# GLOSSARY

## A

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| **A record** | DNS Address resource record (RR). Maps a hostname to its address and specifies the Internet Protocol address (in dotted decimal form) of the host. There should be one A record for each host address. |
| **access control list (ACL)** | DHCP mechanism whereby the server can allow or disallow the request or action defined in a packet. *See also* transaction signature (TSIG). |
| **address block** | Block of IP addresses to use with DHCP subnet allocation that uses on-demand address pools. |
| **admin** | Default name of the superuser or global administrator. |
| **administrator** | User account to adopt certain functionality, be it defined by role, constrained role, or group. |
| **alias** | Pointer from one domain name to the official (canonical) domain name. |
| **allocation priority** | An alternate method of control over allocating addresses among scopes other than the default round-robin method. |
| **ARIN** | American Registry of Internet Numbers, one of several regional Internet Registries (IRs), manages IP resources in North America, parts of the Caribbean, and subequatorial Africa. Cisco Network Registrar provides an address space report for this registry. |
| **Asynchronous Transfer Mode (ATM)** | International standard for cell relay in which multiple service types (such as voice, video, or data) are conveyed in fixed-length (53-byte) cells. |
| **authoritative name server** | DNS name server that possesses complete information about a zone. |
| **AXFR** | Full DNS zone transfer. *See also* zone transfer and IXFR. |

## B

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| **Berkeley Internet Name Domain (BIND)** | Implementation of the Domain Name System (DNS) protocols. *See also* DNS. |
| **binding** | Collection of DHCP client options and lease information, managed by the main and backup DHCP servers. A binding database is a collection of configuration parameters associated with all DHCP clients. This database holds configuration information about all the datasets. |
| **BOOTP** | Bootstrap Protocol. Used by a network node to determine the IP address of its Ethernet interfaces, so that it can affect network booting. |

# C

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| **cable modem termination system (CMTS)** | Cable modem termination system. Either a router or bridge, typically at the cable head end. |
| **cache** | Data stored in indexed disk files to reduce the amount of physical memory. |
| **caching name server** | Type of DNS server that caches information learned from other name servers so that it can answer requests quickly, without having to query other servers for each transaction. |
| **canonical name** | Another name for an alias DNS host, inherent in a CNAME resource record (RR). |
| **case sensitivity** | Values in Cisco Network Registrar are not case sensitive, with the exception of passwords. |
| **Central Configuration Management (CCM) database** | Main database for the Cisco Network Registrar web-based user interface (web UI). |
| **chaddr** | DHCP client hardware (MAC) address. Sent in an RFC 2131 packet between the client and server. |
| **change logs, changesets** | A change log is a group of changesets made to the Cisco Network Registrar databases due to additions, modifications or deletions in the web UI. A changeset is a set of changes made to a single object in the database. |
| **ciaddr** | DHCP client IP address. Sent in an RFC 2131 packet between the client and server. |
| **class of address** | Category of an IP address that determines the location of the boundary between network prefix and host suffix. Internet addresses can be A, B, C, D, or E level addresses. Class D addresses are used for multicasting and are not used on hosts. Class E addresses are for experimental use only. |
| **client-class** | Cisco Network Registrar feature that provides differentiated services to users that are connected to a common network. You can thereby group your user community based on administrative criteria, and then ensure that each user receives the appropriate class of service. |
| **cluster** | In Cisco Network Registrar, a group of DNS, DHCP, and TFTP servers that share the same database. |
| **CNAME record** | DNS Canonical Name resource record (RR). Used for nicknames or aliases. The name associated with the resource record is the nickname. The data portion is the official or canonical name. |
| **CNRDB** | Name of one of the Cisco Network Registrar internal databases. The other is changeset database. |
| **constraint** | Assigned limitation on the role or allowable functionality of an administrator. |

# D

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| **Data Over Cable Service Interface Specification (DOCSIS)** | Data Over Cable Service Interface Specification. Standard created by cable companies in 1995 to work toward an open cable system standard and that resulted in specifications for connection points, called interfaces. |

