

Vision: Monitor the Internet from its Edges

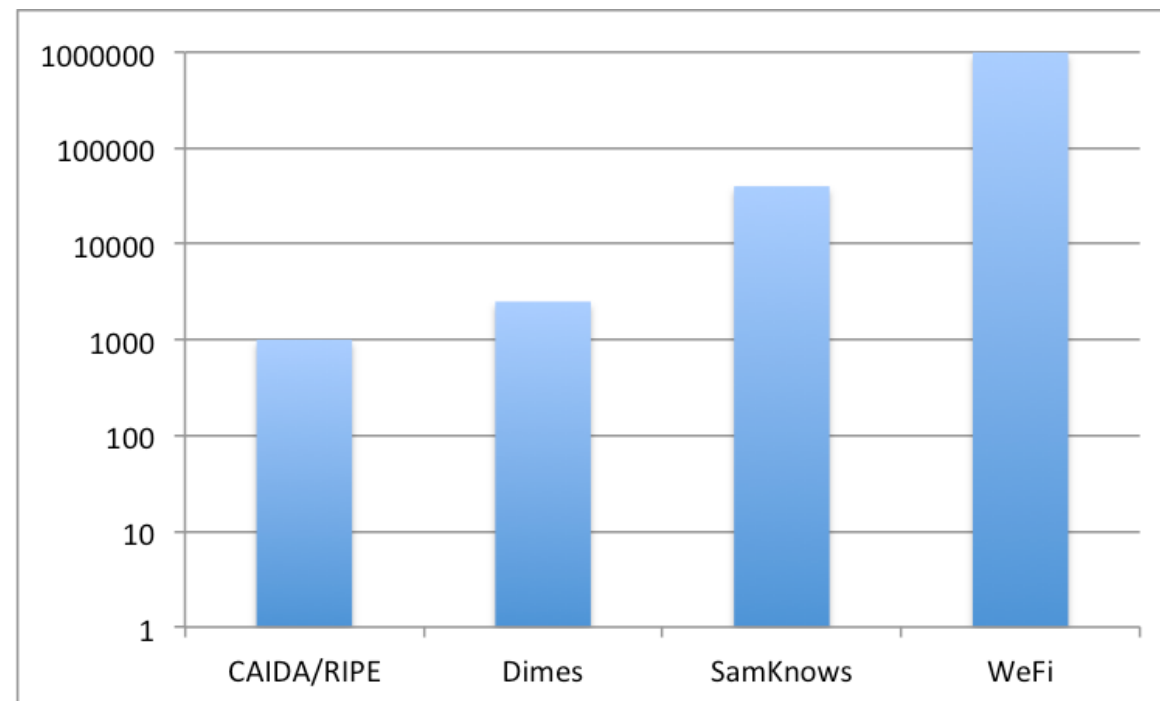
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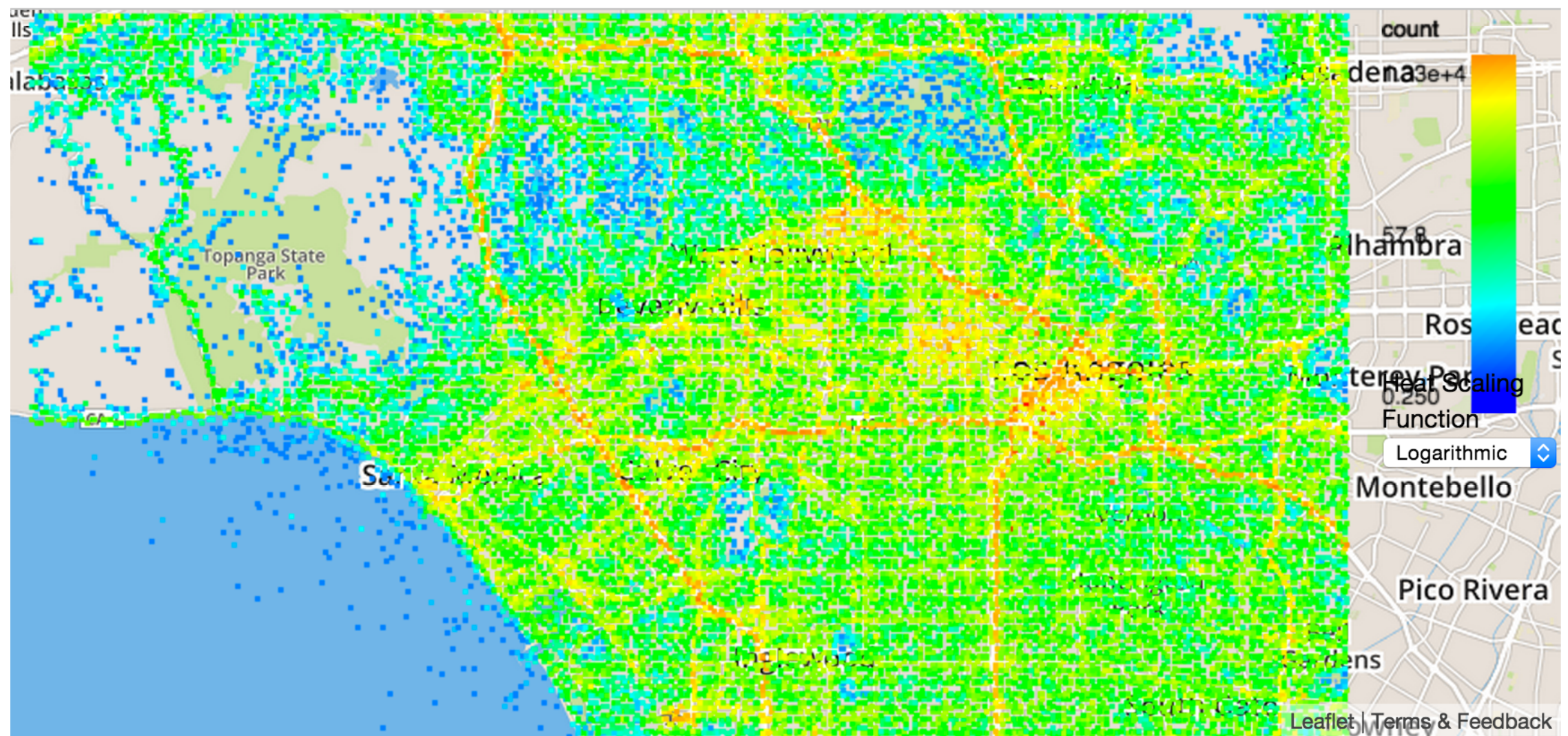
Realtime observation platforms exist today

