



Amlight Kytos-ng

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PROBLEM

The task involves creating a user interface for the SDNTrace tool in the context of a software-defined networking (SDN) environment. The component will be part of a web-based management platform for network operators, allowing them to submit and view tracing requests for network packets within the data plane of their network.

WEB DESIGN

▼ Trace

▼ Required Switch Parameters

→ 00:00:00:00:00:00:01

00:00:00:00:00:00:01

→ 1

s1-eth1

▼ Eth Parameters

→ 2048

→ 2221

→ d1_src

→ d1_dst

▼ IP Parameters

▼ IPV4

→ nw_src

→ nw_dst

🔍 Start Trace

🔄 Reset

▼ Get All Traces

🔍 View All Traces

Kytos-ng v003.2.0

Trace by amlight/sdntrace

▼ Trace

▼ Required Switch Parameters

→ 00:00:00:00:00:00:01

00:00:00:00:00:00:01

→ 1

s1-eth1

▼ Eth Parameters

→ 2048

→ 2221

→ d1_src

→ d1_dst

▼ IP Parameters

▼ IPV4

→ nw_src

→ nw_dst

🔍 Start Trace

🔄 Reset

▼ Get All Traces

🔍 View All Traces

Single Trace

Trace ID	DPID	Time	Type	Port
30094	00:00:00:00:00:00:01	2024-04-11 22:21:06.276249	starting	1
30094	00:00:00:00:00:00:01	0:00:00:512168	trace	1
30094		0:00:00:512518	last	

🔍 Fetch Trace

🔍 View All Traces

CURRENT SYSTEM

Kytos-ng is an open-source Network Operating System (NOS) designed for Software-Defined Networking (SDN) environments, focusing on modularity, scalability, and responsiveness. It is built with Python and utilizes an event-driven architecture, allowing it to handle network events in real time.

Key features of Kytos-ng include:

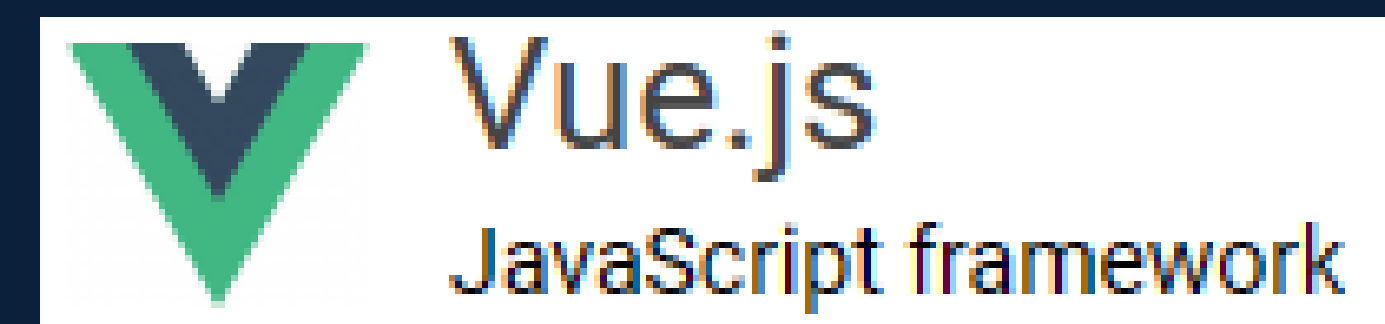
Modular Architecture: It uses Network Applications (NApps) to add functionalities, allowing users to customize their setup according to their needs.

REST API: Offers a comprehensive API for easy integration and programmable network management.

OpenFlow Support: It provides native support for the OpenFlow protocol, facilitating communication between the controller and network devices.

Extensibility: Developers can extend the platform by creating custom NApps for specific functionalities.

User Interface: Includes a web-based interface for easy visualization and management of the network.



IMPLEMENTATION

Overview of K-toolbar Features

Input Configuration:

Dynamic Input Rows: Includes input fields with auto-completion for specifying DPID and input ports, based on the network topology.

Ethernet and IP Settings: Organized within collapsible accordions for a tidy interface, allowing detailed configuration of network parameters.

Trace Management Buttons:

Search Button: Initiates trace creation via a PUT request.

Reset Button: Clears all inputs to reset configurations.

All Traces Button: Shows all traces in an info panel via a GET request, providing a full trace history.

Technical Highlights

•Vue.js Utilization: Employs Vue.js for a reactive and responsive UI.

•Kytos Platform Integration: Seamlessly interacts with the Kytos SDN API for network operations.

•Dynamic Data Fetching: Auto-updates input suggestions from real-time network topology data.

•Error Handling: Implements notification systems for user feedback on operations.

SUMMARY

In this project, we developed the front end for the Sdntrace NApp, establishing robust API connections between the front end and back end. We implemented a toolbar that allows users to input all the necessary information to initiate a network trace and to retrieve detailed information about specific traces. Additionally, we developed two information panels:

•**Single Trace Information Panel:** Displays the details of a single trace in a table format, making it easy for users to analyze individual trace results.

•**All Traces Information Panel:** Shows information for all ongoing traces, with functionality to view details for each trace individually.

This setup enhances user interaction and trace management, streamlining the process of monitoring and analyzing network activities within the SDN environment.

ACKNOWLEDGEMENT

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