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| **delegation** | Act of assigning responsibility for managing a DNS subzone to another server, or of assigning DHCP address blocks to local clusters. |
| **DHCP** | Dynamic Host Configuration Protocol. Designed by the Internet Engineering Task Force (IETF) to reduce the amount of configuration that is required when using TCP/IP. DHCP allocates IP addresses to hosts. It also provides all the parameters that hosts require to operate and exchange information on the Internet network to which they are attached. |
| **Digital Subscriber Line (DSL)** | Public network technology that delivers high bandwidth over conventional copper wiring at limited distances. |
| **DNS** | Domain Name System. Handles the growing number of Internet users. DNS translates names, such as www.cisco.com, into Internet Protocol (IP) addresses, such as 192.168.40.0, so that computers can communicate with each other. |
| **DNS update** | Protocol (RFC 2136) that integrates DNS with DHCP. |
| **domain** | Portion of the DNS naming hierarchy tree that refers to general groupings of networks based on organization type or geography. The hierarchy is root, top- or first-level, and second-level domain. |
| **domain name** | DNS name that can be either absolute or relative. An absolute name is the fully qualified domain name (FQDN) and is terminated with a period. A relative name is relative to the current domain and does not end with a period. |
| **dotted decimal notation** | Syntactic representation of a 32-bit integer that consists of four eight-bit numbers written in base 10 with dots separating them for a representation of IP addresses. Many TCP/IP application programs accept dotted decimal notation in place of destination machine names. |

# E

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| **expression** | Construct commonly used in the Cisco Network Registrar DHCP implementation to create client identities or look up clients. For example, an expression can be used to construct a scope from a template. |
| **extension and extension point** | In Cisco Network Registrar, element of a script written in TCP, C, or C++ that customizes handling DHCP packets as the server processes them, and which supports additional levels of customizing DHCP clients. |

# F

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| **failover** | Cisco Network Registrar feature (as described in RFC 2131) that provides for multiple, redundant DHCP servers, whereby one server can take over in case of a failure. DHCP clients can continue to keep and renew their leases without needing to know or care which server is responding to their requests. |
| **forwarder** | DNS server designated to handle all offsite queries. Using forwarders relieves other DNS servers from having to send packets offsite. |

## F

**forwarding, DHCP**    Mechanism of forwarding DHCP packets to another DHCP server on a per-client basis. You can achieve this in Cisco Network Registrar by using extension scripting.

**FQDN**    Fully qualified domain name. Absolute domain name that unambiguously specifies a host location in the DNS hierarchy.

## G

**giaddr**    DHCP gateway (relay agent) IP address. Sent in an RFC 2131 packet between the client and server.

**glue record**    DNS Address resource record that specifies the address of a subdomain authoritative name server. You only need glue records in the server delegating a domain, not in the domain itself.

**group**    Associative entity that combines administrators so that they can be assigned roles and constrained roles.

## H

**High-Availability (HA) DNS**    DNS configuration in which a second primary server can be made available as a hot standby that shadows the main primary server.

**HINFO record**    DNS Host Information resource record (RR). Provides information about the hardware and software of the host machine.

**hint server**    *See* root hint server.

**host**    Any network device with a TCP/IP network address.

## I

**IEEE**    Institute of Electrical and Electronics Engineers. Professional organization whose activities include developing communications and network standards.

**in-addr.arpa**    DNS address mapping domain with which you can index host addresses and names. The Internet can thereby convert IP addresses back to hostnames. *See also* reverse zone.

**IP address**    Internet Protocol address. For example, 192.168.40.123.

**IP history**    Cisco Network Registrar tool that records the lease history of IP addresses in a database.

**IPv6**    New IP standard involving 128-bit addresses. Cisco Network Registrar provides a DHCPv6 implementation.

**ISP**    Internet Service Provider. Company that provides leased line, dialup, and DSL (Point-to-Point over Ethernet and DHCP) access to customers.

