Systems & Network Training

LINX accredited Internet Technician III

A 5 day Hands on training course

Save on expenses. This course is also available on your premises.

Description

A detailed study of BGP, from the basics of how it works through to advanced issues such as route reflectors, policy, filtering, route selection and routing registries. The course culminates with a study of an industrial strength BGP template illustrating important issues such as bogon filtering. Practical hands on with routers follow the major sessions to reinforce the theory.

A multiple choice exam, leading to the LAIT III certification, is available after the course. The exam consists of 60 questions and lasts 2 hours.

Key outcomes

By the end of the course delegates will be able to:

- Connect enterprises to the Internet, and ISPs to each other.
- Describe how BGP works.
- List, describe and configure the main BGP attributes.
- Implement and troubleshoot BGP.
- Work with route aggregation and calculate CIDR prefixes in seconds.
- Influence traffic paths with BGP.

Training approach

This structured course uses Instructor Led Training to provide the best possible learning experience. Small class sizes ensure students benefit from our engaging and interactive style of teaching with delegates encouraged to ask questions throughout the course. Quizzes follow each major section allowing checking of learning. Hands on sessions are used throughout to allow delegates to consolidate their new skills.

Details

Who will benefit?
Network Engineers.

Prerequisites
LAIT I and II
OR CCNP and take LAIT I and LAIT II exams whilst on this course.

Duration: 5 days

Customer rating: ★★★★★

Generic training	Small class sizes	Hands On training	Our courseware	Customise your course
Generic training complements product specific courses covering the complete picture of all relevant devices including the protocols “on the wire”.	We limit our maximum class size to 8 delegates; often we have less than this. This ensures optimal interactivity between delegates and instructor.	The majority of our courses use hands on sessions to reinforce the theory.	We write our own courses; courseware does not just consist of slides and our slides are diagrams not bullet point text.	Please contact us if you would like a course to be customised to meet your specific requirements. Have the course your way.
“Friendly environment with expert teaching that teaches the why before the how.” G.C. Fasthosts	*“Excellent course. The small class size was a great benefit...”* M.B. IBM	*“Not many courses have practice added to it. Normally just the theoretical stuff is covered.”* J.W. Vodafone	*“Comprehensive materials that made the course easy to follow and will be used as a reference point.”* V.B. Rockwell Collins	*“I was very impressed by the combination of practical and theory. Very informative. Friendly approachable environment, lots of hands on.”* S.R. Qinetiq

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Course content

Basic BGP
IGPs, EGPs, What's BGP? BGP RIB, in/out process, tables peers, adding routes. Hands on: Simple configuration and troubleshooting.

The Internet and peering
ASs, AS numbers, Internet structure, ISP types, ISP network design, IXs, peering vs. transit, public/private peering, bi/multi-lateral peering. Hands on: AS information gathering.

How BGP works
Incremental updates, Path vector protocols, BGP protocol stack, the BGP header, message types, NLRI, withdrawn routes, route refresh, route dampening. Hands on: More troubleshooting, packet analysis.

MBGP and IPv6
Multiprotocol routing, AFI, SAFI, MBGP and multicasts, IPv6, MPLS VPNs. Hands on: IPv6

BGPv4 aggregation
CIDR, benefits, techniques, shortcuts, configuring BGP aggregation, leaking routes. Hands on: Reducing routing table size.

BGP path selection
BGP attributes, attribute types, route selection order, Local preference, AS prepend, MEDs. Hands on: Influencing traffic with BGP.

BGP routing policies
What is policy? Examples, route filtering, AS filtering, REs, applying preference selectively, peer groups. Hands on: Sophisticated policies.

RIPE and routing registries
RIRs, Allocations, assignments, PI vs. PA. Objects, RPSL, routing registry, Hands on: The RIPE database.

Automating BGP configuration
Automation tools, whois, IRRToolSet, Bogon lists, tracking bogon lists, HTTP, Peering, routing registries, DNS.

Communities
What is a community? Community names, communities for: peer types and geography. RFC 1998, default communities. Hands on: Setting local preference on other routers.

Route servers
What are route servers? LINX route servers, route server policy control, What are route collectors, Looking glasses. Hands on: Setting up and working with a route server.

Peer relationships
IBGP, EBGP, next hop self, advertising routes into/out of BGP, synchronisation. Hands on: IBGP, troubleshooting a large BGP network.

Route reflectors and confederations
Full mesh IBGP, Route reflectors, RR configuration and design, confederations, migration issues. Hands on: RR configuration.

BGP architectures
Stub vs. transit AS, when to use BGP, multihoming strategies and issues, default routes. Multihop EBGP, load balancing. Hands on: Multi-homing.

BGP security
RFC 7454, security steps, BGP TTL security, filters, RPKI, ROAs, rsync, rrdp, validators. A secure BGP template. Hands on: RPKI prefix validation.