

omniBAS

Realizing the *All-iP* Migration!





Everything Goes All-IP... So Do Transport Networks

Today, the capacity crunch effected from the ever increasing demand for broadband poses significant constraints on the backhaul network.

3G networks rapidly evolve toward LTE / WiMAX, with operators deploying HSPA and HSPA+ solutions with Ethernet connectivity.

Along with backhaul network transformation, IP/MPLS networking and Carrier Ethernet service are rapidly being established.

Network migration to an all-IP network is already happening, making the need for packet-based transport networks eminent.

Microwave is the technology of choice for transport and backhaul applications, having the lowest cost per bit among other technologies. Cost-effective, fully packet-based microwave solutions prove to be the safest bet for the future.

Converging to All-IP with OmniBAS™

OmniBAS™ is a next generation Ethernet microwave backhaul offering for operators demanding a cost-effective and technologically-advanced solution for their transport and backhaul network.

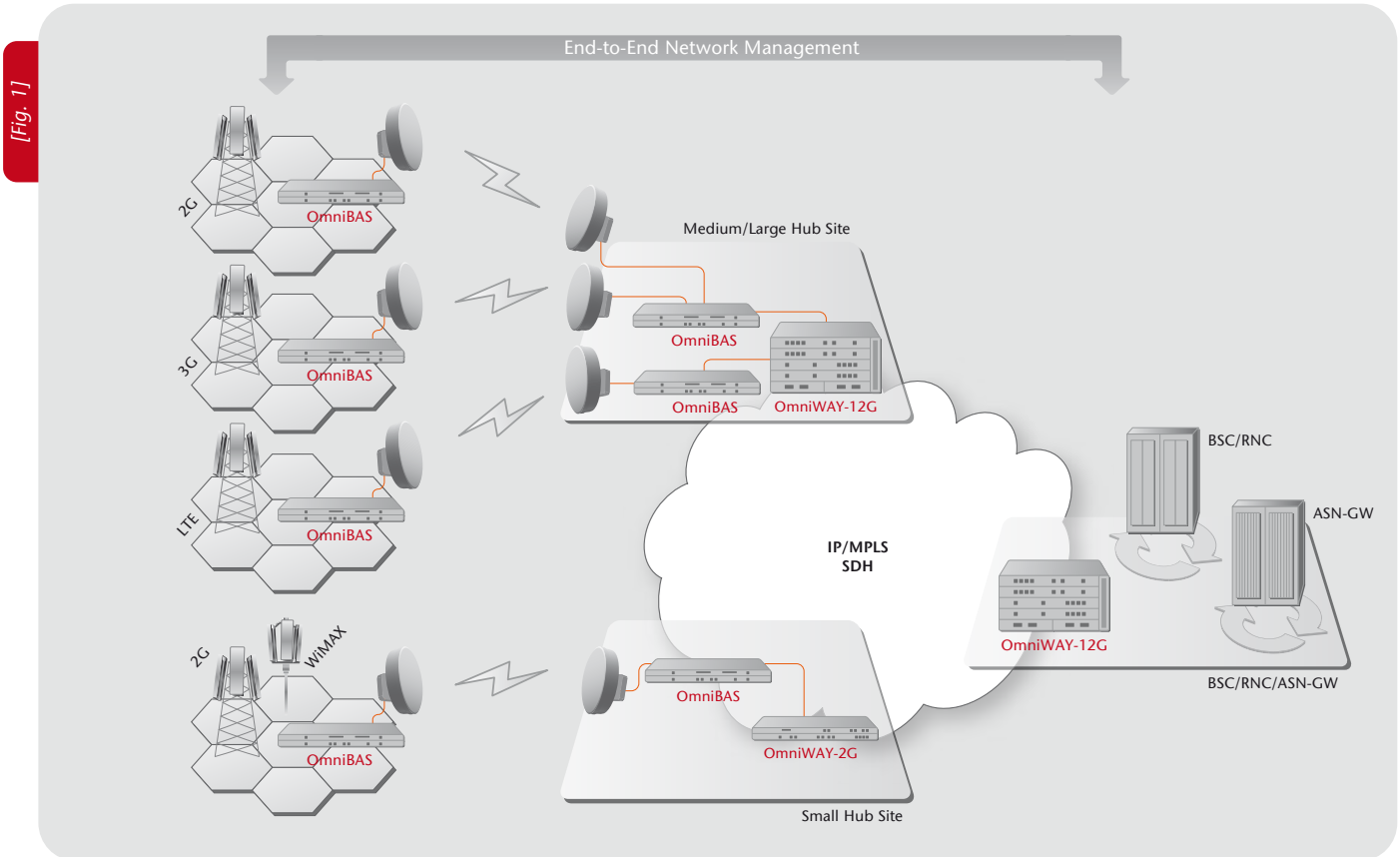
OmniBAS™ is best fit for cellular mobile operators, fixed license operators and utility companies.

