Active Directory For Your Breast Pocket

Mobile Networks For Mobile Workgroups

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Samba Team

SambaXP 2010, May 7th
Outline

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Mobile Workgroup

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**Why Do This?**

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http://ars.userfriendly.org/cartoons/?id=20000614 June 14th, 2000
Other Uses

- RODC server for branch offices
- SOHO Servers
- Management appliances
ARM

- 32bit RISC architecture
- Low power, low cost
- Widely used in consumer electronics
  - Smartphones/PDAs
  - Handheld gaming consoles
  - Routers/NAS boxes
  - Netbooks/Internet tablets
Beagle

- 8cm x 8cm
- 128/256 MB RAM
- 500 mA / 5 V
- 500MHz ARMv7
- SD/MMC/SDIO slot
- Serial port
- No ethernet
Phones

- 11cm x 6cm
- 288 MB RAM
- 528MHz ARM
- MicroSD
- WiFi
Linux

- Ubuntu 9.04 (ARMel)
- Debian
- Angstrom
Android

Applications
- Home
- Contacts
- Phone
- Browser
- ...

Application Framework
- Activity Manager
- Window Manager
- Content Providers
- View System
- Package Manager
- Telephony Manager
- Resource Manager
- Location Manager
- Notification Manager

Libraries
- Surface Manager
- OpenGL | ES
- FreeType
- SGL
- SSL
- libc
- Media Framework
- SQLite
- WebKit

Android Runtime
- Core Libraries
- Dalvik Virtual Machine

Linux Kernel
- Display Driver
- Camera Driver
- Flash Memory Driver
- Binder (IPC) Driver
- Keypad Driver
- WiFi Driver
- Audio Drivers
- Power Management


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Maemo

Introduction

Software

Maemo

http://wiki.maemo.org/Documentation/Maemo_5_Developer_Guide/Architecture/Top_Level_Architecture,
May 2005, 2010

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Building for Android

- Grab repo
- Fetch native development kit (NDK) (go get a coffee...)
- Build the NDK (go have lunch, a walk and cake...)
- Cross-build your project
Challenges on Android

- Android is not a Linux OS
- Hard to get community support
Building for Maemo

- Grab Scratchbox2
- Make sure app compiles for x86
- Cross-build for ARMel
Challenges on Maemo

- No working simulator available
- Build tools only work on 32bit
- Less devices supported
Crossbuilds Using Waf

- Uses the current S4 build system
- Cross-configure currently hits simulator bug
- Likely the way to go in future
- Can possibly be made to use embedded SDKs
Native Builds

- Easy on "real" Linux
- Requires dev env on embedded system
- Samba4 builds in ca. 2 hours
Demo

Join XP machine to S4
Demo

Join Win7 machine to S4
Demo

Join Win2k8R2 DC to S4
## Power Consumption

<table>
<thead>
<tr>
<th>System</th>
<th>Idle (W)</th>
<th>Load (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMD Athlon64 3000+</td>
<td>75</td>
<td>105</td>
</tr>
<tr>
<td>Intel Core2 Quad</td>
<td>109</td>
<td>180</td>
</tr>
<tr>
<td>Mac Mini G4</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>ThinkPad R52</td>
<td>27</td>
<td>50</td>
</tr>
<tr>
<td>Beagleboard</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>ShevaPlug</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

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## Benchmark

<table>
<thead>
<tr>
<th>Test (cycles/minute)</th>
<th>Win2003 (VM)</th>
<th>S4 (VM)</th>
<th>S4 (Beagleboard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>kinit – kdestroy</td>
<td>510</td>
<td>1430</td>
<td>100</td>
</tr>
<tr>
<td>join – leave</td>
<td>70</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>user add – delete</td>
<td>90</td>
<td>110</td>
<td>12</td>
</tr>
<tr>
<td>group add – delete</td>
<td>90</td>
<td>160</td>
<td>22</td>
</tr>
<tr>
<td>LDAP search (idx)</td>
<td>70</td>
<td>120</td>
<td>40</td>
</tr>
<tr>
<td>LDAP search (wc)</td>
<td>200</td>
<td>340</td>
<td>100</td>
</tr>
<tr>
<td>LDAP search (i. idx)</td>
<td>220</td>
<td>360</td>
<td>100</td>
</tr>
</tbody>
</table>
Summary

- Suitable for small setups
- Slow operations not done often
- Affordable Active Directory setup (no license costs)
- Some optimization might help
- Building Samba4 with busybox worth a try
Thank you

Questions?