# I

**iterative query**       Type of DNS query whereby the name server returns the closest answer to the querying server.

**IXFR**                  Incremental zone transfer. Standard that allows Cisco Network Registrar to update a slave (secondary) server by transferring only the changed data from the primary server.

# L

**lame delegation**       Condition when DNS servers listed in a zone are not configured to be authoritative for the zone.

**LDAP**                  Lightweight Directory Access Protocol. Method that provides directory services to integrate Cisco Network Registrar client and lease information.

**lease**                 IP address assignment to a DHCP client that also specifies how long the client can use the address. When the lease expires, the client must negotiate a new one with the DHCP server.

**lease grace period**    Length of time the lease is retained in the DHCP server database after it expires. This protects a client lease in case the client and server are in different time zones, their clocks are not synchronized, or the client is not on the network when the lease expires.

**lease history**         A report that can be generated to provide a historical view of when a client was issued a lease, for how long, when the client or server released the lease before it expired, and if and when the server renewed the lease and for how long.

**lease query**           Process by which a relay agent can request lease (and reservation) data directly from a DHCP server in addition to gleaning it from client/server transactions.

**local cluster**         Location of the local Cisco Network Registrar servers. *See also* regional cluster.

**localhost**             Distinguished name referring to the name of the current machine. Localhost is useful for applications requiring a hostname.

**loopback zone**         DNS zone that enables the server to direct traffic to itself. The host number is almost always 127.0.0.1.

# M

**MAC address**           Standardized data link layer address. Required for every port or device that connects to a LAN. Other devices in the network use these addresses to locate specific ports on the network and to create and update routing tables and data structures. MAC addresses are six bytes long and are controlled by the IEEE. Also known as a hardware address, MAC layer address, and physical address. A typical MAC address is 1,6,00:d0:ba:d3:bd:3b.

**mail exchanger**        Host that accepts electronic mail, some of which act as mail forwarders. *See also* MX record.

**master name server**    Authoritative DNS name server that transfers zone data to secondary servers through zone transfers.

**maximum client lead time (MCLT)**    In DHCP failover, a type of lease insurance that controls how much ahead of the backup server lease expiration the client lease expiration should be.

# M

**multinetting**     State of having multiple DHCP scopes on one subnet or several LAN segments.

**Multiple Service Operator (MSO)**     Provides subscribers Internet access using cable or wireless technologies.

**multithreading**     Process of performing multiple server tasks.

**MX record**     DNS Mail Exchanger resource record (RR). Specifies where mail for a domain name should be delivered. You can have multiple MX records for a single domain name, ranked in preference order.

# N

**nameserver**     DNS host that stores data and RRs for a domain.

**NAPTR**     DNS Naming Authority Pointer resource record (RR). Helps with name resolution in a particular namespace and is processed to get to a resolution service. Based on proposed standard RFC 2915.

**negative cache time**     Memory cache the DNS server maintains for a quick response to repeated requests for negative information, such as "no such name" or "no such data." Cisco Network Registrar discards this information at intervals.

**network ID**     Portion of the 32-bit IP address that identifies which network a particular system is on, determined by performing an AND operation of the subnet mask and the IP address.

**NOTIFY**     Standard (RFC 1996) whereby DNS master servers can inform their slaves that changes were made to their zones, and which initiates a zone transfer.

**nrcmd**     Cisco Network Registrar command line interface (CLI).

# O

**on-demand address pool**     Wholesale IP address pool issued to a client (usually a VPN router or other provisioning device), from which it can draw for lease assignments. Also known as DHCP subnet allocation.

**option, DHCP**     DHCP configuration parameter and other control information stored in the options field of a DHCP message. DHCP clients determine what options get requested and sent in a DHCP packet. Cisco Network Registrar allows for creating option definitions as well as the option sets to which they belong.

