

Scientists designing next generation of Internet to keep up with mobile users

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(PhysOrg.com) -- Researchers at the University of Colorado Boulder are helping develop the next generation of the Internet -- a more mobile version -- and the campus's Office of Information Technology is using this new technology to provide wireless service on campus buses and in some labs and classrooms.

The university recently used the WiMAX (Worldwide Interoperability for Microwave Access) wireless protocol to extend its wireless network to the campus buses running between the Boulder campus and off-campus student residence halls located about a mile from campus. A tablet-wielding student in one of these off-campus residence halls can now jump on the campus wireless network while waiting at the bus stop, board the bus and ride it to campus, all during one uninterrupted session on the campus wireless network.

"The Internet, and the way that people access the Internet, is changing," said Dirk Grunwald, CU-Boulder computer science professor. "Internet access has grown increasingly mobile. Originally, only large mainframes used the Internet. That changed to desktop computers, laptops and now smart phones. The [next generation Internet](#) needs to directly address the mobile users of the future."

Grunwald is part of a GENI (Global Environment for Network Innovations) WiMAX project to implement and study a test WiMAX system that will be part of a collection of test WiMAX systems on several campuses across the country.

While Wi-Fi wireless service -- the kind most of us are accustomed to using in coffee shops and hotels -- is designed for short-range wireless coverage, primarily inside buildings, WiMAX is designed for mobility and outdoor connections that can be maintained at highway speeds.

The university's Interdisciplinary Telecommunications Program, or ITP, is employing WiMAX technology in a laboratory setting to allow students first-hand experience with this technology.

"The laboratory WiMAX system will open up opportunities for our students to study the potential for interaction between WiMAX and other wireless services such as the campus Wi-Fi service," said ITP scholar in residence Kenneth Baker. "This allows us to research new applications of the WiMAX protocol."

Professor Timothy Brown, director of the ITP, will use the campus WiMAX service in a class to help students design and analyze wireless networks.

"Because students in my class need to download large amounts of data, we need a way to do it that won't take down the campus wireless network," Brown said. "Our lab's [WiMAX](#) system allows us to do our work without kicking off the [wireless](#) users in the classroom next door. Everyone is happy."

Provided by University of Colorado at Boulder

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