IBM Software
September 2001

IBM LAN Distributed Platform

and

WebSphere Business Components Composer

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Introduction

This white paper gives an overview of how WebSphere Business Components Composer[1] (WSBCC)'s flexibility is leveraged through LANDP. WSBCC utilizes component technology by offering easy-to-use packages of software implementation that can be independently developed and delivered, composed from other components, and have explicit interfaces for the services they provide. LANDP, a versatile client-server technology, significantly enhances the range of services which WSBCC offers by providing a set of Java enabled components.

What is WSBCC?

WSBC Composer is the IBM Java based framework to speed up the building of multi-channel applications that access transactional systems. WSBCC provides a development framework for composing prebuilt, ready-to-use components, to build multi-channel applications like Branch Teller, Internet Banking, pervasive solutions, Digital TV and others that access enterprise servers.

LANDP enhances WSBCC's core strengths

In LANDP version 5, integration with WebSphere Application Server was included to enable multiple clients to access LANDP services simultaneously, allowing web applications to use LANDP

WSBC Composer enables customers to build and maintain multi-tier applications that access transactional systems through multi-channel architectures, preserving investment in Enterprise Information Systems (EIS). Because WSBCC is built on Java technology, LANDP's services can be integrated with it thanks to the newly available Java support. So WSBCC strengths are complemented by LANDP:

- WSBCC is a well-defined and proven application architecture for multi-channel applications based on the WebSphere software platform for eBusiness. LANDP's popularity as a middleware solution for bank branches is thanks to its proven robustness for over a decade. In the most recent release, version 5, it provides multi-channel support with the ability to access its services from WAP phones, PDA's, and browsers on thick and thin clients.
- WSBCC provides a parametric composition engine to launch transactions to several types of back end systems with minimum coding required. LANDP provides transaction management through its data management servers and access to a wide array of back end systems through its communication servers.
- Multi-channel dialogue flow management capabilities (for HTML, WAP, XML and other JSP based clients) are available in WSBCC. In LANDP version 5, integration with WebSphere Application Server was included to enable multiple clients to access LANDP services simultaneously, allowing web applications to use LANDP.
- WSBCC provides repository based development environment. Multiple users, versioning and validation tools are supported. LANDP's common API is now enhanced with the recent technology release of Java wrappers, which enhance rapid application development using VisualAge for Java.

[1] All comparisons in this document were made using WSBCC v4.0 and LANDP v5.0

Access to LANDP services made simple through the Java wrappers now supplied with LANDP for those services

- WSBCC is supplied with a rich set of specialized component services normally used in the building of delivery channel applications like Host Communications, Store for Forward, Financial device support, message formatting framework, forms printing supplemented with cross-platform compatibility and resulting portability of applications. This is where WSBCC solutions can take most advantage of LANDP's services. WSBCC already utilizes LANDP's device support by providing access to its Magnetic Stripe Reader Service (MSRE). Access to other LANDP services, including host communications, data management and financial device support is made simple through the Java wrappers now supplied with LANDP for those services. Not only does this widen the array of services which WSBCC solutions can access, but it enables customers to retain their investment in LANDP, allowing migration of applications without replacing all the technology.

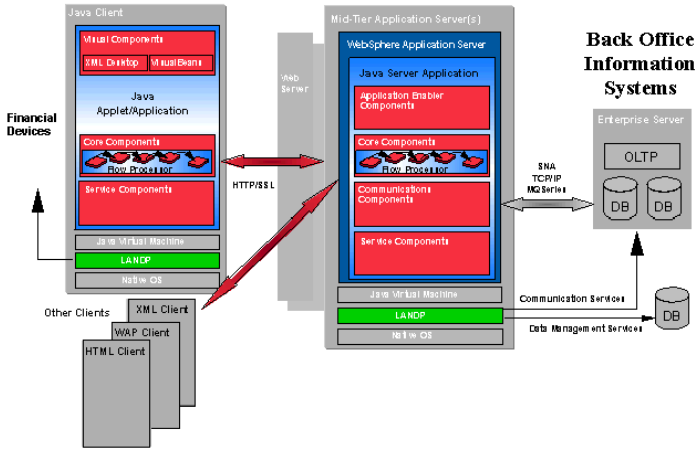

Figure 1: How LANDP integrates with WSBCC

Figure 1 above shows the integration with LANDP and WSBCC. It demonstrates how LANDP needs to be running on the client to support financial devices, and on the server to provide host communication and data management services.

