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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** |
| Title | ***Report on IETF*** ***Network Performance Measurement Activities*** |
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| Re: | IEEE 802.16-12-0622 (“Liaison Statement to IETF IPPM Working Group regarding IEEE Project P802.16.3”) |
| Abstract | This document reports on activities within the IETF regarding network performance measurements. It provides information relevant to IEEE 802.16-12-0622 (“Liaison Statement to IETF IPPM Working Group regarding IEEE Project P802.16.3”). |
| Purpose | As a reference for the further development of P802.16.3 and for the possible development of communications to the IETF. |
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*Report on IETF*

*Network Performance Measurement Activities*

Roger B. Marks

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# Abstract

This document reports on activities within the IETF regarding network performance measurements. It provides information relevant to IEEE 802.16-12-0622 (“Liaison Statement to IETF IPPM Working Group regarding IEEE Project P802.16.3”).

# Background and Prior Statement

On 20 September 2012, the IEEE 802.16 Working Group completed a ‘Liaison Statement to IETF IPPM [“IP Performance Metrics”] Working Group regarding IEEE Project P802.16.3”([IEEE 802.16-12-0622](http://doc.wirelessman.org/16-12-0622)). The WG Chair [submitted the statement on behalf of the WG to the IETF IPPM](https://datatracker.ietf.org/liaison/1195/). As agreed, the statement was [copied to the LMAP mailing list](http://www.ietf.org/mail-archive/web/lmap/current/msg00022.html), which is considering “Large Scale Measurement of Access Network Performance.”

For further background information, see contribution [IEEE 802.16-12-0575](http://doc.wirelessman.org/16-12-0575) (“Proposed Statement to IETF IPPM Working Group regarding IEEE Project 802.16.3”), which stimulated IEEE 802.16-12-0622.

No formal followup has been received by the WG or WG Chair. However, the IPPM co-chair and responsible Area Director reviewed the liaison statement and wrote that “it sounds like a good thing ... 802.16 knows about the IPPM metrics and wants to use them where they’re appropriate, and then it sounds like they’ll work with IPPM in cases where the mobile nature might motivate changes.”

# LMAP Proposal

On 21 September, FCC staff contributed a draft to the IETF’s LMAP (“Large Scale Measurement of Access network Performance”) mailing list, on the topic “[Large-Scale Measurement of Broadband Performance: Use Cases, Architecture and Protocol Requirements](http://tools.ietf.org/html/draft-schulzrinne-lmap-requirements-00).” The scope of the proposal is intended to address mobile devices. Here is a summary of the document from the perspective of the author of this contribution:

* In principle, the proposal is intended to support wireless as well as wired devices; the only specific issue raised regarding wireless is the need to collect location data.
* The draft suggests three use cases:
	+ Provider network measurements: For ISP’s to assess performance “as viewed from their customers’ perspective.” To identify bottlenecks and observe the impact of changes in user behavior. The provider is not interested in the performance of an individual device but rather a statistically sample of performance across the network.
	+ User network diagnostics: End users may want to determine whether their network is performing according to the specifications (e.g., service level agreements) offered by the ISP, or they may want to diagnose whether components of their network path are impaired. End users may perform measurements on their own, using the measurement infrastructure they provide or infrastructure offered by a third party, or they may work directly with their network or application provider to diagnose a specific performance problem.
	+ Multi-provider network measurements: Multiple network providers and third parties, such as a regulatory body, may collaborate to gather network performance data. The network provider can either be a commercial or not-for-profit entity.
* The draft suggests an architecture based on five elements:
	+ Measurement Client
	+ Measurement Server: Source or sink of traffic to/from client. Needed only for active measurements.
	+ Measurement Controller: provides the Measurement Client with the measurement schedule. May be capable of accepting inputs from other controllers, scaling up the scope of the measurement system to, for example, a nationwide testing program.
	+ Data Collector: collects measurement samples from Measurement Clients.
	+ Network Parameter Server: stores info about the parameters such as the nominal network performance, type of the user's network connection, etc.
* Protocols needed for communication among these elements are summarized.
* The architecture and protocols generally match the diagram [submitted by the FCC to the Broadband Forum](http://apps.fcc.gov/ecfs/document/view?id=7022008017), where “Data Collector” is called “Test Log,” “Measurement Controller” is called “Collection Control,” and “Network Parameter Server” is called “Network Data.” However, the proposal does not discuss any communication between Measurement Controller and Measurement Server or between Measurement Controller and Network Parameter Server.
* Requirements of the intended standard are summarized. For the most part, these can be derived from the other descriptions provided.

# LMAP Followup

Since submission of the draft, discussion on the [LMAP Mailing List](http://www.ietf.org/mail-archive/web/lmap/current/maillist.html) has been active. In general, the technical topic has stimulated significant interest, though the organizational approach to address it not yet apparent. On 7 November, an informal “bar BOF” on LMAP was held at the IETF meeting. Information is available on the list.