The Open Source

DVD Store Test Application

The DVD Store e-commerce application, used as a test workload in many recent Dell white papers and demonstrations, has been released to the general public under the open source GNU General Public License (GPL). The code, in the form of compressed tar files, is now available from linux.dell.com/dvdstore. This article explains how the test application can be used.

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To help evaluate the performance and scalability of Dell™ PowerEdge™ servers, Dell engineers have created the DVD Store Version 2 (DS2) e-commerce test application, which has been featured in various Dell studies and demonstrations.[1] The DS2 workload may be used as a database test or as a stress tool for any purpose. This application includes a back-end database component, a Web application layer, and driver programs. The goal in designing the database component as well as the mid-tier application was to include advanced database features such as transactions, stored procedures, triggers, and referential integrity while helping to ensure that the database is easy to install and understand.

The GNU General Public License (GPL) used for the DS2 application allows anyone to download, use, and even redistribute the code with the restriction that any changes made to the code must also be made public. The DS2 application can be used for database testing or demonstrations, or as an educational example of how to implement various features in a database environment.

Components of the DVD Store 2 application

The DS2 database schema is simple—consisting of only eight tables—but it does include implementations of indexes, primary keys, foreign keys, and stored procedures. The driver program and Web tier implement a multistep transactional commit or rollback, depending on success or failure of multiple conditions.

The DS2 code has been organized into a database-independent download, which includes programs that generate the customer, order, and product data for the database tables; and separate downloads that contain the build scripts, load scripts, and stored procedures for each of the supported databases. The initial distribution includes code for MySQL and Microsoft® SQL Server™ databases; the DS2 developers also plan to release code specific to Oracle® databases. The MySQL code contains a PHP-based Web application to enable users to log in to the store and browse and buy DVDs, as well as a C# driver program to simulate multiple customers simultaneously accessing the store. In addition to the PHP-based Web

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[1] The DVD Store application has been described in several *Dell Power Solutions* articles such as "Migrating Enterprise Databases from Sun Servers to the Dell PowerEdge 2850 Running Microsoft Windows Server 2003" by Todd Muirhead and Dave Jaffe, Ph.D., in *Dell Power Solutions*, February 2005; www.dell.com/downloads/global/power/ps1q05-20040270-Jaffe.pdf.

Database	Size	Customers	Orders per month	Products
Small	10 MB	20,000	1,000	10,000
Medium	1 GB	2,000,000	100,000	100,000
Large	100 GB	200,000,000	10,000,000	1,000,000

Figure 1. Storage requirements and workloads for the three DVD Store 2 database sizes

application, the DS2 developers have included JavaServer Pages (JSP) and Microsoft ASP.NET versions of the Web application. All three Web applications are designed to look and function identically from a user's perspective, but for developers, these three versions can provide concrete examples of how to work with databases in all three environments.

Database requirements

The DS2 database comes in three standard sizes: Small, Medium, and Large. Figure 1 details the storage requirement as well as the number of customers, orders per month, and products listed for each database size. Other sizes can be easily generated through minor modifications to the data generation and load scripts. The Small database ships with the code and takes only a few minutes to load.

The scripts provided in the DS2 application assume that the MySQL database (or the Oracle or Microsoft SQL Server database) is already installed and configured with the required amount of storage. The scripts to create the DVD store schema will complete in seconds, but—depending on whether the Small, Medium, or Large version is being created—the data can take from minutes to hours to load.

Uses of the DVD Store 2 application

Versions of the DVD Store application have been implemented in various Dell studies, including Sun-to-Dell migrations, VMware®

virtual machine implementations on Dell hardware, distributed SQL Server applications, and Dell cluster environments. Additionally, a SQL Server version of the DVD Store application is used in the ongoing VMware VMotion™ demonstration run by the Dell Technology Showcase team, and both the SQL Server and MySQL versions are used to demonstrate live migration in the Dell Scalable Enterprise Lab. Furthermore, several of Dell's partner companies and customers have expressed interest in using the DVD Store application. Now available as open source, the DS2 application can provide IT organizations with a tool to help optimize performance and scalability in their data centers. ◎

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FOR MORE INFORMATION

Dell Linux Community Web:
linux.dell.com

DVD Store Version 2 readme.txt:
linux.dell.com/dvdstore/readme.txt