

# NETWORK TIME PROTOCOL



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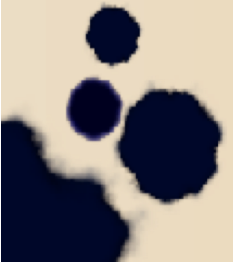
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# NETWORK TIME PROTOCOL

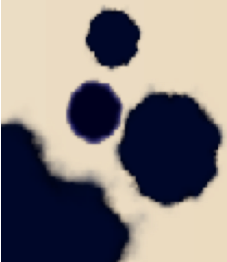


NTP is one of the oldest internet protocols used in time synchronization

## **NTP Track (NTPSEC)**

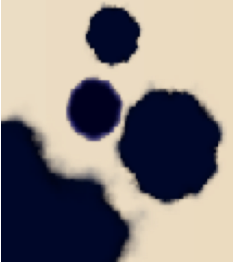
Deliverable

1. Setup an NTP server.
2. Exhibit key exchange.



# Some Facts

- ▣ In 2014, there were over 7m abusable NTP servers as a result ISPs and IXPs have decided to block NTP traffic
- ▣ “Segal's Law states”
- ▣ A group of volunteers at NTP pool project maintain the timeservers.



# Time-keepers of the Internet

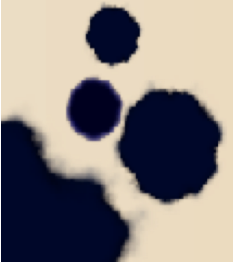
- Without it, if machines don't know what time it is, it would mean;
- Backups would fail,
- Financial transactions would fail,
- Many fundamental network services wouldn't work.



# Requirements



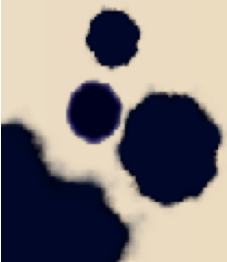
- ▣ A linux Box + cmd skills
- ▣ Wireshark installed
- ▣ Internet connectivity



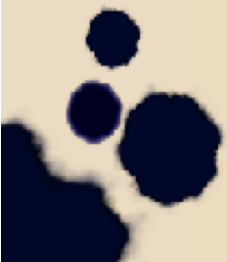
# Wireshark



- ▣ *Its a network protocol analyzer*
- ▣ Select an interface to capture
- ▣ Start & filter NTP with “**udp.port==123**”
- ▣ Check each of the packets for time synchronization

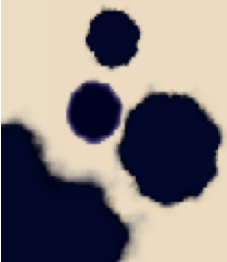


# Wireshack in Action



# Setting up NTPSEC

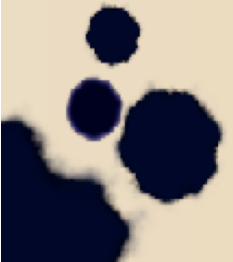
- ▣ Get root privileges
- ▣ Clone the ntpsec resources from github
  - ▣ “`git clone https://github.com/ntpsec/ntpsec.git`”
- ▣ Cd into the ntpdsec directory and follow the instructions in the `/root/ntpsec/INSTALL` file.





# Main contents of INSTALL file

- ❑ ./buildprep -n (prerequisites for install)
- ❑ './waf configure' (web App firewall)
- ❑ './waf build'
- ❑ './waf install'
- ❑ **waf protects the web app from the internet**



# Configuring NTPSEC

- ▣ Edit `/etc/ntp.conf` (ntpsec configuration file)
- ▣ to comment out `#server ipa.hostname.local` which by default shows your hostname
- ▣ Add public servers for NTP e.g.  
pool.ntp.org project, 0.africa.pool.ntp.org
- ▣ `server ntpmon.dcs1.biz nts`

# Testing the client

- ▣ Run `./build/main/ntpd/ntpd -n` to point to the server as indicated in `/etc/ntp.conf`
- ▣ Take note of the hole poked by the server

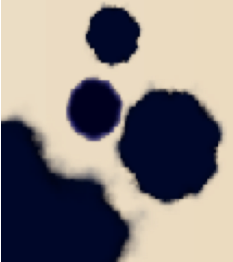
# Testing the Server



**Note ntpd must be running for the command below to work, On redhat systems use**

```
#systemctl start ntpd
```

```
./build/main/ntpclients/ntpq -p localhost confirmation  
is noted with ntpsec server and your public IP.
```



**END**



End of presentation.

