

# NATURAL

## Single Point of Development

Centralized application development  
for mainframes and Unix from an easy-to-use  
Windows environment

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WHITE PAPER

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## Introduction

This white paper is intended to introduce readers to the concepts and architectural characteristics of Natural's new development environment Single Point of Development (SPoD).

The paper:

- ▼ describes the advantages and benefits of developing within the SPoD environment,
- ▼ introduces its features and capabilities,
- ▼ and outlines the near-term and long-term road map for the evolving platform.

Two significant benefits are highlighted throughout the paper:

1. Natural's new SPoD crosses the platform gap, allowing centralized development for mainframes and Unix from an easy-to-use Windows environment.
2. Natural's SPoD integrates separate Software AG tools into one environment. These tools include Natural Engineer, Natural Construct, Predict, and Predict Application Control.

### **COMMON DIFFICULTIES, A NEW SOLUTION, BIG BENEFITS**

Software developers have been using Natural in a non-graphical environment for over two decades. Its wide range of capabilities have become quite familiar, yet so have some of its inconveniences and shortcomings. The lack of a visual interface prevents optimal productivity, training takes longer and simple tasks often required lengthy coding.

With Natural's new Single Point of Development (SPoD), the drawbacks have been resolved. Natural itself hides coding complexity from the developer by providing a high level of abstraction for computing languages. It also hides the complexity of database access and end-user communication (user interface). The SPoD graphical environment continues this reduction in complexity by hiding the difficulties related to developing for multiple, diverse target platforms.

Numerous benefits accrue by centralizing development for multiple platforms, integrating various tools under the same environment, and providing simple, familiar, graphical interfaces to software engineers. You essentially give developers an environment that is extremely familiar and easy to use, much like office software suites make it easy for non-technical employees to produce various documents. As a result, cost savings and productivity increases are extensive.

In terms of cost savings, mixed production environments present a challenge. With an all-Windows environment, costs would be minimal. However, that scenario is the exception to the rule when dealing with medium to large enterprises that have already committed investment to a number of different platforms. Not only are environments mixed, but the mainframe and Unix machines are usually prized for their

e-business performance, production capabilities, availability and overall reliability. In this networked age, organizations need e-business applications that stay up around the clock. So, the ability to develop for mixed platforms from a centralized environment helps shops to control costs by allowing everyone to work on Windows machines, while deploying and maintaining applications on a variety of platforms.

With the Natural SPoD, developers create applications that can run on multiple mainframe platforms from a single, standardized, centralized Windows environment. And in the near future, the same SPoD environment will be available for deployment to Unix and additional mainframe platforms including VSE/ESA.

The familiar look and feel of the Windows environment enhances productivity and decreases the amount of time necessary for training.

Maintenance is simplified, control over Natural development tasks is much more organized, and remote development can take place all from one common work area. Shops that were previously complex and difficult to navigate are then able to easily train new developers and attract developers who expect to work within familiar Windows environments with familiar tools, menus and drag/drop, copy/paste capabilities. These productivity, training and retention benefits all translate to more satisfied software engineers and higher-quality code.

Ultimately, the costs related to software development, maintenance, and administration are significantly reduced by all these factors.

**THE NEW SPoD**

Natural's Single Point of Development approach is Software AG's response to the increasing demand for a state-of-the-art development workstation for building, testing and maintaining all Natural applications throughout their life cycle and across all supported platforms.

The SPoD architecture is based on the following products:

- ▼ Natural for Windows (latest release, Version 5) – This is the development client on the desktop. The desktop client includes Natural Studio, which is the actual interface where software engineers design applications.
- ▼ Natural Development Server Plug-In for the target platform (Version 1 for OS/390 is currently available, VSE/ESA will follow soon) – The plug-in resides on each Natural installation in the target environ-

