Welcome to the Summer Edition of TECHniques! Earlier this summer, I presented at Process World Berlin and had the privilege of hearing customers describe how their modernization projects succeeded by including the discovery and optimization of business processes. We continue to explore the methods and tools available for leveraging process intelligence in IT Modernization in this edition. You can also catch the customer highlights from both Process World Berlin and Orlando in the “Out and About” section.

In the past three editions of TECHniques, Guido Falkenberg has stepped you through the transformation of modernization from IT-centric to a holistic business-centric approach culminating in the introduction of Software AG’s approach to Process-driven IT Modernization. A key element of this approach is discovering how underlying business processes influence modernization and can be improved to create greater efficiencies. In this edition of TECHniques, our resident experts on Process Intelligence and ARIS, Dr. Tobias Blickle and Dr. Helge Hess explore how ARIS Process Performance Manager (ARIS PPM) can help decision-makers unlock the actual process behaviors in their “legacy applications’ to help identify bottlenecks, document shortfalls and derive real measures of optimization from any modernization efforts.

Product Manager Assaf Appel reviews the Screen Process Extractor, one of many “extractors” that interface with your mainframe applications to access and record process data which can then be measured and monitored by the ARIS Process Performance Manager (PPM) — a key component of Process Intelligence for Natural and Legacy Applications which was described by Gerd Schneider in the last edition of TECHniques.

In “Techie Deep Dive”, Chris Pottinger of R&D explains the role of EntireX Reliable RPC. Becky Albín, Chief IT Architect, reviews how Adabas accommodates large and varied data types.

In “What’s New”, Product Manager Karlheinz Kronauer introduces the new Life Cycle Management Tool for NaturalONE. Yoram Ben Bassat, VP Global Support ETS, introduces the new Premium Support Services that support the goal of proactive problem prevention.

As always, we welcome any ideas, suggestions or stories—please email us at technologycommunity@softwareag.com or post your comments to our TECHniques Discussion forum at http://tech.forums.softwareag.com/viewforum.php?f=228.

Happy reading!

Gerd Schneider | Vice President Marketing and Communities, Software AG
AUTOMATIC PROCESS DISCOVERY
WITH ARIS PROCESS PERFORMANCE MANAGER (ARIS PPM)

By Dr. Tobias Blickle, Director Product Management and Dr. Helge Hess, SVP Product Management, Software AG

Smart enterprises understand that there is a close relationship between financial success, the efficiency of business operations and the satisfaction of their customers. As organizations increasingly consider the business challenges of the future, decision-makers are looking for new technologies and methodologies to modernize their existing IT landscape. However, true to the motto “What can’t be measured, can’t be optimized”, the ability to monitor and analyze organizational performance has increasingly become a more important component in any modernization discussion. Many companies have begun to realize that collecting indicators without the link to processes is not enough. They also need the ability to unlock the actual process behaviors in their “legacy applications’ to help identify bottlenecks, document shortfalls and to derive real measures of optimization from any modernization efforts. ARIS PPM, a key component of Software AG’s Process Intelligence for Natural and Legacy Applications, provides you with the critical technology to automate the discovery of your business processes and to identify optimization opportunities.

Process Intelligence—by definition—is the analysis of the direct link between operational metrics/indicators, and the end-to-end business processes (e.g. Order-to-Cash, Procurement-to-Pay, Idea-to-Product) which utilize them. Process Intelligence analytical capabilities are closely associated with the monitoring and controlling of business processes.

Software AG’s Process Intelligence for Natural and Legacy Applications – shown in Figure 1 – is comprised of three major components: Extractors which collect process data from your applications; ARIS Process Performance Manager (PPM) which then uses that data to reconstruct your business processes automatically; and ARIS MashZone which displays the process data in a graphical dashboard. In this article, we will explore the role of ARIS PPM.

More details about the solution shown in Figure 1 are provided by Assaf Appel in his article about the Screen Process Extractor in the “Deep Dive” section.

ARIS PPM provides you with a key technology to assess your business processes in terms of speed, cost, quality, and quantity—as well as identify optimization opportunities. With ARIS PPM, your organization can benefit from a comprehensive overview of business process performance from two perspectives:

• Quantitative – based on the measurement of objective process indicators (End-to-End)
• Qualitative – based on a graphical visualization of the actual structure of your processes (down to individual transaction level, i.e. Process Discovery)

PROCESS DISCOVERY

“Automatic Process Discovery” characterizes the combination of process-relevant data / events from IT systems (e.g., ERP, CRM, workflow/legacy systems, etc.) and the reconstruction and visualization of each executed process instance (e.g. customer order no. 12345 of May 5th 10:30 a.m.). This action is done automatically and persisted in a process intelligence repository. The reconstruction process can result in a sequence of activities (for simple process executions) or in a complex graph with branches and junctions. For each process instance, the result is a perfect image of the reality. The process instance is depicted as EPC (event driven process chain), the broadly used standard to describe business processes.
There are two steps necessary to assemble these process graphs. First, the events that belong to the same process instance have to be identified (event grouping) and second, the events have to be arranged in the correct flow (graph generation).

The graph generation is very flexible. In most cases, you specify order criterion (e.g. execution time) for each step, and the graph is automatically generated as the sequence of those events. This activity means you do not have to model the process in advance as the order is automatically detected and computed by the software.

Another option to generate an EPC is to specify the rules that define which event corresponds to a fragment of a process and what conditions must be met to link the two fragments together. This approach does not require the events to be sequenced by execution time as ARIS PPM can keep track of all events imported at any time and apply the rules later.

Graphical and structural information for each and every business process instance (e.g. each order process) is discovered and annotated with customizable key performance indicators, then stored within ARIS PPM. This process is the foundation for flexible analysis with a front-end that allows ad hoc queries, e.g. "What was the average cycle time of all "Order-to-cash" processes in the last month for sales organizations in North America?"

