

IcedRobot



The GNULization of Android

A project that both Google and Oracle will love and hate...

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IcedRobot.org



Iced... what??

- IcedRobot
 - Decouple various Android components
 - Re-use OS features
 - Implement missing pieces
 - Run Dalvik as a standalone application
 - Run Dalvik as a “service” inside the JVM, as a first class, polite, citizen



Some background

- What is ***not*** Android?
 - A Java ME implementation
 - Java!
 - An application layer

Source: Professional Android 2 Application Development



What *is* Android



Source: <http://developer.android.com/guide/basics/what-is-android.html>



Why IcedRobot?

- Android does not run on (by default):
 - **GNU/Linux**
 - Other OS other than Linux (e.g. OSX)
 - Mainstream CPU other than ARM
 - *android-x86*



Why IcedRobot?

- Google TV is cool, we want it on our desktops!
- Who needs Gnome Shell or Unity? :)
 - Integration of android apps as “desklets”



Why IcedRobot?

- Commercial value in porting Dalvik outside the custom Linux sandbox
 - QNX (automotive market, anyone?)
 - Android is great for developing and delivering fast, rich and integrated information and entertainment contents



Why IcedRobot?

- Commercial value in porting Dalvik outside the custom Linux sandbox
- **Possibly resolve legal issues if Dalvik runs inside the JVM**
 - If it runs in the JVM like JRuby, Jython or Clojure, there can't be any reasonable claim anymore!
 - Copyright infringement still discussed?



Why IcedRobot?

- Commercial value in porting Dalvik outside the custom Linux sandbox
- **Possibly resolve legal issues if Dalvik runs inside the JVM**
- We really didn't do anything crazy after we “liberated” Java :)
 - And we are still aiming for world domination...



Desktop or Standalone?

- Three projects, really
 - **GNUDroid**
 - The *Micro* Edition
 - **GNUBishop**
 - The *Standard* Edition
 - **Daneel**
 - The *pure Java Interpreter* VM for Dalvik



GNUDroid

- Provides the foundation to
 - Run Dalvik as a standalone application
 - on **Linux x86** linked with system glibc
 - on **QNX**
 - on Mac OSX
 - ...
 - Remove unnecessary dependencies
 - Bionic (*Android version of glibc*)



GNUDroid

- Is the Android “frontend” for Linux Desktops
 - **Aims to be the most similar in terms of functionality with the “*standard*” Android**
 - Hence the appellation “Micro Edition”
 - But is meant to be executed on different environments as well
 - It basically is the portable Dalvik VM framework



GNUDroid

- Defines most of the code needed to bootstrap the Dalvik VM
 - Reuses in total the class library from Android
 - including java.lang.*
 - less maintenance required!

GNUDroid





GNUDroid

- We started by dividing and removing the “meaningless” code in the repository
- Reduction in size of around 70%
 - From 2 and more gigabytes to approx 500 megs
 - Still room for improvement!
- Replace custom build scripts with CMake and maven
- Moved to Mercurial (*icedtea.classpath.org*)



Daneel

- Pure Java based Dalvik interpreter
 - Possibly provide a JIT in the future
- Is our bridge between the Worlds

Daneel





GNUBishop

- IcedRobot Standard Edition
 - Initial Idea - 3 parts:
 - Plugin for browsers
 - Desktop Application Framework
 - Full OS
- Replaces the Dalvik Runtime with OpenJDK
 - Shares the non standard API with GNUDroid
 - Relies on *Daneel* as a core VM



GNUBishop





GNUBishop

- Plugin for Browsers
 - Akin to Applets or Flash.
 - Support the major browsers:
 - Firefox, Opera, IE, Chrome, Safari, etc.





GNUBishop

- Desktop Application Framework
 - Allows installation of Android Apps on the Desktop.
 - Target the major OSes:
 - Linux, Mac, Windows, etc.





GNUBishop

- Full OS
 - A Desktop Distribution
 - Similar to Ubuntu, gNewSense, Fedora





IcedRobot


- GNU AppBazaar
 - A place where apps for IcedRobot can be bought and sold.
 - 10% of the proceeds go to the FSF.
 - Fund the development of IcedRobot.





IcedRobot

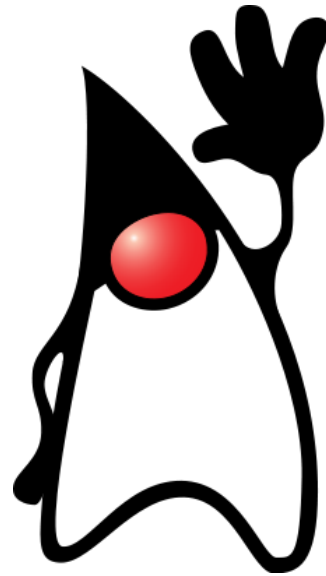
- GNU AdNonSense
 - Untargeted Ads for IcedRobot Applications
 - User privacy is of the utmost importance.
 - Does not collect information about the user.
 - The developer is allowed to choose the category of ads to display.

