

13.2 Discuss the problems raised by the use of aliases in a name service, and indicate how, if at all, these may be overcome.

The use of aliases makes it possible for cycles to be present in the name space, in which case resolution may never terminate. For example, “/local/file” can be the alias of “/local”, and a resolver could run into cycle when resolve this name. Two possible solutions to solve this problem are, to abandon a resolution process if it passes a threshold number of resolutions, or to leave administrators to veto any aliases that would introduce cycles.

Also, if some servers do not record the alias of a name, or the alias has private access, some servers cannot resolve the alias, thus it might fail recognize the alias or refer the alias as another object.

13.4 Describe the problem of unbound names in multicast navigation. What is implied by the installation of a server for responding to lookups of unbound names?

In multicast navigation, a client multicasts the name to be resolved and the required object type to the group of name servers. Only the server that holds the named attributes responds to the request. However, if no servers can resolve the name, the name is unbound, the request is greeted with silence. The client might treat it as a failure of servers and re-send the request again and again.

If we install a server for responding to lookups of unbound names, the server can respond to clients when there is no resolved name found in servers. However, the server might be overloaded since it should be notified every time a client call name services, and the responding time could be slow.

13.11 When might a DNS server provide multiple answers to a single name lookup, and why?

In order to save on network communication, the DNS protocol allows for multiple queries to be packed into the same request message and for name servers correspondingly to send multiple replies in their response messages. So a DNS server always provide multiple answers to a single name lookup, as much as it can find. And the multiple answers can increase the possibility of finding the right service.