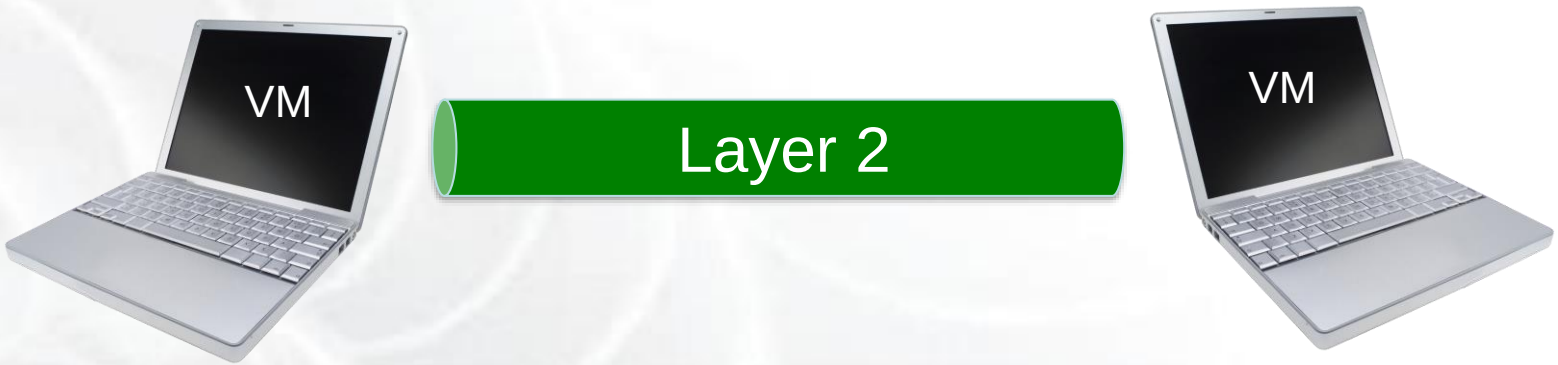
Lab Zero:
A First Experiment using GENI and Fed4FIRE

Hands On Exercise

Do a Simple Experiment

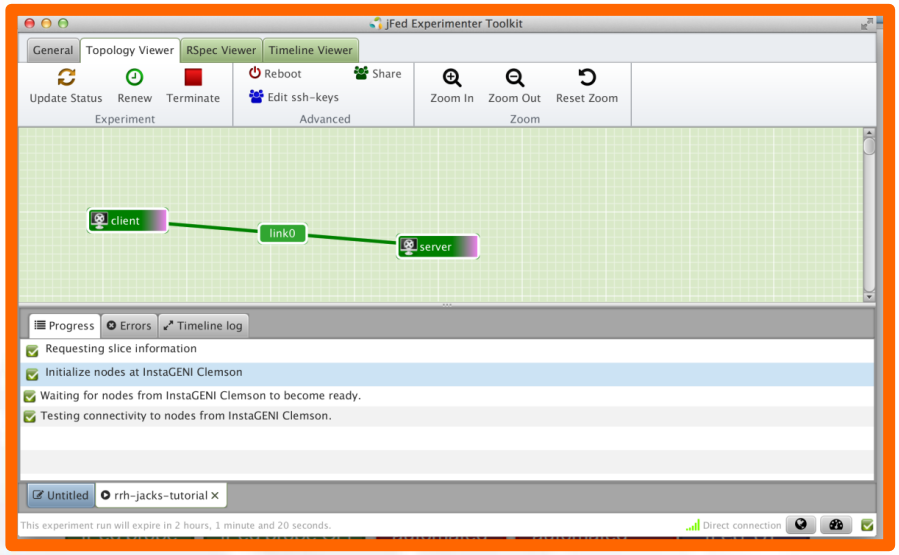
Reserve two VMs/raw PCs connected at Layer 2

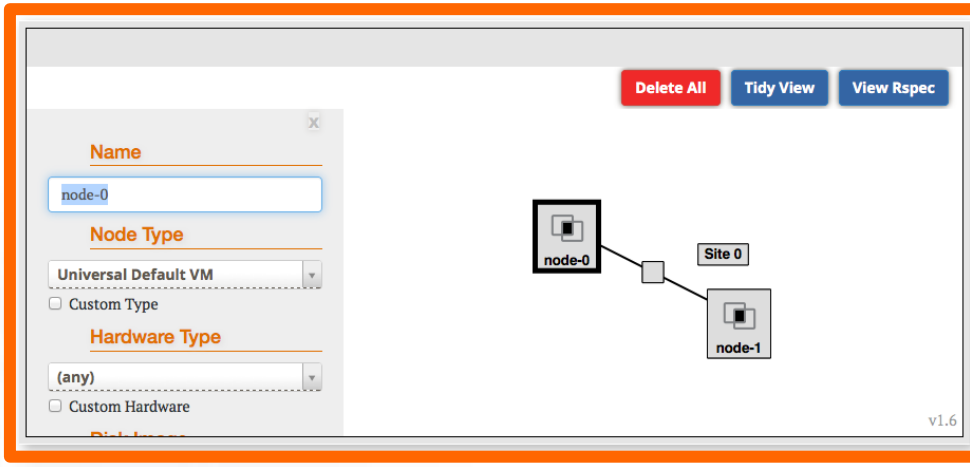


Experiment Workflow

- Part I: Design/Setup
- Part II: Execute
- Part III: Finish

Jacks and jFed are …





Graphical user interfaces (GUIs) for:

– **designing topologies** in GENI

– **reserving resources** in GENI

Experiment Workflow

- **Part I: Design/Setup**
- Part II: Execute
- Part III: Finish

Part I: Establish Management Environment

1 Pre-work: Design your experiment

2.1 Pre-work: Create a GENI or Fed4FIRE account

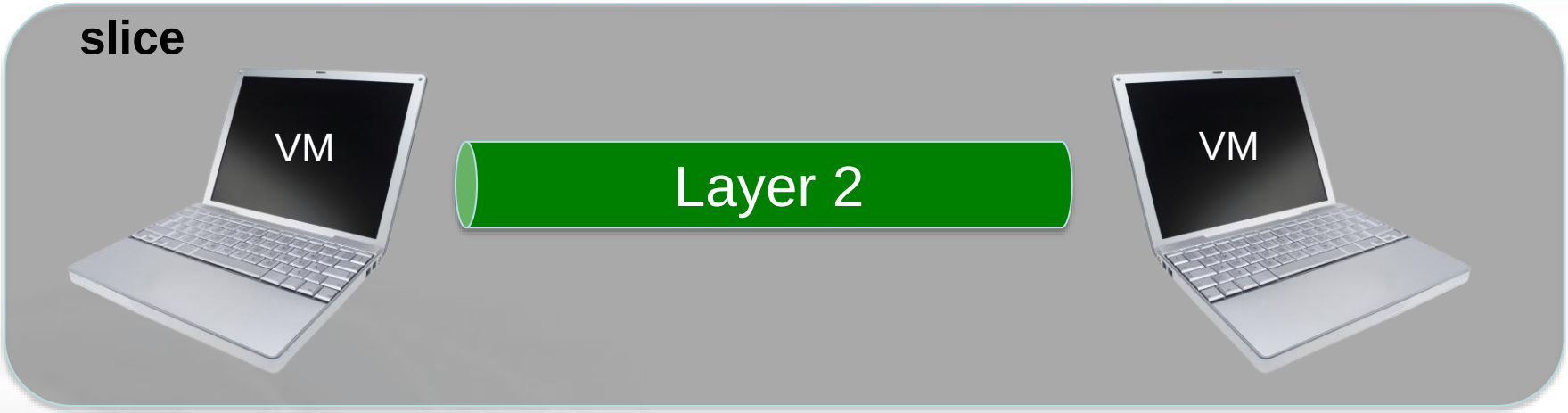
https://portal.geni.net

https://authority.ilabt.iminds.be

2.2 Pre-work: Join the following projects

Project Name: FGRE16 + ipv6proxy *for US* **FGRE** *for others*

Part I continued: Obtain Resources



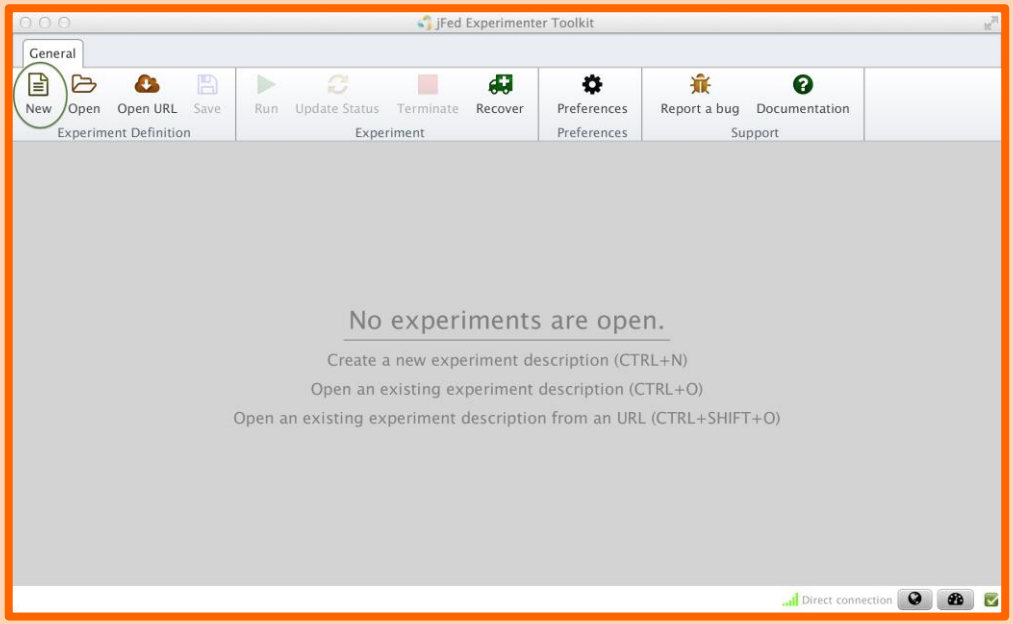
