SDL Trados 2009 Technical White Paper

This technical white paper describes the SDL Trados 2009 product family including SDL Trados Studio 2009 (client) and SDL TM Server 2009, including SDL Trados Team 2009 as entry point server solution. It discusses:

- Key benefits of the market-leading desktop and server translation memory tools

- An overview of the technology concepts and architecture.

- Deployment and migration considerations
Introduction

This Technical White Paper describes SDL Trados Studio 2009 and SDL TM Server 2009, the project management and server-based translation memory (TM) technology for the world-leading SDL Trados translation memory platform. It discusses key benefits, gives an overview of the technology concepts behind the architecture, presents a benchmarking overview and touches upon deployment and migration considerations.

It is assumed that the reader is familiar with the new features of the SDL Trados Studio 2009 application and the concept of translation memory. If you are not yet familiar with SDL Trados Studio 2009, it is recommended to read the relevant product brief prior to reading this White Paper.

Key Requirements and Benefits

The Internet-enabled client/server architecture as used in SDL Trados 2009 is targeted at those translation management users who wish to:

- Improve the efficiency of their distributed translation supply chain by empowering every project participant to collaborate more quickly and easily
- Share translation project resources such as translation memories, termbases, documents, and Trados project settings more effectively in both online and offline scenarios
- Increase the visibility and tracking of project status during the project lifecycle
- Centralise access to translation memories and go beyond the limitations of classic TM technology based on file sharing databases
- Typically, these users have the following requirements:
  - They need to be able to share translation memories both with internal and/or external users in real-time, using Intranet or Internet environments. Sometimes they also need to be able to work with offline users who do not have high-speed access to the Internet and therefore need to be able to work offline.
  - Typically, but not necessarily, they have medium to large in-house language departments who share the project work, or they only employ internal project managers and therefore need to be able to pass translation work quickly and easily to their translation supply chain (typically Language Service Providers (LSPs) who in turn split the projects and pass them on to freelance translators.
  - They need simultaneous multi-user access to medium, large or extremely large translation memories whose size starts around 100,000 translation units and scales up to millions of translation units.
  - They need to automate common project management tasks such as batch document analysis or pre-translation in parallel to interactive translation.
  - They also often need to run all kinds of translation project updates where last minute changes require a very efficient turnaround time on the updated translation, specifically reducing translation review time as much as possible.
  - In short, these users need support for what can be referred to as “heavy-duty translation logistics”. They need reliable and robust translation management technology that offers maximum throughput of linguistic data in as little time as possible, both in online and offline scenarios.
  - Customers with these requirements can enjoy the following benefits from SDL Trados 2009:
    - More Visibility Into Project Status. SDL Trados Studio 2009 provides all required functionality for managing the key aspects of projects, including current status and target completion dates. This greatly improves the visibility into running projects at any stage during the project lifecycle.
    - More Efficient Translation Project Preparation. With SDL Trados Studio 2009, users can eliminate manual tasks such as setting up projects, choosing the correct translation memories to use, and manually sorting through quoting matrices, saving considerable time and avoiding repetition at the
start of a project.

- **Market Leading, Robust, Centralized Translation Memory.** SDL Trados 2009 is built around the proven world-class SDL TM Server 2009 platform which offers highly robust and secure Intranet and Internet connectivity to centralized translation memory assets. TM Server 2009 is also built on the same groundbreaking translation memory engine as its desktop counterpart in SDL Trados Studio 2009, enabling users to enjoy all the new features of the TM engine, such as enhanced support for multiple translations based on document context (Context Match), AutoSuggest™ and a host of other new features.

- **Full Flexibility for Translation Memory Use.** SDL Trados 2009 supports both server-based and “classic” file-based translation memories which can be sequenced at will. This allows users an unparalleled flexibility when choosing appropriate translation resources for new translation projects.

- **Increased Scalability.** In SDL TM Server 2009, the translation memory architecture is spread over four layers: the client, middleware, database and Web server layer. As a result, SDL TM Server 2009 can offer a significantly improved load balancing between client and server components and machines. Machines serving as clients, middleware and server can be combined in many flexible ways to meet the requirements of the individual IT infrastructures and translation setups.

