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## **MSF Completes Interoperability Testing of 3GPP Evolved Packet Core**

### *Successful Mix and Match Testing of Multi-Vendor 3GPP EPC Network Elements*

The MSF (MultiService Forum) today announced the successful completion of the first ever global Evolved Packet Core (EPC) interoperability event, held from March 15 – 30, 2010. The MSF event verified interoperability between EPC elements from a variety of global vendors. The test environment utilized inter-operator interfaces between the Vodafone Centre for Test and Innovation in Düsseldorf and the China Mobile Research Institute in Beijing. Participants in this event included Alcatel-Lucent, Bridgewater Systems, Cisco/Starent, Codenomicon, Huawei, JDSU, NEC and ZTE.

EPC interoperability testing is important because this infrastructure connects mobile subscribers to the application layer in Long Term Evolution (LTE) networks. EPC is the glue that binds the high-speed access provided by LTE to the applications and services that today's sophisticated users demand. And, it does it with the necessary QoS management and mobility functions. This is critical to support data, voice and video during the transition to an all IP network. As with all new technologies, it is vital that operators have confidence in the multi-vendor interoperability of EPC components before they begin volume deployment. As such, the MSF EPC interoperability event provides an important data point in support of the carriers' decision making processes. As in previous MSF events, the mix and match testing also verifies interoperability with deployed network elements, and provides operators vital input on the compatibility of existing network elements with the EPC core.

Elements tested during this event included eNodeB (base station), Mobility Management Entity (MME), Serving Gateway (SGW), Packet Data Network Gateway (PGW), Home Subscriber Server (HSS), Policy and Charging Rule Function (PCRF), Proxy Call Session Control Function (P-CSCF), and other elements of the IP Multimedia Subsystem (IMS) Core.

The MSF testing incorporated a series of progressively more complex scenarios that encompassed basic interoperability, roaming, and finally, handover. Testing began with end-to-end calls using EPC elements from one vendor, and then introduced permutations of EPC core elements from different vendors, changing out one element at a time. Test results were carefully logged and discrepancies noted to facilitate a detailed root cause analysis of any problems.

In something truly unique for an event of this type, Codenomicon performed robustness testing on the signaling. The focus of the test effort was GTPv2, a new release of the GTP protocol, which plays a crucial role in communication between LTE core network elements. The goal of the testing was to assess the robustness of new LTE network elements and to enable security testing across network trust boundaries.

David Hutton, Vodafone Senior Standards Strategist and MSF Vice President, emphasized the importance of the MSF testing for the telecommunications industry. “Not only did the LTE/EPC test event confirm interoperability of different vendors’ EPC core elements, but it also served as a crucial verification of the associated 3GPP specifications. This is an important aspect of well-run interoperability events that is often overlooked. Interoperability events can play a role in ensuring that standards include the detail necessary to support interoperability. Test findings regarding 3GPP specification discrepancies and ambiguities were sent to the 3GPP for clarification or correction. This facilitates future deployability and helps to fine-tune the 3GPP specifications.”

Naseem Khan, Verizon Principal Member of the Technical Staff and an MSF Board director, commented on the value of the MSF testing for Verizon. “The MSF provides a testing environment that facilitates next generation network deployment. With carriers and suppliers working together to validate interoperable solutions, the time frame

required to progress from standards development to product deployment is dramatically shortened. The MSF provides a unique environment for this.”

Wang Jing, Project Manager from China Mobile, explained the importance as follows. “The main purpose of the LTE/EPC Interoperability Event was to understand the maturity of the Evolved Packet Core network equipment, and to make an objective evaluation of the participants’ equipment under test. Through the joint effort of all parties involved, the event achieved complete success, by verifying interoperability between core network equipment in a multi-vendor environment. This test proved the technical capability of the EPC network, by verifying the GTPv2 and Diameter based protocols. It also highlighted the interoperability issues between different implementations of network equipment based on different versions of 3GPP standards, which provided guidance for the operator and vendor communities.”

To find out more about this unique event go to this website where a free download of the event white paper “**MSF LTE Interoperability Event** – Multivendor testing in global Evolved Packet Core Networks” is currently available:-

<http://www.msforum.org/interoperability/LTE.shtml>

### **About the MSF**

The MultiService Forum (MSF) is a global association of service providers, system suppliers and test equipment vendors committed to developing and promoting open-architecture, multiservice Next Generation Networks. Founded in 1998, the MSF is an open-membership organization comprised of the world's leading telecommunications companies. The MSF's activities include developing Implementation Agreements, promoting worldwide compatibility and interoperability of network elements, and encouraging input to appropriate national and international standards bodies. [www.msforum.org](http://www.msforum.org)