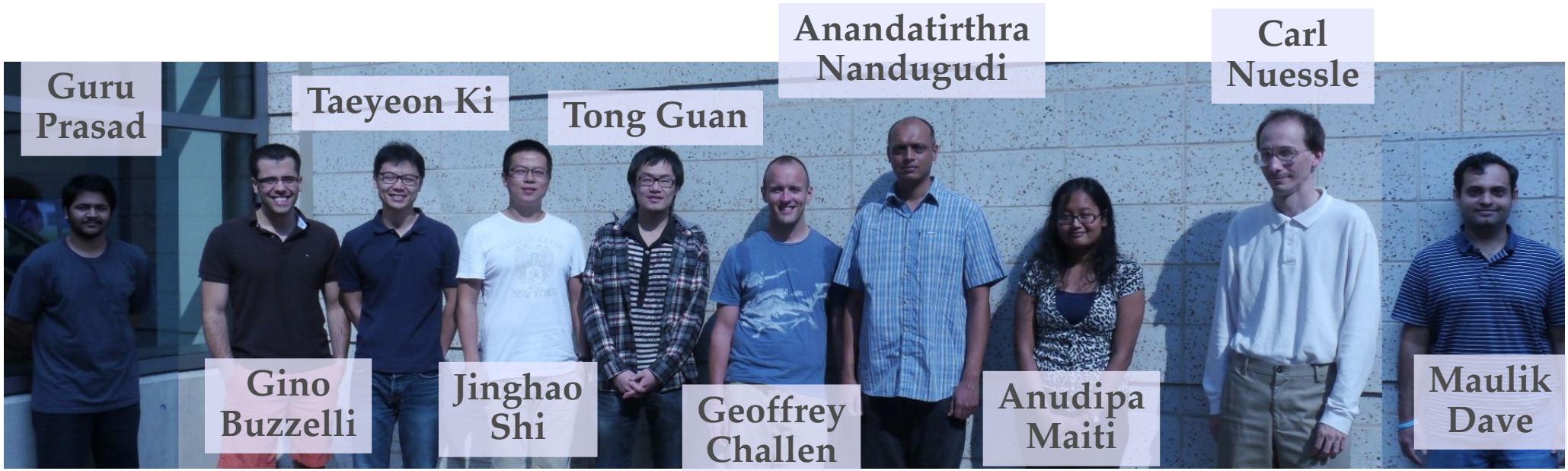
PhoneLab: A Smartphone Platform Testbed

http://www.phone-lab.org

blue: A Systems Research Group



http://blue.cse.buffalo.edu

What is PhoneLab?

- **Location:** University at Buffalo
- **Size:** 250 participants: students, faculty and staff
- **Devices:** homogeneous set, currently Nexus 5
- **Incentives:** service discounts
- **Data collection:** energy-neutral delay-tolerant log collection

IS PHONELAB A GREAT SMARTPHONE TESTBED...

OR *THE GREATEST* SMARTPHONE TESTBED?

