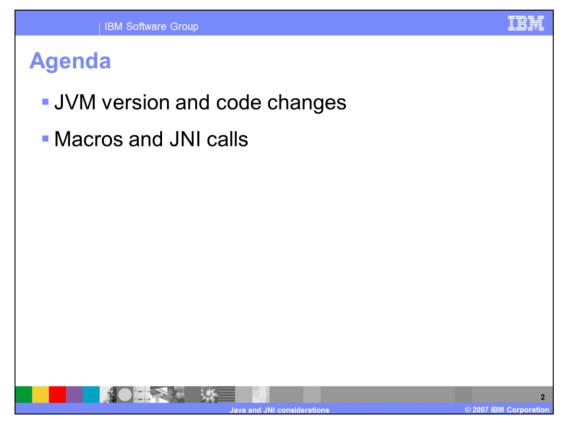
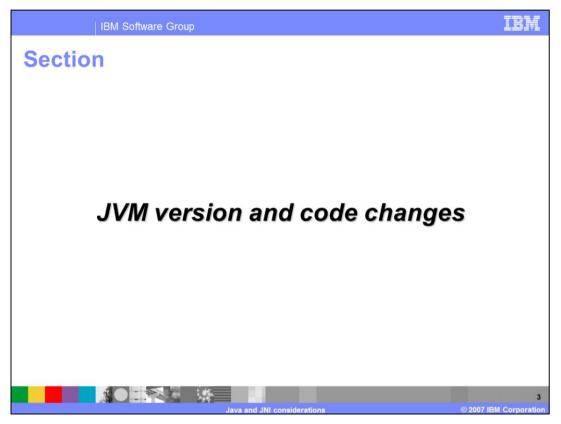


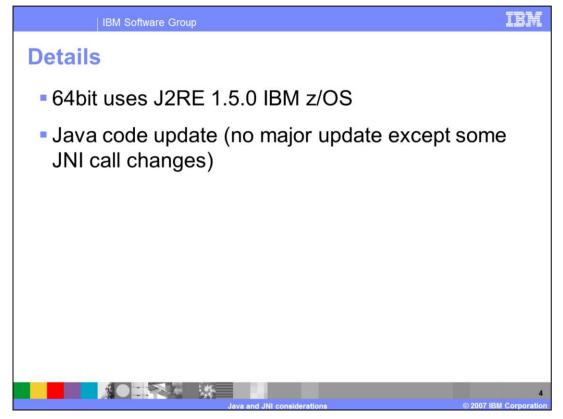
This presentation will show Java[™] and JNI changes in a 64-bit system on WebSphere Base Application Server V6.1 on z/OS[®]



This brief presentation will discuss JVM version and code changes, and macros and JNI calls.



This section will discuss JVM version and code changes.

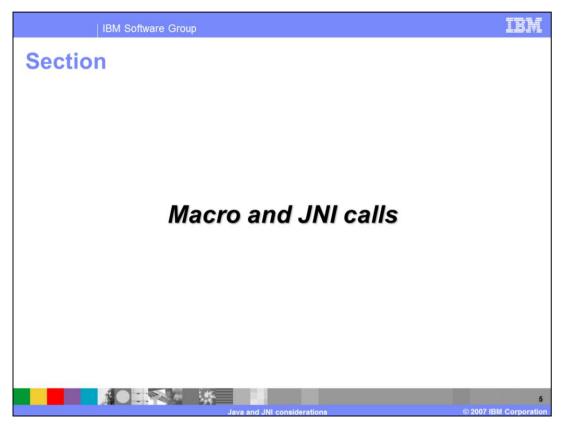


J2RE 1.5.0 IBM z/OS is used. There are 2 JVMs, 31-bit and 64-bit for different runtime modes in WebSphere Application Server Version 6.1.

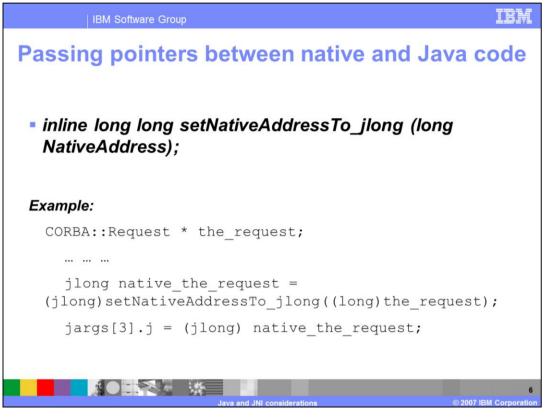
No major Java code change has been done to be 64-bit compliant.

Some code has been modified where the loadlibrary(..) call is needed to load bbg, 64-bit modules, rather than bbo, 31-bit modules based on JVM runtime bit mode.

There were some changes done when using Java-to-native and native-to-java calls passing native addresses, this will be discussed in the later part of this presentation.

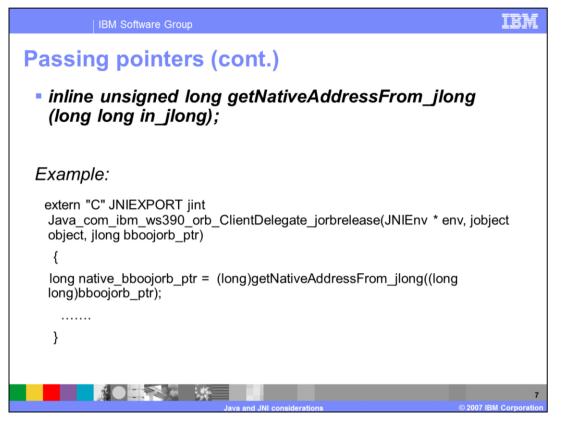


This section will discuss Macro and JNI calls.



To keep code common, between 31-bit and 64-bit native, macros have been introduced such as jlong that will be used to pass addresses into native-to-java and java-to-native calls regardless of bit mode. As jlong is always 8 bytes, regardless of mode, the lower 4 bytes will be used to store the address under 31-bit mode and all 8 bytes will be used under 64-bit mode. The macros will expand accordingly based on compile mode.

setNativeAddressTo_jlong(..) takes an address to store in jlong before passing it in a native-to-java call.



getNativeAddressTo_jlong(..) retrieves an address from jlong (passed to native) according to the bit mode.

If a structure with a native pointer is being passed between native and Java as a byte array, the proper offset should be calculated to retrieve the address based on the bit mode. This is done because alignment of the pointer data type changes in 64-bit mode.



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