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CTIA Wireless 2006: WiMAX and Mesh Roundup

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CurrentAnalysis

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SUMMARY

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PERSPECTIVE

Alvarion: 802.16e Solution and Demonstrations	Live showcase of Alvarion's 4Motion solution providing mobile WiMAX services based on the 802.16e standard.	Positive. 4Motion lets Alvarion attack operator demands for mobile – not just fixed – WiMAX. Demos and a complete set of capabilities (BTS, client, core, OMC, MIMO, integration) lends the solution credibility. Failure to name partners and planned trials in 2007 limits this credibility.	High. As the fixed wireless market leader, WiMAX represents an enormous opportunity for Alvarion – either to grow its business or see it stolen. Following operator interest in mobile WiMAX, Alvarion needed to follow suit, bringing in partners to fill out its solution (i.e., in the core).	Moderate. Alvarion had promised to demonstrate mobile WiMAX in early 2006, so most of the market was expecting 4Motion. And, while trial availability will trail competitors such as Alcatel and Motorola, few competitors were likely to expect such an ambitious end-to-end solution.
BelAir: Converged Multi-Service Node	New mesh product for mobile operators: BelAir 300. Six slots support any combination of radios: GSM base station, WiFi access and backhaul (including T1/E1 circuit emulation).	Positive. Last year, BelAir introduced a modular vision for addressing mesh access, mesh transport and 2G service. The BelAir 300 delivers on this vision. Yet to play in the cellular space, BelAir will need to find an integration and distribution partner.	High. The new mesh node follows through on the BelAir's promises from last year. More importantly, it leverages the vendor's multi-radio capabilities to attack a new market – cellular operators. In a competitive mesh market, broad product lines will help with survival.	Low. BelAir introduced the concept of a modular mesh node last year – competitors knew the BelAir 300 was coming. Ultimately, however, unless BelAir can tap the resources of a major integrator, the novel approach of supporting 2G coverage with mesh will go nowhere.
Fujitsu: WiMAX and WiFi Mesh Solution Launch	Plans for “native” mobile WiMAX solution as well as WiFi Mesh solutions. WiMAX will be based on 802.16e-2005 supporting 3.5, 4.9 and 5.8	Neutral. Interest in WiMAX and mesh has been growing – new solutions give Fujitsu something to sell into these opportunities. Yet, Fujitsu is a new player in the space. Without an	Moderate / High. Major firms like Fujitsu do not move to support new solutions without a compelling reason – and compelling market opportunities. At	Low / Moderate. The WiMAX and mesh markets are already full of competitors with (semi) proven products and customers. Fujitsu adds another name to

	GHz spectrum with 700 MHz, 2.3, 2.5 and 3.65 GHz operations planned. WiFi mesh supporting 802.11a/b/g access with 5 GHz transport.	indication of how it will set itself apart in a crowded market – or when products will be offered – success will be tough.	the same time, however, if the opportunity were truly important to Fujitsu it would not rely on partners for the mesh solution.	the list – complicating its OEM with Airspan - but without any compelling differentiators it's unlikely to scare competitors or stand out in front of customers.
GoNetworks: Metro Broadband Wireless Launch	Metro Broadband Wireless (MBW) launch; a cellular WiFi solution leveraging micro and pico base stations (both with adaptive beamforming), a network controller and NMS products.	Neutral / Positive. Cellular architectures are a novel concept for metro WiFi. But, Go still needs to prove its capabilities and a lack of customer references does little to help. And, where mesh promises simple installs, Go does little to explain how its cellular architecture compares.	Very High. CTIA represents the coming out party for Go and its MBW product. As metro-scale WiFi gains credibility with municipalities, ISPs and public safety agencies, the launch window for new products is closing making it critical for Go to launch the MBW and build traction/credibility.	Moderate. Mesh has dominated thinking on metro-scale WiFi launches. Go's cellular concept will capture operator attention if only because it is unique. This will force mesh players to respond, but until Go racks up wins and MBW proof points, the threat it poses will be minimal.
Intel: PIPEX Wireless Investment	Intel and PIPEX announced the creation of PIPEX Wireless, an operator providing wireless broadband in major UK metro areas. Intel is investing \$25 million. Pipex is contributing its 3.6 GHz UK spectrum license to be used for WiMAX deployments.	Neutral / Positive. PIPEX Wireless should help to build early WiMAX momentum and prove the technology's merits. Yet the initial deployment in 2007 means the effects won't be felt for some time and a lack of tech details (fixed vs. mobile) suggests the company's model is far from firm.	Moderate. As operators weigh the value WiMAX, working networks – and live customers – lend insight and drive them towards the technology. Yet, with plans to hit eight UK markets by 2008, PIPEX Wireless will not depict WiMAX as a viable competitor to 2G or 3G services.	Low. PIPEX and Intel's move on WiMAX does little to change the WiMAX landscape. In part, this is because PIPEX Wireless will be a relatively small operator, and because it had already announced WiMAX plans, signaling no new 802.16 momentum.
Motorola: 802.16e Solution and Demonstrations	Launch of initial MOTOw4 products based on the 802.16e standard. Shipping in limited quantities, the "ultra-light access point" leverages Motorola's Canopy form factor and operates in the 3.5 GHz spectrum.	Positive. Motorola took a lead on 802.16e marketing; initial products signal that it's got the will and expertise to make it work. Highlighting fixed applications and terminals is smart. However, a lack of info on high-capacity, carrier-grade solutions questions progress on this front.	High. Motorola started talking up mobile WiMAX and MOTOw4 last year; with the standard finalized and competitors launching their own products and demos, the vendor needed to show that it was not behind the curve.	Moderate - High. The list of vendors launching and demonstrating their 802.16e solutions is long: Airspan, Alcatel, Alvarion, Motorola and Samsung. Still, smaller vendors cannot ignore the solution capabilities Motorola brings to the table, with initial shipments building early momentum.
NEC: WiMAX Solution Launch	Strategy to deliver 802.16e-2005 solutions into fixed and	Negative / Neutral. Interest in WiMAX has been growing – a new solution gives NEC something to	Moderate / High. Major vendors like NEC do not move to support new	Low / Moderate. The WiMAX markets is already full of competitors with

