

Nokia Siemens Networks

Leading the open-market advance with the 3G Femto Solution



3G femtocells improve in-building coverage and capacity, bringing better quality mobile broadband services to indoor premises for a far more gratifying user experience. What's more, they enable mobile network operators to strengthen and extend their business ties with end users.

Nokia Siemens Networks is leading the way towards an open market for femtocell customer premises equipment (CPE) with the 3G Femto Solution featuring standardized luh and TR-069/196 interfaces.

A new way of doing business

Femtocells enable the mobile operator to get a bigger share of the household or enterprise communications revenue. The traffic offload effect of femtocells also helps the operator to retain good service quality on the macro network side.

The provisioning and integration of consumer-CPE type products represents a new way of doing business for the mobile operator. Continuous access to innovation and cost evolution on the CPE side; combined with the necessity to provide a zero-touch user experience for installation are among the key challenges of this business.

Moving towards a multivendor future with luh and TR-196

The Nokia Siemens Networks proposal – the 3G Femto Solution – rises to these challenges by providing simplicity on the network side along with options for the CPE. A highly integrated and compact, yet highly scalable Femto Gateway integrates femtocells into the core network over a standard lu interface over IP or ATM transport protocol without changes to the core network elements being needed. The 3G Femto Solution complies with 3GPP standard luh and TR-069 interfaces, and with the TR-196 data model.

For enterprise-focused and residential rollouts

Thanks to the extreme scalability of the Femto Gateway, the solution lends itself to enterprise-focused systems as well as nationwide residential roll-outs, and does this with unparalleled cost efficiency.

Zero-touch provisioning made simple

The Nokia Siemens Networks provisioning system offers multiple optional interfaces to operator customer data systems, thus making zero-touch femtocell auto-configuration easy. The management of the 3G Femto Solution can be integrated into that used for Nokia Siemens Networks macro networks, thereby reducing further operating expenditures.

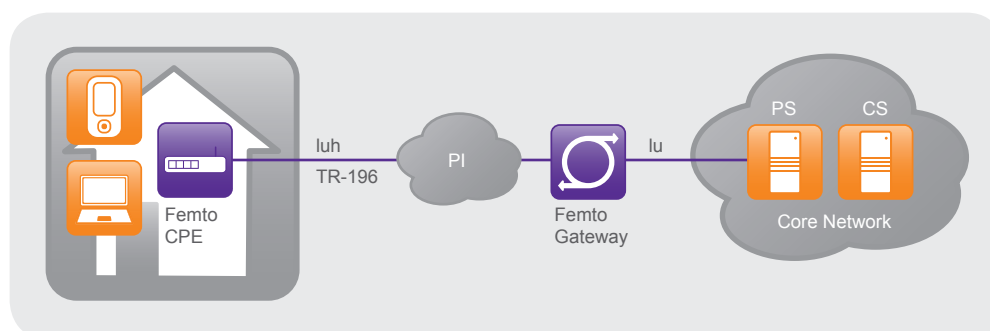


Figure 1: Schematic diagram of the architecture

A rich, varied CPE offering

The Femto Access Point incorporates the 3G Node B and RNC functionality with xDSL, WiFi and Ethernet routing functions being optionally available. Models for both consumer and enterprise segments are available. The Access Point may be operator-branded and tailored to support each operator's business strategy.



Nokia Siemens Networks highly-integrated and compact Femto Gateway.

A variety of CPE models certified by Nokia Siemens Networks are available from globally recognized vendors.

User benefits:

- Simple, convenient access
- Improved user experience
- New services, competitive prices, attractive service packages

Operator benefits:

- More revenue from the household/enterprise through churn reduction and service bundles
- Macro network offload
- Easy deployment of the Nokia Siemens Networks highly-integrated compact solution
- Access to a multitude of different CPE models and new femtocell applications through the Nokia Siemens Networks open CPE architecture

Femto Gateway general specifications

Main functions	<ul style="list-style-type: none"> • Grooming point for cellular traffic from and to multiple femto CPE • Central management instance for connected femto CPE • Alarm correlation and filtering • IPsec termination from Femto CPE
External physical interfaces	SDH: STM-1/OC-3 optical Ethernet: Gigabit Ethernet electrical (traffic), 100 Base-TX (traffic, local management)
Power interface	110/220 VAC, 50/60 Hz, 48/60 VDC
Mechanical	Mountable in a 19" rack

Femto Access Point general specifications (typical; specifications and supported features vary depending on CPE model)

Reference standards/terminals	3GPP rel.99 and later releases
Configuration	Plug-and-play
Security measures	IP security tunnel, authentication based on X.509 certificates
Transmit power	Up to 24dBm (adjustable) depending on model
Capacity	4-24 simultaneous connections/calls, depending on model
HSPA	7.2 - 21 Mbps DL, 1.4 - 5.7 Mbps UL, depending on model
Additional features	Optional xDSL, WiFi, Ethernet routing
Transport protocol	3GPP Iuh

