

CGN Carrier Grade Nat

This course provides users with the necessary skills to implement IPv6 migration and Carrier Grade NAT scenarios for A10 ACOS deployments in service provider and data center environments.

Objectives

From a three-device ACOS cluster pre-configured with a Layer 2-3 environment, students deploy these attributes:

- Carrier Grade NAT (CGN/LSN) to mitigate IPv4 address exhaustion
- DNS64/NAT64 for providing IPv4 resources to IPv6 clients
- CGN logging to manage NAT mappings

Students also use device tools that monitor, diagnose, and restore these attributes

Class Structure

- Classroom Discussion 40%
- Lab Exercises 60%

Prerequisites

- A10 Networks SysAdmin Course OR equivalent ACOS CLI, aVCS, and VRRP-A experience

Audience

- Network Operations (NetOps)
- Development Operations (DevOps)
- Application Engineers (AppEng)
- Network Security (NetSec)
- Architects (Arch)

Outline

- Carrier Grade Networking Concepts (Required)
 - Context of CGNetworking



- IPv4 and IPv6 Topologies
- CGNAT vs. Traditional NAT
- User-Quota, Sticky NAT
- LSN NAT44(4) Configuration
 - 5 Parts of Dynamic NAT configuration
 - Alternative: Fixed NAT
 - Troubleshooting NAT(4)44 (i.e, lsn)
- LSN Additional Features
 - ALGs
 - Static Port Mapping
 - Full-Cone NAT (EIM, EIF, Session User Quota)
 - Hairpinning Filtering
- IPv6 Overview
 - What is IPv6
 - IPv6 Features and Tools
- IPv6 Migration (NAT/DNS64)
 - Stateless NAT46
 - DNS64 and Stateful NAT64
 - NAT64 Prefix
 - DNS64 Virtual Server Configuration
 - 5 Parts of Dynamic NAT64 configuration
 - Alternative: Fixed NAT64
 - Troubleshooting NAT64
- NAT64 Additional Features
 - ALGs
 - Static Port Mapping
 - Full-Cone NAT (EIM, EIF, Session User Quota)
 - Hairpinning Filtering
- Routing and Networking
 - CGN Topologies
 - Configuring Routing: Static, BGP, OSPF, OSPFv3
- CGN Logging
 - Issues in Logging



- Data Plane Logging Configuration
- Logging Template: Custom format, HTTP Request logging
- Port Batching (v1 and v2)
- Fixed-NAT Table Export and Logging
- RADIUS Accounting integrations
- NetFLOW (IPFIX) Logging/Accounting
- Troubleshooting and Performance Monitoring
 - Monitoring: system log, interface counters, CPU, memory usage, NAT pool utilization
 - Capture packets, storing and exporting packets
 - Debug Routing
 - Contacting A10 Support

