Creating a wide-area wireless infrastructure for experimentation and to serve the community

WiNEST 

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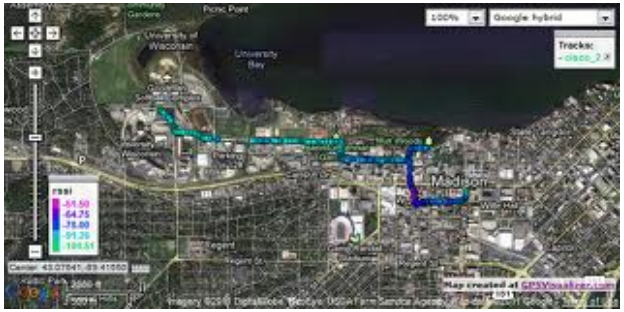
An outdoor, city-wide wireless infrastructure

City-wide

WiMAX base stations

Vehicular applications



Goals

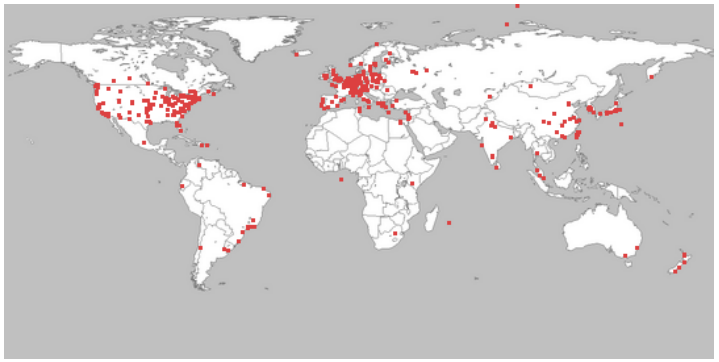
- Serve some societal needs with a real group of users
- Mobile experimentation at scale
  - Focus on density within urban + rural areas

Want the best of multiple worlds

ORBIT

Density

PlanetLab

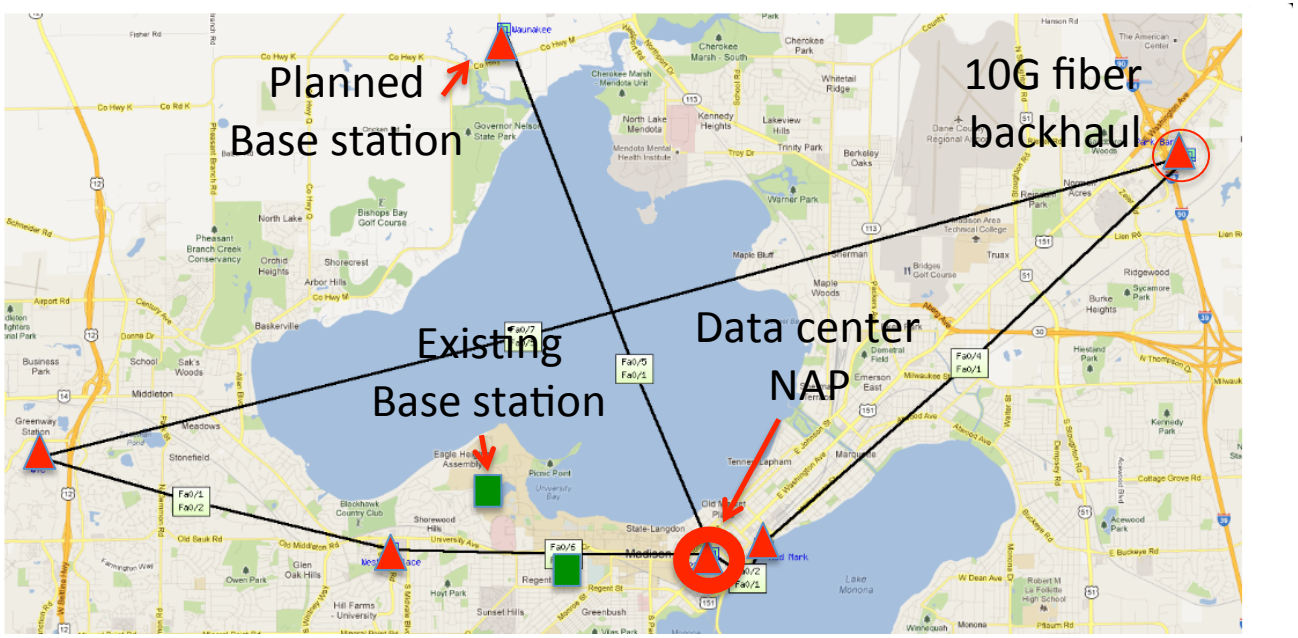


Scale

Users

Tentative locations

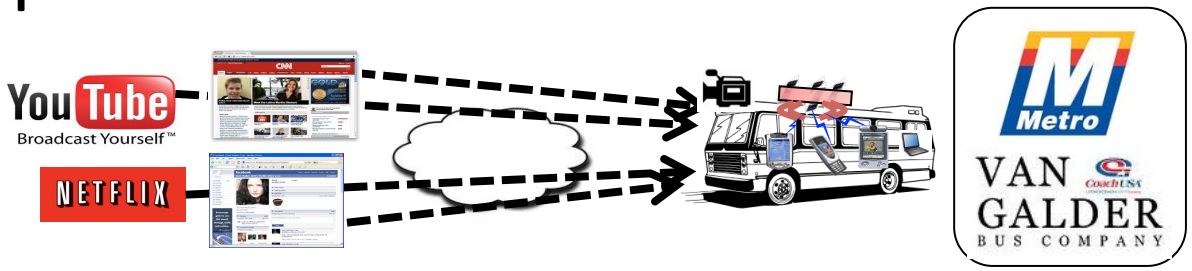
Can be modified to cover other sites (e.g., south side of Madison?)