Enabling an evolved approach toward smooth all-IP migration, OmniBAS™ delivers new compelling services and expands customer base without additional expenditures.

Traditional circuit-based services are seamlessly emulated with Pseudo-Wire (PW) technology and are delivered with assured high quality.

Incorporating highly efficient traffic handling mechanisms and bandwidth utilization techniques, OmniBAS™ assures carrier class service delivery with highest availability.

Figure 1 depicts a typical application for mobile networks. The OmniBAS™ family of products, complemented by OmniWAY™, fits most demanding backhaul applications of today's mobile operators.



Revolutionizing Your Network!

Enable business

- Increase ARPU through the delivery of new compelling services
- Increase customer base
- Support own 2G/ 3G/ HSPA/ WiMAX network

Invest wisely

- Deliver high-end services, now and in the future
- Seamlessly support current TDM/ ATM services
- Achieve a low Total Cost of Ownership (TCO)

Expand capabilities

- Inject flexibility in last-mile access applications
- Implement nodal configurations for aggregating traffic from multiple sites
- Implement ring topologies for transmission network resiliency

Solution Description

OmniBAS™ is a native Ethernet wireless backhaul platform employing latest microwave technology. It achieves traffic throughputs of up to 400 Mbit/s over a single link (or up to 800 Mbit/s with XPIC) with channelization up to 56 MHz.

OmniBAS™ incorporates statistical multiplexing for best optimization of the available link capacity, and adaptive modulation – QPSK up to 256QAM – for increased service availability at all weather conditions.

Network configurations are flexible, ranging from single links to nodal implementations for traffic aggregation sites.

Backhaul of legacy services is carried out seamlessly through Pseudo-Wire Emulation functionality, with low end-to-end latency, and through the utilization of E1, STM-1 (VC-12/4), and Gigabit Ethernet network interfaces [see Fig. 2].

The OmniBAS™ platform is offered in split indoor – outdoor configuration and comprises:

- Indoor units (OmniBAS™-4W, OmniBAS™-2W) of small form factor (1RU) and modular architecture

- Complete family of outdoor radios (ODUs) covering a wide range of operating frequencies: 7/8/13/15/18/23/38 GHz
- Antennas, integrated with the ODUs, or standalone
- Traffic aggregation units (OmniWAY™-12G, OmniWAY™-2G)

In particular, OmniBAS™-4W combines industry-leading modem density – up to four modems – for system configuration agility (1+0 / 1+1 / 2+0 / 2+2 / 3+0 / 4+0, FD / SD / HSB) and flexible network deployments. OmniBAS™-2W constitutes an economical variant accommodating up to two modems instead of four.

