Java in Retail

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Agenda

- Java Introduction
- The Java Promise and Reality
- What is the Attractiveness of Java for Retail
- Java Initiatives by Retail Store Solutions
- Java Initiatives by Business Partners
- Java Activities by Retailers
- Frequently Asked Questions
- Messages
- Java Sources

The Basic Java Grinds ...

- JDK
  - ► Java Developers Kit. Available at no charge from the Sun and IBM Web sites, it includes tools to create Java applets and applications, as well as the environment to run Java solutions.
- JVM
  - ► Java Virtual Machine. This is the layer which sits between the native operating system and the Java run time environment, which allows for complete portability of code. The JVM is installed as part of the JDK or the JRE.
- JRE
  - ► Java Runtime Environment. Everything you need to install a JVM and run Java without the tools

Adding some Flavor to the Blend ...

- JFC
  - ► Java Foundation Classes. Think of them as Java's answer to the Microsoft Foundation classes but better because they are platform independent. They include graphics and security classes.
- Swing
  - ► A new set of Java Graphics classes. These classes have far greater variety, better and more varied look and feel, and do not rely on the underlying platform's graphics classes. Use them!
- AWT
  - ► The original set of graphics classes for Java. Forget them; they are like instant coffee compared to Swing.

And for Gourmet Coffee Drinkers ...

- Embedded Java/Personal Java
  - ► Imagine Java applets running in your TV to customize and configure your TV preferences for each member of a household; or Java running in networked devices so they can communicate with each other.

- Java Card
  - ► Its the Java Smart Card. Java running in a chip on your card, it runs multiple applications at once, is downloadable with new applications, and is compatible with other Smart Card standards.

The Java Promise

- High Function Language
- Platform Independent
- Network Centric
- Web Focused
- Ability to create full function applications
- Openness
- Extendibility

The Java Reality...

- High Function Language
- Platform Independent
- Network Centric
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- Extendibility

- JDK 1.1 release extends Java Language
- Java VM should allow full portability; currently limited by OS uniqueness
- Serious performance concerns with an interpretive language
- No mission critical deployments in retail

January 1997

The Java Reality...

- High Function Language
- Platform Independent
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- JDK 1.1.5 release continues to extend Java Language
- Certification process in place to guarantee portability - 100% Pure Java
- JIT's are improving performance; JDK1.2 promises additional performance improvements
- JFC release addresses functionality delta with MFC
- Significant Retail Activity

January 1998

The Java Reality...

- High Function Language
- Platform Independent
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- Java 2 Platform Released
- Significant new Security model
- Significant improvements to JIT technology continues to mitigate performance concerns
- Java Card, Personal Java, JavaMail, Embedded Java all broaden the scope of Java in the marketplace
- Java moves from a client side to server side environment

May 1999

The Java Reality...

- High Function Language
- Platform Independent
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- Java running critical operations - eTrade, ebay, ... established language of ebusiness
- Java 2 Enterprise Edition - Java moves from server up into the enterprise
- Performance and reliability enhancements for Java 2
- Pervasiveness of XML for Java data
- JDBC 2.0
- San Francisco Java objects becoming mature

January 2000

Java is a Development Technology

- Java is the replacement for c++
- JIT's and continued efficiency tuning eliminates the concern for speed and performance
- Java can replace Visual Basic as a Rapid Application Development tool for Graphical Interfaces
- Java combines the best of both tools into a single development tool
- Java can preserve current code investments
  - ►C++ Native code (JNI) wrappering
  - ►Cobol(!) wrappers
- Java server development can cross all servers in an enterprise

Why is Java Important to Retail ...

- Retailers frequently grow through acquisition
- The ideal store system would be portable across different vendor hardware and environments
- Java allows a single solution to be deployed across platforms running different environments on different hardware
- Retail has always believed in Thin client computing; Java and the NC complement retail directions
- Retailers claim that availability of development resources is a critical inhibitor today; Java resources are available and growing dramatically
- Retail is a cost sensitive business, and Java is a scaleable yet cost effective solution

IBM's Three Part Java Strategy

■ IBM Initiatives

- ► Enable Java Virtual Machine on all Platforms

- ► Build Middleware to enable deployment of Java solutions for mission critical applications

- ► Bring the best Java solutions to the market to address business requirements and eBusiness

■ Retail Store Solutions

- ► JRE in 4690 OS Version 2

- ► JavaPOS drivers available for IBM POS I/O devices

- ► Deploy IBM middleware on 4690 OS

- ► Work with business partners to bring Java solutions to the retail marketplace

- ► IBM Java Services
  - – NRSC, jStart, etc.

