



Application Note

Bringing Mobile Data Connectivity Underground

Typical Users

- Subway systems and railroads

Typical Applications

- Underground connectivity to mobile data services

3G, HSPA and LTE Backhaul over Fiber

The demand for mobile connectivity is moving underground. The penetration of smart phones and mobile Internet has only increased the numbers of subway passengers worldwide who don't want to lose connectivity once the train enters the tunnel.

To provide always-on data connectivity, Node Bs or Base Transceiver Stations (BTSs) have to be installed throughout the subway system.

RAD Data Communications offers a solution for backhauling traffic between BTSs over IP. This is especially appealing for rail systems that already have fiber running between their stations for transmitting signaling, train schedules and passenger advisories for overhead displays.

Delivering SLA-based Services over Native Ethernet Access

RAD's ETX-204A is a Carrier Ethernet demarcation device delivering SLA-based services over native Ethernet access. In this application, it is installed at Node B or BTS sites, where it combines cell-site gateway with Carrier Ethernet demarcation functionalities to provide end-to-end service control and performance management for 3G, HSPA and LTE services across packet backhaul. Incorporating RAD's SyncToP platform of synchronization and timing over packet feature set, the ETX-204A utilizes Synchronous Ethernet and 1588-2008 to ensure highly accurate traffic delivery in packet-based mobile backhaul networks while cutting costs by minimizing the equipment needed for timing and demarcation.

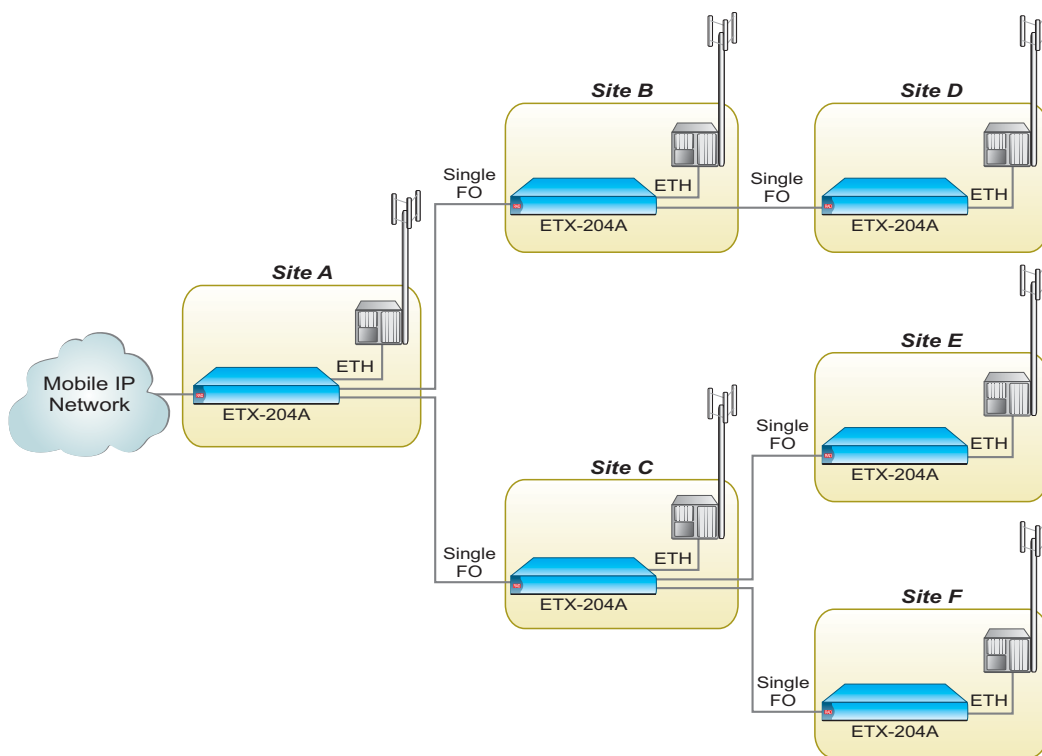
End-to-end visibility across the entire service path helps the subway operator to localize service-affecting faults and determine their origin – without requiring expensive truck rolls or service shut-downs to do so.



Features	Benefits
Combines cell-site gateway with Carrier Ethernet demarcation functionalities	Provides end-to-end service control and performance management for 3G, HSPA and LTE services across packet backhaul
Synchronization platform and timing over packet feature set	Ensures highly accurate traffic delivery in packet-based mobile backhaul networks
Remote and automatic fault localization	Reduces the need for costly on-site inspections

The ETX-204A offers advanced SLA assurance tools, including per-flow daily statistics reporting. This allows the subway authorities to execute effective capacity planning to overcome the “peak to mean” gap, so that bandwidth is added only when needed based on actual usage trends, a significant benefit during morning and evening rush hours. Remote and automatic fault localization provides immediate notification and containment of location-specific service problems. This asset makes the ETX-204A especially convenient for deployment in rail tunnels that are not easily accessible by technicians, or where regular on-site inspection would be prohibitively expensive or require service interruptions.

The same solution, of course, can also be used to backhaul voice throughout subway tunnels.



ETX-204A
Carrier Ethernet Demarcation Device –
Flexible Core

Corporate Headquarters
RAD Data Communications Ltd.
24 Raoul Wallenberg Street
Tel Aviv 69719, Israel
Tel: 972-3-6458181
Fax: 972-3-6498250
email: market@rad.com

US Headquarters
RAD Data Communications Inc.
900 Corporate Drive
Mahwah, NJ 07430, USA
Tel: (201) 529-1100
Toll free: (800) 444-7234
Tel: (201) 529-5777
email: market@radusa.com

www.rad.com



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