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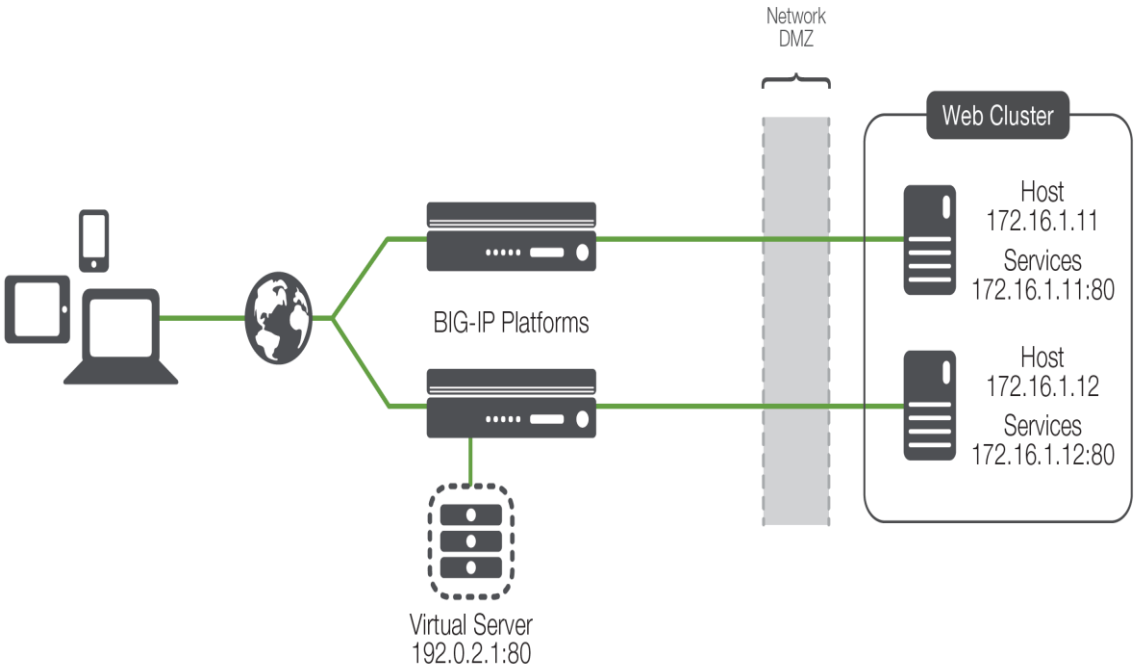

F5 Load Balancer

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F5 Load Balancer

Course Overview:

This course is designed to help learners in building their own lab topology in order to acquire the skills and knowledge necessary to manage the F5 BIG-IP Application Delivery Controller (ADC) appliance, including the Local Traffic Manager (LTM) module. We use detailed explanations and presentations to prepare learners for real-world application and success in earning the F5 BIG-IP Administrator certification. This class walks you through the stepwise process of how to construct your own lab environment, and do what you envision in the videos. Your exercise will serve you in mastering F5 technologies.

Objectives:-

- Back up the BIG-IP system configuration for safekeeping
- Configure virtual servers, pools, monitors, profiles, and persistence objects
- Test and verify application delivery through the BIG-IP system using local traffic statistics
- Configure priority group activation on a load balancing pool to allow servers to be activated only as needed to process traffic
- Compare and contrast member-based and node-based dynamic load balancing methods
- Configure connection limits to place a threshold on traffic volume to particular pool members and nodes
- Differentiate between cookie, SSL, SIP, universal, and destination address affinity persistence, and describe use cases for each
- Describe the three Match Across Services persistence options and use cases for each
- Configure health monitors to appropriately monitor application delivery through a BIG-IP system
- Configure different types of virtual services to support different types of traffic processing through a BIG-IP system
- Configure different types of SNATs to support routing of traffic through a BIG-IP system
- Configure VLAN tagging and trunking
- Restrict administrative and application traffic through the BIG-IP system using packet filters, port lockdown, and virtual server settings
- Configure SNMP alerts and traps in support of remote monitoring of the BIG-IP system