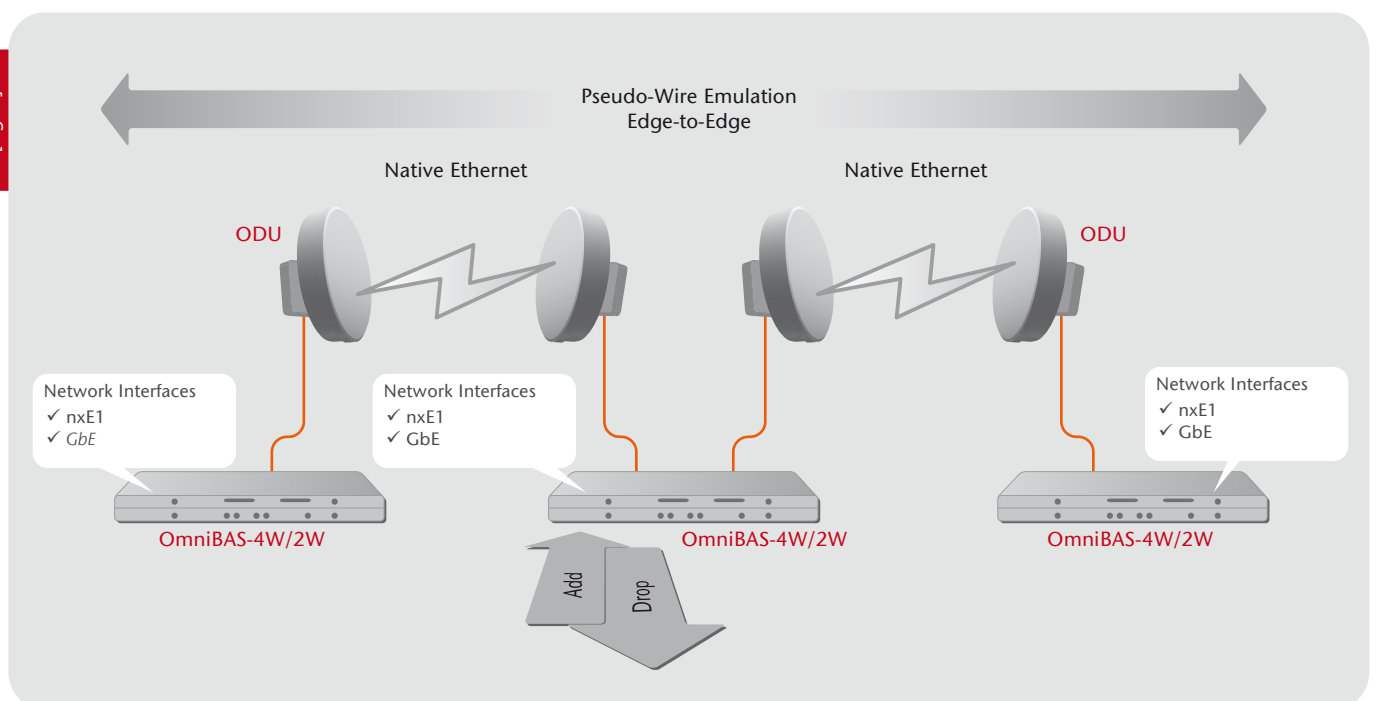
With regard to protection capabilities, OmniBAS™ provides various redundancy options (ODU, modem, Gigabit Ethernet), also allowing the implementation of Ethernet protected rings (as per ITU-T G.8032).

OmniBAS™ efficient timing capabilities include traditional synchronization based on G.703 and Ethernet synchronization based on Synchronous Ethernet or IEEE 1588v2 standards.



OmniBAS™-4W

[Fig. 2]





ODU with integrated antenna

Highlights

- Native ETH-based Point-to-Point radio
- High full-duplex throughput over a single channel: up to 400 Mbit/s, up to 800 Mbit/s with XPIC
- Up to 256 QAM adaptive modulation for optimum bandwidth utilization
- Nodal configurations with four radios
- Up to 1.6 Gbit/s from a single 1RU chassis
- Pseudo-Wire (PW) over ETH for multiservice transmission
- QoS to fully support various classes of traffic
- ETH ring protection (ITU-T G.8032)
- Intuitive graphical management