The Best Smartphone Testbed

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The Google Play Store

App-Level Smartphone Experimentation

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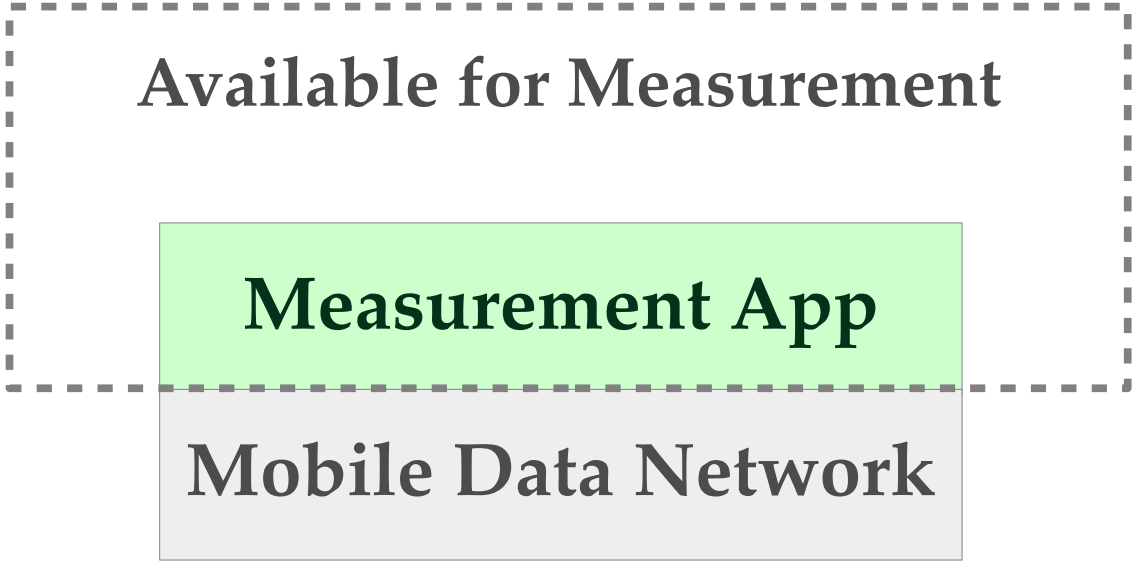
> Mobile Network Measurement

Limitations of App-Level Experiments



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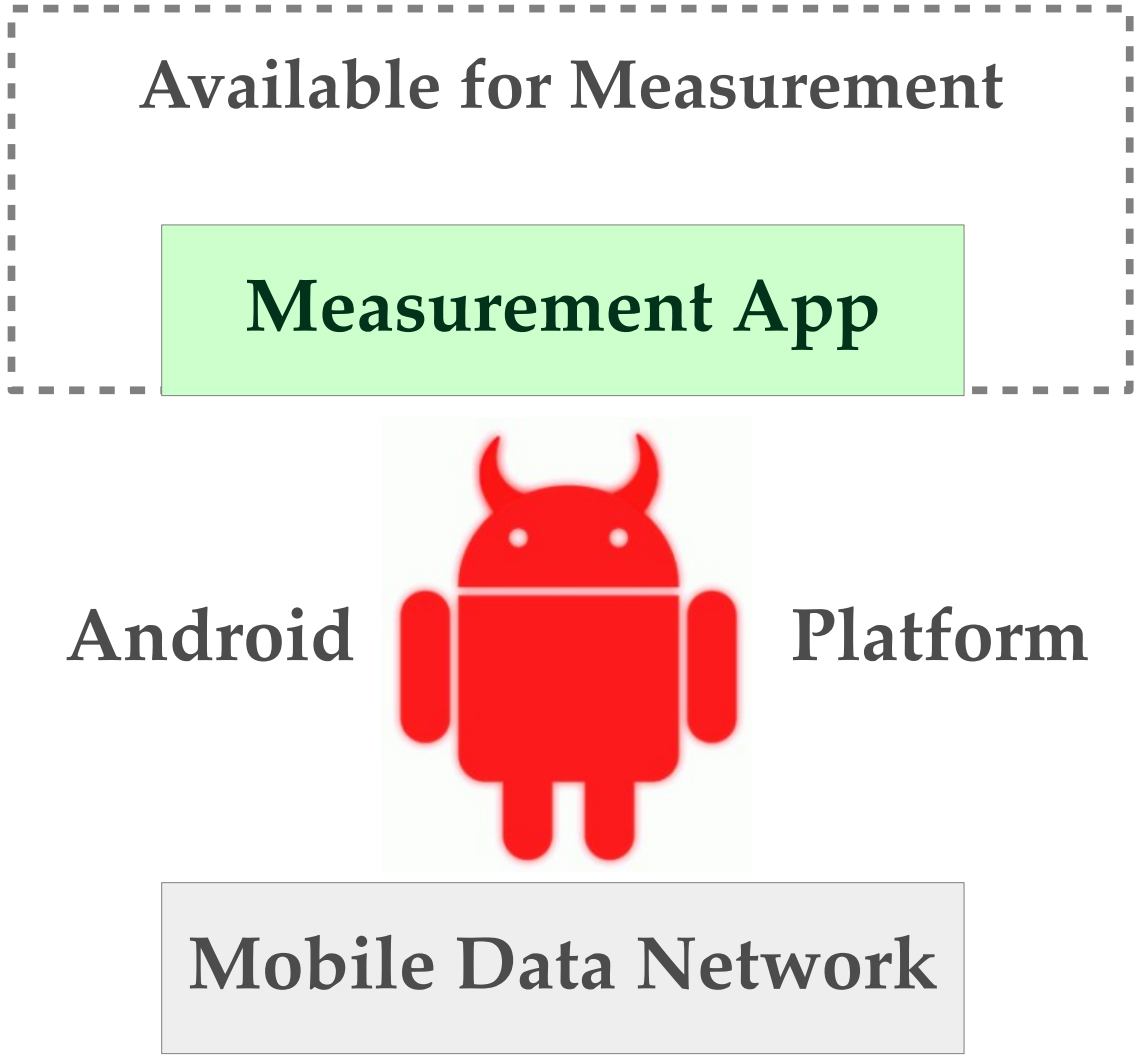

