

FLORIDA INTERNATIONAL UNIVERSITY



AmLight Kytos-NG

Capstone II Final Presentation

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Problem Definition

The objective of AmLight Kytos-NG is to create a framework for building, managing, and controlling network infrastructures in a highly programmable and flexible manner. Their current focus is in creating multiple network applications that allow the user to customize and search for certain data in their networks.

Current System

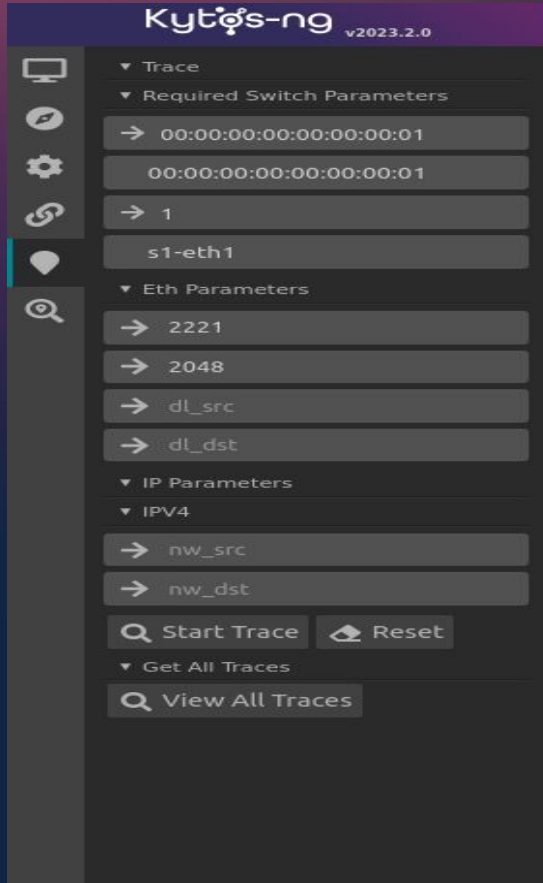
The platform had features that were not fully functional:

- Sdntrace APIs missing certain requirements for input data
- Sdntrace NApp UI does not exist
 - Users are not able to see or use the toolbar to input data
 - Users are not able to see info panel to see a single trace result
 - Users are not able to see info panel to see all the trace results

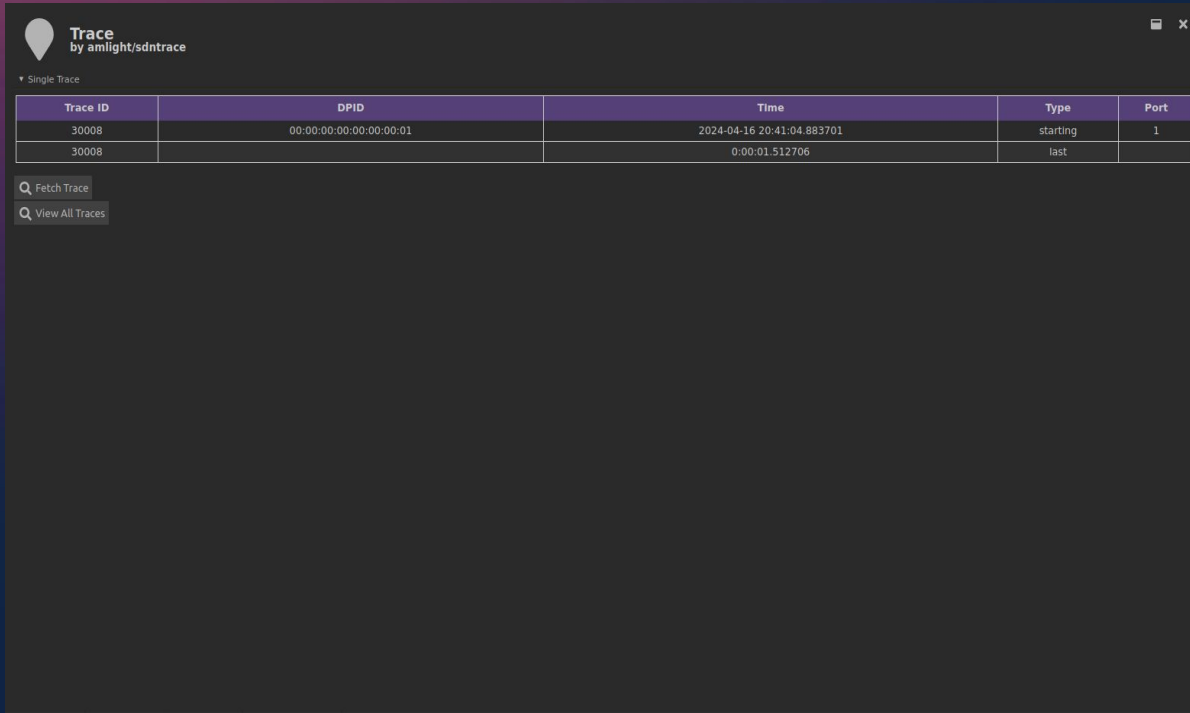
[New System - Goals]

