Glossary

aggregations. Calculated value of column over multiple rows, using an aggregation function such as SUM, MIN, or AVG.

aligned (index). A partitioned index that uses the same partition scheme and partitioning column as the base table.

application definition file (ADF). An XML file used to configure a Notification Services application.

arity. The number of entities in a relation.

assembly. A fundamental unit of deployment, version control, reuse, activation scoping, and security permissions in a .NET environment.

asymmetric key encryption. Encryption with a key from the pair of mathematically connected keys; the other key from the pair can decrypt the encrypted information.

attribute. An element that characterizes an entity; in a database, it is represented as a column of a table.

authentication. A process of verifying the identity of a principal.

authorization. A process used to decide whether an authenticated principal has access to a securable.

automation. In this context, when testing is automatically executed by testing scripts and tools rather than by human action.

best practice. A process or procedure that consistently produces superior results.

bottleneck. A lack of system responsiveness due to insufficient resources to complete a task. (Also called "latency.")

breakpoint. An indication for Visual Studio (or any other debugger) to suspend execution temporarily.

Business Intelligence Development Studio (BIDS). Visual Studio 2005 with SQL Server Business Intelligence template projects.

capacity planning. The process of estimating the computer resources required to meet an application's performance objectives over time.

certificate. A statement that binds the identity of a principal to an asymmetric key.

change control. A process for managing application and database changes in an enterprise.

changeset. A collection of related source-controlled application or database objects.

check in. The process of updating objects in the source-control current changeset with changes.

check out. The process of marking copies of objects from the source-control current changeset as editable.

chronicles. Provide a location for defining one or more Transact-SQL statements that determine the table structure for the chronicle tables used by the event class.

class. A fundamental concept in object-oriented programming; a template for an object.

clustered (index). An index that sorts and stores the data rows in the table based on their key values; the leaf level of this index stores data pages.

code coverage. Gives developers and testers information about areas of a program not exercised by a set of test cases.

commit. Confirmation of updates of a transaction; in a distributed transaction, the latter phase of a two-phase commit.

common language runtime (CLR). The execution engine for any .NET Framework–based programming language.

common table expression (CTE). A temporary result set that is defined within the execution scope of a single SELECT, INSERT, UPDATE, DELETE, or CREATE VIEW statement.

connection manager. Logical representation of a connection to a physical connection, including database engine servers, file system, FTP connection, etc.

containers. Control flow tasks that can contain other tasks and provide the structure to packages.

control flow. SSIS package engine responsible for the orchestration of tasks in a package.

data flow. The engine responsible for the data pipeline that makes the extraction, transformation, and loading possible in an SSIS package.

data model. An abstract model that represents how data is stored and used.

database mirroring. A new SQL Server 2005 technology that maintains two copies of a single relational database on different SQL servers.

database project. A solution file, connection information, and collection of scripts representing a database solution.

database replication. A set of technologies for copying database objects. Database replication can be used to copy data in distributed environments.

database snapshots. A transactionally consistent, read-only, static view of a database.

data-driven subscription. Special subscription type that lets database developers configure a dynamic subscription scenario; well suited for data distribution.

data mining. Set of advanced techniques for analyzing data to extract knowledge expressed in patterns and rules.

Data Mining Extensions (DMX). A language to create and work with data mining models in Analysis Services.

data paths. The connection of the output of one data flow component to the input of another component.

data source. Data flow component responsible for making data available in the data flow. The data source reads rows from external systems and fills the dataflow pipeline.

Data Transformation Services (DTS). Predecessor of SQL Server Integration Services.

data viewers. Components that allow developers display the rows in a data path.

data warehouse. A database with multiple star schemas and merged, cleansed, historical data.

DatabaseMail. A SQL Server component for sending e-mail messages by using SMTP.

DatabaseMail account. A DatabaseMail object that contains information about an e-mail account.

DatabaseMail Configuration Wizard. A wizard available in SQL Server Management Studio (SSMS) that lets you configure and manage DatabaseMail, DatabaseMail accounts, and DatabaseMail profiles.

DatabaseMail profile. A DatabaseMail object that contains DatabaseMail accounts.

