



GARNET-NSRC-KNUST-AfNOG

Network Monitoring & Management
Welcome

Instructors

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Schedule

Session I	08:30 – 10:30
Break	10:30 – 11:00
Session II	11:00 – 13:00
Lunch	13:00 – 14:00
Session III	14:00 – 15:30
Break	15:30 – 16:00
Session IV	16:00 – 18:00

Two evening sessions to be held at KNUST Guest House from approximately
19:30 to 21:00

Agenda:

Monday	Topic	
Session 1	Welcome, Introductions, Workshop Details	HA
	Questionnaire	HA
	Layers 1/2/3 Refresher	BC
Session 2	Sample IP Address Plan for Campus	CV
	Where and How to get IP Address Space	KC
Session 3	Remote Video Session with AfriNIC	HA
Session 4	Review Attendee IP Addressing Plans	
Tuesday		
Session 1	Linux Basics for Using Class VMs	HA
	Intro to Network Monitoring & Management	HA
Session 2	SNMP	BC
Session 3	SNMP Continued	BC
Session 4	Cacti / MRTG and RRDtool	JK
Wednesday		
Session 1	Nagios	BC
Session 2	Nagios Continued	BC
Session 3	SmokePing	HA
Session 4	Open Session for Exercises (Nagios Plugin)	

Thursday		
Session 1	Documentation, NOCs and Netdot	CV
	Netdot Demonstration	CV
Session 2	Log Management	CV
Session 3	NetFlow and NfSen	KC
Session 4	NetFlow and NfSen cont. (attack scenario)	KC
Friday		
Session 1	Ticketing Systems (RT)	HA
Session 2	Nagios and RT	HA
Session 3	RANCID and SVNWeb	KC
Session 4	Class Summary/Q&A	HA
	Exam	HA
	Survey	HA
	Certificates	
BGP		
Saturday		
Session 1	Border Network Functions (BGP)	
Session 2	BGP Attributes, Path Selection, Policy	

Administrative Items

- **Agenda**
 - <http://noc.ws.nsrc.org/wikis/garnet/wiki/Agenda>
- **During the course**
 - Please ask questions as you have them.
 - Your experiences are valuable. Please share them.
 - The schedule is somewhat flexible.
- **Course Materials**
 - Available in electronic format during the week:
<http://noc.ws.nsrc.org/wikis/garnet/>
 - Will be available permanently here:
<http://nsrc.org/workshops/2011/garnet-afnog-nsrc/>

