Database architecture

Design, Architecture

Database systems are a way to collect and store large amounts of data. Essentially, database are electronic filing systems that store raw data to be later retrieved as useable information (Skillport,). Using such a tool simplifies the filing and storage of all sorts of information used by businesses today. A common type of database is a customer/inventory database. Different tables store customer information, past customer orders, inventory counts and distributor information and then this information can be cross-referenced for following inventory pathways.

For example, the customer table will have a primary key which is individual for each customer. This key can then be referenced by the customer order table which maintains order history for all customers. The products table can use the same process to access inventory counts and/or supplier information. All of this data is stored separately, but used in different ways. It's more efficient and more secure than a normal filing system. According to Wingenious (2005),

" The database architecture is the set of specifications, rules, and processes that dictate how data is stored in a database and how data is accessed by components of a system. It includes data types, relationships, and naming conventions. The database architecture describes the organization of all database objects and how they work together. It affects integrity, reliability, scalability, and performance. The database architecture involves anything that defines the nature of the data, the structure of the data, or how the data flows" (Introduction).

Depending on the type of architecture you need, there are many choices in software for your Database Management System (DBMS). For small businesses where fewer than 50 users need to access the database and where data can be stored at a centralized location, the best choice would be Microsoft Access. The program has an easy-to-use GUI interface and for designing tables within the database (Coronel, Morris, & Rob, 2013). For a larger businesses, or businesses where more than 50 users would need to access the database at the same time, a DBMS with more features is recommended.

These DBMS programs usually also have the option to have data stored at and accessed from more than one location, or a distributed database Microsoft SQL Server allows multiple users to access its databases and can even be accessed from more than one location (Coronel, Morris, & Rob, 2013). Using Microsoft SQL Server Express, it is even possible for data to be stored locally until the network can access the main server through the network, should network outages become a problem. With this tool, even with the servers go down, users can still input work locally and access the local entries .

Jack Henry & Associates uses Microsoft SQL for some rather advanced databases. Financial institutions use their software to enter and access large amounts financial information, particularly transit items such as checks, draft slips and return items. These are worked at each branch then host exported into an AS/400 system to post to individual accounts. The same information is also sent to another SQL database where files are imported and exported to the Federal Reserve Bank or other financial institutions.

Many of our clients are small institutions where there are fewer than 50 users and only one location. While these clients could use the smaller DBMS, such as Microsoft Access, there are larger clients to consider as well, who have more than 50 users on the system and significant amounts of data collected and transmitted to multiple locations, a larger DBMS is required. Previously, the databases were stored only on the main server, however the newer versions of the software we use require distributed databases, by means of Microsoft SQL Server Express.