



TYX Newsletter

From our CEO

... serving the ATE community worldwide



Narayanan Ramachandran

I am pleased again at Autotestcon to be able to summarize our ongoing efforts at TYX over the last year.

As you will read in this communiqué, we continue to support IEEE standards as the backbone of our product line. We are excited with the launch and acceptance of our newest product, SigBase®. SigBase is the first product to incorporate the IEEE 1641 Standard, and we are proud that the launch customers are using this product on some platforms today. We are continuing development of this product and look forward to discussing it with you at the show.

As we reported last year, the TestBase product is being used in the testing of NY Metro components. An embedded version of TestBase is to be incorporated onboard in the UUT (Software Defined Radios) providing system health monitoring and a fast way to extrapolate dynamically-generated profiles of equipment degradation. This information is then used to diagnose and implement fixes in the field or depot. TestBase used as part of the full Design-to-Test flow provides the most efficient way to control lifecycle costs.

TRD System 3.0 is gaining acceptance, with use across the world as a standard methodology for documenting test specifications.

Our market share is growing across the world, and in my travels I cannot help but note that while people buy the product they also talk to me about using Programming Languages such as 'C' to do the same task; that cycle is changing, as customers recognize that whilst on the surface this seems to be the logical choice, support costs for such ad-hoc implementation methods continue to spiral, and this experience has lead many customers to recognize that use of standards pays off in the long run.

I trust you will share in the excitement we feel at TYX in terms of our product offerings. We look forward to hearing from you with any comments.

September 2008

What's New at TYX

Since 1982 TYX has been the leader in providing Productivity Enhancement Engineering software for the ATE community. In addition to continuing enhancement of our PAWS product line to reflect today's emerging standards and technologies, the integration of new product offerings from our partners brings new meaning to "Design-to-Test" and Prognostic applications in the diagnostic arena. In the Post Processing market, the DynaWorks® product offers one of the most exciting tools in the market with its Database Management capabilities and its broad range of signal processing capabilities.

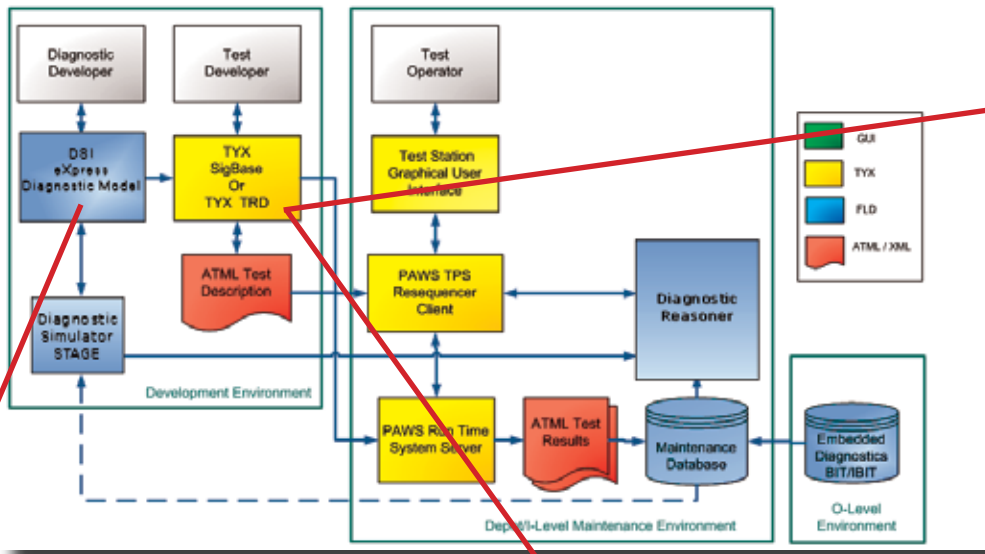
And we've added a new tool this year - **SigBase** - a sister-application to TYX's TestBase tool. SigBase offers focused support for IEEE 1641, the Standard for Signal & Test Definition.

See inside for more on "Design-to-Test", DynaWorks, SigBase, and more.

TYX has the tools and customer support that worldwide professional organizations require to successfully compete in today's extremely competitive global environment!

Come see us, and we will show you!

Design-to-Test.....



DSI eXpress®

eXpress provides the capability to capture design information from a systems perspective. By seamlessly bringing together disparate sources of data, eXpress uniquely couples the Systems Engineering, Reliability, Testability, Maintainability and Diagnostic/Testability disciplines. Our solutions represent a true end-to-end solution that can begin as early as concept exploration, and carry through to run-time deployment and beyond.

STAGE®

- a complete diagnostic simulation environment allowing entire lifecycle management while complementing the FEMECA studies from eXpress. STAGE is a turn-key engineering solution for System Health Management and Support, providing simulation-based assessments of the combined effects of different approaches to Design, Test, Diagnostics, Prognostics, Maintenance and Support.

