

Application Servers and Clients in CDE

CDE operates in a networked, client/server environment. This article describes the services and configuration files provided in CDE to support client/server remote execution.

CDE Networking Services

The CDE networking model includes four primary services:

- Desktop display services. These services consist of the X11 display server, keyboard and pointing devices, and limited auxiliary processing, such as window management and audio services.
- Session services. Session servers provide login and authentication, session management, and desktop services such as file manager, style manager, and action invocation.
- Application services. Application servers provide both terminal and GUI-based applications. When an application is located and running on a system other than the session server, it is said to be a remote application, and the system running the application is the application server.
- File services. File servers store the data that applications produce and manipulate.

The primary way that application servers, file servers, and session servers share data in CDE 1.0 is through the remote file system (RFS) mechanisms, as offered by the DCE Distributed File Service (DFS),¹ the Andrew File System (AFS), and the Network File System (NFS).

There may be other system services available in the distributed desktop environment, such as font, printing, and fax servers.

Remote Application Models

The desktop can access a remote application by RFS-based execution or by remote application execution.

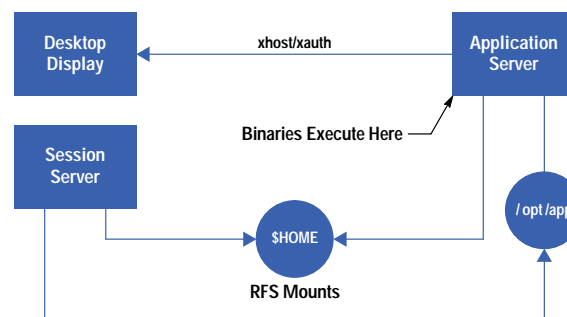
- RFS-based execution. In this configuration, the application binaries reside on the remote system but are run on the session server. From the session server's point of view, the remote system is simply a big disk attached to the workstation by means of RFS. The remote system is not a true CDE application server because it is not providing application execution services.
- Remote application execution. In this configuration, the application runs on the application server and displays its output on the user's desktop display. This configuration requires the linkages shown in Fig. 1. An advantage of this configuration is that the application server can be a different machine type or operating system version than the session server. This is common in today's heterogeneous environments.

CDE provides a small subprocess control daemon (dtspcd) that is installed on application servers. The subprocess control daemon receives requests from CDE components (such as the application manager) to launch processes on the application server on behalf of the user.

Configuring a CDE Application Server

Typically, a CDE application server contains the application binaries, application configuration files (such as app-defaults and message catalogs), and the application's CDE desktop configuration files (application group, action and data type definition files, icon image files, and help files). Locating all the application's configuration files on one system makes the application easier to install and administer. During or after installation, the dtappintegrate utility is run to link the configuration files to a location where clients expect to find them. In addition, the subprocess control daemon must be configured, and clients must have permission to access files by RFS.

Fig. 1. Linkages for remote application execution.



Configuring a CDE Application Client

A system accessing a CDE application server must add the application server to its application search path. This is done by setting a system-wide or personal environment variable. For example, the following line in the file `/usr/dt/config/Xsession.d/0010.dtpaths` adds an application server named SystemA to the client's application search path:
`DTSPSYSAPPHOSTS=SystemA:`

In addition, the client must have RFS access to the application server. Furthermore, a client must be configured to provide X authorization for the application server to access the client's display. The easiest way to set up authorization is to configure the user's home directory so that it is available to all application servers. This configuration is called a networked home directory.

Reference

1. M. Kong, "DCE: An Environment for Secure Client/Server Computing," *Hewlett-Packard Journal*, Vol. 46, no. 6, December 1995, pp. 6-22.
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