互联产品中的开源嵌入式软件

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2009年6月20日， 北京。

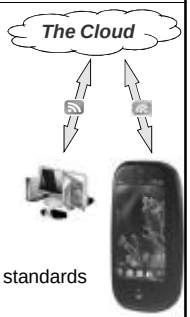
嵌入式系统联谊会
http://www.esbf.org.cn

正在变化中计算模式

- PC计算模式实现的是“个人生产”
  - 利用固定的硬件设备和软件平台的来实现
- 移动计算模式实现的是“个人自由”
  - 为消费者量身定做的软件平台和硬件终端
  - 消费者任何时间、任何地点 都能够掌握自己的数据
- 多色多样的终端将不会融合到仅一个平台
- 但唯有软件才能帮助消费者在不同终端上有一致的用户体念
- 软件的分发，开源的软件和Web 2.0 正在领导着互联设备的开发方向

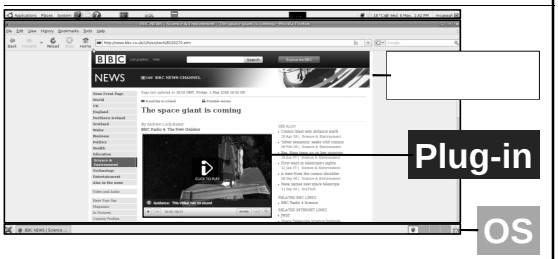
基于移动互联网的Web 2.0

- It is not squeezing into a smaller screen
  - It's not about a smaller laptop experience
  - It's not about just "browsing"
- Adding mobility to a truly personal device
  - Always on, always with you
  - Location and Context
  - "The Personal Internet" or "Social Location"
- Mashing of data & device information
  - Application get data from multiple sources
  - Ubiquitous data access from multiple devices
- Applications developed using web-based standards
  - HTML5, CSS, and JavaScript
  - Email client will indicate if addressee is available on IM

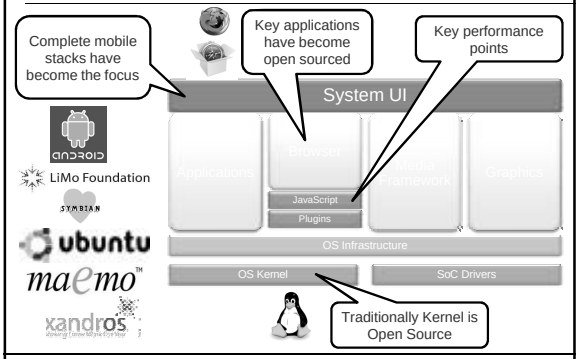


Palm® Pre™

如何在互联设备上实现网页浏览



利用开源软件实现移动互联Web 2.0



JavaScript: 实现Web 2.0的编程语言

- JavaScript is the main programming language of Web 2.0
  - Originally designed for simple web page animation
  - Now the underlying technology of the programmable web
    - Much more JavaScript software now runs in the browser
      - Less round trips to the server- reduced page fetches
      - Faster web experience (and now even faster through JITs)
      - Integration with on-device peripherals through W3C standards
- Example Rich Internet Applications in JavaScript

Adobe Flex

Acrobat Office Suite

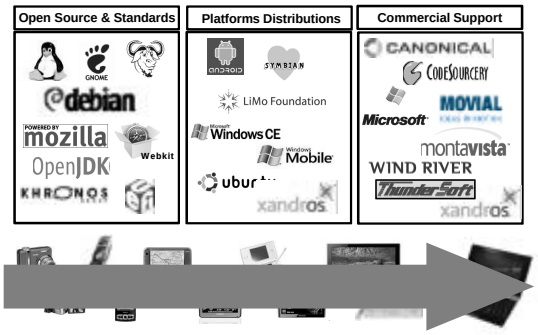
Google GWT

Google Documents Office Suite

Open Laszlo

Pandora Internet Radio

互联设备的软件生态系统



基于ARM的Android平台

- ARM is a member of the Open Handset Alliance
  - Contributed OpenMaxDL for ARMv6 and NEON
- Android Platform
  - A complete platform for mobile product development
  - Large support available from the ARM Partnership
  - ARM is the leading platform for shipping products
- ARM support for Android
  - Engineering work to prove Android on latest ARM processors
  - Identify code optimizations for ARM processors
  - Contribute back to Open Handset Alliance
- Planned optimizations for 2009
  - NEON and VFP library optimizations (2D, Skia and math libraries)
  - Dalvick acceleration and JIT support
  - Webkit optimizations

Ubuntu的ARM套件

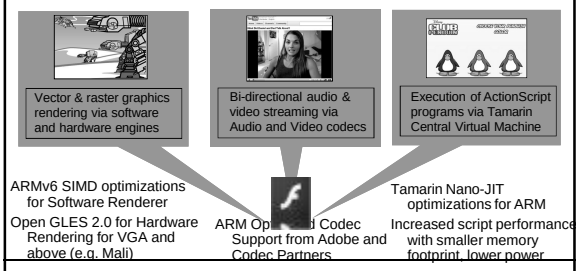
- Ubuntu 9.04 Now Available on ARM
  - https://edge.launchpad.net/ubuntu/jaunty
  - Supports Freescale i.MX51 based on the Cortex-A8 processor
- ARM Optimizations
  - ARMv5 (tuned to cortex-A8) with VFP
    - Linux kernel supports ARMv7 CPU features
    - Enable hard floating point support
- Desktop Edition Features
  - Gnome based desktop UI, internationalisation and accessibility
  - Open Office suite including support for word processing, presentations and spreadsheets
  - Support for web browsers (incl. Mozilla, Webkit etc.)
  - Large pool of applications

针对Web 2.0应用的软件优化

- Mozilla Firefox support for ARM
  - Available as part of Ubuntu 9.04
  - Current release supports ARM Javascript optimizations
  - ARM JIT support becomes final in Firefox 3.5
  - Future releases are targeting Open GLES 2.0
  - Reference implementations for ARM also on Linux.onarm.com
  - Mozilla Fennec browser interface for mobile devices later this year
- Open JDK
  - ARM optimized VM available as part of Ubuntu 9.04
  - Optimizing VM using new template interpreter for browser Java Applets for September, 2009

基于ARM优化的Adobe Flash 10 播放器

- ARM is working with Adobe to optimize Flash Player for ARM
- ARM optimizations will be made available through Adobe
- On track for early support on ARM Q4'09 (limited platforms)



Samsung 9系列电视和Nokia N97手机

- Widget user experience
  - Highlights the information you care about
  - You no longer "browse" the information the information is there when you need it
  - Automatic updating of widgets

小结

- 开源嵌入式软件是下一代差异化计算平台的理想选择

- 软件的创新： 利用Web技术为消费者在不同的互联终端上享受一致的用户体念
  - 真正地实现任何时间、如何地点、如何终端的“普适计算 ”
  - 未来的Web2.0 将远远超过今天的网页浏览
- 开源软件是一个富有生命力的软件生态系统和社区
  - 大量的基于ARM平台的软件创新为消费者提供所喜欢的体念
  - 越来越多的公司正在提供商业化的技术支持