AGGREGATED PROCESS VIEWS
ARIS PPM is capable of dynamically generating an aggregated process view for each and every query. It enables the user to compare and benchmark behavior of different departments, plants, regions, etc. By drilling down into low performing regions you can get a picture of the behavior of the organization and can compare it to the behavior of high performers – as shown in Figure 3 – thus identifying the best practices in your organization.

The automatically discovered business process (or “aggregated process chain”) represents the average behavior of the underlying process instances that have actually passed through ARIS PPM. The visualization of the discovered model is the basis for a structural analysis of the process, because it clearly shows which activities and paths are the most important. Advanced visualization techniques support the search for further insight such as:

- probabilities of various paths are expressed graphically by different thicknesses of the connections;
- paths below a certain probability threshold can be hidden;
- the layout can be automatically arranged according to the most probable execution path;
- function symbols can be colored according to KPI values, and
- trends and traffic lights can be shown to visualize the performance (cost, processing time, etc.) of activities.

ROOT-CAUSE ANALYSIS
Optimizing business activities and analyzing processes is not only about examining a sequence of actions and evaluating them using performance indicators, it is also about:

- Who works with whom, and how? (Organizational analysis)
- Which data and documents are used in the process and how? (Data and document relationships)
- Which IT systems are used, and how? (System Support Analysis)
- Where have items been at which point in time? How did they move? (Physical Supply Chain)
- What anomalies may impact the organization’s performance? (Root-cause Analysis)
Visualizing all of these factors is an important requirement for identifying, analyzing, and optimizing actual process execution. The influencing factors are identified (using interactive analysis, automatic data mining, distribution charts) until the structure of the actual processes is analyzed for the critical combinations and patterns. The combination of both performance indicators and process structures is essential to obtain a meaningful analysis of bottlenecks – as shown in Figure 4.

FIGURE 4: Root-cause Analysis

CONCLUSION

With today’s increased pressures to align the needs of business and IT, contain costs as well as improve overall efficiencies, more and more decision-makers are faced with making difficult choices about the next evolutionary step for their IT landscape.

The process-driven approach to IT modernization is a holistic methodology that considers an organization’s complete “ecosystem”—technology, people, and processes—that lays the foundation for organizations to modernize and transform their existing IT landscape into a more adaptable and cost efficient application platform.
LIMITLESS DATA MANAGEMENT:
HOW ADABAS GROWS WITH YOUR BUSINESS

By Becky Albin, Chief IT Architect, Software AG

Adabas embraces the challenges of immense data and information growth in organizations arising from the combination of structured and unstructured data being used across business processes. Adabas can handle any data type and any data volume thanks to large object support and lifted limits on extents, fields and records. Downtime is avoided or delayed because you no longer need to stop database activities to add space/reorganize the files because storage limits have been reached. Programmers no longer need to split records across files or adjust programs to accommodate fields that exceed definition. The ability to store unlimited data volumes means that application availability is increased – you are able to bring your production database closer to full 24x7 operation, ensuring business continuity.

MORE FIELDS, LESS WORK
The number of fields available in Adabas 8.2 has grown by almost three and a half times from previous versions thanks to the introduction of lowercase letters in the field name. Since all Adabas field names are limited to two characters, the addition of lowercase letters to the existing uppercase letters and numbers has increased the field definition table (FDT) from 926 to 3214 fields.

This new feature greatly reduces the risk of running out of fields and thus eliminates the need to ever split records across files, create joins and modify applications. This not only reduces the workload of DBAs and developers dealing with a large number of fields, but also reduces the workload for Adabas as it will not require additional I/O or CPU to execute multiple commands instead of one.

New Lowercase Field Definition
- WM, wM, Wm, wm are valid
- E0-E9 reserved for Software AG
- FDT increases from 926 to 3214

INCREASED LIMITS FOR REPEATING FIELDS
Adabas can not only accommodate more fields, but can hold even more information within a repeating field. This is of special value to Periodic Group (PE) and Multiple Value (MU) fields where multiple occurrences or values are stored. A PE is a group of fields that repeat and thus can store multiple occurrences of the same type of information, such as an employee's address history. An MU is a single field that can store multiple values, such as languages spoken by an employee.

The limit on repeating fields are lifted by increasing the Occurrence Counter from 2 bytes to 4 bytes enabling MU/PE fields to increase from 191 to 65,534 occurrences on the Mainframe. To take advantage of the lifted limits, the DBA needs to run ADABDS MUPEX to increase the limits as shown here:

```
ADABDS MUPEX FILE = file number
MUPE COUNT = { 1 | 2 }
```

The ability to capture multiple occurrences of MU/PE Fields is a great example of how Adabas is not relational and thus more efficient. Let’s explore a simple example for Address as shown in Figure 1. A PE group for Address can consist of the fields: street, city, state, zip code, and country. Within this PE group, street may be designated as an MU field with 2 occurrences (think lines) available to capture details such as an address suite.

**DISPLAY COUNT in ADASEL** allows you to display the number of occurrences of an MU field or PE group.

The limit on repeating fields are lifted by increasing the Occurrence Counter from 2 bytes to 4 bytes enabling MU/PE fields to increase from 191 to 65,534 occurrences on

**FIGURE 1: PE/MU Example for Address**

1) GROUP – Address (1st Occurrence, Current Address)
   a. STREET (MU Field w/2 Occurrences)
      i. 1170 Plaza America
      ii. Suite 700
   b. CITY - Reston
   c. STATE – VA
   d. ZIP – 20190
   e. COUNTRY – USA

2) GROUP – Address(2nd Occurrence Previous Address)
   a. STREET (MU Field w/2 Occurrences)
      i. 11190 Sunrise Valley Drive
      ii. 
   b. CITY - Reston
   c. STATE – VA
   d. ZIP – 20190
   e. COUNTRY – USA
To accommodate multiple occurrences of the same information in a relational database management system (RDBMS), the MU/PE fields become separate tables requiring extra overhead — consuming more disk space, I/O and CPU resources and adversely affecting performance!

