Faster, Cheaper, Better DCE Applications
DCE projects simplified and completed in less time with NXTera 5.0

Let's face it, for all its power and dependability, developing and maintaining applications in DCE is a complex and expensive task. True enterprise class distributed development platforms deliver tremendous value, but they demand much from development organizations.

Now there is a way to simplify DCE development, extend it to support Java (and other popular 4GLs) while better leveraging your staff.

NXTera 5.0 radically improves the productivity of DCE development by encapsulating the DCE API. It automates all communication between the client and server – eliminating 100's of DCE API calls that develop must handle manually today.

Now junior developers with experience in C++ and Java and even 4GL's like Visual Basic, Delphi, Powerbuilder, and JBuilder, can quickly develop new and maintain existing DCE applications. All of this without having making any changes to your existing DCE infrastructure.

With NXTera, you can free your most experienced programmers to work on new strategic projects and better leverage developers with skills in Java and other 4GLs.
More…

Summary

NXTera greatly simplifies the development of DCE clients and servers by automating that part of the server that deals with integration into the DCE environment thus relieving the developer of having to learn hundreds of API calls and needing to have in-depth knowledge of the workings of DCE.

The code generated by NXTera includes the code to initialise the server into the DCE world and to handle and automate all aspects of server security. In addition, NXTera provides some extra features in providing for asynchronous RPC (Remote Procedure Calls) and variable named servers where clients may have to connect to specific instances of a server perhaps handling a partition of a data set and also extends the language support to include COBOL, C++, Java and Delphi as well as 'C' amongst the supported server languages. NXTera creates client stubs for Visual Basic, PowerBuilder, Java, Delphi, C, C++ and Cobol.

NXTera also provides a data access server that allows the developer to create DCE servers to access a number of types of database. The developer simply needs to write a list of queries that the server will support and NXTera generates the DCE IDL and all the communication code as above.

To further assist the DCE developer, NXTera provides a universal test client that can be used to test any DCE server. The test client reads the DCE IDL file and creates a user interface showing the available functions supported by the server and then allows the user to enter the appropriate test data. The test client can be run with full DCE

security enabled. This allows the server developers to test their servers in a fully distributed way independently of the client developers.

NXTera adds to value to DCE in the following ways

- Automation of DCE
- Language Support
- Database Access

Automation of development

NXTera automatically generates server initialisation code or the server "manager" code.
NXTera generates initialisation code from the DCE IDL to register the protocol sequences, TCP-IP or UDP-IP, get the endpoints or ports for each protocol sequence the server will listen on, register the interfaces with the DCE runtime and register the endpoints with End Point Mapper.

NXTera also generates code to create server and group entries in the Cell Directory Service and to export the binding information on start-up.

All DCE binding methods are supported. Native DCE requires that explicit binding be used if security is to be implemented with the server. This complicates the development of the client in that complex lookups need to be performed to get the binding handle for the server. NXTera automates this process so that in the IDL file we need only specify auto handle. The clients and servers don't need to deal with this complexity. NXTera looks after annotating the binding handles with security information and this doesn't appear in the server or client code.

The server's user name is set in the application profile and the server's password is kept in a keytab file, which is also specified in the profile. The NXTera generated code takes care of logging on the server, refreshing the server's credentials and aging the server's password in accordance with the security policies set up for the servers. NXTera generates access control list (ACL) manager code for the server and allows access control to be implemented at the server, interface and function level.

Automation of runtime tuning

The runtime behaviour of the server is also controlled through an external application profile. The number of threads available to a server is configurable allowing the developer to specify at runtime how many threads appropriate.

Other runtime considerations are the level of security the server requires, whether the server should be the only instance running in a machine etc. these are all addressed at runtime.

Automation of Client

NXTera simplifies development of the client by automating all the CDS lookup code for explicit binding and handling security. The lookup path is set through the client's

external application profile and can point to a server entry or to a group or profile as required. The code that initialises the client also takes care of authenticating the client with the DCE runtime. The security level that the client requires is also set in the application profile. This level must be more stringent than the minimum security level required by the server. If the client specifies a higher level of security than the server's minimum, the server will provide service with the higher level of security as requested by the client.

In addition, NXTera automates the use of client side threads by supplying the asynchronous remote procedure call. The asynchronous RPC supports the use of call back functions as well as polling for status.

NXTera provides Extended Language Support

NXTera's stub generator supports the development of clients and servers in languages other than C. Servers can be written in C, C++, COBOL and Java on all platforms and also in Delphi on Windows platforms.

Clients can be written in C, C++, Cobol, Java, Delphi, VisualBasic and PowerBuilder. NXTera generates client stub code in these languages, which is then just added to the client project.

NXTera provides Database Access

The NXTera data access utility allows developers to easily build fully DCE compliant servers that access data on relational databases such as Oracle, Informix, DB2, MSSQL Server, Sybase, MySQL and others.

The developer need only create a file with a list of queries that the server will support. Using SQL92 compliant data types allows the same server to be connected to different types of database.

The NXTera tool takes the SQL file as input and generates a DCE IDL file with select statements appropriately marked as idempotent, and then generates the client stubs in the language of choice. At runtime, a pre-built DCE server utility *db*_start connects to the database and performs the queries as requested. Many aspects of the database server can be determined at runtime including threads, cursors, dedicated instances etc.

NXTera provides Universal Test Client

The universal test client is an NXTera utility that assists the server developer in testing and deploying servers without having to build the client application. The test client reads the DCE IDL file and uses the interface and function descriptions to build a graphical user interface. The tester selects a function and supplies appropriate test data. The test client then makes a remote procedure call to the server in the same way that the normal client would. The test client reads its application profile and determines if in needs to run securely and will log in to DCE if necessary. The test client may connect directly to the server if the server's binding information is

provided or may initiate the binding search through the CDS as set up by the profile. This allows the server developer to not only test the server functionality but also to ensure that the server is correctly initialised into the DCE environment and to that the server security is correctly set up and behaving as expected.

NXTera provide wealth of tools to simplify the life of DCE developers and make DCE development more productive. If you'd like more information about NXTera visit www.ecubesystems.com or email us at transformationSales@ecubesystems.com.