- Create the UI for Sdntrace NApp
- K-Toolbar
- K-info-panel

K-Toolbar



- Our First task was designing the k-toolbar which will contain all of the necessary parameter to start a new trace those where:
 - Dpid
 - Port number
 - Eth Parameters
 - Ipv4 Parameters.
- We did the implementation of all those resources and added 3 three button:
 - Star Trace: will start the trace after necessary parameters are filled
 - Reset: will reset all input rows
 - View All Traces: will show all traces in the k-info-panel.



K-Info-Panel

Our second task was making a k-info-panel that will trace a single trace result.

After the user clicked start trace, he will have then two options fetch the last trace, or view all traces made previously.

There are two button with the next usage:

- Fetch Trace: show a single trace result by fetching last trace result
- View All Traces: view all traces made.

K-Info-Panel

Our third task was showing all traces in the k-info-panel.

When hitting the View All Traces button we will see the k-info-panel showing all available traces

We can also click view button to view an individual trace

 **Trace**
by amlight/sdntrace

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Trace ID	DPID	Time	Type	Port
30001	00:00:00:00:00:00:01	2024-04-16 20:17:10.998262	starting	1
30001		0:00:01.510740	last	
🔍 View				
30002	00:00:00:00:00:00:01	2024-04-16 20:18:32.049003	starting	1
30002		0:00:01.510892	last	
🔍 View				
30003	00:00:00:00:00:00:01	2024-04-16 20:21:02.212265	starting	1
30003		0:00:01.514045	last	
🔍 View				
30004	00:00:00:00:00:00:01	2024-04-16 20:21:10.215969	starting	1
30004		0:00:01.508695	last	
🔍 View				
30005	00:00:00:00:00:00:01	2024-04-16 20:22:35.335346	starting	1
30005		0:00:01.509554	last	
🔍 View				
30006	00:00:00:00:00:00:01	2024-04-16 20:22:43.337137	starting	1
30006		0:00:01.508358	last	
🔍 View				
30007	00:00:00:00:00:00:01	2024-04-16 20:22:52.340903	starting	1
30007		0:00:01.508605	last	
🔍 View				
30008	00:00:00:00:00:00:01	2024-04-16 20:41:04.883701	starting	1
30008		0:00:01.512706	last	
🔍 View				

Sdntrace

Kytos-ng
v2023.2.0

Trace

Required Switch Parameters

→ 00:00:00:00:00:00:01

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

→ 1

s1-eth1

Eth Parameters

→ 2221

→ 2048

→ dl_src

→ dl_dst

IP Parameters

IPv4

→ nw_src

→ nw_dst

Q Start Trace

Reset

Get All Traces

Q View All Traces

Trace
by amlight/sdntrace

Trace ID	DPID	Time	Type	Port
30001	00:00:00:00:00:00:01	2024-04-16 20:17:10.998262	starting	1
30001		0:00:01.510740	last	
Q View				
30002	00:00:00:00:00:00:01	2024-04-16 20:18:32.049003	starting	1
30002		0:00:01.510892	last	
Q View				
30003	00:00:00:00:00:00:01	2024-04-16 20:21:02.212265	starting	1
30003		0:00:01.514045	last	
Q View				
30004	00:00:00:00:00:00:01	2024-04-16 20:21:10.215969	starting	1
30004		0:00:01.508695	last	
Q View				
30005	00:00:00:00:00:00:01	2024-04-16 20:22:35.335346	starting	1
30005		0:00:01.509554	last	
Q View				
30006	00:00:00:00:00:00:01	2024-04-16 20:22:43.337137	starting	1
30006		0:00:01.508358	last	
Q View				
30007	00:00:00:00:00:00:01	2024-04-16 20:22:52.340903	starting	1
30007		0:00:01.508605	last	
Q View				
30008	00:00:00:00:00:00:01	2024-04-16 20:41:04.883701	starting	1
30008		0:00:01.512706	last	
Q View				
30009	00:00:00:00:00:00:01	2024-04-16 20:48:22.440976	starting	1
30009		0:00:01.509683	last	

Finally this is what the full user interface look like for sdntrace.

Conclusion

To conclude, we implemented the user interface for the Sdntrace Napp, this contribution will help in future endeavors of this promising Kytos app by providing the user an easier way of doing traces.

We would like to thank Vasilka and Vinicius all other members of the team which helped us in finishing this contribution

Thank you!