



# Application Note

## Mobile Backhaul in Rural Areas

### Typical User

- Mobile operators
- Carriers and service providers
- Backhaul and transport providers

### Typical Applications

- 2G service connectivity
- 3/3.5G (mobile broadband) backhaul
- Colocation and backhaul sharing

## RuralSuite: Affordable Solutions for Extending Coverage to Underserved Areas

Operators' rush to roll out data-intensive mobile broadband applications has typically focused on densely-populated urbanized markets, leaving rural areas underserved with no proper coverage for 2G voice services, let alone 3G and HSPA reach. Isolated regions require large installations to connect small numbers of dispersed subscribers to nationwide networks, a prohibitively expensive undertaking that, until now, could not be financially justified.

Currently, however, two significant factors are causing operators to shift their attention to these neglected territories: Market saturation and government regulation. Mature, urban markets have become extremely competitive and present low growth potential, while rural areas offer a large untapped subscriber base that requires minimal efforts for new customer acquisition. In addition, many governments have recognized the direct link between economic stimulus and ICT ubiquity, leading to a growing number of "broadband everywhere" initiatives that encourage carriers to expand their service footprint to remote areas, using both carrot (incentive grants and tax concessions) and stick (service availability as a pre-requisite for operator licenses) tactics.

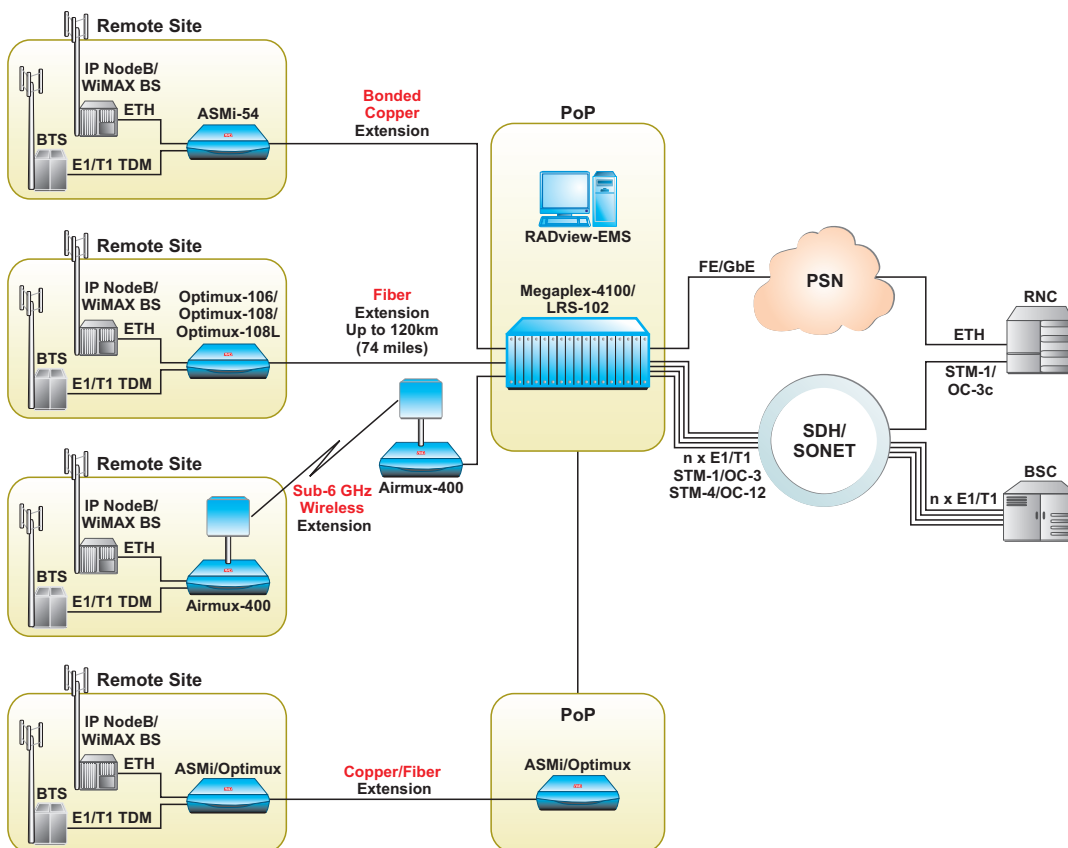
### Driving down deployment costs and shortening time to market

As mobile providers are preparing to serve rural communities, they are still faced with the need to ensure profitable service delivery by driving down the rollout and maintenance costs associated with long-distance backhaul over varied terrains. They also need to ensure fast and simple set ups to shorten their time to market and, consequently, to revenue generation.

Enter RuralSuite™, RAD's dedicated solution portfolio for extending mobile coverage to outlying areas over copper, fiber or wireless links. RuralSuite includes a full gamut of affordable, globally tested solutions that can be quickly and cost effectively deployed to backhaul mobile traffic over any type of infrastructure and topology. RuralSuite's most popular solutions include the ASMi-54 SHDSL.bis modem with an integrated router or multiplexer, the Optimux-108L fiber optic multiplexer and the Airmux-400 broadband wireless multiplexer. Working opposite the Megaplex-4100 multiservice access platform or LRS-102 fiber and copper mux rack at the operator PoP, or in a simple point-to-point topology, these devices enable providers to utilize any available infrastructure to connect remote 2G and 3G base stations to their respective controllers.



Features	Benefits
Point-to-point or point-to-multipoint service extension over fiber, SHDSL/bis and Sub 6-GHz wireless links	High flexibility in choosing the most cost-efficient transport alternative
Connect multi-generation base stations over a single access link	Enable colocation to reduce OpEx and CapEx
Transparent service extension for native TDM and Ethernet traffic with independent clocking support	Maintain QoS for voice and data traffic over long distances
Lightly-licensed wireless solutions	Fast deployments and OpEx savings
NLS (Non Line of Sight) support in wireless solutions	Ensure service coverage in difficult terrains and across geographic barriers
100 Mbps over wireless and fiber, or 22.8 Mbps over EFM bonded copper	Meet bandwidth requirements for broadband services
Power saving E1 and Ethernet fiber multiplexer	40% reduction in OpEx related to power consumption of network elements
Native Ethernet and TDM aggregation in a single device (Megaplex-4100)	Optimized bandwidth utilization
RADview-EMS management for configuration, monitoring and diagnostics	Unified management system



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Airmux-200/Airmux-400  
Broadband Wireless Multiplexers



ASMi-54/ASMi-54L  
SHDSL/bis Modems



Optimux-106/Optimux-108/Optimux-108L  
Fiber Multiplexers



Megaplex-4100  
Multiservice Access Node



LRS-102  
Fiber and Copper Mux Rack