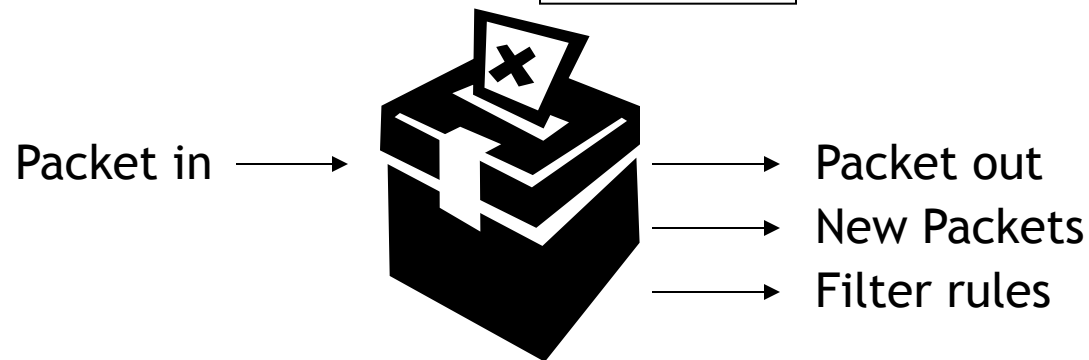
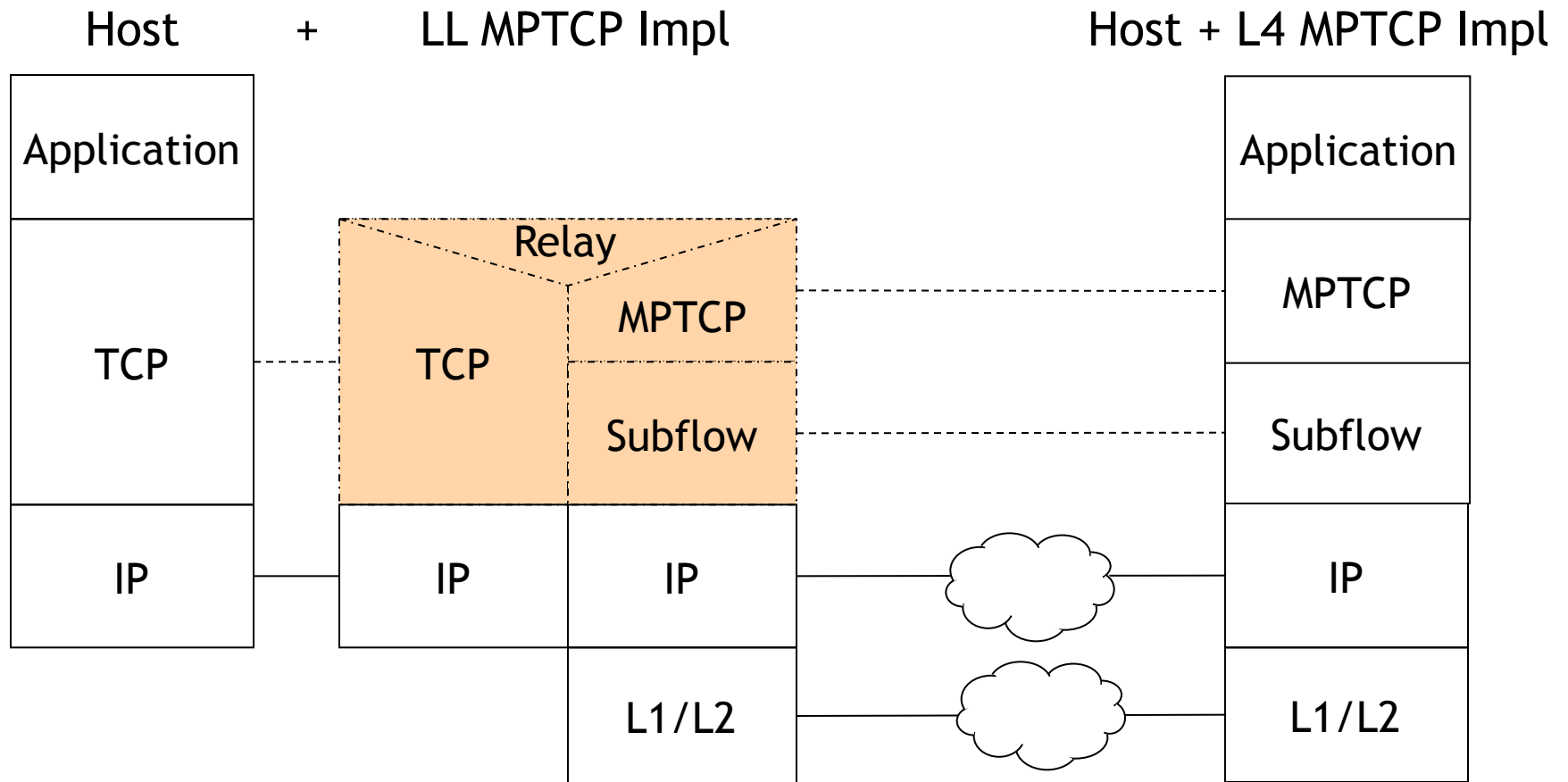


MPTCP

Lower Layer Implementation & Measurements

Georg Hampel, Anil Rana, Thierry Klein
Bell Labs, Alcatel-Lucent



Sequential processing → No payload buffering!

