

## Review of Development of the Domain Name System

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### Summary

The authors of this paper describe the process which was used to develop the original DNS. They explain that the naming systems: HOSTS.TXT, XEROX and Clearinghouse, all had weaknesses in their design which made the authors of DNS uncomfortable with expanding existing systems for a new naming system. They wanted a naming system which contained all of the HOSTS.TXT information, but without size limits. They also wanted it to be independent of network topology, and apply to a range of OSES and architectures.

DNS was then created with two different architectural components known as name servers and resolvers. They created a name space in which entries were case-insensitive, and the name space was created using a tree-like structure. This allowed for organizations to consider themselves roots and be in charge of their own local name spaces, while keeping the structure simple enough that there was understanding of how top level root(organizations) servers could communicate with each other. DNS created the idea of zones, which was a contiguous section of the name space, and the use of caching to help retrieve commonly used records more quickly and efficiently.

The authors of the paper explain that there were many weaknesses in the new system that they didn't expect. They knew there could be multiple entries for a single host, but they had no mechanism in which they sorted these entries. Performance was also hindered by unanticipated initial growth during which it was hard for the system to keep track of paths. Also, people that didn't change their naming queries often resulted in negative caching. The successes were that DNS was topology independent, small and large organizations were accounted for by the new system, datagram access to the servers worked successfully and caching help the system performance.

### Pros

- They explain some of the reasons why the old naming systems weren't feasible for their new requirements.
- Each of the features, they pose as part of the new DNS design, are generally explained, and they empathize certain things that are important, like the top level nodes in the name space corresponding to the country.

### Cons

- They say that issues dealing with mail servers and mail addresses have been addressed but they don't explain the details of these new mail systems.