



## UBEE-AIRWALK REDUCES RISK, SPEEDS DEVELOPMENT, AND STAYS ON BUDGET WITH WIND RIVER VxWORKS

Small-Cell Radio-Access Networking Leader Successfully Deploys Industry's First CDMA Enterprise-Grade Femtocell

### Company Profile

Ubee-AirWalk

#### Industry

- Networking

#### Solutions

- Wind River VxWorks
- Wind River Workbench
- Wind River Customer Support

#### Results

- Successfully built and deployed the industry's first CDMA enterprise-grade femtocell
- Met stringent security requirements of project
- Reduced development time by 25%
- Reduced costs by 20%

Ubee-AirWalk develops small-cell radio-access networks for code division multiple access (CDMA) and long-term evolution (LTE) operators and integrators worldwide. Ubee-AirWalk distributes compact Internet protocol (IP)-based radio products to Tier 1 operators and original equipment manufacturers (OEMs).

"The proliferation of smartphones, wireless applications, and mobile videos has created an ever increasing volume of data traffic on wireless networks," says Chris Osborn, chief technology officer at Ubee-AirWalk. "The resulting network congestion is pressuring operators to expand coverage and capacity in order to maintain subscriber service quality levels. These problems are further compounded by the unbalanced distribution of data traffic and greater use of mobile devices inside buildings and enterprises. Ubee-AirWalk products address these challenges."

A leader in small-cell innovation, Ubee-AirWalk has demonstrated its market influence by consistently delivering high-impact products. The company has launched game-changing products such as EdgePoint PRO, the industry's first CDMA enterprise femtocell; EdgePoint, an award-winning consumer femtocell; as well as AW100, the world's smallest picocell.

### VxWORKS MEETS REAL-TIME REQUIREMENTS

"When we began developing the industry's first enterprise-grade CDMA femtocell, time-to-market was critical," Osborn says. "We knew we could rely on Wind River VxWorks to meet the challenging real-time requirements of this project within a short time frame. We've had a long history of using VxWorks with great results across our entire product line."

VxWorks provided Ubee-AirWalk with a highly configurable real-time operating system (RTOS) with a small memory footprint, as well as low real-time and run-time interrupt and scheduling latencies. Because VxWorks is widely used, tested, and proven throughout the industry, it reduced risk, sped development time, and decreased costs for Ubee-AirWalk.

Using VxWorks, Ubee-AirWalk was able to successfully build the first CDMA enterprise-grade femtocell product and deploy it within the Sprint network. Sprint now offers the femtocell, branded AIRAVE Pro Connect, as part of its in-building solutions product portfolio addressing the rapid growth of indoor mobile traffic. The femtocell increases coverage and capacity at enterprises, campuses, government buildings, and in other public venues using broadband connections. Compared to traditional in-building solutions, the enterprise femtocell reduces costs, speeds deployments, and offloads voice and data usage from the macro network.



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— Chris Osborn, Chief Technology Officer, Ubee-AirWalk

“Our team members have used the VxWorks platform for more than 10 years,” Osborn says. “We trusted the Wind River solution, and we had the expertise and knowledge to get to market quickly with no surprises.”

### WIND RIVER SOLUTION MEETS STRINGENT SECURITY REQUIREMENTS

Security was paramount for the CDMA enterprise femtocell. The base station is IP based and deployed outside of the trusted domain of the operator’s network. This enables customers more capacity to access voice and data in schools, churches, malls, and other public locations, but this also makes it more vulnerable to hackers. The VxWorks Internet Key Exchange (IKEv2) security stack with IPsec provided a secure tunnel for communication and met the project’s stringent security requirements.

“Wind River helped us customize the IKEv2 network security configuration to fully meet our security needs for the enterprise femtocell,” Osborn says.

IKEv2 and the network security stack are trusted VxWorks features that have passed multiple testing and certifications processes. Ubee-AirWalk was able to reduce development time by 25% and reduce costs by 20% for the enterprise femtocell’s security requirements, compared to the time and expense of using another network security solution.

The Ubee-AirWalk team relied heavily on Wind River Support, primarily surrounding security requirements.

“Wind River Support provided timely help when we needed it,” Osborn says. “We worked closely together to configure the security stack to meet the needs of our enterprise femtocell project. This was a great achievement for both sides and it helped us meet our time-to-market goal without a budget increase.”

### WIND RIVER PARTNERSHIPS ADD VALUE

Another key benefit of using VxWorks is Wind River’s business and technology partnerships. Ubee-AirWalk uses Freescale, Motorola, and Qualcomm processors. For the enterprise femtocell, Ubee-AirWalk used Qualcomm chipsets for the physical layer of the 3GPP2 CDMA2000 air interface, which is VxWorks OS based.

“Qualcomm uses VxWorks as the RTOS, which flows seamlessly into the higher layers written by Ubee-AirWalk using the same RTOS,” Osborn explains. “Wind River’s working relationship with Freescale provides a stable, tested board support package (BSP) for Ubee-AirWalk products that results in faster time-to-market strategies. Wind River’s relationship with Freescale and Qualcomm helps us acquire thoroughly designed and tested products for Ubee-AirWalk base stations.”

Ubee-AirWalk also used Wind River Workbench to track memory leaks and perform some additional debugging work.

### VxWORKS CONTINUES INTO THE FUTURE

Looking forward, Ubee-AirWalk plans to use VxWorks in its next-generation products. The company is working closely with Wind River to determine the feasibility of using other Wind River products within its LTE base stations.

“Ubee-AirWalk has a good partnership with Wind River and we plan to continue this relationship,” Osborn says. “The strength of our product line relies upon the trusted VxWorks solution.”

**WIND RIVER**