

Workshop Development Notes

Needs to cover the following topics.

Setting up IS-IS

- NSAP address plan
- setting metrics, level-2, wide metrics
- selecting DIS
- multi-topology
- point-to-point ethernets
- Notes:
 - o all done in existing IS-IS Lab

Securing IS-IS (with OSPF side example)

- neighbour authentication
- no IS-IS outside ASN
- Notes:
 - all done in existing IS-IS Lab
 - need to add OSPF footnote example

Setting up BGP securely

- RFC8212 filters in and out on eBGP
- passwords on eBGP and iBGP sessions
- RIR checks on assigned address space of customers jwhois
- RFC6890 filtering of bogons & Team Cymru bogon BGP feed
- Notes:
 - 8212 needs to be explicitly mentioned in eBGP lab
 - the rest all covered in BGP Best Practices slide deck

BGP scalability & stability features

- iBGP between loopbacks & next-hop-self
- route reflector
- deterministic-med
- BGP distance > IGP distance
- stable announcement of covering aggregates out of all eBGP peers

- Notes:
 - All done in existing BGP materials & labs

BGP security features

- maxas-limit
- max-prefix
- ttl-security aka GTSM
- · community propagated for iBGP by default, eBGP selective
- strip private ASNs
- Notes:
 - Needs a new lab "Securing BGP Lab"

Setting up Communities for BGP scaling

• security feature → consistent policies across the ASN

Control plane security

- setting up SSH on routers
- protecting VTYs with access filters
- Notes:
 - Needs a new lab "Control Plane Security"

uRPF

- · show how to set up on access interfaces
- Notes:
 - Needs a new lab "uRPF"

RTBH

- set up within an AS
- set up between ASNs
 - need to have done communities for this
 - Notes:
 - Needs a new lab "Local RTBH"
 - Needs a new lab "Inter-AS RTBH"

BGP SEC

- Creating ROAs (RIR dependent, but explain the process)
- Installing and operating NLnet Labs Routinator
 - Note: need containers on VTP for this
- Setting up RPKI support on a router

- Implementing route origin validation & related policies
 - Note: Need address space that has been validated APNIC offered their blocks, but longer term we should have our own.
- propagating validation state across iBGP
 - Question: standards which vendors aren't supporting, or DIY?
 - Notes:
 - Need Validator Cache lab (install Routinator on VM per group)
 - Need RPKI lab (set up router to talk to Cache)
 - Need ROV lab (propagating state, and acting on ROAs)

Troubleshooting BGP Security Operations

- RouteViews: for analysis, monitoring, troubleshooting
- Looking Glasses supporting ROA/ROV
 - ∘ SEACOM
 - ∘ HE BGP Tool: bgp.he.net
- RIPE NCC: bgpplay
- Notes:
 - Use Routeviews User presentation
 - Need Looking Glass lab user experimentation only
 - Need Troubleshooting Security Presentation distil out of Troubleshooting BGP tutorial perhaps?

MANRS

- conclude with summary of MANRS and what it is about
- Notes:
 - Already exists as part of BGP Origin Validation presentation

Lab topology

- To Do:
 - Add a "customer PC" to the customer router in each group

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From:

https://www.bgp4all.com/pfs/ - Philip Smith's Internet Development Site

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