

Accelerating Small-Cell Backhaul Deployment

Summary

Network Area

- Street-level backhaul for small cells and hot spots

Architecture

- Microwave PtMP & PtP
- Millimeter-wave (E-Band) PtP links
- Millimeter-wave (V-Band) PtP links and rings

Solution

- StreetNode™
- OSDR
- UltraLink™-FX80

Synergies

- uni|MS™

Fast Rollout, a Must Today!

As small-cell backhaul deployments mature, it becomes evident that no single solution exists for all network rollout cases out there. Operators have to tackle serious deployment problems that require the use of technology customization and integration.

Challenges of Street-level Backhaul

The main challenges associated with street-level backhaul include:

- **Transmission Mode (PtP vs PtMP)**
Point-to-Point (PtP) transmission guarantees the allocation of the entire bandwidth to a single terminal. On the other hand, in some cases of centralized deployments on rooftops, Point to Multi-Point (PtMP) proves to be more cost-efficient.
- **Network Resiliency**
Networks must be inherently fault-tolerant to assure the uninterrupted service to subscribers in case of failures. Traffic path redundancy on the other hand will increase CapEx significantly.
- **Equipment Form Factor**
Service terminal equipment should have small dimensions and discreet aesthetics to match the special characteristics of the living environment.
- **Fast Rollout**
Ease of installation is critical for the OpEx of large deployments. Ideally, such onsite tasks should be carried out quickly, safely and, if possible, by non-telecom personnel.

Deployment Flexibility Redefined!

StreetNode™ reflects the multi-year excellence of Intracom Telecom in the design and manufacturing of cutting-edge solutions targeted to demanding operators around the globe.

This unique innovative product facilitates and accelerates the deployment of street-level backhaul networks by offering a set of powerful features:

- Software-defined operation, MW PtP or PtMP, that can be customized with different firmware profiles. This way, StreetNode can be used as overlay terminal or as part of the PtMP / PtP extension. Street-level extensions connect small cells not having direct Line-Of-Sight (LOS) with an overlay PtMP hub. This approach increases the solution's applicability considerably, serving the vast majority of small cells without the need to consider alternative technologies.
- Good-looking appearance and small form factor, not resembling telecom equipment, for seamless integration with the urban landscape.
- Innovative antenna auto-aligning capability. Embedded in StreetNode™ is an ultra-small antenna, which can be aligned automatically in both azimuth and elevation planes. An intuitive radio scanning algorithm that runs inside quickly identifies the hub frequency channel and measures the received signal strength in order to carry out precise alignment in just a few minutes.
- Scalability with "zero-touch" provisioning. Deployment of StreetNode™ next to small cells is carried out through a fast, intuitive and automated process that is largely due to the built-in intelligence of uni|MS™, the Intracom Telecom's Unified Management Suite. StreetNode is part of Intracom Telecom's SON platform for transmission.

Using the microwave and millimeter-wave (V-/E-Band) technologies of StreetNode, operators are offered a variety of customizable options that overcome the aforementioned backhaul limitations and challenges.



StreetNode™



UltraLink™-FX80



OSDR

Solution Highlights

OpEx Flexibility



Backhaul network operates in both licensed and unlicensed bands

Flexible Powering



3 x powering options – direct DC, AC PoE, DC PoE – to adapt to the power source available locally (StreetNode™, UltraLink™-FX80)

Unified Management



One management suite, uni|MS™, manages everything, from radio equipment to wireless services

Breakthrough Performance on the Street!

Configurability



PtMP or PtP operation in MW (licensed) frequencies at street level

Fast Installation



Radio is installed and commissioned in less than 30 minutes by non-specialized personnel using an Android tablet and Bluetooth