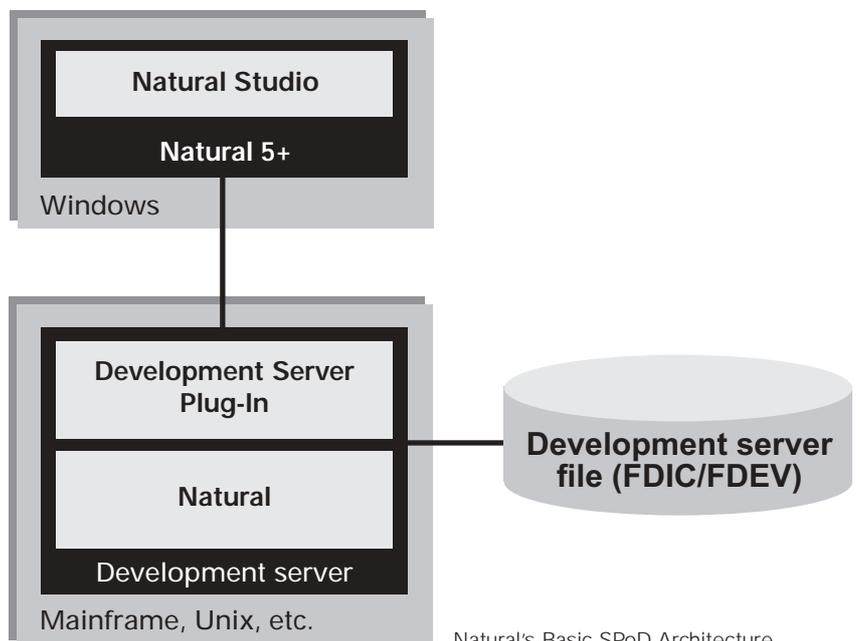
ment, enabling it for remote development.

- ▼ Natural for the target platform (For example, version 3.1.5 for OS/390 is currently available).

Natural at the target platform plus the Natural Development Server Plug-In make up the Natural development server.

The development server maintains a development server file (FDEV) for locking information and application definitions. The development server file can either be a Predict file (FDIC) or a separate system file (FDEV).

Natural Security, both for the development client and the development server, is optional, if you wish to secure the local environment or the target environment.



PRODUCTIVITY ADVANTAGES	BENEFITS
<ul style="list-style-type: none"> <li>▼ Common work area for remote development</li> <li>▼ Simplified maintenance</li> <li>▼ Control over Natural development tasks</li> <li>▼ Familiar Windows GUI look and feel</li> <li>▼ Support for client/server applications</li> </ul>	<ul style="list-style-type: none"> <li>▼ Training costs reduced</li> <li>▼ Attractive to developers who expect familiar environments with familiar tools</li> <li>▼ Lower costs for software development, maintenance, and administration</li> <li>▼ Greater job satisfaction for software engineers</li> </ul>

### POWERFUL FEATURES

▼ **Client/server architecture enables one single remote development environment for all platforms**

Natural's Single Point of Development is based on a client/server concept. On the client side, Windows-based Natural Studio, with its modern look and feel, its powerful drag-and-drop/copy-and-paste functionality and its browser-style workspaces, offers one single, uniform view for all Natural developers. Its graphical user interface is the basis for a single, uniform working environment for all platforms (mainframe, Unix and Windows computer systems) supported by Natural.

▼ **Full remote development access after mapping to the target environment**

For remote development, the Windows-based Natural client can be enabled to interact with a development server located on a single or multiple, homogeneous or heterogeneous target computer systems.

▼ **New application concept provides a logical view of distributed applications**

To meet the requirements of new, distributed application develop-

ment scenarios, the SPoD application concept provides a logical view of Natural and future objects on the various sites where they are developed and used.

▼ **One easy-to-use working environment**

Independence from separate operating systems or TP monitors reduces the investment in training otherwise required for the different environments and shortens the turnaround time for application development.

▼ **XRef GUI Client**

Natural's XRef GUI Client is an integral part of each Natural Studio. This facility allows software engineers to conveniently retrieve, display and navigate the cross-reference information that is essential for developing applications in Natural.

▼ **Enhanced online help/documentation for remote environments**

For remote environments with a character user interface, Natural's Single Point of Development enables application developers and administrators to display context-sensitive help and additional documentation in electronic form using browser-style windows within the graphical user interface. This provides users with fast and efficient access to vast amounts of information that formerly required many volumes of printed manuals.

