What Is the Global Catalog?

Global Catalog Server

The *global catalog* is a partial, read-only, searchable copy of all the objects in the forest. It speeds up searches for objects that might be stored on domain controllers in a different domain in the forest.

Within a single domain, the AD DS database on each domain controller contains all the information about every object in that domain, but only a subset of this information is replicated to global catalog servers in other domains in the forest. Within a given domain, a query for an object is directed to one of the domain controllers in that domain, but that query does not include results about objects in other domains in the forest. For a query to include results from other domains in the forest, you must query a domain controller that is a global catalog server. By default, the first domain controller in the forest root domain is the only hosted global catalog server. To enhance searching across domains in a forest, you should configure additional domain controllers to store a copy of the global catalog.

The global catalog does not contain all attributes for each object. Instead, the global catalog maintains the subset of attributes that are most likely to be useful in cross-domain searches. These attributes include **givenName**, **displayName**, and **mail**.

There are various reasons why you might perform a search against a global catalog rather than a domain controller that is not a global catalog. For example, when a server that is running Exchange Server receives an incoming email, it needs to search for the recipient's account so that it can decide how to route the message. By automatically querying a global catalog, the server that is running Exchange Server is able to locate the recipient in a multiple domain environment. In another example, when a user signs in to his or her Active Directory account, the domain controller that performs the authentication must contact a global catalog to check for universal group memberships before the user is authenticated.

In a single domain, all domain controllers should be configured to hold a copy of the global catalog; however, in a multiple domain environment, the infrastructure master should not be a global catalog server unless all the domain controllers in the domain are also global catalog servers. Deciding which domain controllers should be configured to hold a copy of the global catalog depends on replication traffic and network bandwidth. Many organizations opt to make every domain controller a global catalog server