BOINC / Android: Status

10th BOINC Workshop, Budapest
30 / 09 / 2014

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1. Introduction
   2012, 2013, 2014

2. User Interface
   Navigation Drawer, Project Attach, Social Media

3. Under the Hood
   UNIX Domain Sockets, Dalvik Process Separation, AIDL

4. Future Enhancements

Outline
BOINC on Android prototype

1. Introduction
Initial launch on GooglePlay
10th BOINC workshop Budapest September 2014

Advancement
26k users / 88k installs
1. Introduction

HTC Power to Give
1.69m installs
1. Introduction

Samsung Power Sleep
100k+ installs
User Interface Advancement: Navigation Drawer

Adapted navigation drawer design pattern like most influential apps.

BOINC on Android

2. User Interface

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User Interface Advancement: Project Attach

Attaching multiple projects at once with a single set of credentials...

BOINC on Android

2. User Interface

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User Interface Advancement: Project Attach

...while users can swipe through hints in the mean-time.

BOINC on Android

2. User Interface

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User Interface Advancement: Social Media

Users can share events on all social media or messaging services (facebook, twitter, WhatsApp, gMail, Skype, linkedIn, tumblr, ...)

BOINC on Android

2. User Interface

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Under the Hood: A New Architecture

3. Under the Hood

BOINC on Android

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Under the Hood: A New Architecture

Standard BOINC

1. native process

2. Dalvik VM process

3. Dalvik VM process

edu.berkeley.boinc BOINCAActivity

edu.berkeley.boinc .Monitor

android.app .Service running in

AIDL Service interface

BOINC GUI_RPCs UNIX domain socket

boinc_client

standard BOINC client running it native process

(C / NDK)

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Under the Hood: A New Architecture

1. native process

2. Dalvik VM process

3. Dalvik VM process

- edu.berkely.boinc BOINCAActivity
- edu.berkely.boinc AttachActivity

BOINC GUI_RPCs UNIX domain socket

AIDL Service interface

edu.berkeley.boinc .Monitor

android.app .Service running in Dalvik process

(Java / SDK)

boinc_client

standard BOINC client running it native process

BoINC on Android

BoINC on Android  

3. Under the Hood  

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Under the Hood: A New Architecture

Switch to UNIX domain sockets for GUI RPCs

1. native process
2. Dalvik VM process
3. Dalvik VM process

edu.berkely.boinc AttachActivity
edu.berkely.boinc BOINCAActivity
AIDL Service interface
edu.berkely.boinc .Monitor
android.app .Service running in Dalvik process
BOINC GUI_RPCs UNIX domain socket
boinc_client standard BOINC client running it native process
Under the Hood: A New Architecture

Separation of Monitor Service (MVC:Model)

1. boinc_client
   - standard BOINC client running in native process
   - (C / NDK)

2. Dalvik VM process
   - edu.berkeley.boinc.Service running in Dalvik process
   - (Java / SDK)

3. Dalvik VM process
   - edu.berkeley.boinc.AttachActivity
   - edu.berkeley.boinc.BOINCAActivity

and Activities (MVC:View) into distinct processes

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Under the Hood: A New Architecture

Communication via AIDL interface

1. native process
2. Dalvik VM process
3. Dalvik VM process

edu.berkely.boinc
BOINCAActivity

edu.berkely.boinc
AttachActivity

BOINC GUI_RPCs
UNIX domain socket

edu.berkeley.boinc
.Monitor

android.app
.Service running in
Dalvik process

(Java / SDK)

boinc_client

standard BOINC
client running in
native process

(C / NDK)
Possible User Interface Improvements

- Merge of Tasks / Projects / Notices screens:
  Group essential information together into single “Home” screen with less text and more visuals

- Contribution statistics:
  Easily understandable information, e.g. total hours, hours on last run, completed tasks.
  This information should be sharable on the social media mechanism

- Badges/Achievements:
  For motivation, e.g. “attach your laptop, too”, “contribute 100 hours”, “fastest phone of the month” etc.
Thank you for your attention.

Download BOINC from PlayStore,

and join the discussion in our Android group at https://groups.google.com/forum/#!forum/boinc-android-testing

BOINC on Android

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