- **Improved Multi-User Translation Memory Performance.** Comprehensive benchmarking tests have shown that although the TM Server architecture involves more complex transactions between the client and the server components, multi-user access gets significantly faster as soon as more than two users share the same translation memory, thanks to improved load balancing and highly reduced network traffic.

- **More Reliability and Robustness.** By leveraging Microsoft SQL Server 2005 and 2008, including 2008 R2, as backbone, transactions from client to server are handled in a much more fail-safe and reliable way than with earlier TM technology. Powerful backup and restore mechanisms integrated into these databases guarantee that the TM data are always safe.

- **Lower TCO, Easier Integration Into Existing IT Infrastructures.** A long-standing market requirement has been that translation memory technology should build on commonly used relational database engines as offered by Microsoft SQL Server. SDL TM Server 2009 meets this requirement. This means that existing RDBMS installations can be used or adapted to SDL Trados 2009 technology, rather than needing to maintain a separate database solution. This brings down the Total Cost of Ownership (TCO).

- **Support of Standard Enterprise Technologies.** SDL TM Server 2009 adopts standard industry-strength Enterprise technologies from Microsoft at the middleware, web and database layer.

- **Easy Migration.** Rather than going through a complex migration process, existing users of SDL Trados solutions can use the new Upgrade translation memory Wizard in SDL Trados Studio 2009 to migrate translation memory data from file-based and legacy server-based TMs in both 2007 and 2009 format into the SQL database. Migrating translation memory data is also possible through export/import procedures using the new web-based administration client for SDL TM Server 2009.

- **Higher User Retention.** Comprehensive user feedback and usability studies, as well as over 100 suggestions by the user community of legacy SDL Trados solutions have led to a thoroughly redesigned user interface in SDL Trados Studio 2009. Based on the common design of familiar application concepts used in Microsoft Outlook, the fully integrated SDL Trados Studio 2009 environment helps the user get started with the system quickly and easily and also allows experienced users to carry out their daily work as efficiently as possible.

- **Integration with Globalisation and Workflow Systems from SDL.** SDL TM Server is the core component of SDL Trados 2009. Due to its open architecture and available Application Programming Interfaces (APIs), TM Server 2009 can also be integrated into any other systems (above all, content management and document management systems). This technology option allows users to scale by extending their SDL Trados solutions as required by their business processes and workflow requirements.
Technical Overview

From a high-level perspective, the Enterprise architecture as used in SDL Trados 2009 Server is a classic four-tier architecture. It consists of

- a presentation layer with the SDL Trados Studio 2009 client and the web-based administration client;
- a web server layer based on Internet Information Server (IIS) which hosts the router for secure and flexible application access through both Intranet and Internet.
- an application service layer which manages the transaction communication from clients to the user management and translation memory databases;
- a database layer which hosts the database back-end and stores the translation units and user management data in the supported Microsoft SQL Server database engines and provides business logic such as fuzzy matching, for example.

Refer to the diagram below and to the following sections for more information.

Efficient Deployment through SDL Common Enterprise Application Framework

SDL CEAF 2.0 (Common Enterprise Application Framework) is a set of software modules that are shared by SDL server-based applications. Acting like a platform the CEAF 2.0 modules run under the hood of server-
based products such as SDL TM Server, SDL Translation Management System, SDL Global Authoring Management System and SDL MultiTerm Server. SDL CEAF provides a standardized approach of technologies and best practices for these applications. While all these applications address different business problems they have many features in common, such as:

- Security and User Management: Authentication/Login, Windows Active Directory and LDAP support – each application has to authenticate users. All such user management data should be stored in one central, common place.
- Client/Server Communication: Network support, client/server remote procedure call handling – each client requires the server to process queries. The way in which these messages are travelling is the same and should not need to be redeveloped for each new server-based application.
- Data Storage: The door to the database (MS SQL Server, for instance) – each application stores data persistently. The way in which the applications connect to database engines should not be reinvented again and again.
- User interface: a consistent look and feel, element arrangement on screen and terminology – the same activities should behave and look the same (accessing Online Help, saving a file, typing in Login credentials etc.).
- Scalability and Load Balancing: Designing scalable, yet easy to maintain, software is not trivial. Once resolved, such software design patterns can be re-used for developing new software.

