The Domain Name System (DNS) ensures the availability of Web sites, email, and Web systems by mapping domain names to Internet Protocol (IP) addresses, represented as a series of numbers and letters, for example, 72.3.130.230 in IPv4 or 2001:0db8:85a3:0000:0000:8a2e:0370:7334 in IPv6. The DNS uses a distributed hierarchical naming system, such as www.verisign.com into IP addresses that allow data and information to reach its destination. This process, called DNS resolution, allows people to type more memorable domain names into a browser to reach Web sites and send email messages.

**ANATOMY OF A DOMAIN**

Today there are nearly 300 million registered domain names. Domain names allow people to organize, navigate, and communicate on the Web. They provide a literal address that directs Internet users to the areas of the Web to which they want to go. There are a few different parts of what we consider a “domain name” described below.

**THIRD-LEVEL DOMAIN**

User level: The domain name is the portion of the domain name that appears before the second-level domain name. The most common third-level domain name is .web, but can take many other forms, for example, long-verisign.com.

**SECOND-LEVEL DOMAIN**

This is the next part of the domain name that appears to the immediate left of the TLD. People register for the second-level domain to differentiate their sites or their offering from other sites.

**TOP-LEVEL DOMAIN**

Keys: Second-level TLDs are the highest level of organization on the Web. They are typically two letters. Common TLDs, such as .com, .net, and .org, and Country Code TLDs, have letter codes approved for use by specific regions, such as .uk, .de, and .co.uk.

**HOW THE DNS WORKS**

The DNS uses the following steps to map domain names to IP addresses, allowing people to search for Web sites and send email using familiar names instead of strings of numbers and letters. The process of translating a domain name into an IP address is called DNS resolution.

**Step 1:** You type a domain or Web address, like www.verisign.com, into a browser. Your browser first sends a request to the name server for the domain name.

**Step 2:** If your ISP’s recursive resolver doesn’t have the address, it queries the DNS primary name servers for the IP address.

**Step 3:** Each TLD has its own set of authoritative name servers, which store the information about the domain, such as the IP addresses of the root name servers.

**Step 4:** The root name servers direct your recursive resolver to the appropriate top-level domain name servers by examining the top-level domain name.

**Step 5:** Your ISP’s recursive resolver then queries the authoritative DNS name servers for this address. The authoritative DNS name servers are the authoritative sources of the domain’s information, including the IP addresses.

**Step 6:** Finally, your ISP’s recursive resolver looks up the record for the domain name on your computer, which will give you the IP address of that domain in the case when there is a problem, such as if there is a DNS failure or if the DNS server is unavailable.

For more information about DNS visit Verisign.com/DNS