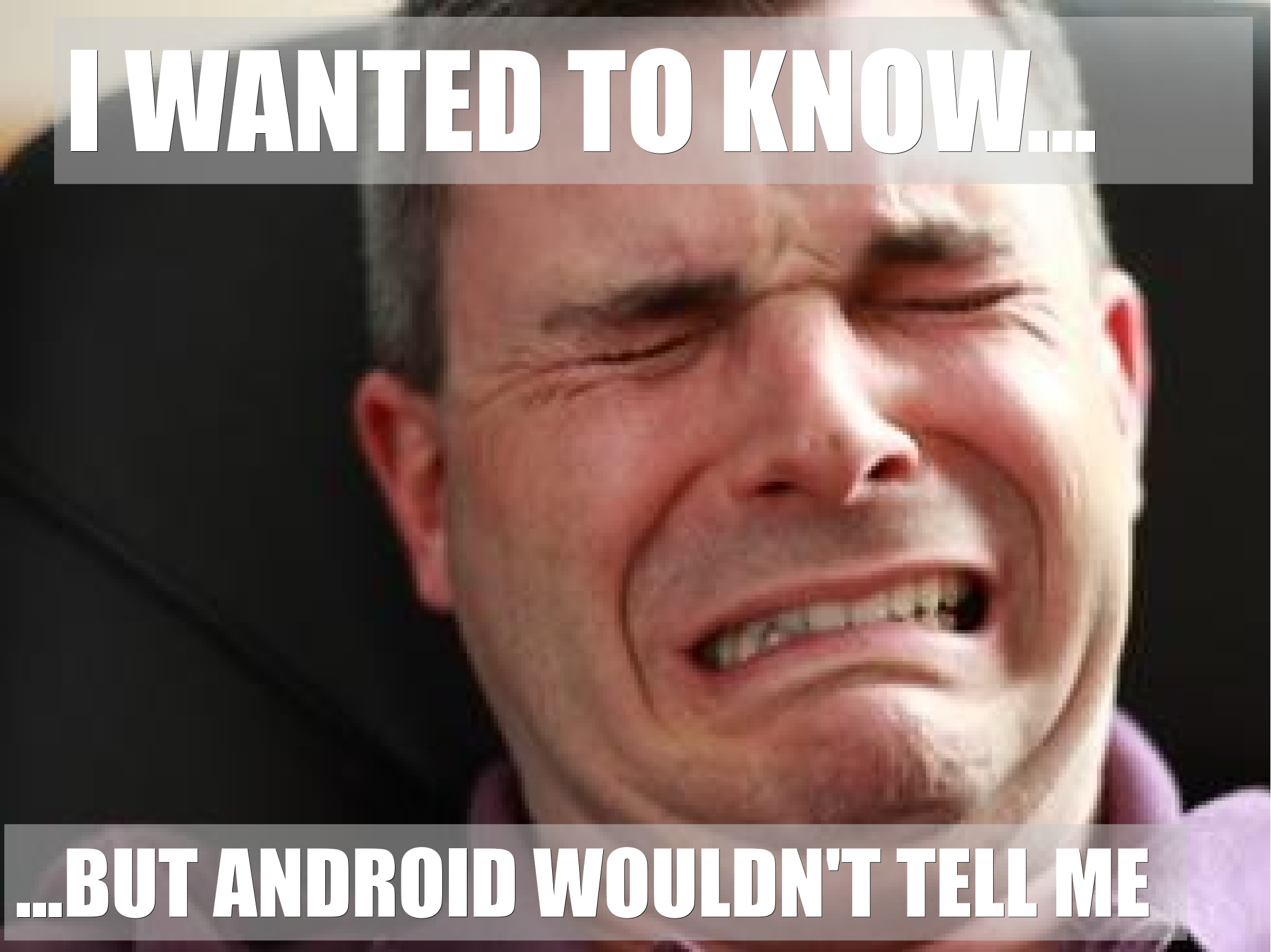
I WANTED TO KNOW...
...BUT ANDROID WOULDN'T TELL ME

