

# Cubro Vitrum - Element manager for Cubro Packetmasters

Feb 2020

# Contents



- 1 Vitrum features and functionality
- 2 Vitrum architecture
- 3 Vitrum benefits

## Centralized management of Cubro Packetmasters

Discovery of  
Cubro  
equipment

Device  
browser with  
drill-in and  
statistics

Network  
map and  
visualization

Alarm  
monitoring

Backup and  
firmware  
upgrade,  
user  
management

Successfully logged out

## Please login to see this page.

Username

Password

Submit

English (en)



Set Language

[→ Recover Password](#)

Language options currently:

English

German

Japanese

Simplified Chinese

# Welcome screen



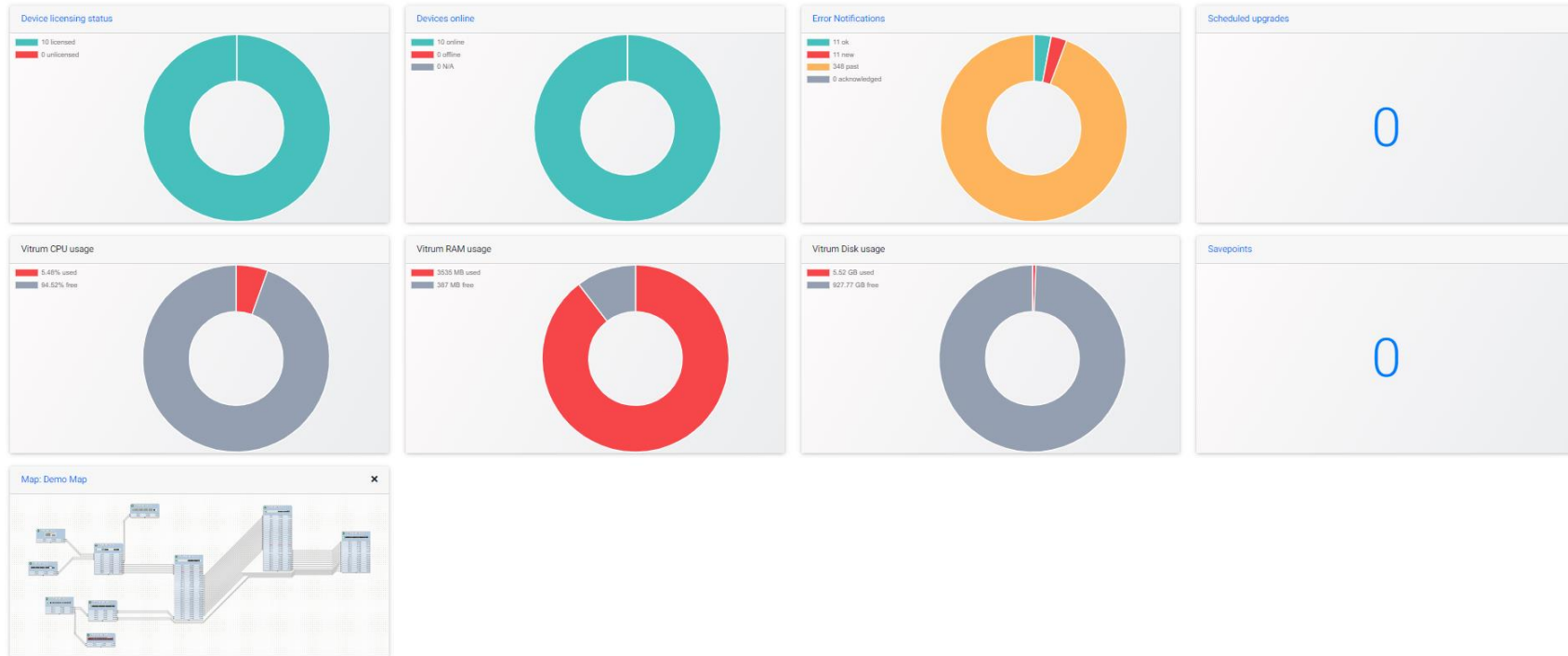
Vitrum Device List Network Map Analytics Settings Users