Virtual machine access

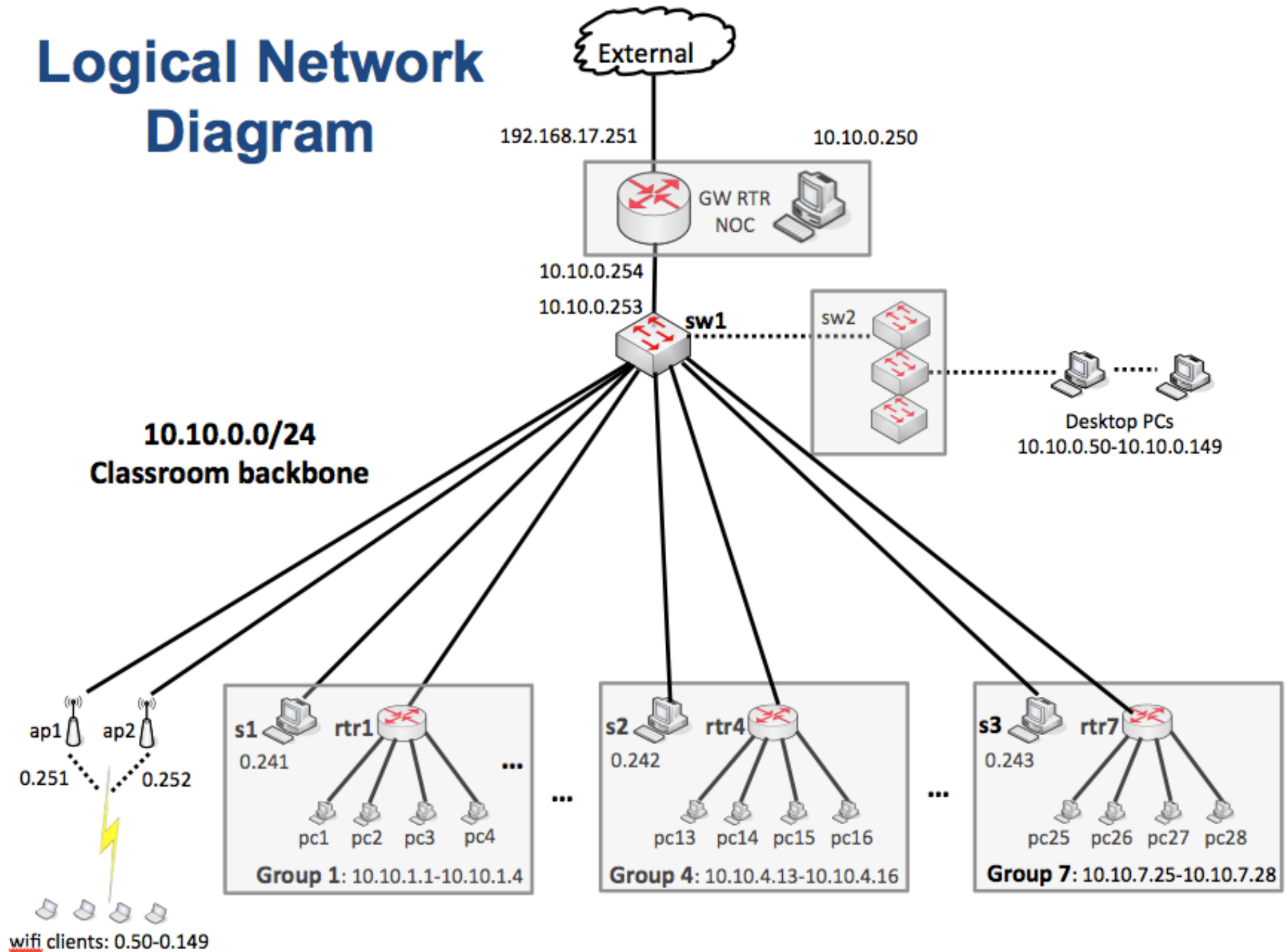
There are two users on your virtual machines (pc1-pc36)