Java Initiatives by Retail Store Solutions

- Java Runtime Environment on 4690 Operating System
  - ► Full graphical support
    - − 256 colors/1024x768, 800x600 and 640X480 resolution
    - − Swing and AWT Supported
  - ► JDK 1.1.8 compliant
  - ► TCP/IP support at the terminal
  - ► Port by IBM Hursley Labs in United Kingdom
  - ► Limited to 4694-2xx and higher
    - − no 4683/4693 support
    - − no 4680 Operating System support
- Allows Java Applications to communicate to 4690 applications and pass data
- Java I/O Processor and the Java Device Manager allows for integration of Java GUI with current 4690 based applications

Java Initiatives by Retail Store Solutions

- Why did we develop a 4690 JRE?

    - Graphical interface to current application suite
    - User exit extensions in Java; no longer limited to CBasic
        - support through CBasic-Java Interface
        - Java can not be used inline with CBasic
    - New Java applications running at POS alongside of 4690 POS
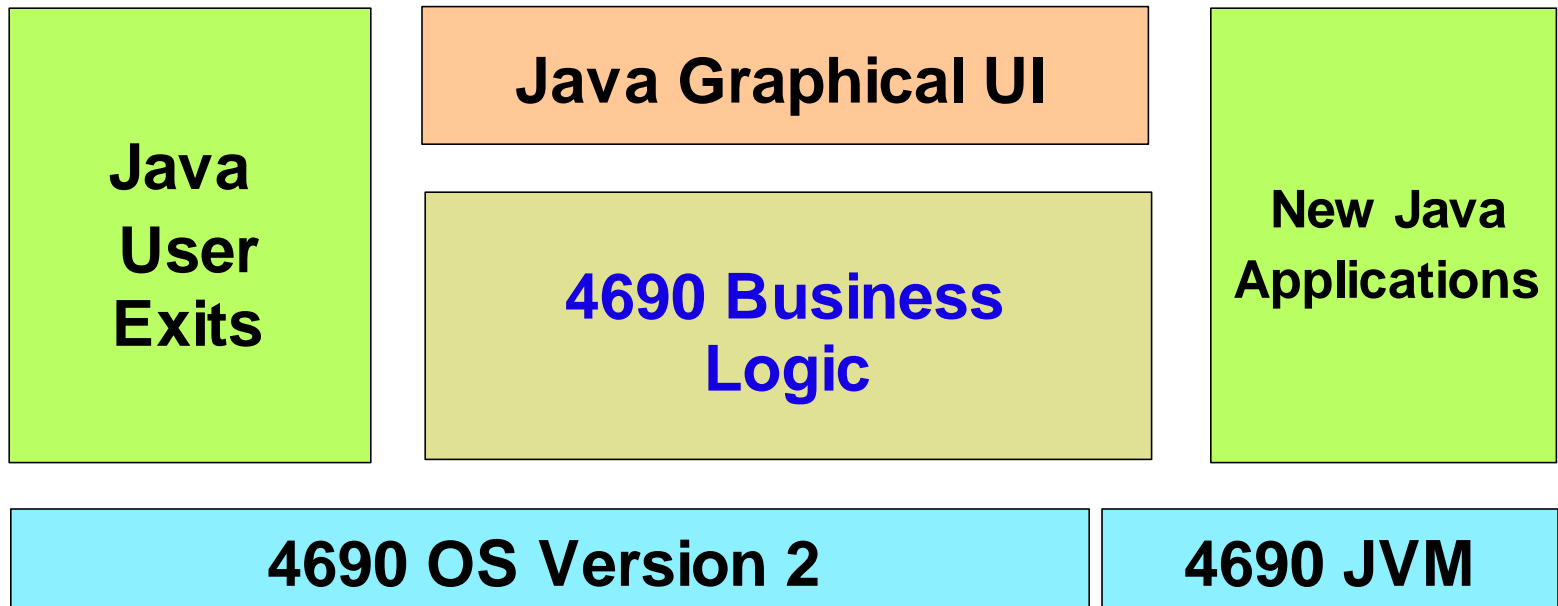   - New POS clients deployed on 4690 JRE with 4690 controller and data structures

IBM's Premiere 4690 Application Enhancements will continue Delivering Business Value through Technology Innovation

Next Generation GSA - Implement it Now!!

Java User Exits	Java Graphical UI	New Java Applications
	4690 Business Logic	

4690 OS Version 2	4690 JVM

Java Initiatives by Retail Store Solutions

- JavaPOS Peripheral Drivers
  - IBM leads a consortium of retailers and vendors developing Java standards for peripheral connectivity
    - IBM, SUN, NCR
    - JCPenney, Home Depot
  - Based on the UPOS driver specification
    - Deployed in Java
  - JavaPOS drivers now available

Why Aren't we writing new Java POS?