159

Logout admin

CUBRO

## System Information



# Navigation map



**Network Map** ▾

Demo Map

Create new map

**Analytics** ▾

Kibana

Grafana

**Settings** ▾

- Network Scan
- Topology Discovery
- Graphics
- Savepoints
- Packetmaster Updates
- Error Notifications
- Device Licenses
- Device Templates
- Vitrum update
- IP Settings
- System Information

See following slides for network and link scan

# Network discovery - devices



Vitrum Device List Network Map Analytics Settings Users

Find devices  
in the  
network by  
scanning an  
IP range

## Network Scan finished

Start IP

192.168.0.1

End IP

192.168.0.255

Start Networkscan

Scanned: **255** out of **255**

## Found Devices

192.168.0.201

☐ Ignore Device

Name

EX6 192.168.0.201

IP Address

192.168.0.201

Description

# Network discovery - links



Vitrum Device List Network Map Analytics Settings Users

## Topology Discovery finished

Start Topology Discovery

Initialised Devices

10

Scanned Devices

10

Total Devices

10

## Found Links

Save

Ignore Link

Source Port

eth-0-5

EX2 192.168.0.204

192.168.0.204

Destination Port

eth-0-9

EX12 192.168.0.203

192.168.0.203



Find links on  
Cubro  
devices  
(topology  
discovery)



# Device Browser



Vitrum **Device List** Network Map Analytics Settings Users

360

Logout 'admin'





















## Device Overview

Select

+ Device



Actions	Name	IP Addr.	Description	Model	Version	Online	License	Maps
	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...
 	EX6 192.168.0.201	192.168.0.201		EX6	0.0.0.0	✓ Online	✓ Yes	 Demo Map
 	EX5-2 192.168.0.202	192.168.0.202		EX5-2	0.0.0.0	✓ Online	✓ Yes	 Demo Map
 	EX12 192.168.0.203	192.168.0.203		EX12	0.0.0.0	✓ Online	✓ Yes	 Demo Map
 	EX2 192.168.0.204	192.168.0.204		EX2	0.0.0.0	✓ Online	✓ Yes	 Demo Map
 	EX32 192.168.0.205	192.168.0.205		EX32	0.0.0.0	✓ Online	✓ Yes	 Demo Map
 	EX32Plus 192.168.0.206	192.168.0.206		EX32PLUS	0.0.0.0	✓ Online	✓ Yes	 Demo Map

Click this symbol for detailed port status, statistics and link information

# Device browser – device details



EX32 192.168.0.205

Device list selected ->  
Individual device selected

IP Address	192.168.0.205
Model	EX32
Generation	4
Version	0.0.0.0
Serial Number	DEMOSERIALNUMBER18032
License	✓ Licensed
DPID	192.168.0.205-0005
WebUI Link	<a href="http://192.168.1.102/demodevice/EX32">http://192.168.1.102/demodevice/EX32</a>
Status	✓ Online
Created	2020-02-24 17:09:00 +08:00
Modified	2020-02-24 17:09:06 +08:00

No Update Images available

Add Port

Edit

Create Device Template

Delete

Represented on Maps

Demo Map

Click this  
link for  
drill-down  
(see next  
page)

