

Zabbix 7 Custom Modules: Network Monitoring Application



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Summary

H5 Network : Who are we ?

Netflow (Sflow, Jflow...)

- ▶ How does it work?
- ▶ What are the benefits?

H5-FLOW

- ▶ H5 Netflow Collector
- ▶ REST/JSON API

Zabbix Custom Modules for H5-FLOW

- ▶ Stacked chart
- ▶ Pie chart
- ▶ Table
- ▶ Configuration

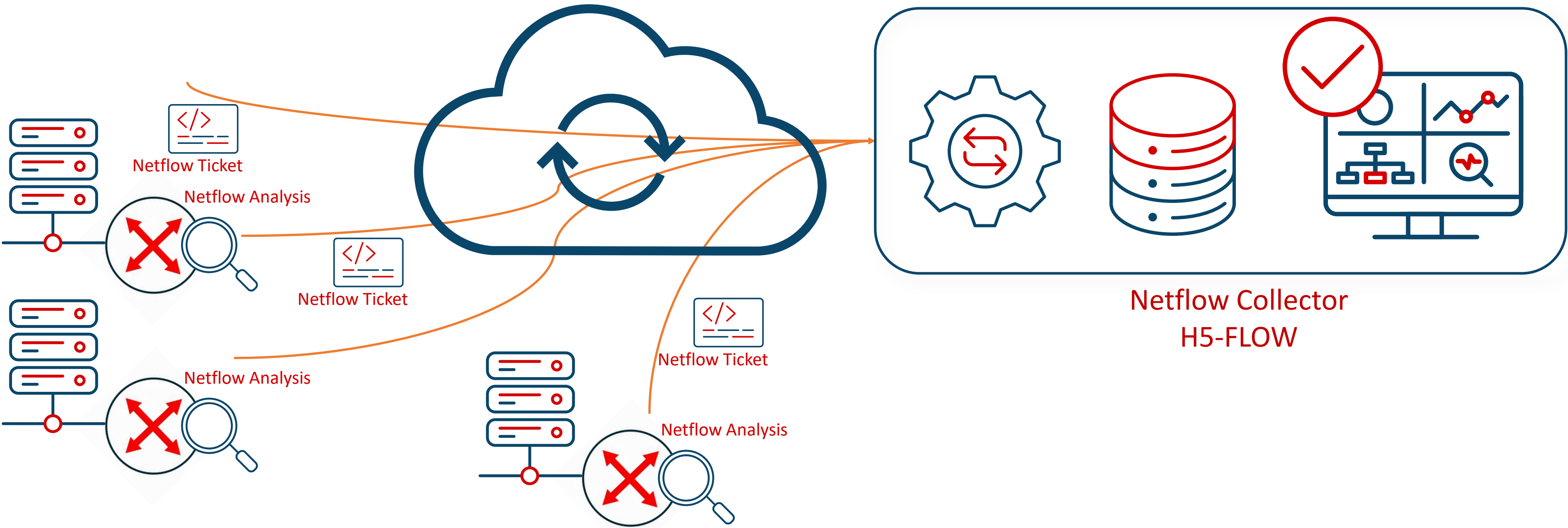
H5 Network

Founded in 2003 in France

- ▶ 2003-2008 : Network Monitoring Professional Services
- ▶ 2008 : Software solutions for measuring network performance
 - Network probes
 - Packet capture
 - Netflow/Sflow collectors
- ▶ Milestones
 - 2011 : First 10Gbit/s Appliance
 - 2012 : H5-FLOW, Netflow/Sflow Collector
 - 2018 : First 40Gbit/s Appliance
 - 2021 : Zabbix 6 integration using items
 - 2023 : H5-BOX, Distributed Appliances
 - 2024 : H5-CLOUD, H5 tools reporting
 - 2025 : Zabbix 7 integration using modules