Benefits of Using a CEAF Platform

1. One common user experience guarantees user satisfaction and quick learning curves.
2. Centralized management and identical deployment strategies guarantee low administration costs.
3. Common features are available to all applications and do not require implementation application by application. Development, testing and documentation effort is not multiplied, the release cycle is faster.
4. Fixes and resolutions to problems identified within a CEAF module require to be addressed only once in the one common module (and not application by application).
5. Support, services, and customization teams and partner companies need to familiarize with only one way of implementing solutions.
6. Training effort for new development staff is lower, resourcing is more flexible. This way the SDL development team becomes more agile.

Comparing Figure 4 (no SDL CEAF) with Figure 5 (SDL CEAF) we see how a centralized approach to user
One can say CEAF is for SDL applications that what .NET is for the Microsoft .NET development community. All Microsoft .NET applications require the .NET Framework to be available so that they run, as all Java applications require the Sun Java Runtime Engine to be available. Similarly, all SDL applications require CEAF to be available so that they can operate. SDL CEAF is deployed as part of the SDL TM Server and SDL MultiTerm installation process.

Use Case Scenarios and User Roles in the SDL Trados 2009 System

In this section, we will discuss the SDL Trados 2009 system and the use case scenarios and user roles it supports.

Project Managers, Translators and Reviewers

Thanks to the project management technology in SDL Trados Studio 2009, project managers, tele-workers, outsourced agencies or freelance translators as well as reviewers can now share SDL Trados projects and translation memories in real time over the Intranet or Internet, no matter from which
Situation to date

Before the 2009 project automation packaging functionality was developed by SDL, translation project managers were forced to implement more or less sophisticated but possibly error-prone workflows to exchange documents and their translations, translation memories, termbases, project settings, file type settings etc. manually with their vendors, through e-mail, FTP or other means. There was no way to combine all translation project resources in project packages and to pass them on to all project participants easily and seamlessly in just one or a few files. Also the lack of central translation memory meant that if a translator in one location updated their local translation memory with new translations, no other translator could benefit from this work until all offline translation memories were updated centrally by the project manager, then re-sent to all project members. This ultimately led to errors in translation work distribution on the one hand and a loss of fuzzy matches on the other hand. The re-use rate was decreased, which created unnecessary inconsistencies, administrative overhead – and cost.

Central project management coupled with Internet TM allows users to manage worldwide translation projects

Innovative project management features, coupled with access to central translation memories, were designed to address these issues. Users now only need the SDL Trados Studio 2009 client, the SDL Trados platform and an Internet connection, preferably DSL or faster, to connect to a central translation memory server. This server allows them to share the central translation memory with all other translators or other project participants in real time through the Internet. At the same time, project managers and translators can still continue using file-based translation memories when setting up projects in 2009, so any existing workflows can continue to be used as well. What’s more, both file and server based translation memories can be sequenced at will to give maximum leverage from as many translation memory pools as necessary. This gives users maximum flexibility to manage worldwide translation projects as efficiently as possible using both existing and new technology options, without being shoehorned into any particular usage scenario.

One central Internet-based project pool

By connecting all translation project participants to one central Internet-based translation memory server, SDL Trados 2009 has the potential to drastically simplify and streamline today’s often fragmented translation processes.

Full Support for Offline Scenarios

SDL Trados Studio 2009 can also be used without TM Server 2009, in offline mode, with full access to local file-based project translation memories. This is critical for running projects with remote users without access to broadband Internet technology and ensures that these users can also benefit from the rich project management and translation features offered by SDL Trados Studio 2009.

