TILS Background Information

Racal Instruments, with a reputation developed over 40 years, has long been associated with design, manufacture and marketing of high value Automatic Test Equipment (ATE) Systems used to support Military & Aerospace equipment.

General Purpose ATE housed in Electronic Repair Vehicles (ERVs) such as those used by the British Army are deployed in the field to perform 2nd line tests on multiple digital and analogue, electrical and electronic sub-systems.

The General Purpose ATE runs, in some cases, hundreds of test programs using many Application Test Packages (ATPs).

Test Instruments within the ATE have a service life considerably less than that of the ATE itself and it is the replacement of these instruments, especially in legacy systems, which usually necessitates costly re-writing, updating and re-validation of Test Programs. This, of course, jeopardises the useful and cost-effective service life of the ATE.

Example of General Purpose Automatic Test Equipment Vehicle used by the British Army

In order to counter this, Racal Instruments have pioneered a technology known as TILS (Technology Insertion into Legacy Systems) which preserves the investment in Test Programs used in high value ATE.

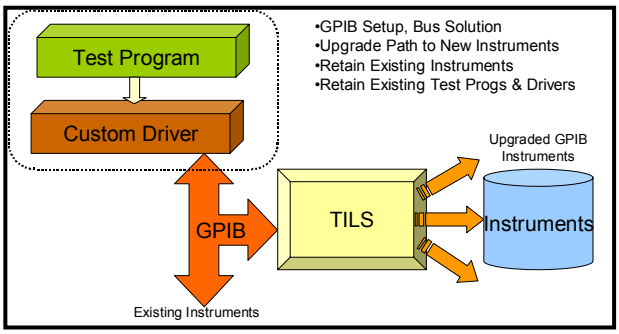
Through the British Ministry of Defence, a successful implementation of a TILS solution is currently being installed in a number of the British Army's General Purpose ATE vehicles, providing mobile support of thermal imaging, communications and weapons electronics systems. Further bids are being progressed with major UK-based defence contractors and other overseas armed forces.

TILS technology runs on a Windows-based PC and intercepts commands, sent from the test programs, that were originally destined for the now-obsolete equipment. The program incorporates specific translators which dynamically convert the "old" commands to those understood by the new, upgraded instrumentation.

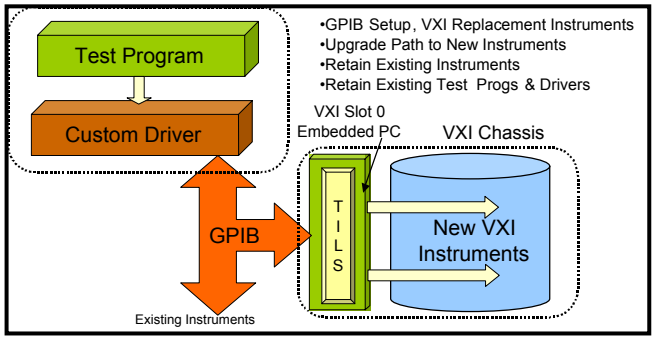
This process intelligently accommodates timing idiosyncrasies, moreover instrument responses are processed to replicate those of the originals.

There are three main hardware configurations into which TILS can be easily incorporated:

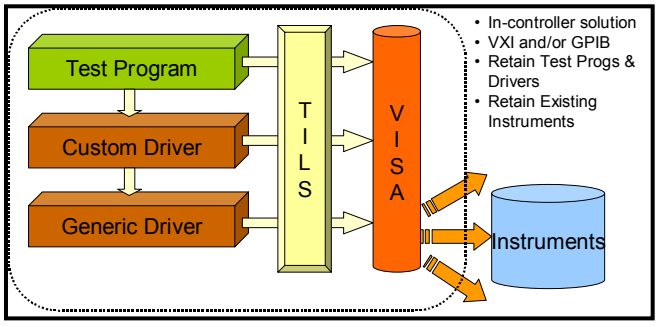
- With a traditional rack-and-stack GPIB (Bus Based) system, the TILS Solution is hosted on a PC which resides directly on the bus. This allows new instrumentation to be added with the inclusion of further command translator packages, while maintaining existing instrumentation and ensuring no changes to existing test programs and drivers.

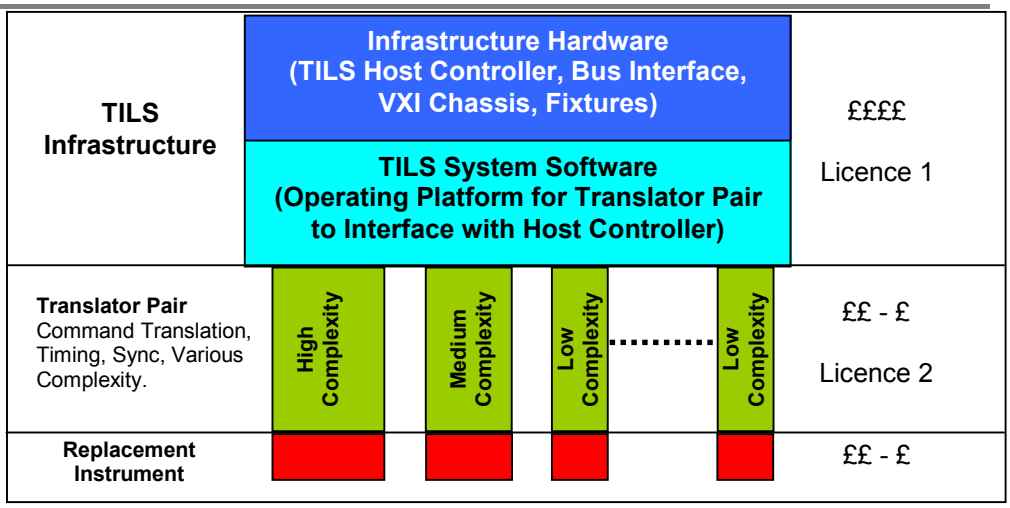


- Where GPIB instruments are upgraded to VXI instruments, the TILS Solution can reside in a VXI Slot 0 embedded PC running Windows to intercept and translate the necessary commands and communicate directly with the new VXI instrumentation. Again, an upgrade path is established where further VXI instruments can be added to the chassis, and existing test programs and drivers need no modification.



- The “in-controller” TILS Solution allows the software suite to co-reside with the Test Executive, assuming the system controller’s technical platform is, or can be upgraded to be, compatible. Commands to existing instruments are “passed-through” while interception and translation of commands to upgraded instrument is undertaken.





The TILS Software suite comprises two components; the TILS infrastructure environment or System Software and the Command Translator Pair Software.

The System Software, which resides on the TILS host controller, is the software "engine" which performs the interception of commands and determines which commands require translation. This environment also interfaces between the TILS host controller and the Command Translator Pair software.

The Command Translator Pair software is the specific language translator for each instrument's command set which performs the dynamic translation and provides for any timing or synchronisation requirements between the test programs and the instruments.

In conclusion, once TILS is seamlessly installed into the ATE architecture, existing test programs can be used with little or no modification, safeguarding the significant investment our customers have made in their test systems. A structured path to future instrument upgrade is also made available, providing a cost-effective means of countering obsolescence.

RACAL INSTRUMENTS

Technology Insertion into Legacy Systems

TILS®

Talking your legacy's language