Mobile Networking/ Computing Testbeds for the future ?

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WHERE DISCOVERIES BEGIN

Current facilities

- ORBIT, ns-2/ ns-3, PlanetLab, Emulab, NetFPGA, CAIDA, GENI
  - Long term operation, notable successes
- Newer Crop of Community Test Infrastructures
  - MobiLab, PhoneLab, PhantomNet, WiSER, WARP, SciWiNet, OCEAN-Tune
  - Several GENI-wireless facilities
  - National Wireless User Range (INL)
- International Large-scale Facilities –
  - WISEBED, G-Lab, SmartSantander (FIRE), GreenOrbs, LiveLabs, …

Key Questions

- Teaching vs Research
- Accessibility vs Flexibility
- Current gen vs next gen hardware
- Lifetime and sustenance

Observations

- Lack a comprehensive cellular network testbed (end-to-end)
- At the mercy of hardware vendors for the design specs of testbeds
- Not many partnerships with industry in design inputs or absorbing output of testbeds
- Do not think of Data as infrastructure
  - Very little recent work in community data repositories

Call for action

- NSF wants to hear from you
- Emerging needs for large-scale testbeds, data repositories
  - Spanning all areas of mobile networking and computing – cross disciplinary boundaries if needed
  - Test new mobile architectures, wideband communication models on a city-scale unconstrained by spectrum policy
- Bring industry and international partners to the table
- NSF will facilitate workshops, as needed
- Initiate community discussions in MC2R, IEEE Communications, other venues
- Dream big – we want bold, transformative ideas on this