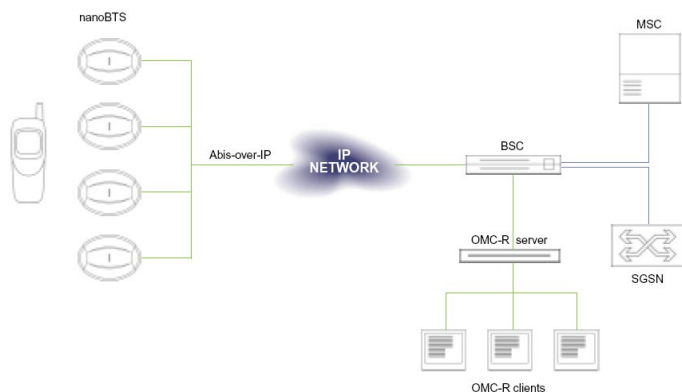


nanoGSM™

GSM-over-IP picocells for in-building coverage and capacity



nanoGSM™ system

The nanoGSM system is a complete picocell basestation system providing in-building GSM and GPRS coverage and capacity. It includes the nanoBTS™, the smallest and most cost-effective basestation available today, together with the base station controller and operation management software needed to integrate with existing mobile networks.

Taking advantage of the more than 1 billion GSM handsets in use globally together with existing IP based broadband infrastructure for backhaul, the nanoGSM system enables operators to provide cost-effective tailored capacity and coverage for target customers and deliver excellent return on investment.

system architecture

The key element of the nanoGSM system is the nanoBTS picocellular basestation, which is deployed on the customer's site. The nanoBTS is a complete GSM basestation that conforms to the picocell standard and delivers "GSM-over-IP". It combines a standard U_m air interface to the handset, with an Abis interface carried over IP for the backhaul. This brings the advantage of the cost structures of IP based networks to the existing population of deployed handsets, maximising the potential return for the operator.

The nanoBTS is configured and controlled by the nanoGSM BSC basestation controller, which is usually co-located with the MSC and provides standard A and Gb interfaces to the operator's MSC and SGSN. Operational management of the whole system is provided by the nanoGSM OMC-R, which supports the configuration of the system together with performance and alarm monitoring.

revolutionary deployment

Picocells offer a lower cost alternative to the traditional antenna based approach to providing GSM coverage and capacity within buildings. Due to the small size and deployment flexibility, the nanoBTS can easily achieve coverage where needed. The quick and simple installation using existing Ethernet wiring for both data and power avoids the need for the expensive site surveys, cabling installations and access to roof and floor spaces typical of distributed antenna systems (DAS).

nanoGSM is so flexible that single nanoBTS installations can make use of DSL to provide the connection back to the basestation controller. This makes it possible to offer dedicated coverage solutions for premises with as few as 10 staff cost effectively.

The nanoGSM system also simplifies cell and frequency planning; with the ability to remotely monitor other GSM frequencies in use in the area with the revolutionary Network Listen™ capability. This gives frequency planners a unique view of actual signal strengths on the ground.

key features

- Smallest fully functional BTS in the industry
- IP based backhaul reduces costs
- Indoor coverage up to 125,000m²
- Available for 900, 1800 and 1900MHz bands
- Compliant with GSM picocell specification
- Integrates with existing MSCs or softswitch MSC
- Alarm management integration
- Single Ethernet connection to BTS including power

applications

- Dedicated coverage for SME premises
- In-building capacity and coverage for large corporate offices
- Stand-alone in-fill for shopping malls, airports or undergrounds
- Delivering GSM access on ships, aeroplanes and rural areas



technical specification

nanoGSM system

teleservices

Telephony
Short Message Service MT/PP
Short Message Service MO/PP
Short Message Service CB single message for user cell description

formats

GSM speech format support..... FR, EFR
AMR*..... TCH_AFS and TCH_AHS
EncryptionA5/1, A5/2
GPRS support CS1-4
E-GPRS support* MCS1-9
Circuit switched data Single slot BS20 at up to 14.4kb/s
BS21-26, BS61, BS81

supported features

Channel assignment and classmark
Directed retry based on load, power and cell priority
Handover
Dynamic GPRS timeslot allocation (Dynamic PDCH)
Paging and location areas
BTS software download via BSC
Redundancy on SS7 links
Optional US regulation pack (E911)
Up to 4 nanoBTS can act as a Multi-TRX BTS

nanoBTS

frequencies

Models for GSM900MHz (E-GSM), DCS1800 and PCS1900MHz bands
Each nanoBTS supports a single TRX and can act as a standalone BTS

standards

CE marked - ETSI EN301 489-8
UL and FCC listed

electrical interface

Single RJ45 auto-select 10/100 Ethernet supporting PoE
Timing Interface Bus (TIB) providing nanoBTS interconnect for multi-TRX functionality

mounting

The nanoBTS is provided with a mounting bracket for wall or ceiling mounting
Power can be provided locally through a PSU kit or remotely using Power-over-Ethernet

nanoGSM BSC

Performance and physical

Processor capacity..... 15000 BHCA/BHLU
Input supply option... 90-250 volts AC or 36-75 volts DC
Compact PCI chassis with rear access to all traffic ports
Selective use of redundancy on vulnerable components (3PSUs, 7 fans, RAID disks) and hot-plug capability for all modules

Interfaces

Abis interface to the nanoBTS
Standard A interface to MSC 4 or 8E1/T1
Standard Gb to SGSN 4 E1/T1
CORBA-based to O&M to OMC-R

standards

CE and FCC approved

nanoGSM OMC-R

alarms

Details of all alarms reported by nanoBTS and nanoGSM BSC
Interface for integration with 3rd party alarm management packages

configuration

Provisioning and re-configuring nanoBTS and nanoGSM BSC
Configures collection of GSM 12.04 and other BSC and BTS performance measurements for off-line analysis

operation

Context sensitive help for selected managed object, MIB package, attribute and alarm
Back-up and restore
Circuit interface wizard (CIC) of the A interface to an MSC

capacity

Users Scalable according to server hardware
Infrastructure..... Up to 2,500 nanoBTS's per server

* Requires the nanoBTS EDGE/AMR available in 2005 for DCS1800 & PCS1900 bands

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