Free Java® and OpenJDK®

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Free Java timeline

- 16 May 2006: Sun announce that it's going to free Java:

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- Which licence will they use?

A digression: free software licence incompatibility

- It's possible to have a pair of free software licences that are incompatible

- Both licences may be perfectly good free software licences, but their special terms make sharing code impossible

- Example: GPL and Apache licences

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■ Example: GPL and Apache licences

■ This is a **Bad Thing**

Another digression: Java at Red Hat

- **gcj**: started by Per Bothner at Cygnus in 1998

- Still not fully Java(tm) compatible

- Part of many GNU/Linux distributions

- **GNU Classpath**: a set of core Java libraries

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Free Java timeline

- 13 November 2006: Sun announce the licence

  "Today in a historic move, Sun is opening the door to
  greater innovation by open sourcing key Java
  implementations Java Platform Standard Edition (Java
  SE), Java Platform Micro Edition (Java ME), and Java
  Platform Enterprise Edition (Java EE) under the GNU
  General Public License version 2 (GPLv2), the same
  license as GNU/Linux.

- This is a huge move, and probably the greatest ever single
  donation of free software

- Crucially, this is the same licence as gcj and GNU Classpath,
  so we can combine our code

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- Sun shipping "binary plugs" that come with no source code for that missing 5%

- This is a big problem for Fedora/Debian and friends:

  - We don't like or trust weird bits of binary in our systems

  - The Rules don't allow it anyway

IcedTea to the rescue

- Fill the missing 5% with code from GNU Classpath

- This is only possible because Sun chose the GPL

- We could have made this a Red Hat project but we didn't want people working on other GNU/Linux distributions to be disssuaded from working with us

- Mark Wielaard, GNU Classpath maintainer, sets up `http://icedtea.classpath.org`

Free Java timeline

- So why did Sun not ship 5% of the code?

- *Because they didn't own it!*

Free Java timeline

- So why did Sun not ship 5% of the code?

- *Because they didn't own it!*

- Over the years, Sun had licensed code from many vendors, some of whom did not want their code to be freed

- Important lessons to be learned

How are we going to build this thing, anyway?

- Bootstrapping is now a big problem

- Sun build OpenJDK with a previous (unfree) version of their own JDK, but we can't do that

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- gcj to the rescue!

  - gcj is truly free software, so we're allowed to use it to build OpenJDK packages for GNU/Linux distributions

  - We won't risk unfree software "leaking" into OpenJDK dusing the build process

Free Java timeline

- Over the next few weeks, the Red Hat team toils heroically to create the hybrid of GNU Classpath and OpenJDK that is to become IcedTea

- Less than a month after OpenJDK is released, IcedTea 1.0 – the first truly free version of the software – is released

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- Some non-functional stubs

- Since then, Sun have found or created free replacements for most of the binary plugs

Free Java timeline

- Only i386 and x86-64 supported by Sun

- IcedTea project releases interpreter-only portable version

- This becomes Zero, the "zero assembler" OpenJDK

- Slow, but good enough

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- We're looking at Just In Time (JIT) compilation using LLVM

- This is a very different approach from that of proprietary Java, which doesn't co-operate with other projects

- This won't be released in the short term

Free Java timeline

- OpenJDK / IcedTea was a preview of Java SE Version 7

- Java SE Version 7 spec not yet released

- OpenJDK / IcedTea isn't really compatible with anything

- Good enough for most things

- Shipped as part of Fedora 8

Red Hat's contributions

- Java plugin for web browser
  - For many people, the first experience of Java
  - Shipped in Fedora 8

- Java Web Start
  - Integrated NetX with OpenJDK

- In the future:
  - LiveConnect Java/JavaScript bridge
  - Signed applet verification

Free Java timeline

- After Fedora 8, the lack of a Java SE 6 compatible version becomes a real problem

- Java 7 specification is still in flux, and developers might depend on unstablea APIs

- Joe Darcy's team at Sun begins the work of fixing the Java 7 "anti-bugs" so that we can have a Java 6 compatible release

- We quickly decide that Fedora 9's Java must be based on this Java 6 compatible code base

Free Java timeline

- Sun now allows Fedora to use the *OpenJDK* trademark for its package

- This makes good sense, as most of the original binary plugs have now been replaced, and Fedora's OpenJDK is very similar to the package that Sun themselves distribute

Not everything in the garden is rosy

- Many of the JSRs and TCKs are still secret / proprietary

- If Java is to become the free software platform of choice, this must end

Free Java timeline

- We now can try to pass the Java SE Technical Compatibility Kit

- This is a huge job, but we're working on it

- We're hoping to make an announcement soon, so Watch This Space

- This will be the most significant single event since the first announcement that the code is freed

- It will allow us to call OpenJDK "Java compatible"

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- And then we can say "**Java is Free!**"

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- Get Fedora 9!

  `http://fedoraproject.org/get-fedora`

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- Questions? Comments?