Priorities

1. Mobility across middle-boxes (MBB & BBM)

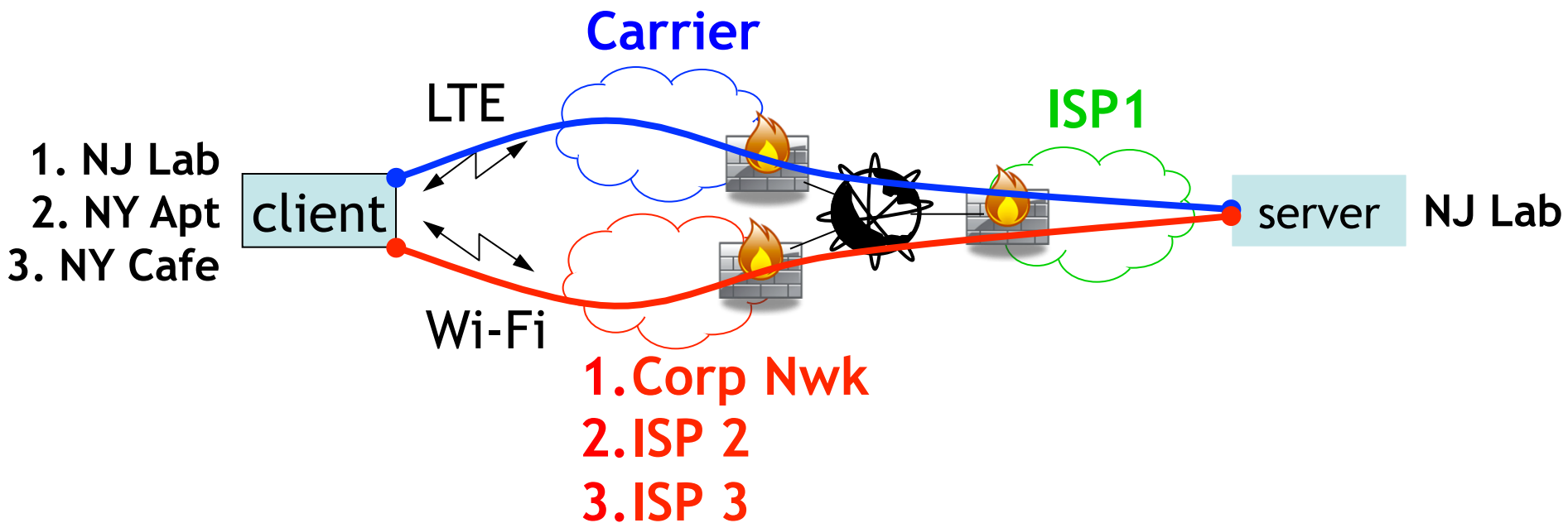
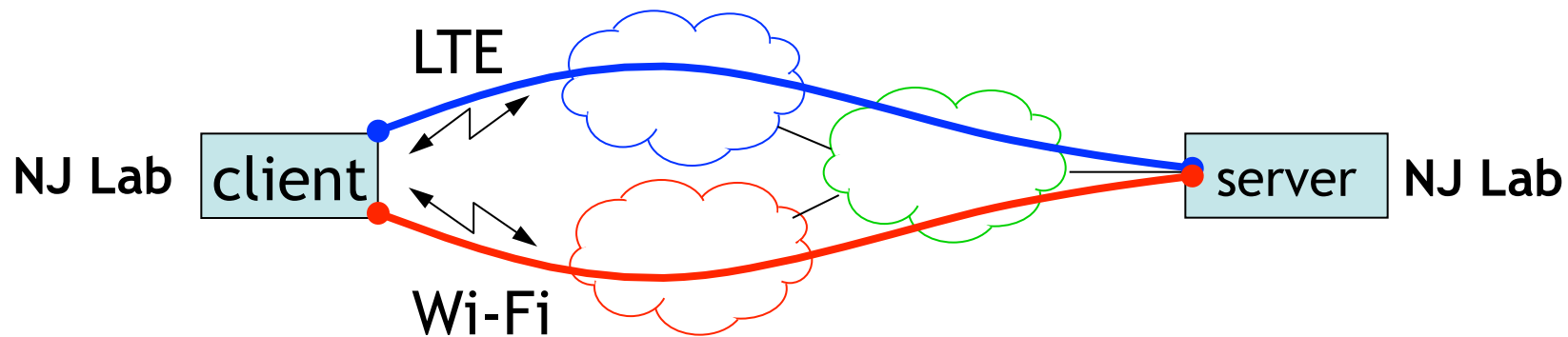
2. Incremental deployment (MPTCP Proxy)

