Domain controller

This definition is part of our Essential Guide: The essential guide to PowerShell in Exchange

Primary domain controller (PDC) and backup domain controller (BDC) are roles that can be assigned to a server in a network of computers that use the Windows operating system. Windows uses the idea of a domain to manage access to a set of network resources (applications, printers, and so forth) for a group of users. The user need only to log in to the domain to gain access to the resources, which may be located on a number of different servers in the network. One server, known as the primary domain controller, manages the master user database for the domain. One or more other servers are designated as backup domain controllers. The primary domain controller periodically sends copies of the database to the backup domain controllers. A backup domain controller can step in as primary domain controller if the PDC server fails and can also help balance the workload if the network is busy enough.

In Windows, a domain combines some of the advantages of a workgroup (a group of users who exchange access to each others' resources on different computers) and a directory (a group of users who are managed centrally by an administrator). The domain concept not only allows a user to have access to resources that may be on different servers, but it also allows one domain to be given access to another domain in a trust relationship. In this arrangement, the user need only log in to the first domain to also have access to the second domain's resources as well.

In a Windows network, not all servers need to be a PDC or BDC. A server can be designated as a member server whose resources become part of a domain without having a role in the logon process.

Setting up and maintaining PDCs and BDCs and domain information is a major activity for the administrator of a Windows network. In Windows 2000, the domain controller concept is retained but the PDC and BDC server roles are generally replaced by the Active Directory.