Increasing Backhaul Agility

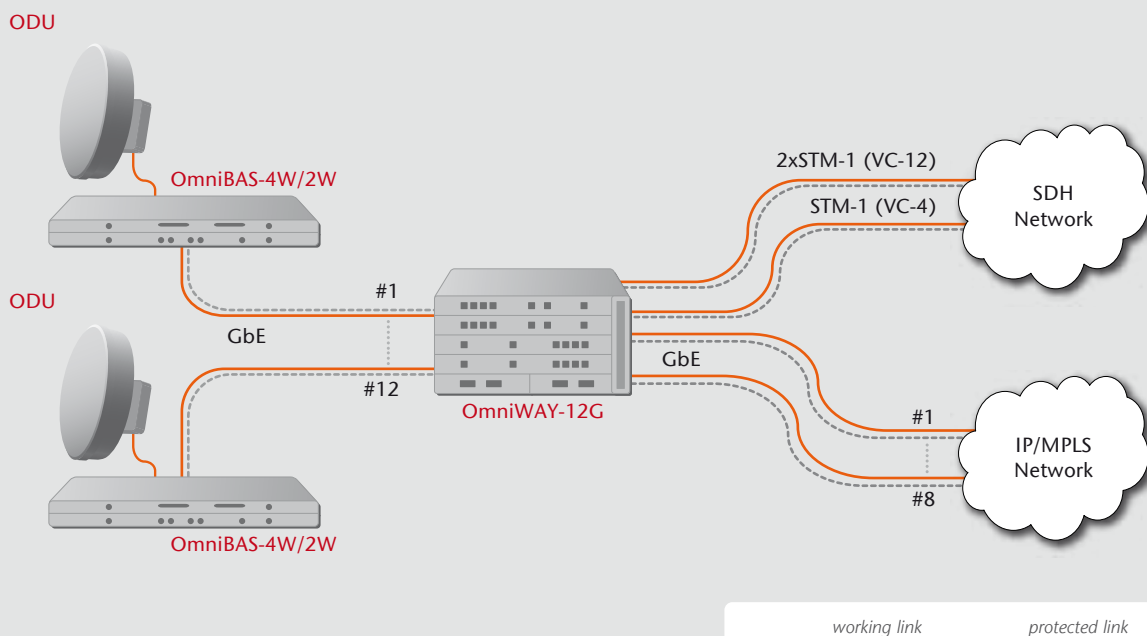
OmniWAY™ traffic aggregation & service transformation units complement the OmniBAS™ family of products. They both offer higher-order interfaces (STM-1 VC-12/4) for network nodes requiring such connectivity.

OmniWAY™-12G is a 3RU switch aggregation unit that best fits highly dense nodes requiring high level protection. Incorporating Ethernet switch functionality, OmniWAY™-12G aggregates packet-based traffic from multiple OmniBAS™

systems and forwards TDM traffic toward the SDH network, and Ethernet traffic toward the IP/MPLS network [see Fig. 3]. The OmniWAY™-12G fully redundant design offers complete line and module protection for uninterrupted service delivery.

OmniWAY™-2G is the compact (1RU) variant of OmniWAY™-12G for nodes with low traffic aggregation requirements.

[Fig. 3]



Managing OmniBAS™ Networks

The uni|MS™ Unified Management Suite is a state-of-the-art solution for deploying, supervising and managing contemporary telecommunication networks. It is a carrier-class Element, Network and Service management platform for all INTRACOM TELECOM wireless and wireline products (access, transmission and aggregation). Upon request, third-party products can also be managed through easy integration.

The mediation with the managed elements of the network is implemented through add-on drivers, for applying management functions, such as configuration changes, performance counters collection, alarms (traps) collection, service provisioning, inventory collection, and others.

uni|MS™ provides convergent service provisioning capabilities addressing the need for automated service provisioning across multi-vendor networks and diverse IT environments.