Netflow/Sflow Protocol



Netflow/Sflow Data Collection

Network usage identification

- ▶ IP end points
- ▶ Conversations
- ▶ TCP Applications
- ▶ UDP Applications
- ▶ VLAN
- ▶ DSCP (TOS)

Computed metrics

- ▶ Volume
- ▶ Bandwidth
- ▶ Packets

```

▼ Cisco NetFlow/IPFIX
  Version: 9
  Count: 21
  SysUptime: 985451.138000000 seconds
  > Timestamp: Oct  5, 2021 10:44:18.000000000 Paris, Madrid
  FlowSequence: 152537007
  SourceId: 2
  ▼ FlowSet 1 [id=256] (21 flows)
    FlowSet Id: (Data) (256)
    FlowSet Length: 1432
    \[Template Frame: 4320 \(received after this frame\)\]
    ▼ Flow 1
      SrcAddr: 55.230.1.14
      DstAddr: 58.48.4.206
      IP ToS: 0xb8
      Protocol: UDP (17)
      SrcPort: 32640 (32640)
      DstPort: 32512 (32512)
      ICMP Type: 0x0000
      InputInt: 588
      SrcAS: 199483
      DstAS: 65003
      BGPNextHop: 192.168.5.1
      OutputInt: 530
      Octets: 116
      Packets: 4
  
```

Netflow/Sflow Monitoring Benefits

Real-Time Visibility

- ▶ Tracks who is communicating, over which protocol, and how much data is being transferred
- ▶ Helps identify bottlenecks and unusual traffic patterns instantly

Capacity Planning

- ▶ Analyzes bandwidth usage by application or service
- ▶ Assists in forecasting future needs and optimizing network resources

