

Course Completion & Review

Essentials: What do you need to know?

Agenda

- Surprise Pop-quiz
- Notice: SBA: 2.5 hrs, **Sat Apr 14th** in T108; times/sections posted on BB
- Final Exam: 3 hrs; please confirm: 9am on **Mon Apr 23rd**; room TB208
- "Guesstimate" marks available on BB: very skewed and approximate
- Check in: anyone noticed any latency to Nokia labs in the past 5 days?
- Notice: Cisco DreamTeam applications due Sunday; you'll need a ref letter
- Complete from previous lectures:
 - SA Mod 5 VPRN, slides 84-97
 - MPLS Mod 6 FRR, slides 145-160
 - MPLS Mod 6: highlights of LDP-IGP sync (to maintain six-9's reliability)
- SA Module 4: OAM & services tools
 - Much of the material on OAM tools have been covered already
 - Highlights of Mirror service: like RSPAN but goes across L3 network
- Remaining time spent on course review

OAM Tools

Customer side:

- ping: can determine path MTU; number of apparent hops
- tracert: can determine apparent hops
- Both of above may be going through a VPN!

Provider side:

- ping & tracert within provider domain
- oam lsp-ping: LDP ("prefix x.x.x.x/32") or RSVP ({lsp-name})
- oam lsp-trace: can determine every P router along path; uni-directional
- oam ldp-treetrace: determines all ECMP paths for LDP LSPs
- oam sdp-ping: tests uni- or bi-directional connectivity; uni-directional
- oam sdp-mtu: convenient tool for testing mtu of SDP
- oam svc-ping: works for all VPN levels (VPWS, VPLS, VPRN)
 - gives complete info on all service parameters, bi-directionally

- oam cpe-ping: for VPLS, and depending on SR-OS, for VPWS
- show service fdb-mac: MAC address table(s) for VPLS service(s)
- **oam vprn-ping**: ping addresses known within the VPRN VRF
- **oam vprn-trace**: traceroute anywhere known within the VPRN VRF

Items below this line not listed
in Module 5 on OAM tools;
VPRN tools never mentioned in NRS-II !

SBA (Apr 14)

See study tips from a week ago (Week 12, Day 1) lecture summary notes.
See List of Labs on next page. Also ...

- BE EARLY!
- Sessions are 2.5 hrs long; **NO** extra time possible (remote equipment)
- configs are auto-saved every ~5 mins and at end of exam
- final configs are then delivered directly to the Professor
- each student has his/her own set of 6 routers which must be configured;
 - there are 4 additional routers for which you have no admin access;
 - the 4 routers are pre-configured with the required connectivity
- the SBA preview document posted on course site has additional details
- modified & updated from previous years
- potential topics include all material from the MPLS and SA courses
- if you work through the supporting infrastructure, you'll realize that it's just about impossible to create an SBA that avoids certain protocols and fundamentals. Be sure to identify these protocols and know how to configure them!
- BE EARLY! You can do your course feedback for NET3012

Final Exam (Apr 23)

- 3 hrs; 100 marks (approx); updated from previous years
- Includes all material on MPLS and SA covered in the course
- Questions are short answer and/or may require drawing a simple diagram
- Expect some questions to be very simple, fact-based while others will require a deeper understanding and connection between related concepts.
- You are allowed one 8x11" sheet of paper; double-sided; **MUST** be hand-written (no photocopies); **may not contain any sample questions & answers**

List of Labs

	In-Lab	Post-Lab
1.	Interfaces; static routing	MySRLab connectivity
2.	OSPFv2	Multi-area OSPF
3.	LDP LSPs; ECMP	BGP & route redistribution, policies
4.	LDP prefix lists; loose RSVP LSPs	IBGP shortcuts using LDP, policies
5.	CSPF, admin groups	Details of CSPF, admin groups
6.	LDP-over-RSVP	Details of LDP-over-RSVP
7.	IPv6, MP-BGP, 6PE	Details of 6PE
8.	Epipe, SAP encapsulations	Details of ePipe, SAPs
9.	VPLS	Details of VPLS
10.	Spoke terminated VPLS; IES, MTU, OSPF MTU	Details of spoke VPLS, IES, MTU
11.	Resilience: sec LSPs, FRR	Details of sec LSPs, FRR
12.	VPRN: CE-PE proto, MP-BGP, Virtual router def'n + 3 extra items, export policies/route redistribution	Details of VPRN

To avoid needless loss of marks, remember to check:

- shut/no shut status of protocol or object
- symmetrical configuration (equivalent at both ends!) is often required