

Gigabit Broadband Service for Campus Networks

Summary

Network Area

- Wireless broadband service backhaul

Architecture

- Protected wireless rings

Solution

- StreetNode™ V60-PTP
- UltraLink™-FX80

Synergies

- uni|MS™

The Need for Cost-Effective Gigabit Connectivity Services!

Campus networks in university campuses or business/technology parks require high-speed data links in order to effectively interconnect administration buildings, teaching facilities, laboratories, conference centers, libraries and student residence halls. Gigabit+ link capacity connectivity is necessary in order to enable effective information flow between the buildings and provide high-quality broadband Internet connectivity services in the buildings and around the whole campus area through WiFi. In many occasions, such interconnection, which requires optical fiber for distances larger than 100 m, is unavailable and financially-unfeasible.

Challenges of Wireless Gigabit Connectivity Services Delivery

Service providers or institutions planning to implement their campus networks with wireless Gigabit Internet, are faced with a number of challenges:

- **Costs for Spectrum of Operation and Licensing Procedure**
Deploying multiple links to enable Gigabit connectivity results in high yearly recurring costs for spectrum licenses. This is an important consideration for microwave frequencies for which spectrum is traditionally allocated in small and expensive channels.
- **Equipment Costs**
Conventional microwave technology wireless systems require multiple radios to deliver speeds in excess of Gigabit.
- **Deployment Infrastructure Requirements**
Equipment that requires purpose-made, large, expensive installation structures can render the deployment expensive and impractical.
- **Complexity of Deployment and Operation**
Complexity of installation, configuration and Operation Administration and Maintenance (OAM) is critical for enabling practical and low-cost deployments.

Increasing Speeds, Lowering Cost!

Intracom Telecom now offers an all-wireless Gigabit+ connectivity solution that meets and overcomes the aforementioned challenges, by exploiting the advantages of its new, high-performance, millimeter-wave all-outdoor radios. ISPs can efficiently extend their connectivity to the building rooftops through the deployment of:

- StreetNode™ V60-PTP radios, operating at 60 GHz and offering up to 1.65 Gbit/s full duplex speeds. These radios can be installed on the rooftops of the buildings in relay/add-drop configuration to distribute the data traffic to the buildings and further extend the connectivity to outside spaces.
- UltraLink™-FX80 radios, operating at 70/80GHz and offering up to 3 Gbit/s full duplex speeds to connect the service provider point-of-presence (PoP) site and the served locations, or form higher-level rings to aggregate the traffic from multiple StreetNode™ V60-PTP links.

The key features of this solution include:

- No (or low) spectrum acquisition-related costs – license fee-free spectrum at 60 GHz, or competitively-priced light-licensed plenty of spectrum at 70/80GHz, are ideal for low-cost deployment.
- Simple deployment at any location – the small size and weight, as well as, the powering flexibility of all-outdoor radios enable unobtrusive deployment at any location.
- Ease of installation and configuration – innovations, such as the auto-alignment and zero-touch provisioning, can facilitate installation & commissioning and speed up the deployment of the links, even by non-expert technicians.
- Configuration flexibility & network resiliency – the multiple Ethernet ports and integrated switch functionality of the radios facilitate the forming of complex network topologies, including ITU-T G.8032v2 Ethernet protected rings.



StreetNode™



UltraLink™-FX80

Solution Highlights

OpEx Savings



All links operate in unlicensed (OpEx-free) V-Band spectrum or light-licensed Low-OpEx E-Band spectrum

CapEx Savings



Up to 3 Gbit/s Ethernet capacity with minimum equipment: two small-size all-outdoor radio units per link. No, or minimal, requirements for additional installation infrastructure

Unified Management



One intuitive management suite, uni|MS™, with advanced SON features manages everything, from radio equipment to wireless services

Network Build with Millimeter-Wave, All-Outdoor Radios!

