

Lucent Base Station Router (BSR) for UMTS networks



Seamless in-building and
hotspot coverage

Benefits:

- Reduce cost through dramatic network simplification
- Ease of deployment
- Improved application performance through reduced latency
- Seamless integration with traditional UMTS core and IMS networks



Lucent Technologies has developed the Base Station Router (BSR) to offer seamless, cost-effective cellular in-building and hot-spot coverage.

The demand for broadband is on the rise and subscribers expect the same experience, regardless of the access technology. UMTS, coupled with high speed downlink access (HSDPA) and high speed uplink packet access (HSUPA) technologies, is able to fulfil the promise of true mobile broadband, but only if coverage and quality of service are ubiquitous.

A network's reputation is only as good as a subscriber's worst experience and any negative experiences may prompt users to seek out alternatives.

UMTS, enriched with HSDPA and HSUPA, offers subscribers significant benefits, including a consistent, high data-rate experience, as well as a highly secure connection.

By contrast, from a user perspective WiFi networks are often not as cost effective as they first appear and the lack of security is still a serious concern. Neither do these networks offer consistent high data rates. In addition, WiFi systems are far from seamless - users need to reconnect each time they enter a new hotspot and such networks do not offer any real mobility.

Making UMTS networks simple and more cost effective

Providing additional UMTS coverage in problem areas, such as hotspots and in buildings, is often too expensive for mobile operators to justify. This is because traditional UMTS core networks do not handle high data rates well. In addition, adding micro and pico cellular base stations is very complex in terms of planning and management. As a result, improving UMTS coverage, throughput and subscriber capacity requires major effort and investment.

Business and traffic modelling shows that radio network controllers (RNCs) are particularly affected when it comes to expanding UMTS network capabilities. And buying the platforms is not the only reason investments may spiral; the labour costs associated with physical deployment and the reconfiguration of new and existing RNCs are also important factors.

This is why Lucent advocates BSR deployment as a cost-effective solution to the challenge of in-building and hotspot coverage.

The BSR is a network in a box. All key components that comprise a traditional UMTS network are combined (see diagram1), thus reducing the number of network elements.

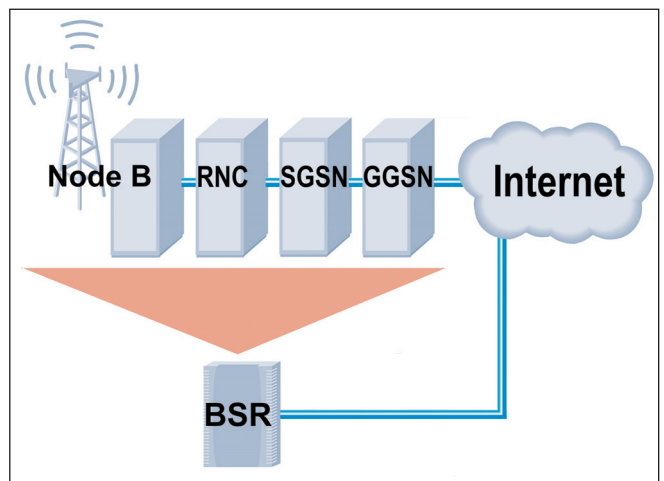


Diagram 1. The BSR combines all elements of a UMTS network in a single box.

This makes it much easier to expand networks, as BSRs are simply added to a managed IP network (see diagrams 2 and 3).



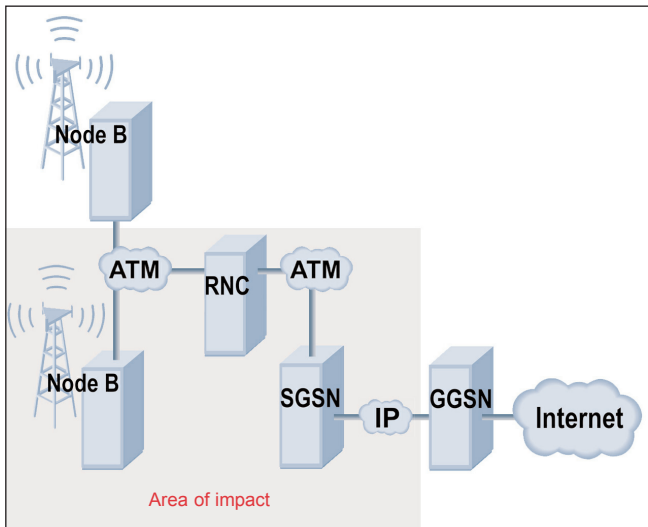


Diagram 2.
Adding a new base station requires RNC reconfiguration and potentially additional RNCs. This could also lead to reconfiguration of SGSNs.