- Use an F5-supplied iApp template to deploy and manage a website application service
- Use iRules and local traffic policies appropriately to customize application delivery through the BIG-IP system
- Configure the BIG-IP to detect and mitigate some common attacks at the network and application layers using LTM features such as SYN check, eviction policies, iRules and Local Traffic Policies

Configuring BIG-IP LTM: Local Traffic Manager (LTM)

1: Setting Up the BIG-IP System

- Introducing the BIG-IP System
- Initially Setting Up the BIG-IP System
- Archiving the BIG-IP Configuration
- Leveraging F5 Support Resources and Tools

2: Reviewing Local Traffic Configuration

- Reviewing Nodes, Pools, and Virtual Servers
- Reviewing Address Translation
- Reviewing Routing Assumptions
- Reviewing Application Health Monitoring
- Reviewing Traffic Behaviour Modification with Profiles
- Reviewing the TMOS Shell (TMSH)
- Reviewing Managing BIG-IP Configuration Data

3: Load Balancing Traffic with LTM

- Exploring Load Balancing Options
- Using Priority Group Activation and Fallback Host
- Comparing Member and Node Load Balancing

4: Modifying Traffic Behaviour with Persistence

- Reviewing Persistence

- Introducing Cookie Persistence
- Introducing SSL Persistence
- Introducing SIP Persistence
- Introducing Universal Persistence
- Introducing Destination Address Affinity Persistence
- Using Match Across Options for Persistence

5: Monitoring Application Health

- Differentiating Monitor Types
- Customizing the HTTP Monitor
- Monitoring an Alias Address and Port
- Monitoring a Path vs. Monitoring a Device
- Managing Multiple Monitors
- Using Application Check Monitors
- Using Manual Resume and Advanced Monitor Timer Settings

6: Processing Traffic with Virtual Servers

- Understanding the Need for Other Virtual Server Types
- Forwarding Traffic with a Virtual Server
- Understanding Virtual Server Order of Precedence
- Path Load Balancing

7: Processing Traffic with SNATs

- Overview of SNATs
- Using SNAT Pools
- SNATs as Listeners
- SNAT Specificity
- VIP Bounceback
- Additional SNAT Options
- Network Packet Processing Review

8: Modifying Traffic Behaviour with Profiles

- Profiles Overview
- TCP Express Optimization
- TCP Profiles Overview

- HTTP Profile Options
- OneConnect
- Offloading HTTP Compression to BIG-IP
- HTTP Caching
- Stream Profiles
- F5 Acceleration Technologies

9: Selected Topics

- VLAN, VLAN Tagging, and Trunking
- Restricting Network Access
- SNMP Features
- Segmenting Network Traffic with Route Domains

10: Deploying Application Services with iApps

- Simplifying Application Deployment with iApps
- Using iApps Templates
- Deploying an Application Service
- Leveraging the iApps Ecosystem on DevCentral

11: Customizing Application Delivery with iRules and Local Traffic Policies

- Getting Started with iRules
- Triggering an iRule
- Introducing iRule Constructs
- Leveraging the DevCentral Ecosystem
- Deploying and Testing iRules
- Getting Started with Local Traffic Policies
- What Can You Do with a Local Traffic Policy?
- How Does a Local Traffic Policy Work?
- Understanding Local Traffic Policy Workflow
- Introducing the Elements of a Local Traffic Policy
- Specifying the Matching Strategy
- What Are Rules?
- Understanding Requires and Controls
- Configuring and Managing Policy Rules
- Configuring a New Rule
- Including Tcl in Certain Rule Settings

Chapter 12: Securing Application Delivery with LTM

- Understanding Today's Threat Landscape
- Integrating LTM Into Your Security Strategy
- Defending Your Environment Against SYN Flood Attacks
- Defending Your Environment Against Other Volumetric Attacks
- Addressing Application Vulnerabilities with iRules and Local Traffic Policies