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My Platform Knows More Than Your App

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Our Monster

- **Custom platform image:** controlled by PhoneLab developers and open to community instrumentation and modification.

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  - PhoneLab maintains AOSP port
  - Patches adding logging accepted from researchers by default
- **Novel changes** (*modification*)
  - Example: new energy management platform service
  - Requires more interaction with PhoneLab administrators

I CAN HAZ PLATFORM!
I CAN KNOWZ ANYTHING!

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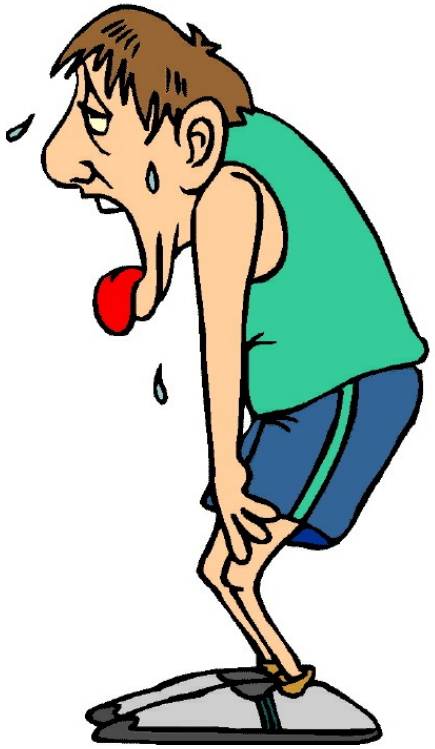
- **Your great idea here**

Integration Challenge



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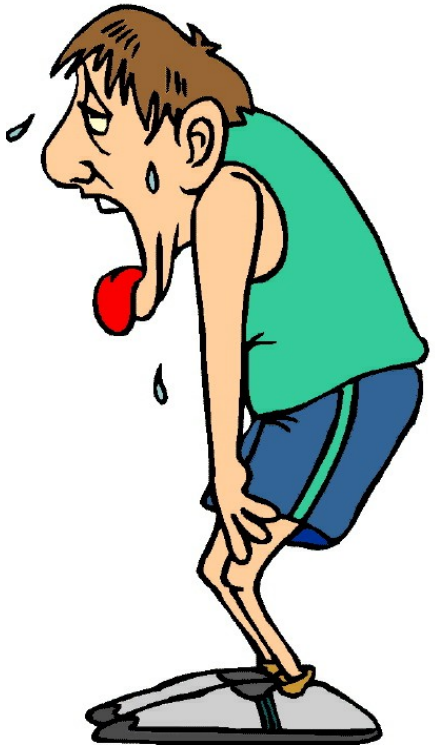