To ensure interoperability, seamless operation and investment protection, BSR networks can be fully integrated with today's UMTS networks.

Ease of deployment

The BSR can be deployed in any location where there is the need for better coverage. This is because the BSR eliminates the need for relatively expensive and sometimes difficult to obtain circuit switched connections. Instead, the system uses standard DSL or Ethernet interfaces, allowing direct connections to any DSL or 'Ethernet to the premises' network. In addition, because of its compact 'suitcase' size and its low weight, the Lucent BSR can be installed virtually anywhere - a single engineer can easily lift and install the router.

Reduced latency

The Lucent BSR ensures faster and more reliable applications. This is a direct result of impressive latency reduction. Latency is the time it takes for information to travel through a network. Each time this information passes through a network element, a delay is added, increasing the travel time. As the BSR reduces the number of elements through which data has to travel, overall latency is greatly reduced.

Services that require information to be communicated in real-time benefit most from the BSR's low latency. Examples of these services include voice over IP, video conferencing and gaming. Furthermore, applications that do not require real time communications also benefit from lower latency, as they respond faster and are more reliable.

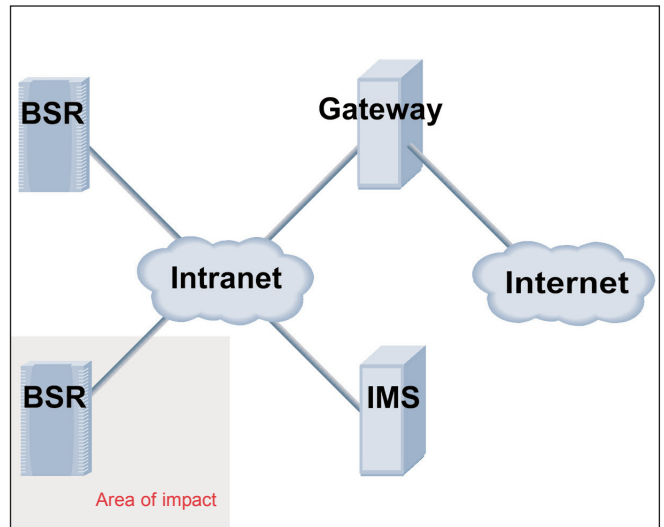


Diagram 3.
Adding a new BSR has minimal impact to other elements due to removal of network hierarchy.

All IP advantage

The Lucent BSR seamlessly integrates with IP networks, which enables straightforward delivery of multicast and broadcast services. Deploying such services using traditional UMTS networks can be costly and complex, due to the significant number of additional network elements required. However, BSR deployment means existing multicast and broadcast solutions can be used, which in turn reduces the need for additional equipment.

In addition, there is no need to wait for new devices, as the majority of today's handsets will support multicast and broadcast services when delivered by a BSR network.

Why Lucent for in-building and hotspot coverage

Lucent pico and microcell BSRs can increase operator revenue by extending service availability into high traffic areas, through enhanced quality of service and by supporting revenue generating mobile data services.

The BSR is founded on Bell Labs' innovations and Lucent's rich experience in mobile and fixed line technologies. The BSR solution helps reduce network costs, while ensuring a high-quality user experience, particularly in hotspot and in-building areas.

Technical specification*

Dimensions (H x W x D) Micro BSR Pico BSR	500 x 588 x 231mm (19.7 x 23.2 x 9.1 in) 332 x 214 x 91 mm (13.075 x 8.4 x 3.58 in)
Weight Micro BSR - indoor Micro BSR - outdoor Pico BSR	35kgs (77.2 lbs) 37kg (81.6 lbs) <4 kg (8.8 lbs)
Operating temperature Micro BSR - indoor Micro BSR - outdoor Pico BSR	-5°C to 40°C (23°F to 104°F) -33°C to 46°C (23°F to 104°F) -5°C to 40°C (23°F to 104°F)
Power requirements Micro BSR - indoor Micro BSR - outdoor Pico BSR	AC mains power and DC input power, 480 W AC mains power and DC input power, 480 W AC mains power, 120 W
Air Interface standards	TIA/EIA, ITU-approved, support IPv4 and IPv6 VDSL and/or ethernet interfaces Supports HSDPA at launch, HSUPA through software upgrade.
Frequency bands	UMTS 2100 at launch. UMTS 1900 and UMTS 850 will be supported at a later stage
RF power output Micro BSR - indoor Micro BSR - outdoor Pico BSR	Up to 10 W Up to 10 W 200 mW
Circuit Switched voice support	All AMR rates are supported

**All specifications are approximate. Please ask your Lucent representative about availability of specific configurations*

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