General User
sysadm

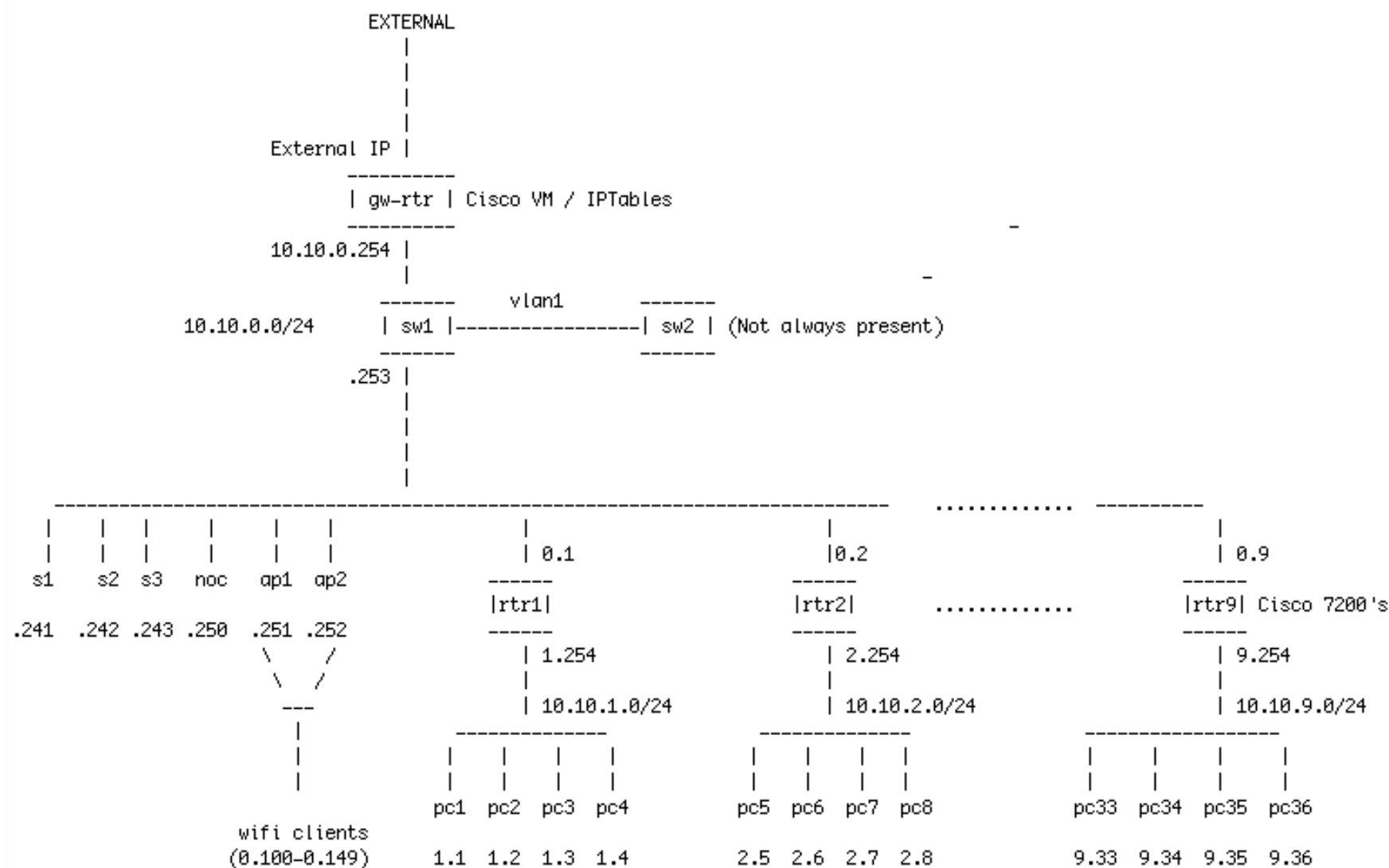
Administrative User
root

Passwords are or will be written down in class

Logical Network Diagram



Alternate Diagram



Available at <http://noc.ws.nsrc.org/wikis/garnet/wiki/Diagram>

Virtual machine groups

GROUP 1	GROUP 4	GROUP 7
rtr1 ==> 10.10.1.254	rtr4 ==> 10.10.4.254	rtr7 ==> 10.10.7.254
pc1 ==> 10.10.1.1	pc13 ==> 10.10.4.13	pc25 ==> 10.10.7.25
pc2 ==> 10.10.1.2	pc14 ==> 10.10.4.14	pc26 ==> 10.10.7.26
pc3 ==> 10.10.1.3	pc15 ==> 10.10.4.15	pc27 ==> 10.10.7.27
pc4 ==> 10.10.1.4	pc16 ==> 10.10.4.16	pc28 ==> 10.10.7.28
GROUP 2	GROUP 5	GROUP 8
rtr2 ==> 10.10.2.254	rtr5 ==> 10.10.5.254	rtr8 ==> 10.10.8.254
pc5 ==> 10.10.2.5	pc17 ==> 10.10.5.17	pc29 ==> 10.10.8.29
pc6 ==> 10.10.2.6	pc18 ==> 10.10.5.18	pc30 ==> 10.10.8.30
pc7 ==> 10.10.2.7	pc19 ==> 10.10.5.19	pc31 ==> 10.10.8.31
pc8 ==> 10.10.2.8	pc20 ==> 10.10.5.20	pc32 ==> 10.10.8.32
GROUP 3	GROUP 6	GROUP 9
rtr3 ==> 10.10.3.254	rtr6 ==> 10.10.6.254	rtr9 ==> 10.10.9.254
pc9 ==> 10.10.3.9	pc21 ==> 10.10.6.21	pc33 ==> 10.10.9.33
pc10 ==> 10.10.3.10	pc22 ==> 10.10.6.22	pc34 ==> 10.10.9.34
pc11 ==> 10.10.3.11	pc23 ==> 10.10.6.23	pc35 ==> 10.10.9.35
pc12 ==> 10.10.3.12	pc24 ==> 10.10.6.24	pc36 ==> 10.10.9.36

Select your group now

- 9 total (virtual) routers
- 4 (virtual) Ubuntu Linux server images per router.
 - 36 total virtual machine images

*You will work in groups of 4 on some exercises.
Please choose your location now. You will use
your virtual machine during the whole week.*

Questions

Do you have any questions?

