

# My ranting about mobile measurement

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<http://www.recg.org>

- Managing participants was a headache
- Sharing location data is impossible
- Industry has already got everything
- Academia need to do crazy things

# Managing participants was a headache

## Basic approach

- Give out instrumented phones
  - Windows Mobile (2007)
  - iPhone 3GS (2010)
- Pay participants data/voice plans



# Managing participants was a headache

## Why students hated it

- Provide technical support
- Really careful in obeying IRB and respecting participants
- For a rather long period of time, like a year, all you got is data, but no “**results**”
- A different kind of research
  - mining data vs. building systems

# Managing participants was a headache

Finally we had enough of it

- Most data released after anonymization
- <http://livelab.recg.rice.edu/>

# Sharing location data is impossible

- Cannot reveal where the subject is
- Still preserve the usefulness of the data

**Industry has already got the data**  
never mind if they do evil or not

- Google Map Traffic
- Carrier IQ

# Industry has already got the data

And they work with each other

- Platform providers (Google, Apple, Microsoft)

- Device vendors (Samsung)

- Carriers (AT&T, Verizon)



- Equipment vendors (Alcatel-Lucent, Nokia, Huawei)



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# **Industry has already got the data**

User data is public good

- Academia should have access to the data

# Academia should do crazy things

- We cannot compete with industry for things they are already doing
- Take risk
- Time to leverage “tenure”