**LARGE OBJECT SUPPORT**
Recognizing that multimedia is an integral part of business, Adabas manages structured as well as unstructured data as large objects. The field option LB is used to designate a field as a large object field which can contain up to 2 GB of data. Adabas stores LB field values in a separate file, called a LOB file, which is tightly associated with the file containing the LB fields, called the Primary File as seen in Figure 2. These large object fields can store documents (i.e. HTML, XML, Microsoft Word, or PDF documents), pictures (i.e. JPG or BMP files), or other data conglomerates in a single field in the database.

**FIGURE 2: Large Object Storage**

Now you have one location to manage and find all related data, documents and images, eliminating the hassles and potential for error associated with updating or restoring multiple systems and locations. Unlike relational database management systems which require multiple tables and structures to manage disparate data, Adabas’ unlimited data support helps increase database administrator productivity and keep costs down because you manage and synchronize your data in one location.

**LIFTING RECORD LIMITS WITH RECORD SPANNING**
Records can be up to five times larger in Adabas 8 than in previous versions thanks to the introduction of spanned records. Now a compressed record may exceed one physical Data Storage Block by splitting the logical record into a number of physical record segments, each part fitting into a single Data Storage (DS) block as shown in the example in Figure 3.

The resulting physical records are each assigned an individual Internal Sequence Number (ISN). The first physical record is called the primary record and contains the beginning of the compressed record. It is assigned a primary ISN. The remaining physical records are called secondary records and contain the rest of the data of the logical record. These are assigned secondary ISNs from the secondary address converter (AC).

A spanned record is comprised of one primary record and one to four secondary records. While the Adabas nucleus allows only up to five physical records in a spanned record, the increase in maximum compressed record sizes, as shown in Figure 4, is still significant.

**Figure 4: Increased Maximum Compressed Record Sizes (bytes) with Record Spanning.**

<table>
<thead>
<tr>
<th>Device</th>
<th>Block Size</th>
<th>Adabas 7 and prior Record Size</th>
<th>Adabas 8 w/ RECORD-SPANNING Record Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,390</td>
<td>5,064</td>
<td>5,060</td>
<td>25,300</td>
</tr>
<tr>
<td>8,390</td>
<td>6,518</td>
<td>6,514</td>
<td>32,570</td>
</tr>
<tr>
<td>8,392</td>
<td>12,796</td>
<td>12,792</td>
<td>63,960</td>
</tr>
<tr>
<td>8,393</td>
<td>27,644</td>
<td>27,640</td>
<td>138,200</td>
</tr>
</tbody>
</table>
Without altering programs or doing any major file or database modifications, you can now take advantage of the increase in maximum compressed record sizes. To turn on record spanning, execute:

`» ADABAS RECORDSPANING FILE = file number MODE = { ON | OFF }`

Now that a record is no longer limited to a single block, you may store large volumes of data without having to split the file and incur labor intensive program changes, joins and overhead consumption.

**ADABAS Control Block Extended (ACBX)**

The new extended Adabas control block (ACBX) supports the ability to read and write data on the database using multiple, discontiguous, large buffer segments. This is especially useful for writing or reading large objects (LB fields) or spanned records. The existing ACB (non-extended) will continue to work for your existing applications, but you will need to modify your non-Natural applications if you wish to take advantage of ACBX. Natural 4.2 can issue ACB and ACBX calls that are transparent to the application developer.

**EXPANDED PHYSICAL AND LOGICAL EXTENTS**

The limit of five logical extents for files and five physical extents at the database level for each Adabas file extent type has been lifted to accommodate the increase in data volume now available in Adabas.

The maximum number of logical file extents is limited only by the device type on which the File Control Block (FCB) is stored. The FCB points to Address Converters (AC), Data Storage (DS), Normal Index (NI), and Upper Index (UI) extents for each logical extent of a file. A file using DEVICE = 3390, for example, can now have a combined number of logical extents of 134.

When only five logical extents were available, the DBA was constantly checking for files with multiple logical extents to determine if maintenance was required. If the 5th logical extent filled up, Adabas would lock the file requiring the DBA to perform file maintenance leaving the applications unable to run for hours. Now with many more logical extents available, maintenance can be postponed until a scheduled window.

The maximum number of physical extents is now set to 99 for the Associator and Data Storage components of your Adabas database. However, your actual maximum may be less because the information of all extents must fit into the General Control Blocks (GCBs). For example, a standard 3390 device type could have approximately 75 extents.

Removing the five-extent limit on the physical extents provides better 24x7 support, creates less maintenance and makes life much easier. If you ran out of physical extents (for Associator or Data Storage sets), you would be required to split the database and endure time consuming application changes.

The file extent limits are automatically lifted in Adabas 8.1 with no action required on your part. To determine the number of extents available, simply run a file report from AOS on any Adabas file.

**CONCLUSION**

The “limitless data management” capabilities of Adabas can accommodate any data type and any data volume your organization needs to grow and succeed well into the 21st century. The newest release, Adabas 8.2, ensures you have the tools you need to handle all that growth with ease. Maintenance is simplified with new utilities that give organizations more control over file modifications. System performance is enhanced to accommodate the growth in volume by reaching over the 2 GB Bar for virtual storage and increasing protection buffers. And more insights into your system’s performance and change history are now available by leveraging IBM’s System Management Facility, XML, and System Fields.
**EntireX RELIABLE RPC: WHAT’S IN A NAME?**
By Chris Pottinger, EntireX R&D, Software AG

Event publishing, asynchronous messaging, and guaranteed delivery are a few of the attributes assured with Reliable RPC – a key EntireX feature. In this article, we will take look at what EntireX Reliable RPC is and explore how it is being used to address application and process diversity challenges. We will also shed light on how two large mainframe users are leveraging Reliable RPC. For more in-depth technical information and tips on using Reliable RPC, please read my wiki article “EntireX Reliable RPC – How it Works” at [http://communities.softwareag.com/wiki/Wiki.jsp?page=EntireX%20RRPC%20Tech%20Brief](http://communities.softwareag.com/wiki/Wiki.jsp?page=EntireX%20RRPC%20Tech%20Brief).

