Advisory Report

CTIA Wireless 2007: Femtocell Roundup

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April 5, 2007

Summary

Issue

Femtocells emerged as a bona fide alternative to WiFi-based FMC last year. Small specialists announced femtocell products. Major 3G vendors announced femtocell products. At 3GSM in February, the announcements continued, focused on GSM/UMTS products and network integration solutions. At CTIA Wireless this March, the stream of announcements slowed only marginally, focused on CDMA2000 and new network integration partnerships.

Absent the prior announcement of CDMA2000 femtocells, it was no surprise that CTIA Wireless 2007 would be the venue for new femtocell launches and new market entrants. Given rumors swirling around the industry and CDMA vendor strategies (focused on consumer electronics and/or compact solutions) it was no more surprising that the new launches came from Samsung and AirWalk. To be sure, ADC's in-building coverage strategy based on femtocells and picocells might have come as a surprise to in-building competitors. Following LGC's acquisition of Alvarion's cellular business, it was also foreseeable…just like Juniper's efforts to tie its AAA and security solutions into the emerging femtocell market.

More important than any of these announcements, however, may be the news that wasn't highly publicized. As with 3GSM, Alcatel-Lucent had its femto BSR on display, portending yet another femtocell entrant with CDMA and WCDMA aspirations. As with 3GSM, Sprint spoke to plans for WiMAX femtocells going forward. And, as with 3GSM, Nortel had picocell solutions from RadioFrame on display, but took the opportunity at CTIA to talk about partnership plans for CDMA solutions. What wasn't announced at 3GSM in February was Sonus' plan to acquire picocell/femtocell controller assets and, ultimately, integrate them into its solutions. Taken together, however, all of this speaks to a quickly evolving market with deep interest from small and large players alike.

Outsmart your competitors

Current Analysis Perspective

Announcement	Description	Current Perspective	Vendor Importance	Market Impact
ADC: FlexWave In-building Solution	IP radio access solution delivering GSM services with IP transport. Solution components include FlexWave nanoBTS (enterprise and MDU), FlexWave microBTS (outdoor gap filling), FlexWave BSC and FlexWave NMS.	Neutral. Where ADC's Digivance was focused on coverage, FlexWave delivers coverage and capacity; meshing well with the vendor's transport products. Ignoring CDMA2000 limits the market opportunity and no partner details limit the solution's credibility.	High. IP-based capacity enhancement is a trend for in-building coverage. Moving from an in-building (and hotspot) DAS-based model to a base station-based model addresses the trend while leveraging ADC transport assets.	Moderate. Major wireless vendors with their own transport and RAN portfolios should be able to best ADC's capabilities. Smaller in-building competitors, however, will want to develop their own capacity enhancement strategies.
ADC: ip.access OEM	OEM agreement with ip.access to integrate ip.access' nanoGSM picocells into a hardened outdoor enclosure, with ADC's LoopStar, Millimeter Wave and WiMAX solutions providing IP transport functionality.	Positive. While the absence of femtocell plans is puzzling, ip.access lends credibility to ADC's FlexWave solution while highlighting the vendor's transport capabilities and outdoor enclosure integration…setting it apart from other ip.access OEMs.	High. ADC maintains no history in the compact RAN business. FlexWave may be the vendor's new solution for in-building coverage. Customers, however, are unlikely to deploy products with no history in the market. ip.access provides that history.	Moderate. Partnering with ip.access vastly improves the credibility and strength of ADC's in-building wireless strategy. Yet, the partnership with ip.access is not exclusive and was expected given the details provided at the launch of the FlexWave solution.
AirWalk: Femtocell Introduction	New femtocell solution for CDMA voice and data services. Details regarding technologies supported, product availability and network integration options were not available.	Negative. CDMA operators can benefit from femtocells and AirWalk gets credit for being one of the first to publicly announce product. Yet, missing details do nothing to paint the solution as capable: planned availability; core network integration options; standards (1X, EV-DO, etc.).	High. Despite being relatively quiet for the past few years, operator interest in femtocells plays directly into AirWalk's focus on compact, integrated 3G RAN solutions. The first step in leveraging the opportunity is bringing product to market.	Moderate. AirWalk kicked off a flurry of CDMA femtocell announcements at CTIA. Yet, as bigger (more credible) CDMA players enter the space, AirWalk will still need to prove its capabilities and competitive differentiators.
Continuous Computing: RadioFrame Partnership	RadioFrame (RF) selection of Continuous Computing (CC) for NodeB software to be used in its upcoming HSPA femtocell product. Software stacks to be used include: MAC, 3GPP Framing Protocol, Stream Control and UDP transport.	Positive. Work with RF highlights CC's signaling capabilities and expertise and plays right into the company's software focus. Highlighting the time-to-market and credibility gained by working with CC would have helped in efforts to pull in additional femtocell deals.	Low. Femtocells represent a logical place to leverage CC's protocol stacks. Yet, with the market still largely unproven, they're unlikely to represent a new strategic focus for the vendor – particularly as its focus on ATCA continues to pay dividends.	Low. RadioFrame is relatively unique in the market; it is building its femtocell from the ground up, without a 3G business to lean on or silicon partner like picoChip. Working with CC makes sense for RF, but doesn't impact the strategies of competitors.