3.1 Create a slice

3.2 (optional) Renew your slice

3.3 Reserve two VMs at one aggregate

3.4 Check Whether VMs are Ready to be Used

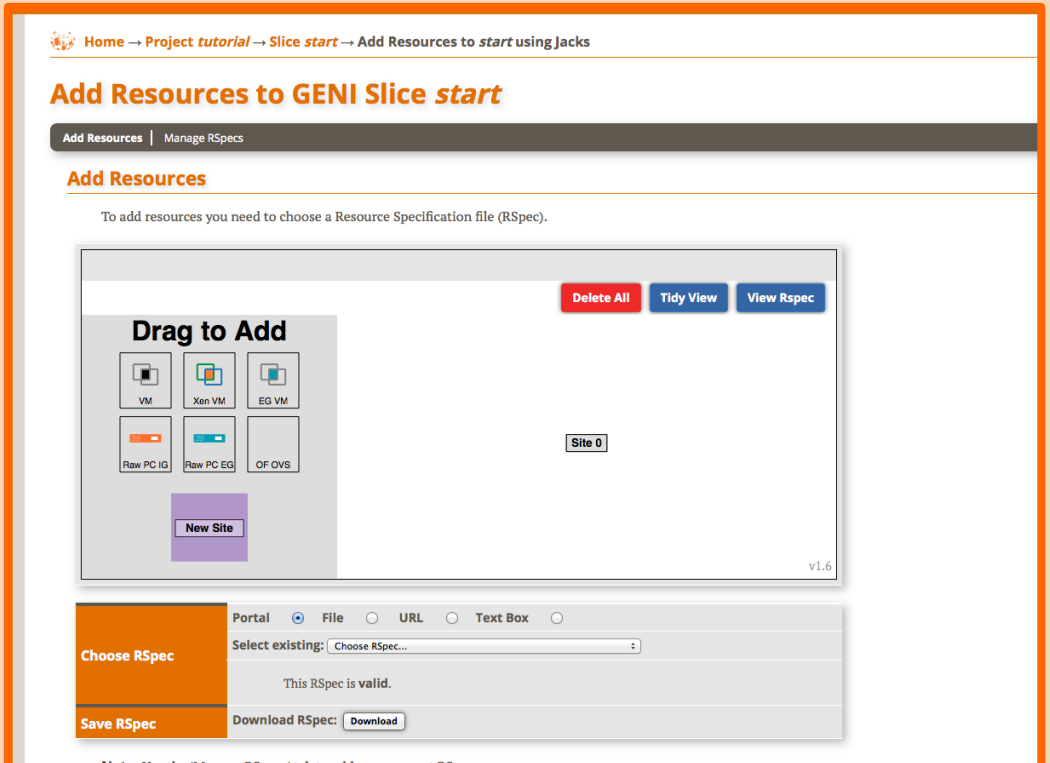
3.3



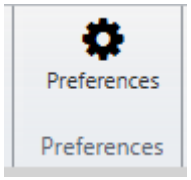
http://jfed.iminds.be
5.6.0 release

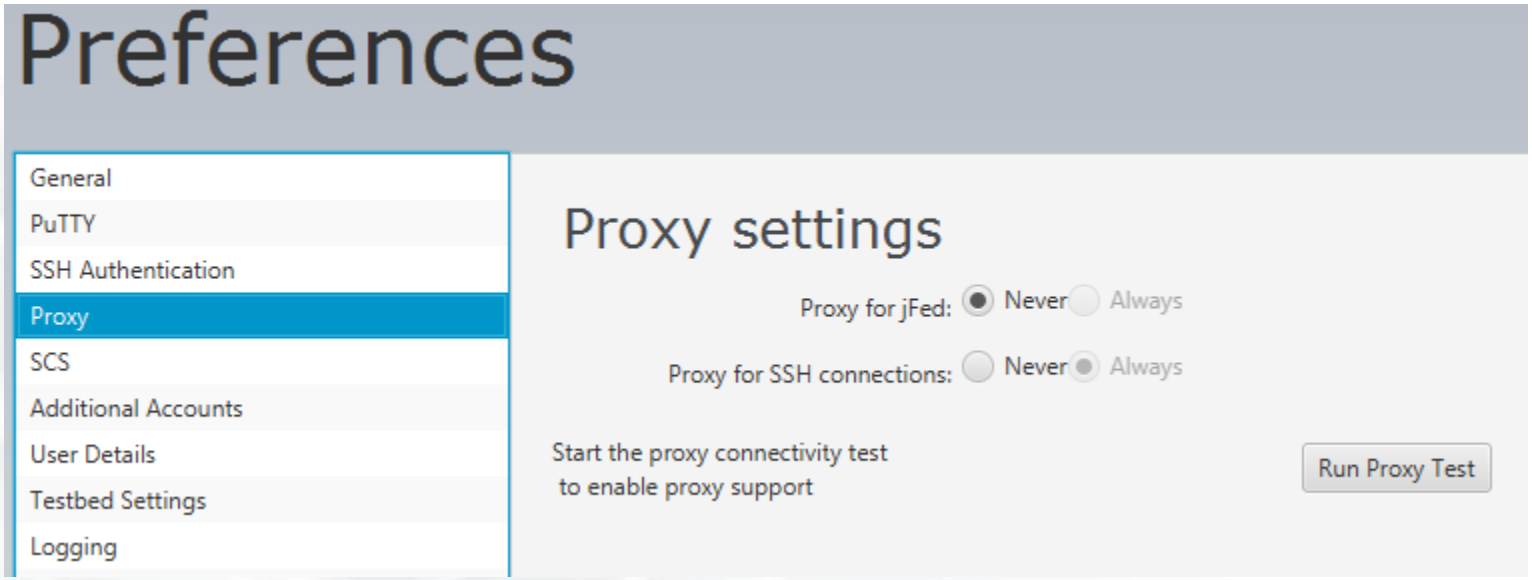
Launch Tool

Jacks in geni portal



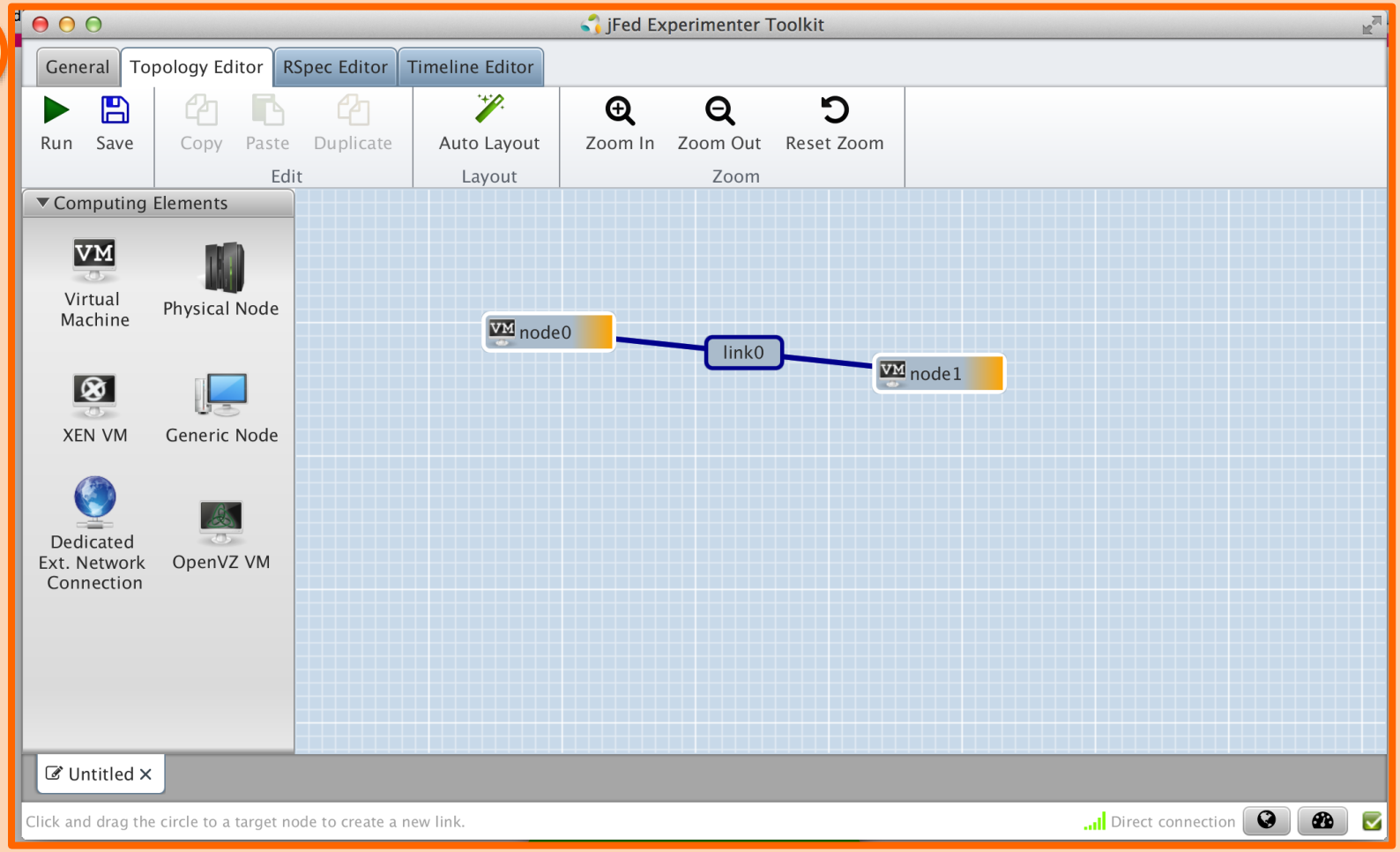
Activate proxy in jFed





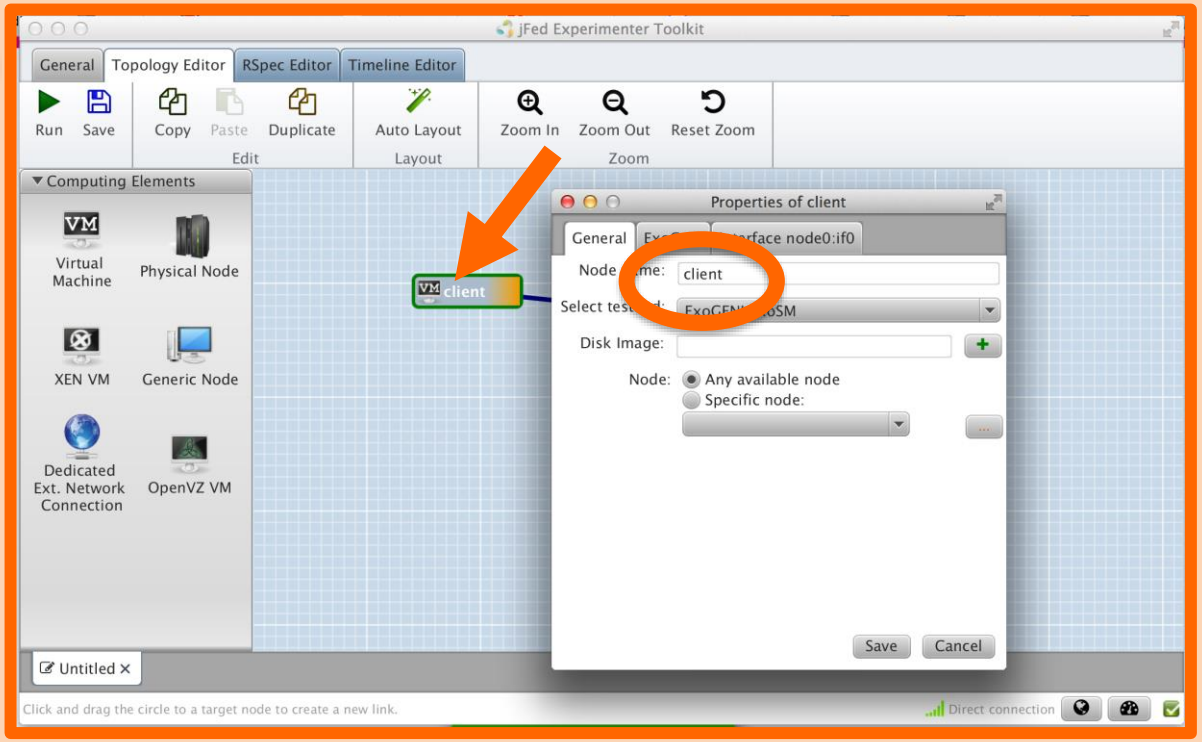
- First click ‘Run proxy test’, then turn on proxy for SSH connections (to log in with IPv6 from a non IPv6 network)