Because STAGE is specifically designed for simulations of System Health Management and Support, it can easily outperform conventional tools which can require hundreds of hours to set up simulations for complex systems. Design, Diagnostic and Maintenance data are all loaded into STAGE using the DiagML format, allowing STAGE to be quickly set up by importing data from eXpress diagnostic studies, or from other tools that can export to DiagML. Because all calculations performed by STAGE are scripted, analysts have complete control over the assessments performed. STAGE's simulations are based on phase modeling. Analysts also have full control over the nature of the simulation itself.

SigBase - IEEE1641

SigBase is a new tool developed to implement the IEEE 1641 specification. SigBase enables the development of 1641 Test Strategies through an Integrated Development Environment (IDE) and outputs 1641 TPL and C#, as well as an ATML Test Description. The output of 1641 TPL or C# can be executed in the RTS execution environment of TYX's PAWS. IEEE 1641 signals are used to create test strategies in the IDE using diagnostic procedures. The debugging of test strategies, performed directly in the visual development environment, namely, in IDE, offers step-by-step execution of control flow diagrams (CFD), placement of breakpoints on CFD blocks, examination of parametric data, and simulated execution of test procedure calls.

SigBase is a signal-based organizer of tests, parameters and values into a coherent, manageable, executable strategy which can be rapidly readjusted to identify and diagnose faults. At the highest level, SigBase organizes test strategies designed to accomplish specific testing objectives for specific units under test (UUTs). The test strategy, in turn, consists of various diagnostic procedures. The diagnostic procedure is then made up of calls to as many individual test procedures as necessary. This hierarchy, created visually in a graphical user interface, gives the developer and operator an extremely manageable means of seeing a highly complex environment in an easily understandable format. With a high degree of flexibility, SigBase also allows a rapid means of molding and remolding this environment into a more and more effective means of isolating and diagnosing faults. In this respect, it goes far beyond simply identifying a fault.

SigBase can be used in design, manufacturing, and maintenance environments. It is able to support multiple levels of product hierarchy up to the system level. It can also support multiple levels of maintenance up to the

TestBase & TRD

Both TRD and TestBase can be integrated with DSI eXpress/Stage via DiagML to automate the "Design to Test" process. TestBase provides an efficient way to generate test strategies from eXpress diagnostic studies. Testbase allows the user to embed diagnostic controllers in a system providing critical data on the behavior of the system.

TRD System

In the TYX TRD System, the test requirements document (TRD) for a particular unit under test (UUT) is created in a fully integrated development environment (IDE) using a series of visual editors in which the user enters relevant design data characterizing the UUT and the test strategy. The TYX TRD System stores this data and automatically includes it in the individual sheets of the TRD when the TRD is displayed or generated as a Microsoft Word document. The TYX TRD System includes the TRD Default Format, an 11-sheet format based on the widely-used Mil-Std 1519 format. Data provided by the user and stored by the TYX TRD System is automatically included in sheets such as the UUT General Design Data sheet, the Interface Definition Sheet, and the Detailed Test Information sheet.

In addition to design data, the user may also add other information by either manually editing certain fields on a sheet, or by creating related documents or adding them to the TRD as appendices. The user may also generate flowcharts based on design data and the test strategy flowchart created within the TYX TRD System using its Test Strategy Editor. The flowcharts may also be appended to the TRD.

The TYX TRD System includes support for a default configuration management (CM) application, namely, Microsoft's Visual SourceSafe. Using this feature, which is optional, the user can provide configuration management and revision control over working copies, pre-releases, and releases. While a default scheme for designating revisions is provided, the user may customize the scheme to meet local requirements. The TYX TRD System is extensible to support other CM applications.

The TYX TRD System generates both pre-releases and releases as Microsoft Word documents. Optionally, you may also generate a PDF version at the same time. If the CM option is used, version designations are automatically assigned.

While based on de-facto industry standards (Mil-Std 1519, Microsoft Word, Excel, and Visio, and IEEE 716 ATLAS), the TYX TRD System implements a modular, open architecture allowing easy customization and extensibility.

TestBase

TestBase organizes external test procedures, characterizes them, and develops a test strategy in a visually-created, executable control flow diagram. Using TestBase's Integrated Development Environment (IDE), a visual design and debugging tool, TestBase offers the visual development of fault-tree test strategies modeled by Control Flow Diagrams (CFD), including test procedure calls, decision blocks, document/report display blocks and user input/output blocks. Using its sister tools, the Diagnostic Controller and the Functional Test Controller, TestBase diagnoses Units Under Test (UUTs) using the results of the external test procedures which have been identified and characterized within TestBase databases. A test procedure typically applies stimuli, measures UUT responses, and compares them with predefined limits. When called, each test procedure receives a set of input parameters, returning an outcome and a set of output parameters. TestBase is able to support the execution of test procedures developed in multiple languages and environments, such as National Instruments' LabWindows/CVI and TYX's PAWS. By developing adapter modules, integrators can add support for more test execution environments.