Provisioning a loosely-coupled event from an existing procedural application to a new business initiative may not initially seem like a daunting task. However, when you also consider the quandaries of existing transaction run-time complexities such as CICS or IMS, workload QoS guarantees, and the durability to withstand uncertainties associated with heterogeneous environments to the mix, it can pose some integration issues. RPC is a valuable asset you should understand in order to ensure reliable messaging in a diverse environment.

**WHAT IS RELIABLE RPC?**
The first time I heard the term ‘Reliable RPC’, it conjured up a somewhat humorous misnomer that standard RPC (Remote Procedure Call) was something less than reliable. The obvious intent however, was to leverage some synonymous features and well-respected context behind the SOAP-based WS-Reliable Messaging specification such as:

- Highly-available message delivery across uncertain environments
- Durable integration for diversely distributed applications
- A common, consistent, and scalable mid-tier architecture
- Asynchronous flexibility and stateful unit-of-work (UOW) accountability

Extending these attributes to the widely-available RPC messaging and application interoperability in EntireX adds greater value to your messaging middleware investment.

Some of the distinct advantages for customers using the EntireX Reliable RPC feature include:

- Programmatic event publishing with automatic interface generation
- Seamless integration across diverse platforms and application boundaries
- Common interface mapping to/from native applications and custom programs
- Extensible process integration and mid-tier delivery service options

**HOW IT IS USED**
Each persisted Reliable RPC message is maintained by a durable UOW containing the state (or status) of the message delivery process. This UOW can be used to track, administer, audit, troubleshoot, commit resources, or recover resources associated with the message delivery (see Figure 1).

**FIGURE 1: Reliable RPC Unit-of-Work Processing Flow**

For UOW processing to become initiated, an explicit LOGON function is used to establish a conversation with the Broker before a client program can use any of the UOW functions. Users can select either a programmatic method or automatic interface for committing resources based on UOW state. Using the ‘automatic’ parameter, however, simplifies commit handling by allowing the Broker to automatically commit resources rather than programming this level of control through the client.

For asynchronous message handling between an RPC client and RPC Server, service definitions are assigned with a DEFERRED parameter in the Broker attributes allowing messages to be persisted without requiring a server/service registration. This simply provisions a loose-coupling between clients and servers using a common service name.

**IDL SIMPLIFIES DEV-TIME CONFIGURATION**
Once the EntireX infrastructure is in place, we use the available artifacts from our existing application to define the message payload through an IDL (Interface Description Language). Using the IDL you can simply generate the Interface Objects for the RPC functions for either the client or the server components respectively.

**SUMMARY**
All EntireX RPC Servers support Reliable RPC messaging. With Reliable RPC, client processing is un-tethered from RPC server dependencies and provisions fire-and-forget to publish a real-time event to a persistent message store. The persisted message contains stateful resource information that can be used to apply high availability for delivery to diverse applications, databases, or complex processes.
RELIABLE RPC USE-CASES
An Energy Company and Global Equipment Supplier gain customer service and competitive advantage using EntireX Reliable RPC to enable event publishing, asynchronous messaging, and guaranteed delivery of critical information across diverse environments.

Multi-State US Energy Company
This company, with a central Call Center application, shares critical customer service information with a distributed Mobile Field Service application in near real-time using EntireX Reliable RPC.

The existing Call Center application is CICS-based and is accessed directly from Call Center employees (either 3270 screens or a web-based interface), a telephone interface switch, or from the public Customer Service website. The CICS application allows either formatted screens or function-shipped COMMARAs to be externalized to users with proper authority in order to update system-of-record data.

The Mobile Field Service is a Windows-based packaged application. This customer uses webMethods Integration Server (IS) to provide a callable service interface to insert data directly into a SQL Server table used by the Mobile Field Service application.

The process flow starts with the CICS transaction being invoked by a call-center operator or directly by the energy consumer (via the corporate website). The original CICS transaction (developed in COBOL) is updated to include a call that triggers the Reliable RPC message to be forwarded to the EntireX Broker at nearly the same time it is updating the system-of-record database. This event (using the IDL-generated Interface Object) wraps the payload data with the proper RPC header and ships the message to the z/OS-based EntireX Broker using TCP/IP. The EntireX Broker receives the message and queues it to the persistent store (VSAM or Adabas) then returns to the calling client with proper return codes (e.g. Zero).

For this webMethods IS customer, the EntireX Adapter for ESB provides built-in RPC services for both client and server purposes including a Reliable RPC listener. IS provisions multi-event orchestrations, database and packaged application integration, and in this case, JDBC integration directly to the SQL Server application.

There is an Adapter Notification service that automatically gets generated (in IS) for each Reliable RPC message type. This IS service provides the listener, I/O signature, and corresponding binding for invoking the database update.

Once received by the Adapter’s RPC Server, the UOW status is acknowledged and the persistent message is automatically managed through the EntireX Broker. Any adverse behavior can get rolled back or accounted for through the persistent UOW.

EntireX Reliable RPC provides an effective solution for publishing CICS-triggered events to this distributed Windows-based application while delivering high-availability and accuracy for this critical Customer Service application.

Global Laboratory Equipment Supplier
A global supplier of laboratory equipment uses EntireX Reliable RPC for delivering logistically complex customer quotes originating from a CICS-based COBOL application directly to customer facilitated mailboxes.

The CICS application provisions a diverse product catalog that customers can directly interact with through a secured web interface in order to request price and availability quotes. Variable length quote request messages (up to four megabytes) are triggered and wrapped with Reliable RPC from CICS and immediately shipped to EntireX (z/OS-based) where they are asynchronously delivered to the webMethods IS through the EntireX Adapter running on a UNIX platform. The IS then handles each quote record and looks up the explicit pricing and availability information in distributed databases. This information is then consolidated and transformed into a formatted PDF document and delivered back to the customer via e-mail by the IS typically under a minute.

The scope, accuracy, and convenient delivery of critical customer quotes are a unique competitive advantage for this Reliable RPC user.

