Wireless Carrier Ethernet Networks

IT'S A NEW AGE

Connecting fixed and mobile
services to your network fast.

DragonWave

- Zero-footprint, integrated all-outdoor option
- 800 Mbps full duplex throughput
- Cost leading, native Gigabit Ethernet platform
- Increased reach with dynamic modulation
- Full flex bandwidth control with 10-800 Mbps remote scalability
- Interference free, guaranteed SLAs
- Mesh Networking with 50 ms switching for increased network availability
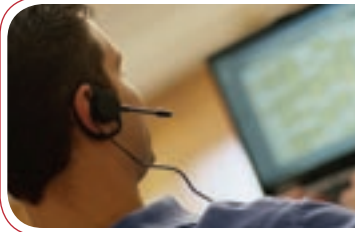- Ultra low latency - < 0.2 ms, for triple play applications

Next generation, wireless high-capacity, native Ethernet
Improved economics, simplified operations, zero-footprint

MARKET OVERVIEW

New high capacity IP applications are driving existing networks to capacity. Yet, wiring buildings or basestations to a fiber backbone is slow and expensive. To meet the growing need for more services and capacity, today's networks need to be:

- **reliable and survivable –** allowing customers to depend on the quality and availability of network services;

- **scalable –** providing new and existing services today and more tomorrow, without rolling new equipment into the network or running new fiber;

- **IP optimized –** enabling applications to be delivered in today's rapidly changing and highly competitive marketplace;

- **OPEX efficient –** minimizing the largest portion of a service providers' life cycle cost.

Next Generation Service Providers

If cost and performance of IP and WiMAX backhaul is a priority, DragonWave can help your business extend the reach of you network for IP services. Software scalability to 800 Mbps means Next Generation providers can obtain the capacity they need when they need it. DragonWave's cost effective wireless backhaul enables access technologies to be plugged into you network fast.

Network Evolution

Offer your customers more services easily and effectively. DragonWave enables progressive telecom companies to fill the fiber gap fast with licensed wireless, carrier-grade, network-ready equipment. High capacity customers can be reached with new IP services. Connectivity can be brought to your whole network and leased lines eliminated with full operational systems support.

Private Networks

With DragonWave, your business can eliminate the monthly expense of leased lines and build a carrier-grade private network easily and cost-effectively – all with in-year payback. With software scalable GigE wireless mesh connectivity, there is no need to worry about capacity constraints and because it is licensed, interference is not an issue.

APPLICATIONS

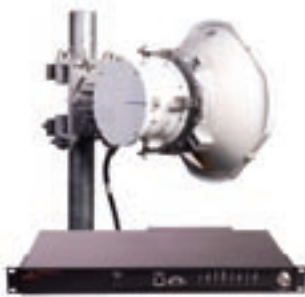|	
WiMAX	DragonWave offers a high-capacity, carrier-grade, integrated solution for Ethernet backhaul using interference-free licensed spectrum. AirPair and Horizon enable rapid network expansion with remote scalability from 10 Mbps to 800 Mbps. With Horizon Compact the radio and modem are integrated into a single all-outdoor element attached directly to the antenna, allowing simple integration and eliminating any impact on the WiMAX basestation footprint. Management integration into the basestation EMS provides a single point of control for operations personal.
3G Cellular Backhaul/ IP Evolution	Meet the growing demand for increased capacity and data transport resulting from 3G cellular deployments. AirPair and Horizon provide cost-effective, low capacity TDM services for basestations today. DragonWave's portfolio of products offers software controlled upgradeability to high-capacity native Ethernet and TDM services with ultra-low latency to enable 3G evolution with the minimum of network churn.
Leased Line Replacement	For many businesses, their only option for last mile access is the ILEC, provided on an aging copper infrastructure with long MTTR. AirPair and Horizon can replace leased services and eliminate recurring and expensive telecom costs while at the same time improve service availability and enable future growth and options for services with a scalable IP-ready network.
Last Mile Fiber Extension	The greatest demand for broadband services is within the core metro markets. AirPair and Horizon provide a superior complementary networking solution to rapidly extend high speed IP services from locations already attached to the service provider's network. The DragonWave portfolio of products is ideal for network hardening, disaster recovery and applications that require legacy TDM services and carrier-grade, high capacity native Ethernet systems.

PRODUCT PORTFOLIO

Connect fixed and mobile services to your network fast with DragonWave's portfolio of products for wireless metro Ethernet networks. Build your own network, easily and cost effectively. Extend the reach of your network for IP services and add on the additional capacity as you need it. Or, bring new IP services to your high-capacity customers easily and cost effectively while optimizing your investment in legacy technology and facilities.

