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INTRODUCTION

Dear WiMAX Community,

The WiMAX Forum would like to begin this last newsletter of 2012 by wishing all of our members a wonderful holiday season! 2012 has been an exciting year in the WiMAX industry, from continued growth by WiMAX wireless ISPs around the world, to the technology's stronger inroads into new markets such as Smart Grid, Oil & Gas, and Aviation.

Throughout 2012 the WiMAX Forum has built support for these markets through the Aviation Working Group and Smart Grid Working Group, as well as through two highly successful events focusing on Smart Grid and Oil & Gas and a strong WiGRID PlugFest. The WiMAX Forum also continued its strong support for WiMAX ISPs through an intense global series of educational events spanning seven regions (Africa, Asia, Caribbean, Europe, Latin America, Middle East, and South Asia).

The WiMAX Forum would like to take this opportunity to thank the many speakers, Working Group participants and event attendees that traveled to these events and made them such a success. Every event was incredibly positive, and gave everyone great confidence in the strength of our industry.

In 2013 you can look forward to more significant events and major announcements concerning the WiMAX roadmap, and continued support for WiMAX telecom operators and WiMAX network owners in vertical markets.

As a reminder the WiMAX Forum is currently in the middle of its renewal season. Many of our 150+ members renew their annual membership at the end of the year, and our membership and finance teams have been working together to make certain that the next few months go smoothly for everyone.

Many of your companies should be hearing shortly from our membership team, and they will be happy to answer any questions that you have. If you have questions regarding your membership status, please send a message to **membership@wimaxforum.org**, and we will respond as quickly as possible.

We look forward to continuing to work with you in 2013.

Best Regards,

The WiMAX Forum

EVENTS

In 2012 the WiMAX Forum hosted a strong series of its own events and also participated in a range of important industry events spanning the globe. In 2013 we will continue in our efforts to bring you quality events directly hosted by the WiMAX Forum, and will also have a presence at key industry events. Our official 2013 events schedule will be posted in the January 2013 Member Newsletter, and we are looking forward to telling you about our great lineup for next year!

For more information about our events please visit: **WiMAX Forum Events**

MEMBERSHIP SERVICES

There are currently 153 members of the WiMAX Forum in good standing.

The WiMAX Forum would like to extend a special welcome to the newest members:

- **Cisco Systems**
- **MicroTeck Enterprises (Pty) Ltd**

Three new members have applied for membership in December:

- **Synkro Southwest, LLC**
- **Busyinternet Gh Ltd**
- **NOVI-NET d.o.o.**

The WiMAX Forum is committed to delivering the value necessary for our members to get the most of their association with the WiMAX Forum and we are always happy to engage with individual members to discuss how WiMAX Forum can better serve its membership.

If you have questions regarding your membership, please contact Mike Wolleben at **Mike.Wolleben@WiMAXForum.org** - 512-470-9045.

The WiMAX Forum is the best place for our members to access, leverage and influence the growth and development of the WiMAX industry. So be a leader in WiMAX and step up to get involved today!

WORKING GROUP

The WiMAX Forum **Working Groups** are the key to the development of WiMAX technology. Working Groups are chartered by the WiMAX Forum to bring together content experts from member companies to contribute to and harmonize documents and specifications and perform other tasks that the WiMAX Forum has determined to be necessary or useful. Principal members of the forum have the opportunity to participate as officers of working groups when there are vacancies.

The WiMAX Forum organizes its technical activities through a number of Working Groups that produce technical requirements, technical specifications or advise the forum. These groups are coordinated by the Technical Steering Committee. The WiMAX Forum Working Groups include:

- **AWG** - Aviation Working Group - *Requirements*
- **CWG** - Certification Working Group - *Technical*
- **GRWG** - Global Roaming Working Group - *Technical*
- **NWG** - Network Working Group - *Technical*
- **RWG** - Regulatory Working Group - *Advisory*
- **SPWG** - Service Provider Working Group - *Requirements*
- **SGWG** - Smart Grid Working Group - *Requirements*
- **TWG** - Technical Working Group - *Technical*

If you are not a member of a Working Group yet, you can request to join on the group's **Home Page**. Or if you want to take an active role in one or more of the Working Groups, you can use the group chair link on that same page to contact the chairman of the group and to see how you can help.

As a result of some recent vacancies we are currently in the middle of an Officer Election process. We have candidates that are nominated for offices in SPWG, NWG, and TWG. A call for candidates has been sent and elections will be held in January. Below are some remaining vacant officer positions. If you or someone from your company is interested in becoming an officer of a Working Group, please contact that working group's chair or the TSC chair for details.

- **AWG**– Chair
- **NWG**- Vice Chairs and Secretary
- **SGWG** – Vice Chair and Secretary
- **TWG**- Secretary

Your participation is important to the WiMAX community!

Working Group Meetings are held in-person ("face-to-face") or by teleconference. Dates and venues shall be determined taking into account Working Group needs and requests. To encourage cross Working Group discussions in support of the overall program goals, the WiMAX Forum co-locates the face-to-face meetings of multiple Working Groups at our Member Conferences.