3. (Limited) Multipath support

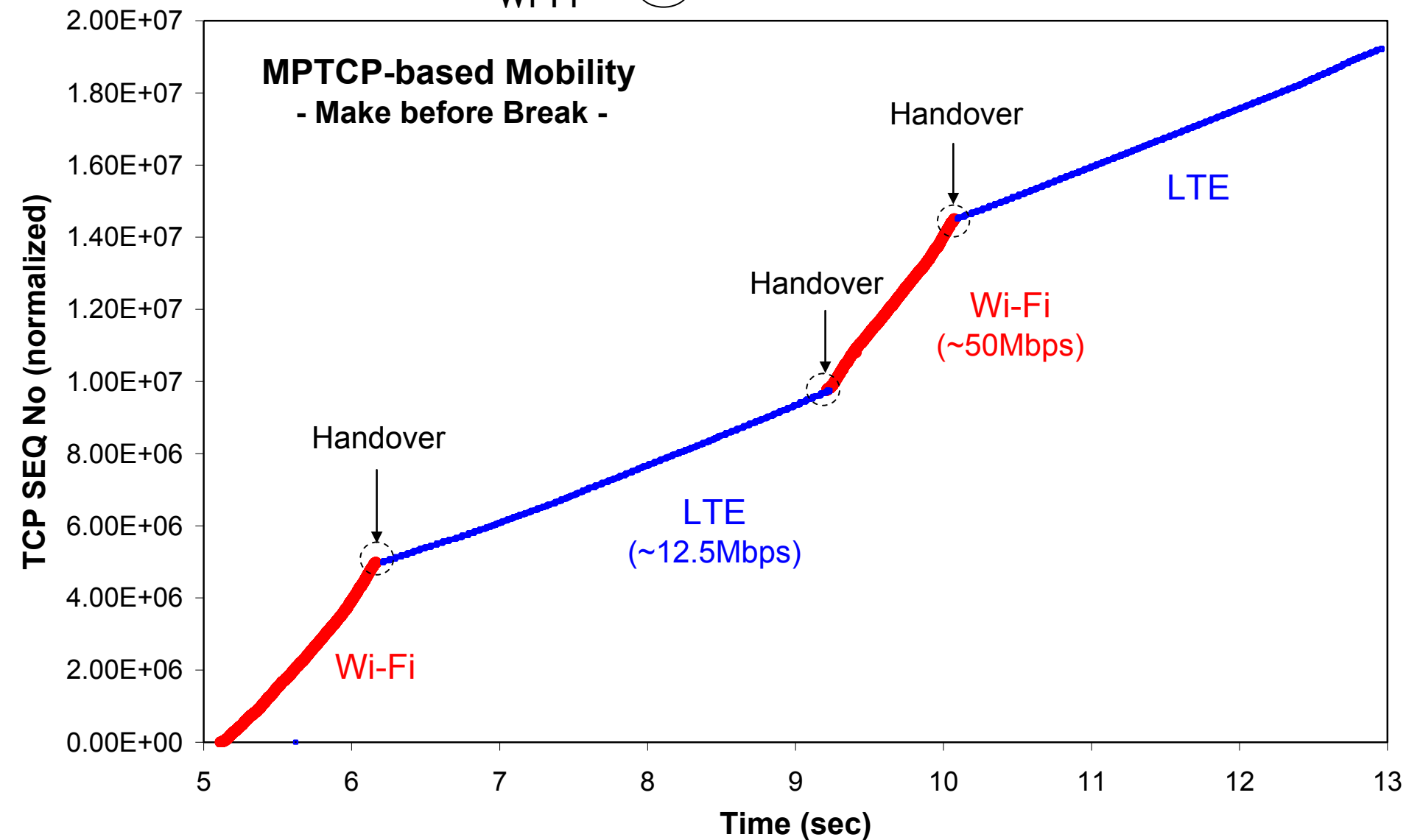
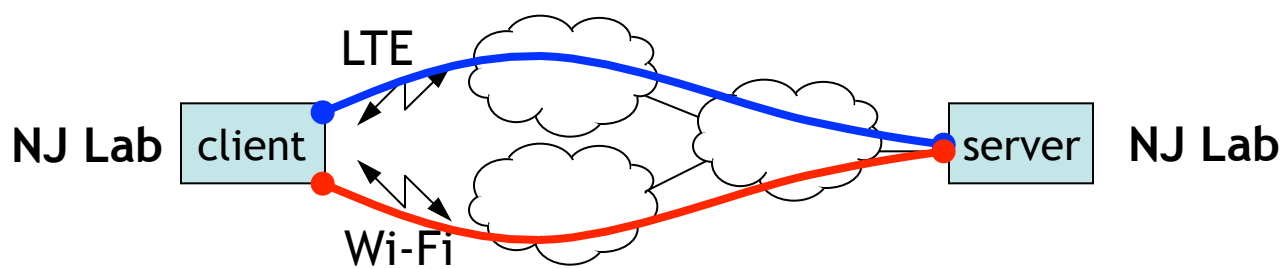
Handover Trials