0 Savepoints for device available

Go to devices Savepoints

## Ports

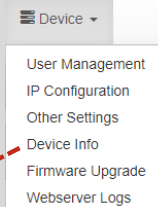
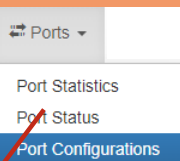
Number	Name	Direction	Port state	Link state	Connected to	Connected from	TX-Rate	RX-Rate	TX-Packets	RX-Packets
1	eth-0-1	bidirectional	PORT_UP	LINK_UP	→ 7.0 - eth-0-7 - EX32Plus 192.168.0.206 - 192.168.0.206	← 7.0 - eth-0-7 - EX32Plus 192.168.0.206 - 192.168.0.206	58.5 Mb	58.5 Mb	22792930084	22792930084
2	eth-0-2	bidirectional	PORT_UP	LINK_UP	→ 8.0 - eth-0-8 - EX32Plus 192.168.0.206 - 192.168.0.206	← 8.0 - eth-0-8 - EX32Plus 192.168.0.206 - 192.168.0.206	923.9 Mb	923.9 Mb	548981905359	548981905359
3	eth-0-3	bidirectional	PORT_UP	LINK_UP	→ 9.0 - eth-0-9 - EX32Plus 192.168.0.206 - 192.168.0.206	← 9.0 - eth-0-9 - EX32Plus 192.168.0.206 - 192.168.0.206	314.4 Mb	314.4 Mb	263783488507	263783488507

# Device browser – device drill-down

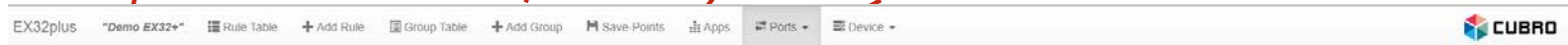


Filtering rules

Backup



Port status view



EX32plus "Demo EX32+\*" Export Table as CSV

Port Number	Interface Name	Description	Port Status	Link Status	Duplex	Speed
Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...
1	eth-0-1		PORT_UP	LINK_UP	full (auto)	1000 (1000Mb)
2	eth-0-2		PORT_UP	LINK_UP	full (auto)	1000 (1000Mb)
Filter...	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...
Tap to probe	Taps traffic between ports 1 and 2 to port 3	32768 2			output:1,3	0.0 b 0 1
Tap to probe	Taps traffic between ports 1 and 2 to port 3	32768 1			output:2-3	0.0 b 0 1
Tap VLAN to Load-balance-group	Tap traffic from ports 1, 2 and 3 tagged with VLAN 20 to load balancing group 1 (ports 4, 5 and 6)	32768 1-3	VLAN present, ID: 20		group:1	0.0 b 0 3
						0.0 b 0 5

# Device browser – User management



Filtering  
rules

## Add User

Name

NewTestUser|

Description

User  
Level

- ☒ **Read** – Read-only access to everything.
- ☐ **Write** – Can add/change/remove rules/groups/apps, add/change/remove rule save-points and set them as load-on-boot, reset counters, and change group hashing methods used.
- ☐ **Super** – Can do everything, therefore has the ability to e.g. change port settings, add/change/remove port save-points, import save-points, upgrade/reboot device, change IP/label/description, add/change/remove users, enable/disable user access checks and change any setting.

☒ Local Password

Password

Repeat  
Password

☐ Checking Password Using RADIUS Server










RADIUS Server needs to be set and running for this user to log in.

Device ▾

- User Management
- IP Configuration
- Other Settings
- Device Info
- Firmware Upgrade
- Webserver Logs

EX32plus "Demo EX32+" Rule Table + Add Rule Group Table + Add Grc

Show/Hide Columns Make Rules and Groups Permanent Delete All Rules Reset

	Name ^	Description ⇅	Priority
	Filter...	Filter...	Filter...
  	Tap to probe	Taps traffic between ports 1 and 2 to port 3	
  	Tap to probe	Taps traffic between ports 1 and 2 to port 3	
  	Tap VLAN to Load-balance-group	Tap traffic from ports 1, 2 and 3 tagged with VLAN 20 to load balancing group 1 (ports 4, 5 and 6)	

CUBRO

TCAM Flows Used: 5 out of 4500

Actions ⇅	Data/Sec. ⇅	Packets ⇅	TCAM Flows ⇅
Filter...	Filter...	Filter...	Filter...
output:1,3	0.0 b	0	1
output:2-3	0.0 b	0	1
group:1	0.0 b	0	3
	0.0 b	0	5

