

# Advanced DNS Operations & Security

PacNOG 9  
June 28<sup>th</sup> – July 2<sup>nd</sup> 2011  
USP - Suva, Fiji

**Welcome!**



# Goal of this workshop

- Give you tips, tools and techniques to deploy and operate a more reliable and robust DNS infrastructure
- Learn about common problems that DNS operators run into, and how to solve them
- Hear about DNSSEC, IDN and how they impact DNS
- To meet each other and share knowledge amongst ourselves.
- Answer your questions as we go along!

# Who are we

**Andy Linton – NSRC**

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**Phil Regnauld – NSRC**

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**Warren Kumari – Google**

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# Daily time schedule

<b>Session 1</b>	08:30-10:00
<b>Break</b>	10:00-10:30
<b>Session 2</b>	10:30-12:30
<b>Lunch</b>	12:30-13:30
<b>Session 3</b>	13:30-15:30
<b>Break</b>	15:30-16:00
<b>Session 4</b>	16:00-17:30

# Class website

<http://nsrc.org/workshops/2011/pacnog9-dns-ops>

# Curriculum

## Day 1: DNS refreshers - Debugging - Architecture

- \* Intro
- \* Presentation of participants, and workshop overview
- \* Presentation: Overview on DNS protocol & architecture
- \* Lab 1: Introduction to the environment
- \* Lab 2: Using dig
- \* Lab 3: More hands on using dig, doc, wireshark
- \* Lab 4: basic DNS statistics with dnstop
- \* Presentation: Reliable Architecture design
- \* Lab 5: Service separation

### DISCUSSION TOPICS:

- GSLB, Load Balancing in general
- Databases and DNS

## Day 2: DNS Software, Sizing/configuration, Anycast

- \* Presentation: Software platforms - BIND, NSD, Unbound
- \* Lab 6: Software configuration
- \* Presentation: Configuration & tuning
- \* Presentation: Anycasting for robustness and performance
- \* Lab 7: Anycasting

## Day 3: Logging & Monitoring, DNS Security

- \* Presentation: Log management & monitoring
- \* Lab 8: Log management & service monitoring
- \* Presentation: DNS security
- \* Lab 9: DNS security

## Day 4: DNS and the network, DNSSEC

- \* Presentation: DNS and IPv6
- \* Lab 10: IPv6
- \* Presentation: DNS & Firewalls
- \* Presentation: Introduction to DNSSEC

## Day 5: DNSSEC Hands-on & IDN

- \* Tutorial: DNSSEC hands-on
- \* Lab 11: Zone signing
- \* Lab 12: Automation using OpenDNSSEC
- \* Presentation: IDN
- \* Lab 13: Deploy IDN

# Classroom details

You are all system administrators.

You are in charge of your servers

To make our lives easier please consider:

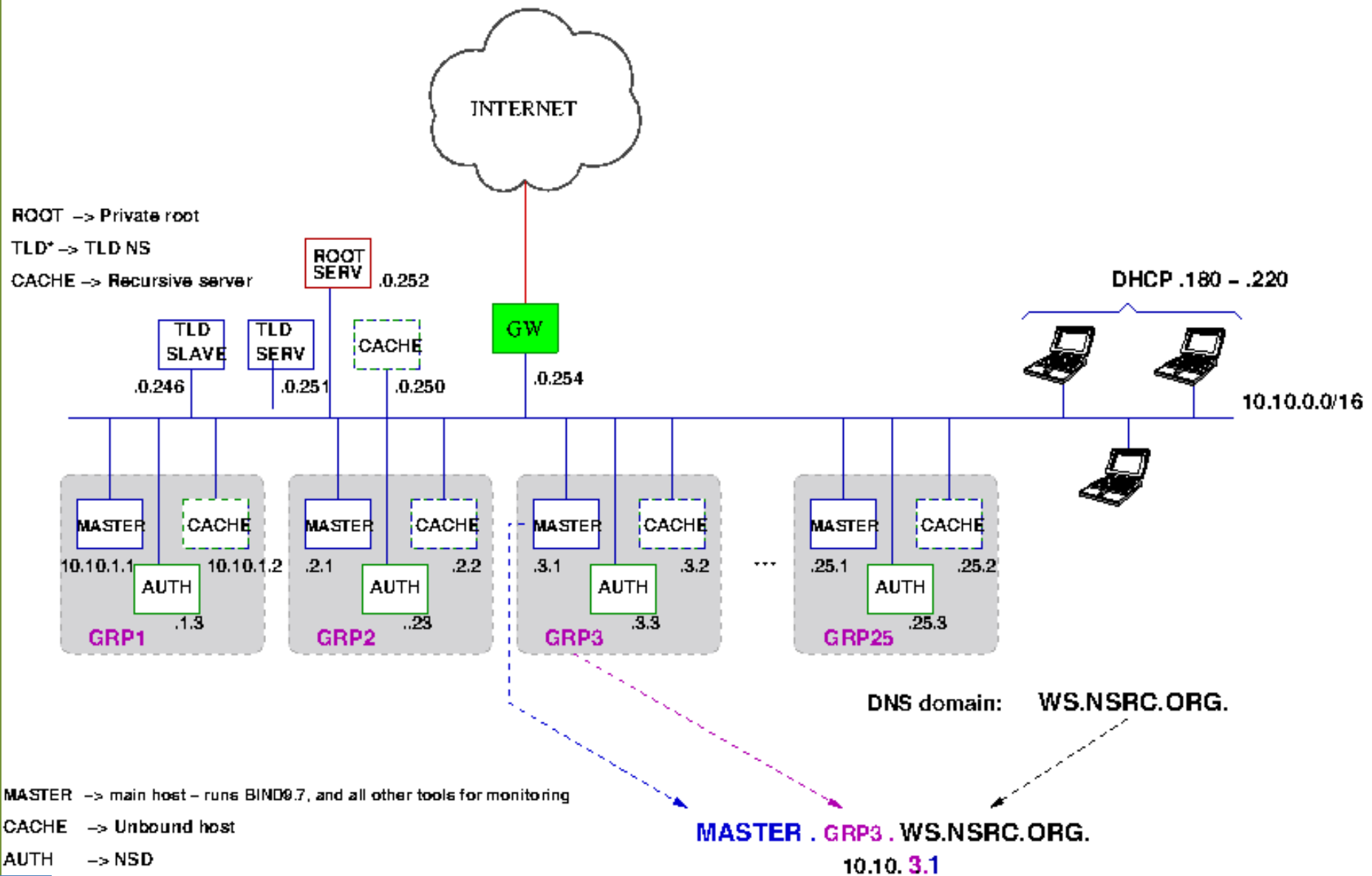
- Not changing your ***root*** or ***adm*** user passwords during the week.
- Not reconfiguring other attendees' machines...
- Practice using the `sudo` command instead of working as *root*.

This is a virtual environment!

# NETWORK LAYOUT

login: adm  
pass: nsrcws

WiFi SSID: dns-workshop  
WiFi pass: dnsworkshop





# A few conventions...

In the exercises:

- If you see a “\$” then execute the command as a regular user (*adm* user).
- If you see a “#” then you should use `sudo` to execute the command as the *root* user. You do not need to use `sudo` if you already are root!
- There *will* be a (very, very) few typos. Be on the lookout and let us know!
- Some exercises *do not* give you all the steps! This is on purpose to let you apply newly found skills 😊

# Our wiki and noc

Diagrams, presentations, schedules, photos, machine information and much will be available on:

<http://nsrc.org/workshops/2011/pacnog9-dns-ops>

**Passwords will be given in class.**

# Questions?