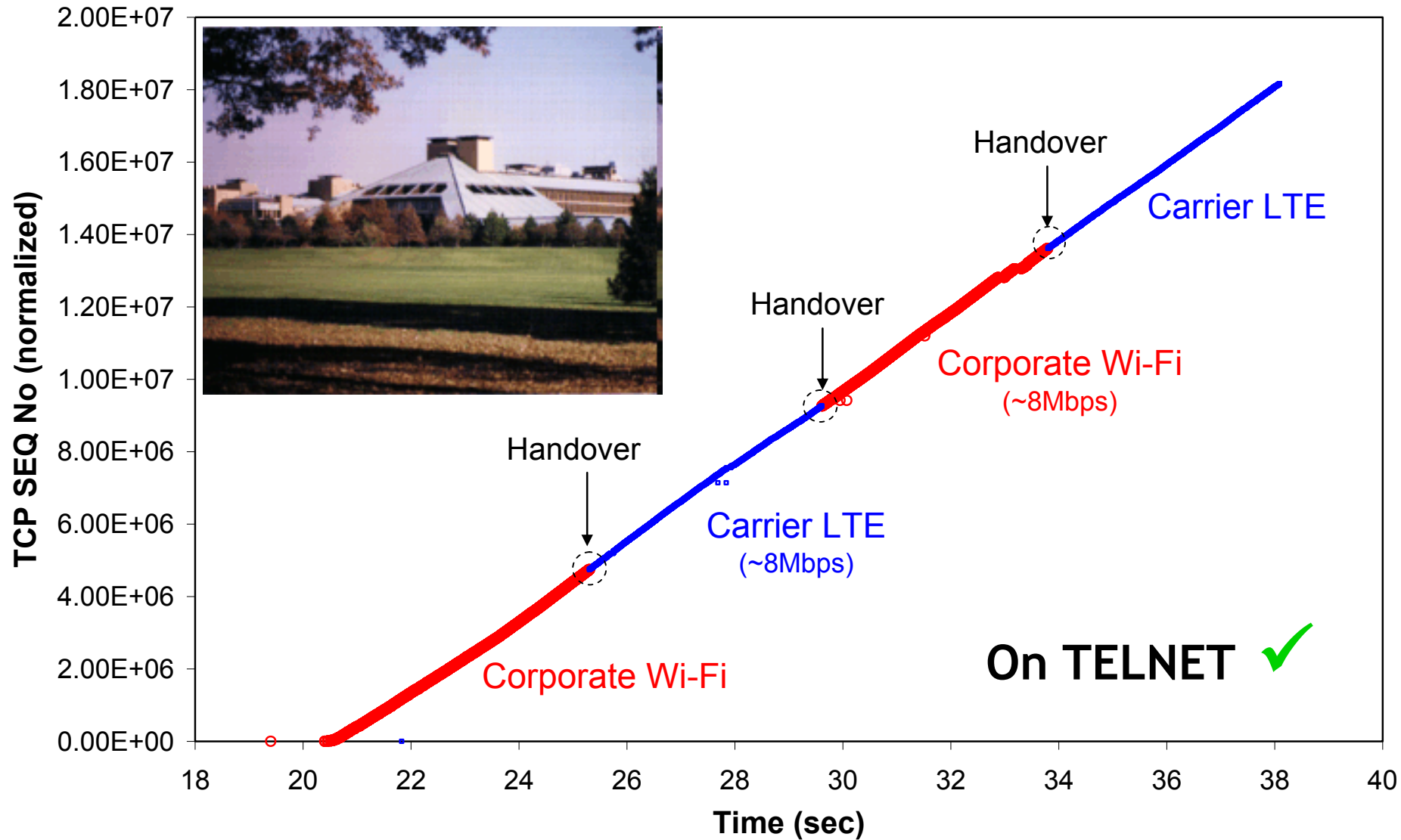
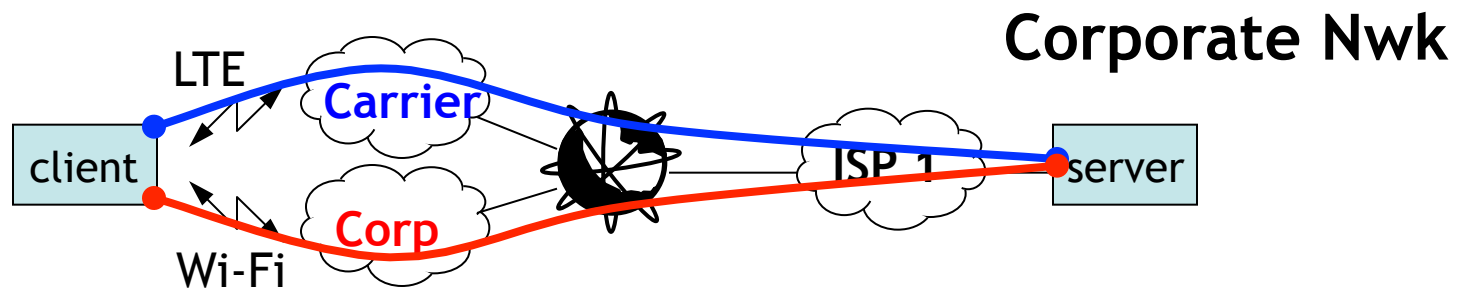
- Lab Wi-Fi $\Leftrightarrow$ Lab LTE
- Wi-Fi + Corporate Nwk (NJ) $\Leftrightarrow$ Carrier LTE
- Wi-Fi + ISP (Manhattan Apt) $\Leftrightarrow$ Carrier LTE
- Wi-Fi + ISP (Manhattan Café) $\Leftrightarrow$ Carrier LTE

*Middle-box
traversal*

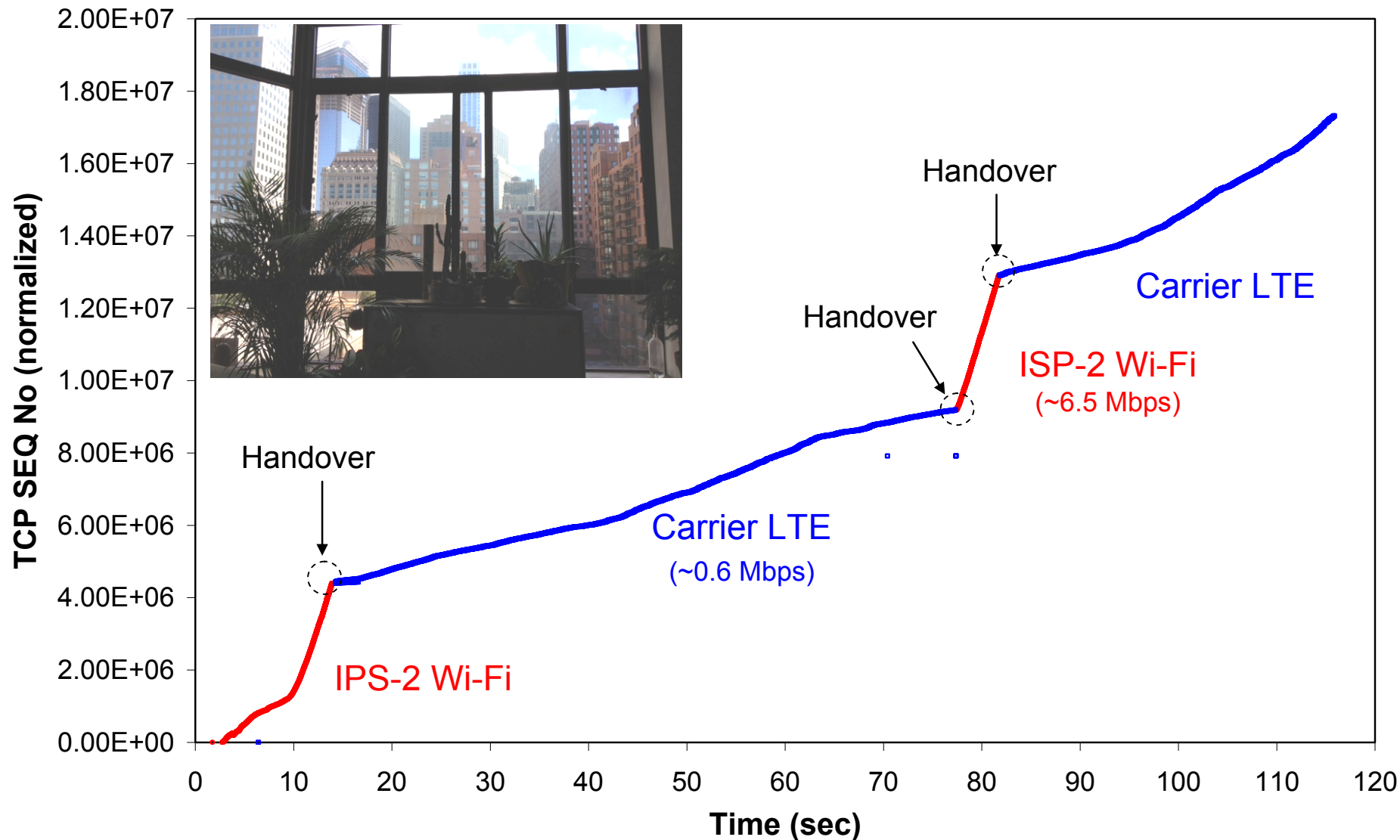
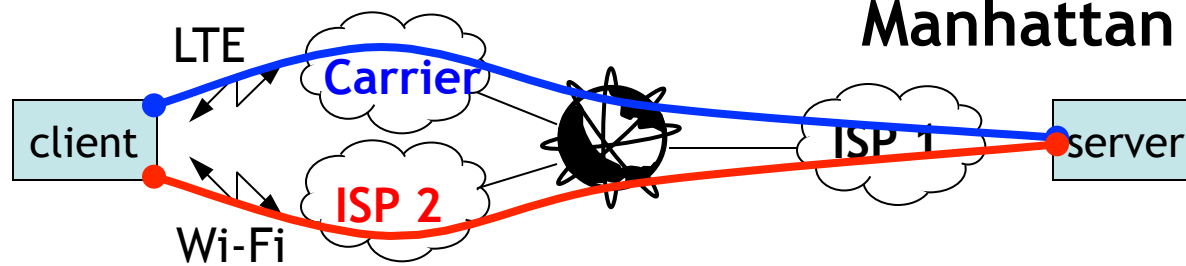