AirPair

Need a flexible bandwidth radio platform than can scale rapidly to meet the growing demands on your network? AirPair meets the critical needs demanded by carrier class customers delivering a wireless GigE/100bT connection of up to 500 Mbps full duplex over licensed or unlicensed frequency allocation in an indoor or all-outdoor environment. AirPair can scale from 10 to 500 Mbps in 10 Mbps increments via a simple software configuration.

Product Features

- 11-38 GHz Frequency Support
- 500 Mbps full duplex capacity
- Indoor/Outdoor split
- 19" 1U-high rack mountable option
- Adaptive Modulation
- 100ms Ring/Mesh Switching

Horizon Compact

Upgrading your networks to new technologies such as WiMAX or 3G? Want high performance but not the high price tag? DragonWave's Horizon Compact is a next-generation, high capacity, native Ethernet microwave system offering improved economics and simplified operations. Featuring zero-footprint, the radio and the modem are integrated into one, single compact out-door-unit. Increased capacity (800Mbps); simplified installation and operation; and improved troubleshooting mean lower lifecycle costs. This highly integrated, carrier grade solution for Ethernet backhaul uses licensed or unlicensed spectrum.

Product Features

- 11-38 GHz Frequency Support
- 800 Mbps full duplex capacity
- IP optimized GigE platform
- Integrated RF Loopback
- 100ms Adaptive Modulation
- 100ms Ring/Mesh Switching
- "Zero-footprint", hardened outdoor unit

APX-104E/108E/DS3

Looking for a solution to migrate customers to native IP networks easily and effectively? DragonWave APX product seamlessly transports TDM traffic over Ethernet enabling customers to easily migrate to native IP networks while still supporting legacy TDM services, and meeting stringent synchronization requirements. APX-104E/108E delivers a standards-compliant 4/8 x T1/E1 port extension capability to the AirPair Ethernet platform. The APX-DS3 provides 2XDS3 service adaptation over Ethernet for head-end aggregation in multi-point configuration.

Product Features

- 4/8 x T1/E1 or 2XDS3 Ports,1RU High
- Point-Point and Multi-Point Configurations
- User Settable efficiency/Delay
- User Settable Jitter Buffer – 128 ms
- Timing over Packet (AT&T TR-62411 & G.823 Jitter and Wander)
- Remote Network Management
- IETF PWE3, MEF circuit emulation compliant

PORTFOLIO FEATURES

High Capacity Native IP Wireless Gigabit Ethernet

Designed as an IP platform from the ground up, the DragonWave portfolio of products meet the critical needs demanded by carrier class customers delivering a wireless GigE/100bT connection of up to 800 Mbps full duplex over licensed or unlicensed frequency allocations. With a native IP design and ultra-low latency, AirPair and Horizon Compact are optimized for next generation services.

Fixed and Scalable Bandwidth Operations

AirPair and Horizon Compact are flexible bandwidth radio platforms designed specifically for customers with rapid scalability requirements. The DragonWave portfolio scales from 10 to 400 Mbps in 10 Mbps increments via a simple software configuration. For higher bandwidth needs, two radios can be polarization multiplexed on a single antenna using Dual Pole Radio Mount (DPRM) to provide up 800 Mbps of capacity in a single link.

Zero-Footprint Options

The DragonWave portfolio is available in both full outdoor and indoor/outdoor configurations and can be installed to match any customer requirements. The Horizon Compact is a single outdoor compact, weatherproof unit requiring no indoor space. The indoor option, (IDU) is mountable on a standard 19" rack, 1U high. AirPair and Horizon Compact are both available with optical and electrical GigE interface options.

Enhanced Network Management

Airpair and Horizon Compact fully supports remote management via in-band or out-of-band management. AirPair supports SNMP v3, CLI and Web GUI. Security is a critical feature with SSH, SSL, and Radius.

Improved Reach

AirPair and Horizon Compact enable bandwidth extension over extended distances by providing up to 98 dB system gain in its standard power configuration or up to 108dB in a high power configuration that can support antennas sized up to six feet. This feature combination enables link lengths beyond 50 km/30 mi. In addition, DragonWave's dynamic modulation allows a link to be engineered to the highest availability, while maximizing throughput in good weather conditions.

Network Protection

Using DragonWave's's Rapid Link Shutdown (RLS), AirPair and Horizon support mesh and ring configurations with ~50 ms switching time, enabling 99.999% available carrier class services. AirPair and Horizon Compact also support 0:1 or 1+1 fully redundant configuration. For radio redundancy, an upmast switch provides radio protection using a single modem.