Case Study

PDH over Fiber

E-Plus, Germany

e·plus

Challenge

To provide mobile connectivity at busy indoor facilities such as subways trade show halls, airport terminals, and sports stadiums.

Solution

RAD's Optimux-34 allows mobile traffic to be carried inside buildings over fiber optic infrastructure. A chain of Optimux multiplexers forms a cascaded optical access network and lets E1 coax interfaces "talk" to the mobile antennas.

Benefits

- Flexible to on-site conditions
- Simple to install
- Compact
- Comparatively inexpensive
- Future-proof solution

Features

- Supports traditional technologies
- Optional 10/100 BaseT Ethernet user port
- SFP modules are easily replaceable

RAD Enables German Cellular Operator to Provide Mobile Coverage in Subways, Shopping Malls, Sports Stadiums, and other Indoor Facilities

Low-Cost, Compact PDH Optical Multiplexer Maximizes Flexibility with Modular SFP Concept

With an installed base of more than 14 million customers, E-Plus Mobilfunk is Germany's third-largest mobile communications provider. The E-Plus Group, which employs some 2,200 employees and posts annual sales of €2.9 billion, is the fastest growing and most profitable provider in the country.

Known for its excellent indoor network coverage, the E-Plus Group is the only mobile communications provider, for example, that supports mobile phone use in underground facilities, such as Hamburg's subway stations. To expand its no-gaps indoor network coverage in public buildings, E-Plus recently deployed Optimux-34 multiservice PDH fiber multiplexers from RAD Data Communications.

Because walls and reinforced concrete get in the way, mobile communications only works properly indoors if a special infrastructure is set up within the buildings in which coverage is required. "Microcells" are installed at busy facilities, such as subways trade show halls, airport terminals and sports stadiums. Each discrete section of a building – a floor of a shopping mall, for example – requires one or more dedicated mobile communication antennas. To hook these indoor antennas up to the network, the E-Plus Group rents existing optical cables from the building operator. The problem is that mobile communications equipment usually has digital E1 interfaces instead of optical interfaces.

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> Dr. Hans-Jürgen Schrewe, Director of Planning and Engineering at the E-Plus Group

RAD data communications

This is precisely where RAD's multiservice Optimux-34 PDH optical multiplexer fits in. The Optimux-34 converts E1 circuits into optical signals and fans an E3 out onto E1 lines. Installed equipment can now pick up the E3 coax cable from the radio relay system on the roof and carry mobile traffic into the building over fiber optic infrastructure. Inside the building, a chain of Optimux multiplexers forms a cascaded optical access network and lets the E1 coax interfaces "talk" to the mobile antennas.

Easily Adapted to On-Site Conditions

"It is our privilege to provide E-Plus with a future-proof solution in the shape of the Optimux-34, which supports traditional technologies while delivering the flexibility and manageability that today's customers expect," says Badre Bounouar, Pre-sales Consultant at Pan Dacom Direkt, a RAD distribution partner. A 10/1000 BaseT Ethernet user port is available too. The main link can use either coaxial E3 or a variety of optical interfaces. The latter are based on small, modular optical transceivers known as small form-factor pluggable (SFP) modules, which are very easy to replace if the need arises. Equipment can thus be adapted flexibly to on-site conditions, such as the optical route, wavelength and attenuation factor. A plug-and-play design guarantees extremely simple installation.

"We chose the Optimux-34 from RAD because it is compact and comparatively inexpensive," explains Dr. Hans-Jürgen Schrewe, Director of Planning and Engineering at the E-Plus Group. "We were particularly impressed by the tremendous flexibility provided by the SFP modules."

"The E-Plus project demonstrates that our Optimux product line provides very flexible solutions for connecting optical cables to a PDH infrastructure," states Amit Katz, Product Line Manager at RAD Data Communications. "PDH technology is utilized in mobile communications applications around the globe, and indoor network coverage is a critical issue," he concludes. "This particular installation may indeed set a trend."

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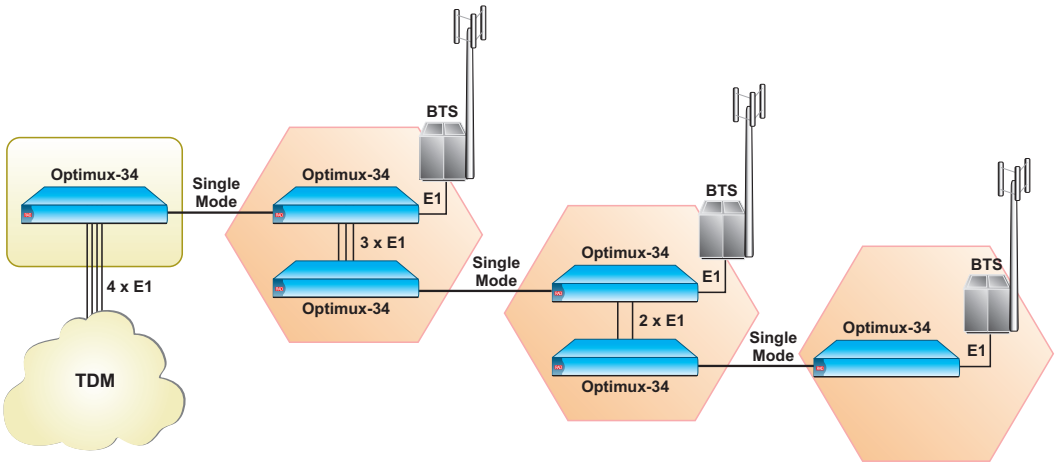

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