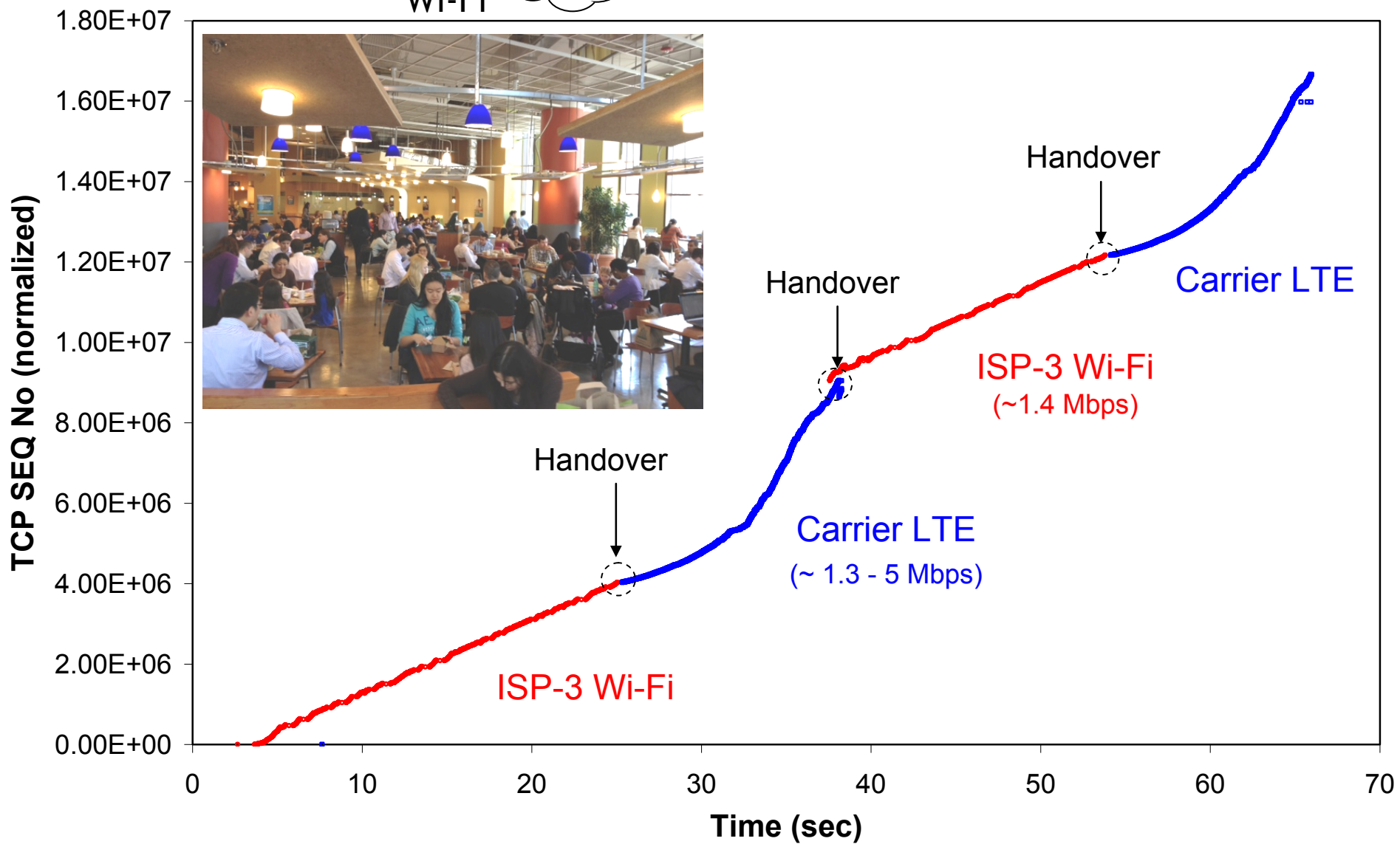
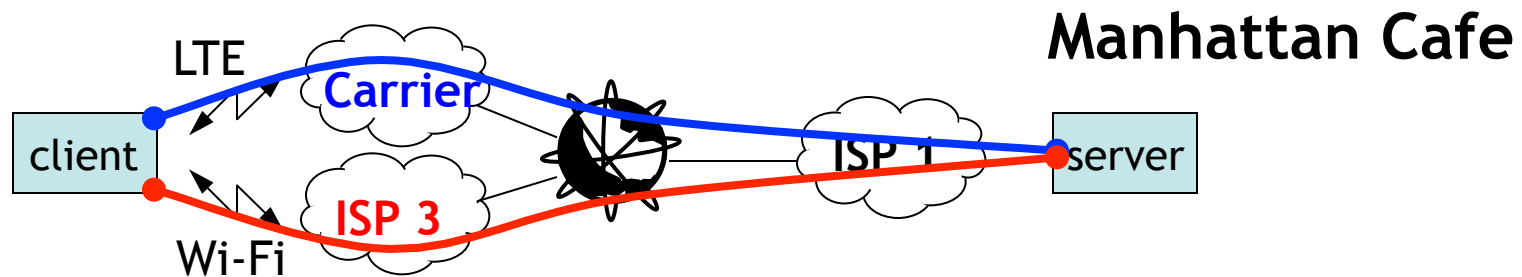
Lab Trial