	mobile applications.	sell into the opportunity. However, NEC is a new player in the space. Without an indication of how it will set itself apart in a crowded market – or when products will be offered – success will be tough.	solutions without a compelling reason – and compelling market opportunities. Yet, a lack of details in terms of product capabilities and availability suggests WiMAX is not critical to NEC's near-term success.	(semi) proven products and customers. NEC adds another name to the list, but without any compelling differentiators it's unlikely to scare competitors or stand out in front of customers.
Nortel: WiMAX Portfolio Enhancements and Customers	Portfolio enhancements driven by MIMO for improved capacity and coverage. Trial with NEW Energie, Telefonica Moviles Mexico, National Taiwan Univ. Deployment with Chunghwa Telecom for testing WiMAX / WiFi Mesh integration. Portfolio expansion to 1.5, 2.3, 2.5 and 3.5 GHz.	Positive. An early take on MIMO sets Nortel apart as a tech leader with advanced WiMAX gear. Customer references suggest that its messaging and products resonate with operators. Moving beyond trials and announcing availability plans would add to solution credibility.	Very High. Nortel has made WiMAX a strategic focus. Yet, it's lagged competitors like Alcatel and Motorola when it comes to messaging. Highlighting customers and R&D plans makes it clear that Nortel is making progress – product and commercial – on this front.	Moderate. Would-be WiMAX vendors and operators knew of Nortel's product plans. Yet the explicit reminder of Nortel's commercial success paints it as a market contender – likely raising the interest of competitors and customers alike.
Samsung: Deployment Highlights	Update on progress with mobile WiMAX development and deployments: work with KT and SKTel on commercial WiBro (H1 2006); trials with Sprint Nextel, TVA (Brazil), KDDI and BT; service with Omnicomm (Venezuela); WiBro demo at Torino Olympics.	Positive. As operators move to launch commercial WiMAX services, success with deployments points to a vendor's capabilities and the proven nature of their products. A string of wins for Samsung paints it as an early leader – ready to support revenue-generating services.	High. Based on its success with WiBro, Samsung had already established itself as an 802.16 pioneer. Yet limited 3G success makes it important for the vendor to highlight deployment capabilities – in the WiBro and WiMAX markets.	Moderate. Samsung's WiBro and WiMAX trials are all a matter of record – competitors and customers all know of its success. Yet, the more Samsung can do to position itself as an 802.16 leader, the stronger it will be as a competitor.
Siemens: WayMAX Availability	U.S. availability of WayMAX 802.16-2004 solution timed along with upcoming AWS spectrum auctions. Further, WayMAX is positioned as part of Siemens' LifeWorks vision for delivering communications capabilities.	Negative / Neutral. Highlighting WayMAX availability informs U.S. spectrum holders of Siemens' capabilities. Yet, reference to AWS auctions is confusing without explicit support for AWS spectrum. And, the launch of 802.16e-2005 solutions marginalizes the value of WayMAX.	Low. Having announced WayMAX had passed WiMAX Forum certification, commercial availability was already suggested. AWS auctions could give WayMAX a boost, but it's unlikely without proven 802.16e operations or clearer claims of 1700 / 2100 MHz support.	Moderate. It's been assumed that AWS spectrum will support 3G launches. Siemens' announcement sends a wake-up call about technology options. Yet without proven support for mobility, the news is unlikely to change any AWS plans.

