Domain name system

domain name system, or DNSa service that translates computer names into Internet Protocol, or IP, addresses, and vice versa.

host namea name that uniquely identifies a host in the domain. For instance, server01 is the host name in the address server01. diallonics. com.

domain namea unique name that identifies an entity on the Internet. Also known as a site name, it appears as part of the complete address of a web resource. It's usually registered by an organization as its web site address.

Primary DNS zoneWhen you add a zone to a DNS server as a primary zone, that DNS server is the primary server for the zone. Only one DNS server can host the primary zone, and all changes to the zone must be done through that server.

Secondary DNS zoneWhen you add a zone to a DNS server as a secondary zone, the DNS server hosts a read-only copy of the table from the primary server. The secondary DNS zone resource records are transferred by a process known as zone transfer.

address recordmaps a host name to a 32-bit IPv4 address.

IPv6 address recordmaps a host name to a 128-bit IPv6 address.

canonical name recordassigns one or more aliases to a host. So it enables a single host to have more than one name. This is useful if, for example, you want to host multiple web sites on a single server with one IP address.

mail exchange recordidentifies the device hosting a mail server. A host often has more than one mail exchanger to increase the chances that mail will

reach its destination successfully. The mail exchangers are recorded in order of priority, with the mail exchanger that should be accessed first listed at the top. If the first mail exchanger is unresponsive, the second is tried, and so on.

name server recorddelegates a DNS zone to use the given authoritative name servers.

pointer recordmaps an IP address to a host name to allow for reverse lookup functionality.

start of authority recordcontains authoritative information for a zone, including the primary DNS name server, contact details for the domain administrator, the domain serial number, and timers relating to refreshing the zone. There can be only one SOA file for each zone.

service locator recordcan be used to identify a host that provides a specific service, such as a web or directory services server

client requests name resolutionA client sends a name resolution request to the DNS resolver when it needs to resolve a DNS name. The resolver then generates a DNS name resolution request message, which transmits to the DNS server address specified during configuration.

the DNS server queries a root name serverWhen the DNS server receives a request, it checks if the requested name is in its DNS cache entries or its local DNS database. If so, it returns the IP address to the client. If there's no match for the name, the DNS server forwards the request to a root name

server, asking it which DNS server it must query for the appropriate top-level domain.

the root name server respondsWhen it receives a request from a DNS server, the root name server responds with the IP address of the DNS server for the top-level domain in the name to be resolved.

the DNS server queries the top-level domain serverThe original DNS server contacts the appropriate top-level domain's DNS server using the IP address supplied by a root name server. The top-level domain server reads the second-level domain of the requested name. If it can resolve the name, it sends the required IP address back to the requesting DNS server.

the DNS server queries other domain servers if necessaryIf the top-level domain can't resolve the name because of additional levels in the FQDN, it sends the IP address of the second-level DNS server.

the host name is resolvedThe communication between DNS servers continues until it reaches the level in the DNS hierarchy where a DNS server can resolve the host name.

the resolved address is returned to the clientThe preferred DNS server provides the client with the IP address of the target host.

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