WIND RIVER

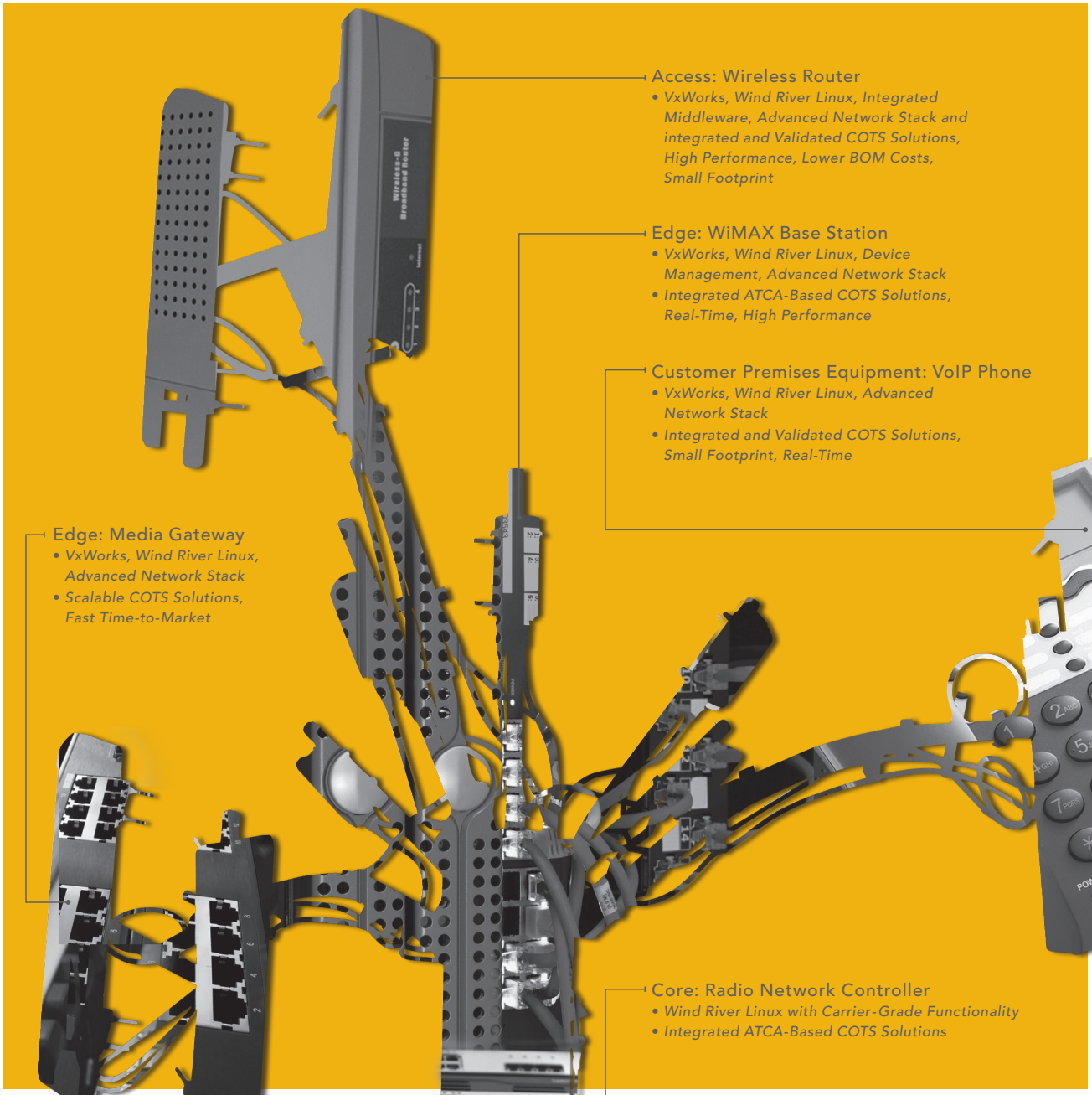
Networking

The market for network equipment has never been so complex, challenging, and competitive.

Complexity is nothing new to telecom equipment manufacturers and network equipment providers. But today, the level of complexity—and the pace of change—are staggering. Fixed Mobile Convergence (FMC). Voice, video, and data integration. Next Generation Networking (NGN) and the IP Multimedia Subsystem (IMS). Standards specifications and open-source software. COTS solutions. Heterogeneous connectivity requirements.