3.3



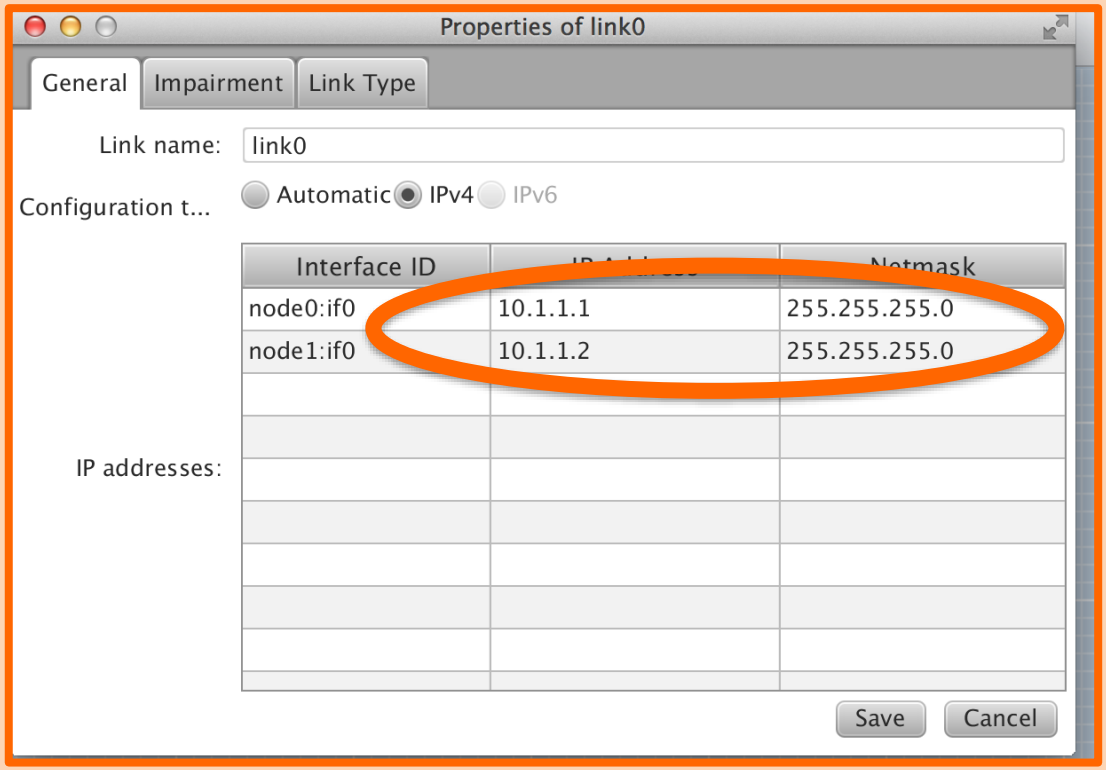
Draw two Physical nodes connected by a link

