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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

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

Express Mail Label No. EV 711413775 US

INVENTOR(S)		
Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
Shmon	Scherzer	Los Gatos, California

Additional inventors are being named on the __ 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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ENCLOSED APPLICATION PARTS *(check all that apply)*

☐ Application Data Sheet. See 37 CFR 1.76
☒ Specification *Number of Pages* 17
☐ Drawing(s) *Number of Sheets*
☐ CD(s), Number
☐ Other (specify)

Fees Due: Filing Fee of $200 ($100 small entity). If the specification and drawings exceed 100 sheets of paper, the application size fee is also due which is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

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☒ No.
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SIGNATURE [signature] Date: October 21, 2005

TYPED or PRINTED NAME U.P. Peter Eng REGISTRATION NO. 39,666 *(if appropriate)*

TELEPHONE 650-493-9300 Docket Number: 32354-702.101

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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WSGR Docket No. 32354-702.101

PROVISIONAL PATENT APPLICATION

WIRELESS BROADBAND BY CENTRALLY MANAGED PEER TO PEER NETWORKING

Inventor(s): Shimon Scherzer,
Citizen of United States, Residing at
23185 Old Santa Cruz Hwy
Los Gatos, CA 95033

Wilson Sonsini Goodrich & Rosati
PROFESSIONAL CORPORATION

650 Page Mill Road
Palo Alto, CA 94304
(650) 493-9300
(650) 493-6811

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1 Introduction

Providing ubiquos 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 ubiquous (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 ubiquous 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 DISLAM 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 form 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.

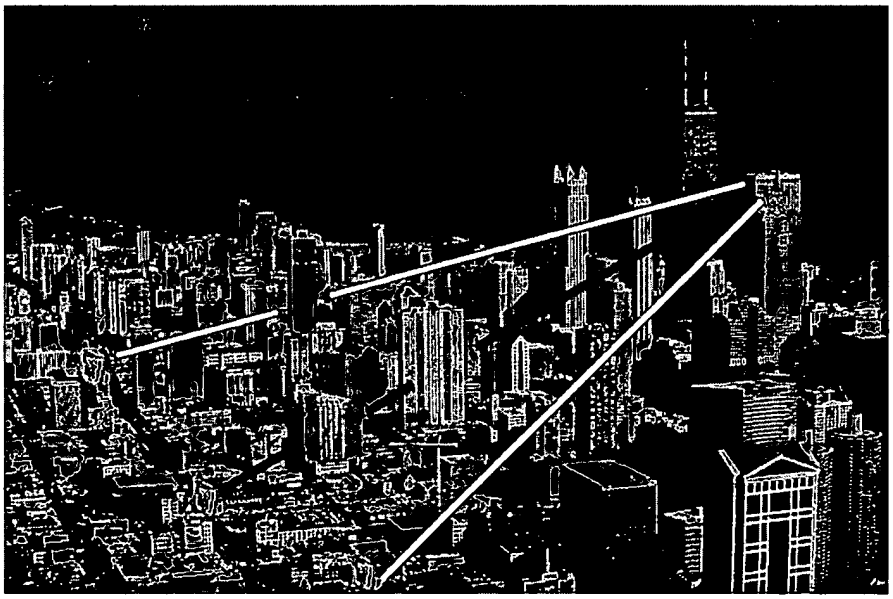

Figure 1: The "wireless reality"

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