

# Mobile TV and 3G Multicast

by Katherine Guo , Bell Labs, Alcatel-Lucent

**Date:** October 30, 2007 (Tuesday)  
**Time:** 6:15 pm (refreshment starts at 6:00 pm)  
**Place:** 202 ECEC, NJIT

## About the Speaker

Katherine Guo is a Member of Technical Staff at Networking and Network Management Center of Bell Laboratories. She has extensive research and product experience in multimedia streaming, content distribution, multicasting, 3G wireless systems, IP Multimedia Subsystems (IMS), quality of service support for real time applications such as VoIP, video streaming and distributed gaming. Formerly, she was the architect for Lucent's Imminet streaming cache and content distribution product line. She has published more than twenty five research papers in renowned technical journals and conference proceedings, has served on the technical committees of a number of international conferences, has served as technical program co-chair for ACM MobiArch'2006 and 2007, program vice-chair for IEEE ICDCS'2006, program co-chair for IEEE ICCCN'2006. She holds four U.S. and international patents and has 19 other patents pending. She has received Lucent Inventor of the Month Award for July 2006. She has been part of the teams that have received the Bell Labs Teamwork Award (2005) and the Lucent Chairman's Award (2006). She is a Senior Member of the IEEE and an editor for Wireless Network Journal. She received her Ph.D. in computer science from Cornell University.

## About the Talk

With the deployment of wide area wireless networks such as CDMA2000 1xEv-DO and UMTS HSPDA providing data rates close to wireline broadband connections, and with the unprecedented increase in mobile device capability, the mobile Internet is beginning to enable on-demand multimedia services anywhere anytime. Services like live TV, news summary, sports highlight, local traffic and weather reports are currently being delivered efficiently to mobile users using unicast channels. However, as subscribers increase with time, unicast is highly inefficient. Broadcast multicast services are the scalable solution to providing video services over 3G wireless networks. In the first half of the talk, an overview of the 3G broadcast multicast architecture will be presented.

Multicast scheduling in this context is challenging: there is no endpoint feedback mechanism, and the default schemes transmit data at a fixed rate assuming there is always a user at the edge of the cell. This conservative approach significantly limits throughput for users close to the base station. In the second half of the talk, a set of new multicast scheduling algorithms that offer proportional fairness property among groups and among users will be discussed.

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