DNS: The Backbone of the Internet

DNS translates domain names into IP addresses, connecting web browsers to the right servers and making the internet accessible to users.

How DNS Works

Domain Name Entered

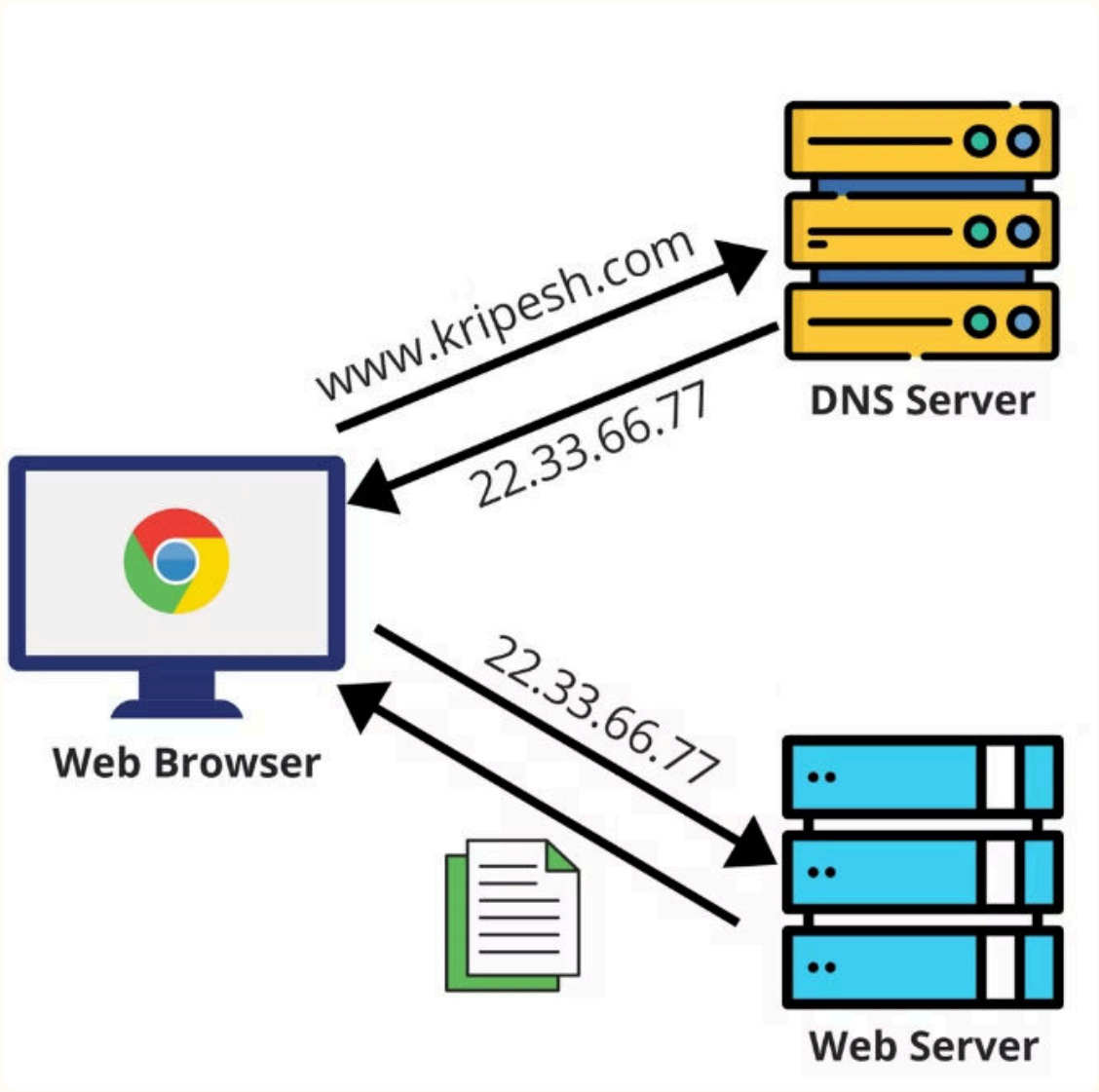
A user types a domain name into their web browser or application.

