

GLBP; High Availability

Agenda

- Pop Quiz on FHRP
- Lab prep: The importance of NTP
- Complete section in Ch 6 on GLBP
- Cover Ch 9 – High Availability
- Coming next: Ch 7 – Network Management

Assigned Readings and Lab work

- Read FLG Ch 7 – Network Management; due by Wed Mar 22
- Cisco **Ch 9** online test due before **Tue** Mar 21 @ 11:59pm
- Pre-lab and post-labs as per the regular schedule
- Lab 10: Cisco v7 labs 7.1 (NTP) and 7.2 (SNMP)

References about NTP

NTP seems simply like something to keep the timestamps on your filesystem correct, but it's much, much more important than that:

<http://www.informationweek.com/it-life/ntps-fate-hinges-on-father-time/d/d-id/1319432>

See especially the section "Why Synchronizing Time Matters"

After checking further, it seems like there's a layer of the IoT that also depends critically on having the correct time:

<http://tech.slashdot.org/story/15/03/20/1731209/internet-of-things-endangered-by-inaccurate-network-time-says-nist>

Well, actually all those self-driving cars will need accurate time too:

<http://www.nist.gov/pml/div688/timing-031915.cfm>

I think I'd actually feel safer if all the computerized-gadgets had the right time! But funding for keeping NTP up-to-date continues to be a struggle:

<http://www.infoworld.com/article/3144546/security/time-is-running-out-for-ntp.html>

even though "network security company Arbor Networks estimated that 85 percent of volumetric DDoS attacks exceeding 100Gbps in size were NTP reflection attacks":

<http://www.infoworld.com/article/3144471/security/ntp-fixes-denial-of-service-flaws.html>

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Finally, a paper from late 2015 identified a whole slew of attacks that are possible by first attacking NTP and leveraging the new time setting:

<http://www.cs.bu.edu/~goldbe/papers/NTPattack.pdf>

To attack...	change time by ...	To attack...	change time by ...
TLS Certs	years	Routing (RPKI)	days
HSTS (see [59])	a year	Bitcoin (see [12])	hours
DNSSEC	months	API authentication	minutes
DNS Caches	days	Kerberos	minutes

Are you starting to get worried??