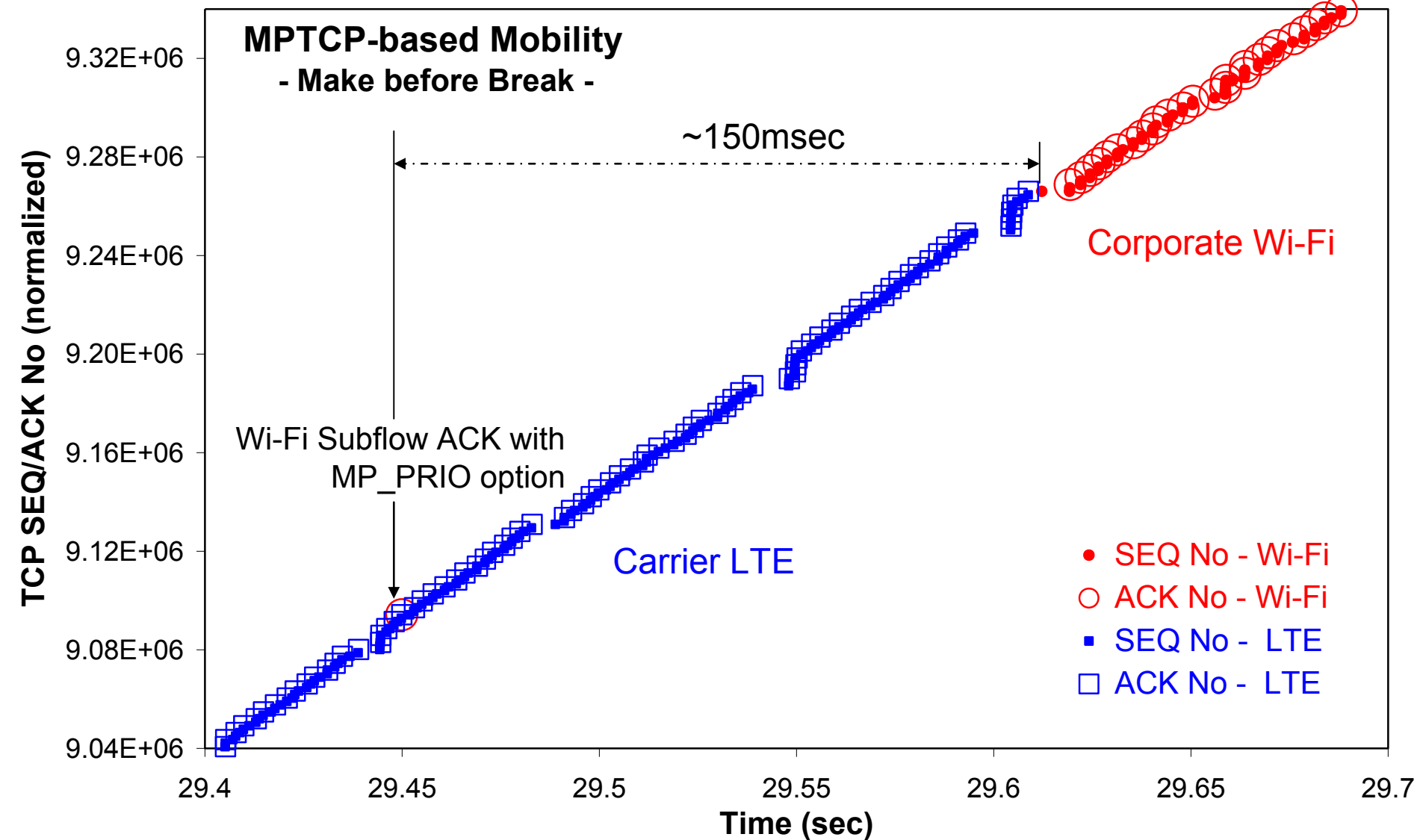
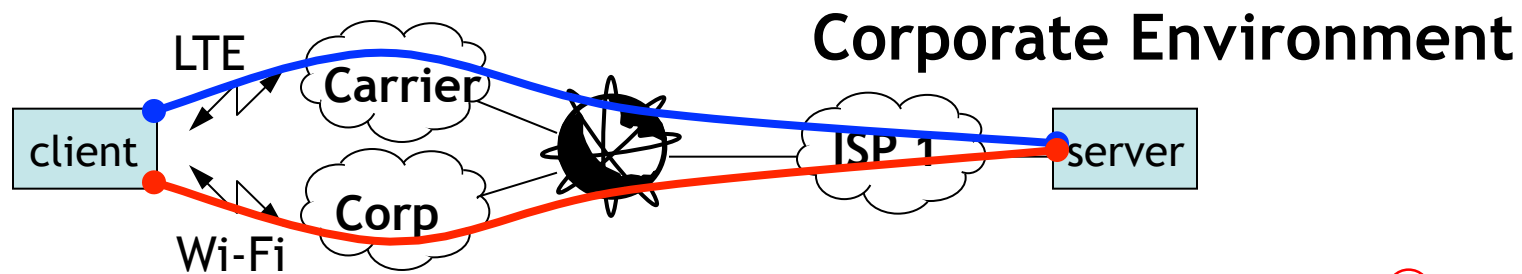