How will you transform these challenges into opportunities…and take advantage of them? How will you tame network complexity and deliver highly differentiated, highly connected devices?

Simple. You'll turn to Wind River, the industry leader and your trusted partner for network equipment solutions.



Access: Wireless Router

- *VxWorks, Wind River Linux, Integrated Middleware, Advanced Network Stack and integrated and Validated COTS Solutions, High Performance, Lower BOM Costs, Small Footprint*

Edge: WiMAX Base Station

- *VxWorks, Wind River Linux, Device Management, Advanced Network Stack*
- *Integrated ATCA-Based COTS Solutions, Real-Time, High Performance*

Customer Premises Equipment: VoIP Phone

- *VxWorks, Wind River Linux, Advanced Network Stack*
- *Integrated and Validated COTS Solutions, Small Footprint, Real-Time*

Edge: Media Gateway

- *VxWorks, Wind River Linux, Advanced Network Stack*
- *Scalable COTS Solutions, Fast Time-to-Market*

Core: Radio Network Controller

- *Wind River Linux with Carrier-Grade Functionality*
- *Integrated ATCA-Based COTS Solutions*

Two platforms. One common development environment. Unlimited flexibility.

It All Comes Together Here

For service providers, convergence is a good thing. Technology convergence means new devices with new capabilities, such as smartphones with dual-mode radio interfaces, IPTV, and VoIP in hot spots. It also means new revenue-generating services for voice, video, and data. And with standards convergence, next-generation networks promise seamless and transparent connectivity of device and service.

But for network equipment providers, convergence means increased complexity and additional requirements for development teams. Among the challenges:

- Taking advantage of new open-standards technologies without sacrificing previous investments in core intellectual property, run-time environments, and development tools
- Keeping up with the latest hardware advancements and standards
- Having the flexibility to use best-of-breed solutions for a variety of projects
- Maintaining middleware across multiple platforms
- Supporting multinational development teams, tools, standards, and languages
- Upgrading the software of fielded devices

Open Up Your Options

Wind River delivers complete application-enabling platforms for our proven VxWorks RTOS and for commercial-grade, open-source Linux. Both operating systems are supported by the comprehensive Wind River Workbench development suite—and both leverage a common, standards-based network stack as a critical component of our platforms.

In addition, Wind River provides best practices, expert support, and global service capabilities across the entire Device Software Optimization (DSO) life cycle—all from a single source, backed by a world-class partner ecosystem.

This approach keeps your options open, protects you from technology lock-in, and delivers on the full spectrum of your requirements—from software development through deployment and management, from hardware optimization through middleware integration. And it connects you with partners who can add value to your products and help you succeed in new markets and geographies.

Wind River Networking Solutions

VxWorks: The Proven, Industry-Leading RTOS

VxWorks is the industry-leading real-time OS for device software development. It has been deployed in more than 350 million devices worldwide, making it by far the most widely used and field-proven device software operating system available today.

Our VxWorks platforms combine real-time technology, a small footprint, and reliable performance with integrated, state-of-the-art networking and security protocols.

Wind River platforms are supported by a standards-based development environment optimized to take full advantage of the capabilities of the operating system. They offer preintegrated board support packages (BSPs) and support the leading networking COTS hardware solutions, resulting in shortened time-to-productivity, time-to-innovation, time-to-market, and time-to-profit. Great engineering, extensive partnerships, world-class support, and the market-leading DSO strategy combine to make VxWorks a superior choice.

In addition to Platform for Network Equipment and General Purpose Platform, Wind River also offers versions of VxWorks that can help meet specific networking requirements for security and certification.

Commercial-Grade Linux Platforms

Linux is being embraced and employed by the network equipment industry, and Wind River is in the Linux business for one very good reason: Our customers asked us to be there. Linux offers unmatched flexibility and access to a wide selection of open-source technologies. It has also advanced to the point of offering the right level of security, reliability, and performance to meet the needs of today's networking equipment providers. In addition, Carrier Grade Linux is the preferred OS for ATCA-based equipment.

Wind River Real-Time Core technology expands our hard real-time technology expertise, while further accelerating the Linux platform market opportunity. This powerful combination of Real-Time Core and Wind River Linux provides device manufacturers with mature, proven technology for developing complex, next-generation, Linux-based applications that require hard real-time with microsecond-level interrupt and scheduling latency. Wind River offers a broad and robust portfolio of real-time Linux capabilities that meet the specific needs of network equipment providers.