DNS Lookup

The user's device sends a request to a DNS server to translate the domain name into an IP address.

IP Address Returned

The DNS server responds with the correct IP address, allowing the user's device to connect to the website.


www.kripesh.com
22.33.66.77
DNS Server
Web Browser
22.33.66.77
Web Server

Types of DNS Servers

Root Servers

The authoritative servers at the top of the DNS hierarchy, responsible for directing queries to the appropriate top-level domain servers.

Top-Level Domain (TLD) Servers

Responsible for the top-level domains like .com, .org, and .gov, and directing queries to the appropriate domain name servers.

Recursive Servers

Responsible for resolving domain names by querying other DNS servers on behalf of client devices and applications.

DNS Record Types

1 A Record

Maps a domain name to an IPv4 address.

2 AAAA Record

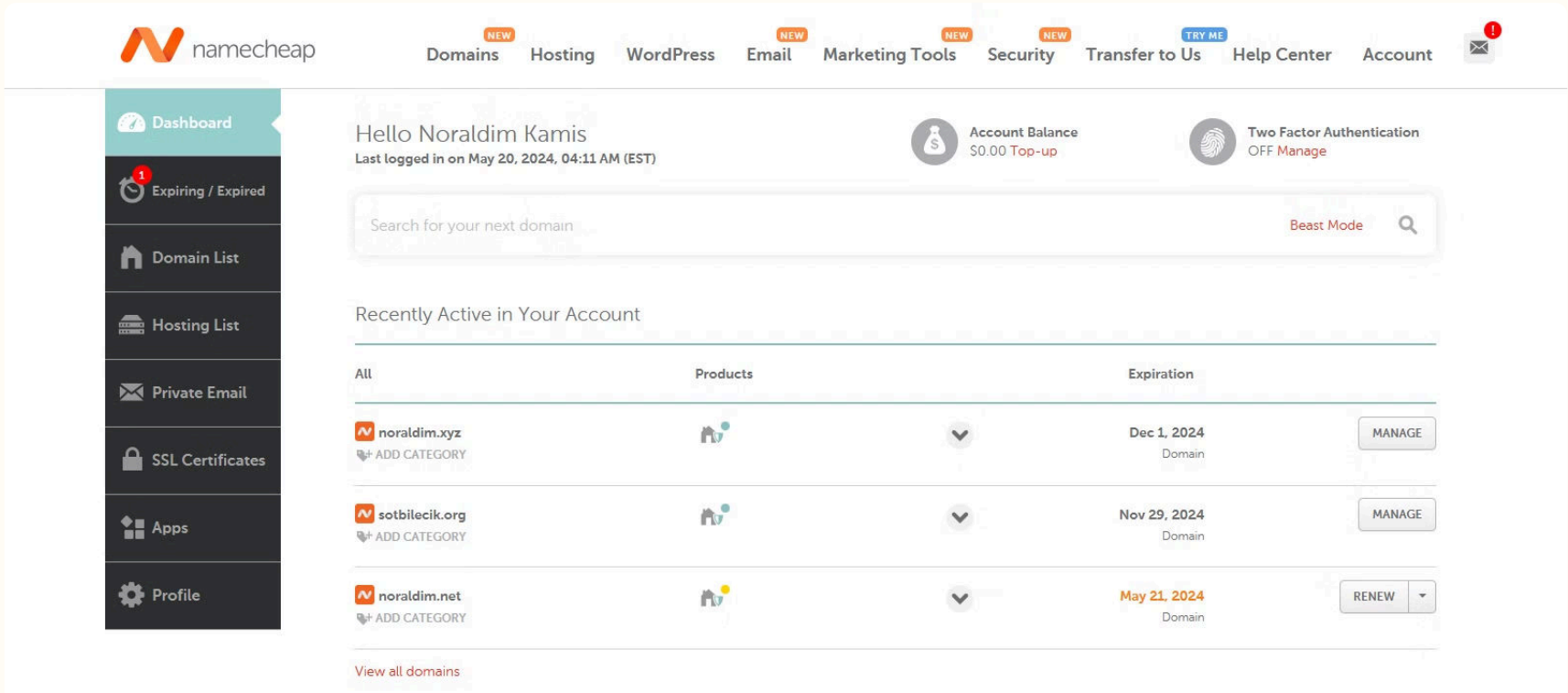
Maps a domain name to an IPv6 address.