Automations for Fast & Easy Deployment



Zero-touch configuration and auto-alignment (StreetNode™ V60-PTP). The radio is installed and configured in up to 30 minutes by non-specialized personnel using an Android tablet and Bluetooth

Flexible Networking

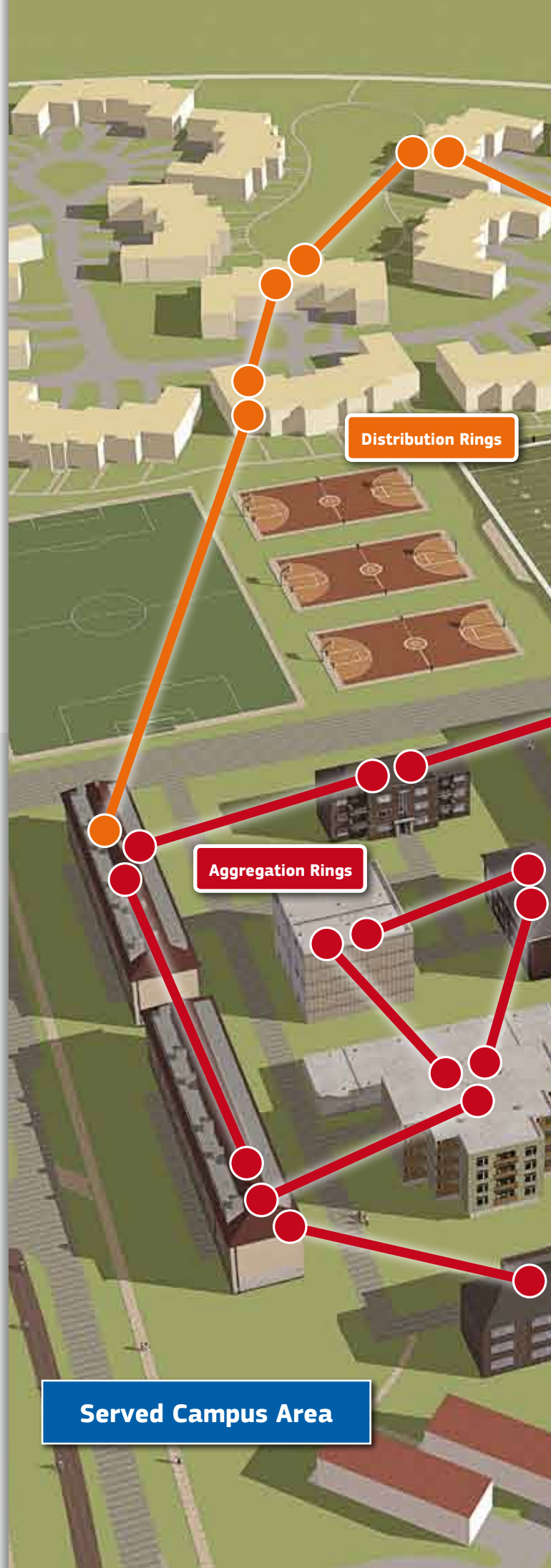


3 x Gigabit Ethernet interfaces per radio and an embedded switch make the deployment in complex topologies possible without additional networking equipment and offer trouble-free connection to the standard in-building switches and/or routers

Flexible Powering




Powering options (direct DC, direct AC or PoE) adapt to the most convenient powering available on site