Services for Banking Applications

WSBCC provides an extensive set of already built-in services. It supports a range of host communication protocols (SNA LU0, LU2, APPC and TCP/IP) and applications (MQ/Series, CICS Java Gateway, OTMA C/I and ITOC). It provides access to numerous financial devices (MSR/E, ChipCard, Financial Printers, Cash dispenser and Check Reader) through the most popular architectures; LANDP, WOSA/XFS and J/XFS.

Other services include transaction management (Electronic Journal and Store for Forward), Forms & Quality Printing (FormsPath, JetForm and PDF) and connection to third party software (Lotus Notes/Domino, SAP/R3, LDAP). It also provides an Application Tables service and a Cash Drawer Manager. LANDP equally provides a wide array of services, including host communication, financial device support, data and transaction management and supplementary services.

Figure 2 highlights the differences in services provided by both products.

Service	WSBCC	LANDP
SNA LU0	✓	✓
SNA LU1		✓
SNA LU2	✓	✓
TCP/IP	✓	✓
APPC (LU6.2)	✓	✓
Native X.25		✓ (DOS and OS/2)
MQ/Series	✓	✓
CICS	✓	✓ (OS/2)
ITOC (IMS TCP/IP OTMA Connection)	✓	
J/XFS	✓	✓
WOSA/XFS	✓	
MSR/E	✓ (LANDP)	✓
PIN Pad		✓
ChipCard	✓	
Financial Printers	✓	✓
Cash dispenser	✓	
Check Reader	✓	
Shared File		✓
Query Server		✓
ODBC		✓
Electronic Journal	✓	✓
Store for Forward	✓	✓
Forms & Quality Printing (FormsPath, JetForm and PDF).	✓	
Domino Connector	✓	
SAP/R3 Connector	✓	
LDAP Service	✓	
Application Tables	✓	
Cash Drawer Manager	✓	
Dynamic Date Exchange (DDE)		✓
System Manager		✓
3270 emulator		✓
3287 emulator		✓

Figure 2: WSBCC and LANDP services compared

Host Communications

LANDP and WSBCC both provide LU0 support. Figure 3 compares the supported protocols:

LU0 Protocol	WSBCC	LANDP
Chaining protocol	✓	✓
Bracket protocol	✓	✓
BID Protocol	✓	
Flow protocol (Change Direction protocol)	✓	✓
Function Management Headers protocol	✓	✓
LUA LU Pool	✓	✓
Response protocol	✓	✓
Data Security protocol	✓ (LU6.2)	✓
Quiesce protocol		✓

Figure 3: LANDP and WSBCC LU0 protocols compared

Data security protocol indicates that the SNA server supports session-level encryption. In WSBCC, session security is provided transparently to the LU62 by the IBM eNetwork Communications Server. Quiesce protocol means that an LU may enter a *quiesce* state, informing the application before and after releasing the *quiesce* state.

LANDP provides LU6.2 support through its PPC server. The protocols supported by LANDP and WSBCC for LU6.2 are identical.

MQSeries and CICS Support

WSBCC provides support for CICS and MQSeries through simple API's to access their services. It provides a CICSConnection service that enables a Java application to invoke a CICS transaction on a CICS server by sending the request through a CICS Transaction Gateway. LANDP supports CICS on OS/2 only with a CICS Interface server, with two commands to call CICS and read CICS.

The MQ Connection service in WSBCC enables a local application to communicate with a partner application through MQSeries. The service uses MQSeries Server version 5.1 in conjunction with MQSeries for Java. The LANDP MQSeries Link server, which allows workstations in the LANDP workgroup to add and retrieve messages from an MQSeries Queue Manager, enables LANDP Applications to access a subset of the MQSeries Message Queuing Interface (MQI). LANDP includes transactional functions that are one phase commit and restricted to the MQ Link server. The message size is also limited to 57000 bytes.

Financial Device Support

WSBCC mainly uses J/XFS for financial device support. J/XFS is a proposed standard developed jointly by IBM, Siemens Nixdorf, NCR, DeLaRue and Sun Microsystems, to be "A standardized interface to all common financial devices which can be used by applications and applets within the Java programming language".

It is a platform independent alternative to WOSA/XFS. The J/XFS standard defines APIs for accessing a number of financial devices including financial printers, magnetic stripe reader/encoders, PIN Pads, Chip cards, cash dispensers and check readers.

LANDP provides support for the following IBM financial devices:

- Financial Printers (4712 transaction printer, 4722 document printer, 4009 universal banking printer, 4772 universal financial printer, 9055 document printer, 9068 multipurpose passbook printer)
- 4748 Printer, 4770 Printer
- 4777/1/2/3 Magnetic Stripe Reader/Encoder (MSRE)
- 4778/1/2/3 Personal Identification Number (PIN) Pad

LANDP also provides J/XFS device services for the above devices, so that any solution using J/XFS can access these devices through J/XFS and LANDP.