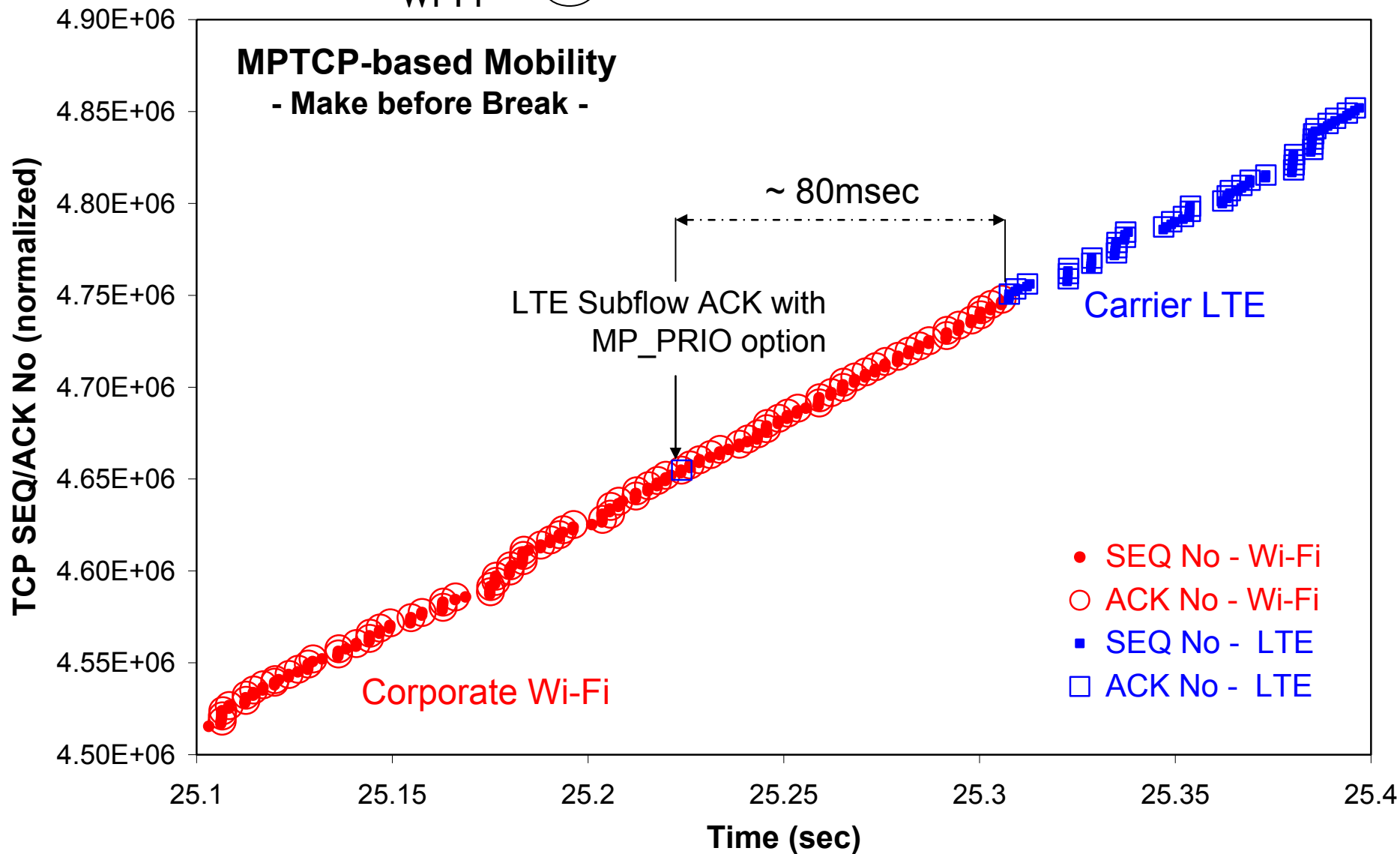
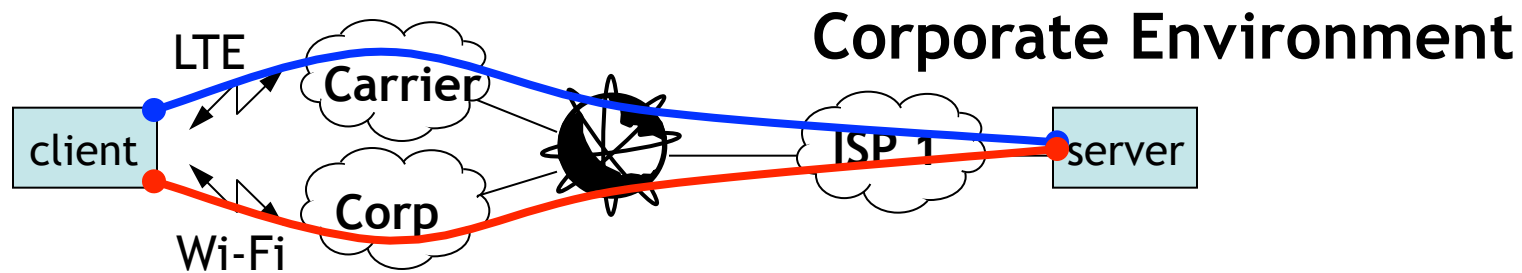


