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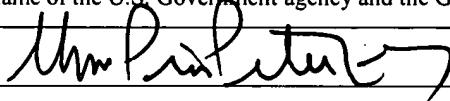
This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

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INVENTOR(S)		
Given Name (first and middle (if any))	Family Name or Surname	Residence (City and either State or Foreign Country)
Simon	Scherzer	Los Gatos, California
Additional inventors are being named on the <u> </u> separately numbered sheets attached hereto		
TITLE OF THE INVENTION (500 characters max)		
WIRELESS BROADBAND BY CENTRALLY MANAGED PEER TO PEER NETWORKING		
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(if appropriate)

TELEPHONE 650-493-9300Docket Number: 32354-702.101**USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT**

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PROVISIONAL PATENT APPLICATION

WIRELESS BROADBAND BY CENTRALLY MANAGED

PEER TO PEER NETWORKING

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1 Introduction

Providing ubiquitous broadband wireless service anywhere is becoming the next big challenge for the cellular industry. Multiple technologies are being promoted as potential solutions: 1xEVDO, UMTS, WiMax and others. Broadband wireless will become popular only if:

1. Quality of service is similar to quality of current wire-line services (DSL, cable).
2. The service is ubiquitous (everywhere); this is the real advantage of wireless...
3. Customers' expenditure on communication will not grow (as least not substantially)

None of technologies mentioned above can provide an economical ubiquitous coverage while using traditional deployment methods due to lack of spectrum; path loss (basic physics). Figure 1 demonstrate the "wireless reality" in urban environment: the probability of a good connecting link is quite low due to buildings obstructions. **Furthermore, in comparison to wire-line capacity at the amount of traffic that can be supported by any imaginable wireless service is minuscule.**

To illustrate the problem let consider PCS voice services: PCS network is already quite densely deployed (in urban areas the cells are few hundreds yards apart, and still voice quality is marginal. While voice service requires only about 10Kb/s data rate, broadband service will need two order of magnitude higher data rate which creates a two order of magnitude challenge gap.

Broadband services are currently provided by DSL and cable technologies. Typical bandwidth required per 2000 subscribers (similar to a typical cellular cell site population) in peak time is about 150Mb/s (at DSLAM uplink). This is way higher than any of wireless broad band technologies mentioned above can deliver (typical spectrum allocation).

This gap cannot be resolved only by traditional methods:

- Increasing deployment density by more than order of magnitude; the cost (CAPEX and especially OPEX) will render the service non-economical.
- Antenna technology or "smart antenna" present cost challenge and may bridge only small fraction of the gap.

- WiFi static mesh networks require even higher deployment density due to transmission power limits, radio interference and low efficiency. Consequently they are limited to certain areas and cannot provide for ubiquity. These networks (although being experimented by some municipalities) cannot justify themselves in the long run due to high OPEX (need to serve equipment in many locations)
- Ad-hoc mesh-networks. This approach is aimed to extend the coverage of wireless network without adding more infrastructure equipment. Subscriber terminals can relay traffic from traffic sources to terminals that are not in range of the serving network hence range is effectively multiplied. The down side of this approach is in its inherent instability: critical control signaling is handled over unreliable connections. Ad-hoc mesh network routing is calculated through a converging process; neighboring nodes are exchanging routing info and routing is repeatedly calculated until an optimal solution is found. Once a node becomes unavailable (due to power shutdown, radio interference, traffic congestion, location change etc.) it would take a considerable time for the system to recover. If this happen frequently, the system may not be able to recover at all. Hence ad-hoc mesh network has never become a real alternative to fixed infrastructure.

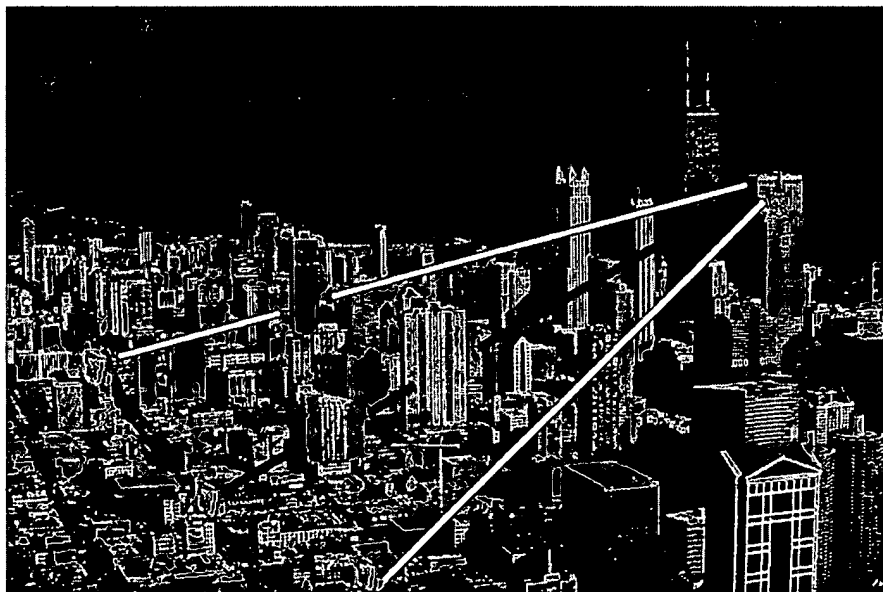


Figure 1: The “wireless reality”

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