
RedIRIS Performance tools for Universities and Research Centers

SIG-PMV

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Objectives

- To offer a set of tools to check and solve performance related problems and issues
- Complete flexibility
- RedIRIS support not necessary
 - autonomy to the end users

Architecture

Central Console
Web-Based Management



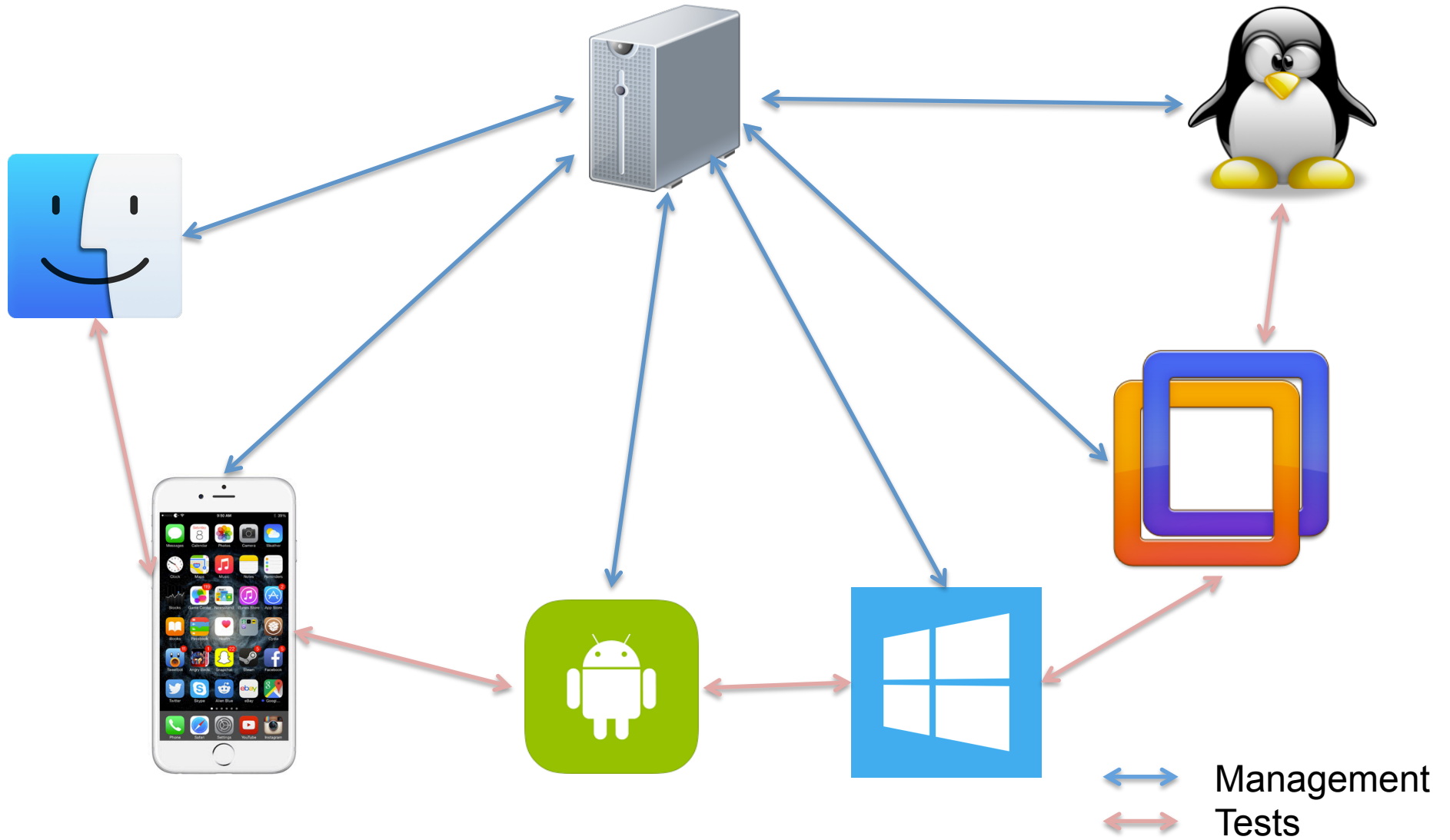
Software Endpoints



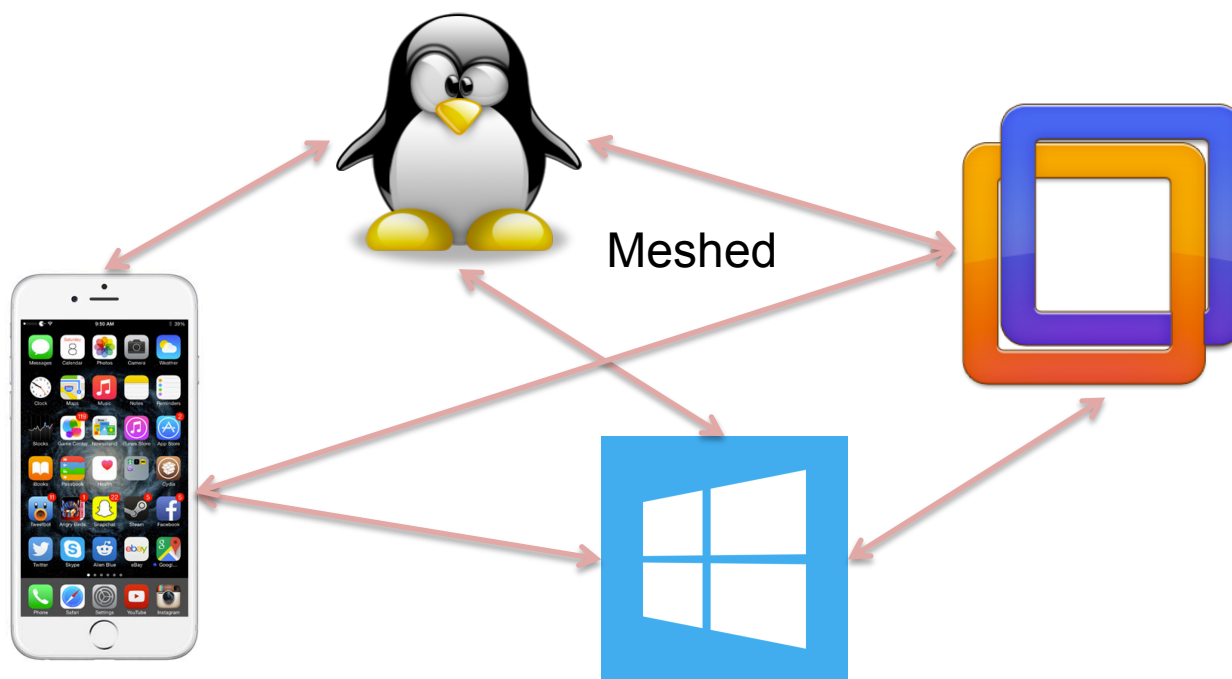
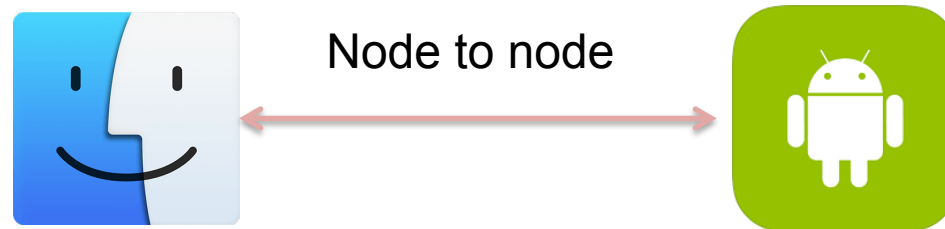
Hardware Endpoints



Architecture



Architecture - Tests



HawkEye Server

- Central server
 - Administration
 - Users
 - Clients
 - Probes – activate and deactivate
 - Tests definition and execution
 - KPIs
 - Tests Parameters
 - Report management
 - Launch tests

Software and Hardware endpoints

- Endpoints/probes/clients
- Software
 - Mac OS/windows/Linux/iOS/Android/...
 - VMWare OVA
 - Raspberri Pi
- Hardware
 - Raspberri Pi
 - Appliances
 - Connect directly to the network
 - Dedicated ports

How does it work?