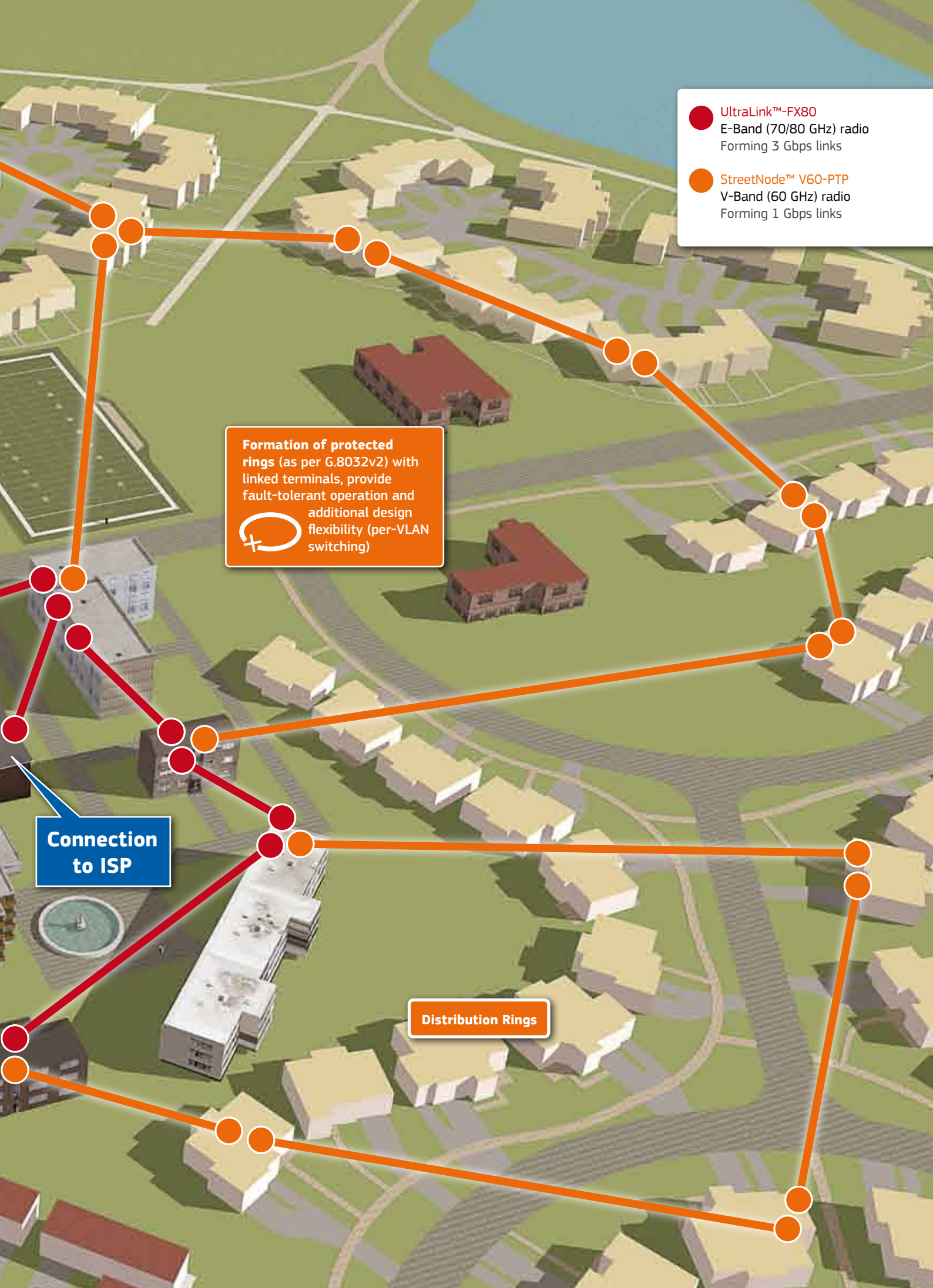
- UltraLink™-FX80
E-Band (70/80 GHz) radio
Forming 3 Gbps links
- StreetNode™ V60-PTP
V-Band (60 GHz) radio
Forming 1 Gbps links

Formation of protected rings (as per G.8032v2) with linked terminals, provide fault-tolerant operation and additional design flexibility (per-VLAN switching)



Connection to ISP

Distribution Rings



Why this Solution is for You

Advanced Design

- All-outdoor, compact and lightweight units
- Mounting-friendly units for hassle-free installation at rooftop/ street-level
- Multiple Gigabit interfaces

High-Performance & Feature-Rich

- Highest capacity in their class
- Multiple packet synchronization options
- Carrier Ethernet networking features

Unprecedented Flexibility

- Automations for fast, error-free and cost-efficient deployment
- Powering type options – direct DC, DC PoE and AC PoE
- Easy to use, web technology NMS simplifies and automates OAM tasks

Unprecedented innovations for the millimeter-wave product family

- Highest capacity in their class
- Carrier Ethernet networking features
- Multiple network synchronization options
- Gigabit and CPRI (UltraLink™-FX80 only) interfaces
- Powering type flexibility – direct DC, DC PoE, AC PoE

The StreetNode™ and UltraLink™-FX80 products, which participate in this solution, can be combined with other PtP and PtMP offerings from Intracom Telecom for a complete wireless backhaul toolkit)

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)

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.