3.3



Change names of VMs

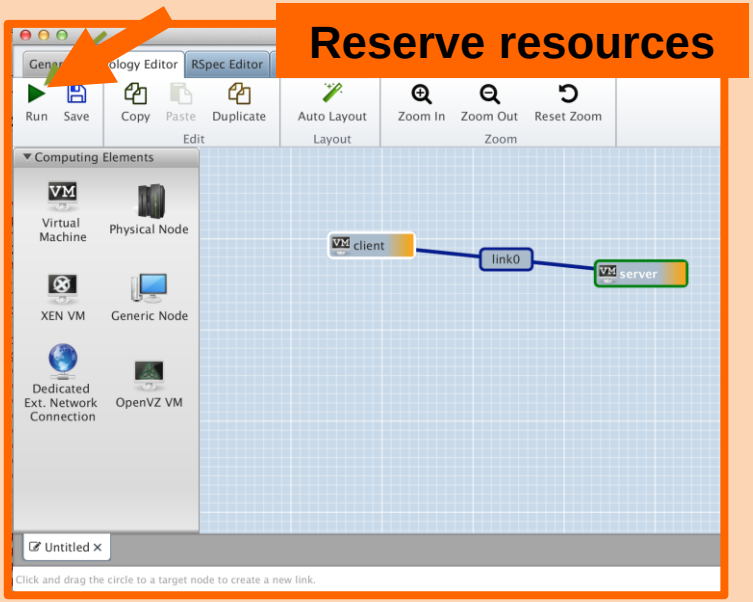
3.3



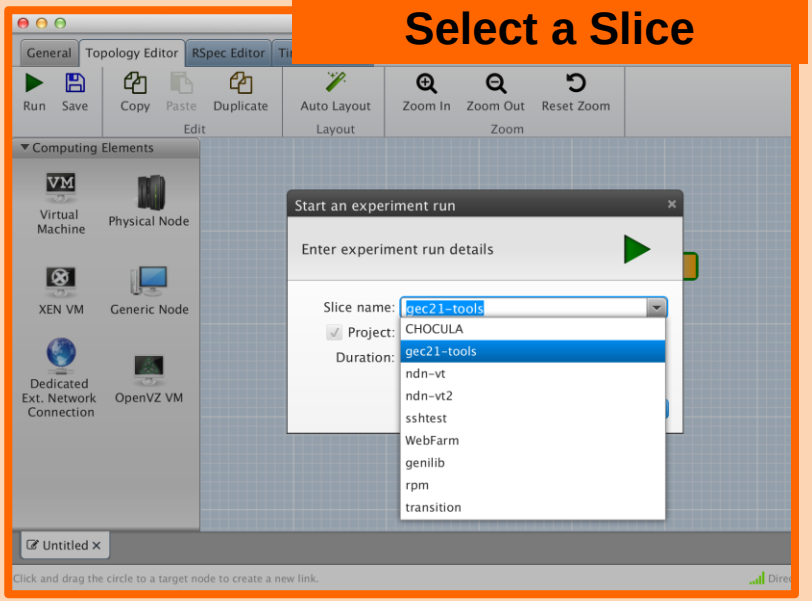
Set IP and mask of interfaces

3.3

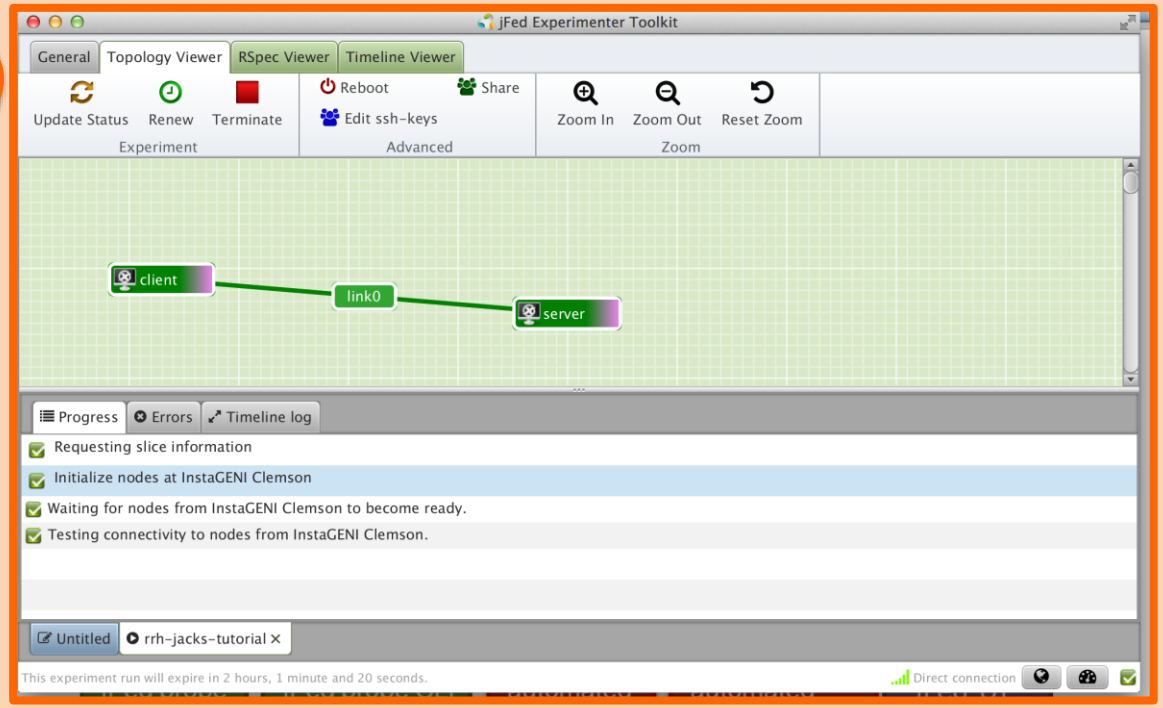
Reserve resources



Select a Slice



3.4

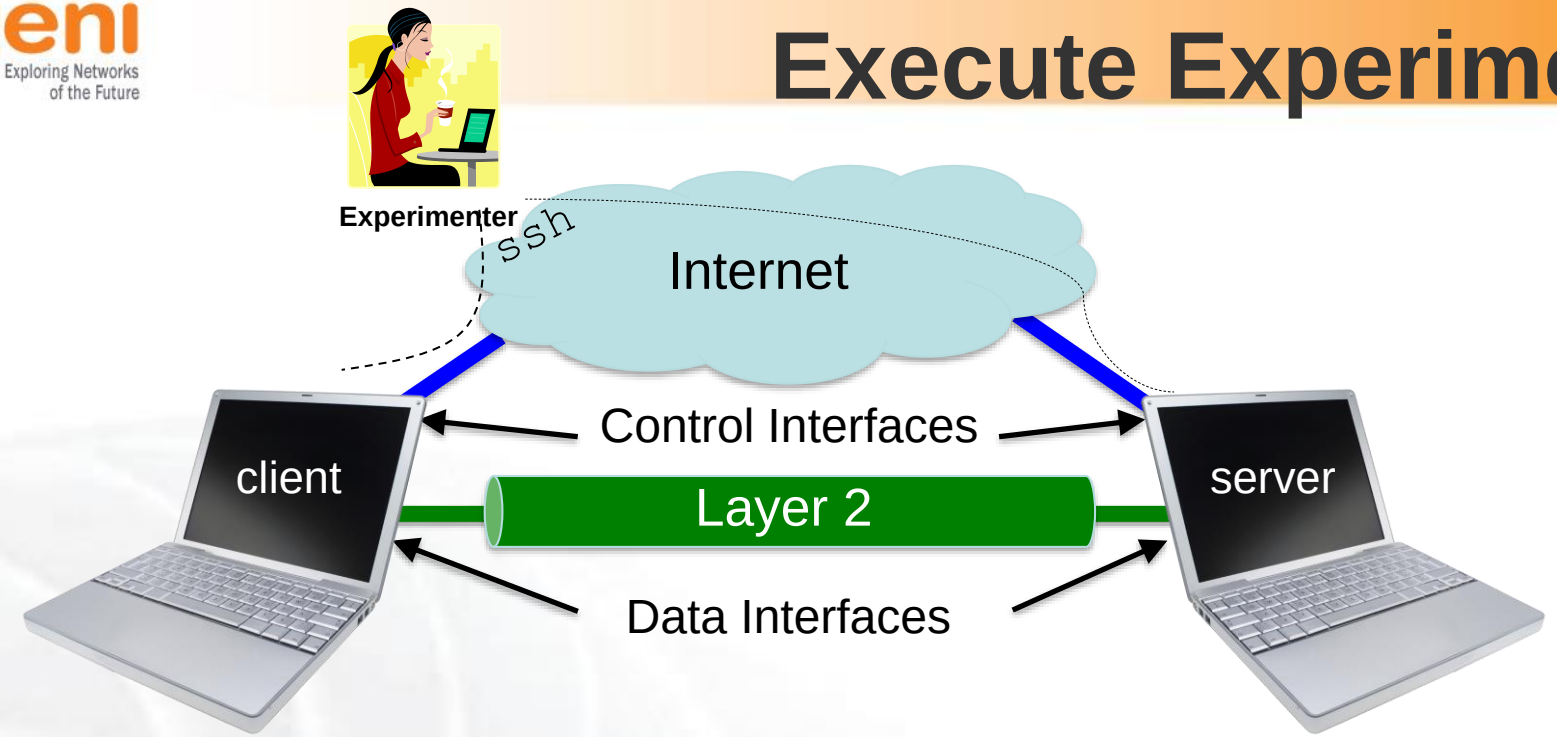


Resources are READY!!!
Double click a node to open an ssh terminal

Experiment Workflow

- Part I: Design/Setup
- **Part II: Execute**
- Part III: Finish

Part II: Execute Experiment



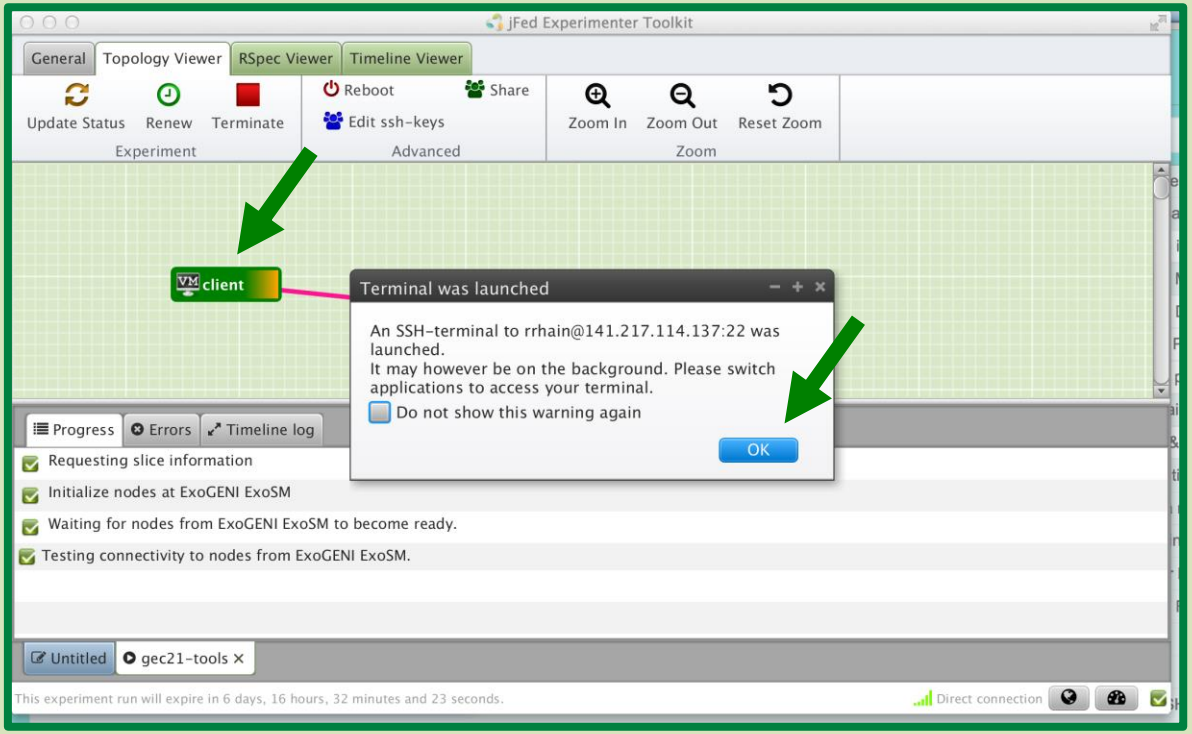
4.1 Login to both nodes (ssh)

