

Corning SpiderCloud Services Node 9000

Dual-Mode 3G UMTS and 4G LTE Air Interface



Features and Benefits

Capacity	Up to 100 multimode UMTS and LTE radio nodes
Privacy	Carrier-grade security
Installation	Enterprise-optimized easy installation Synchronization with macro network Self-optimizing networks (SON) Automatic RF planning
Performance	VoLTE support Ongoing RF optimization
Backhaul	Sharing between applications User and traffic prioritization Core network integration

Scalable small-cell services node for enterprises and venue deployments | Dual-mode 3G UMTS and 4G LTE air interface | Multiple small-cell applications | One powerful enterprise services platform

The SpiderCloud® enterprise radio access network (E-RAN) is an innovative solution for delivering cellular coverage, capacity and services inside buildings. E-RAN consists of a services node, which controls, configures, and manages up to 100 UMTS and LTE SpiderCloud radio nodes, providing UMTS and LTE coverage in buildings and campuses as large as 1,000,0000 ft². Using a services node, operators and enterprises can deploy an indoor cellular solution within days.

The enterprise-optimized design provides the same ease of installation as that of traditional Wi-Fi equipment, and greatly reduces the time to bring up new small cell sites. Using a common backhaul connection via any Ethernet LAN and an integrated network management system, operators can manage multiple access networks.

The SpiderCloud E-RAN architecture allows up to 100 small cells to appear as a multisector base station, with the Services Node anchoring both luh and S1 interfaces with the core network. The services node provides a single touchpoint in terms of control, data, and management traffic. This architecture enables a number of unique performance-enhancing features, such as fast intra-E-RAN handovers and centrally coordinated interference mitigation schemes.

With rapid adoption of mobile and cloud computing, the evolving enterprise is shifting rapidly from traditional CapEx-oriented IT infrastructure to more OpEx-oriented business models that deliver new applications across smartphone and tablet platforms, using virtualized infrastructure. Operators and enterprises are in a position to enable the E-RAN platform to address demand for reliable coverage and capacity.



Services Node | Figure 1

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System Specifications

Key Features	<p>Simultaneous multiple air interfaces support</p> <p>100 multimode UMTS and LTE radio nodes</p> <p>Auto discovery and provisioning of small cells</p> <p>Self-organizing network for all air interfaces</p> <p>Backhaul network sharing and QoS</p> <p>Coordinated radio environment monitoring (REM)</p> <p>Call performance event reporting (CPER)</p> <p>Multioperator core network support for UMTS and LTE (MOCN)</p>
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Security	<p>Trusted platform module (TPM)</p> <p>Secure boot and secure key storage</p> <p>Encrypted file system</p> <p>IPSec encryption</p> <p>X.509 certificate-based authentication (core network and small cells)</p> <p>Perfect-forward secrecy (PFS)</p>
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HW Features	<p>300K+ hours overall system MTBF</p> <p>Component redundancy</p> <p>VLAN traffic separation</p>
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Synchronization	<p>IEEE 1588v2 PTP-based synchronization</p> <p>Synchronization with macro network</p>
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System Specifications (cont.)

Synchronization (cont.)	<p>Multiple synchronization clock options</p> <ul style="list-style-type: none"> - Onboard high-precision OCXO - Core network master PTP server - Cellular network listen (over-the-air) - Integrated GNSS receiver (GPS or GLONASS)
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Networking Protocols	<p>DHCP server, DHCP proxy</p> <p>IPv4, IPv6, UDP, TCP, RTP, GTP, IPSec</p>
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System Management	<p>Configuration: remote management and auto configuration using TR-069</p> <p>Faults and events: TR-069, SNMPv2c, SNMPv3, Syslog</p> <p>Performance: 3GPP counters, KPIs, standard MIBs, and SpiderCloud MIBs</p> <p>Command line interface (CLI) via console port and remotely using SSH</p>
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UMTS Specifications	<p>2400 simultaneous sessions</p> <p>1000 session setups per minute</p> <p>250 Mbps aggregate UMTS throughput</p> <p>Inter small-cell soft handover</p> <p>Auto assignment of primary scrambling codes (PSC)</p> <p>Handover to and from macro UMTS and GSM (inter-/intra-frequency)</p> <p>Cell reselection from UMTS to LTE</p> <p>CS macro hand-in from UMTS</p> <p>Access overload control</p> <p>Emergency call prioritization</p>
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System Specifications (cont.)

UMTS Specifications (cont.)	Public warning system (CMAS and EU-ALERT)
	Automated neighbor relation (ANR)
	luh, lu over IP (luCS and luPS)
	luh-Flex (connectivity to multiple luh)
	3GPP KASUMI ciphering

LTE Specifications	8000 simultaneous sessions
	2000 session setups per minute
	1 Gbps aggregate LTE throughput
	Intra-E-RAN fast handover
	Centrally coordinated dynamic fractional frequency reuse for ICIC
	Handover to and from macro LTE (S1 and X2)
	Circuit-switched fallback (CSFB)
	Voice over LTE (VoLTE)
	Single radio voice call continuity (SRVCC)
	Public warning system (CMAS and EU-ALERT)
	LTE positioning protocol annex (LPPa)
	Automated neighbor relation (ANR)
	S1 (S1-C and S1-U)
	S1-Flex (connectivity to MME/SGW pools)
	3GPP SNOW 3G ciphering

Physical Specifications

Interfaces	8 x Gbps Ethernet ports
	2 x Gbps SFP Ethernet ports
	1 x RJ45 console port (RS-232)
	1 x 10/100 management port
	1 x TNC connector for GNSS antenna

Mounting	1RU (standard 19-in rack)
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Physical and Environmental	Dimensions: 603 x 448 x 44 mm (23.7 x 17.6 x 1.7 in)
	Weight: 10.7 kgs (23.5 lbs)
	Power: 450 W rated
	Voltage: 100-240 V
	Max current: 4.5 A
	Altitude: 0 to 3000 meters (0 to 9843 ft.)
	Operating temp: 0 to 40°C
	Storage temp: -40 to 70°C
Humidity: 7 to 93% noncondensing	
Cooling: 5 x speed controlled, hot-swappable fans	

LEDs	1 x power
	3 x status
	1 x synchronization

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The logo consists of a solid blue square with the word "CORNING" in white, uppercase, sans-serif font centered within it.

Regulatory Compliance and Certification

Regulatory Compliance	CISPR 22:2008 Class A
	EN 55022:2010/AC:2011
	EN 55024:2010
	EN 61000-3-2:2006/A2:2009
	EN 61000-3-3:2008
	EN 60950-1:2006/A12:2011
	VCCI V-3/2012.04
	CAN/CSA-C22.2 NO. 60950-1A-07 (R2012)

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