

Nokia Siemens Networks

Taking mobile access to the
next level with WCDMA/HSPA

Nokia Siemens
Networks



The smarter, safer evolutionary path



for your 3G access network

In a business where technology, products and equipment develop fast and competition is predatory, operators must remain agile, keeping all their options open for migrating and evolving their networks.

The road to open, standardized mobile access is paved with good vendor intentions, but it takes much more than intentions to evolve a network smoothly. It takes a clear strategy, an effective roadmap, proven technology. The ability to cut deployment and operating costs while boosting high-speed data performance. A trusted partner rather than a mere provider. The industry's strongest, most experienced WCDMA supplier. It takes Nokia Siemens Networks.

Carriers at the crossroads

Facing daunting challenges in a fast-changing market, today's mobile operators are at a crossroads. Voice income, a road they had safely traveled for years, has plateaued and even declined in mature markets. Ahead lies bona fide mobile broadband. Emerging markets, in turn, now comprise low-ARPU voice-centric consumers or, where 3G has made inroads, early adopters with fast-growing purchase power and rising demand for richer content.

Mobile operators saw the promise of mobile data traffic early on, also seeing that mobile users would expect fixed-net-like speed, convenience, and tariffs. Now data traffic is edging towards exponential growth. DSL-like flat rates can boost traffic, but there is an ARPU ceiling, and that makes costs a big issue. To capitalize on the mobile data opportunity, operators must cut the cost of delivering every Mbit.

Nokia Siemens Networks WCDMA/
HSPA connects more than half of
all 3G subscribers worldwide.

Broadband everywhere for everyone who wishes to access it

Incumbent or newcomer; 3G trailblazer or new entrant; regional power player or local provider – there is an elegant way for every operator to satisfy all these demands in every market, emerging or mature. This approach leverages a technology that brings the benefits of 3G to price-sensitive customers and the broadest multimedia service offerings to all customers.

WCDMA affords you the capacity and communications capability to make a winning business proposition across your subscriber base. HSPA puts even more profitable business, and even more satisfied and loyal customers, within easy reach.

Why WCDMA/HSPA?

Indisputably the new baseline for all WCDMA systems' functionality and performance, HSPA is the definitive enabler for your data traffic growth. With the HSPA system, data traffic and services to rival fixed network performance is no longer wishful thinking. Your mobile users can now enjoy wireline speech quality and DSL service quality for data connections.

HSPA meets the most urgent need of every operator – the imperative to cut costs and boost capacity. But beyond that, it gives you a more powerful, more future-proof means of achieving strategic business goals. Bringing best-performance mobile high-speed data and a gratifying user experience to your network, HSPA is a remarkably affordable means to deploy and operate powerful broadband access networks. And it lets you differentiate your offering with competitive flat rates and sophisticated services.

Experience matters

WCDMA/HSPA is the fastest growing mobile technology in history. An organization formed of the finest two teams in communications, Nokia Siemens Networks' experience as a 3G network supplier is unrivalled. Our WCDMA/HSPA solution has proven its merits in the real world, delivering the best performance and interoperability. What's more, leading operators in all markets rely on our solutions, as an impressive roster of reference customers attests.

Know where to go

So, with so many vendors jumping on the HSPA bandwagon, what makes Nokia Siemens Networks so different? We see the big picture. HSPA is part of the larger ecosystem of our broadband access portfolio. Deeply committed to standards and openness, we offer a complete, comprehensive 3G access network solution and know how to integrate it into every environment from front to end. Our approach is about offering not only a system, but the full-fledged capabilities of HSPA solutions. Having the most successful mobile broadband system is good, as countless satisfied users will attest (more than half of all worldwide 3G subscribers are connected via Nokia Siemens Networks WCDMA/HSPA). But we also have something even better: a clear vision and a reliable roadmap to where WCDMA and HSPA are heading – towards LTE.

An evolutionary force in radio access

3GPP solutions are another step forward in bringing HSPA capabilities up to the objectives of 3GPP's Long Term Evolution (LTE) and paving a smooth evolutionary path towards LTE end-user performance. Nokia Siemens Networks will deliver data rates up to 168 Mbit/s across WCDMA in compliance with 3GPP Release 10.

WCDMA re-farming – what a remarkable value proposition: 900/850 MHz WCDMA provides coverage in a GSM footprint, triples cell size in rural areas, boosts indoor coverage and data rates, and can help slash rural coverage costs by more than 60%. Co-sited GSM/WCDMA and shared networks also cut site-related operating costs.

LTE radio technologies slash the high cost of data delivery in radio networks. 3GPP-compliant HSDPA architecture, Internet HSPA (I-HSPA), uses the same flat architecture as LTE, driving down the cost of building network capacity today and blazing the most future-proof trail to tomorrow's LTE. Nokia Siemens Networks is committed to bringing the benefits of 3GPP Releases to HSPA networks with a remarkably cost-efficient approach to migration.

Big benefits for carriers large and small

We have the right approach to network evolution for every operator. 3G operators with a deployed HSPA network can migrate smoothly and directly to LTE via

- HSPA, to quickly deploy a broadband wireless solution
- I-HSPA, to introduce a flat architecture and possibly enable packet-only and attractive flat rate services, while taking the first step towards
- I-HSPA+, which evolves the air interface of WCDMA and HSPA to a simplified LTE solution compliant with 3GPP Release 7, and then step up to
- LTE, the 3GPP-compliant long-term evolutionary goal, bringing highest performance to the 3G RAN and creating a simpler and flatter architecture.