Upto 10 WiMAX base stations will be deployed in Madison, WI, plan to cover about 50+ sq. miles

Vehicular uses: WiRover

- Provide connectivity to Metro transit buses, police and ambulances



- Buses: > 4 years in operation for Internet connectivity
  - Madison Metro Transit (city transit)
  - Van Galder Bus (long distance)

- Ambulances: similar application with Milwaukee EMS
  - (started in July 2012)

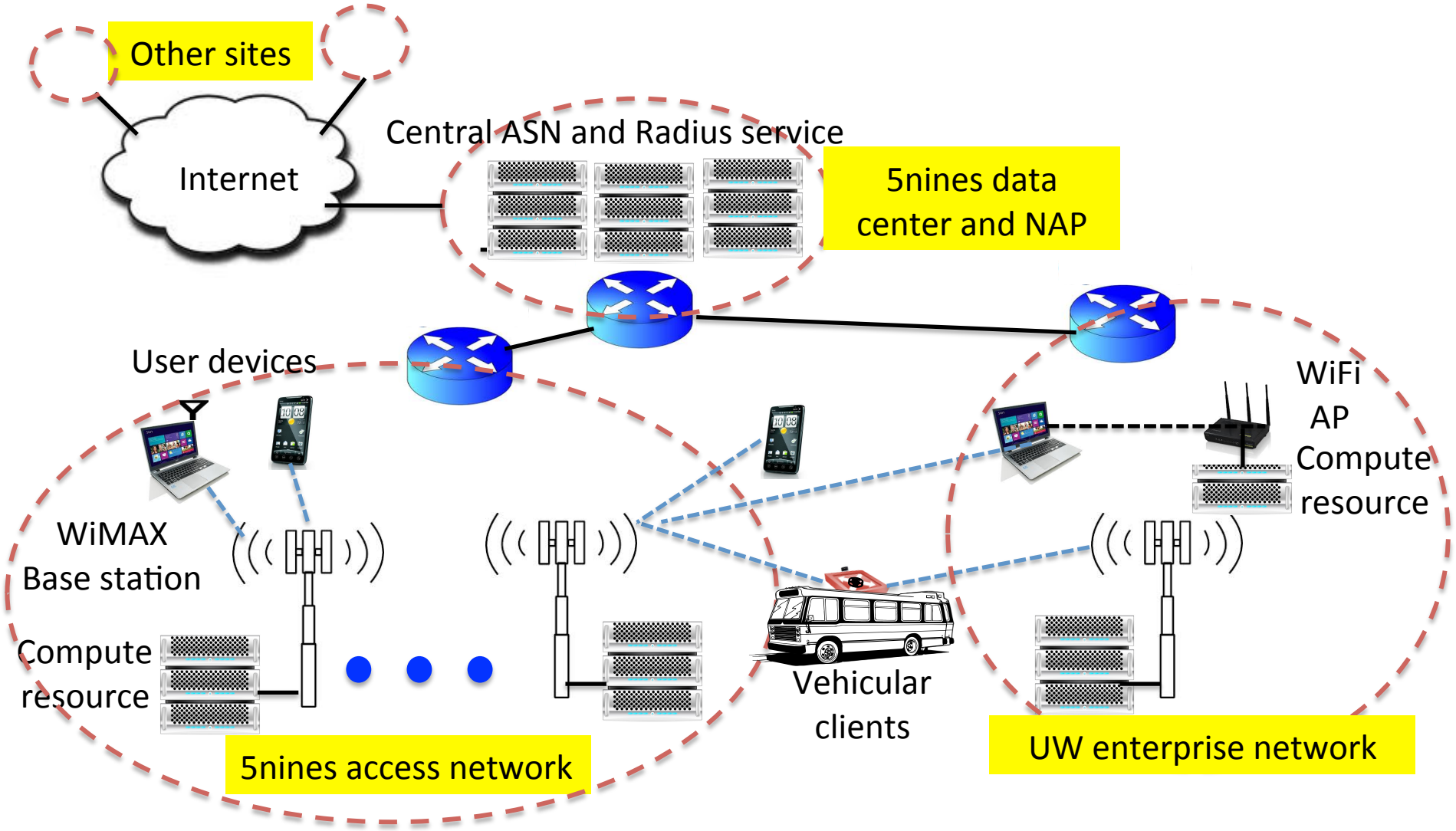
WiRover demo in July 2013

Potential mobile users

- Controlled access to UW and to targeted users across the city

- Targeted apps and services

Network plan



Logical structure of the various WiMAX and WiFi infrastructure to be used in experiments.

Upgrade to LTE

- LTE services will be more important in the future
- Will upgrade as we migrate to use of LTE hardware

Resources needed

Space

(Staff and students)

Personnel

Possible model for management

- A consortium of partners led by UW-Madison WiNGS laboratory (headed by Prof. Banerjee)
- Partners to include:
  - UW-Madison
  - City of Madison
  - Madison Metro Transit
  - MGE
  - Private organizations (e.g., 5Nines)
- Full-time personnel in consortium to manage the infrastructure
  - Initial funding being sought by Prof. Banerjee through research grants, but local support is necessary for long-term