13: Final Lab Project

- About the Final Lab Project
- Possible Solution to Lab 13.1

Configuring BIG-IP DNS (formerly GTM)

1: Setting Up the BIG-IP System

- Introducing the BIG-IP System
- Initially Setting Up the BIG-IP System
- Archiving the BIG-IP Configuration
- Leveraging F5 Support Resources and Tools
- Provision the BIG-IP System and Confirm Network Configuration

2: Introducing the Domain Name System (DNS) and BIG-IP DNS

- Understanding the Domain Name System (DNS)
- Reviewing the Name Resolution Process
- Implementing BIG-IP DNS
- Using DNS Resolution Diagnostic Tools

3: Accelerating DNS Resolution

- Introducing DNS Resolution with BIG-IP DNS
- BIG-IP DNS Resolution Decision Flow
- Configuring BIG-IP DNS Listeners
- Resolving DNS Queries in the Labs (Lab Zone Records)
- Load Balancing Queries to a DNS Server Pool
- Accelerating DNS Resolution with DNS Cache

- Accelerating DNS Resolution with DNS Express
- Introducing Wide IPs
- Using Other Resolution Methods with BIG-IP DNS
- Integrating BIG-IP DNS into Existing DNS Environments

4: Implementing Intelligent DNS Resolutions

- Introducing Intelligent DNS Resolution
- Identifying Physical Network Components
- Identifying Logical Network Components
- Collecting Metrics for Intelligent Resolution
- Configuring Data Centers
- Configuring a BIG-IP DNS System as a Server
- Configuring a BIG-IP LTM System as a Server
- Establishing iQuery Communication between BIG-IP Systems
- Configuring a Non-F5 Server
- Defining Links and Routers
- Configuring Wide IP Pools
- Configuring Wide IPs
- Managing Object Status
- Using the Traffic Management Shell (TMSH)

5: Using LDNS Probes and Metrics

- Introducing LDNS Probes and Metrics
- Types of LDNS Probes
- Excluding an LDNS from Probing
- Configuring Probe Metrics Collection

6: Load Balancing Intelligent DNS Resolution

- Introducing Load Balancing on BIG-IP DNS
- Using Static Load Balancing Methods
- Round Robin
- Ratio
- Global Availability
- Static Persist
- Other Static Load Balancing Methods
- Using Dynamic Load Balancing Methods

- Round Trip Time
- Completion Rate
- CPU
- Hops
- Least Connections
- Packet Rate
- Kilobytes per Second
- Other Dynamic Load Balancing Methods
- Using Quality of Service Load Balancing
- Persisting DNS Query Responses
- Configuring GSLB Load Balancing Decision Logs
- Using Manual Resume
- Using Topology Load Balancing

7: Monitoring Intelligent DNS Resources

- Exploring Monitors
- Configuring Monitors
- Assigning Monitors to Resources
- Monitoring Best Practices

8: Advanced BIG-IP DNS Topics

- Implementing DNSSEC
- Setting Limits for Resource Availability
- Using iRules with Wide IPs
- Introducing Other Wide IP Types
- Implementing BIG-IP DNS Sync Groups

9: Final Configuration Projects

BIG IP F5 Application Security Manager (ASM)

1: Setting Up the BIG-IP System

- Introducing the BIG-IP System

- Initially Setting Up the BIG-IP System
- Creating an Archive of the BIG-IP System
- Leveraging F5 Support Resources and Tools

2: Traffic Processing with BIG-IP

- Understanding Traffic Processing with LTM
- Overview of Local Traffic Policies and ASM

3: Web Application Concepts

- Anatomy of a Web Application
- An Overview of Common Security Methods
- Examining https & Web Application Components
- Examining https Headers
- Examining https Responses
- Examining HTML Components
- How ASM parses File Types, URLs, & Parameters
- Using the Fiddler https proxy tool