Wind River Linux platforms offer a commercial-grade distribution with a unique "pristine-source" characteristic, giving you full visibility into the kernel, along with integrated patches and packages. Our Linux platforms scale to meet the varying requirements of today's networking equipment providers—from small footprint to carrier-grade specifications for ATCA-based projects. Wind River Linux supports several ATCA and networking equipment COTS solutions, as well as an expanding number of BSPs. And they are engineered, integrated, tested, validated, and supported just as rigorously as our VxWorks products have always been.

Our two most popular Linux platforms for networking—Platform for Network Equipment and General Purpose Platform—both include integrated networking, security, and other run-time technologies. These complete solutions enable developers to focus their efforts and expertise on the high-value application layer.

Workbench: Tightly Integrated with Wind River Run-Times

Wind River Workbench unlocks the power of Wind River Linux and VxWorks for network equipment development teams. Through tight integration with Wind River run-times, Workbench delivers increased productivity for reduced cost and improved time-to-market. Benefits include:

- Leveraging the broad Eclipse ecosystem helps integrate application, OS, and hardware debugging, reducing costs and time-to-market
- Visual configuration, analysis, and testing tools to configure a VxWorks and Wind River Linux kernel with automatic import of dependent libraries
- Support for multiple target connections and process/task/thread debugging
- Support for multiple hosts and CPU target architectures
- Multiple configuration options, enabling you to outfit your device software developers with a package tuned to their specific requirements
- On-chip debugging capabilities for custom board bring-up, platform development, and application debugging
- Multicore support

Airspan Speeds Time-to-Market with Wind River

When Airspan Networks wanted to build a next-generation wireless WiMAX (802.16d) subscriber station. Wind River was the one DSO vendor that could put it all together: real-time embedded OS, device management, high-performance router stack, and middleware.

Wind River enabled Airspan to accelerate time-to-market and ensure reliability of its end product with a standards-based solution. Today, Airspan's WiMAX-based technology is set to skyrocket and provide wireless DSL access to even the most congested metropolitan areas.

"We chose to work with Wind River for our WiMAX platforms because the integrated development solution is guaranteed to speed our time-to-market." *— Paul N. Senior, Vice President of Marketing, Airspan*

The Four Pillars of Wind River's Product Portfolio

1. ***Complete run-time platforms.*** *Build your network equipment with one or both of the industry's leading operating systems: VxWorks and Wind River Linux. This flexibility allows you to leverage the best-fit run-time solution for multiple projects. It also lets project teams standardize on one common development environment for maximum developer efficiency.*
2. ***Standards-based solutions.*** *We prove our commitment to open standards every day—from commercial-grade Linux solutions, to support for ATCA standards and the open-source Eclipse framework, to our involvement in key industry consortia such as CP-TA, Eclipse Foundation, IETF, IPv6 Forum, The Linux Foundation, SCOPE Alliance, SA Forum, and WiMAX Forum.*
3. ***Partnering.*** *More than 350 world-class partners—including COTS board manufacturers, semiconductor companies, and tools, services, and run-time software technology leaders—are ready to add value to your products.*
4. ***Global Best Practices.*** *Wind River has deep expertise and proven best practices in every vertical industry, and we are ready to share our knowledge through comprehensive service and support offerings.*

One Network Stack, Optimized for Each OS

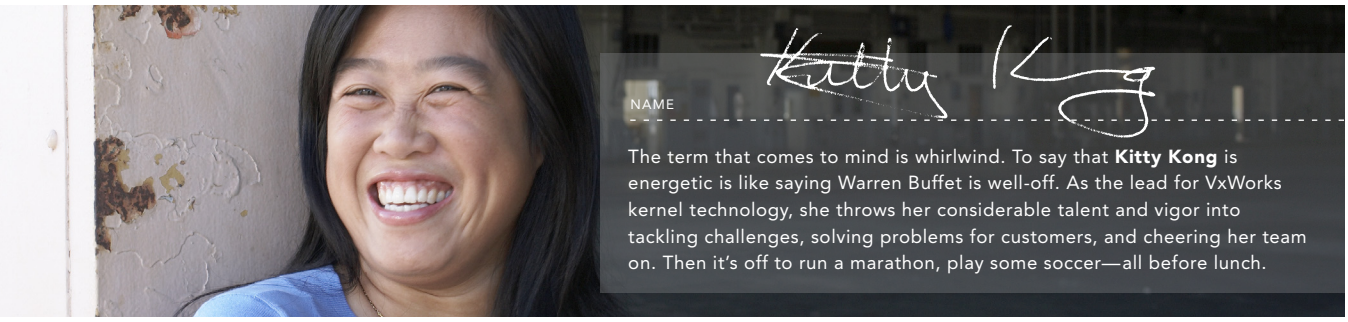
Wind River provides a common set of networking technologies—a collection of key protocols and APIs optimized for our VxWorks and Linux platforms. The Wind River Network Stack, based on proven Interpeak technologies, is an investment that can be leveraged across both run-time environments, giving you efficiency of scale while enhancing key areas of focus: IPv6, security, wireless connectivity, IP mobility, and networking performance. In addition, enhancements and optimizations to your applications using Wind River's technology protects your intellectual property from GPL.