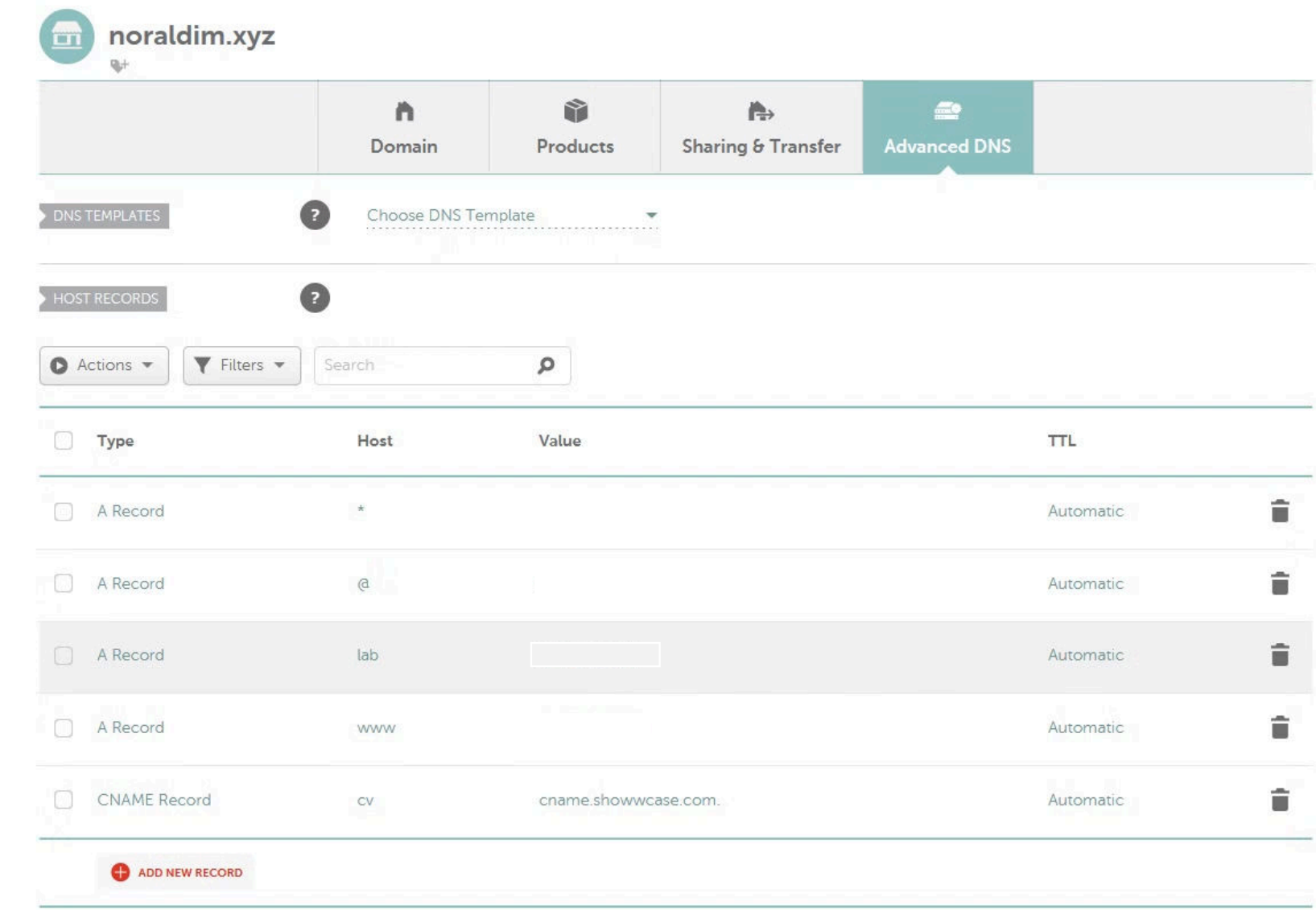
3 CNAME Record

Allows one domain name to be an alias of another domain name.