1. University request for access
2. Provide credentials
3. Register the endpoints
4. Do the tests
5. Check the results
6. Repeat

EASY!

Technical restrictions

- Just some TCP/UDP ports between central server and endpoints
- You can mark the endpoint as located in a private LAN

Type of tests

- Node to node
 - Uni or bidirectional
- Meshed
 - Uni or bidirectional
- Real Service
 - speedtest

Type of tests – Node to node metrics

- Throughput
 - As goodput in RFC 2647 – throughput associated with packet payload, ignoring headers
- Transaction rate – transactions per second
- Response time – seconds per transaction
- Lost data – only payload data is included in calculations
- Max Lost Burst
- Jitter
- Delay
- MOS – ITU G.107 Mean Opinion Score
- Media Delivery Index Calculation
- Packet Jitter – individual packets in a media stream
- Delay Factor & Media Loss Rate & Media Delivery Index

Type of tests – node to node and mesh

- UDP/TCP throughput
 - Bitrate
- KPIs
 - Loss/jitter/latency
- QoS level 3
- Voice and Video – using different codecs, simulating transmissions
- Response time
 - TCP, http/https, pop3/stmp, FTP, DNS, Exchange 365 and SIP

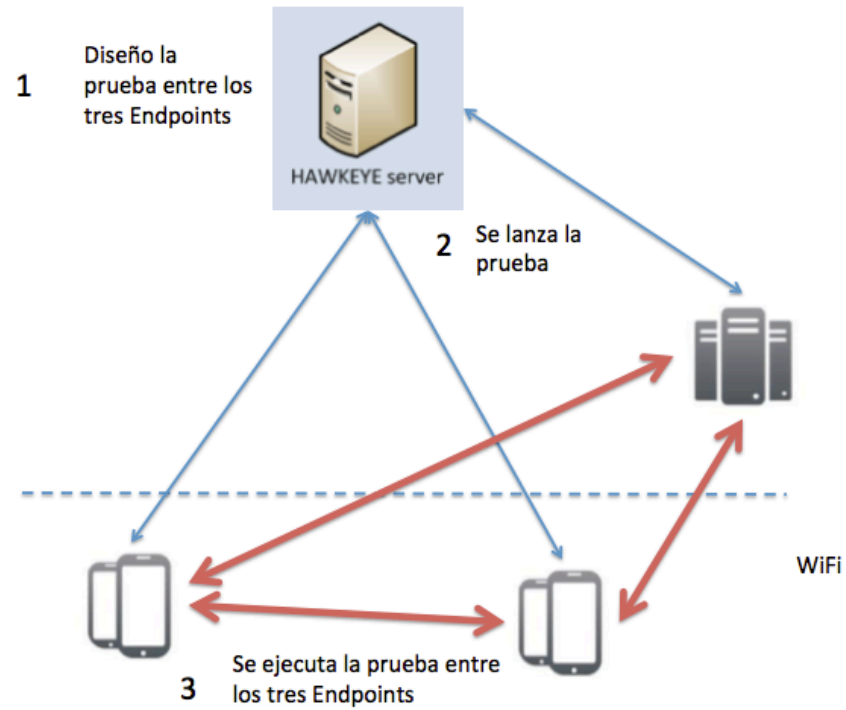
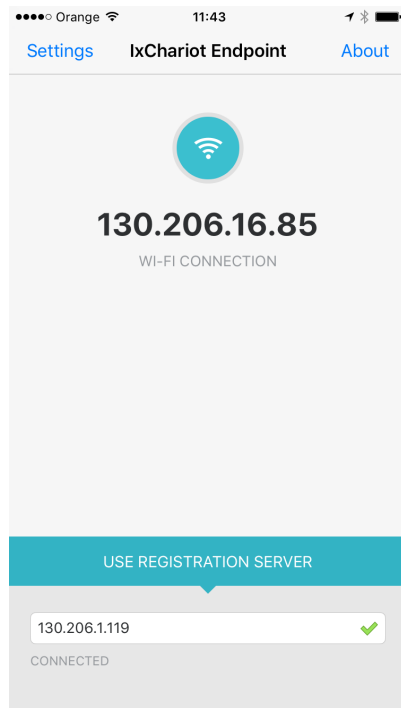
Type of tests – real service test