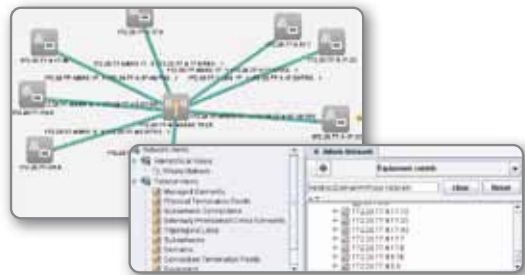
End-to-End Network Management

uni|MS™ enables end-to-end management – network deployment, provisioning, real-time monitoring, testing – all through powerful embedded tools:

- “Just define the two end points to connect” – simple connection setup through user-friendly wizards
- End-to-end automatic connectivity – uni|MS™ automatically creates the required connections based on available connection termination points and available physical termination points

Key Characteristics

- Common management platform for all technology domains and associated services (WiMAX, Wireless transmission, xDSL, etc.)
- Simplified end-to-end provisioning – service agnostic workflow (BPEL) and a design environment, for realizing rapid service provisioning
- Sub-network Connections Management – circuits creation with powerful wizards, alarm correlation and impact analysis
- High system availability (24x7) and fault-tolerant operation through Server redundancy
- Advanced security features – hardened operating system ensures compliance to strict NOC security guidelines with fine-grained users, roles & privileges
- Standardized northbound interfaces for easy integration with third-party systems



Interfaces

OmniBAS™-4W

- Network interfaces:
 - 2 x GbE, optical or electrical
- Tributary interfaces:
 - 16 x E1/T1 (balanced 120 Ω)
- 2 x Fast Ethernet, for outband management
- Sync IN/OUT ports, for reference timing
- EOW (Engineering Order Wire), external alarms

OmniBAS™-2W

- Network interfaces:
 - 1 x GbE, optical or electrical
 - 4 x Fast Ethernet
- Tributary interfaces:
 - 8 x E1/T1 (balanced 120 Ω)
- 2 x Fast Ethernet, for outband management
- Sync IN/OUT ports, for reference timing
- EOW (Engineering Order Wire), external alarms

OmniWAY™

- Traffic aggregation interfaces:
 - 12 x GbE electrical (OmniWAY™-12G)⁽¹⁾
 - 4 x GbE, optical or electrical (OmniWAY™-2G)
- SDH interfaces⁽¹⁾:
 - 2+2 x STM-1 / VC-12, optical
 - 2+0/1+1 x STM-1 / VC-4, optical
- IP/MPLS interfaces (OmniWAY™-12G):
 - 8 x GbE (4 optical & 4 electrical)⁽¹⁾
- Fast Ethernet, for outband management
- Sync OUT, for reference timing

(1) OmniWAY™-12G features card-level protection on these interfaces.

Why INTRACOM TELECOM

One-stop Shop:

- Own end-to-end radio access & backhaul solutions
- Proven integration & interoperability
- Own end-to-end network management system

Established Wireless Vendor:

- Growing and continuous presence for a variety of access and transmission solutions
- Growing brand name recognition for own PtMP solutions

Recognized for Service Excellence:

- Extensive implementation track record
- Specialized & highly experienced personnel
- Consulting, design, implementation & support
- Commitment to adding customer value

Continuous Innovation:

- Innovating in the wireless access and transmission field for over 15 years
- Successful development and deployment of PtP and PtMP systems with numerous operators in Europe, the Middle East, the USA and the CIS
- Investing heavily on the continuous evolution of its own wireless product lines
- Adopting latest standards and state-of-the-art technologies to deliver wireless solutions that best fit customer current and future needs



About INTRACOM TELECOM

INTRACOM TELECOM a leading developer and producer of telecommunication systems as well as provider of integrated solutions and professional services to fixed and mobile operators in the EEMEA region. Over 100 customers in more than 50 countries choose INTRACOM TELECOM for its state-of-the-art products and solutions. INTRACOM TELECOM has 2,400 employees, operates subsidiaries in 16 countries and is amongst the largest European companies leading in R&D investments. Since June 2006, INTRACOM TELECOM is controlled by JSC SITRONICS (Russia) with 51%. JSC SITRONICS is the technology subsidiary of JSFC SISTEMA, a leading diversified holding company in Russia and the CIS. INTRACOM HOLDINGS Group (Greece) retains a 49% stake.