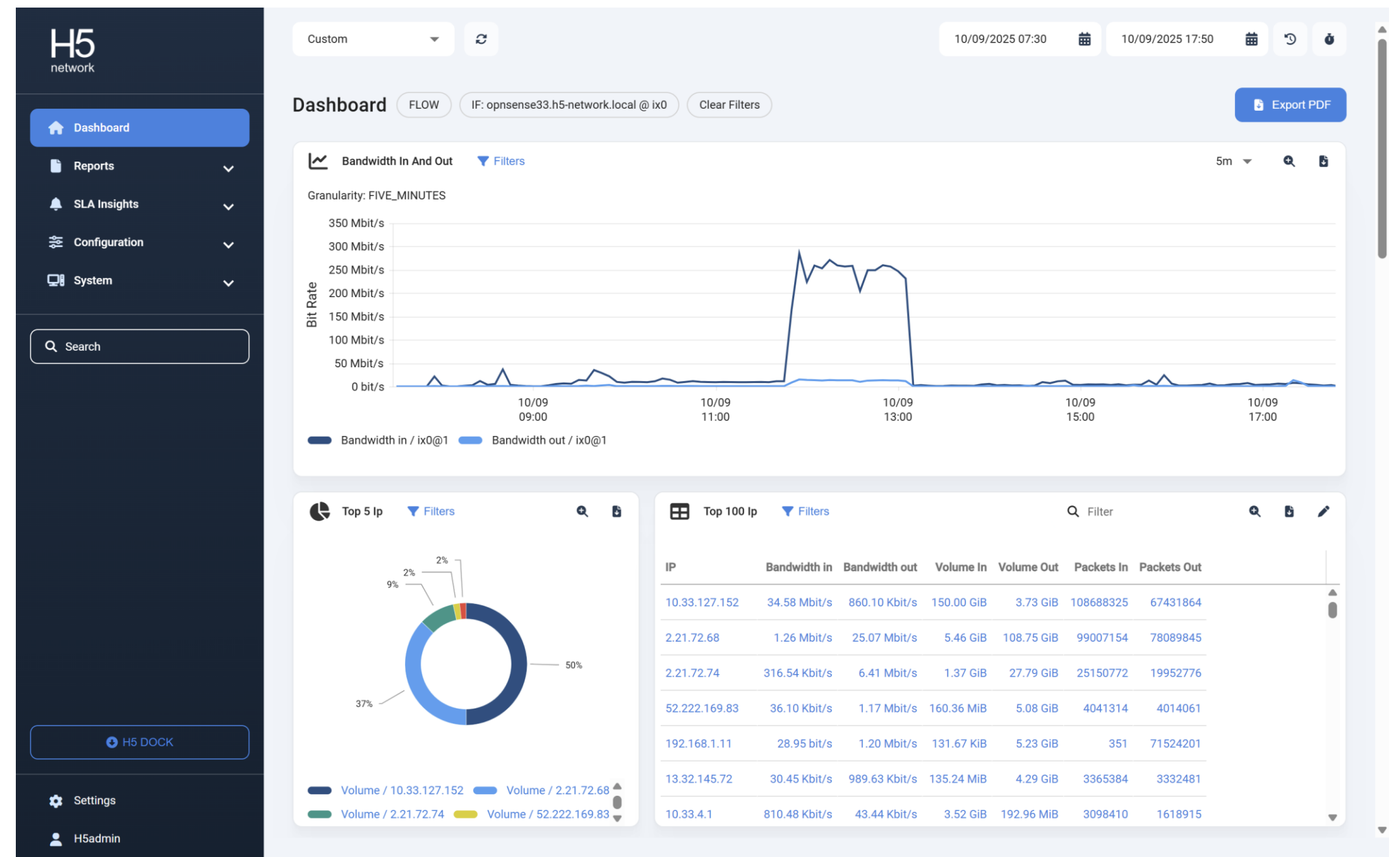
Performance Optimization

- ▶ Identifies misconfigured or bandwidth-heavy applications
- ▶ Enables fine-tuning of QoS (Quality of Service) policies for better user experience

Compliance and Auditing (forensic investigations)

H5-FLOW : Netflow/Sflow Collector

- ▶ All-in-one virtual appliance
- ▶ Real-time view
- ▶ Historical data
- ▶ Easy forensics GUI
- ▶ Ready-to-use dashboard



H5-FLOW Data API

H5-FLOW embeds Full REST/JSON API opened to third-party tools

▶ Allows us to get all metrics of Top Talkers/consumers over a period by:

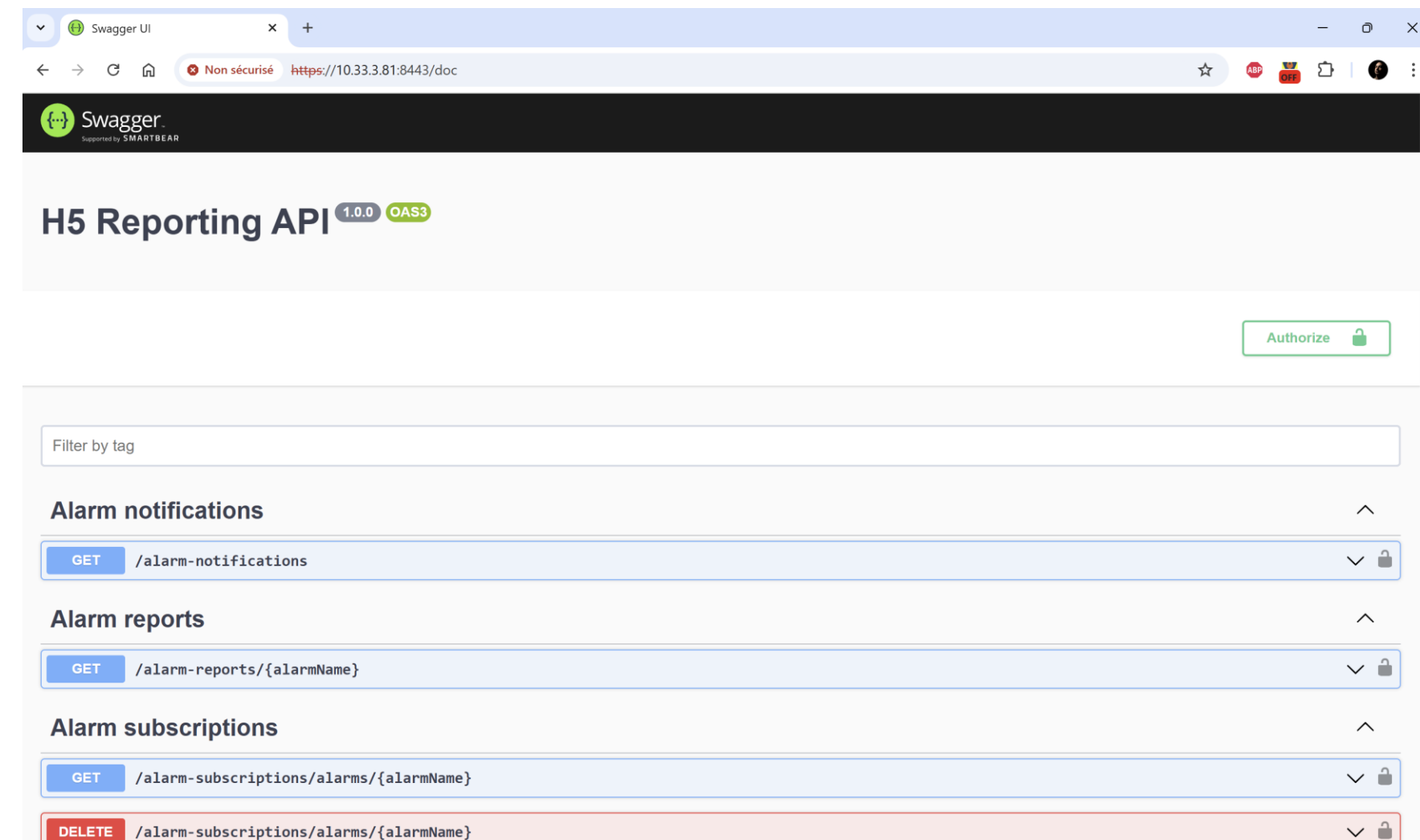
- IP end point
- Conversations
- Protocol / Application
- VLAN

▶ Allows to get data for known objects

- Remote sites
- Subnets
- Well-known objects (if declared) : Microsoft, Google, Amazon, etc.