# Academia should do crazy things

Investigate the evil



**Academia should do crazy things**

Collaborate with the dark force



# Academia should do crazy things

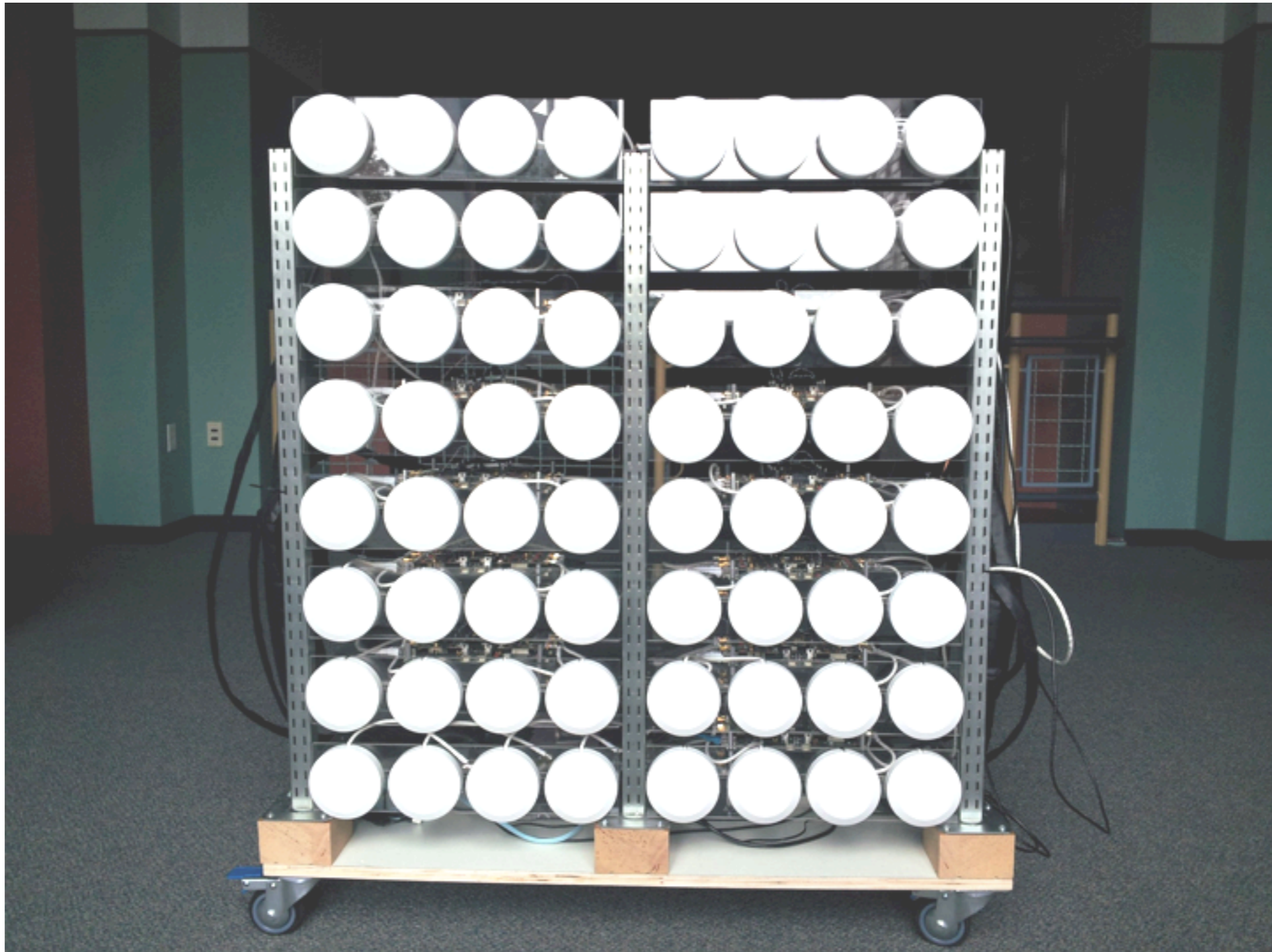
## Build your own monster

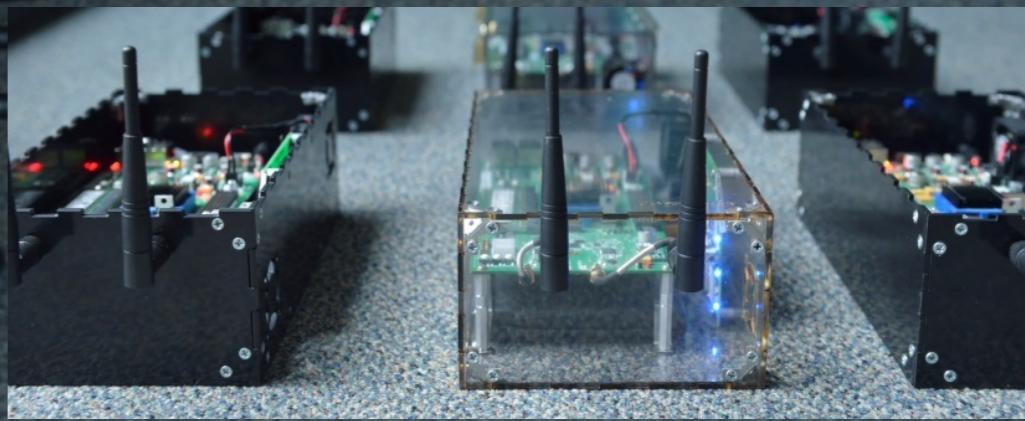
- And measure it



# **Academia should do crazy things**

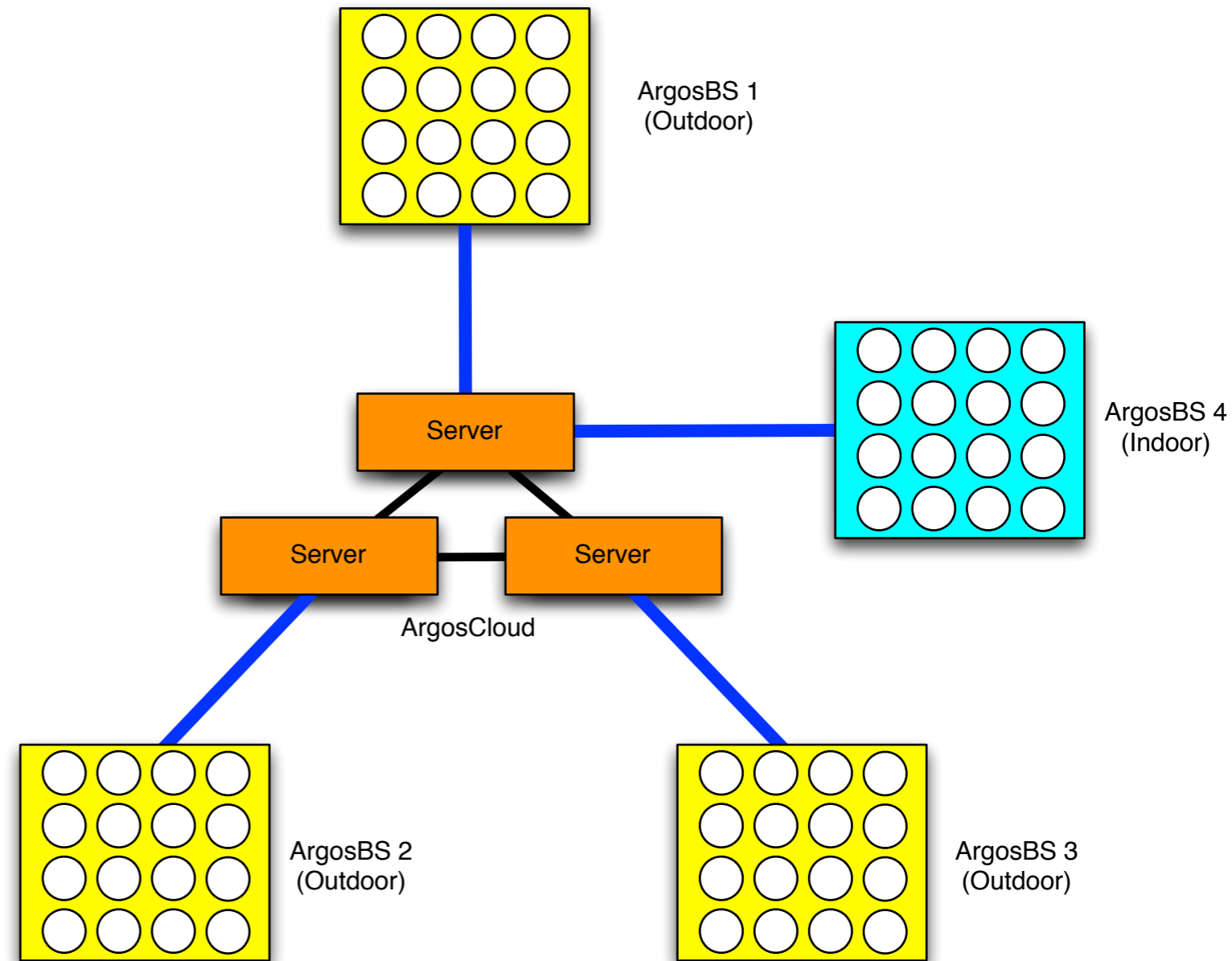
Argos, 64-antenna MU-MIMO monster







# Massive MIMO channel Hardware impairments



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