Cancel

Save

# Network GUI

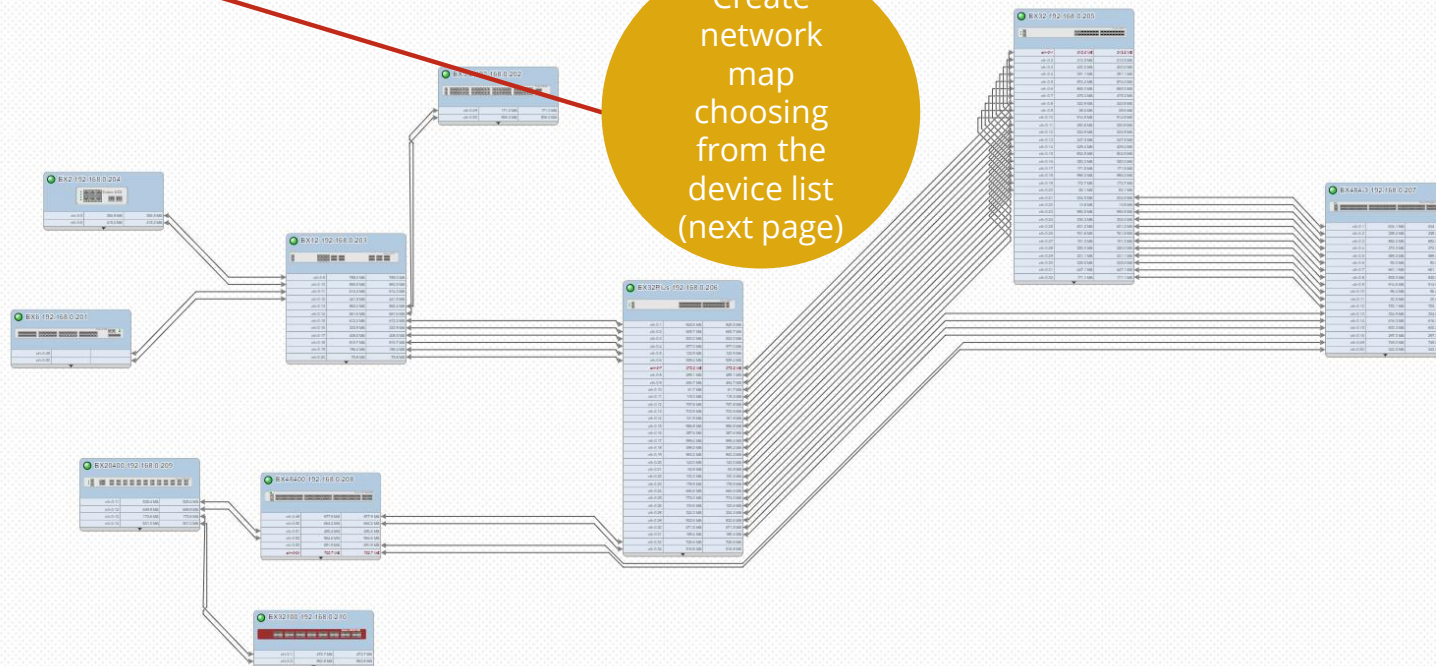


Vitrum Device List Network Map Analytics Settings Users

360

Drawing Tools Devices Settings of map "Demo Map" Navigation Create Dashboard Link

Create network map choosing from the device list (next page)





# Network GUI – choose from devices



Devices ▾

Search...