Device Management: Diagnostics Tools for the Entire Device Life Cycle

Wind River Device Management products give network equipment providers a secure infrastructure to debug, test, diagnose, and repair running software—during development, in the test lab, and in the field. Our unique Sensorpoint technology allows engineers to design remotely repairable, self-documenting device software. It lets QA teams run more meaningful tests in a much shorter time. And it gives engineers unprecedented visibility into deployed software. For network equipment providers, this means shorter time-to-resolution. For end customers, it means more system uptime, with better quality of service.

Wind River Partner Ecosystem: Networking on a Whole New Level

Wind River has established the deepest and broadest partner ecosystem in the networking industry. Our partnerships with industry-leading technology companies enhance the value of our products through their seamless fit, level of integration, and aligned business models.



The term that comes to mind is whirlwind. To say that **Kitty Kong** is energetic is like saying Warren Buffet is well-off. As the lead for VxWorks kernel technology, she throws her considerable talent and vigor into tackling challenges, solving problems for customers, and cheering her team on. Then it's off to run a marathon, play some soccer—all before lunch.

Strategic Semiconductor Partners

These companies share Wind River's long-term commitment to providing customers with the best-of-breed solutions they need to get to market faster, at lower cost, and more reliably.

- AMCC
- AMD
- Broadcom
- Cavium
- Emerson Network Power
- Freescale
- IBM
- Intel
- Kontron
- Marvell
- MIPS Technologies
- Motorola
- RadiSys
- Sun Microsystems

Platform Partners

Wind River has established a comprehensive hardware and software Platform Partner ecosystem that extends the capabilities of our development suite and platform solutions.

- Data Connection Ltd.
- Datalight
- DigiOn
- GoAhead Software
- IBM Rational
- Intoto
- IP Infusion
- LVL7
- NextHop Technologies
- OpenClovis
- Solid Information Technology
- TeamF1
- Virtutech

Community Partners

Our global technology community comprises hundreds of established and emerging companies whose products complement, extend, or support the Wind River DSO strategy. Visit www.windriver.com/partners for a full list of our Community Partners.

World-Class Services and Support

Wind River delivers comprehensive, industry-specific services and support offerings on a global scale.

We are the world leader in DSO consulting services, completing more than 150 service engagements per year. Our core services team includes more than 140 engineers with an average of 10+ years, experience in the device software industry. A CMMI Level 3-certified organization, we offer specialized services tuned to the needs of networking equipment providers. Our Network Equipment Services Practice offers systems integration services to help you transform your customer's requirements into a revenue-generating product.

Whether you are interested in leveraging our system design expertise or co-sourcing critical development functions such as board bring-up, middleware integration, project management, and full product realization, we can assist your team. Our four Global Design Centers help take the cost, risk, complexity, and guesswork out of testing new concepts.

Wind River also runs the largest customer support organization in the DSO industry. Our support organization is Support Center Practices (SCP)-certified, offering a team of more than 150 support engineers, six major support centers worldwide, 21 additional global support hubs, and local field consulting engineers to deliver knowledgeable and experience support when and where you need it.

When you're talking DSO, talk to Wind River.

Wind River puts it all together for you: market-leading products and development tools, exceptional partnerships, world-class expertise, best practices, and global service capabilities.

Get more information about Wind River products and services at www.windriver.com.

WIND RIVER

Wind River is the global leader in Device Software Optimization (DSO). We enable companies to develop, run, and manage device software faster, better, at lower cost, and more reliably. www.windriver.com

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