University of Hawaii at Manoa
Information & Computer Sciences

HCAC

HAWAII CENTER FOR ADVANCED
COMMUNICATIONS

Presents:

Connecting the Other 3 Billion

by: **Steven Blumenthal**

Head of Ground Networks for O3b

Wednesday, January 21, 2009
2:00 p.m. – 3:00 p.m.
University of Hawaii at Manoa, Holmes Room 389

Abstract:

Today, of the 6 billion or so people in the world about half have some access to communications via telephone, mobile phone or Internet. O3b Networks is building and launching a new medium earth orbit (MEO) Ka band satellite network to provide high speed Internet connectivity to the developing world. The first set of 8 satellites are under contract with Thales Alenia Space in France and due to be launched in the fall of 2010. The MEO orbit presents some advantages and technical challenges. At 8000 km, the round trip time (RTT) for signals is on the order of 120 msec., about $1/5^{th}$ the RTT for geosynchronous orbit satellites, and slightly higher than fiber optic networks. The O3b Network will adapt to rain fade events by changing modulation and coding rates. In addition, it supports quality of service (QoS) and multicast delivery. However, the moving satellites have to carry tracking antennas and be tracked as they move across the sky from ground terminals. A mechanism is required to handoff the signal from one satellite to the next. O3b is planning to build 8 gateway sites around the globe to connect up to the fiber Internet. One of these gateways will be in Hawaii to serve the Pacific Island region.

O3b's satellite network represents a very unique underlying technology upon which to build a research testbed. It can be used to extend connectivity to other networking researchers in the Pacific and can be tied into the NSF Global Environment for Network Innovation (GENI) project.

Bio:

Steven Blumenthal, *as Head of Ground Networks*, leads the design of the satellite ground station equipment and is also responsible for the deployment of the O3b Networks' gateways worldwide.

Prior to joining O3b Networks, Mr. Blumenthal was Senior Vice President of Engineering and Chief Technology Officer at venture backed startup BridgePort Networks that developed voice and messaging convergence products for mobile and wireline carriers. Before BridgePort, he served as Senior Vice President of Engineering and Chief Technology Officer at Internet Service Provider Genuity. Prior to Genuity, Mr. Blumenthal was Vice President and General Manager of Global Network Infrastructure at GTE, and led the design and construction of GTE's worldwide fiber optic network.

Mr. Blumenthal began his career with Bolt Beranek and Newman (BBN), where he was responsible for early DARPA Internet research projects in packet satellite communications and later as the head of engineering for one of the first Internet Service Providers, BBN Planet.

Following the attacks of September 11, 2001, Mr. Blumenthal served as an advisor on Internet Security to the U.S. Congress and the President's Special Advisor on Cyberspace Security.
Mr. Blumenthal earned BS and MS degrees in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology.