Tracking the Evolution and Diversity in Network Usage of Smartphones

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Motivation

• Wide deployment of WiFi
  – Home, Office, Public space

• WiFi offloading
  – Where & When?
  – How much traffic volume?
  – Impact on residential broadband traffic?

How do smartphone users adopt to WiFi environment?
Our work

- Characterize smartphone usage in Tokyo area
  - Independently recruited more than 1500 users
  - Client software (android&iOS)
    - byte count, cell&wifi info, location, Apps, battery,... (5min)
  - Post questionnaire

- Findings & Implications
  - Big impact of WiFi offloading on RBB traffic
  - Importance of WiFi as alternative infrastructure
Users offloaded more traffic to WiFi

45% of users WiFi > Cell

54% of users WiFi > Cell
36% of total residential traffic in Japan are from smartphone.

![Traffic volume [Gbps] vs Year graph]

- RBB user download
- Cellular user download (3G+LTE)

Cellular : WiFi = 1 : 1.4

Estimated offload traffic
Lack of WiFi delays OS update

- 14% of users wo/ home WiFi AP updated while 58% of all users did
- More than half of such users updated at public WiFi

(iOS update (8.2) on Mar. 2015)