5.1 Test Connectivity (ping)

5.2 Explore the Data and Control Planes

6.1 Logout of nodes

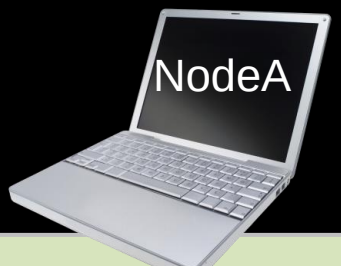
4.1



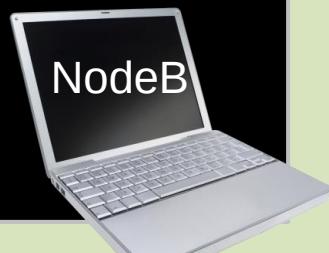
Login by double clicking node

5.1

```
$ sudo apt-get install iperf
$ hash



# server data i/f
$ iperf -c 192.168.1.11
…



# server ctrl i/f
$ iperf -c 172.17.2.4
…
```



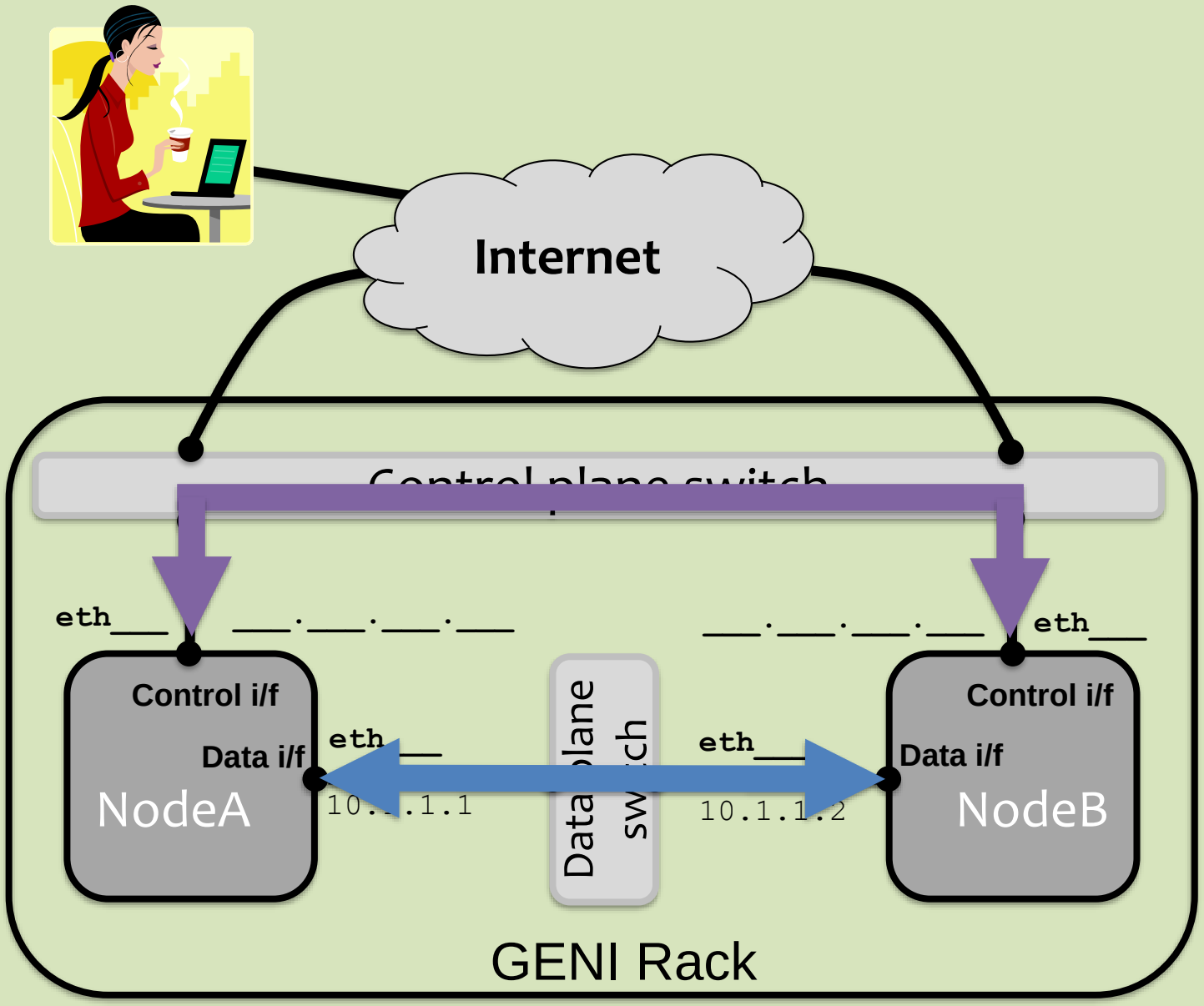

```
$ sudo apt-get install iperf
$ hash


# start an iperf server
$ iperf -s
```