Innovative Work Distribution Through Project Packages

SDL Trados 2009 offers unique new ways for efficiently distributing work to project participants. Once a multilingual project has been set up, the project manager can create one or more project “packages” containing all relevant translation resources for each language and pass them on to the translation supply chain. Each of these packages is one single compressed file which can be easily opened and then worked on in SDL Trados Studio 2009. After the work has been completed, the user creates a “return
package” which they send back to the project manager or pass on to the next player in the project. This way of working allows maximum flexibility and efficiency for passing on any type of work among project stakeholders.

**Radically New Features for the Translation Step**

Once a translator has opened a project package in SDL Trados Studio 2009, they can look at the project in the new Files view which lists all the files that need to be worked on.

With SDL Trados Studio 2009, the groundbreaking new translation environment that replaces legacy SDL Trados translation environments such as Translator's Workbench and TagEditor, SDL now provides one integrated environment for all translation, terminology, review and project management needs. With groundbreaking new features based on the new RevleX™ translation memory engine and an open, standards-driven platform based on XLIFF, it radically enhances productivity and maximizes performance throughout the translation supply chain. Users now access the translation memory through the SDL Trados Studio 2009 application that has been redesigned for seamless use with both traditional file-based and Intranet/Internet-based server translation memories. For more information on the new features in SDL Trados Studio 2009, refer to the product briefs available separately.

A redesigned translation memory management user interface offers new features for resolving duplicate translations, edit or delete translation units in batch mode and offers other important maintenance features to enable users to manage even large translation memories efficiently.

In addition to this, the scalability and performance benefits allow users to run common tasks in parallel, that up to now had to be carried out sequentially. For instance, it is now possible to prepare several projects in 2009 in parallel to other users using the same translation memory in interactive translation, with no loss in response times for all types of users.

**Translation Memory Administrators**

A new web-based client application, the SDL TM Server Manager, allows users to carry out all types of administrative tasks from within their browser, such as:

- Translation memory management. Administrators can create and delete server-based translation memories, change their location in the database server as well as export and import translation memory data using scheduled tasks.
- User management. Administrators can also assign users to translation memories to manage their privileges in any given translation memory, using the new organisational approach in the SDL CEAF 2.0 platform. Privileges can range from read-only access to “Power User” rights allowing users to carry out any kind of read-write operation, including global changes of translation memory content.

**Technical Parameters and System Requirements**

SDL TM Server 2009 has the following system requirements:

- At the database server level, SDL TM Server supports Microsoft SQL Server 2005 and 2008 (including Microsoft SQL Server Express) on Windows Server platforms. All SQL Server 2008 generations are supported.
- At the middleware application service level, SDL TM Server works as an application based on SDL CEAF 2.0 which supports Windows 2003 Server and Windows 2008 Server. Both 32-bit and 64-bit
From a server hardware perspective, SDL recommends a recent mid-range server with an Intel Xeon CPU and 4 GB of RAM. Multi CPU machines are supported. In larger installations, SDL recommends scaling out SDL TM Server onto two or more dedicated servers, one for SDL TM Server, one for the Microsoft SQL Server database back-end. In such multi-server installations, as a general recommendation, the database server should have more powerful hardware than the middleware server, so the middleware server can have a slower CPU and 2 GB of RAM while the database server should have a faster CPU and more RAM as specified above. For hard disks, we recommend SCSI hard disks with 100 GB or more storage space within a RAID architecture. Other architectures (such as Serial ATA) are also supported. For more information on finding the right server hardware, contact SDL Professional Services.

In terms of Internet connectivity SDL TM Server is hosted inside Microsoft Internet Information Server (IIS) that supports both HTTP and HTTPS protocols. When using IIS version 7 included with Windows Server 2008, it is also possible to configure IIS to use the TCP protocol.

At the client level, SDL TM Server can be accessed through the SDL Trados Studio client that runs on Windows XP SP2 or later, Windows Vista (32 and 64 bit) as well as Windows 7 (32 and 64 bit). The web-based administration client runs in Internet Explorer 7 or 8 or Firefox 3.x.

