Web Hosting

All About DNS

There are several articles on the subject of purchasing, moving and managing your domain name. Please refer to the one that fits your needs best:

- Purchasing a Domain Name
- All About DNS (this article)
- Changing DNS for a Domain Name
- Details for Changing DNS Yourself

What is DNS?

DNS stands for "Domain Name System" and is a hierarchical lookup system. It is used before any actual Internet transaction such as a web request or email message takes place. Every web server or mail server on the Internet has a unique IP address, a number, that identifies it from all the other machines on the net. Once you know that number, you can find that machine from anywhere in the world using DNS. You can think of DNS as being like phone book. When someone requests your web address or sends you an email message, DNS servers around the world are used to look up your domain name in order to find the IP address of the web servers or email servers that you use. Once the right servers are found, the request is routed to the correct machine and your web site is delivered to the requester or the email is delivered to you.

When you move from one home to another, you must tell the phone company of your new address so people can find you in the phone book. Similarly, when you move from one hosting service to another, the DNS entry must change so requests are directed to the new server (IP) instead of the old one.

How does DNS work?

This is a somewhat complex subject, but here are the basics: When someone makes a request regarding your domain name, the information is delivered based on DNS records kept in several places:

- Your Domain Registrar: When you purchase and register your domain name with a registrar such as Network Solutions, they keep a record of the DNS server that is designated as the single "Source of Authority" (or the one official phone book in keeping with our example) for that domain name.
- The SOA: The DNS server that is designated as "Source of Authority" is looked to for the right IP address to fulfill all requests regarding your domain name whether they be web, mail, ftp or other requests. When you host with us, we will normally be SOA for your domain name.
- The International Root Name Servers: These 13 **root servers** around the world are like a master listing of all DNS records. They look up names at registrars and get their information from the SOA. Once they have a name listed they will typically refresh the record several times a day. If they receive a request for a name for which they don't have a record, they will look it up immediately.
- The Domain Name Servers of Local ISPs: These servers all over the Internet will typically query the Root Name Servers once every 24-hours to update their DNS tables, but some may only do it every two to three days. Any time there is a request for information regarding your domain, these servers are the ones that deliver the information to fulfill your request. If they don't

have the information about a particular domain, they will look it up on a Root Server. "Caching" allows DNS servers to remember answers, and avoid contacting the root servers whenever possible, thus the number of lookups is comparatively small.
- Other Locations: Additionally, there are many intermediate "points of access" around the Internet that also cache DNS records. These might be "Internet Routers" or "Internet Caching Engines."

When you move from one host to another, your SOA will change and have new information for fulfilling requests. Because all the DNS servers around the world must update their records and because they do it on their own schedule, it could take as much as two to three days before everyone around the world gets the new information.

Potential Problems with DNS

- DNS Cache and your ISP: When you make a request, your ISP caches the DNS information. If their network is set up correctly, these DNS records "Expire" every 24-hours or sooner. If not, when you make a request such as http://www.somedomain.com, it will keep taking you back to the old host.
- Other problems: During the propagation period, some odd things may happen. Some people may see one version of a web site and some may see another. You may receive mail at your old ISP from some people and at your new ISP from others. If these problems still occur after four days, let us know and we'll investigate the problem for you.
- Getting All Your Mail: It may be helpful to use the webmail interface at both hosts until DNS clears up. Alternatively, you can set up two profiles in your mail client so you are checking your email at both mail servers. If you do the latter, be sure to refer to the IP of the host's mail server or a generic domain name rather than your own domain name when entering your POP server.

Reverse DNS

Mail servers and some other special applications need to have reverse DNS so that the receiving end can verify that the IP and the name of the server match. If we manage your IP address, we can set up reverse DNS for you. If you have your own mail server or other special application, you should contact the ISP that provides the IP address for that server if you need reverse DNS set up.

Unique solution ID: #1030
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Last update: 2017-02-28 14:03