

AfNOG 2014



Track SI-E

Scalable Network Infrastructure

*Introduction,
Logistics,
Schedule,
etc.*

What You Will Learn

- Internet Protocol stack.
- IP addressing (IPv4 & IPv6).
- Static routing.
- Dynamic routing with OSPF / ~~IS-IS~~.
- Exterior routing with BGP.
- Router management.
- Network operations & monitoring.
- Internet exchange points.

Instructors



- Alan Barrett (South Africa)
- Nishal Goburdhan (South Africa)
- Frank Habicht (Tanzania)
- Patrick Okui (Uganda)

Participants



- Entire workshop:
 - 200 participants from 30 countries, in 9 tracks.
- This track:
 - 20 participants from 9 countries.
- Please introduce yourselves now.
- Please wear your name badges at all times.

Let Us Know!



- If we speak too fast, please say so!
- If you can't see, please say so!
- If you don't understand, please ask!
- The only stupid question is one you don't ask.

You Should Have Received...



- Name badges.
- Folder with:
 - Notepad.
 - Pen.
 - Information pack.

You Will Receive...



- e-books
- Workshop materials on USB flash drive, at the end of the workshop
- Take them back and teach others!

Extra Room Charges

- AfNOG will not pay for any extra charges to your hotel room, such as:
 - Phone calls.
 - Room service.
 - Bar.
 - Mini-bar in your hotel room
 - Anything in the fridge costs extra, even the water
 - Laundry.
 - Etc.

Internet Access at the Hotel



- Free WiFi in hotel
- Enter your room number and last name in the login form

Internet Access in Classrooms

- WiFi access should work on your personal laptop or other device
 - SSID "AIS" or "AIS-bgn"
 - WPA password "success!"
- No charge, no usage limits
 - But please, no large torrents
- If you make it slow for other people, you may be blocked

Internet Use in Class

- Please don't read e-mail or browse the web during sessions.
- You can download most of the training materials from the workshop web site
 - <http://www.ws.afnog.org/>
 - > SI-E
 - > Detailed timetable
- Feel free to follow along on your laptop during presentations

AfNOG Electronic Resources

■ Web site

- <http://www.ws.afnog.org/>

- During the workshop, contains work-in-progress information.

- Afterwards, will contain a copy of the workshop materials.

■ Mailing list

- afnog@afnog.org

- Subscribe via <http://www.afnog.org/>

Meals



- Breakfast in the hotel
- Lunch, dinner, and tea breaks at the Palais du Peuple

Daily Schedule

06:30 – 08:00	Breakfast at hotel
08:15 and 08:30	Buses to Palais du Peuple
09:00	Class starts
11:00	Tea break (30 minutes)
14:00 – 15:00	Lunch (at Palais du Peuple)
16:30	Tea break (30 minutes)
18:30	Dinner (at Palais du Peuple)
20:15 and 20:30	Buses to hotel

Daily Schedule



09:00 – 11:00	Classroom session (2 hours)
11:00 – 11:30	<i>Tea/Coffee</i>
11:30 – 13:30	Classroom session (2 h)
14:00 – 15:00	<i>Lunch</i>
15:00 – 16:30	Classroom session (1.5 h)
16:30 – 17:00	<i>Tea/Coffee</i>
17:00 – 18:30	Classroom session (1.5 h)
18:30 – 20:00	<i>Dinner</i>
???	Optional Evening session

Time Keeping



- Please be on time.
- We have a lot of material to cover, and we will not get through it all if breaks are longer than scheduled.

