TIP Studio™ III

TIP Studio software delivers the runtime compatibility environment needed to allow legacy applications to run unaltered in the new environment.

TIP Studio is a modular product consisting of many components. These components can be grouped into three major categories as follows:

- TIP Studio Database Interface – data compatibility layer
- TIP Studio OLTP Servers – transaction processing compatibility layer
- TIP Studio Connection Server – network compatibility layer

What does the TIP Studio Database Interface provide?

The TIP Studio Database Interface consists of tools and runtime systems designed to allow the creation of a new relational database from the existing data stores. One of the first steps in the implementation of TIP Studio Database Interface is the design of the new database.

TIP Studio Database Interface provides tools that parse the existing DMS schema and create a "suggested" SQL schema as a starting point for this process. In addition to the proposed SQL schema, TIP Studio Database Interface also creates additional information that is used to map the new SQL schema to what was available in the legacy DMS schema. This information is generally referred to as the "mapping rules" and is an essential ingredient for TIP Studio Database Interface to provide runtime legacy compatibility. The "suggested" SQL schema can then be modified to better meet the current and future needs of the organization.

Any changes in the SQL schema that affect location or retrieval of information used in legacy applications must also be reflected by appropriate adjustments to the "mapping rules" information. Designing the SQL database to meet the needs of the organization is a very important step in the overall modernization process and may involve extensive requirements analysis and database design skills.

Inglenet can help bring these skills into the organization. We often work together with the customer's staff to ensure that the database design is fundamentally sound, meets the requirement of the organization and is functionally complete to ensure error-free operation of existing legacy applications.

Once the new database design is complete, the process of moving the database can begin. To do this, TIP Studio Database Interface will generate "unload" programs that are run on the legacy system. These programs will traverse the existing database and copy the data as unstructured, "flat" images that are copied to the new platform. On the new platform, these "unloaded" files are then copied to the

new SQL database by TIP Studio Database Interface generated "load" programs. During this DMS "unload" and SQL "reload" process a number of data transformations take place, including:

- Any data stored using the "field data" character set is translated to ASCII

- Any binary format numbers are converted to displayable numbers

- Any PIC 1 fields are converted to displayable numeric fields

- Any date fields are converted to typed date fields

- Any records with redefined data are converted to a normalized format for a relational database

It is important to understand that the transformation that is done on the data during this process is controlled by the TIP Studio Database Interface mapping rules, so there is complete control over how the data is changed and the format and structure of the new SQL database.

The remaining functionality provided by TIP Studio Database Interface is runtime services that shield the legacy applications from the fact that the data is now stored in a relational database. For both batch and online applications, TIP Studio Database Interface provides interfaces (APIs) that are identical to those that existed on the legacy mainframe. The implementation of these APIs is obviously quite different.

On the mainframe a DML statement, such as a fetch would result in accessing the DMS database on the mainframe. However with TIP Studio Database Interface, the same fetch statement would result in accessing both the relational database and the mapping rules. The mapping rules tell TIP Studio Database Interface where to find the requested data (i.e. what tables and columns are needed) and how to present this data to the legacy application. Status codes are identical to those used on the mainframe so logic changes are not required when the applications are moved to the new platform.

TIP Studio OLTP Servers for Windows and Unix/Linux

TIP Studio OLTP Server is the heart of the transaction processing system. All legacy applications execute under control of the OLTP (On-Line Transaction Processor) server. **TIP Studio** includes implementations of the OLTP server designed for both the Windows operating system and for a variety of UNIX/Linux operating systems. The OLTP Server provides an execution time environment that features:

- high-performance operation

- seamless interface to relational data base management systems (DBMS)

- robust file management including update logging and roll-back, record locking

- distributed transaction and file processing

- application level security

- application programming interface (API) that is easy to use (COBOL CALL level)

- application program isolation to prevent a rogue application program from affecting other user tasks or critical system server tasks.

The OLTP servers also provide application programming interfaces (APIs) that permits legacy programs to operate as if they were still running on the Unisys mainframe. Legacy applications continue to provide value and familiarity while benefiting from the server based architecture and a modern network environment. In many cases, the main fault that users have with legacy systems is the archaic "terminal style" interface; this issue can be quickly and effectively addressed by modernizing the application's user interface without having to make significant internal programming changes.