### Network Traffic

In desktop based solutions, the client machines – usually PC workstations – directly access the data files either on the local hard disk or on a shared network drive on a file server. Desktop database solutions can also offer some multiuser functionality by allowing the data files to be opened in the so-called “file-sharing” mode, that is, one data file can be opened simultaneously by several users.

However, this desktop scenario has severe limitations when it comes to network traffic. A file server does not implement any processing logic but only stores the data. In other words, to process the data – for example when executing a query – all data has to be sent across the network to the desktop machine. This usually means heavy network load.

In a client/server scenario, only the necessary requests and responses are sent across the network. When executing a query, for example when searching for a segment in a translation memory database, only the very small search string is sent as a query request to the database server. The database server is executing the query without any network traffic; it then sends only the results back to the client machine. This guarantees very low traffic, particularly when it comes to multi-user scenarios.

Applied to SDL TM Server, benchmarking tests have shown that the network traffic in TM Server is less than 1% of the traffic in the earlier file-sharing based solutions based on .tmw or .sdltm files, resulting in a dramatic performance increase when working in a local network.

### Rolling out a SDL Trados 2009 Solution

Introducing a large-scale client/server solution needs careful planning. Managing such a project should always involve an organisation’s IT department and ideally SDL consultants to roll out SDL TM Server 2009 smoothly and successfully. Besides the technical implementation, users should also pay attention to a few other aspects as discussed below.

### Step One – Implementation Planning

Before embedding SDL TM Server 2009 in an organisation’s IT infrastructure, users should investigate the physical distribution of the various components in the overall system. The following questions can
help to guide this effort:

- What should the physical distribution look like? The third-party database server as well as the SDL Trados 2009 middleware, SDL CEAF 2.0 server and license server components can all run on the same server machine, or they can be distributed across two to four different physical machines. This depends a) on the IT infrastructure setup itself, and b) on the overall performance requirements and sizes of databases. If several hundred of users will be accessing large projects and/or TM Server translation memory databases, it makes sense to spread the system over several machines to achieve optimum load balancing and overall performance.
- Should users access projects and translation memories via the Internet? If users connect to SDL Trados 2009 via the Internet, it is important to plan the IT infrastructure accordingly. For instance, administrators should decide whether to run the TM Anywhere component inside a Web server environment or as a Windows service.
- What does the database layer look like? The selection of the third-party database system involves some preparation and/or configuration activities. For instance, new databases and log-ins need to be created for SDL Trados 2009 Server to work. Last but not least, licenses for the third-party database system need to be purchased and in place before deploying SDL Trados 2009.
- Which client applications will be used, and by whom? Finally, IT staff should investigate how many translators, project managers and administrators will use the 2007 client components. This is discussed in more detail below.

**Step Two – User Management**

In a typical SDL Trados 2009 scenario, the following users work with different roles and privileges in the overall system:

- **Project Managers and CAT Specialists.** Project managers and CAT specialists typically prepare projects in the SDL Trados Studio 2009 client and leverage server-based translation memories. They therefore need according privileges, such as having the right to set up projects and send out translation packages to their supply chain as part of outsourcing work to language service providers or freelance translators. They might also take care of such tasks as the alignment of legacy translation material.
- **Translators and Reviewers.** These users need read-write access to project tracking status information and server-based translation memories.
- **Translation Memory Administrators.** These users set up and maintain server-based translation memories and also assign users and their access privileges in the overall system. They need the most comprehensive access privileges and will typically use the web-based administration client components to set up and manage the overall SDL Trados 2009 Server system.

**Step Three – License Management**

SDL Server products use a licensing scheme which is based on two parameters:

- **Capacity: Number of Translation Units.** The biggest value in a 2007 Server system can be directly derived from the size of the translation memory databases, that is, the intellectual property in the form of linguistic knowledge and translation “memory”. Based on this paradigm, 2007 Server allows its users to track this value by showing the number of translation units (= database records) in several prominent locations in the client user interface. By tracking the number of translation units, users can both see the value of the solution and stay within the terms of the license agreement.
- **Client Access: Number of Simultaneous Users.** At the same time, SDL Trados 2009 also tracks how many users access the system at any given time through the 2007 client components. Again, this
helps users to track license use and stay within the terms of the license agreement.

