

Network Systems – Anticipating customer experience by design

Nokia Siemens
Networks



Smart, holistic solutions for the smart-device era

Smart devices are rapidly displacing classic cell phones. But because most networks were designed for voice transmission, subscribers using these devices may not be getting the experience they expect. At Network Systems, a Nokia Siemens Networks division, we design solutions that help Service Providers add services and capacity beyond voice – to satisfy today’s subscribers and the new wave of smart-device users.

Network Systems delivers smart, holistic solutions that help to tame the smart-device data excess and signaling overload and instead capitalize on its business potential.



Prospering in a world brimming with smart devices and screens

A tidal wave of applications is surging over the Internet. Videos are streaming to multiple screens (TV, PC, smartphone, tablet, and game consoles). This wave of data and signaling is flooding voice networks, distorting the traffic patterns they were designed for. A second wave is coming soon after: smart machines for machine-to-machine (M2M) communications. This will bring a flood of low data connected devices, ten times as many as smart devices.

However, voice services currently still make up over two thirds of mobile revenues even if that mix will invert

within three years. Striking a balance means evolving networks at the right pace – which is a challenge for service providers’ local markets.

Service providers need solutions that are pliable enough to go with the flow so they can:

- Offer an excellent broadband experience to any device in any place
- Adapt network performance easily and cost-effectively to keep pace with the advance of smart devices
- Exploit technologies that power the Internet: progressively transform voice-centric networks into IP-centric networks to deliver video and data

Today's adjustments, tomorrow's new business

How can service providers cope with signaling? Or channel massive data?

Lighten the signaling load. Smart phones signal more than any other device, and can even prevent normal voice calls when they deplete all signaling resources. New features slash signaling traffic by up to eighty percent. Nokia Siemens Networks smart-device features already cover the standards LTE, HSPA, GSM and WLAN.

Transform networks towards IPv6. Transforming networks to IP is complex, and stepping up to IPv6 makes this task more complicated. IPv6 will provide every smart device or smart machine with its own IP address. It takes a keen knowledge of mobile, fixed, microwave, optical, and IP technology to plan a smooth, secure transition from voice to data networks.

Flatten the architecture. Today LTE, flat Internet HSPA, and direct tunnel can be combined with single platform packet microwave backhaul and optical networks that are deployed, configured and reconfigured on the fly. A tailored network of data highways is key to broadband growth as base station capacities of 10 Gbps are now possible; and next generation optical networks begin at home.



Select ingredients in Network Systems' recipe for success:

- Best multi-radio scheduler in Telia's Gothenburg network, leading to highest LTE throughput
- First commercial hardware and software for LTE (multimode GSM, WCDMA, LTE, LTE-A, TD-LTE)
- First end-to-end QoS solution for the Finnish service provider Elisa
- Best smart-device support in HSPA – up to 80% less signaling and 80% longer battery life
- Smart-device features extended to GSM
- Smart WLAN – seamless handover between WiFi and mobile networks
- Self Organizing Networks – SON for GSM, WCDMA, LTE, including pico/micro/macro BTS
- Software upgrade from Hybrid to Packet Microwave Radio
- Packet Optical Transport

“The number of smartphones on our network is very high. More than 50 percent of all data traffic in the Netherlands is processed by the T-Mobile network. Management of signaling traffic is imperative in the rapidly evolving mobile broadband landscape. In the long run, excessive signaling can lead to network congestion and can have a negative impact on the quality of voice calls for all our subscribers. Nokia Siemens Networks' Cell_PCH feature provides the ideal solution to avoid these negative impacts. This feature has been implemented across the Deutsche Telekom Group.”

*Jan Kuijpers,
technology director, T-Mobile Netherland,
press release January 2011*



Figure 1: From bit pipe to smart pipe

Engagement...

Nokia Siemens Networks devotes considerable resources to research and development across the world. More in fact than Nokia and Siemens combined. Although many products are global, regional efforts are a big part of sustainable, customer-focused research and development. For instance, our local research and development team in China helped spearhead TD-LTE, a technology that uses unpaired spectrum for LTE. Now TD-LTE is gaining traction around the world.

To design smarter networks, our engineers have a firm grasp of smart devices and engineering innovations. Nokia Siemens Networks Smart Labs in Finland, the USA, South Korea, Spain and China (for TD-LTE) give us the insights on new mobile devices and applications, gauging their impact on networks.

...and agility

Technology is evolving fast, requiring a nimble research and development. Internet applications are transforming customer habits, requiring Communication Service Providers to anticipate coming needs and adapting networks. So we continue to design more compact equipment and flexible software to build an infrastructure that anticipates customer experience by design.

Automated, self-organizing and self-optimizing solutions help manage the broadband network environment. Less operating effort, faster response, better failure handling and service provisioning – all this adds up to agility.