Evening Sessions

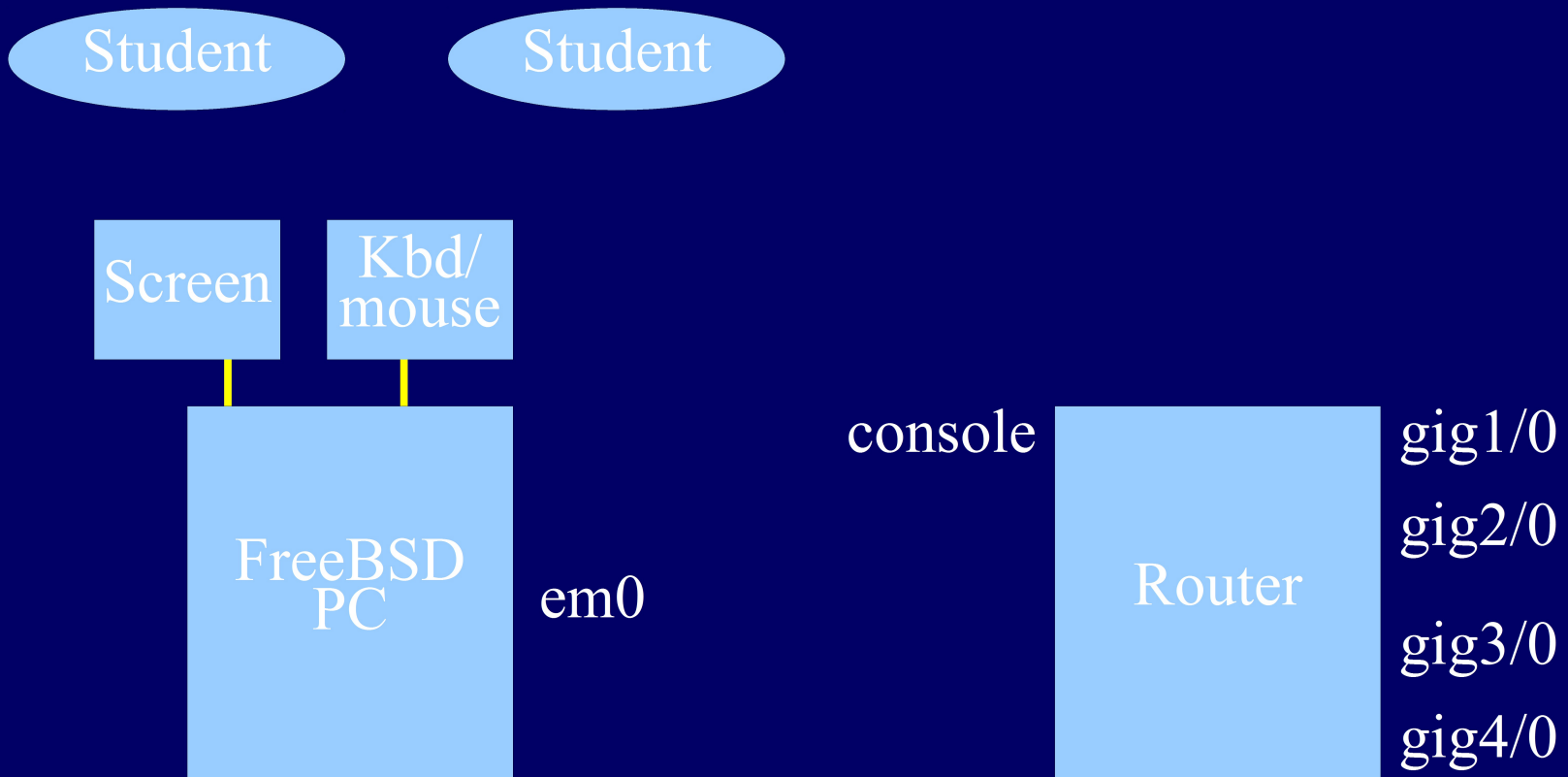


- There might be optional evening sessions.

Classroom Layout

- 16 "cells" - labelled A B C D E F G H
I J K L M N O P
- Each cell has:
 - 1, 2, or 3 participants with laptops.
 - 1 PC with FreeBSD
 - Virtual machine in "the cloud"
 - 1 Cisco router
 - Virtual machine in "the cloud"
- Access the "cloud" services via WiFi from your laptops

Logical structure of each "cell"