Sort by Generation and Model

EX6 192.168.0.201  
(IP: 192.168.0.201)



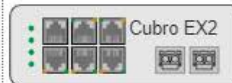
EX12 192.168.0.203  
(IP: 192.168.0.203)



EX5-2 192.168.0.202  
(IP: 192.168.0.202)



EX2 192.168.0.204  
(IP: 192.168.0.204)



EX20400  
192.168.0.209  
(IP: 192.168.0.209)



EX32 192.168.0.205  
(IP: 192.168.0.205)



EX32Plus  
192.168.0.206  
(IP: 192.168.0.206)



EX484-3  
192.168.0.207  
(IP: 192.168.0.207)



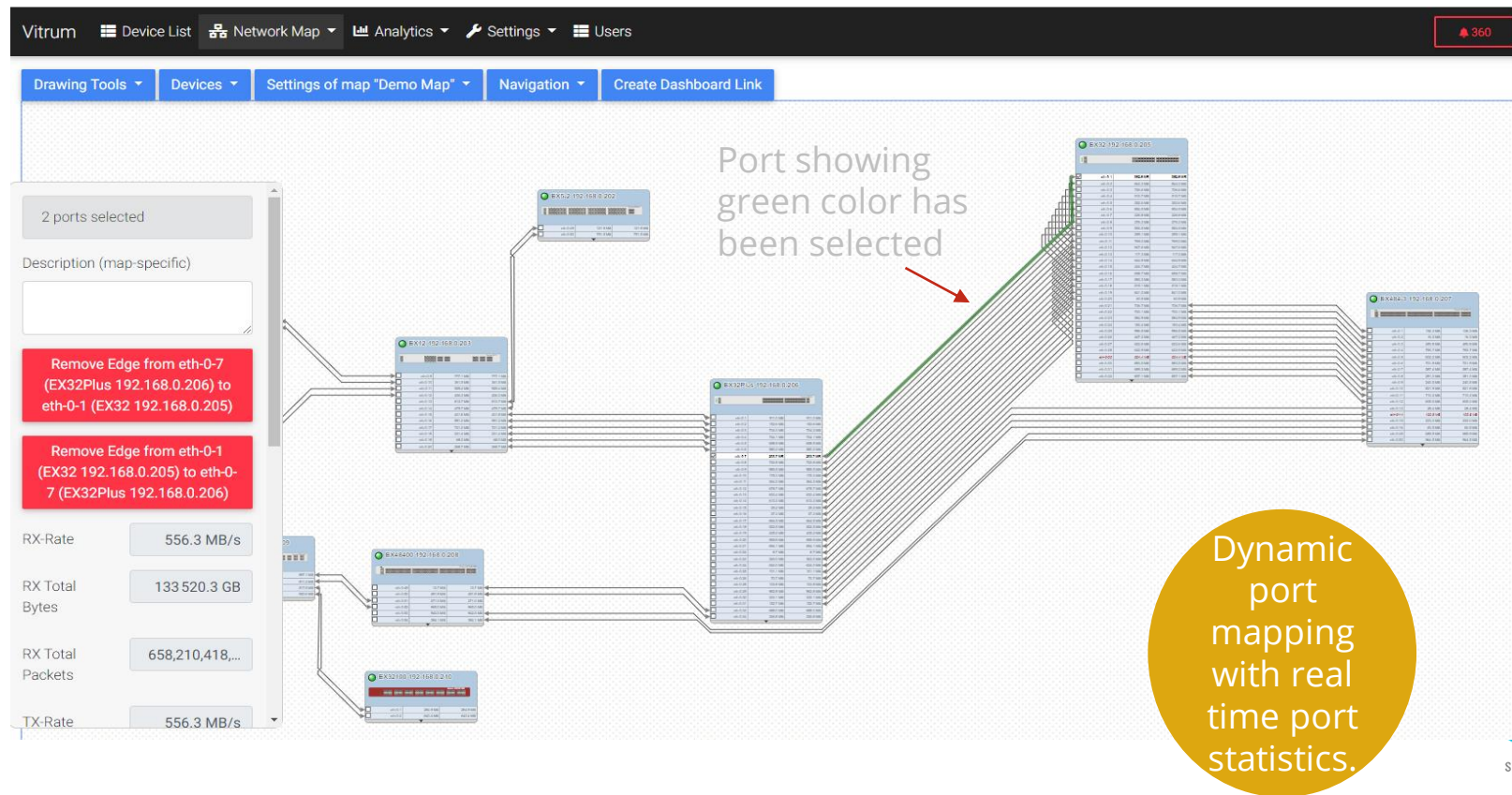
EX48400  
192.168.0.208  
(IP: 192.168.0.208)