Serving customers beyond communications
 Nokia Siemens Networks certainly knows how to handle smart devices, but our skill set extends well beyond the communications sector. An agile and reliable partner to railways, government agencies, and enterprises in other industries, Network Systems has made and kept long-term commitments many times over. For example, after two decades of development and testing in collaboration with railway operators, our GSM-R solutions are now revolutionizing global train signaling and communications. We recently migrated the GSM-R radio software to our Flexi Multiradio base station, thereby providing our GSM-R partners with a seamless evolution to LTE – just what you expect from the global market leader.

Customer-centric research

Driven by a customer-first mindset and taking the long-term view on what we do to serve our customers, our hardware and software developers continue to evolve base stations and transport products to IP. With Nokia Siemens Networks Smart Labs, service providers benefit from our engineers' insight into application behavior and ability to minimize adverse effects.

Evolving from voice communications to smart services

Boosting capacity by moving to LTE and optical networks is one approach for handling more data. It's definitely the only approach to reduce latency. Quality of Service then helps allocate this capacity to users and applications when traffic peaks exceed the designed capacity. Quality of Service also ensures that the systems inbuilt low latency is maintained for time critical applications.

This opens service providers up to allowing content based pricing – e.g. a video which includes the cost of the Gigabit of data needed to download it to your tablet device.



Figure 2: Anticipating customer experience by design

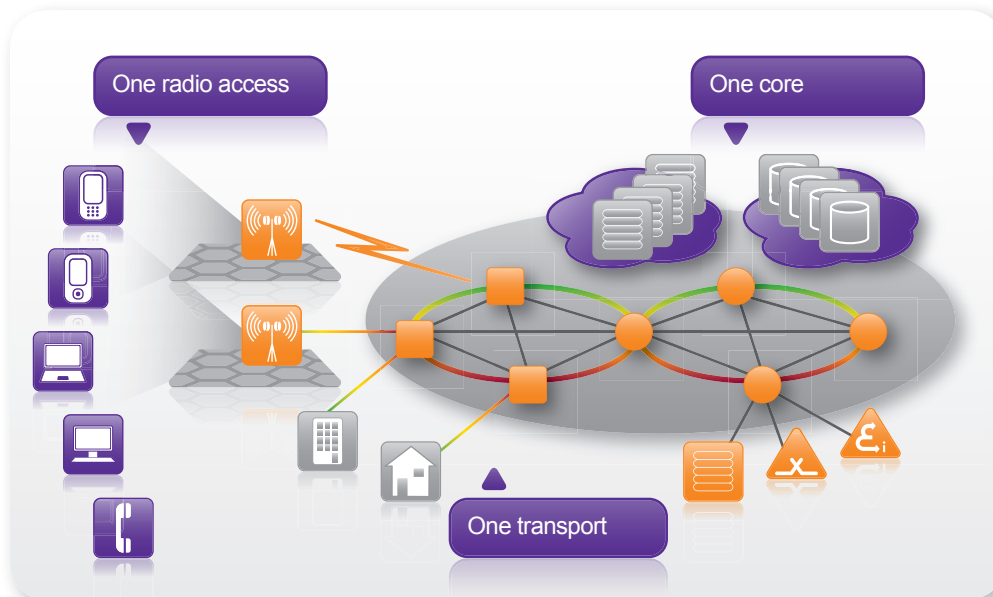


Figure 3: Clear evolution strategy to flat, all-IP based architecture

Why Network Systems?

Today's markets require broadband solutions with Quality of Service differentiation and management capabilities for smart devices. We deliver them end-to-end. Our evolution strategy to flat, all-IP based architecture offers one radio access with single RAN, one transport including one optical access, packet aggregation, packet-optical transport and one flat voice and data core. We are a long-term industrial partner who

- Performs – by deploying networks for over 400 radio customers and counting, including the largest 40-Gbps optical network.
- Leads – by industrialising new solutions such as flat Internet HSPA for immense data loads, and synchronized mobile all-IP backhaul, and standardizing such solutions for the benefit of all.

- Innovates – by offering the option of Voice over LTE to keep vital revenues flowing and Orthogonal Sub Channel to extract more calls out of diminishing spectrum for GSM, Smartphone features for GSM to extend services to any location with coverage; or multi-technology software defined radio, in both baseband and radio frequency, to simplify network deployment.

With a smart, holistic solution from Nokia Siemens Networks Network Systems, you are seizing the business initiative as a smart services operator.

You have so much to gain

We deliver more performance from less hardware. Add self-organizing, and that lowers CAPEX and OPEX per bit. Tell us what customer experience you want to deliver and ask us to design your networks accordingly. We are confident to deliver satisfaction that translates directly to your bottom-line returns.

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