**Organization report**     One of the reports to be submitted to ARIN, POC being the other report. *See also* ARIN and POC report.

**Organizationally Unique Identifier (OUI)**     Assigned by the IEEE to identify the owner or ISP of a VPN. *See also* IEEE and virtual private network (VPN).

**owner**     Owners can be created as distinguishing factors for address blocks, subnets, and zones. In the context or DNS RRs, an owner is the name of the RR.

# P

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| **ping** | Packet Internetwork Groper. A common method for troubleshooting device accessibility that uses a series of Internet Control Message Protocol (ICMP) Echo messages to determine if a remote host is active or inactive, and the round-trip delay in communicating with the host. |
| **POC report** | Point of Contact report. One of the reports to be submitted to ARIN, Organization being the other report. *See also* ARIN and Organization report. |
| **policy** | Group of DHCP attributes or options applied to a single scope or group of scopes. Embedded policies can be created for scopes and other DHCP objects. |
| **polling** | Collection of subnet utilization or lease history data over a certain regular period. |
| **primary master** | DNS server from which a secondary server receive data through a zone transfer request. |
| **provisional address** | Address allocated by the DHCP server to an unknown clients for a short time, one-shot basis. |
| **PTR record** | DNS Pointer resource record. Used to enable special names to point to some other location in the domain tree. Should refer to official (canonical) names and not aliases. *See also* in-addr.arpa. |
| **pulling and pushing objects** | The Cisco Network Registrar regional cluster provides functions to pull network objects from the replica database of local cluster data, and push objects directly to the local clusters. |

# R

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| **recursive query** | DNS query where the name server asks other DNS server for any nonauthoritative data not in its own cache. Recursive queries continue to query all name servers until receiving an answer or an error. |
| **refresh interval** | Time interval in which a secondary DNS server checks the accuracy of its data by sending an AXFR packet to the primary server. |
| **region** | Regions can be created as distinguishing factors for address blocks, subnets, and zones. A region is distinct from the regional cluster. |
| **regional cluster** | Location of the regional Cisco Network Registrar CCM server. *See also* local cluster. |
| **relay agent** | Device that connects two or more networks or network systems. In DHCP, a router on a virtual private network that is the IP helper for the DHCP server. |
| **replica database** | CCM database that captures copies of local cluster configurations at the regional cluster. These configurations can be pulled to the regional cluster so that they can be pushed to other local clusters. |
| **Request for Comments (RFC)** | TCP/IP set of standards. |
| **reservation** | IP address or lease that is reserved for a specific DHCP client. |
| **resolution exception** | Selectively forwarding DNS queries for specified domains to internal servers rather than recursively querying Internet root name and external servers. |

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| **resolver** | Client part of the DNS client/server mechanism. A resolver creates queries sent across a network to a name server, interprets responses, and returns information to the requesting programs. |
| **resource record (RR)** | DNS configuration record, such as SOA, NS, A, CNAME, HINFO, WKS, MX, and PTR that comprises the data within a DNS zone. Mostly abbreviated as RR. *See* Appendix A, "Resource Records." |
| **reverse zone** | DNS zone that uses names as addresses to support address queries. *See also* in-addr.arpa. |
| **RIC server** | The Cisco Network Registrar Router Interface Configuration (RIC) server that manages router interfaces on Cisco Systems Universal Broadband Routers (uBRs) that manage cable modem termination systems (CMTSs). *See also* cable modem termination system (CMTS). |
| **role, constrained role** | Administrators can be assigned one or more roles to determine what functionality they have in the application. A constrained role is a role constrained by further limitations. There are general roles for DNS, host, address block, DHCP, and CCM database administration. You can further constrain roles for specific hosts and zones. Some roles have distinguishing subroles, such as the database subrole. |
| **root hint server** | DNS name server at the top of the hierarchy for all root name queries. A root name server knows the addresses of the authoritative name servers for all the top-level domains. Resolution of nonauthoritative or uncached data must start at the root servers. Sometimes called a hint server. |
| **round-robin** | Action when a DNS server rearranges the order of its multiple same-type records each time it is queried. |
| **routed bridge encapsulation (RBE)** | Process by which a stub-bridged segment is terminated on a point-to-point routed interface. Specifically, the router is routing on an IEEE 802.3 or Ethernet header carried over a point-to-point protocol, such as PPP, RFC 1483 ATM, or RFC 1490 Frame Relay. |