This same customer also uses Reliable RPC for regulatory screening of customer orders. In this case there are specific Federally-mandated regulatory requirements for certain products ordered to be delivered to certain domains. Orders are requested through a CICS application and shipped via Reliable RPC to the IS where they are processed and recorded according to stringent government guidelines.

The result is a highly-functional and efficient order-to-cash environment that provides customer reliability and business accountability across diverse application boundaries.
THE SCREEN PROCESS EXTRACTOR FOR PROCESS INTELLIGENCE FOR NATURAL AND LEGACY APPLICATIONS

By Assaf Appel, Product Manager, Software AG R&D

Software AG’s Process Intelligence Solution, based on the ARIS product line, enables organizations to gather process data, analyze, monitor and make timely, fact-based decisions for improving business processes. Software AG “extractors” interface with your mainframe applications to access and record process data which can then be measured and monitored by the ARIS Process Performance Manager (PPM) — a key component of Process Intelligence for Natural and Legacy Applications. In this article we will discuss the key features and benefits of the Software AG Screen Process Extractor. For more background, be sure to review “Process Intelligence for Natural and Legacy Applications” by Gerd Schneider and “The EntireX Process Extractor for Process Intelligence for Natural and Legacy Applications” by Oguzhan Oezkut in the Spring Issue of TECHniques at: http://communities.softwareag.com/techniques

Non-invasive and entirely independent of emulation, the Screen Process Extractor introduces new levels of process focus and business operation understanding to age-old screen applications. Within the Business Process Management (BPM) discipline of Process Intelligence it is an accepted fact that in order to make good decisions one must have good information and much of this good information is shared among millions of users who still run critical processes from terminal-enabled ‘green-screen’ applications.

Many of the largest 3270 and 5250 screen applications have been around for almost thirty years. These applications have evolved from running on hard-wired SNA devices to software emulated clients or servers running on TCP/IP networks. Organizational requirements have also changed, but many organizations resist modifying existing codes due to the risk of eliminating or changing critical data. With the Screen Process Extractor, you are able to include any of your screen-enabled applications, regardless of emulator, in your BPM strategy with a non-invasive server solution.

EXTRACTORS AUTOMATE PROCESS DISCOVERY

The Screen Process Extractor is one of the extractors available in the Process Intelligence for Natural and Legacy Applications solution. It is used to capture process data from screens exchanged with Mainframe/AS400 applications during process execution to reveal actual business processes without coding. The revealed data can then be measured and monitored by ARIS Process Performance Manager (PPM). Since the extractor captures the business activities directly from the screen protocol, there is no need for “digging” into database tables to retrieve the relevant data. Its ability to work with Mainframe/AS400 hosts provides a substantial contribution to capturing the full scope of process workflow by including Natural, COBOL and other screen-based applications.

ARCHITECTURE OF SCREEN PROCESS EXTRACTOR

The Screen Process Extractor – shown in Figure 1 – is comprised of three major components: Business Activity Rules which identify a business activity based on the sequence of green screens and user actions, Terminal Emulation Proxy which collects the user data between the emulator and the Mainframe/AS400; and Analyze and Extract Process which analyzes the user data and extracts business activities in XML for use in ARIS PPM.

FIGURE 1: Screen Process Extractor Architecture
DEFINING BUSINESS ACTIVITY RULES
Business activity rules are defined using a user-friendly editor – shown in Figure 2 – to capture the relevant screens and data using a live/recorded user terminal session. Each business activity rule defines the screens that participate in the activity, and include additional conditions based on the screen content and the user actions. The business activity rule also defines what data should be provided once the rule is met. Any data from the users’ screens can be extracted along with the activity properties, such as the identity of the user who performed the activity and when the activity started and ended.

FIGURE 2: Business Activity Editor

COLLECTING ACTIVITIES
The Terminal Emulation Proxy redirects emulation network traffic and places the user’s session data into files. The Terminal Emulation Proxy can capture any terminal emulator software which uses TN3270/TN5250 protocol to communicate with the host application. Since this component is Java-based, it can operate on any machine that runs JVM (e.g. Z-Linux on Mainframe/AS400) and benefit from these machines’ CPU power and minimal network traffic. The Terminal Emulation Proxy is also totally non-invasive, so you do not need to make any changes to the code of your application nor is the application function affected. Each user session is saved to a file that can be compressed for saving disk space and/or encrypted for data protection. To help keep the files well organized, you can include the session id and the creation time in the file names. You may also save the files to subfolders by day, month and year.

ANALYZE AND EXTRACT
This process goes over the recorded sessions and looks for instances of the defined Business Activity Rules. Whenever an instance of an activity is identified, all relevant information required for ARIS PPM is written to a PPM XML file. Business activities can be extracted either by using a wizard or by running a batch file. The wizard can also be used to configure the desired parameters for extracting the business activities. This configuration can be saved to a file and used later with the wizard or batch file. Each time that the process runs, it will analyze any new sessions that have not yet been analyzed. The process can run in resolution of minutes, days or weeks based on the refresh rate established in ARIS PPM.

ARIS PPM is configured using the ARIS PPM Configuration Tool Kit (CTK) to import the XML files created by the Screen Process Extractor. The Screen Process Extractor will create ARIS PPM XML files periodically from this point on, which will in turn be imported and analyzed by ARIS PPM. The user can setup the period of time for data collection as needed. The recommended time period is 24 hours.

PROTECTING USER DATA
Capturing business activities and user data is valuable to unlocking years of knowledge and optimizing business process. However, it is still important to ensure that the users’ data is always protected. The Screen Process Extractor secures the users’ data on a number of levels:

- Communication between the end user to the host application using the Terminal Emulation Proxy can be secured using SSL
- Users’ information can be saved into encrypted files
- Specific fields containing sensitive data can be masked

CONCLUSION
Process Intelligence for Natural and Legacy Applications is a powerful tool for analyzing and optimizing your business processes. The Screen Process Extractor extends the value of this solution to Mainframe/AS400s by capturing business process workflows. Due to the extractor’s ease of use, it does not require professional expertise or in-depth technical knowledge of the application code to use in your organization. Moreover, it can be implemented easily within just a number of days. With the business process workflows now available to ARIS PPM, end-to-end processes can be benchmarked and opportunities to improve performance identified.