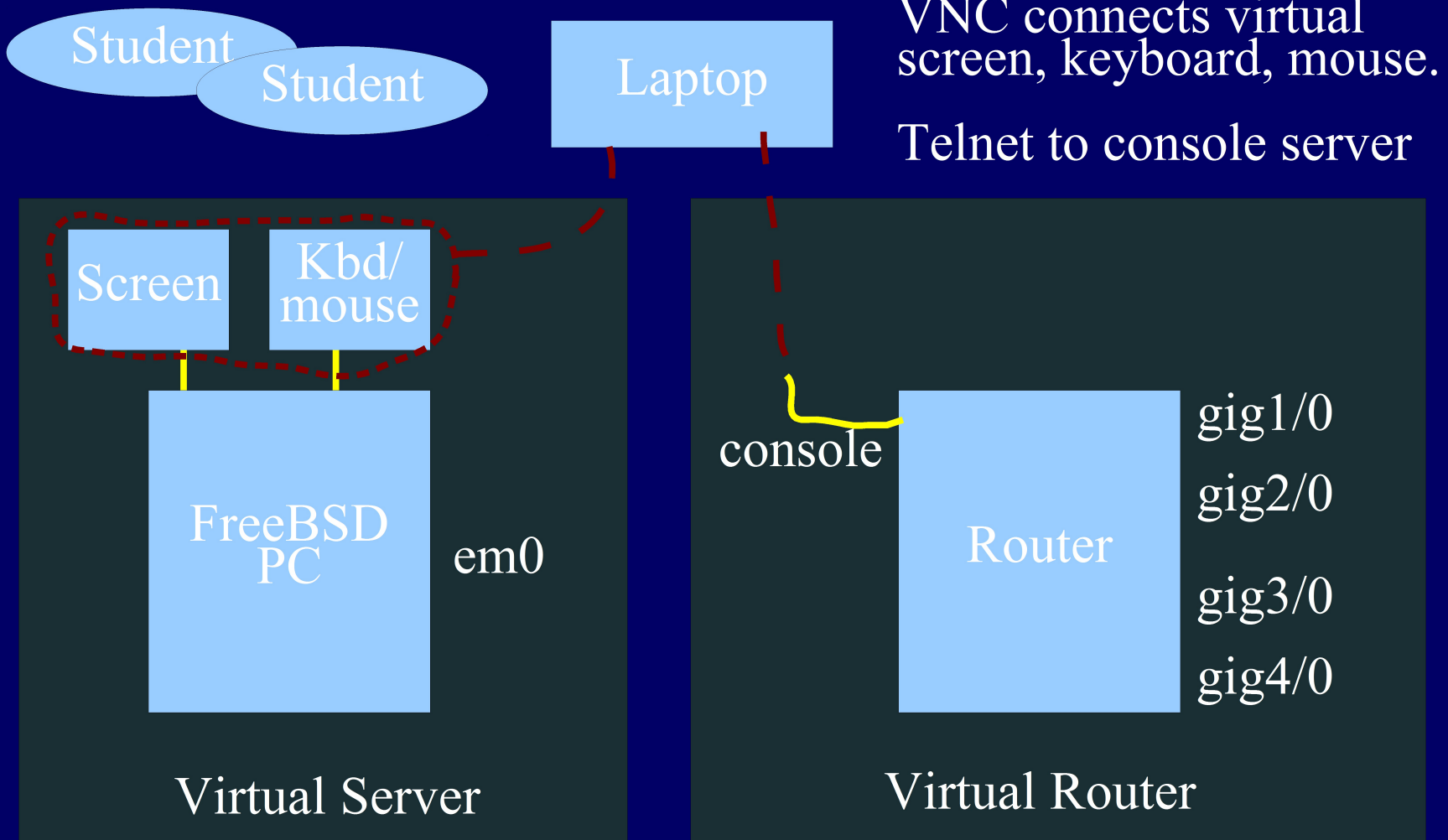
Where are the routers and PCs?

- Virtual devices inside one or two real PCs with a lot of memory.
- Special IP addresses and port numbers connect the outside world to the virtual devices.
- Instructors can do things like connect the ethernet port of two virtual routers together, or connect the ethernet port of a PC to the ethernet port of a router.

Access to virtual PCs and Routers

- Use VNC to a special hostname and port to bring your virtual PC's keyboard, mouse, screen to your laptop
- Use telnet to a special hostname and port to access the serial console of your virtual router
- See notes for details
 - <http://www.ws.afnog.org/>
 - > Click SI-E, then click Details
 - > Find Monday Morning's intro session
 - > Click Equipment access details

Physical structure of each "cell"



Install VNC and Telnet/SSH clients on your laptop

Windows:

- Search for "VNC viewer". TightVNC or RealVNC are both fine.
- Search for "putty ssh".

Linux:

- Install "vinaigre" or any other VNC package, if not already there.
- Telnet and SSH are already built in.

Mac:

- VNC, Telnet and SSH are already built in.

PC Configuration

- FreeBSD-10.
- "root"** password is **"afnog14"**
- User **"afnog"** password is **"sie"**
- Don't change passwords.
- Don't install DNS resolvers.
- Don't "close security holes":
 - instructors have left themselves a way to login remotely.

Schedule - Monday

- This introduction.
- IPv4, IPv6 & IP Address Configuration.
- Introduction to Cisco Routers & IOS.
- Introduction to Static & Dynamic Routing.

Schedule - Tuesday



- | Forwarding & Routing Simulation
- | Introduction to OSPF

Schedule - Wednesday



■ Introduction to BGP

Schedule - Thursday



- | BGP.

- | iBGP & OSPF Lab Exercise.

Schedule - Friday



■ Internet Exchange Points.

Optional Evening Sessions



- Subject to change.
- Other tracks might also have evening sessions which you may attend.

Open Questions



- Feel free to ask any questions during the sessions.
- Interrupt us if you don't understand anything or if you have a question.
- Please, ask questions!
- List of questions near door. They will be answered on Friday or as time permits.

Overall...



WELCOME TO AFNOG

WELCOME TO DJIBOUTI

Learn everything you can,

Have fun,

Take photos,

Network,

Ask questions, make the instructors
happy.

Thank You!