Both above aspects should be considered before licensing an SDL Trados 2009 solution.

**Step Four – translation memory Creation and Migration**

When the overall system is set up and user access rights and privileges have been defined, translation memory administrators can start creating server-based translation memories and importing data from classic SDL Trados translation memories or legacy third-party applications. At the same time, they can migrate users and their privileges for the newly created server-based translation memories. Once all these activities have been carried out, users are ready to work with 2007 projects and server-based SDL Trados translation memory databases.

**Available Server Editions**

The server-based solutions described in this White Paper are available in two editions, SDL TM Server 2009 and SDL Trados Team 2009. SDL TM Server 2009 is the unlimited edition of TM Server as described in this White Paper. SDL Trados Team 2009 is the entry level server solution. It supports sharing TMs in smaller groups for up-to nine users working together in a Local Area Network (LAN) or over the Internet. All server-based TM functionality can be accessed from within SDL Trados Studio. Lightweight deployment, running on the free Microsoft SQL Server Express database backend, allows SDLTrados Team to be setup quickly and easily. For more flexible and complex deployments, the full edition of TM Server 2009 is required.

For more information on both editions, refer to the product briefs available separately.

**Conclusion**

SDL Trados Studio and TM Server 2009 constitute a sophisticated, Internet-enabled project management system including a high-performance back-end translation memory (TM) database server. It meets the needs of project managers and TM users who need drastically higher translation throughput and productivity rates to support their translation logistics and project management needs. SDL Trados 2009 is based on a highly scalable, robust and reliable client/server architecture that supports Microsoft SQL Server on Windows server operating systems.
Glossary

Analysis: Feature in SDL Trados 2009 that allows you to assess the number of translation matches in a document for translation by comparing the document to an existing translation memory.

Batch Processing: The practice of processing multiple files at one time. The project management functionality in SDL Trados 2009 can be used to process files individually or in batches. For this reason, they are known as batch tools.

Concordance: Feature in Translator’s Workbench that allows you to search the translation memory for text fragments during interactive translation.

Fuzzy Match: One of five match types identified by Translator’s Workbench. A fuzzy match indicates that a similar, but not identical, match to the source segment has been found in the translation memory.

Pre-translation: Process of translating multiple files using the project preparation functionality in SDL Trados 2009. During this process, matches from the translation memory are automatically inserted into the document(s) for translation.

TM Anywhere. In a client/server implementation of the SDL Trados 2009 solution, TM Anywhere is a web server application that enables SDL Trados 2009 users to communicate with the central translation memory using an Internet connection.

SDL Trados 2009: project management and tracking system based on the SDL Trados translation memory platform.

SDL TM Server: SDL TM Server is the core translation memory component in SDL Trados 2009. It is an Internet-ready client/server implementation of the SDL Trados translation memory solution. It allows you to create server-based translation memories where all data is stored on a remote database server in Intranet or Internet environments. This contrasts with file-based translation memories, where data is stored in a group of files on your system.

TRADOStag: An XML-based file format for representing tagged text and bilingual data. TRADOStag (TTX) provides a standard method for processing XML, HTML, SGML and DTP file formats and replaces BIF as the file format for bilingual documents in TRADOS.

Translation Memory: Database of segment or sentence pairs. Each source language segment is paired with its corresponding target language segment.

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SDL is the leader in Global Information Management solutions. SDL’s solutions increase business agility to enterprises by accelerating the delivery of high-quality multilingual content to global markets. The company’s integrated Web Content Management, eCommerce, Structured Content and Language Technologies, combined with its Language Services drive down the cost of content creation, management, translation and publishing.

SDL solutions increase conversion ratios and customer satisfaction through targeted information that reaches multiple audiences around the world through different channels.

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