DBVersion table. A custom table containing version level and date data, created and maintained within a database.

decryption. Transforming encrypted text back to plain, readable text, with a key.

denormalization. The process of adding redundant data to a relational database. Denormalization is used to optimize the performance of the database.

deployment. For databases, the act of applying database code or database changes to a target server, application, or database file.

distributed partitioned view. A view that unites horizontally partitioned data in tables from multiple servers.

distributed transaction. A transaction that spans multiple database management systems.

domain-key normal form. The ultimate normal form, where all constraints stem from domains and keys.

DTExec. Command prompt utility used to execute and configure SSIS packages.

DTExecUI. Windows utility used to execute and configure SSIS packages.

encryption. Transforming plaintext to make it unreadable to anyone except those who have the key for decryption.

enforcement of rules. The act of rejecting access to resources to unauthenticated or unauthorized principals.

entity. An object or concept of business interest about which data is stored.

event class. Defines a type of event. In an event class, you configure fields, filegroup, indexes, rules, and chronicles.

event providers. Collect events and persist them as rows in the event table.

extended properties. A SQL Server mechanism that allows database developers to store custom object-level metadata about SQL Server objects.

extended stored procedure. A function in an external DLL that an instance of SQL Server can dynamically load and run.

extent. A collection of eight contiguous pages in a SQL Server database.

extraction, transformation, and loading (ETL). The component in charge of populating the data warehouse. The ETL takes information from various sources and modifies and fills the data warehouse.

feature tests . A type of test used to evaluate the database object functionality.

federated database servers. A set of database servers that have been designed to cooperate between themselves to share the processing load. Usually used as a scale-out technique.

Data is consolidated through distributed partitioned views.

flattened. A DMX rowset without nested tables, suitable for usage in T-SQL queries.

foreign key. A column or set of columns that maintain relationship between tables.

full-text indexes. A special type of token-based functional index maintained by Full-Text Engine for SQL Server service.

guest. A special database user that exists in every SQL Server database as the user for logins without mapping to an explicit user. The guest user is disabled by default.

HTTP endpoint. Represents a SQL Server Web service.

Hypertext Transfer Protocol (HTTP). An application-layer protocol widely used on the Internet; a standard and stateless protocol that uses a response-request model.

impersonation. The action of dynamically switching the identity for an execution context of a session.

inconclusive test. A unit test that has been executed and finished successfully but is unable to indicate whether the result is positive.

Instance Configuration File (ICF). An XML file used to configure a Notification Services instance.

integrated Source Code Control Interface (SCCI). An source-control, engine-specific application plug-in that enables development environments to communicate with source control engines.

intermediate level. A level of an index between root node and leaf-level nodes.

label. An identifier applied to a changeset.

leaf-level nodes. The bottom-level nodes of an index.

least privilege. A security principle by which each principal is granted only the privileges the principal needs for work.

load testing. The practice of evaluating the maximum load that a system can handle.

local partitioned view. A partitioned view in which all of its member tables are located locally in the same database.

log shipping. The technology that automatically sends transaction log backups from one database to another.

logical fragmentation. A fragmentation of an index when the logical order of index pages does not match the physical order.

login token. Identifies the primary and secondary principals on the SQL Server instance level against which permissions are checked. The primary principal is the login itself; the secondary principals include groups and roles, of which the login is a member.

member tables. The source tables for a partitioned view.

Messaging Application Programming Interface (MAPI) . A Microsoft proprietary protocol for sending and receiving e-mail messages.

merge replication. A replication mechanism for merging data from multiple, not constantly connected databases.

message queuing. Stacking of messages in a queue for asynchronous processing.

mixed mode. SQL Server authentication mode by which SQL Server allows connections for Windows users and SQL Server logins.

Multidimensional Expressions. A query language that you use to retrieve multidimensional data in Analysis Services.

nested trigger. A trigger that performs an action initiated by another trigger.

node. Each page in an index.

nonclustered. An index with the same structure as a clustered index, except that it does not store data rows; the leaf level of this index stores index pages.

nonclustered index. SQL Server structure that contains key values and data row locators to help the server search data in a table.

normalization. A formal mathematical process for removing redundancy and making a database model complete.

Notification Services. A development platform and hosting environment for creating applications that send notifications to users and applications.

Notification Services event. The occurrence of a fact.

Notification Services Management Objects (NMO). Object library used to develop Notification Services solutions programmatically.

Notification Services notification. A message sent to a subscriber.

Notification Services subscriber. A person or application interested in receiving notifications.