APPLICATION LIFE CYCLE MANAGEMENT with NaturalONE

By Karlheinz Kronauer, Director Product Management, Software AG

Configuration management and versioning is a challenge today especially when different platforms, sources (e.g. Java, Natural) and repositories (e.g. Natural system file, CVS, Subversion) are involved. Legal regulations require that the processes on how to move applications and updates from development to production are well defined and documented. It also must be possible to reproduce all previous actions at a later time. To help you address these challenges, Software AG offers a complete integrated solution for version control and deployment supporting Natural on all platforms.

For mainframe environments, which have high security standards, Software AG offers PAC (Predict Application Control) as a versioning and deployment tool. With more and more application development occurring on the Eclipse platform, including NaturalONE, Software AG now introduces the Life Cycle Management Tool (LCMT). LCMT supports NaturalONE development and deployment to the mainframe or LUW (Linux, Unix, Windows) systems.

LCMT uses open source de-facto standard repositories like SVN or CVS and, for the Administration and Management of the application lifecycle, CentraSite. CentraSite’s Active Lifecycle technology tracks and guides the evolution of every service and process asset, from conception through retirement. You can assign every asset type in CentraSite’s store a unique lifecycle that models its real-world status, such as proposed, built, productive or retired.

By leveraging repositories, developers can use SVN or CVS for versioning and synchronizing source code during development time. LCMT can be used for the controlled transport from development to test and production servers as shown in Figure 1.

**BASIC PRINCIPLES OF LIFE CYCLE MANAGEMENT**

**Introduction**

To start working with LCMT, you first define your processes from Development to Production. As this can be very different for many enterprises, LCMT allows processes to be suited to all kind of environments. For example, you can define that an application or an update be deployed directly from development to production, or be deployed from development to user test then to integration test and finally to production.

With Natural LCMT, we deliver a sample lifecycle model for Natural applications. This model defines the states that the application can be in during the application lifecycle.

**A Typical Natural Lifecycle Model**

Using NaturalONE as the Natural development environment, the development team checks-out (commits) and checks-in the Natural sources from the Natural project to the Subversion repository directly from the NaturalONE project navigator. The synchronization between the team members is completely managed by Subversion. When a defined development milestone is reached, the updated sources (or the complete, full project) must be deployed to a new environment to perform integration tests.

This is when Life Cycle Management starts.

First the deployment file is created with NaturalONE and copied to the target environment for compile (Cat/Stow). In this step you define the location of the repository and where the sources (project) will be copied.

Next, using the Life Cycle Management Tool, you initiate the compile (Cat/Stow) and subsequent actions such as the deployment of the catalogued sources to a next stage, Test or Production. As soon as a new milestone is reached in development, the same procedure starts again. To manage this process, some definitions may have to be completed in advance of using the Life Cycle Management Tool.
DEFINING THE LIFE CYCLE OF AN APPLICATION (PROJECT)

The Organization
To define the application lifecycle, you must first define security permissions. Then you define the users or groups of users and the permissions for the various state transitions. For example, you may define which user is allowed to initiate an update going into production.

Natural Project and Environments
The Natural Project, important attributes for the project transfer, must be specified. These define the source, the target libraries, and the objects to be transferred. A version will not be created for each of the single objects in the transfer file but for the complete project file.

The Environments of the life cycle must also be described. An Environment is a description of the target environment that a version of a project can be deployed. Important parameters for the Environment are the DBID, FRN, and mapping information like Host Name and Port number which are required to access the target environment via the Natural Development Server (NDV). An Environment can be used by many Natural Projects and need only be specified once.

The Policies
Policies describe the actions that will be executed during a transition between states. The action can be user written code (in Java or Groovy) or an action delivered with LCMT. For example, initiate a SYSOBJH job to transfer a new Natural update from development to user-test. Actions may be started manually or be scheduled for execution at a certain date/time.

Typical actions include:
- From Subversion (SVN) to a Natural Library to make a Built (CAT/STOW) version available for further processing. The version can be a full version, single objects (such as a hotfix version), or an incremental version (all changed objects)
- From a Natural Library on LUW to Natural library on LUW, that copies a version as Natural object code (GPs) using SYSOBJH
- Backout last version/update in production

SUPPORTED OBJECTS IN THE APPLICATION LIFE CYCLE
All Natural related objects are supported in the application lifecycle. Natural for AJAX will also be supported in the final release. In the same step where Natural object code is copied from one stage to the next stage, AJAX objects can be copied ( e.g. AJAX layouts to the application server). Look for future versions to support EntireX assets as well, for example IDL files. Today both AJAX and EntireX assets can be versioned from NaturalONE in a subversion repository.

VERSION AND RELEASE MANAGEMENT
Each set of objects that are processed through the life cycle get a version or release name. The name can be defined by the user (e.g. NAT_8.2.1). During the complete process, the state of this version can be identified with this name.

REPORTING
Reporting is very important for revision. Therefore the administrator can see at any time which version of a Natural project is in which state as shown in Figure 2. Reports document the time a transition from one state to another state is executed and which user initiated the transition. In an object list, you see the objects that have been moved during this transition into the new state. The reports document these processes and are also available at a later time.

FIGURE 2: History of Versions from Various States

AVAILABILITY
The NaturalONE Life Cycle Management Tool will be available in 3rd quarter 2011 and is based on CentraSite. It provides powerful Lifecycle Management functions, is easily configured by the user and can be adapted to all existing life cycle management processes in your enterprise. It also provides a high level of security that leverages security standards like LDAP. As all process steps in the lifecycle are documented, all steps can be reproduced at a later time and are transparent for company revisions.