Ground-truthing and benchmarking measurement apps

Demonstrating successful new approaches

Developing new features for eventual inclusion into future platforms

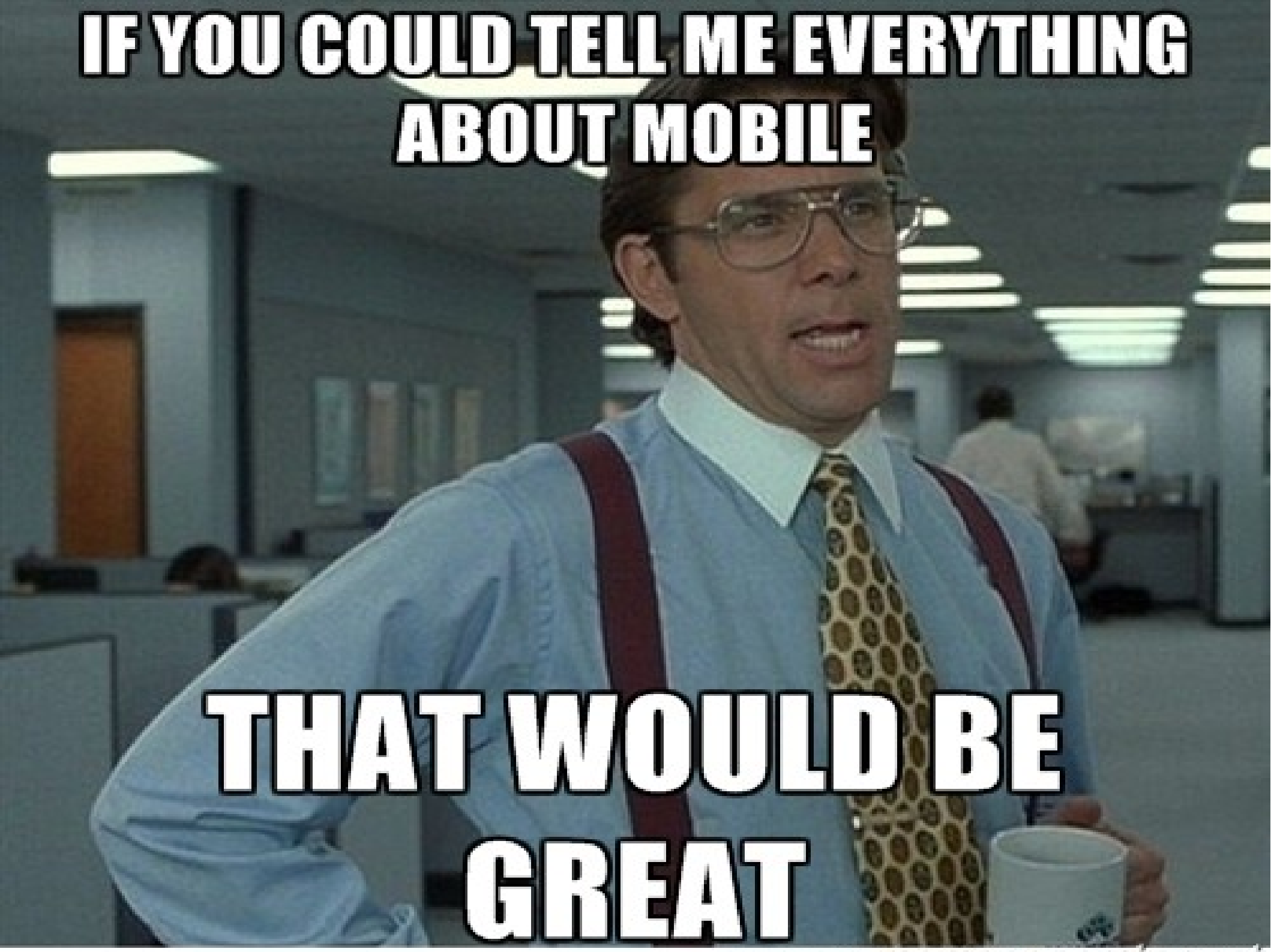
Next: Everything

Available for Measurement

Measurement App

Android Platform

Mobile Data Network


IF YOU COULD TELL ME EVERYTHING ABOUT MOBILE
THAT WOULD BE GREAT

Next: Everything

SciWiNet
Enabling Research in the Wild

Available for Measurement

Measurement App

Android **Platform**

Mobile Data Network

PhoneLab is (Almost) Open (Again)

Android.
Instrumented.

1,000,000,000 installs.
1,000,000 LOC.
Help us find out more.

http://www.phone-lab.org
experiment@phone-lab.org