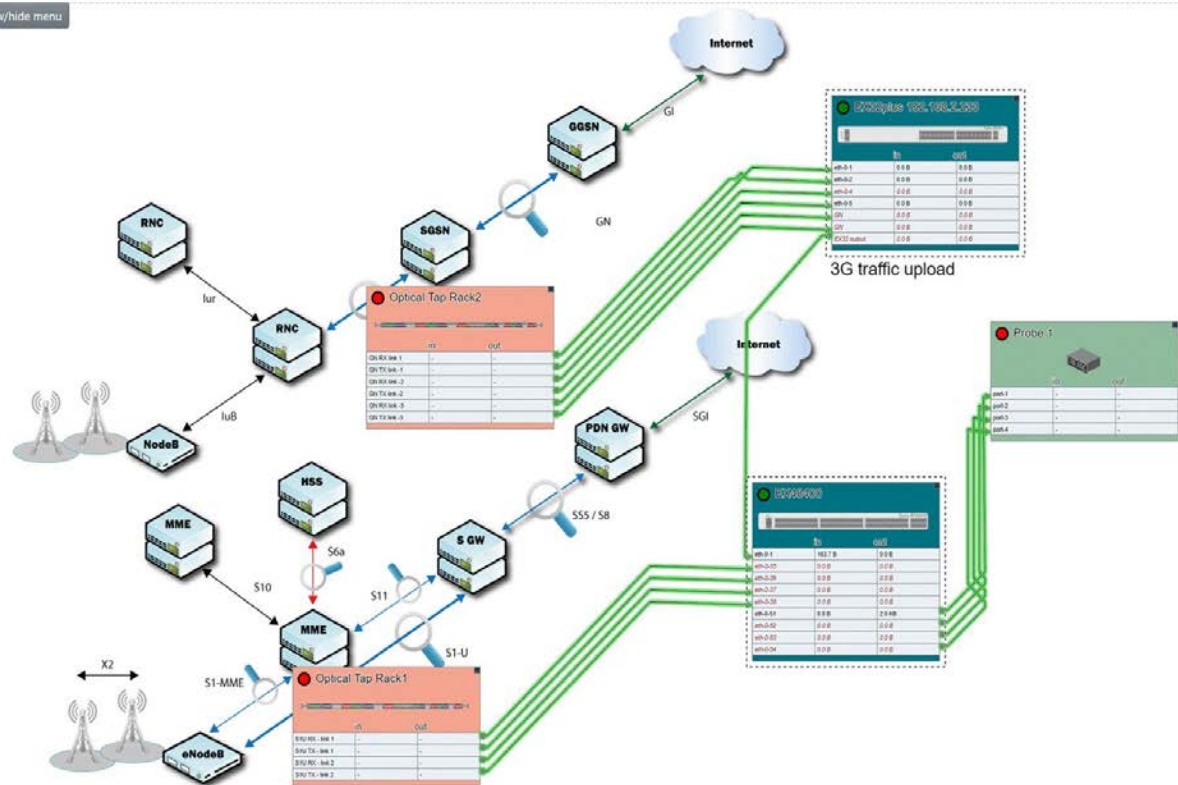
EX32100  
192.168.0.210  
(IP: 192.168.0.210)



# Network GUI – automatic port mapping



# Network GUI – example



Non-Cubro equipment can be added



# Device Browser – Alarm viewer



Vitrum Device List Network Map Analytics Settings Users

360

Logout 'admin'



✓ Ack all Error Notifications ?

