New Clouds on the Block*

NSF Workshop on Future Wireless Cities
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*You know you are old if....you know this is a reference to a boy band.
The Case for Edge Clouds

• Edge devices are increasingly capable
• Edge devices are increasingly numerous
• Edge devices are often idle

• Therefore: Feasible to construct dynamic clouds at the edge from devices purchased for other purposes.
Where Will Edge Clouds Be?

“So-called, ‘smart cities’ require more than data alone — they require technologies to collect and analyze huge amounts of information and they require cross-sector solutions that can be scaled to size. ‘Smart cities’ require leaders to use Big Data for good — to make better decisions, drive smart growth and benefit society as a whole.”

Source: Enterra Solutions Blog
Quote: Kevin Chen, VP Analytics and Chief Scientist at Experian
Many Challenges

- Cloud management
- Incentives
- Performance guarantees
- Security
- Privacy

- E.g., Under what circumstances would you be willing to loan your smartphone cycles for computation? This is a socio-technical question.
Call for a Living Lab

• TCP+IRB* = networking + human subjects
• Large pool of people who agree to large scale data collection (and experimentation) about network and application use
• Create traces and testing opportunities for the research community

• *IRB = Institutional Review Board
Models: University Study Pools

EARN CASH BY PARTICIPATING IN PSYCHOLOGY RESEARCH

GENERAL INFORMATION

The Department of Psychology administers the Study Pool – an online pool of current research studies for volunteer subject participation. The research studies are conducted by graduate students, undergraduate thesis writers, Board of Honors Tutors (specifically for student projects) and faculty.
Georgia Tech’s HomeLab initiative provides the capability to conduct in-home research that supports the development of innovative technologies that promote health, wellness, and independence for older adults. HomeLab brings together a multidisciplinary team of scientists and engineers and a community of older adults interested in participating in research.

**Number of Participants by Age**
- **585 Active Participants**
- Range: 50 - 96
- Mean: 72.3

**Gender**
- 170 Male
- 415 Female

**Race**
- White: 396
- Black: 176
- Other: 29

**Education**
- Doctoral
- Master’s
- Bachelor’s
- Some College/Associate’s
- Vocational
- High School / GED
- Less than High School