

Fluid Voice

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Outline

- Fluid Voice: Current Implementation
- Context
- Current Challenges
- Upcoming

Fluid Voice

- Scalable, infrastructure-free “phone” system
 - Broadcast by default
 - Pull vs. Push
- Useful for:
 - Communities (e.g. construction, emergency response)
 - Coordinated activities

Technical Goals

- Scalable
- Ad-Hoc
- Mobile

- Social Scalability

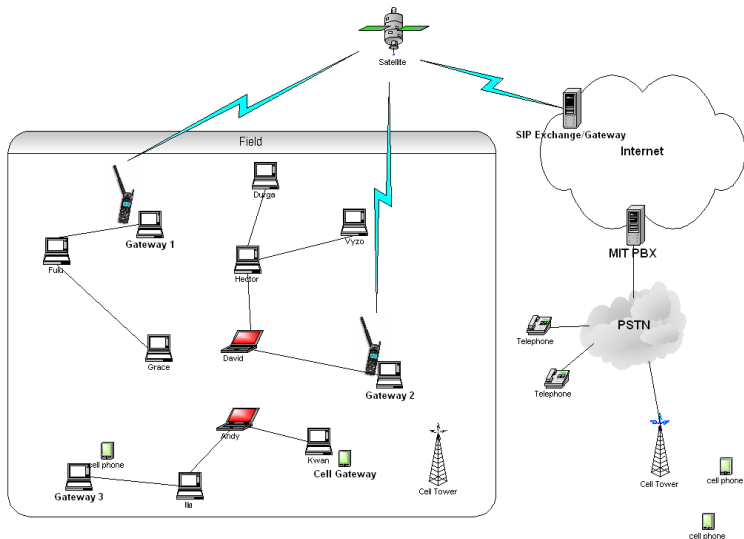
Goal

- Network where voice can be routed in a fluid manner.
- Each node can contribute to the network.

What have we been doing?

- Voice Mesh inspired by Navy Seal
- Nokia's suggestion for civilian use
- Qualcomm's satellite connectivity
- 802.11 scalability
- Multihop algorithms
- Real-time communications

Architecture

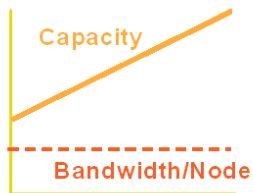
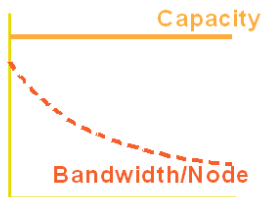


Why is it Different?

- Everyone connected to everybody
- Mobile adhoc multihop set of real time communicators
- Flexible control of participants

Existing Systems

- Existing wireless systems don't scale



- Multihop systems
 - Poor mobility support
 - Mostly simulations

Applications

- Emergency Response
- \$100 Laptop
- Collaborative Activities
- Political Activities

Current Implementation and Demo

- Voice Demo
- User Interface

Upcoming

- Gateways: Connecting to the outside
 - GPRS, Satellite
 - Load balancing
- 802.11 Ad Hoc Multihop Performance Measurement
 - Introduce objective metrics for performance
 - Increase the quality of the voice mesh
 - MADWiFi MAC modifications
- Quality Aware Routing
 - Choosing path that minimizes the product of RTT and packet loss rate
 - Periodic probes to measure the channel conditions