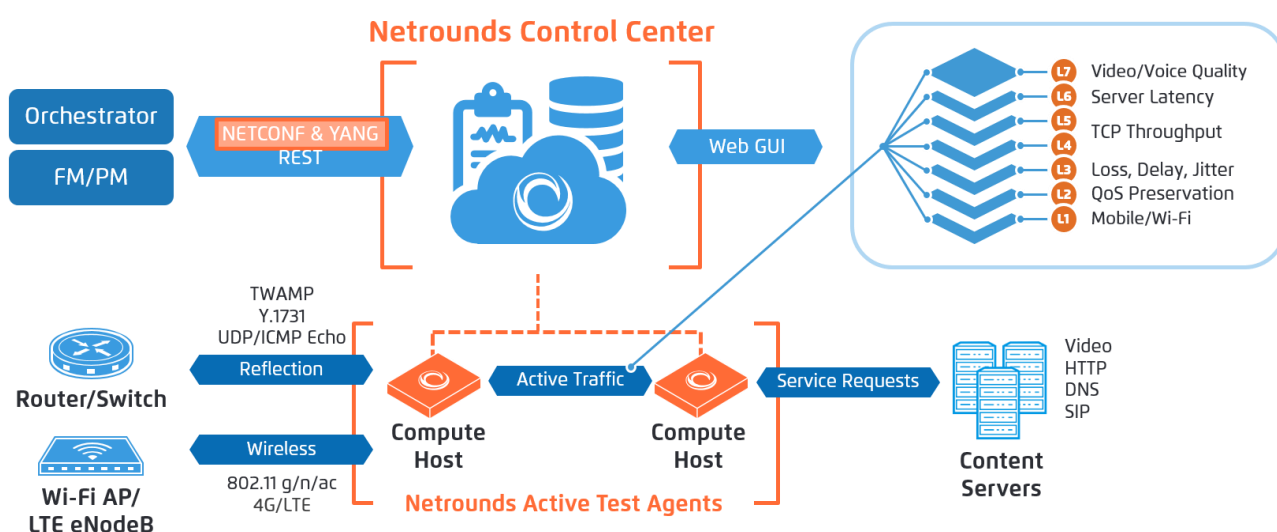


Netrounds NETCONF & YANG API Orchestration

The Netrounds NETCONF & YANG API provides an orchestrator, Performance Management/Fault Management system or work flow engine with an interface to Netrounds Control Center, as depicted in the below Netrounds system overview diagram. All vital tasks in Netrounds can be executed through this API, such as setting up Test Agents, running tests and monitors, and retrieving results.



Features Supported in NETCONF & YANG API

In the following set of tables, all Netrounds features accessible through the NETCONF & YANG API are listed.

A YANG model describes all aspects of Netrounds that are configurable through the API. In the tables below, the type of YANG construct is indicated for each API feature.

A comprehensive tutorial on how to use the NETCONF & YANG API is found in the document “NETCONF & YANG API Orchestration Guide”. This guide also includes a full description of the YANG model.

Test Agents

| Feature | Subfeatures/Comment | YANG Construct |
|---|--|----------------|
| Pre-create Test Agent on Netrounds server | The Test Agent and interface configuration is defined in Netrounds Control Center and in the configuration database prior to being deployed on virtualization platform | Config |
| Configure offline Test Agent | Netrounds Control Center pushes configuration to Test Agent when it comes online | Config |
| Use existing or externally configured Test Agents | Use Test Agents in test or monitor | Config |
| | Configure Test Agent interfaces | Config |
| | Get Test Agent status | State |
| Configure Test Agent | Configure NTP | Config |
| | Configure bridges | Config |
| | Configure VLAN interfaces | Config |

| Feature | Subfeatures/Comment | YANG Construct |
|-----------------------|---|----------------|
| | Configure IPv6 | Config |
| Utilities | Reboot Test Agent | RPC |
| | Update Test Agent software | RPC |
| Get Test Agent status | Uptime, memory usage, load average, version | State |
| NETCONF notifications | Sent when Test Agent online status changed | Notification |

Inventory: TWAMP Reflectors and Y.1731 Maintenance End Points (MEPs)

| Feature | Subfeatures/Comment | YANG Construct |
|-------------------------|---------------------------------------|----------------|
| Manage TWAMP reflectors | Create/modify/delete TWAMP reflectors | Config |
| Manage Y.1731 MEPs | Create/modify/delete Y.1731 MEPs | Config |
| Manage IPTV channels | Create/modify/delete IPTV channels | Config |
| Manage SIP accounts | Create/modify/delete SIP accounts | Config |

Tests

| Feature | Subfeatures/Comment | YANG Construct |
|-----------------------|---|----------------|
| Start test | Tests are based on test templates created in Netrounds Control Center GUI | RPC |
| Manage tests | List tests with current status | State |
| Manage test templates | List existing test templates with inputs | State |
| Export test templates | Export test templates in JSON format | RPC |
| Get test results | Get status for each test step (pass, fail, error, ...) | State |
| NETCONF notifications | Sent when test status changed | Notification |

Monitors

| Feature | Subfeatures/Comment | YANG Construct |
|--------------------------|---|----------------|
| Manage monitors | Create/modify/delete monitors Monitors are based on monitor templates created in Netrounds Control Center GUI Monitors are started not with an RPC but rather by committing the monitor configuration | Config |
| Manage monitor templates | List existing monitor templates with inputs | State |
| Export monitor templates | Export monitor templates in JSON format | RPC |
| Get monitor results | SLA/errored seconds indication, top level | State |
| | SLA/errored seconds indication, task level (a monitor may consist of multiple parallel tasks) | State |
| NETCONF notifications | Sent when alarm status changed for monitor | Notification |

Alarms

| Feature | Subfeatures/Comment | YANG Construct |
|--------------------------|--|----------------|
| Manage alarm templates | Create/modify/delete alarm templates | Config |
| Manage alarm email lists | Create/modify/delete lists of email addresses to which to send alarms | Config |
| Manage SNMP managers | Create/modify/delete SNMP managers to which to send alarms as SNMP traps | Config |

Tags

| Feature | Subfeatures/Comment | YANG Construct |
|---------------|--|----------------|
| Manage tags | Create/modify/delete tags | Config |
| Assign tags | Assign a tag a monitor, monitor template, Test Agent, or TWAMP reflector | Config |
| Unassign tags | Unassign a tag from a resource previously tagged | Config |

Explanations of YANG Constructs

The YANG constructs referred to in the feature tables are defined as follows:

| YANG Construct | Definition |
|------------------------|---|
| Config (config = true) | Configuration data, required to transform a system from one state to another |
| State (config = false) | State data: additional data on a system that is not configuration data, such as read-only status information and collected statistics |
| RPC | Remote Procedure Call, as used within the NETCONF protocol |
| Notification | Event notifications sent from a NETCONF server to a NETCONF client |