

FABRIC Educational Materials

Tutorial: Systematic Experimentation (with Ansible)

Introduction

The goal of this exercise is to better understand how to use an ansible playbook

Running the Tutorial

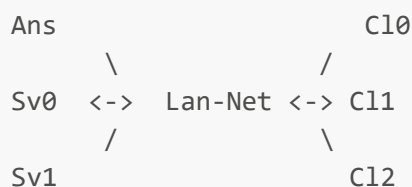
- The tutorial has three Jupyter notebooks and one folder:
 - **CreateSlice.ipynb**: Creates the FABRIC slice/topology needed for this tutorial
 - **SystematicExperimentation.ipynb**: Configures the IPv4/IPv6 network address and then begins the Queues tutorial
- To run the tutorial:
 - Login to the FABRIC Portal and JupyterHub
 - Login to the [FABRIC Portal](#)
 - Login/connect to the [FABRIC JupyterHub](#)
 - Download the latest copy of the tutorials from GitHub
 - Open a terminal in JupyterHub by clicking the "Terminal" tile under "Other" in the Launcher tab
 - In the terminal window, type the following commands to download (pull) the latest version of the set of tutorials from Github

```
mkdir teaching-materials
cd teaching-materials
git clone https://github.com/fabric-testbed/teaching-materials.git
```

- Run the Tutorial Notebooks
 - In the left-hand column of JupyterHub, navigate to the SystematicExperimentation folder
 - Open and execute the CreateSlice.ipynb notebook
 - Then open and execute the SystematicExperimentation.ipynb

Create Slice Notebook

- In this notebook you will request a slice that contains three nodes (C10, C11, C12, Sv1, Sv0, and a Ans) and three Layer-2 networks (LANs) with the following configurations:



- Each node should have the following requirements:
 - NIC_Basic model
 - "default_ubuntu_20" image
 - 1 cores
 - 2 ram
 - 10 disk space
- To successfully run this notebook you should only need to run the code blocks in order from top to bottom
- **Notes:** If your slice creation fails you can just try to specify a site in the second code block run them again. (you can get a site from "https://portal.fabric-testbed.net/" by looking at the map, use the name **outside** of the parenthesis and make sure the site chosen is up)

Systematic Experimentation Notebook

- To successfully run this notebook you need to run the code blocks first (*Retrieve Slice*) and then follow the steps in (*Guided Experiment*):
 - Retrieve Slice: This step is not required but it will allow you to easily access the nodes in the slice you will use for the experiment.
 - Guided Experiment: This is the Experiment, To complete this section just follow the provided instructions to complete the exercise.
- **Notes:**
 - Make sure you check your bash agent as it can lead to errors when adding a slice key
 - make sure you accept the fingerprint for each node when you are asked with 'Yes', if you don't do this step you might get stuck in an infinite loop

Additional Information

- FABRIC Learn Website: If you encounter problems, questions, or suggestions, please navigate to the FABRIC Knowledge Base at <https://learn.fabric-testbed.net/>
- FABRIC Teaching Material Github: <https://github.com/fabric-testbed/teaching-materials>
- This assignment was originally written for the GENI network (<https://groups.geni.net/geni/wiki/GENIEducation/SampleAssignments/IPRouting/Procedure>), but has been converted to run in FABRIC.