# S

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| **scavenging** | Action of periodically scanning dynamic updates to the DNS server for stale resource records and purging these records. |
| **scope** | Administrative grouping of TCP/IP addresses on a DHCP server. Required for lease assignments. |
| **secondary master** | DNS name server that gets it zone data from another name server authoritative for the zone. When a secondary master server starts up, it contacts the primary master, from which it receives updates. |
| **secondary subnet** | A single LAN might have more than one subnet number applicable to the same LAN or network segment in a router. Typically, one subnet is designated as primary, the others as secondary. A site might support addresses on more than one subnet number associated with a single interface. You must configure the DHCP server with the necessary information about your secondary subnets. |
| **selection tags** | Mechanisms that help select DHCPv4 scopes and DHCPv6 prefixes for clients and client-classes. |
| **siaddr** | IP address of the server to use in the next step of the DHCP boot process. Sent in an RFC 2131 packet between the client and server. |
| **slave forwarder** | DNS server that behaves like a stub resolver and passes most queries on to another name server for resolution. *See also* stub resolver. |
| **slave servers** | DNS server that always forwards queries it cannot answer from its cache to a fixed list of forwarding servers instead of querying the root name servers for answers. |

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| **SNMP notification** | Simple Network Management Protocol messages that warn of server error conditions and problems. *See also* trap. |
| **SOA record** | DNS Start of Authority resource record (RR). Designates the start of a zone. |
| **SRV record** | Type of DNS resource record (RR) that allows administrators to use several servers for a single host domain, to move services from host to host with little difficulty, and to designate some hosts as primary servers for a service and others as backups. |
| **staged edit mode** | dhcp or dns edit mode in which the data is stored on the CCM server, but not live on the protocol server. *See also* synchronous edit mode. |
| **stub resolver** | DNS server that hands off queries to another server instead of performing the full resolution itself. |
| **subnet allocation, DHCP** | Cisco Network Registrar use of on-demand address pools for entire subnet allocation of IP addresses to provisioning devices. |
| **subnet mask** | Separate IP address, or part of a host IP address, that determines the host address subnet. For example, 192.168.40.0 255.255.255.0 (or 192.168.40.0/24) indicates that the first 24 bits of the IP address are its subnet, 192.168.40. In this way, addresses do not need to be divided strictly along network class lines. |
| **subnet pool** | Set of IP addresses associated with a network number and subnet mask, including secondary subnets. |
| **subnet sorting** | Attribute of the Cisco Network Registrar DNS server. By enabling it, the server checks the network address of the client before responding to a query. |
| **subnet utilization** | A report that can be generated to determine how many addresses in the subnet were allocated and what the free address space is. |
| **subnetting** | Action of dividing any network class into multiple subnetworks. |
| **subscriber limitation** | Limitation to the number of addresses service providers can determine for the DHCP server to give out to devices on customer premises, handled in Cisco Network Registrar by DHCP option 82 definitions. |
| **subzone** | Partition of a delegated domain, represented as a child of the parent node. A subzone always ends with the name of its parent. For example, boston.example.com. can be a subzone of example.com. |
| **subzone delegation** | Dividing a zone into subzones. You can delegate administrative authority for these subzones, and have them managed by people within those zones or served by separate servers. |
| **supernet** | Aggregation of IP network addresses advertised as a single classless network address. |
| **synchronization** | Synchronization can occur between the regional cluster and local clusters, the CCM and other protocol servers, failover servers, HA DNS servers, and routers. |
| **synchronous edit mode** | dhcp or dns edit mode in which the data is live on the protocol server. *See also* staged edit mode. |

