Application scenarios of PL-DbEnchanter

One of the application scenarios of PL-DbEnchanter: (from a story to illustrate)

There was a large clothing company called "Charming Fashion Co.", which was a chain business with more than 100 retail shops all over the country. The company was headquartered in Guangzhou, China. In order to effectively manage the sales of the whole enterprise, "Charming Fashion Co." signed a contract with a software developement company called "Innovative Technology Co." to develop a customized sales management system named "Charming Fashion Sales Management System".

"Charming Fashion Sales Management System" includes headquarter version, shop version and POS version, respectively running on the headquarter and each shop and its POS machines. The system had many functional modules, including: inventory management, price management, distribution management, warehousing management, sales management, shop POS, query and report..., and data transmission management and so on.

The configuration of hardware and software for the "Charming Fashion Sales Management System" was as follows:
The headquarter rented a virtual private server in a data center with a public static IP address. The headquarter version of "Charming Fashion Sales Management System" was running on the server, and a SQL Server database server was installed to store all the data collected from shops.

Each sales shop distributed all over the country was equipped with a high-performance PC to run the shop version of "Charming Fashion

Sales Management System", as well as multiple POS machines to run the POS version of "Charming Fashion Sales Management System" , SQL Server Express is installed on the PC, which was used as the database server of the POS machine to store all relevant business data of the shop.

Although the Internet was quite developed, the availability was not 100%. But the selling operation could be happen at any time in a shop and could not be affected by the temporary interruption of the Internet. Therefore, it was necessary to equip a local database in each shop. This made "Charming Fashion Sales Management System" got hundreds of remote databases all over the country, and there was a lot of data transmission and schema synchronization between these shop databases and the headquarter database.

Unfortunately, there were many problems after the launch of "Charming Fashion Sales Management System", such as data loss, data in"Charming Fashion Sales Management System" is a typical remote multi-database application, which is also a typical representative of the so-called chain management application. Its technical core issue is the database synchronization between a large number of remote databases distributed in different places and the central database. This is the so-called data transmission problem.
accuracy, manual intervention during data transmission, and unable to automatically synchronize schema between cental database and remote databases, etc.
Although the "Innovative Technology Co." had made a lot of efforts to try to fix the problems, they still could not overcome the core issue. Eventually the project failed, which made both "Charming Fashion Co." and "Innovative technology Co." lost a lot.

By studying the reasons of the failure of "Charming Fashion Sales Management System", it is not difficult to find out that the main issue is the remote multi-database synchronization. More specific may have the following two points:

1. The development of remote database synchronization and data transmission requires higher technology and skills than local database application in the field of database and remote transmission.

2. The data transmission and sync module in "Charming Fashion Sales Management System" was not very inde1. The development of remote database synchronization and data transmission requires higher technology and skills than local database application in the field of database and remote transmission.
pendent and could not be tested individually. Once a problem occurs, it would interfere the entire application.

If "Charming Fashion Sales Management System" could introduce an independent and general-purpose plug-in application such as PL-DbEnchanter, and stop using its own data transmission module, the problems encountered would be solved easily and the project could be run successfully.

The second application scenario of PL-DbEnchanter:

There are many software development companies with good local database application development capabilities and experience, hoping to expand their business scope including remote database synchronization and data transmission application, but they do not have much experience in this field and time. From the very beginning of a project they can adopt PL-DbEnchanter directly, which can save a lot of time and funds and also improve the success rate.

As we know, all database application systems, no matter how its user interface changes or how complex its business logic is, the final result is the operation of the database. There are two types of these operations. The first one is the query operation, which will not change the data in the database. The other one is the modification type, which is implemented by commands such as Insert, Delete and Update, which will modifies the data. If we can record these operations that make changes to the database, that is, Insert, Delete and Update commands in an orderly manner, and transfer them to the remote database and execute these commands again in sequence. The same data changes will occur in the remote database, which is equivalent to accurately transferring data from one database to another, and vice versa.

This is the theory of the PL-DbEnchanter. It captures all data modification commands in a timely and accurate manner, and store them in an orderly manner. These commands are executed in order in the remote target database, so as to achieve the data transfer task between databases. In the same way, the PL-DbEnchanter can also capture the commands of database schema changes (eg: alter table, create table, drop table, etc.) timely, so as to synchronize the remote database schema.

PL-DbEnchanter has the following features:

- Universal Independent
    - Independent third-party plug-ins
    - There is no connection with the main program and does not affect the operation of the main program

    - Only one database connection is required, regardless of the specific schema of the database (which data tables are there, which fields are in each table, etc.).
- Powerful
    - Supports up to several hundred remote databases
    - Support automatic synchronization of database schema
    - Not only supports bidirectional transmission of different data tables, but also bidirectional data transmission of the same row in the same data table
- Easy to use
    - Centralized management and setting up
    - Users only need common knowledge of Windows and MS SQL Server to run and manage
    - Strong configurability, high degree of automation, stable and reliable
    - Adopt safe and reliable network transmission technology to ensure that data will not be lost.