Unique Auto-alignment



Network is configured automatically when StreetNode™ radios are added or removed

Advanced Features



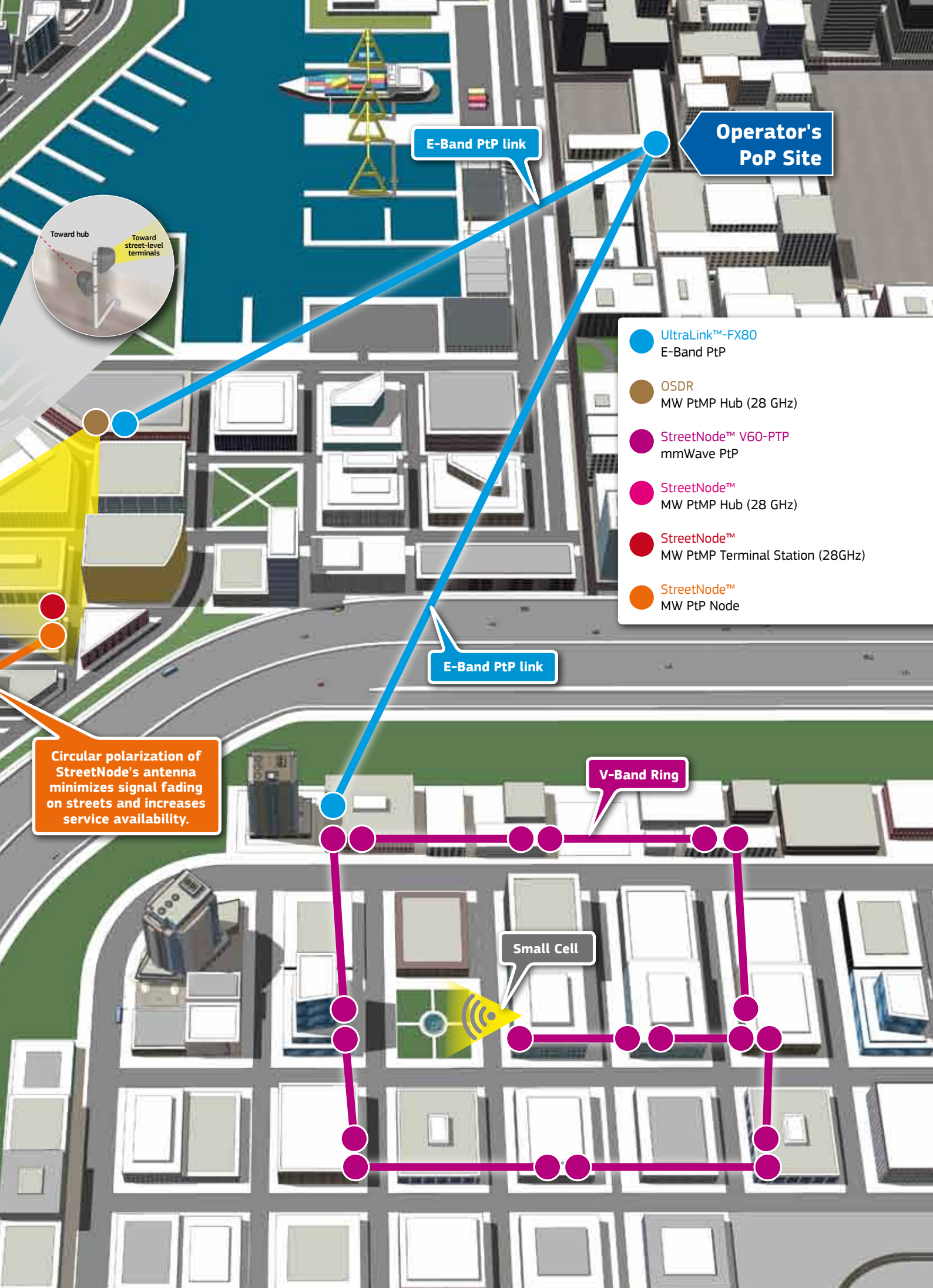
3 x Gigabit interfaces and an embedded switch make additional external Ethernet switches unnecessary

All-in-one



Compact and aesthetically-pleasing box with embedded antenna; custom finishes on demand





Operator's PoP Site

E-Band PtP link

E-Band PtP link

V-Band Ring

Small Cell



Circular polarization of StreetNode's antenna minimizes signal fading on streets and increases service availability.

