Primary Nameserver Service

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- All Janet services are governed by the Janet policies [1] [1].

What is a primary nameserver?

A **primary name server** is the server responsible for managing and storing the Domain Name System records for a domain - like jisc.ac.uk or example.ac.uk. It handles queries about the domain's IP addresses for a website, MX records for email and other DNS information, ensuring that users can access websites and services associated with the domain. Essentially, it's the authoritative source for DNS data for that domain.

When a primary name server handles DNS queries, it follows these steps:

1. **Receive the Query**: The server receives a DNS query from a client, which could be a user's computer, or something machine to machine like another DNS server or an API request.
2. **Check the Records**: The primary name server checks its DNS records to find the requested information, such as the IP address associated with a domain name.
3. **Respond to the Query**: If the information is available, the server sends a response back to the client with the requested data.
4. **Forward if Necessary**: If the primary name server doesn't have the information, it may forward the query to another DNS server or provide a referral to a more authoritative server.

This process ensures that users can access websites and services by translating human-readable domain names into machine-readable IP addresses

The DNS is a global database with no single authority overseeing its entirety. To facilitate manageability and distributed administration, domains are divided into separately managed units known as zones. A domain includes both the parent zone and all its child zones. For example, the ac.uk domain encompasses the ac.uk zone and the zones below it, such as example.ac.uk. Each zone is represented by a zone file containing DNS records, and may be hosted on different nameservers. The nameserver that holds the master copy of a zone, where changes to the records can be made, is called the primary nameserver for that zone. Zones can be further divided into subzones, allowing for distributed management of the DNS namespace.

For instance:

- The gov.uk domain includes the gov.uk zone and subzones like department.gov.uk and agency.gov.uk.
- The edu.com domain includes the edu.com zone and subzones like school.edu.com and

college.edu.com.

Copies of the zone will usually also be held on one or more other nameservers, known as secondary nameservers [2] [2], which automatically update their information from the primary server when the zone is changed.

What does the service offer?

The Primary Nameserver Service provides high availability nameservers that satisfy DNS queries for the zone data they hold. They are geographically separated as a precaution against the event of fire or the failure of network connection, and all are situated on the Janet backbone with a target availability of 99.95%

Why use the service?

Available to Janet connected organisations at no additional cost, the service can help reduce organisational overheads. Some organisations do not have available resources to operate nameservers and maintain DNS information. Utilising this external service can address those needs. For those organisations that have internal resource, the Primary nameserver service offers resilience and a reduction in overheads.

Organisations can manage their own zone information via our web portal directly with immediate publication or request changes via securityservices@jisc.ac.uk [3] subject to a two day response time.

Any time a record is updated those changes are propagated to all our nameservers

Note: All Janet connected organisations are eligible to use the Janet Secondary Nameserver Service [2] [2] with or without using the Primary Nameserver Service.

If an organisation chooses to have its zone hosted on the Janet primary nameserver, it is important to run a local caching/recursive nameserver to support DNS resolution - the process of looking up an item in the DNS - by computers within the organisation. Without such a local server, users are likely to experience long and unpredictable delays whenever they use names for computers on the Internet or even on their local network. Setting up and running a caching nameserver is much simpler than running a full nameserver with its own zones.

Source URL: https://community.jisc.ac.uk/library/janet-services-documentation/primary-nameserverservice [4]

Links

1. http://community.jisc.ac.uk/library/library/janet-policies [1]
2. http://community.jisc.ac.uk/library/janet-services-documentation/secondary-nameserver-service [2]
3. https://community.jisc.ac.uk/library/janet-services-documentation/web-administration-interface [5]

Source URL: https://community.jisc.ac.uk/library/janet-services-documentation/primary-nameserver-service

Links

[1] http://community.jisc.ac.uk/library/library/janet-policies
[2] http://community.jisc.ac.uk/library/janet-services-documentation/secondary-nameserver-service
[3] mailto:securityservices@jisc.ac.uk
[4] https://community.jisc.ac.uk/library/janet-services-documentation/primary-nameserverservice
[5] https://community.jisc.ac.uk/library/janet-services-documentation/web-administration-interface