Notification Services subscription. An expressed interest in specific information.

notifications   What Notification Services subscribers receive. Notifications contain useful data about an event and are formatted and delivered.

object role modeling (ORM)   A database modeling technology that expresses a business problem in terms of objects that play roles.

Online Analytical Processing (OLAP). A system or database that uses multidimensional data models to facilitate fast analysis.

Online Transaction Processing (OLTP). A system or database design to support and manage transaction-oriented solutions.

package. Primary execution element of the SSIS architecture.

page. The basic unit of storage in SQL Server, 8KB in size.

partition function. A special function that specifies how a table or index is partitioned; the function maps the domain into a set of partitions.

partition scheme. A database object that maps the partitions produced by a partition function to a set of filegroups of a database.

partitioned view. A view that unites horizontally partitioned data from tables on a single instance of SQL Server.

partitioning column. The column in a table whose values are used to divide horizontally the data to be stored. Each member table defines a different range of values in the partitioning column to hold the data.

Path (secondary XML index). A secondary XML index optimized for path expressions.

performance budget. Constraints that you are willing to accept and that need to be taken into account when establishing performance objectives.

performance condition. A logical expression that includes a performance counter.

performance counter. An object whose value is a number that provides information about performance.

performance modeling. A structured and repeatable approach to modeling the performance of your software. It begins during the early phases of your application design and continues throughout the application life cycle.

performance testing. Evaluates the response time when executing a specific database object.

precedence constraints. Workflow items that link tasks in a package and configure their execution sequence.

predicate. An expression of a semantic type of sets.

predictive analysis. Predicts the future capacity requirements by extrapolating from historical and current data.

prepare. The first phase in a two-phase commit, when all systems involved in a distributed transaction prepare for data updates.

Primary (XML index). A shredded and persisted representation of the data in an XML data type column.

primary key. A column or set of columns that uniquely identifies each row of a table.

principals. Entities that request SQL Server resources.

private profile. A DatabaseMail profile available only to specific users of the *msdb* database.

Property (secondary XML index). A secondary XML index optimized for retrieval of one or more values from individual XML instances.

public. A special database role that exists in every SQL Server database. All database users and database roles are members of this role.

public profile. A DatabaseMail profile available to all users of the *msdb* database.

Query Designer. Reporting Services tool to help report developers create SQL, MDX, and DMX queries.

recursive trigger. A trigger that fires an action that leads to firing the same trigger again, directly with the code of the trigger, or indirectly through other triggers.

regression testing. The testing process of running all the unit tests after a change or new requirement has been included in the database.

relationship. Association between entity sets.

report models. A metadata description of a data source and its relationships, enabling end users to prepare ad hoc reports without knowledge of the database structure and database programming language.

root node. The top node of an index.

scalability. A term that denotes how well an IT solution can adapt to increased demands.

scale out. The technique of increasing the processing power of a system by adding one or more computers.

scale up. Technique of enhancing the processing power of a system by increasing the

amount of local resources such as memory, processing power, storage, and so on.

scaling in. Improving scalability on a single computer or SQL Server instance.

scaling out. Improving scalability by spreading a database solution over multiple computers and SQL Server instances.

schema. A documented plan of a specific problem; in database modeling, a map of entities, their attributes, and relations.

schema tests. A type of test used to evaluate the database (or a resultset's) schema after execution.

securable. A protected resource in SQL Server.

security execution context. Identity against which permissions to execute statements or perform actions are checked.

security tests. A type of test that validates both the security metadata and security execution context.

Server Management Objects (SMO). A managed library that lets you configure and manage SQL Server, including DatabaseMail and other components.

setup testing script. Asserts all the assumptions about the database, for example, to validate that all of the required objects exist.

Simple Mail Transfer Protocol (SMTP). An Internet standard for sending e-mail messages.

Simple Object Access Protocol (SOAP). An Internet-standard protocol used by Web services.

snapshot replication. A replication that distributes data exactly as it appears at a specific moment in time and does not monitor for updates to the data, commonly used as a base for transactional or merge replications.

snowflake schema. A variation of the star schema; in a snowflake schema, not all dimension tables are directly linked to the fact table.

source code control. The act of storing and maintaining a copy of the source code external to the original development environment.

SQL injection. An attack on relational database management systems by which the attacker inserts SQL code in places where string data is expected.

SQL Mail. A component of SQL Server used to send e-mail messages over MAPI; included for backward compatibility only.

SQL Server Agent alert. An automated response to an event.

SQL Server Agent job. A scheduled or triggered collection of job steps.

SQL Server Agent operator. A person who receives notifications from SQL Server Agent alerts and jobs.

SQL Server Agent step. A collection of statements to execute in a job.

SQL Server event. An error raised by SQL Server.

SQL Server Integration Services (SSIS). A new SQL Server platform for developing high-performance ETL and data integration applications.

SQL Server Reporting Services (SSRS). The SQL Server 2005 technology for developing enterprise reports.

SQL Server Surface Area Configuration tool. A tool for configuring the surface area of attack for SQL Server by enabling or disabling services and features.

SQL Server Web service. A SOAP/HTTP/XML Web service hosted by the SQL Server Database Engine.

SQLCmd. A command-line utility that allows users to enter and execute Transact-SQL statements from a command prompt or batch file or in a SQL Server Management Studio Query Editor operating in SQLCmd mode.

star schema   A problem-oriented relational schema with a central table and surrounding tables, suitable for analyses.

stored procedures. Code routines written in Transact-SQL or common language runtime (CRL) code that perform operations (SELECT, UPDATE, INSERT, DELETE) in the database.

striping. Applying labels to release versions; similar to labeling.

structure. A schema for organizing pieces.

subscription. A formal request for a specific event.

subscriptions. SSRS components that enable users to subscribe to reports so they will receive the report in a scheduled way.

symmetric key encryption. Encryption with the same key as is used for decryption.

table partitioning. A division of a table into physical units that can be spread across multiple filegroups of a database.

table scan. A pass over all data pages of a table.

tasks. Control Flow elements that perform a job.

Team Explorer. A utility and user interface that enables developers to connect to Visual Studio Team Foundation Server.

teardown testing script. Used to return the database state to the initial state previous to executing the unit test.

test condition. Condition evaluated by a test script. If the condition evaluated to true, the test was correct; if the condition evaluated to false, the code needs further testing.

testing script. Usually a T-SQL script whose purpose is to exercise a database object.

think time. Simulates waiting time between executions of test scripts. The intention is to simulate the time that an end user takes to decide the next course of action.

transaction. An indivisible unit of work, consisting of one or more updates of data, that must be performed entirely or not at all.

transaction cost analysis (TCA). A process for conducting a controlled estimate of application performance, based on key measurements for a single transaction through the application.

transaction isolation levels. Define the degree to which one transaction must be isolated from other transactions.

transactional replication. A replication that typically starts with a snapshot replication; after the initial snapshot is taken, transactional replication replicates data changes and schema modifications in nearly real time.

transformations. Data flow elements that change data in the pipeline.

trigger. A special type of stored procedure that is automatically fired when data or objects change in the database.

two-phase commit. A technique for ensuring that a transaction successfully updates data in multiple databases in a distributed database environment.

typed XML. XML validated against an XML schema.

unit testing. An automated way of testing individual components of a system in isolation to verify its behavior and to prove that it meets expectations.

user-defined aggregates. CLR user-defined functions that perform a calculation on a set of values and return a single value.

user-defined functions (UDF). Code routines written in Transact-SQL or CRL code that accept parameters and return the result of that action as a value.

user-defined type. CLR classes that extend the system-provided data types. CLR user-defined types can be used to create tables, defined parameters, and so on.

user token. Valid only inside a specific database and identifies the primary and secondary principals on the database level. The primary principal is the database user; the secondary principals are database roles.

value. Individual constant that cannot be changed, with no location in space or time; a variable takes a value.

variable. A holder for encoding a value.

version control. Implies source control plus application life cycle management functionality such as bug tracking, work item tracking, and so on; similar to source control.

Visual SourceSafe 2005. A Microsoft source control application designed for use by development teams ranging from one to several developers.

Visual Studio 2005 Team Foundation Server. A Microsoft application life cycle management server designed for use by development teams of more than 20 developers.

Web service. A collection of exposed operations over the Internet that enable application interaction, independent of the computer platforms or technologies.

Web Services Description Language (WSDL). An XML language for describing Web services metadata.

Windows authentication mode. SQL Server authentication mode by which SQL Server allows connections for Windows users only.

Windows Management Instrumentation (WMI). A Microsoft technology for managing and instrumenting applications, systems, and services.

WMI event. An event raised by WMI.

XML indexes. Special indexes over *XML* data type columns.