- Because we are developing a Java POS Solution instead
- Solution Development is multi-part
  - ► User Interface
    - − User Interfaces will always vary by customer and are ideally suited as service engagements
  - ► Business Logic
    - − ACE, SA and GSA provide the best business logic in the industry
  - ► Middleware
    - − Retail Store Solutions leads JavaPOS and middleware deployment
  - ► Platform deployment
    - − 4690 is the best client platform for retail and the only truly thin JRE enabled platform widely recognized by Retail
    - − DDS/CSF and TS provide cross platform support
  - ► StoreFlow JPV will be a fully realized Java POS which can run under the 4690 JVM or other host platforms

Java Initiatives by Business Partners

- Retail Foundation by Cornerstone
  - ▶ Library based collection of retail objects deployed in Java
  - ▶ Point-of-Sale, backoffice and ISP applications
- JStore, JStore Manager by J.Commerce Inc, Canada
  - ▶ Graphical, intuitive user interface
  - ▶ Testing with 4690 OS Thin Client environment
- Kyrus JGUI
  - ▶ Java as a front end interface to 4690 applications
- ADS Retail
  - ▶ 100% Java POS application
  - ▶ Fully tested for 4690 OS Thin Client environment
- BeanStore by Datafit, UK
  - ▶ Pure Java Point-of-Sale application; no backroom support.

Java Initiatives by Retailers

- ASDA
  - Deployed Shop at home service - catalag & warehouse using Java Development technology
  - Future integration with in-store systems
- Home Depot
  - Store level support applications deployed on handheld devices
  - Kiosks being deployed with for shopper information
- Grupo Leverpool
  - Deployed new Warehouse management system
    - Position for growth
    - Multiple Language support
- i-gift.com
  - Deployed On-line Shopping Center Gift certificates
    - website, customer database, etc.

Java Initiatives by Retailers

- Circuit City
  - ▶ Rewrite all store level applications in Java
  - ▶ Replace current workstations with Network Computers
- JCPenney
  - ▶ Rearchitect and create a new store system through Java and Network Computers
- The Gap
  - ▶ Deploy their Internet ordering site with Java
- Sears
  - ▶ Deploy a new ordering system in Java
  - ▶ Deploy a new gift registry system in Java
- Sharper Image
  - ▶ Deploy their internet site with Java

Frequently Asked Questions ...

- Can a Network Computer be used as a Point-of-Sale terminal?
  - ► Yes, it can, and some retailers such as Home Depot plan on using NC's as POS replacements. However, just as PC Cash Drawer has never been specifically hardened for Retail, IBM's line of Network Centric POS is a better choice for most retailers.

- I've heard that Point-of-Sale peripherals will not attach to a Network Computer.
  - ► Not true. A common configuration today is the keyboard, scanner, and MSR coming into the keyboard port with a wedge; a POS printer such as the 4610 attached to the serial port; and the cashdrawer attached to the printer. While not the best configuration, its a viable one.

Frequently Asked Questions ...

- What is San Francisco?
  - ▶ San Francisco is a framework, or collection, of reusable Java beans, or components, which allow developers to create applications more quickly and more reliably. Currently, the Bean repository is focused on inventory and financial applications.

- What are Java Beans?
  - ▶ The best way to brew a good cup of coffee , and the best way to develop new applications. Java Beans and the Java Foundation Classes are the cross platform, environment independent answers to Microsoft's Active-X components and OLE objects. Java Beans are designed to provide all the same function as Active-X objects, but without the restrictions of a Microsoft environment.

Frequently Asked Questions ...

- How does StoreFlow play in the Java Initiatives?
  - ► StoreFlow's component architecture makes it ideally suited to run in a network centric environment. StoreFlow logical components can physically reside anywhere in the network. StoreFlow JPV will be a pure Java POS developed with the JFC and Swing. StoreFlow Backoffice applets are being developed to move reports and query functions to a browser. JPV will be the first POS client available for StoreFlow in North America.

Frequently Asked Questions ...

- Why hasn't Java Taken over the World?
  - ► Rome wasn't built in a day, and great coffee doesn't get brewed in a Mr. Coffee. There have been continued concerns over performance, which has slowed some efforts down. These are largely addressed, but there are residual concerns. The Core Java platform has also been changing, and many people have been waiting for the Java 2 Platform which finally solidifies the Java core and expands functionality. Finally, now that the Year 2000 transition has taken place new development is more likely to increase.

Why Should I Consider Java Technology?

- Java is the most exciting technology for Retail since the introduction of 4680 by IBM in 1986.

- Java is the only platform independent solution for Retail which provides both software and hardware independence.

- Retail Store Solutions is leading the Java initiative for Retail through participation on the JavaPOS committee, through development of enabling software for Java, and through integration of best of breed Java solutions into the store architecture.

- Java is a relatively new, rapidly maturing technology. Java standards work, and Java middleware components, such as JavaPOS drivers, which are now available provide common platforms

- IBM's Worldwide Software Strategy, StoreFlow, is being enhanced and extended with Java as the primary development vehicle.

Why Should I Consider Java Technology?

- Language maturity and stability has been greatly enhanced with the release of the Java 2 Platform.

- Interface and peripheral support will be enhanced with USB support

- The first significant store applications are now in production

- Expect to see Java deployment in the store greatly increase in 2000

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