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Current Analysis Perspective *(Continued)*

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Juniper: Femtocell and GAN Upgrades	Upgrades to Juniper's Steel-Belted Radius (SBR) SIM/AKA Server, supporting SIGTRAN as well as AAA features for user authentication via 802.1X and non-802.1X hotspots, UMA, GAN, and Femtocell technologies.	Slightly Positive. The move argues that Juniper understands and is ready to address key emerging wireless access technologies. Competitors have already been talking up their capabilities and closing on UMA and femtocell partnerships…better signaling their expertise.	Moderate. Already a major supplier of AAA capability, Juniper needed to stake out ground in new wireless access technologies to remain a key player, while answering Cisco's recent moves to provide AAA support for UMA.	Low. Juniper's additional functionality represents modest, generally expected feature evolution. Support for AAA variation across emerging access technologies is table stakes for any vendor offering a general-purpose AAA platform.
NEC: Kineto OEM	Integration of Kineto's UMA Network Controller into NEC's Home Gateway Solution, an end-to-end femtocell offer. Kineto will support femtocell core network integrations leveraging 3GPP standard IuCS and IuPS interfaces.	Slightly Positive. Following work with Ubiquisys and Tatara, pulling Kineto into its solution paints NEC as serious about femtocells. Yet, one month post-launch, it's still unclear how NEC will set its OEM-heavy solution apart.	Moderate. UMA is not the only option for femtocell network integrations; Kineto and UMA are not necessary for femtocell success. Of course, since NEC's femtocell partner Ubiquisys paired up with Kineto, it made sense for NEC to do the same.	Moderate. Again, it's unclear how NEC will differentiate its femtocell solution in the market and how, exactly, it will complement its partners products. Adding Kineto to its partner roster suggests a serious player nonetheless.
RadioFrame: All-IP Femtocell Launch	IP femtocell introduction. Following on femtocell launch at 3GSM, support for SIP-based network integration will be delivered via a software upgrade.	Slightly Positive. Adding IMS-based network integration options into its femtocell portfolio helps make RF's femtocell more attractive and more competitive; it does little to differentiate it in the market.	High. RF's previously announced femtocell architecture was aimed at integration into existing core networks. Operators moving on IMS will want an IMS-based integration option… part of what RF promised last month.	Low. Femtocells are a new market; its unclear how, exactly, operators will want to integrate them into their networks. Meeting operator demands will require flexibility – which is why most vendors will join RF in supporting IMS-based solution.
Samsung: Femtocell Launch	"Ubicell" femtocell solution including CDMA2000 (1x) and WCDMA access points operating at 1.9 GHz. Commercial availability expected in the second half of 2007.	Slightly Positive. Samsung's history with CDMA and consumer electronics make it an immediate contender in the CDMA femtocell market. No details on core network integration or EV-DO support, however, is worrying.	Moderate. Wireless networks are a minor part of Samsung's business, and its current focus rests on WiMAX. Yet, like WiMAX, femtocells are an emerging market, giving Samsung an opportunity to build momentum with first mover advantage.	High. With the exception of Ericsson, most would-be femtocell players are small players, unproven in the consumer electronics space. Samsung's announcement may not paint a complete solution, but the company is still a credible femto threat.

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Current Analysis Perspective *(Continued)*

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Sonus: RadioFrame Partnership	Femtocell partnership for integrating RF femtocells into an operator's network thanks to Sonus' VoIP infrastructure.	Positive. Following on Sonus' tie-up with 3Way and ip.access, RF signals Sonus as a credible player in the femtocell space. And, while RF's success is far from certain, the vendor could gain another channel for Sonus' kit.	Moderate. RF is not Sonus' first femtocell reference. What's more, RF may never evolve into a successful femtocell player. Ultimately, however, every additional reference helps to validate Sonus' solution and capabilities.	Moderate. Since 3GSM, Sonus' attack on the femtocell space has been well-known and one more reference does little to make it leader. IP-based competitors, however, may find it hard to compete with the company's growing channel base and mindshare.
Sonus: Zynetix Acquisition	Definitive agreement to acquire Zynetix, an IP-based GSM MSC vendor supporting pico and femtocell launches. Zynetix has provided GSM solutions to government agencies and private enterprises since 2003.	Very Positive. The move extends Sonus' role in mobile networks to embrace a rapidly expanding trend, signaling Sonus' commitment to femtocells. Future integration of Zynetix capabilities into Sonus' portfolio should yield an eloquent integrated femtocell solution.	High. The company is executing on a strategic plan to go beyond tandem trunking, adding a capable soft-MSC in order to tackle the femtocell opportunity. Moving forward on this vision is essential for robust future growth.	High. The move addresses MSC requirements for femto/picocell call supervision with an elegant hybrid approach. Vendors counting on more complicated solutions – IMS with mobility management, for example – will need to counter the Sonus Networks approach.
Tatara: ip.access Partnership	Femtocell partnership for integrating ip.access' femtocells with Tatara's Mobile Services Convergence Portfolio, delivering an IP-based core network solution.	Positive. Following Tatara's work with 3Way, Ubiquisys and NEC, ip.access further establishes the vendor as a de facto standard for IP-based femtocell integration solutions. Of course, it does little to differentiate ip.access' offer.	Moderate. Tatara did not need to establish a femtocell network collaboration with ip.access – it has enough other partners to testify to its capabilities. Yet, to drive its solution in the market, every partner helps.	Moderate. ip.access alone will not make Tatara into a femtocell integration leader. Yet, as the company's fourth femtocell partner (five, including picoChip), the deal with ip.access does paint Tatara as committed and credible.
Tatara: picoChip Partnership	Collaboration on a SIP/IMS-based reference design for femtocell network integrations, including picoChip's PC8208 HSDPA femtocell modem reference design and the Tatara Mobile Services Convergence Portfolio.	Positive. Reference designs are really no more than a suggestion for vendors and operators to follow. Yet, with picoChip supplying a broad swath of femtocell vendors, partnering with the silicon vendor gets Tatara access to vendors at a fundamental level.	Moderate. Not all femtocell vendors work with picoChip. And, none need to adopt any vendor's reference designs. Ultimately, however, Tatara has made femtocells a focus and channels are key for driving its femtocell solutions into the market.	Moderate. picoChip is not an actual customer win for Tatara and does nothing to improve Tatara's Mobile Services Convergence portfolio. Yet, additional (early-to-market) channels and mindshare have established Tatara as one of the most credible femtocell network players.