4: Web Application Vulnerabilities

- Examining the OWASP Top 10 vulnerabilities
- Summary of risk mitigation using ASM

5: Security Policy Deployment

- About Positive and Negative Security Models
- Deployment Wizard: Local Traffic Deployment
- Deployment Wizard: Configuration settings
- Violations and Security Policy Building
- Reviewing Violations

6: Attack Signatures

- Defining Attack Signatures
- Attack Signature Features

- Defining Attack Signature Sets
- About User-defined Attack Signatures
- Updating Attack Signatures
- Understanding Attack Signatures and staging

7: Positive Security Policy Building

- Defining Security Policy Components
- Security Through Entity Learning
- Reviewing Staging and Enforcement
- Understanding the Selective mode
- Learning Differentiation: Real threats vs. false positives

8: Cookies and other Headers

- Purposes of ASM Cookies
- Understanding Allowed and Enforced Cookies
- Configuring security processing on https headers

9: Reporting and Logging

- Reporting capabilities in ASM
- Generating a PCI Compliance Report
- Generating an ASM Security Events Report

10: User Roles, policy modification, and other deployments

- Understanding User Roles & Partitions
- Editing and Exporting Security Policies

11: Advanced parameter handling

- Defining Parameters
- Defining Static Parameters
- Configuring Dynamic Parameters and Extractions
- Application-Ready Template Overview

12: Real Traffic Policy Builder & Rules

- Overview of the Real Traffic Policy Builder

- Defining Policy Types
- Real Traffic Policy Builder Rules

13: Web Application Vulnerability Scanners

- Integrating ASM with Application Vulnerability Scanners
- Resolving Vulnerabilities
- Using the generic XML scanner output

14: Login Enforcement, Session tracking, and Flows

- Defining Login Pages
- Configuring Login Enforcement
- Configuring session and user tracking
- Defining Flows
- Configuring Flow Control

15: Anomaly Detection

- Defining Anomaly Detection
- Preventing Brute Force Attacks
- Preventing Web Scraping
- Geolocation Enforcement
- Configuring IP Address Exceptions
- **ASM and iRules**
- Defining iRules and iRule Events
- Using ASM iRule Event Modes
- iRule Syntax
- ASM iRule Commands

Prerequisites:-

Students are required to complete one of the following F5 prerequisites before attending this course:

- Administering BIG-IP instructor-led course
- F5 Certified BIG-IP Administrator

The following free web-based courses, although optional, will be very helpful for any student with limited BIG-IP administration and configuration experience.

- Getting Started with BIG-IP web-based training
- Getting Started with BIG-IP Local Traffic Manager (LTM) web-based training

The following general network technology knowledge and experience are recommended before attending any F5 Global Training Services instructor-led course:

- OSI model encapsulation
- Routing and switching
- Ethernet and ARP
- TCP/IP concepts
- IP addressing and subnetting
- NAT and private IP addressing
- Default gateway
- Network firewalls
- LAN vs. WAN

The following **course-specific** knowledge and experience is suggested before attending this course:

- Web application delivery
- HTTP, HTTPS, FTP and SSH protocols
- TLS/SSL

Who Can Attend:

- Anyone who wants to learn F5 Load Balancer Administration from scratch
- IT Administrators looking to improve their skills and get a promotion
- Network Administrators
- Network Operators
- Architects

Certifications:

1) F5 LTM Exam – 301a BIG-IP LTM Specialist & 301b BIG
2) IP LTM Specialist F5 DNS Exam – 302 BIG-IP DNS Specialist
3) F5 ASM Exam – 303 BIG-IP ASM Specialist

Key Features:

- One to One Training
- Online Training
- Fastrack & Normal Track
- Resume Modification
- Mock Interviews
- Video Tutorials
- Materials
- Real Time Projects
- Virtual Live Experience
- Preparing for Certification