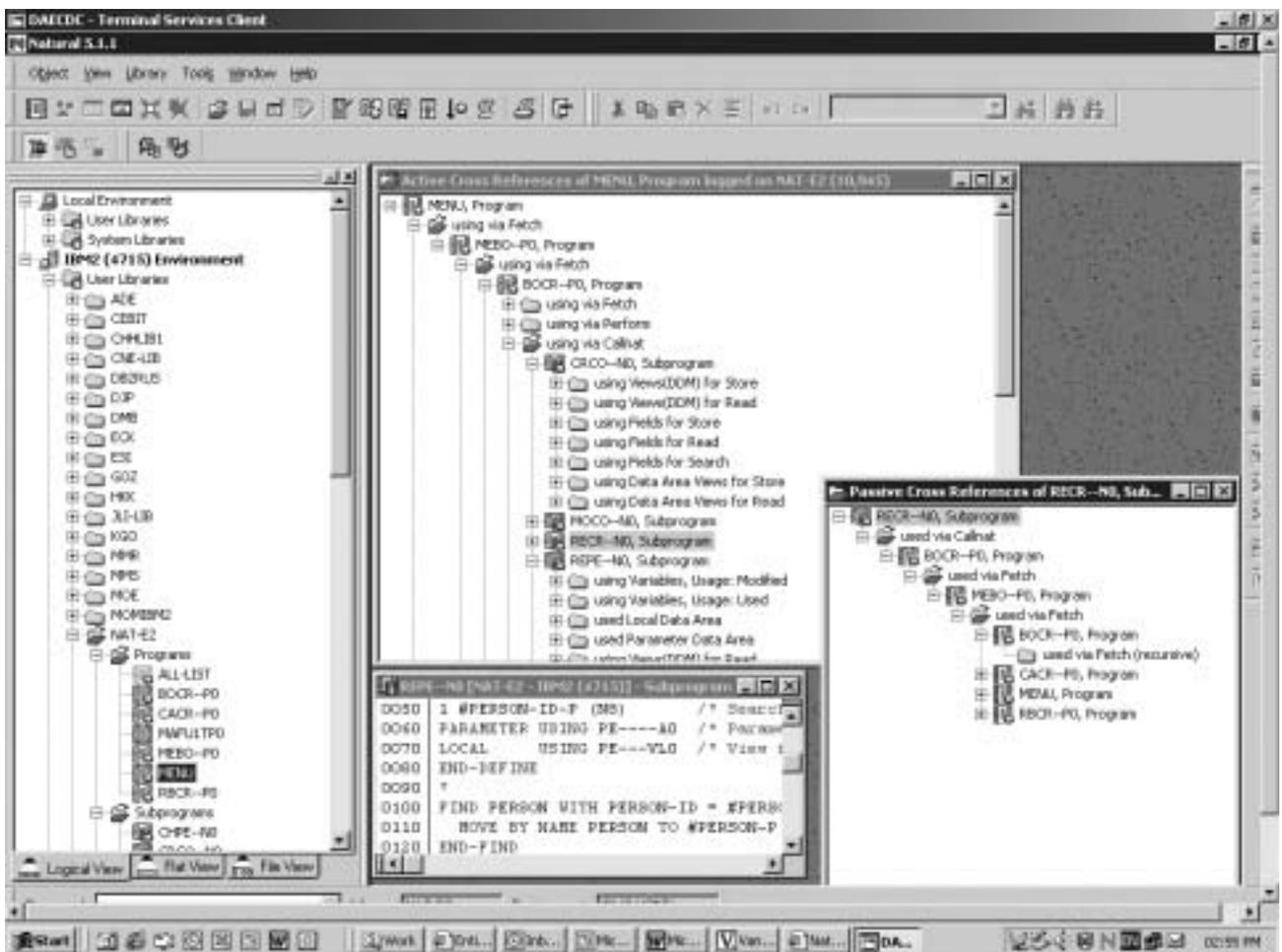
## NATURAL STUDIO – A UNIFIED, CONSISTENT INTERFACE

With Natural Studio, software engineers perform all the necessary development tasks remotely, including file manipulation, editing, compiling, debugging, and cross-referencing. Developers can manipulate (move, copy) program objects, wherever those objects are located. Natural source files are transparently retrieved from and saved to the target environment, and edited

A facility for evaluating relationships (cross-references) between and within program objects is essential for all development and maintenance activities. With Natural 5, a utility is provided for retrieving cross-reference information from the development server file and displaying it in Natural Studio. The cross-reference GUI client gives developers a convenient way of listing and navigating through hierarchies of referenced and referencing objects.

## WEB DEVELOPMENT WITH NATURAL'S ENHANCED XML CAPABILITIES

As the XML standard for exchanging data continues to gain popularity, Natural is evolving with the trend. Several Software AG development components, which are included in or are complementary to the SPoD environment, specifically take advantage of the XML standard. These include the DBMS layer, with Tamino XML Server, and the Natural



Natural Studio

in Natural Studio in Windows. Compiles are initiated from Natural Studio by submitting commands to the target environment. The application executes on the target environment with debugging controlled from Natural Studio.