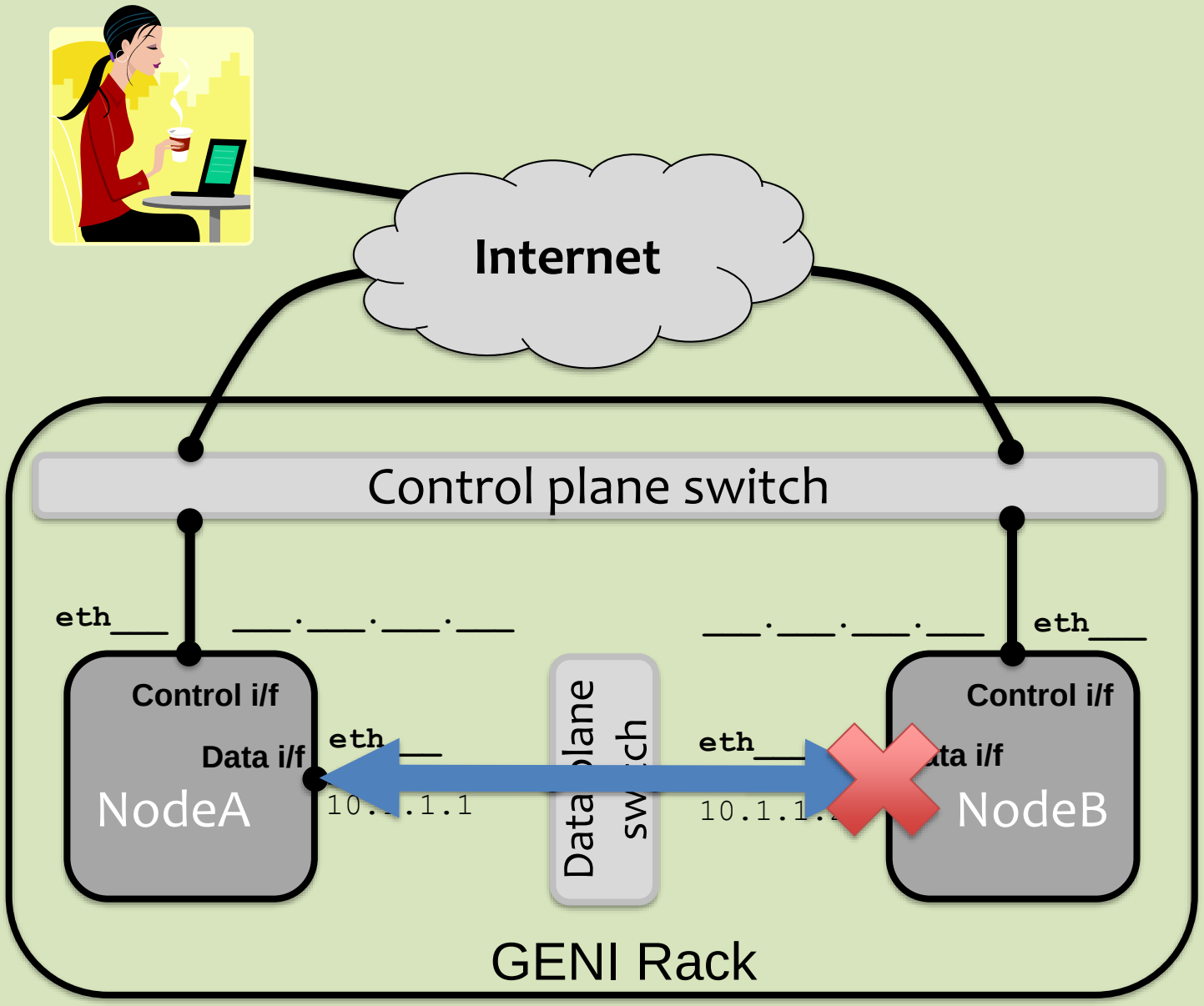
5.1

*What is the bandwidth of the **data** link? Why?*

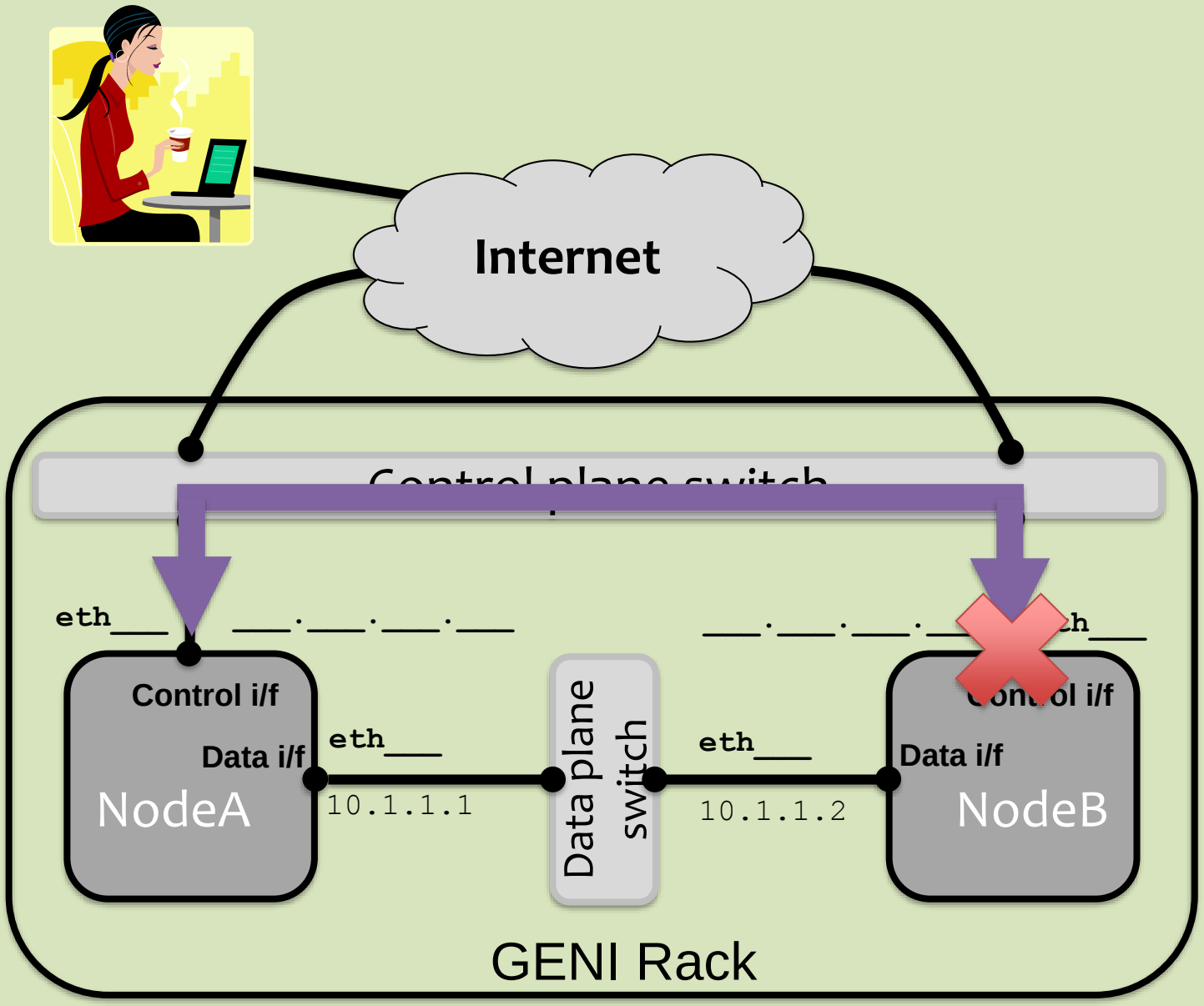
*What is the bandwidth of the **control** link? Why?*



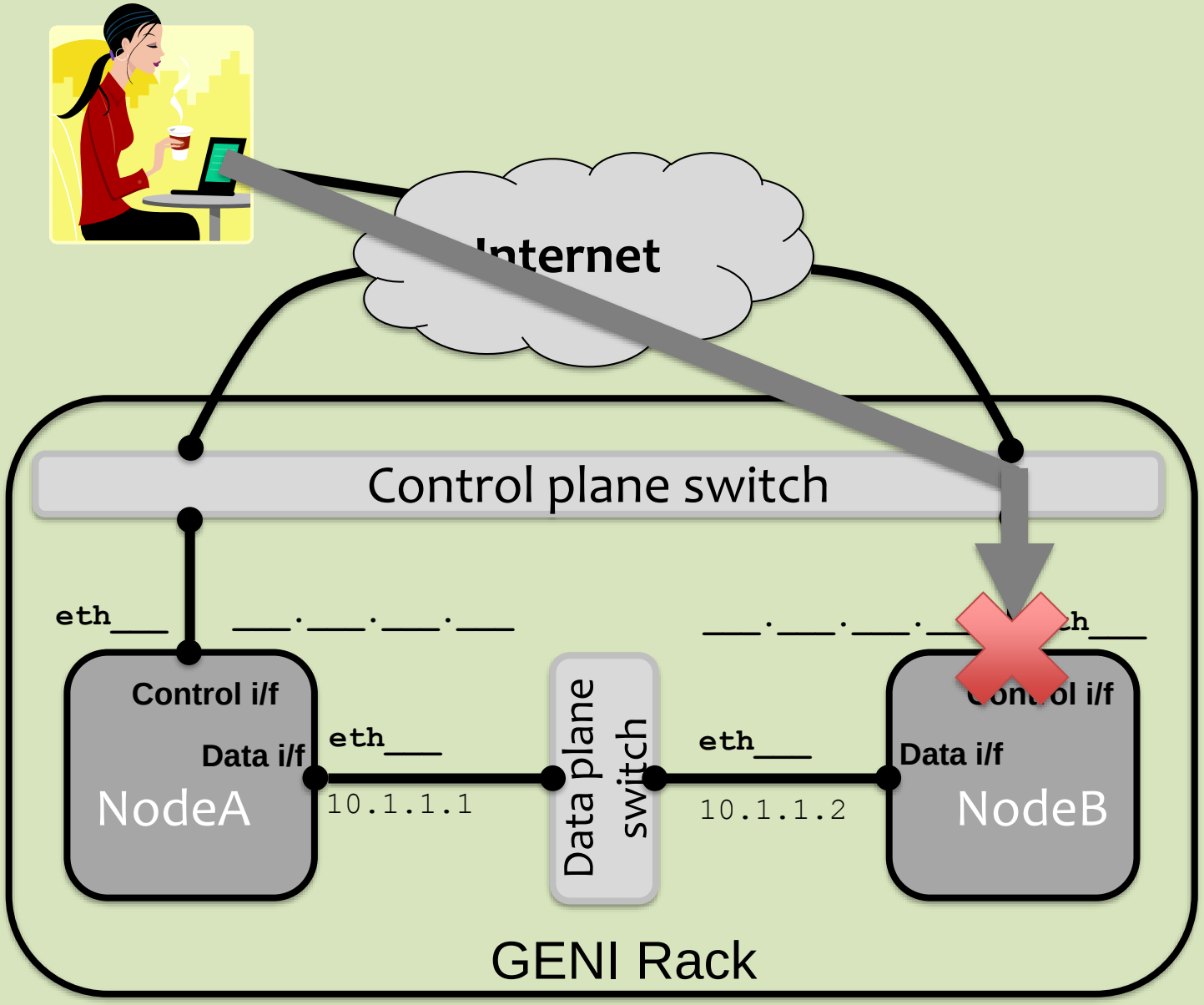
5.3 *When you bring down the **data** interface, the destination should become unreachable. Why?*