Standard Rest API with JSON format

Swagger documentation embedded



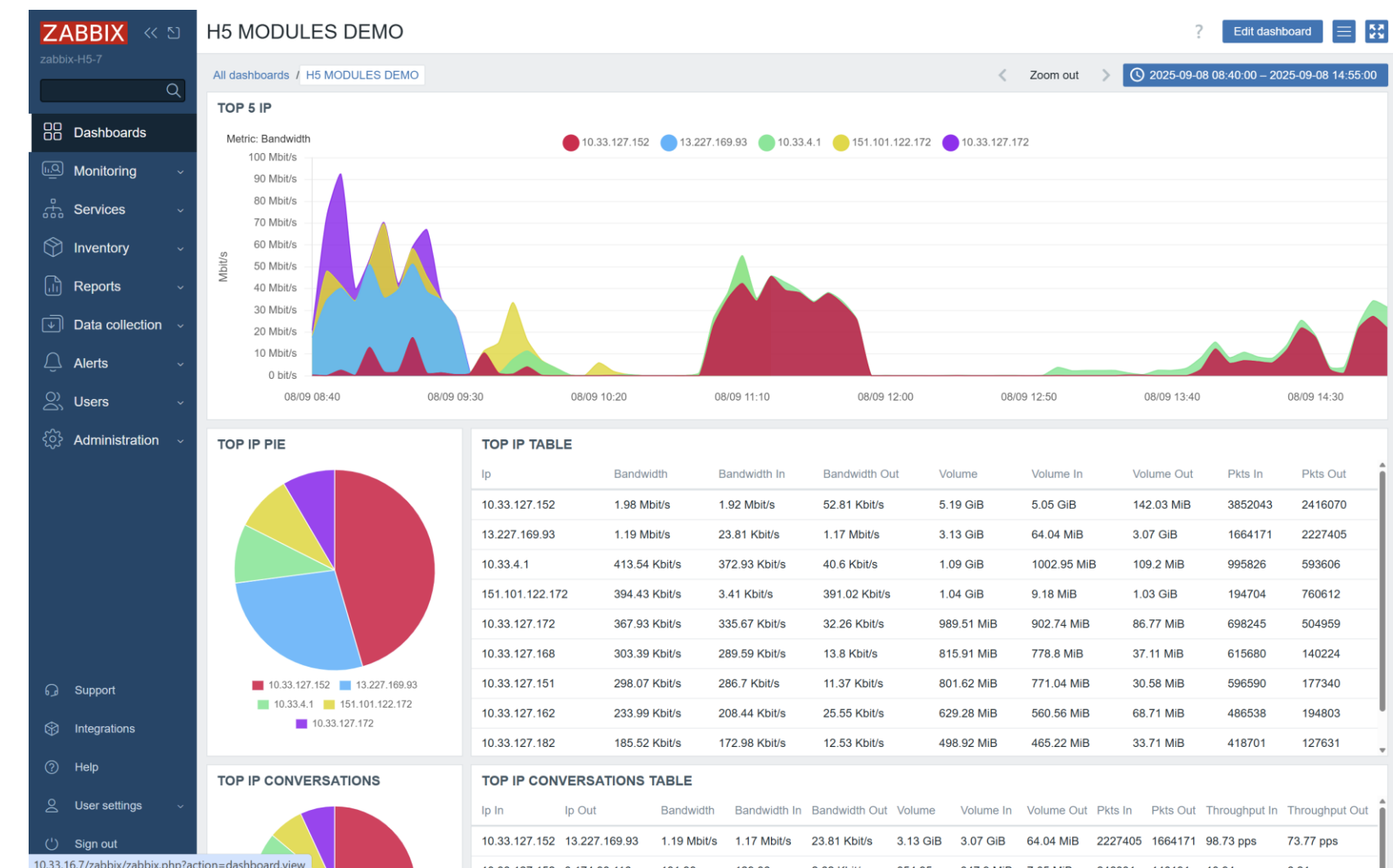
Zabbix H5 Modules

Goal

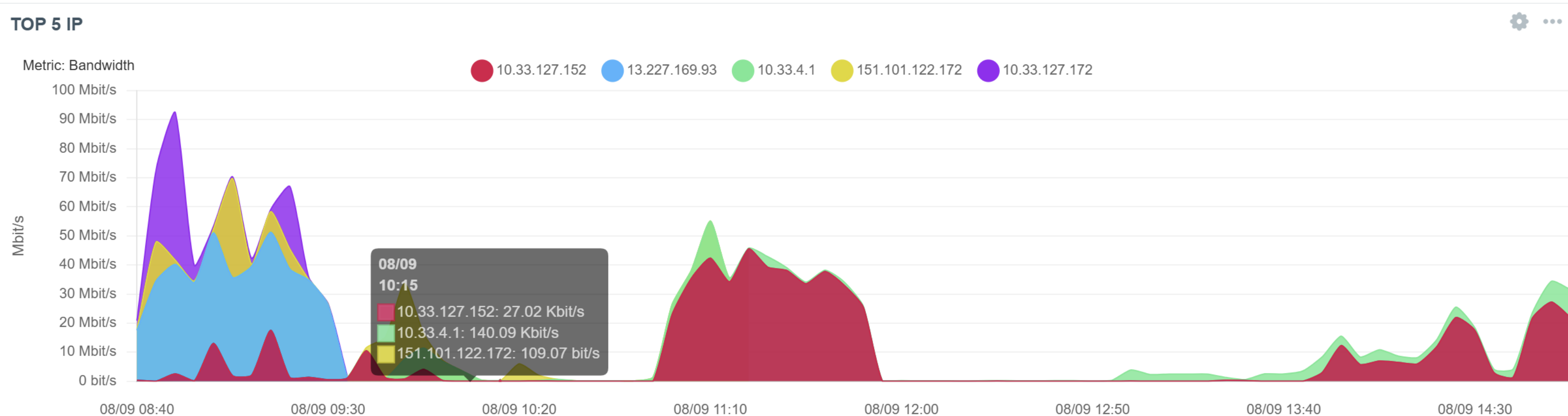
- ▶ Improve network monitoring capacity of Zabbix
- ▶ Enjoy the benefits of Netflow/Sflow into Zabbix
 - Real-time network visibility
 - Capacity planning
 - Performance optimization
 - Network troubleshooting

