BOINC on Android

State & Outlook

9th BOINC Workshop, Grenoble
25. September 2013

Joachim Fritzsch
Max Planck Institute for Gravitational Physics in Hannover, Germany
1. Progress made
2. Feature agenda
3. Projects supporting Android
4. Statistics
5. Challenges
What has changed?

September 2012

Paused

BOINC is benchmarking your device.

Tap to stop computation!

September 2013

1. Progress made

BOINC on Android

Joachim Fritzsch,
25. Sep 2013
What has changed?

September 2013:

- Support for multiple projects
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- Support for account managers
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- Simple
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- Simple & advanced preferences
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- Slideshow
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September 2013:

- Support for multiple projects
- Support for account managers
- Simple & advanced preferences
- Slideshow
- Distributed via Google PlayStore [1]
What would be nice to have? [2]

- **GoogleTV support**
  GoogleTV’s Android does not support NDK, yet.
  BOINC does not support devices without battery.

- **SD card support**
  Significant number of devices has small (<8 GB) internal storage.

- **Non-ARM Android devices**
  x86 is striking back.

- **Other ideas?**
  E.g. game like achievement system, social media integration....
What projects are using Android?

![Project selection screen]

- PrimeGrid
  Mathematics, computing, and games
- Oproject@Home
  Mathematics, computing, and games
- Enigma@Home
  Mathematics, computing, and games
- theSkyNet POGS
  Astronomy, Physics, and Chemistry
- Einstein@home
  Astronomy, Physics, and Chemistry
- Asteroids@home
  Astronomy, Physics, and Chemistry
- World Community Grid
  Multiple applications
- Yoyo@home
  Multiple applications

Add project by URL
What to do, to get started?

1. Cross compile your science apps toolkit: Android NDK
target: ARM-Android (potentially also x86 and MIPS architecture)

2. Optimize CPU for capabilities
   plan classes based on CPU ABI, floating point unit (NEON vs. VFP), ...

3. Configure server to deliver Android WUs

Help is available! [3]
Why? Some numbers:

Google PlayStore: (09/19/13)

- 18,330 active users
- 41,918 total installs
Why? Some numbers:

Google PlayStore: (09/19/13)

- 4.46 / 5 average rating
Why? Some numbers:

<table>
<thead>
<tr>
<th>World Community Grid</th>
<th>Einstein@HOME</th>
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<tbody>
<tr>
<td>VINA application</td>
<td>BRP4 application</td>
</tr>
<tr>
<td>- 10,979 Android members</td>
<td>- 12,350 WUs weekly</td>
</tr>
<tr>
<td>- 13,741 devices</td>
<td>- More than Mac OS</td>
</tr>
<tr>
<td>...returned 700k WUs.</td>
<td>- 1/5 of Windows or Linux</td>
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Getting better...

- Many volunteers un-install app quickly
  18k active vs. 42k total

- Android environment is heterogeneous, high device variety
  large beta testing group is a good start

- Projects can’t be present in stores and advertise “their” app
  ensure single BOINC client on device
Thank you for your attention.

Download BOINC from PlayStore, or join beta testing group at [4]