- HTTP
 - Availability and download time
- FTP
 - Download time
- DNS
 - Query
- TCP/UDP ping and Traceroute
- Bittorrent
- Dropbox
- Email
- Youtube
- IGMP
- From OVA or hardware endpoints

Type of tests – speedtests

- All speedtests of the world available
- One user only for speedtests

Testing



Testing

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IXIA Hawkeye Probe Management - Probe Management

Tests Results Reporting **Probe Management** Test Execution Alarms Administration Information Log out

Currently logged in as: sysadmin | Last Login: 2016/09/20 12:56:26

Refresh Upgrade ALL probes Search all columns: First Previous 1 Next Last Show 50 entries

| | | | | id | Probe Name | Test IP | Mgmt IP | Location | Probe Group | Probe Type | Use For | Active | Mesh support | Serial# | UID | Mode |
|--|--|--|--|----|--------------------------------------|--|--|--|-------------|------------|-------------|--------|--------------|--------------|--------------------------------------|------|
| | | | | id | Probe Name | Test IP | Mgmt IP | Location | Probe Gr | Probe T | | | | Serial# | UID | |
| | | | | 37 | Portatil-SIPC2 | Portatil-SIPC2 | Portatil-SIPC2 | | | Software | From and to | yes | yes | | 64:80:99:9e:98:4b | Auto |
| | | | | 36 | ccnmc-temp | ccnmc-temp | ccnmc-temp | | | Software | From and to | yes | yes | | 9c:b6:54:99:a8:18 | Auto |
| | | | | 29 | Samsung-SM-G920F | Samsung-SM-G920F | Samsung-SM-G920F | | | Software | From and to | yes | yes | | ac91fe0f3df86a89 | Auto |
| | | | | 28 | iPhone-de-Miguel-Angel | iPhone-de-Miguel-Angel | iPhone-de-Miguel-Angel | | | Software | From and to | yes | yes | | 2785263C-70F0-49F3-BFFE-BCC511A9CECD | Auto |
| | | | | 19 | Sonda UV | xr2000vmHawkeye | xr2000vmHawkeye | Universitat de Valencia Servei Informatica | OVA | xr2000_vm | From and to | yes | yes | 080027889EE3 | 08:00:27:88:9e:e3 | Auto |
| | | | | 15 | Sonda CESGA | xr2000hawkeye | xr2000hawkeye | Santiago de Compostela | OVA | xr2000_vm | From and to | yes | yes | 0200C19023C9 | 02:00:c1:90:23:c9 | Auto |
| | | | | 12 | Sonda TELVENT en Servidores Externos | probe-mastema-servidores-externos.rediris.es | probe-mastema-servidores-externos.rediris.es | Madrid | | xr2000_vm | From and to | yes | yes | 005056A0DD68 | 00:50:56:a0:dd:68 | Auto |
| | | | | 6 | Sonda CICA | probe-mastema-cica.rediris.es | probe-mastema-cica.rediris.es | CICA | OVA | xr2000_vm | From and to | yes | yes | 005056861152 | 00:50:56:86:11:52 | Auto |
| | | | | 5 | Sonda TELVENT | probe-mastema-telvent.rediris.es | probe-mastema-telvent.rediris.es | TELVENT | OVA | xr2000_vm | From and to | yes | yes | 005056A0C96E | 00:50:56:a0:c9:6e | Auto |

Showing 1 to 9 of 9 entries Autorefresh OFF

Hide

Probe Name: Probe Test IP: Probe Management IP: Management IP is Test IP:

Probe Location: Probe Group: Probe type: Available For Mesh:

Serial number: Probe Location Availability: Probe Location Default Latitude: Probe Location Default Longitude:

Is Active: Change Username and Password: Probe login: Probe password: Network Location:

Available User Groups Available for User Groups

Testing

Refresh Show Schedule Active Show All Show Finished Search all columns: First Previous Next Last Show 50 entries

Hold all Schedules AutoRefresh ON/OFF

| ID | Is Mesh | Probe From Name | Probe To Name | Test Type | Test Identifier | Test Options | Test Duration (sec) | Interval | Status | Next Time Schedule | First Time Schedule | Last Time Schedule | Created by |
|----|---------|-----------------|---------------|-----------|-----------------|--------------|---------------------|----------|--------|--------------------|---------------------|--------------------|------------|
| ID | | Probe From | Probe To Ni | Test Type | Test Identifier | | Test Dura | | | Next Time Scl | First Time | Last Time | Created |

No matching records found

no matching record Autorefresh ON

Hide

Mesh Name: PRUEBA WIFI Test type: **Network KPI Advanced** Test Identifier:

TEST DESCRIPTION : Network KPI advanced Test - setup. Set 0 throughput for disabling streams.

Test Duration: 30 sec Total

packet size (bytes): 50

DSCP Setting: Best Effort

Test Frequency - Minutes : 0 Start schedule End Schedule

Start Test Show Threshold Options Show Alarm Options

- Lync Traffic from->to
- Network KPI
- Network KPI 3 COS
- Network KPI Advanced
- Network KPI Low Bandwidth
- Network KPI to->from
- TCP Response Time
- Voice from->to

Testing

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Tests Results - Tests Results List

Tests Results ▾ Reporting ▾ Probe Management ▾ Test Execution ▾ Alarms ▾ Administration ▾ Information ▾ Log out
Currently logged in as: **sysadmin** | Last Login: 2016/09/20 14:55:28

Refresh Select All Select None Delete Selected AutoRefresh ON/OFF
First Previous 1 Next Last
Show 50 entries

| | Date | Probe From | Probe To | Mesh Name | Module | Test Type | Test Identifier | Test Options | Status | Reason Cause | Login | Test Duration | Test Exec ID |
|--|---------------------|--------------------------------|------------------------|-------------|--------|----------------------|-----------------|--|--------|---|----------|---------------|--------------|
| | Date | Probe From | Probe To | Mesh I | Module | Test Type | Test Identifier | Test Options | Status | Reason Cause | Login | Test Dura | Test I |
| <input type="checkbox"/> | 2016/09/20 14:55:07 | Samsung-SM-G920F | iPhone-de-Miguel-Angel | PRUEBA WIFI | MESH | Network KPI Advanced | | bitrate = 5000 kbps - packetsize = 150 QOS = Best Effort | Failed | Threshold failed on Network KPI from->to 5000 kbps Max loss burst | sysadmin | 30 | 148 |
| METRIC | | PAIR NAME | | VALUE | | THRESHOLD TYPE | | THRESHOLD | | STATUS KPI | | | |
| Delay (ms) | | Network KPI from->to 5000 kbps | | 66.6 | | <= | | 100 | | Passed | | | |
| Jitter (ms) | | Network KPI from->to 5000 kbps | | 0.27 | | <= | | 5 | | Passed | | | |
| Loss | | Network KPI from->to 5000 kbps | | 0.55 | | <= | | 1 | | Passed | | | |
| Max Jitter (ms) | | Network KPI from->to 5000 kbps | | 1 | | <= | | 5 | | Passed | | | |
| Max loss burst | | Network KPI from->to 5000 kbps | | 109 | | <= | | 2 | | Failed | | | |
| <input type="checkbox"/> | 2016/09/20 14:55:07 | Sonda TELVENT | Samsung-SM-G920F | PRUEBA WIFI | MESH | Network KPI Advanced | | bitrate = 5000 kbps - packetsize = 150 QOS = Best Effort | Error | No results were collected. | sysadmin | 30 | 148 |
| <input type="checkbox"/> | 2016/09/20 14:55:07 | iPhone-de-Miguel-Angel | Sonda TELVENT | PRUEBA WIFI | MESH | Network KPI Advanced | | bitrate = 5000 kbps - packetsize = 150 QOS = Best Effort | Failed | Threshold failed on Network KPI from->to 5000 kbps Loss Threshold failed on Network KPI from->to 5000 kbps Max loss burst | sysadmin | 30 | 148 |
| <input type="checkbox"/> | 2016/09/20 14:55:07 | iPhone-de-Miguel-Angel | Samsung-SM-G920F | PRUEBA WIFI | MESH | Network KPI Advanced | | bitrate = 5000 kbps - packetsize = 150 QOS = Best Effort | Failed | Threshold failed on Network KPI from->to 5000 kbps Loss Threshold failed on Network KPI from->to 5000 kbps Max loss burst | sysadmin | 30 | 148 |
| User 2 (Streaming Throughput) : Samsung-SM-G920F (130.206.17.204) to Sonda | | | | | | | | | | | | | |