5.3 *After you bring down the **control** interface, the destination becomes unreachable. Why?*



5.3 *After you bring down the **control** interface, your ssh session should immediately hang. Why?*



Experiment Workflow

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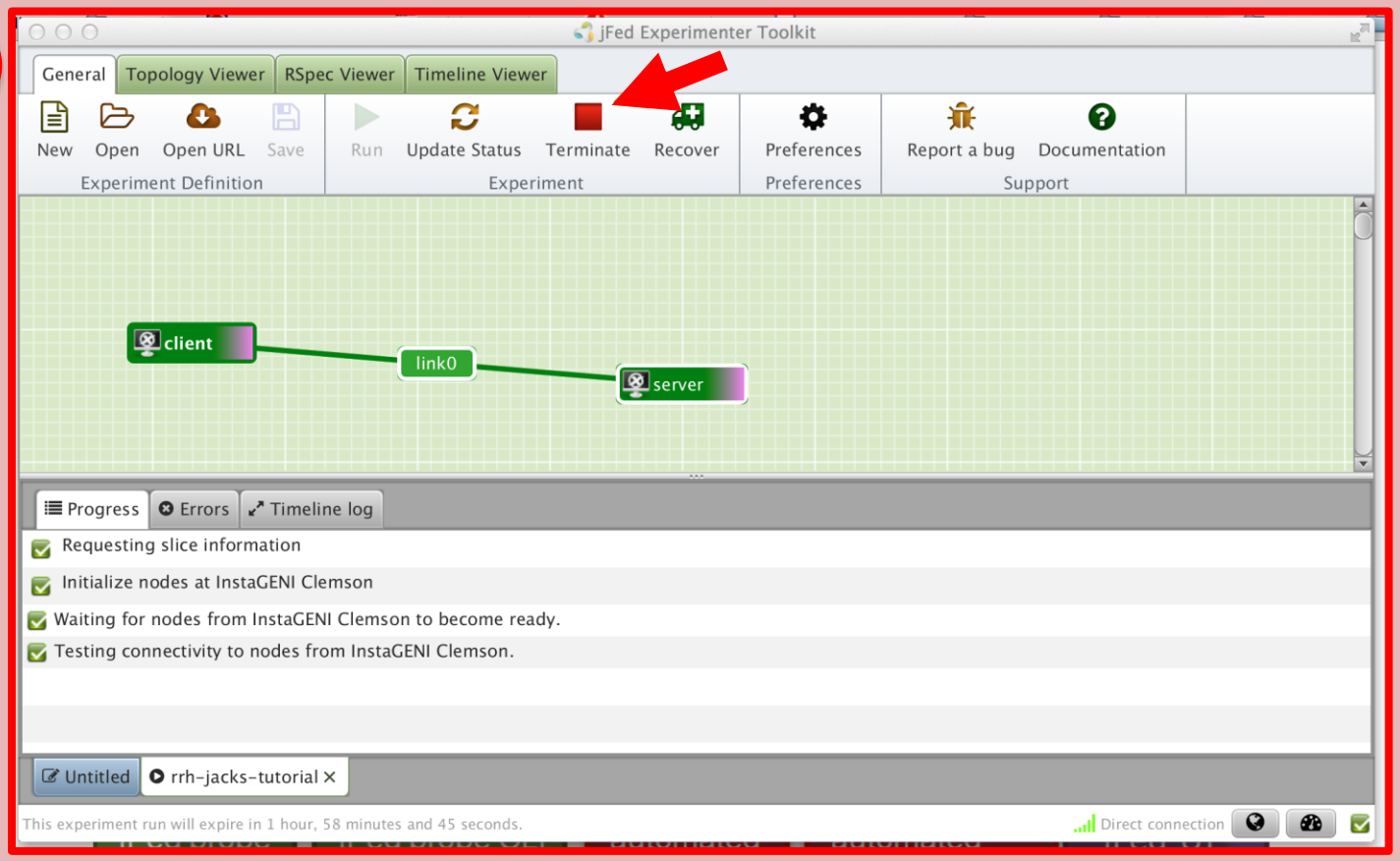
- Part II: Execute
- **Part III: Finish**

7



Delete Resources

Part III: Finish Experiment

project resource experimenter aggregate slice

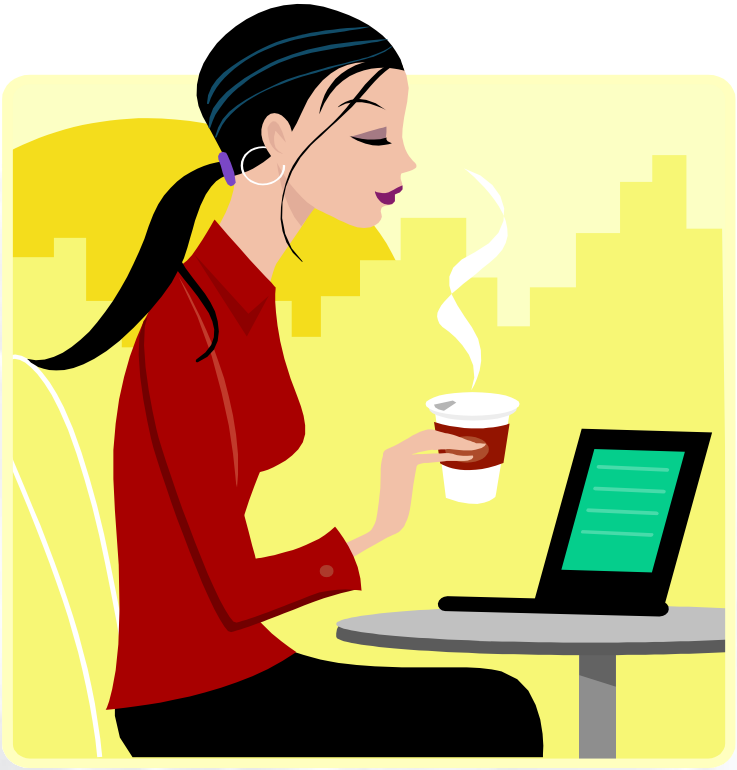
When your experiment is done, you should always release your resources.

- Normally this is when you would archive your data
- Delete your resources at **each** aggregate

Congratulations!

You have…

- Run your first GENI Experiment!



Welcome to GENI!