I  **AdBlock**

IcedRobot, the logo...



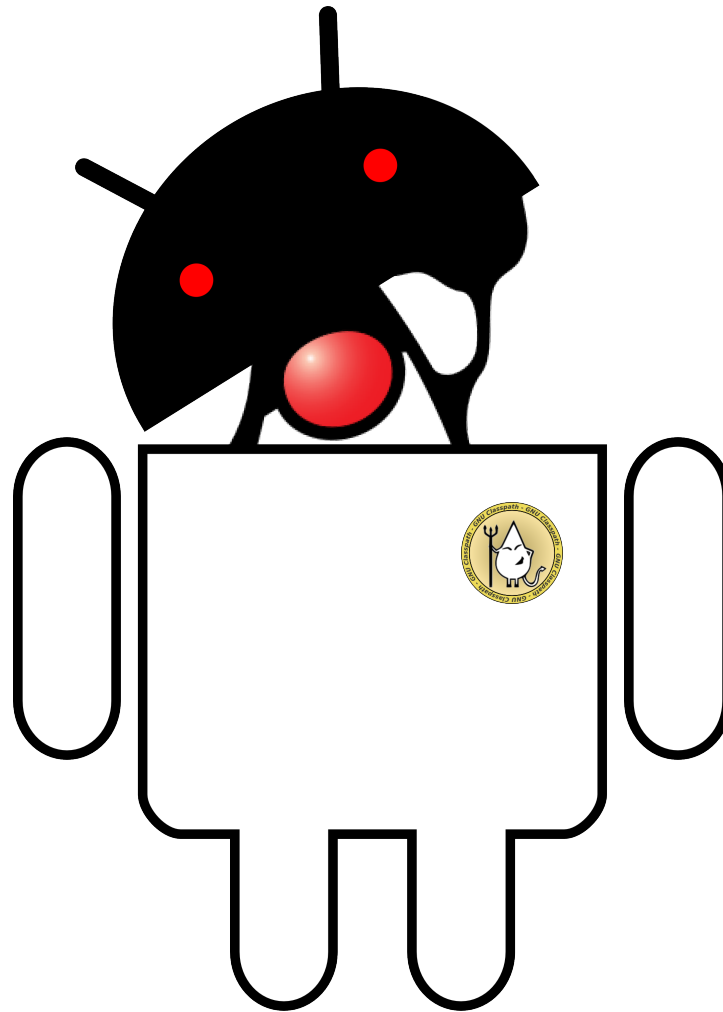
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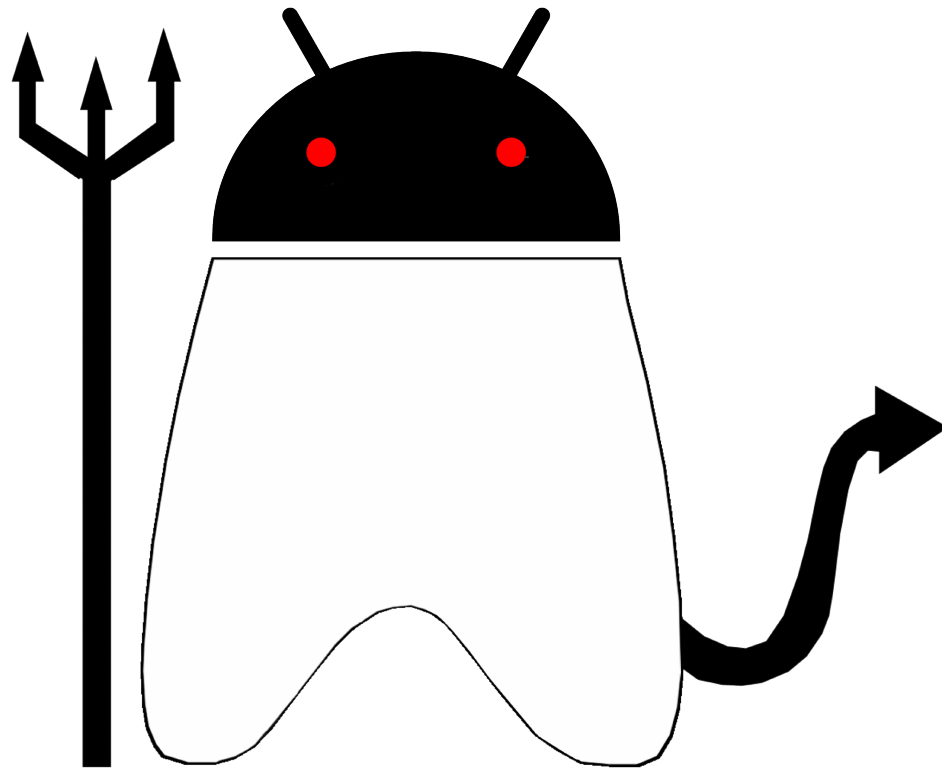
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IcedRobot, the logo...



IcedRobot, the logo...





IcedRobot

- Questions?



IcedRobot

- Thanks of attending!
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 - *Online very soon...*
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- You?