You can learn more about the working group activities by visiting the member's area in Kavi and viewing the outcome of recent working group sessions or joining groups to receive emails related to that group's activities. Working Group activity is integral to the success of the Forum. In our recent Members Conference in Sofia there were new documents approved and new work items initiated. In Early December, WiMAX Forum published eight specifications, which can be found in the resources section of our public library. We are also proud to announce the Smart Grid Working Group recently completed its first document, "WIMAX System Profile Requirements for Smart Grid Applications", and the document is now moving through the publication process.

If you or your company is interested in nominating someone for a working group leadership role, please contact Rich Hawkins at **Rich.Hawkins@WiMAXForum.org**

IEEE-P802.16r AMENDMENT FOR SMALL CELL BACKHAUL

Small cell backhaul is one of the most pressing challenges for Mobile Carriers as they build advanced 4G Heterogeneous networks. Small Cell backhaul is a multi faceted problem set that encompasses Capex and Opex economics, coverage in NLOS conditions, system capacity, latency, and end to end QoS. The latest IEEE 802.16r standardization project is an exciting development which promises to deliver a "Carrier grade" Wireless Ethernet technology that meets the needs of today's and tomorrow's small cells. IEEE 802.16 continues to evolve and adapt to the changing needs of carriers.

IEEE 802.16r will create new enhanced "layer 2" Ethernet profile of TDD Wireless-OFDMA 802.16. It will focus on backhaul operating in licensed bands below 6 GHz, in which the backhaul radio operates far enough outside the band of the small cells that interference is negligible. It will add 256QAM, 512QAM, and 1024QAM options in both uplink and downlink, with optional 4x4 MIMO in both directions, along with further enhancements that address small cell backhaul efficiency. Significant latency improvements will be attained. Enhancements to the Convergence Sublayer specifications will be incorporated as necessary for support of Carrier Ethernet 2.0 backhaul requirements.

802.16r based small cell solutions will complement and enhance LTE and LTE-Advanced Relay, by enabling enhanced capacity from the serving eNodeB to the Relay Node. These enhancements will power the initial wave of small cells expected in 2H 2013 and into 2014.

In addition to small cell backhaul applications, 802.16r will also serve other carrier wireless ethernet applications, such as fixed broadband connectivity to enterprise and corporate locations where dedicated or semi-permanent wireless links of ten's to hundreds of Mbit/s are required.

Paul Senior, Vice chair of the WiMAX Forum, and CTO of Airspan Networks, said "the outlook for products based on 802.16r is very good. 802.16 technology which underpins the 802.16r small cell backhaul is widely held, and the existing WiMAX Eco-system is well placed to bring solutions to market in 2013". "The WiMAX Forum will of course ensure these solutions are interoperable".

To view the IEEE Call for Contributions, please visit the following link:
https://mentor.ieee.org/802.16/dcn/16-12-0678-02

WiMAX FORUM NEWS

WiMAX Forum, in partnership with Multiview, has launched its weekly WiMAX Newsbrief. This weekly summary of news from around the WiMAX ecosystem is intended as a benefit to our members. If you do not yet receive the Newsbrief and wish to do so, please sign up here: **WiMAX Newsbrief**.

Below is a summary of the month of December:

- **WiMAX Forum president visits Pakistan to help government understand industry challenges**
- **Moldova starts accepting applications for WiMAX license**
- **'Global WiMAX Equipment Market 2010-2014' — new market research report published**
- **Texas city picks Alvarion for public safety network**
- **Sprint reportedly in talks to buy out Clearwire**
- **Internet connection fees cut by operators**
- **FreedomPop sets its sights on the home broadband market with 1 GB of free WiMAX data**
- **IEEE P802.16r amendment for Small Cell Backhaul**
- **WiMAX sees 1 billion users in 2013**
- **Alvarion enhances Partner Program & Portal**
- **MVNO Karma rolls out Social Bandwidth on Clearwire network**
- **MCMC gives 8 firms access to 2,600 MHz 4G spectrum**
- **Broadband subscribers in Pakistan surpass 2.18 million**
- **Gulfsat Madagascar picks O3b Networks to deliver affordable high-speed broadband throughout Madagascar**
- **Sprint hops on Globalgig data roaming bandwagon**
- **Officials celebrate high-speed Internet effort in Ohio**
- **Wi-tribe Philippines launches 4G Instanet modem**
- **Backed by $26 million in stimulus money, Casair is busy expanding rural Internet service in Michigan**
- **TTK considers ISP acquisition; launches WiMAX pilot in Russia**
- **Menatelecom offers unlimited free calls in Bahrain**
- **TTK eyes ISP acquisition, WiMAX network**

Top 10 most accessed articles from 2012:

- **WiMAX Forum gets new president**
- **WiMAX makes a strong showing in Pakistan, Bangladesh**
- **Malaysia's 1st 4G Internet-enabled cars**
- **WiMAX Forum president describes road map wherein WiMAX, LTE are complementary**
- **Taiwan pledges support for WiMAX**
- **Why does my iPhone 4S now say 4G, not 3G? Because it is**
- **Mobile broadband watch: Alvarion wins deal**
- **WiMAX showing renewed potential and capabilities**
- **Freshtel expands WiMAX coverage further**
- **Greenpacket launches cutting-edge wireless router that compliments WiMAX devices worldwide**