Query Timeout:

As far as SQL Server is concerned there is no query time out limit. However for applications based SQL Server, Query timeouts are a client-side concept only. Discounting situations in which SQL Server becomes a client to another server (e.g., with remote queries), the database engine itself knows nothing of query timeouts. Like connection timeouts, query timeouts are a client-side concept only.

Then, do query timeouts work? A client signals a query timeout to the server using an **attention** event. An attention event is simply a distinct type of TDS packet a SQL Server client can send to it. In addition to connect/disconnect, T-SQL batch, and RPC events, a client can signal an attention to the server. An attention tells the server to cancel the connection's currently executing query (if there is one) as soon as possible. An attention doesn't rollback open transactions, and it doesn't stop the currently executing query on a dime - the server aborts whatever it was doing for the connection at the next available opportunity.

Causes:

- ➢ Blocking
- ➢ waits
- ➢ Resource bottlenecks
- ➢ Bad Queries
- ➢ Other causes like mirroring with synchronous commit

Timeouts

Application can have two types of time outs with respect to SQL Server i.e. Connection and Command time outs. Default value is 30 sec however application can change this time out in the connection string or configuration itself.

How do we identify whether it is a connection or command time out? We need to look at the application stack at the time of issue occurrence and check whether the time out happened in the connection layer or data layer.

Below are the examples from application stacks:

Connection Timeout: **(**we don't see any command layer in below stack.**)**

at System.Data.SqlClient.SqlConnection.OnError(SqlExcepti...

  at System.Data.SqlClient.SqlConnection.OnError(SqlException exception, Boolean breakConnection)

  at System.Data.SqlClient.SqlInternalConnection.OnError(SqlException exception, Boolean breakConnection)

  at System.Data.SqlClient.TdsParser.ThrowExceptionAndWarning()

  at System.Data.SqlClient.TdsParserStateObject.WriteSni()

  at System.Data.SqlClient.TdsParserStateObject.WritePacket(Byte flushMode)

  at System.Data.SqlClient.TdsParser.TdsExecuteTransactionManagerRequest(Byte[] buffer, TransactionManagerRequestType request, String transactionName, TransactionManagerIsolationLevel isoLevel, Int32 timeout, SqlInternalTransaction transaction, TdsParserStateObject stateObj, Boolean isDelegateControlRequest)

  at System.Data.SqlClient.SqlInternalConnectionTds.ExecuteTransactionYukon(TransactionRequest transactionRequest, String transactionName, IsolationLevel iso, SqlInternalTransaction internalTransaction, Boolean isDelegateControlRequest)

  at System.Data.SqlClient.SqlInternalConnectionTds.ExecuteTransaction(TransactionRequest transactionRequest, String name, IsolationLevel iso, SqlInternalTransaction internalTransaction, Boolean isDelegateControlRequest)

  at System.Data.SqlClient.SqlInternalConnection.BeginSqlTransaction(IsolationLevel iso, String transactionName)

  at System.Data.SqlClient.SqlConnection.BeginTransaction(IsolationLevel iso, String transactionName)

  --- End of inner exception stack trace –

Command Timeout:

[NativeSMSServiceProcesses/SubProcesses/IniateOptInDBProcess.process/JDBC-Insert]

"JDBC error reported: (SQLState = HY008) -
com.microsoft.sqlserver.jdbc.SQLServerException: The query has timed out."

    at com.tibco.plugin.jdbc.JDBCActivity.eval(Unknown Source)

    at com.tibco.pe.plugin.Activity.eval(Unknown Source)

    at com.tibco.pe.core.TaskImpl.eval(Unknown Source)

    at com.tibco.pe.core.Job.a(Unknown Source)

    at com.tibco.pe.core.Job.k(Unknown Source)

    at com.tibco.pe.core.JobDispatcher$JobCourier.a(Unknown Source)

    at com.tibco.pe.core.JobDispatcher$JobCourier.run(Unknown Source)

caused by: com.microsoft.sqlserver.jdbc.SQLServerException: The query has timed out.

    at com.microsoft.sqlserver.jdbc.TDSCommand.checkForInterrupt(IOBuffer.java:5918)

    at com.microsoft.sqlserver.jdbc.TDSParser.parse(tdsparser.java:70)

    at
com.microsoft.sqlserver.jdbc.SQLServerStatement.getNextResult(SQLServerStatement.java:
1510)

    at
com.microsoft.sqlserver.jdbc.SQLServerPreparedStatement.doExecutePreparedStatement(S
QLServerPreparedStatement.java:404)

    at
com.microsoft.sqlserver.jdbc.SQLServerPreparedStatement$PrepStmtExecCmd.doExecute(S
QLServerPreparedStatement.java:350)

    at com.microsoft.sqlserver.jdbc.TDSCommand.execute(IOBuffer.java:5696)

    at
com.microsoft.sqlserver.jdbc.SQLServerConnection.executeCommand(SQLServerConnectio
n.java:1715)

    at
com.microsoft.sqlserver.jdbc.SQLServerStatement.executeCommand(SQLServerStatement.j
ava:180)

at
com.microsoft.sqlserver.jdbc.SQLServerStatement.executeStatement(SQLServerStatement.j