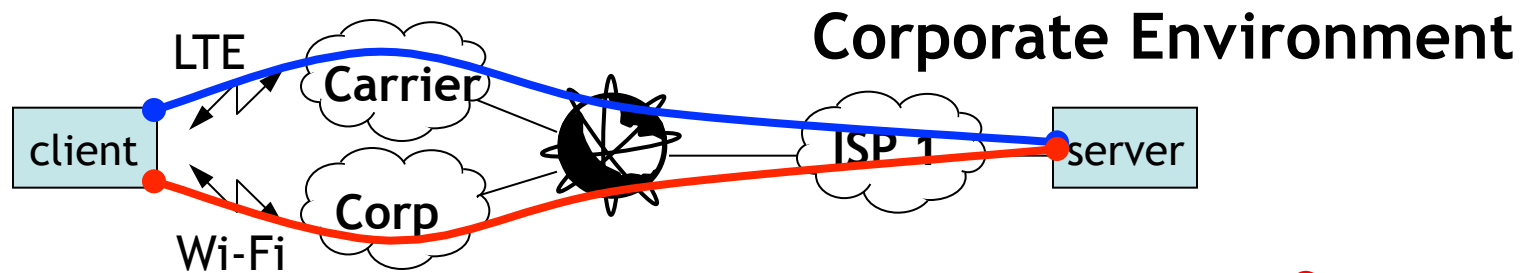
Manhattan Apartment



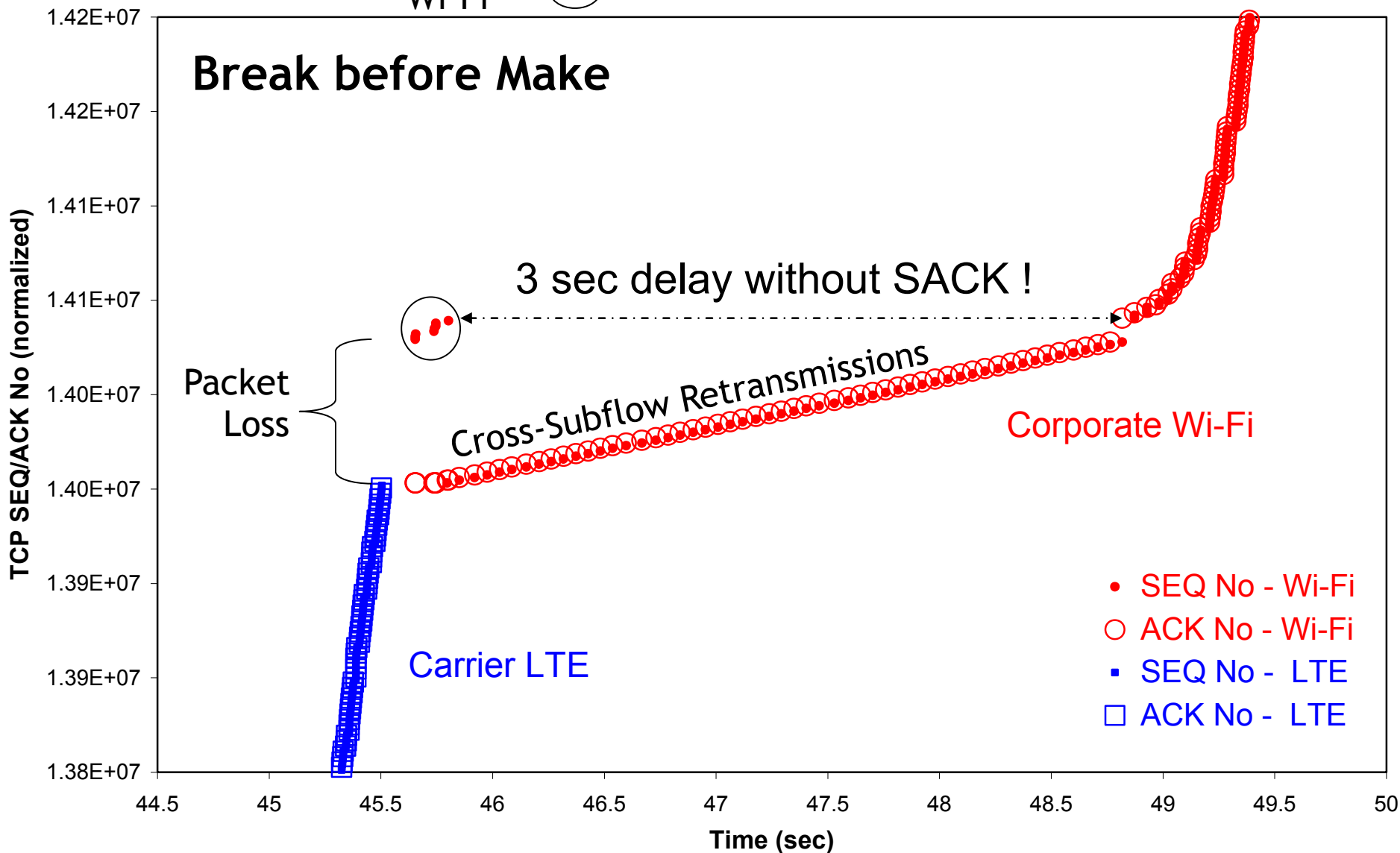








Break before Make



Problems with present MPTCP design

1. No inference from subflow ACK to data ACK:
→ Should work if only one active subflow
2. Unnecessary overhead when only 1 active subflow

Conclusion: Enhance MPTCP design for mobility use cases