Label Distribution

Essentials: Label distribution modes & options

Agenda

- In The News: Cable-cut effectively isolates multiple nations
  https://tech.slashdot.org/story/20/01/14/2153216/cut-undersea-cable-plunges-yemen-into-days-long-internet-outage
- Touch-point: How are Nokia account creation and lab reservations going?
- Course outline – posted on course site
- Start MPLS Module 2, sections 1 + 2

Assignments and Lab work

- This week: *read* all of Module 2 notes
  (Reference in NRS-II: Ch 11, pages 513-525)
- Lab 1 post-lab: due by **Fri Jan 17 @ 8am**.
- Lab 2 pre-lab: (was) due **before** your lab session this week
- Lab 2 post-lab: due **11:59pm the day** of your section's assigned date.
- Next Lab: LDP and ECMP based on Nokia Lab Guide, Labs 3.1-3.3

Lab Review

Relatively few commands are required for single-area OSPF configuration:

configure • router • router-id <32-bit-ID> # Let's use best practices!
configure • router • ospf • area <area-id> • interface <int-name>
(In **some** labs, we'll add the point-to-point attribute to the interface! Why?)

show • router • ospf • area <area-id> [detail]
show • router • ospf • status
show • router • ospf • interface [detail]
show • router • ospf • neighbor [detail]
show • router • ospf • database [detail] # shows OSPF LSDB

Tip: Here's the generic pattern for **all** protocols on Nokia routers!! :-)

```
configure • router • ospf
        area <area-id>          # For OSPF; other protocols have a different specifier
                interface X
                interface Y
                interface Z
        exit
exit
```

Summary for Module 2, Section 1

- Label stack: inner label (service label) and outer label (transport label)
- format of MPLS header: 4 fields
- "address" of MPLS labels
- Behavior / operation of each of the 4 fields
- Handling of fields: pipe mode vs uniform mode for ToS & TTL
- Implementation / location of labels: frame-mode vs cell-mode

Section 2 covers (... lots more terminology!):

- Upstream vs Downstream
- Unsolicited vs On-Demand
- Ordered vs Independent
- Liberal vs Conservative
- LDP vs RSVP
- Sens vs Leafs
- Per-platform vs Per-Interface

For all the above options, know which is available & used on the SR OS, and for which protocol!

Label Distribution Modes (complete list)		
Distribution	Downstream unsolicited	Downstream on Demand
Control	Independent Control	Ordered Control
Retention	Liberal	Conservative

Ref: NRS-II, p. 517

Coming Next

- LDP: Label Distribution Protocol
  Essentials: Characteristics & parameters of LDP
- Special labels & actions: Alert, implicit/explicit NULL, PHP
- Link vs Targeted (... LDP)
- LDP parameters
- Session establishment and "maintain-ance"
- OAM lsp-ping and lsp-trace