Hide Filters

NODE FROM:
MODULE:
SITES:

NODE TO:
MESH NAME:
ADVANCED FILTERS:

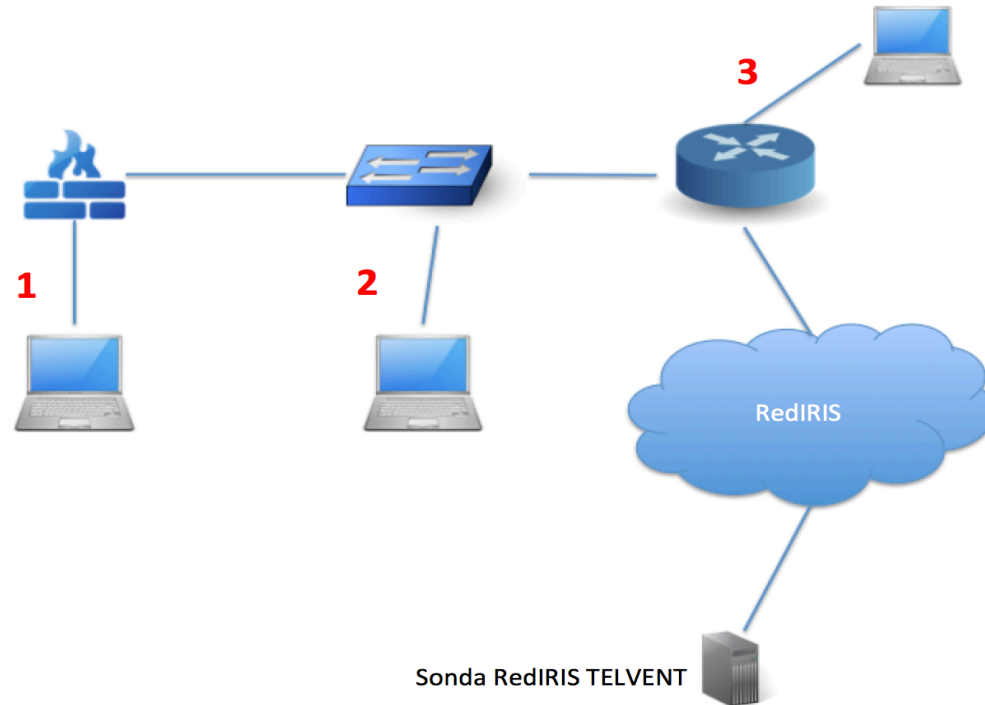
NODE FROM GROUP:
TEST TYPE:

NODE TO GROUP:
TEST IDENTIFIER:

Apply Filters
Reset Filters

Use cases

- http performance problem



- Low throughput
- Real Services

Restrictions

Calendario de uso

El calendario de uso que se debe respetar para utilizar las herramientas es el siguiente:

📅 Día 📅 Semana laboral 📅 Semana 📅 Mes 📅 Hoy ← octubre de 2016 →

| octubre de 2016 | | | | | | |
|-----------------|--------------------|-----------|--------|---------|--------|---------|
| Lunes | Martes | Miércoles | Jueves | Viernes | Sábado | Domingo |
| 26/09 | 27 | 28 | 29 | 30 | 1/10 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 Pruebas CSUC | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 1/11 | 2 | 3 | 4 | 5 | 6 |

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The end

Thanks for your attention

Questions?