

QMesh: a QoS Mesh Network with Mobility Support *

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The Technion, Haifa**Abstract**

We present QMesh, a software package that allows utilizing multiple geographically scattered Windows desktops as a wireless mesh network infrastructure with seamless user mobility support. QMesh supports its users through standard protocols, and does not require any client software installation. We optimize the solution's quality of service (QoS) by providing a centralized management infrastructure, which allows an assignment of users to Internet gateways that balances between distance and load considerations.

QMesh is implemented as a Windows XP kernel driver, on top of the Mesh Connectivity Layer (MCL) toolkit from Microsoft Research that provides basic routing within the mesh. To the best of our knowledge, this is the first mobile mesh solution implemented within the Win32 kernel space.

1 Introduction

Wireless mesh networks, or WMNs, is a rapidly maturing technology for providing inexpensive Internet access to residential areas with limited wired connectivity [6]. While initially designed for small-scale installations (e.g., isolated neighborhoods), WMNs are now envisioned to provide citywide access and beyond [4, 5]. Modern mesh networks are expected to handle mobile real-time applications with diverse QoS requirements like VoIP, VoD, and online gaming [11].

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