F5 Networks Configuring
BIG-IP DNS: Domain Name System

Days: 2

Course Overview: This course gives networking professionals a functional understanding of the BIG-IP DNS system as it is commonly used. The course covers configuration and ongoing management of the BIG-IP DNS system, and includes a combination of lecture, discussion, and hands-on labs.

Prerequisites: Administering BIG-IP; TCP/IP Addressing and Routing, WAN/LAN elements; and Data Center Server redundancy concepts.

Audience: This course is intended for system and network administrators responsible for installation, setup, configuration, and administration of BIG-IP DNS systems.

Course Objectives:

- Provision the BIG-IP system for operation
- Back up the BIG-IP system configuration for safekeeping
- Describe how the Domain Name System (DNS) resolves host names into IP addresses
- Describe how the BIG-IP DNS system can participate in the DNS resolution process
- Use DNS Express on the BIG-IP DNS system to accelerate DNS resolution
- Cache DNS query responses on BIG-IP DNS to accelerate DNS resolution
- Load balance DNS queries to a pool of DNS servers and monitor pool health
- Configure the key features of the BIG-IP DNS system to perform intelligent DNS resolution
- Describe the LDNS probes used by BIG-IP DNS to support path-based load balancing
- Configure a wide IP pool to use a path load balancing method
- View and confirm DNS resolution behavior using path load balancing methods
- Use static and dynamic load balancing methods to intelligently resolve DNS queries
- Use persistence to effectively return one or more clients to the same virtual server on each query
- Use manual resume to control certain load balancing behavior in the event of an outage
- Configure and use load balancing decision logs to fine-tune and troubleshoot DNS resolution
- Configure monitors on the BIG-IP DNS system in support of DNS resolution
- Configure BIG-IP DNS to participate in the DNSSEC chain of trust
- Configure limit settings on virtual servers, servers, and wide IP pools to temporarily direct client traffic away from resources that may not be performing at certain thresholds of efficiency
- Configure iRules on a wide IP to customize intelligent DNS resolution
- Describe the other wide IP types provided with BIG-IP DNS
- Configure a BIG-IP DNS sync group
- Apply all the principles learned throughout the course to configure a BIG-IP DNS system based on hypothetical specifications

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OUTLINE

LESSON 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

LESSON 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

LESSON 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

LESSON 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)

LESSON 5: USING LDNS PROBES AND METRICS

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

LESSON 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

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

LESSON 7: MONITORING INTELLIGENT DNS RESOURCES
- Exploring Monitors
- Configuring Monitors
- Assigning Monitors to Resources
- Monitoring Best Practices

LESSON 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

LESSON 9: FINAL CONFIGURATION PROJECTS