Cut site costs and slash operational expenditure

Say goodbye to the bulky, heavy cabinets that are conventional base stations and hello to Nokia Siemens Networks WCDMA base stations. Designed for versatile, simple, and fast installation, these compact modules leave a small footprint, fitting in even where space is very limited. Small base stations are just part of the savings equation. Our approach reuses legacy sites to contain rental costs and enables feeder-less and distributed installation. Beyond that, these efficient base stations are much cheaper to operate than conventional base stations because they consume few resources to deliver high output power.

Ready for the multi-radio

Short-term savings and long-term returns – why not have both? Built with tomorrow in mind, this future-proof, modular base station architecture lets you grow as you go, adding capacity easily and cost-effectively to keep pace as demand picks up. With our multiradio solution, we can extend HSPA features to HSPA+ and even upgrade to LTE with a simple SW upgrade. This evolutionary approach reuses hardware modules and upgrades software for utmost cost efficiency.

Share to spare expenses

Operators can even jointly utilize some of the scarce spectrum resources, say the 2100 MHz frequency spectrum, to cost-efficiently introduce multimedia services beyond main metro areas.

Lightening the load with an integrated transport solution

CSPs seeking to boost efficiency by evolving transport networks towards packet have two viable migration options:

- Dual transport
- Full packet transport

Operators benefit because they can drive down transmission costs by uploading high-volume traffic over a packet transport network.

All the transport features are fully integrated into the Flexi Multiradio BTS so that all technologies – GSM/EDGE, WCDMA, and LTE, including transport – may be implemented on the same platform. Software updates serve to add and configure new functions while the hardware remains unchanged.

How's that for a ubiquitous service proposition enabler?



Synchronizing base stations in packet-based backhaul networks is a key concern. Nokia Siemens Networks has two synchronization methods that meet the new demands of all-IP mobile transport networks:

- Timing over Packet (Top) based on IEEE 1588-2008
- Synchronous Ethernet (ITU-T G.8621, G.8262 and G.8264)

What's more, the BTS is designed to assure proper synchronization even when less stringent SLA (Service Level Agreements) apply to the packet transport network. And that has an immediate impact on OPEX and CAPEX.

Tried, trued, and tested for re-farming

We're big on smooth migration from GSM to WCDMA, which is why our re-farming solution incorporates system inter-working functionality. That's as far as you need to look for an efficient, cost-effective way to extend 3G services to rural areas. Following in the footsteps of our 2100 MHz version, we released 850 MHz and 900 MHz versions field-tested in early 2007. They improve performance markedly, tripling cell coverage to reduce the number of sites by as much as two-thirds. Lower frequencies translate to

- Far better indoor coverage, far higher data rates for users, a far better user experience and performance perception, and ultimately, higher revenues
- Fewer sites, lower CAPEX for extending mobile broadband coverage to suburban and rural areas, and lower OPEX

Powerful Radio Network Controller (RNC)

A fault-tolerant packet-switching platform provides the underpinning for the powerful Nokia Siemens Networks RNC. Providing control and managing the HSPA access network, it is compact, and able to cope with varying voice and data traffic volume. The platform also scales from high-capacity, centralized solutions to remote RNCs for optimized pico base station deployment. Plus the RNCs earn highest marks for data processing performance and reliability. Nokia Siemens Networks RNC is already designed to cope with the Smartphone tornado thanks to fully pooled load sharing approach, a technique that allows RNC network capacity to be shared over a wide area and adapted to network traffic patterns.



Operation and Maintenance and Suite Self Organizing Networks

We designed our centralized NetAct™ operations support system to facilitate network and service management, making it so much easier to download software releases and change configurations. With the benefit of this handy process support, operators can manage their network more cost-efficiently and enjoy a better user experience.

To enable the operators to view, manage and control multi-technology, and multi layer manage and control multi-technology, and multi-layer networks in parallel we designed the Self Organising Networks, or Nokia Siemens Networks SON Suite as we call it, bringing wide set of intelligent software products for networks to automatize and optimize its key elements.

Nokia Siemens Networks SON Suite is multiRAT solution for 2G, 3G and LTE also for multivendor environment comprising of NetAct for SON solutions, Radio SON features and Core for SON. Our SON Suite is based on Multilevel Architecture, distributed and centralized SON, which is a flexible way to support all kinds of optimization and automation needs, enabling the operators to view, manage and control multi-technology, and multi-layer networks in parallel.

In a nutshell

The benefits of Nokia Siemens Networks WCDMA/HSPA system in ten words or less? Site flexibility, frequency re-farming, network sharing, backhauling, capacity expansion, evolution. So, why Nokia Siemens Networks? Because our base stations and site solutions take up much less space and consume much less energy; because we offer pioneering re-farming solutions that reuse spectrum; because our RNC's performance is far more evolved; and because our evolutionary roadmap to flat architecture is unrivalled.

Our WCDMA/HSPA platform provides best-in-class performance, standardized functionality, and the flexibility it takes to adapt to your specific use case and solution. We understand your need to cut costs, so even though we have the most widely used and accepted WCDMA/HSPA platform on the market, we work hard to constantly improve and evolve it.

Launch your access network with Nokia Siemens Networks, or if you have started with another vendor, continue with us: Our solution keeps your options open, enabling you to migrate and evolve your access network as you see fit. Whether you do business in emerging or saturated markets, or both, you can opt for our HSPA solution now and never worry about migration again, because you have a reliable roadmap that charts a smooth evolutionary course.

Nokia Siemens Networks brings together two of the most experienced suppliers of network infrastructure, so why not make the most of what we – a true and trusted partner – have to offer. Feel free to ask us about significantly lower costs. About how you can leverage high-speed data performance to generate higher revenue through. About how you can capitalize on a cost-efficient way to respond to changing demands. About how you can enjoy the benefits of a profitable and future-proof access network. We have the answer – WCDMA and HSPA solutions that address your business challenges with innovation based on the widest field experience in the industry.

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