Siemens: WayMAX Certification	Achievement of WiMAX Forum certification for WayMAX solution – FDD, 3.5 GHz profile. Claims that WayMAX will support an evolution to 802.16e- 2005.	Neutral. Certification ensures interoperability of WayMAX with third party CPE. Yet operators have quickly come to embrace 802.16e-2005 for mobile and fixed applications; until Siemens can prove this evolution, operators are unlikely to care about certification.	Moderate. WiMAX – particularly without mobility – is unlikely to rival Siemens' 2G or 3G business. Having developed its own WiMAX solution, however, it was critical for the vendor to prove that its R&D has resulted in a credible, standard solution.	Low - Moderate. Certification immediately makes WayMAX more attractive to would-be WiMAX operators. Until Siemens can demonstrate a seamless evolution to 802.16e-2005 the value of 802.16-2004 certification will be marginal.
SkyPilot: Customer and Deployment Milestones	Achievement of sales and customer milestones: 10,000 units and 200 customers across 40 countries.	Very Positive. SkyPilot's announcement was about little more than marketing. To that end, however, it positions the company as more than a start-up – with substantial momentum and expertise - while reminding the market about its new public safety solution – the SkyExtender TriBand.	High. While the 802.11 mesh market is still new, vendors are quickly establishing themselves as leaders in terms of mindshare and deployments. Later to the game than early pioneers, SkyPilot needs to build its brand and credibility. Pointing to significant momentum does just that.	Moderate. While newer to the market than some, all mesh vendors will be familiar with SkyPilot. Its momentum, however, may provide a wakeup call for some on the importance of capacity and cost while capturing the attention of new would-be mesh operators.

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RECOMMENDED ACTIONS

Vendor Actions

- NEC, Fujitsu and Nortel need to get their WiMAX products into the market as soon as possible – or at least announce plans for commercial availability. Clearly, WiMAX is still in the early days. That said, operators are beginning to plan their launches and trials. Without a clear expectation of when they can expect initial gear from NEC and Fujitsu – and commercial MIMO products from Nortel – competitors who have committed to availability this year will have an advantage.

- Go Networks needs to land customer references for its cellular WiFi solution in the near-term. Like WiMAX, the metro-scale 802.11 market is still in its infancy. Yet, unlike WiMAX, the market is already populated with vendors who can point to many successful, commercial deployments. Go's architecture is compelling, but without proof of reliability – and proof of its benefits – most operators will look to established vendors.

- BelAir needs to include customer trials or deployments in future messaging around the BelAir 300. While the concept of using WiFi mesh for cellular backhaul is interesting, it faces some hurdles: BelAir has no GSM OEM partners, operators are often dubious of unlicensed backhaul, and the concept itself is new. To drive success of the 300, BelAir needs to show that it works while highlighting benefits in real world deployments.

- Siemens and other 802.16-2004 vendors need to prove that their gear can support a migration to 802.16e-2005. Now that 802.16e-2005 products are coming to market, most vendors have returned to claims that they can evolve their 802.16-2004 products to support the standard. Based on a different air interface, however, most operators are still dubious of the claim and will favor dedicated 802.16e-2005 gear until migration claims are well established.

- Motorola needs to remind the market of its plans for carrier- grade WiMAX base stations. Motorola made it clear that its initial product WiMAX products would be “light” access points focused on fixed applications which could leverage the Canopy platform. However, as competitors like Alcatel and Nortel focus on high- capacity, technically advanced products,

Motorola needs to make it clear that it too will compete for this market.

- Alvarion needs to reveal details on its 4Motion solution partners. The strategy of building a WiMAX application ecosystem is attractive; operators, after all, want services – not just access networks. Solution partners give a smaller player like Alvarion access to the applications operators need. Yet, until Alvarion can point to specific partners and specific applications, vendors with their own solution capabilities – Motorola, Siemens, Alcatel and Nortel – will enjoy more credibility.

User Actions

- Operators need to see proof of 802.16- 2004 to 802.16e-2005 evolutions before investing in any current WiMAX offers. Again, vendors are claiming that current 802.16-2004 products offer investment protection through support for mobility and SOFDM. Where this upgrade is costly or delivers sub-par performance, however, operators will be better served by starting with dedicated 802.16e- 2005 gear.

- Operators should leverage existing WiMAX trials and deployment to evaluate the performance of the technology. Vendors have been quick to highlight the theoretical performance of WiMAX systems. Theory, however, does not always reflect reality. In part, this disconnect could be blamed on a lack of WiMAX deployments. Now that deployments are getting under way, operators must examine them closely in order to weigh the ultimate value of WiMAX – and the performance of infrastructure from various vendors.

- Operators need to weigh the value of standard vs. non-standard WiMAX products. While WiMAX Forum certifications have just begun, vendors are beginning to announce plans for 802.16 products which may never be certified – solutions for 1.5 or 4.9 GHz, for example. Based on standard components, operators will still enjoy scale efficiencies and support. Still, scale and interoperability may be limited for non- certified WiMAX variants.

- Municipalities and other would-be mesh operators need to demand proof of mesh scalability. Vendors can offer many references of mesh deployments. Rarely are these references accompanied by details on the average throughput or number of users supplied. Throughput and user load, however, speak to the ability of a mesh deployment to actual deliver the services demanded. To this end, operators need to know what any vendor's mesh is delivering before committing to a deployment.

- Wireless ISPs should drive vendors to develop unlicensed WiMAX products. Currently, few vendors actually list 5 GHz kit as a part of their WiMAX roadmaps. With telecom operators focused on licensed spectrum – and actually using their 3.5 GHz licenses – it's not surprising that 5 GHz products have been largely overlooked. Yet the scale of WiMAX will benefit wireless ISPs too. But that won't happen until they can get access to WiMAX products supporting unlicensed spectrum.

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