

## F5 Networks Configuring BIG-IP DNS: Domain Name System

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### Course Summary

#### Description

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.

#### Objectives

After taking this course, students will be able to:

- 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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### Course Summary (cont.)

#### Topics

- Final Configuration Projects
- Introducing the Domain Name System (DNS) and BIG-IP DNS
- Accelerating DNS Resolution
- Implementing Intelligent DNS Resolutions
- Using LDNS Probes and Metrics
- Load Balancing Intelligent DNS Resolution
- Monitoring Intelligent DNS Resources
- Advanced BIG-IP DNS Topics
- Setting Up the BIG-IP System

#### Audience

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

#### Prerequisite

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

#### Duration

Two Days

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### Course Outline

- I. **Setting Up the BIG-IP System**
  - A. Introducing the BIG-IP System
  - B. Initially Setting Up the BIG-IP System
  - C. Archiving the BIG-IP Configuration
  - D. Leveraging F5 Support Resources and Tools
  - E. Provision the BIG-IP System and Confirm Network Configuration
- II. **Introducing the Domain Name System (DNS) and BIG-IP DNS**
  - A. Understanding the Domain Name System (DNS)
  - B. Reviewing the Name Resolution Process
  - C. Implementing BIG-IP DNS
  - D. Using DNS Resolution Diagnostic Tools
- III. **Accelerating DNS Resolution**
  - A. Introducing DNS Resolution with BIG-IP DNS
  - B. BIG-IP DNS Resolution Decision Flow
  - C. Configuring BIG-IP DNS Listeners
  - D. Resolving DNS Queries in the Labs (Lab Zone Records)
  - E. Load Balancing Queries to a DNS Server Pool
  - F. Accelerating DNS Resolution with DNS Cache
  - G. Accelerating DNS Resolution with DNS Express
  - H. Introducing Wide IPs
  - I. Using Other Resolution Methods with BIG-IP DNS
  - J. Integrating BIG-IP DNS into Existing DNS Environments
- IV. **Implementing Intelligent DNS Resolutions**
  - A. Introducing Intelligent DNS Resolution
  - B. Identifying Physical Network Components
  - C. Identifying Logical Network Components
  - D. Collecting Metrics for Intelligent Resolution
  - E. Configuring Data Centers
  - F. Configuring a BIG-IP DNS System as a Server
  - G. Configuring a BIG-IP LTM System as a Server
  - H. Establishing iQuery Communication between BIG-IP Systems
  - I. Configuring a Non-F5 Server
  - J. Defining Links and Routers
  - K. Configuring Wide IP Pools
  - L. Configuring Wide IPs
  - M. Managing Object Status
  - N. Using the Traffic Management Shell (TMSH)
- V. **Using LDNS Probes and Metrics**
  - A. Introducing LDNS Probes and Metrics
  - B. Types of LDNS Probes
  - C. Excluding an LDNS from Probing
  - D. Configuring Probe Metrics Collection
- VI. **Load Balancing Intelligent DNS Resolution**
  - A. Introducing Load Balancing on BIG-IP DNS
  - B. Using Static Load Balancing Methods
  - C. Round Robin
  - D. Ratio
  - E. Global Availability

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### Course Outline (cont.)

- F. Static Persist
  - G. Other Static Load Balancing Methods
  - H. Using Dynamic Load Balancing Methods
  - I. Round Trip Time
  - J. Completion Rate
  - K. CPU
  - L. Hops
  - M. Least Connections
  - N. Packet Rate
  - O. Kilobytes per Second
  - P. Other Dynamic Load Balancing Methods
  - Q. Virtual Server Capacity
  - R. Virtual Server Score
  - S. Using Quality of Service Load Balancing
  - T. Persisting DNS Query Responses
  - U. Configuring GSLB Load Balancing Decision Logs
  - V. Using Manual Resume
  - W. Using Topology Load Balancing
- VII. *Monitoring Intelligent DNS Resources*
- A. Exploring Monitors
  - B. Configuring Monitors
  - C. Assigning Monitors to Resources
  - D. Monitoring Best Practices
- VIII. *Advanced BIG-IP DNS Topics*
- A. Implementing DNSSEC
  - B. Setting Limits for Resource Availability
  - C. Using iRules with Wide IPs
  - D. Introducing Other Wide IP Types
  - E. Implementing BIG-IP DNS Sync Groups

IX. *Final Configuration Projects*