- UltraLink™-FX80 E-Band PtP
- OSDR MW PtMP Hub (28 GHz)
- StreetNode™ V60-PTP mmWave PtP
- StreetNode™ MW PtMP Hub (28 GHz)
- StreetNode™ MW PtMP Terminal Station (28GHz)
- StreetNode™ MW PtP Node

Why this Solution is for You

Market-leading features for the microwave systems

- Highest capacity per PtMP radio (540 Mbit/s)
- Longest range: half Gbit/s at a 3 km distance in PtMP, over 5 km in PtP
- Hitless adaptive modulation (no bandwidth-consuming retransmissions are needed)
- Highest PtMP terminal capacity (30 terminals without any additional IDU)
- Unique offering of PtP and PtMP radios:
 - Terminals can switch between PtP and PtMP operation – same hardware, only software upload
- Frequencies of operation (at area-licensed bands): 26 / 28 / 32 and 42 GHz
- Automations for fast, error-free and cost-efficient deployment in the served areas:
 - Link auto-alignment
 - Zero-touch configuration through Bluetooth
- Powering type flexibility – direct DC, DC PoE and AC PoE

Unprecedented innovations for the millimeter-wave product family

- Highest capacity in their class (1.7 Gbit/s @ 60 GHz, 3 Gbit/s @ 70/80 GHz)
- Carrier Ethernet networking features
- Multiple network synchronization options
- Gigabit and CPRI (UltraLink™-FX80) interfaces
- Powering type flexibility – direct DC, DC PoE, AC PoE

Participating Products Specifications Summary

StreetNode™-V60 PTP (V-Band)

- Radio
 - Up to 1.65 Gbit/s throughput
 - Up to 128-QAM hitless adaptive modulation
- Mechanical & Electrical
 - Dimensions (HxWxD), mm: 298 x 151 x 176
 - Weight: 3 kg (excluding the mounting kit)

UltraLink™-FX80 (E-Band)

- Radio
 - Up to 3 Gbit/s throughput
 - Up to 256-QAM hitless adaptive modulation
- Mechanical & Electrical
 - Dimensions (HxWxD), mm: 290 x 290 x 108
 - Weight: 4 kg (excluding the mounting kit)

StreetNode™ / OSDR (MW-Band)

- Radio
 - Up to 880 Mbit/s line rate in PtP
 - Up to 4096-QAM hitless adaptive modulation in PtP
- Mechanical & Electrical
 - Dimensions (HxWxD), mm:
 - › 298 x 151 x 176 (StreetNode™)
 - › 290 x 238 x 96 (OSDR)
 - Weight (excluding the mounting kit):
 - › 3 kg (StreetNode™)
 - › 4.5 kg (OSDR)

uniIMS™

- Unified multi-vendor and multi-technology management
- Unprecedented network visualization through Web-based user interface
- Out-of-the-box dashboards & reports with network bandwidth & performance analysis
- Highly-automated network rollout through self-organized networks
- Network and RF planning tools closing the loop between “as planned” and “as built”

Why Intracom Telecom

• One-stop Shop

- Comprehensive portfolio of end-to-end radio access & backhaul solutions
- Proven integration & interoperability
- State-of-the-art end-to-end management suite

• Established Wireless Vendor

- Growing and continuous presence for a variety of access and transmission solutions
- Growing brand name recognition for PtP and 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 one and a half decade
- Successful development and deployment of PtP and PtMP systems with numerous operators in Europe, the Middle East, the CIS, Asia and Africa
- Investing heavily on the continuous evolution of its wireless product lines

About Intracom Telecom

Intracom Telecom is a global telecommunication systems and solutions vendor operating for 40 years in the market. The company innovates in the areas of small-cell backhaul, wireless transmission and broadband wireless access and has successfully deployed its industry leading point-to-point and point-to-multipoint packet radio systems worldwide. Moreover, Intracom Telecom offers a competitive portfolio of revenue-generating telco software solutions and a complete range of ICT services, focusing on big data analytics, converged networking and cloud computing for operators and private, public and government clouds. The company invests significantly in R&D developing cutting-edge products and integrated solutions that ensure customer satisfaction. Over 100 customers in more than 70 countries choose Intracom Telecom for its state-of-the-art technology. The company operates subsidiaries in Europe, Russia and the CIS, the Middle East and Africa, Asia and North America.