# T

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| **TAC** | Cisco Technical Assistance Center. Cisco Network Registrar provide a **cnr_tactool** utility to use in reporting issues to the TAC. |

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| **TCP/IP** | Suite of data communication protocols. Its name comes from two of the more important protocols in the suite: the Transmission Control Protocol (TCP) and the Internet Protocol (IP). It forms the basis of Internet traffic. |
| **template** | DNS zones and DHCP scopes can have templates to create multiple objects with similar properties. |
| **transaction signature (TSIG)** | DHCP mechanism that ensures that DNS messages come from a trusted source and are not tampered with. *See also* access control list (ACL). |
| **trap** | Criteria set to detect certain SNMP events, such as to determine free addresses on the network. *See also* SNMP notification. |
| **trimming and compacting** | Trimming is periodic elimination of old historical data to regulate the size of log and other files. Compacting is reducing data older than a certain age to subsets of the records. |
| **Trivial File Transfer Protocol (TFTP)** | Protocol used to transfer files across the network using UDP. *See also* User Datagram Protocol (UDP). |

# U

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| **Universal Time (UT)** | International standard time reference that was formerly called Greenwich Mean Time (GMT), also called Universal Coordinated Time (UCT). |
| **update configuration, DNS** | Defines the relationship of a zone with its main and backup DNS servers for DNS update purposes. |
| **update map, DNS** | Defines an update relationship between a DHCP policy and a list of DNS zones. |
| **update policy, DNS** | Provide a mechanism in DHCP for managing update authorization at the DNS RR level. |
| **User Datagram Protocol (UDP)** | Connectionless TCP/IP transport layer protocol. |

# V

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| **virtual channel identifier (VCI) and virtual path identifier (VPI)** | 16-bit field in the header of an ATM cell. The VCI, together with the VPI, identifies the next destination of a cell as it passes through a series of ATM switches on its way to its destination. ATM switches use the VPI/VCI fields to identify the next network VCL that a cell needs to transit on its way to its final destination. The function of the VCI is similar to that of the DLCI in Frame Relay. |
| **virtual private network (VPN)** | Protocol over which IP traffic of private address space can travel securely over a public TCP/IP network. A VPN uses tunneling to encrypt all information at the IP level. *See also* VRF. |
| **VRF** | VPN Routing and Forwarding instance. Routing table and forwarding information base table, populated by routing protocol contexts. *See also* virtual private network (VPN). |

# W

**well-known port**   Any set of IP protocol port numbers preassigned for specific uses by transport level protocols, for example, TCP and UDP. Each server listens at a well-known port so clients can locate it.

**WKS record**   DNS Well Known Service resource record (RR). Used to list the services provided by the hosts in a zone. Common protocols are TCP and UDP.

# Y

**yiaddr**   "Your" client IP address, or address that the DHCP server offers (and ultimately assigns) the client. Sent in an RFC 2131 packet between the client and server.

# Z

**zone**   Delegation point in the DNS tree hierarchy that contains all the names from a certain point downward, except for those names that were delegated to other zones. A zone defines the contents of a contiguous section of the domain space, usually bounded by administrative boundaries. Each zone has configuration data composed of entries called resource records. A zone can map exactly to a single domain, but can also include only part of a domain, with the remainder delegated to another subzone.

**zone distribution**   Configuration that simplifies creating multiple zones that share the same secondary zone attributes. The zone distribution requires adding one or more predefined secondary servers.

**zone of authority**   Group of DNS domains for which a given name server is an authority.

**zone transfer**   Action that occurs when a secondary DNS server starts up and updates itself from the primary server. A secondary DNS server queries a primary name server with a specific packet type called AXFR (transfer all) or IXFR (incrementally transfer) and initiates a transfer of a copy of the database.

**GL-12**