- DIMES, Ono, Dasu have few 1000s of SW installations active at any time
- CAIDA, RIPE archipelagos will reach ~1000 networked hardware observation points with flexible experiments
- SamKnows has 40,000 home and office broadband access points, with fixed hourly experimental suite
- WeFi's 1,000,000 (growing to 10,000,000) Android phones each measure access to popular services 12-1000 times per hour.
 - Example: November 2014
 - Brooklyn 24,000 IDs
 - Boston 20,000 IDs
 - LA 50,000 IDs

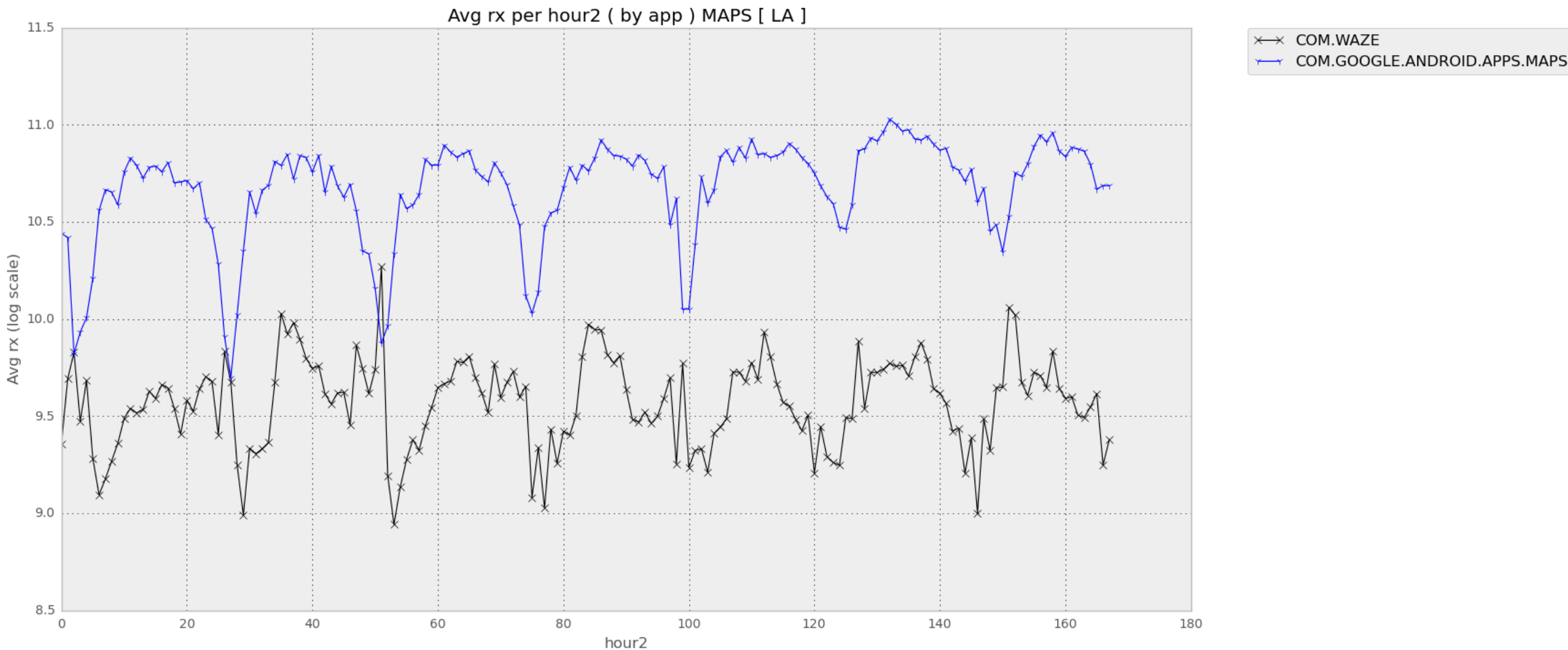


What does WeFi see?

- Los Angeles, Nov 2014, 50,000 phones, 450M measurements. Observers are everywhere (these are only the ones using maps over cellular links)....



Two map services perform differently over the day



Next steps

- Past multi-observer studies have integrated over days, weeks, etc to provide aggregate view
- Smartphone observations can give simultaneous comparisons of routes from multiple sources to all popular destinations, but more detail is needed of actual routing. Fortunately, trace-route from a smartphone is a solved problem; analysis into links can use existing solutions.
- New analytical methods are needed to reduce all this data and do anomaly detection on this extreme scale.