During diagnosis, TestBase can display documents and reports containing measurement data, diagnosis results, operator instructions, equipment and UUT manuals, repair instructions, as well as others. TestBase is able to support the display of documents and reports with multiple formats, such as text, HTML, Microsoft Excel spreadsheets used as reports. By developing adapter modules, support for additional types of documents and reports may be added by system integrators.

Parametric data may be transmitted to test procedures and reports. While input parameters are specific to each test procedure, document and report, the values of these parameters, passed at runtime, are specific to each test procedure call, as well as to each document or report display action. This feature supports the development of generic, reusable test procedures and reports.

The debugging of test strategies, performed directly in the visual IDE offers step-by-step execution of CFDs, placement of breakpoints on CFD blocks, examination of parametric data and simulated execution of test procedure calls.

TestBase provides database storage for test, diagnostic and maintenance data covering the entire operational lifetime of each individual UUT. For each diagnostic operation, the following information is stored:

1. The list of test procedure calls, along with their outcomes and the values of their output parameters
2. The diagnosed fault (as identified by TestBase)
3. The actual fault (identified by maintenance personnel)
4. Configuration management information allowing the reproduction of the original execution context at a later time

FLD Forward Looking Diagnostics

TYX CORPORATION | **PRODUCTIVITY
ENHANCEMENT
SYSTEMS**



FLD extrapolates dynamically generated profiles of equipment degradation, offering a practical and cost-effective approach to Prognostic applications.

A collaborative effort of three companies, (DSI International, Giotto Industries, and TYX) FLD provides a simplified, fast way to extrapolate dynamically-generated profiles of equipment degradation. This approach offers a practical and cost-effective means to use prognostic applications in the testing of complex systems. FLD methodology speeds the characterization of anticipated equipment degradation in a number of ways:

1. **Separating equipment operability from actual failure determination.** Using FLD methodology, we slice the operational data sets according to known underlying variables, or overlaying operational data gathered from different perspectives. We can also imbed operational data into previously established logical or phenomenological structures.
2. **Exploring and mapping test data from different technical perspectives.** In order to evoke potentially significant patterns from reliability data, with FLD we “visualize” patterns in test data sets by providing past and current maps to discover problems in complex systems before they lead to failure.
3. **Intelligently collecting data.** The FLD methodology trims the collection of test results to manageable proportions instead of using post-collection data reduction. The FLD methodology focuses on the acquisition of only certain narrowly defined events, even while a storm of other activity occurs at the monitoring point. The approach only samples when it needs to, retaining key information to reconstruct the entire history of the acquired event. Thus, the amount of information to be stored is drastically reduced.

FLD System Architecture

Products and capabilities integrated into FLD combine design, test, data collection and analysis elements.

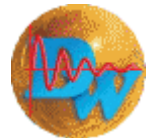
eXpress - a diagnostic development process to optimize “Design for Testability” and “Design for Diagnosability”.

TestBase - a test executive that supports the visual development, database storage and runtime execution of test strategies. Data collection characterized by conditional triggering, independent sample rate allocation and trigger-event time tagging.

Reasoner - performs data analysis to understand system performance and behavior required to make reliable decisions.

DynaWorks[®]

A New EADS/TYX Partner



DynaWorks' was developed by Intespace, one of the leading aerospace and defense test centers in Europe. DynaWorks is more than a post processing tool; it's the only COTS software on the market that has an embedded database capability to manage all of your technical data in any format. DynaWorks was designed by a test center for test centers.

It can be used for managing, processing, editing test and engineering results from a wide range of applications and data acquisition systems. It provides links to test data and the simulation environment. DynaWorks was designed for disciplines such as jet engine performance measurement, vibro-acoustic, sine or random vibration, shock or crash experiments, EMI/EMC measurement, and real time analysis of thermal, climatic, on-board and telemetry test, and analytical results comparisons.

DynaWorks database provides a secure and highly reliable system to manage all types of technical data. It can be used to implement any complex process from test procedures to processing time and frequency domain data, and to animate those results on a geometric model while automatically generating a test report. DynaWorks streamlines the test and engineering process while dramatically reducing the global test costs. DynaWorks makes it easy to manipulate and make complex calculations on large amounts of data in just a few clicks of the mouse. DynaWorks has over 370 analysis functions that cover a wide array of test domains. Users can quickly automate test procedures using macros and user functions to fully customize DynaWorks to their unique test environment. DynaWorks is a complete development platform that can also host in-house legacy tools thereby preserving the time and investment in those tools.

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