- ✓ Past Error Link was DOWN:  
eth-0-2 EX2 192.168.0.204
- ✓ Past Error Link was DOWN:  
eth-0-7 EX6 192.168.0.201
- ✓ Past Error Link was DOWN:  
eth-0-9 EX6 192.168.0.201
- ✓ Past Error Link was DOWN:  
eth-0-51 EX6 192.168.0.201
- ✓ Past Error Link was DOWN:  
eth-0-32 EX6 192.168.0.201
- ✓ Past Error Link was DOWN:  
eth-0-15 EX6 192.168.0.201
- ✓ Past Error Link was DOWN:  
eth-0-5 EX6 192.168.0.201
- ✓ Past Error Link was DOWN:  
eth-0-25 EX6 192.168.0.201
- ✓ Past Error Link was DOWN:  
eth-0-37 EX6 192.168.0.201
- ✓ Past Error Link was DOWN:  
eth-0-49 EX6 192.168.0.201
- ✓ Past Error Link was DOWN:  
eth-0-16 EX6 192.168.0.201







Alarm  
viewer can  
be activated  
from any  
screen by  
clicking Bell  
symbol

Settings → Error notifications

Alarm browser provides searching capability for alarms

## Error Notifications

✓ Acknowledge all Error Notifications

Actions	Subject	Error Status	Last Message	Event Time	Time since
	Filter...	Filter...	Filter...	Filter...	Filter...
 	<a href="#">Port: eth-0-14</a> → EX6 192.168.0.201	 New Error	LINK DOWN: eth-0-14 EX6 192.168.0.201	2020-02-27 12:56:11 +08:00	0 minutes
 	<a href="#">Port: eth-0-11</a> → EX5-2 192.168.0.202	 Past Error	Link was DOWN: eth-0-11 EX5-2 192.168.0.202	2020-02-27 12:56:11 +08:00	0 minutes

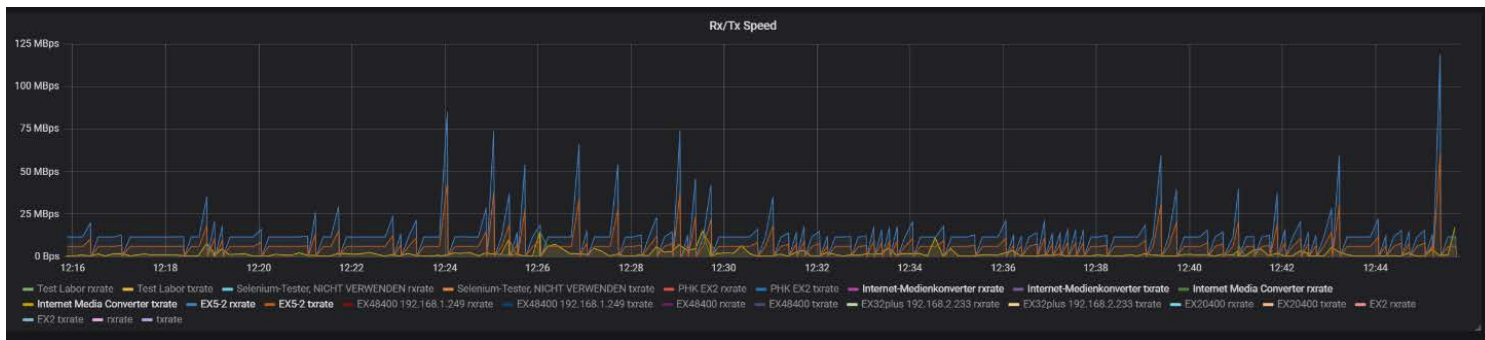
# Adding 3<sup>rd</sup> party monitoring tools