TIP Studio OLTP Servers provide an end user interface using standard Internet technologies that only require the use of a standard Web browser on the client device. Since Internet technologies are used, this means that the end user can access the legacy applications using the corporate Intranet or connect in using the global Internet. Of course access to the system is strictly controlled to ensure that only authenticated users with appropriate credentials gain access to the information systems. The user interface can support three levels or styles of user interface as follows:

- **Terminal Emulation Style.** This is used when the legacy application is generating terminal specific codes (i.e. UTS codes and DICE sequences). When this is the case, the resulting display is character oriented and basically looks the same as it would have on a real UTS terminal even though the display is being rendered using a web browser.

- **Screen Format Style.** This is used when the legacy application is using a screen-formatting package, such as DPS. When the application presents results, it delivers data and the name of an externally defined screen format that is used to display that data. The system merges the user data with the screen format to create a complete display. In this mode, the display is rendered in character-format, which will look the same as it would have when running on the mainframe, even though the display is being rendered using a web browser. This visual compatibility is desirable if the impact on end users of phase 1 of the project is to be kept to a minimum.

- **Graphical Form Style.** This is essentially the same as "Screen Format Style" outlined above from the program logic point of view. That is, the programs are still using externally defined screen formats and calling DPS routines to process them. However, in this mode the data is rendered using a graphical form rather than a character oriented screen format. The design and style of the graphical forms used can be as complex or simple as the requirements of the organization dictate.

TIP Studio includes tools that will create an initial graphical form from an existing character oriented screen format. Once this initial graphical form is created, then it can be modified and enhanced using standard forms design tools, such as Microsoft's Visual Studio. The graphical forms can contain display process logic, typically written in a language such as Visual Basic. This display processing logic can take the data sent from, or to, the legacy application and render it using virtually any graphical technique available. This includes the use of such standard controls as radio buttons and check boxes to richer controls such as tab controls, bitmap displays or even audible controls.

There is literally no limit to how sophisticated the user interface can become using this technique.

INGLE**N**ET

business solutions

TIP Studio Connection Server

TIP Studio Connection Server is a component that provides network transport services designed to ease the transition from the legacy mainframe environment to the new server based systems.

Although the display services provided by the TIP Studio OLTP servers offer significant advantages and a more simplified environment since they are browser-based, it is not always possible to switch all online access to this technique at the time of the cutover from the mainframe to the new server platform. There may not be time to roll out new access procedures to all the end users, or there may be situations where other computers are connecting into the system as terminals and changing procedures on these other computers is just not an option as part of the initial cutover.

To facilitate these issues, Inglenet provides the TIP Studio Connection Server which implements the same terminal connection protocols as those that exist in the mainframe environment. Typically these protocols were provided by front-end communication sub-systems, such as the Unisys DCP. When a client device, be it a PC running a terminal emulation package or a computer connecting in as a terminal for "screen scraping" purposes, connects to TIP Studio Connection Server, there is no difference in protocol from what previously existed using the DCP. This is not to imply that TIP Studio Connection Server provides all the functionality that currently exists in a DCP system; it does not. However in the specific area of terminal connectivity, TIP Studio Connection Server is a functional replacement for the DCP.

Summary

TIP Studio is software that implements the Inglenet vision. It consists of a number of components designed to meet the requirements of organizations that want to modernize legacy systems by adopting modern technology and use features of the new system to enhance their IT investments.

The use of industry standard Windows and UNIX/Linux based technologies maximizes the return on investment and provides the highest possible value with the lowest risk to your organization. TIP Studio software allows you to control the rate of change for your organization, allowing you to set the pace of modernization based on your requirements and resources. Finally, TIP Studio lays down a solid foundation for future application development and enhancements by creating a data model designed specifically to meet the needs of your organization.

Inglenet, a proven leader in legacy systems modernization, can preserve the value you have invested in information systems and liberate the potential value of your data through the application of our proven and reliable OpenARMS modernization process.