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Recommended Actions

Vendor Actions

• Samsung needs to provide more details on its CDMA2000 femtocell solution. Does the Ubicell support EV-DO? How is network integration supported? How are basic OA&M functions provided? Samsung's network and consumer electronics capabilities give the company an automatic advantage as a femtocell vendor. Reports of trials with Sprint Nextel bear this out. Pulling in additional customers will require marketing that provides a better view into the vendor's capabilities.

• Airwalk needs to provide additional details on its CDMA femtocell. In its public launch, Airwalk included even fewer details than Samsung: technologies supported, integration options, channels, etc. Airwalk cannot match Samsung's channels and brand awareness. It cannot even point to on-going trials. With CDMA being a small market compared with GSM/UMTS, the CDMA femtocell space won't be able to support many players. A mediocre marketing effort virtually ensures a weak position.

• ADC needs to add a CDMA component to its FlexWave solution. The idea of using picocells and femtocells to provide in-building coverage and capacity is smart. Yet, with ip.access as its sole partner, ADC's solution is limited, particularly in ADC's strongest market: North America.

• If Airvana is developing a femtocell solution, it needs to launch the offer as soon as possible. To its credit, Airvana has all of the ingredients necessary for a viable femtocell offer: a collapsed CDMA RAN architecture, a border gateway product to support network integrations, EV-DO expertise, and credibility. Yet, if the company delays too long in launching its solution, competitors may obtain an insurmountable lead.

• Session border vendors – ACME Packet, NetRake, ReefPoint – need to convey their femtocell integration capabilities more loudly. Much like Juniper and Cisco, each has a potential role in femtocell deployments, if only from a security gateway standpoint. If the femtocell market takes off, it could represent a solid revenue opportunity. To date, however, vendors like Tatara and Sonus have managed to steal the show.

• Ericsson needs to roll out new details surrounding its femtocell solutions. While the company maintains a solid wireless position and a deep set of channels into operators, its femtocell strategy seems confused; the company first launched a 3G femtocell, then followed by claiming support for 2G and 3G, yet never providing deep details on network integration solutions. Ericsson may have the assets to deliver a strong femtocell offer, but it still needs to demonstrate solid plans and a clear commitment to the market.

User Actions

• WiMAX operators should not expect access to 802.16-based femtocells in the near-term. As with 3G, WiMAX femtocells could be a boon to service coverage and capacity offload. Yet, based on market momentum, most femtocell vendors will initially focus on 2G/3G R&D…particularly given the current lack of WiMAX networks or devices.

• Would-be femtocell operators must take core network integration solutions and options seriously. CDMA femtocell launches all tended to gloss over the means for tying femtocells into a larger cellular network, suggesting that vendors either don't have a solid plan or that they believe operators don't care. Network integrations, however, will be critical for ensuring service handoff, control, authentication, etc.

• Would-be CDMA femtocell operators must look for solutions incorporating both 1X and EV-DO. EV-DO is critical for robust data access. 1X is critical for voice services in the run-up to robust VoIP capabilities. It goes without saying that CDMA operators will need to support both in their femtocells. Yet, with some CDMA femtocell launches seeming to support one or the other, it seems that the message bears repeating.

• Mobile operators looking for in-building solutions should not expect to rely on picocells or femtocells in the near-term. Yes, solutions are available. And, yes, they can support improved wireless coverage with the added benefit of capacity enhancement. However, few femtocell or picocell solutions can promise the simplicity or proven nature of traditional in-building solutions like distributed antenna systems.