Tests Demonstrate Packet-based Backhaul Networks Can Satisfy Synchronization Requirements Under Real-world Conditions

Ixia announced it participated in a test of mobile backhaul packet synchronization with Alcatel-Lucent. The demonstration highlighted that the Alcatel-Lucent Mobile Backhaul Solution can maintain accurate phase synchronization and quality of service (QoS) guarantees, while undergoing test conditions related to extreme packet congestion and network failovers. For further information about this test visit Ixia's booth (Hall 1, 1E47) and Alcatel-Lucent's booth (Hall 6, 6C23) at Mobile World Congress 2012 in Barcelona, Spain from February 27 – March 1.

Reliable distribution of packet synchronization is critical to the operation of advanced mobile broadband communications: it is required to ensure seamless mobility and enable new services such as those that leverage the LTE Multimedia Broadcast Multicast Services (MBMS) capabilities. One of the most demanding packet synchronization environments is one that addresses the phase synchronization requirements for LTE TDD and LTE MBMS over a backhaul network consisting of microwave links.

Carriers are replacing legacy TDM-based mobile backhaul networks with IP/Ethernet-based solutions in order to cost-effectively scale their networks and accommodate bandwidth-hungry mobile devices. Accurate timing synchronization across the network is critical for the successful operation of mobile networks. Network devices are implementing IEEE 1588v2 to achieve accurate clock synchronization for both frequency and phase (time of day), but 1588v2 implementations can become strained in large network environments that include many slave clocks synchronizing to a master clock. Timing synchronization and service delivery can also be compromised during network failover and recovery. It is important to test both the scalability of 1588v2 implementations, as well as the speed of clock alignment following network failure, to ensure the stability of network services and SLA compliance.

Verifying the reliability and accuracy of a 1588v2 clock implementation requires repeatable testing under real-world network conditions over long test intervals. Ixia tested Alcatel-Lucent's Mobile Backhaul Solution using its IxNetwork application with full IEEE 1588v2 protocol emulation. The demonstration reflects a typical multi-device backhaul deployment – from network access through aggregation, including the 7705 Service Aggregation Router, 7210 Service Access Switches, 9500 Microwave Packet Radio, and 7750 Service Router. Test Composer, integrated within Ixia's IxNetwork application, tightly managed and automated all test sequences and events – including traffic generation, slave clock emulation, link failures, and clock measurements. IxNetwork's Macro Recorder made it easy to record and translate user GUI actions into Test Composer commands. These two

recent IxNetwork features helped ensure test results were repeatable and reliable over multiple iterations.

• For more information on Ixia mobile backhaul solutions, see http://www.ixiacom.com/solutions/mobile_backhaul/index.php [1].

Links:
[1] http://www.ixiacom.com/solutions/mobile_backhaul/index.php