Learn more about new innovations and features planned for Natural in the “Adabas and Natural Statement of Direction”

VISION STATEMENT
See the future of Adabas and Natural

To find the Software AG office nearest you, please visit: www.softwareag.com

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The Global Support ETS Organization offers additional value to customers with the introduction of Premium Support Services, part of ongoing efforts to provide superior support and customer satisfaction. Premium Support Services – shown in Figure 1 – cover a spectrum of possible customer requirements that go above and beyond the problem resolution service already handled as part of the standard maintenance agreement. With the goal of proactive problem prevention, these offerings range from Advisory Services, Optimization Services, Database Administration (DBA) Services and Coaching. These services are performed by senior support engineers who have an average of 15+ years of experience in Adabas, Natural, EntireX, ApplinX, and all the related products and operating systems.

**ADVISORY SERVICES**

Advisory Services help you plan and make decisions on your environment and product usage by assessing your IT environment, the products used and your organizational requirements. Advisory Services can have different focus topics such as:

- **Platform Migration Advisory**
  The decision to migrate platforms is typically a management decision driven by cost savings. Planning a migration project raises many questions such as what is the best way to approach such a project. Platform Migration Advisory offers you the right expert to decide the best migration path and will help you conduct your project successfully.

- **Upgrade Assessment**
  Support challenges of using old versions and missing access to performance improvements and functionality in new versions are just a few reasons that make investing in an upgrade project worthwhile. With the Upgrade Assessment Service, Global Support plans your upgrade related tasks, saving you time and ensuring that connecting products are upgraded in the right order. Followed by an Upgrade Assessment, the Upgrade itself can be performed by Global Support as well.

- **Health Check**
  Need help planning your Software AG product roadmap? With a Health Check, Global Support analyzes the current product status, the current and future requirements and recommends ways to improve the product usage.

**OPTIMIZATION SERVICES**

Optimization Services improve performance, availability and stability of Software AG products in your specific environment. Tailored to your specific needs, here are a few examples of Optimization Services:

- **Installation Services**
  If you are unsure about new installation procedures, lack resources, or need professional support during product installation, Global Support is the right partner. Installation Services provides you assistance with installing products thus preventing installation errors and saving time.
Product Configuration Advisory
Configuring a product correctly is important to ensuring optimal performance and product stability - especially for mixed platform products like EntireX, where configuration may become tricky. With Product Configuration Advisory services, recommendations are documented on existing or planned product configurations in order to optimize throughput, performance and data consistency.

Performance Optimization
With Performance Optimization services, potential performance bottlenecks are analyzed in order to optimize performance of installed Software AG products.

Coaching
Coaching Services can save organizations a lot of time implementing add-on products such as Adabas Event Replicator, ApplinX, and EntireX or familiar ETS products on new platforms like UNIX. Customers benefit from learning how to operate these products in a safe and efficient way.

A large financial institution migrated from mainframe to UNIX and although their DBA team used Adabas and Natural for over 20 years, they relied on Coaching services by Global Support to have the right expert in place to support.

Database Administration (DBA) Services
DBA Services can supplement DBA teams when there are not enough resources due to vacations, retirements, or project workload. The service comes in two options: remote and on-site DBA. Satisfied customers report gaining great value when Global Support assisted them with DBA activities and installations, advised on product upgrades, and provided personal handling of their support concerns.

Customer Specific Development
Do you need help developing user exits to adapt Adabas or Natural to your requirements? Global Support can help with Assembler language or specific user exit parameters adapting functions (e.g. EntireX or ApplinX) to your environment.

Prevention Services
With Prevention Services, Global Support focuses on reducing problems and enabling faster resolutions. The following options are available.

Customer Success Manager
Organizations using Software AG products in business-critical processes cannot afford downtime, require very fast problem resolution, and look for proactive support by Software AG. The Customer Success Manager acts as a dedicated support contact who proactively engages with the customer on a regular basis as well as prioritizes and resolves problems as they arise. Being familiar with the customer’s IT environment, technical advice given is very customer-specific (for upgrades, product versions, etc.). The focus is on prevention of problems and optimizing projects and IT operations.

Designated Engineer
The standard way of providing support is to open a support incident via eService or a telephone call. For mission critical applications that need the fastest resolution of incidents, customers benefit from Designated Engineer service. The Designated Engineer acts as the primary, named contact for incidents reported to Software AG and focuses on active incident management and resolution whenever needed.

Authorized Technical Contacts
This service allows you to increase the number of authorized people able to contact and work with Global Support.

24 X 7 Message Handling
A service available for around the clock incident resolution for priority one or regardless of severity.

Go-live Support and On-call Duty
Are you about to install a new application or product version or even perform a platform migration? There is very little tolerance for down-time for such cases. Therefore, Global Support offers Go-Live Support and On-call Duty service in order to ensure the fastest resolution for unexpected problems by product experts that are familiar with your project situation.

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CUSTOMER SUCCESS STORIES
Global Support has already provided a large number of Premium Support Services as shown in Figure 2. The following are just a sample of some successfully provided services.

FIGURE 2: Premium Support Services around the World

Platform Migration Advisory in Brazil. In order to scope the migration project and identify the optimal migration path, Global Support provided the Platform Migration Advisory Service. The Customer was very satisfied with relying on the product experts’ recommendations that made their platform migration project successful.

EntireX Installation/Upgrade in Germany. Through the delivery of an EntireX Installation service in Germany, an Italian customer was able to upgrade smoothly to the newest EntireX version available. The customer not only benefited from the efficient project execution but also from additional coaching during the installation.

ApplinX Coaching in Brazil. In order to perform an ApplinX project in the best way, Global Support mentored the customer on how to install, configure and work with ApplinX as well as guided the customer through the beginning of their project.

Go-live Support and Performance Optimization in Israel.
A large financial institution completed a large platform migration project supported by Go-live Support during the cut-over phase. The customer relied on fast access to the right support expert and benefitted from optimal performance through additional Adabas/Natural parameter tuning.

CONCLUSION
The Global support organization offers a variety of services to support our customers in different situations, even on short notice.

Please contact Global Support for more information through Empower at: https://empower.softwareag.com/GeneralSupportInfo/PremiumSupportServices/default.asp or through premiumsupport@softwareag.com.
This year Process World Berlin and Orlando were well attended and we were grateful to have a number of customers share their modernization success stories. Here are just a few of the highlights.