Zabbix modules benefits

- ▶ Real-time API calls
- ▶ Avoid data duplication or storage into Zabbix
- ▶ Get historical top into Zabbix
- ▶ Custom view



Zabbix H5 Chart Module



Draws stacked data series from H5-FLOW Collector

Bandwidth (in/out), Throughput (in/out), packets (in/out), volume (in/out)

Top

► IP, Conversations, TCP applications, UDP applications, Vlan, custom objects

Zabbix H5 Pie Chart Module

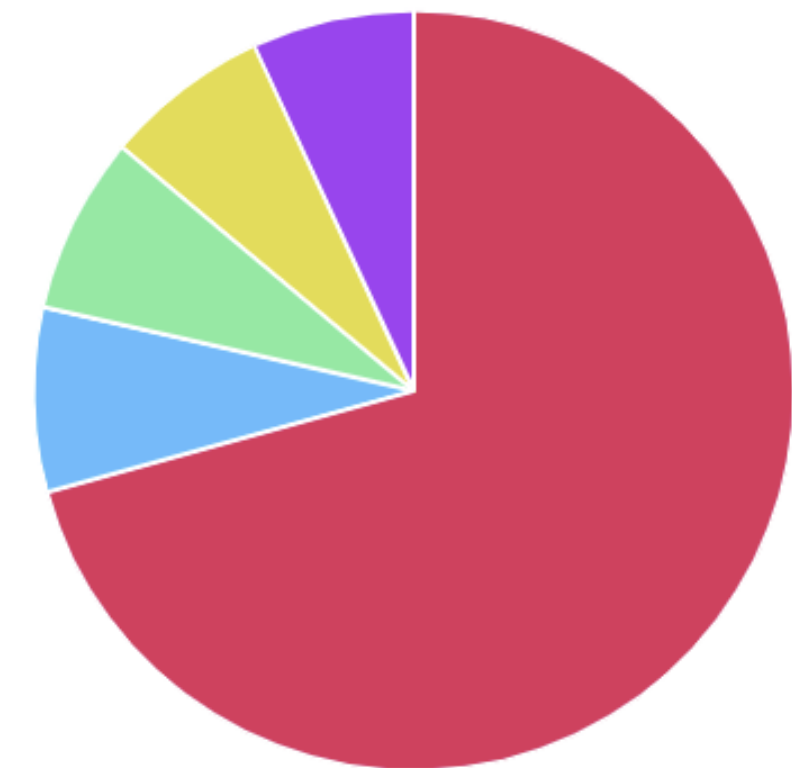
Draws Pie from H5-FLOW Collector

Bandwidth (in/out), Throughput (in/out), packets (in/out), volume (in/out)