4 MX Record

Specifies the mail server responsible for accepting email messages on behalf of a domain.


namecheap
Domains
Hosting
WordPress
Email
Marketing Tools
Security
Transfer to Us
Help Center
Account
Dashboard
Expiring / Expired
Domain List
Hosting List
Private Email
SSL Certificates
Apps
Profile
Hello Noraldim Kamis
Last logged in on May 20, 2024, 04:11 AM (EST)
Account Balance
$0.00 Top-up
Two Factor Authentication
OFF Manage
Search for your next domain
Beast Mode
Recently Active in Your Account
All
Products
Expiration
noraldim.xyz
ADD CATEGORY
Dec 1, 2024
Domain
MANAGE
sotbilecik.org
ADD CATEGORY
Nov 29, 2024
Domain
MANAGE
noraldim.net
ADD CATEGORY
May 21, 2024
Domain
RENEW
View all domains


noraldim.xyz
Domain
Products
Sharing & Transfer
Advanced DNS
DNS TEMPLATES
Choose DNS Template
HOST RECORDS
Actions
Filters
Search
Type
Host
Value
TTL
A Record
*
Automatic
A Record
@
Automatic
A Record
lab
Automatic
A Record
www
Automatic
CNAME Record
cv
cname.showwcase.com.
Automatic
ADD NEW RECORD

DNS Caching and Performance

Caching

DNS servers cache resolved IP addresses to improve lookup speed and reduce the load on the overall DNS infrastructure.

Time-to-Live (TTL)

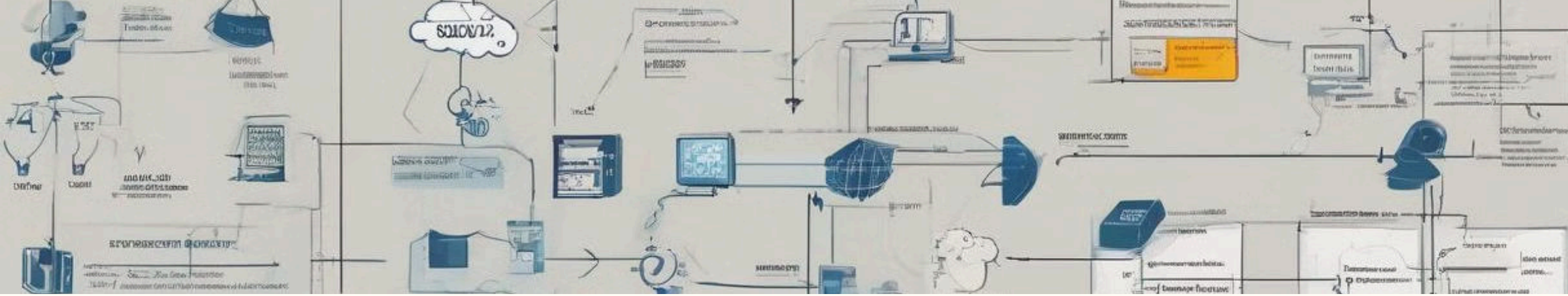
The TTL value determines how long a cached DNS record is considered valid before it needs to be refreshed.

Hierarchical Design

The hierarchical structure of DNS, with root, TLD, and authoritative servers, helps distribute the workload and improve overall performance.

Redundancy

Multiple DNS servers at each level provide redundancy and failover, ensuring reliable DNS resolution even if a server goes down.



DNS Security

DNSSEC

Cryptographically verifies DNS responses to prevent spoofing.

DNS Firewalls

Block access to known malicious domains, stopping harmful traffic.

Encrypted DNS

Protocols like DoH encrypt queries to prevent eavesdropping.

DDoS Attacks

DNS servers can be targets of overwhelming DDoS attacks.

THANK YOU

By Noraldim kamis