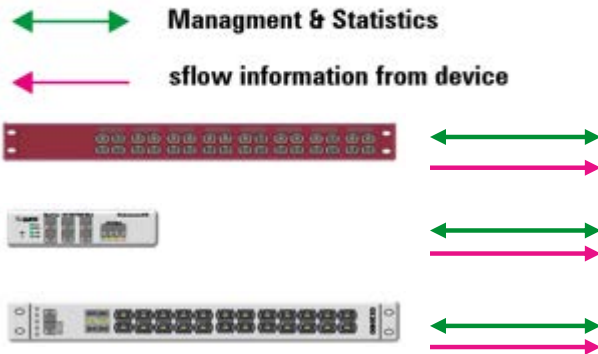
## Grafana Dashboard Example

Kibana and Grafana have been integrated under analytics

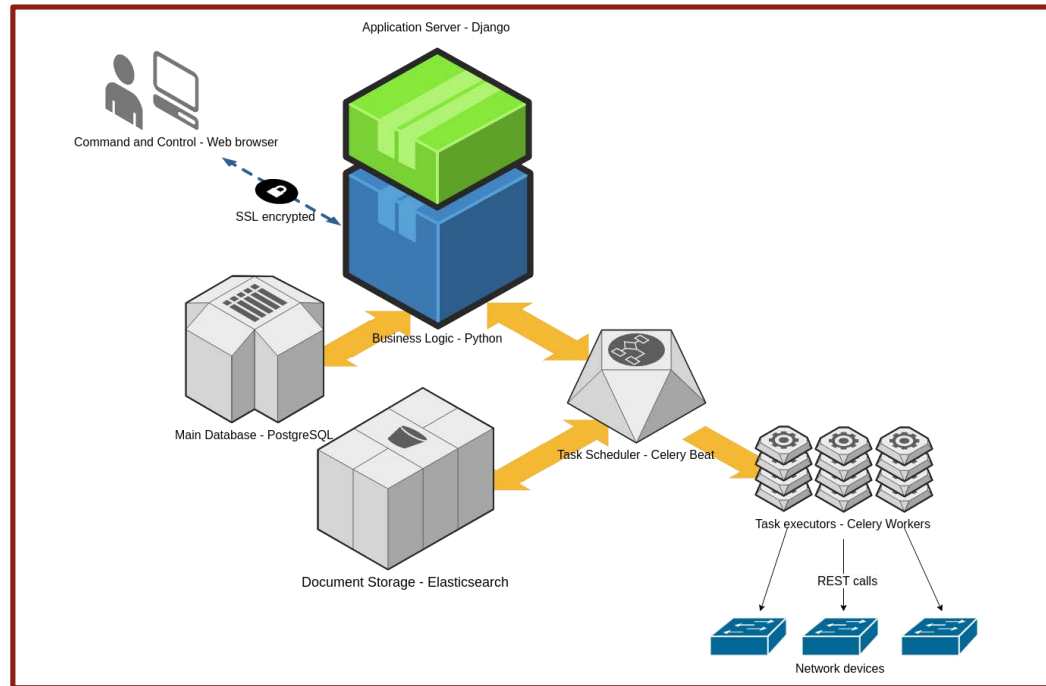
Please note: integration is SW integration only, no reports and graphs are included. On this slide dashboard and graphs are only for illustration purposes



# Vitrum architecture



Deployed as  
VM for  
VMWare \*



\* End-user connects using Web browser and URL (see slide 'Login')

# Benefits



- Easy set-up with network and link discovery
  - Efficient troubleshooting of the TAP network with alarm browser and easy to use topology view
  - Powerful backup and firmware update
  - User management with username/password and user rights
- 
- Reduced monitoring costs
  - Faster mean time to resolution (MTTR)



### **Cubro Network Visibility**

Ghegastraße 3  
1030 Vienna, Austria

**Tel.:** +43 1 29826660

**Fax:** +43 1 2982666399

**Email:** support@cubro.com

### **Cubro Asia Pacific**

8, Ubi Road 2 #04-12 Zervex  
Singapore 408538

**Tel.:** +65-97255386

**Email:** jl@cubro.com



**THANK YOU**



### **Cubro North America**

105 Strowger Blvd  
Brockville, Ontario,  
Canada K6V 5K1

**Tel:** 613-213-0222

**Email:** americas@cubro.com

### **Cubro Japan**

8-11-10-3F, Nishi-Shinjuku,  
Shinjuku,  
Tokyo, 160-0023 Japan

**Email:** japan@cubro.com