Top

- ▶ IP, Conversations, TCP applications, UDP applications, Vlan, custom objects

TOP IP CONVERSATIONS



10.33.127.152-13.227.169.93
10.33.127.152-3.174.98.116
10.33.127.152-74.125.105.232
10.33.127.172-151.101.122.172
10.33.4.1-173.194.0.198

Zabbix H5 Table Module

TOP IP CONVERSATIONS TABLE

10.33.127.152	13.227.169.93	1.19 Mbit/s	1.17 Mbit/s	23.81 Kbit/s	3.13 GiB	3.07 GiB	64.04 MiB	2227405	1664171	98.73 pps	73.77 pps
10.33.127.152	3.174.98.116	131.98 Kbit/s	129.36 Kbit/s	2.62 Kbit/s	354.95 MiB	347.9 MiB	7.05 MiB	246831	140191	10.94 pps	6.21 pps
10.33.127.152	74.125.105.232	127.02 Kbit/s	126.05 Kbit/s	964.03 bit/s	341.59 MiB	339 MiB	2.59 MiB	278025	35415	12.32 pps	1.57 pps
10.33.127.172	151.101.122.172	118.34 Kbit/s	116.33 Kbit/s	2.01 Kbit/s	318.27 MiB	312.85 MiB	5.41 MiB	227654	115221	10.09 pps	5.11 pps
10.33.4.1	173.194.0.198	116.28 Kbit/s	111.54 Kbit/s	4.74 Kbit/s	312.72 MiB	299.97 MiB	12.75 MiB	249548	129979	11.06 pps	5.76 pps
10.33.127.151	151.101.122.172	112.86 Kbit/s	112.28 Kbit/s	584.06 bit/s	303.53 MiB	301.96 MiB	1.57 MiB	217089	37597	9.62 pps	1.67 pps
10.33.127.152	13.225.239.19	101.8 Kbit/s	99.87 Kbit/s	1.93 Kbit/s	273.79 MiB	268.6 MiB	5.19 MiB	190531	108545	8.45 pps	4.81 pps
10.33.127.172	199.232.170.172	60.07 Kbit/s	58.97 Kbit/s	1.1 Kbit/s	161.55 MiB	158.59 MiB	2.97 MiB	115572	58437	5.12 pps	2.59 pps
10.33.127.168	95.101.137.103	58.21 Kbit/s	57.94 Kbit/s	271.92 bit/s	156.56 MiB	155.83 MiB	748.85 KiB	109541	16526	4.86 pps	0.73 pps
10.33.127.168	95.101.137.79	56.65 Kbit/s	56.37 Kbit/s	279.91 bit/s	152.36 MiB	151.61 MiB	770.84 KiB	106252	18250	4.71 pps	0.81 pps

Shows average/sum data from H5-FLOW Collector over a period

Bandwidth (in/out), Throughput (in/out), packets (in/out), volume (in/out)

Top

- ▶ IP, Conversations, TCP applications, UDP applications, Vlan, custom objects

Zabbix H5 Modules Configuration

Prerequisites

- ▶ Zabbix 7.0+ server
- ▶ H5-FLOW appliance
- ▶ H5 Modules into modules directory of Zabbix
- ▶ H5 Modules enabled
- ▶ H5-FLOW server as Host

Usage

- ▶ Add a new widget into a dashboard
- ▶ Select the H5 module
- ▶ Select the H5-FLOW appliance
- ▶ Choose your specific configuration

Edit widget ? ×

Type

Show header ☒

Name

Refresh interval

* H5 Flow Select ▼

Data source ☒ Zabbix ☐ Manual ☐ Disable

Equipment IP Select ▼

Equipment Interface Select ▼

Data type

Top size

Time period ☒ Dashboard ☐ Widget ☐ Custom

Apply Cancel

To go further...

Come to the H5 Network booth

Attend our Day 2 Workshop :

“Unlock the Network Dimension of your Zabbix with H5 Network and Netflow”

Go to www.h5-network.com

Thank You !

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