The WSBCC Print Service interface allows an application running on a client machine to print electronic forms. Support is provided for electronic form printing solutions from two third-party vendors, FormsPath and JetForm. The FormsPathService and the JetFormService are the two classes implementing the Print Service interface which defines the public API for the service. LANDP doesn't provide support for these third party applications, but provides a general API for writing data to a financial printer in different predefined formats, depending on the devices which is being written to.

Data and Transaction Management

The WSBCC Electronic Journal service and Store for Forwarding service can work with any DBMS that provides a JDBC driver. These services can be extended by the user if additional functionality is required. By contrast, LANDP's Electronic Journal service and Store For Forwarding service only work with its own Shared File database.

Operating Systems and environments

Operating System	WSBCC Client	WSBCC Server	LANDP Client	LANDP Server
Windows 98	✓			
Windows NT/2000	✓	✓	✓	✓
OS/2	✓	✓	✓	✓
AIX		✓		✓
OS/390		✓		

Figure 4: Compatible operating systems

WSBCC supports Internet Explorer 5.x and Nestcape Navigator/Communicator 4.x (and higher) as client platforms. It requires an Application Server Platform such as IBM WebSphere Standard & Advanced Edition 3.02 (or higher). LANDP v5 supports Internet Explorer 5.x and Nestcape Navigator/Communicator 4.x and other browser-based 'thin-clients' such as PDA's and set top boxes through its advanced Java support, and can integrate with any application server platform.

Rapid Application Development

WSBCC applications are developed using the WSBC Developer's WorkBench in conjunction with VisualAge for Java to provide extensive support for the development of an applications infrastructure. Included in this is a business operation flow processor, transaction posting engine, rich data formats, context and session support, distributed event management and a multichannel transport service. VisualAge Java provides the ability to build the client application, linking the user interface with the supplied services. The visual development environment, combined with the infrastructure framework provides a rapid development environment.

LANDP's Java classes can be imported into VisualAge for Java, allowing any of its services to be accessed through its common API, and therefore can be used in any WSBCC application. A recent 'technology release' has provided enhanced wrappers for the more common LANDP services. Simple and intuitive methods have been defined for accessing the Supervisor, the Shared File database server, the SNA and TCP/IP communication servers and the Electronic Journal server. Application developers can now access these services from any Java application, including WSBCC.

Scenario:
Web-based application in branch - WSBCC and LANDP

Customers can migrate their existing teller-applications using LANDP to WSBCC applications while retaining their investment in their existing technology and LANDP licenses

Customers can migrate their existing teller-applications using LANDP to WSBCC applications while retaining their investment in their existing technology and LANDP licenses. LANDP's Java support enables access to all of its services from either the server or the client. A server within a branch could provide central access for the web-based clients to LANDP's host communication services, database access services and device services. The scenario outlined below shows how LANDP's Java classes can be used in the client to access LANDP services on the server.

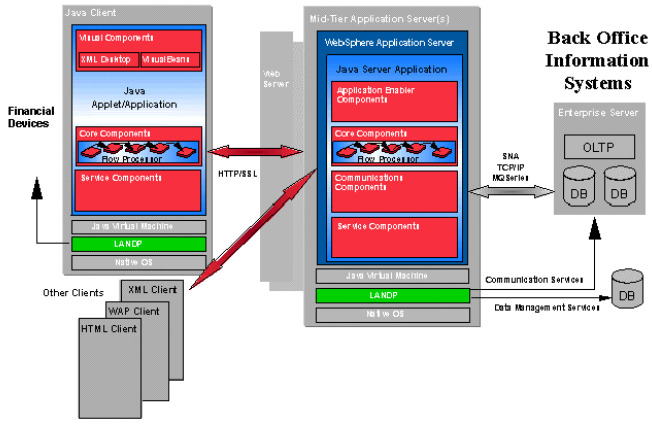

Figure 5: Application integration with LANDP and WSBCC

The business logic resides within the application server. The branch server also runs LANDP and must reside on the LANDP workgroup. WSBCC applications can access LANDP services through various devices, and by different groups of people, such as bank staff, and customers.

Conclusion

This paper has highlighted the differences between LANDP and WSBCC, but proves that they can be integrated providing significant cost savings within the branch. It shows that LANDP and WSBCC can coexist, providing significant and important benefits from the new technology, without having to risk replacing the existing investments made in technology and infrastructure

For further Information

For further information about LANDP support for Java please visit the LANDP Web Site at ibm.com/software/landp or send an email to LANDPCOM@uk.ibm.com

LANDP Web site
www.ibm.com/software/landp
IBM's WSBCC Web site
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