Process Intelligence was another hot topic at Process World Berlin! Jörg Junges of CosmosDirekt, the direct distribution channel of Generali Germany (the 2nd largest German primary insurance company), described how ARIS PPM help them drive efficient processes to increase customer satisfaction. CosmosDirekt has deployed ARIS PPM for process intelligence in request and order processing for its core products since 2006. Using ARIS PPM dashboards and process analyses to support management reporting, CosmosDirekt measures customer-oriented service goals with direct customer input. Measurements are driven into action by controlling the budget of each operational business unit with measures to strengthen customer satisfaction using ARIS MashZone. This creates a continuous process improvement cycle to achieve even higher customer satisfaction.

Another hot topic at this year’s Berlin event centered on the reality that most business applications today are falling short when it comes to characteristics of a cloud application (SaaS). Guido Falkenberg’s session with BaTravel.sys on the SaaS properties of applications built with Adabas and Natural demonstrated which elements of existing business applications need to change in order to address fast changing business requirements while also leveraging characteristics and the value of cloud-based applications.

Kösterke explains that after the European roll out of SAP logistic modules and implementation of vendor managed inventory, Daiichi Sankyo Europe GmbH was looking for a tool to monitor and analyze the supply chain across country processes in Europe. ARIS PPM provided a fast process discovery approach that enabled Daiichi Sankyo to quickly monitor and analyze the supply chain processes to win more time (flexibility) for production; reduce total cycle time; decrease time to market; and increase turnover of inventory. By getting into the details with ARIS PPM, cycle time and resolution are accelerated. For example, monitoring a “Sales order creation to Goods issue” Daiichi Sankyo is able to learn how many processes are outlying, find a single process, then view the date and time of single item, and then discuss with party in charge of that process to drive improvement and thus greater customer satisfaction.

At Process World Orlando, Amarish Pathak of Army Air Force Mutual Aid Association (AAFMAA) revealed how through platform rehosting, they were able to convert over one million lines of code to 600,000 lines of more efficient code. By utilizing NaturalONE, they were able to SOA enable their previously siloed Natural and CRM system so that they were talking to one another. Moreover, by using Social Media, they were able to enhance AAFMAA brand awareness among their customers. AAFMAA also uses webMethods EntireX to reuse mission-critical Adabas/Natural business logic created as far back as 1974.
University of Georgia (UGA) at Athens presenters, Ilir Hasko and Stacey Boyles, were on hand to discuss “The University of Georgia’s Business Process Management Methodology and Pilot.” UGA has 3 million lines of code, much of it siloed. A Business Process Management (BPM) pilot was created to touch all technologies of a specific application that checks out UGA equipment for off-campus use. The BPM pilot project placed process layers above the systems, creating a more streamlined check out process that took less time than the previous one. Over a 5-year period, they anticipate savings of about $300K.

In the session “Payroll Modernization,” Ron Rash of Penn State University (PSU), presented details on the University’s project for upgrading a 47-year old COBOL-based payroll system. The primary drivers for the payroll project were compliance, efficiency, technology and succession planning. Replacing it with a packaged application was deemed too risky and too slow to implement. Modernizing the payroll system using Natural as a joint venture with PSU and Software AG was selected. Using webMethods with the existing robust Adabas and Natural technologies positions Penn State Payroll and other systems for enterprise SOA and BPM. The University was able to develop a modern, repeatable approach for re-writing legacy applications while avoiding the high cost of rip and replace efforts.

In the Hildebrando Brazil session, speaker Wilson Laia demonstrated how new technologies are helping a customer to migrate mainframe Adabas/Natural Application to Sun Solaris in order to gain a 50% reduction on 3rd party software maintenance costs, 25% reduction in maintenance efforts, and a 20 to 30% gain in processing/response time with this new architecture. Mr. Laia explained that by migrating the customer application to a midrange UNIX environment, they expect to reduce mainframe costs, increase code quality by minimizing incidence of errors, increase end-user productivity and open the door for application modernization using NaturalONE. Moreover, they expect to complete the entire migration project within 12 months.

Speaker James Gilpin of CenterPoint Energy, discussed how the company is creating and exposing web services over multiple media. After a successful re-hosting of Natural/Adabas applications from the mainframe in August 2009, CenterPoint Energy has continued modernizing their applications by exposing them as web services to clients such as mobile, laptop, desktop and other APIs. Exposure of the business logic is through a combination of EnTireX, Web Services Stack, and webMethods ESB and is designed to allow employees to work directly from mobile devices using web browsers such as Safari, Blackberry Bolt, Google Android and Skyfire.

This year’s ROI Award went to the Alaska Department of Natural Resources (DNR) for their modernization project that only took nine months to complete with Software AG versus rewriting the system which would have taken 10 years and $30 million. DNR moved from the world of “green screens” to the World Wide Web, building on its mainframe investment in SOA to empower users with improved access to information and increased process visibility. DNR has modernized its legacy systems by building a distributed, loosely coupled, services-driven and process-centric framework that meets both the functional and technical requirements of the Unified Permit Project. Read more about the Alaska DNR project at http://www.softwareag.com/corporate/CustomerInnovation/winners/roi_award.asp and visit http://www.softwareag.com/corporate/customers/innovation/winners/default.asp to view other award winners.

CLAL Insurance Enterprises Holdings, Israel’s leading insurance, pension and financial services group, won the Customer Service Award for its case management solution created with webMethods. The solution integrates claims documents with an automated process built on top of a legacy system, extending the company’s existing IT investment. Time-intensive and error-prone manual steps were replaced with an agile, scalable claims process that’s faster and more accurate, thereby improving customer satisfaction. Read more about how CLAL modernized their existing COBOL applications with a Business Process Management (BPM) focus to provide an agile solution, scalable for future growth, at http://www.softwareag.com/corporate/CustomerInnovation/winners/customer_service_award.asp.

Don’t miss the next Process World! Bookmark www.processworld.com and check back later this year for the 2012 Process World dates and locations.