## DEVELOPING FOR THE WINDOWS PLATFORM WITHIN SPoD

Developing Windows applications within the SPoD is simple. There is no need for a separate Windows development environment. Natural Studio's Dialog Wizards and Dialog Editor help users develop complex user interfaces for Windows fat clients.

language itself, with XML Toolkit for Natural 5. In addition, future versions of Natural will support XML-supplied XSL/stylesheet-based presentation clients for Web browsers.

## SERVICE AND SUPPORT

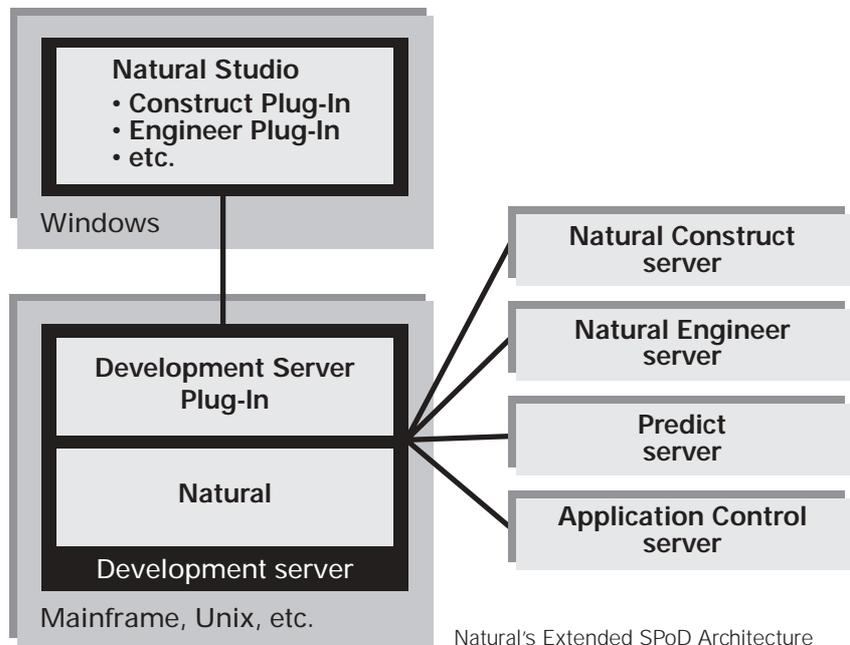
Software AG continues to supply customers with high-performance, stable software. To eliminate risk with the new SPoD architecture, Software AG is offering a special support program for early adopters.

## THE FUTURE SPoD

The prior section of this white paper described existing SPoD capabilities; however, improved functions and platform additions are being rapidly developed. Software AG is actively enhancing Natural Studio by integrating further utilities and development services, some of which are elements of separate Software AG products – such as Natural Engineer, Natural Construct, and Predict.

Functional enhancements to Natural Studio will include:

- ▼ Application re-engineering and maintenance with Natural Engineer
- ▼ Web-enabling of terminal applications with Natural Engineer WebStar
- ▼ Application generation with Natural Construct
- ▼ Schema definition and database generation with Predict
- ▼ Versioning with Predict Application Control



The functionality will be provided by server components linked to a Natural Development Server Plug-In. The user interface, however, is always the Natural Studio with server-specific extensions.

Software AG will release a Natural Development Server Plug-In for VSE/ESA. Releases for Sun Solaris, HP-UX, and AIX platforms as well as for BS2000/OSD are planned.

## LOOKING AHEAD

As it becomes easier to solve complex business problems with these advanced tools and development environments, enterprises and the companies that support their efforts will be generating much more value. Brokered services, shared computing resources, and the formation of development alliances between strategically partnered companies have all gained popularity and profitability over the past few years, and we expect that evolution to continue. New developments and the combination of proven approaches will provide us with faster, more efficient and more secure ways to deal with the world's vast, rapidly expanding network of computing power.

The organizations with superior software assets will certainly provide much more capability to their customers. And, as software continues to evolve as an exchangeable, saleable component for specific solutions and larger systems, these organizations will enjoy significant leverage in the marketplace. With critical leaps in development connectivity like SPoD occurring, we can expect this evolution to continue.

At Software AG, we still consider software development to be in its infancy — and we've been at it for the past 30 years. As we connect systems and continue to erase the boundaries between platforms, a whole new wave of creativity and innovation will be unleashed. We are looking forward to both the technical and actual benefits that lie ahead.

To learn more about what Natural can do for you, visit:  
[www.softwareag.com/natural](http://www.softwareag.com/natural)

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