Scalable Small Cell Services Node for Enterprises and Venue Deployments

Multiple Air Interface Technologies
Multiple Small Cell Applications
One Powerful Enterprise Services Platform

SpiderCloud Wireless pioneered an innovative small cell Radio Access Network architecture for enterprise called E-RAN. The Enterprise Radio Access Network consists of a Services Node, which controls and manages up to 75 Radio Nodes powered via Ethernet (PoE), providing coverage and capacity for over 500,000 sq. ft. of office space. Using a single Services Node, operators can mix many Radio Nodes and deploy targeted coverage for 3G, Wi-Fi and LTE to medium and large enterprises within days. The unique architecture dramatically simplifies configuration, RF management, intra-cell mobility and traffic aggregation. The self-organizing-network design greatly reduces interference and supports seamless handovers between small cells. 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, selectively offload traffic directly to the Internet, and apply traffic policy across access technologies.

SpiderCloud Wireless is first to bring to market a “3 in 1” small cell Services Node with a 3G RNC, a Wi-Fi controller and a LTE gateway inside a single, integrated, enterprise premises-based appliance. In addition, the Services Node includes a powerful application hosting platform. These applications use SpiderCloud’s E-RAN API to access the data, signaling and local intelligence embedded in the wireless network. With the Services Node, wireless operators can offer managed services and new applications across all three wireless interfaces. 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 that works across multiple access technologies. Mobile Operators are in a very unique position to enable this new enterprise and build valuable applications and services. With SpiderCloud’s powerful and flexible Services Node and ERAN platform, operators can address enterprise demand for reliable coverage and capacity, and also provide managed services to medium to large enterprise customers.

SmartCloud™ MACS Mobility, Application & Cloud Services

The Service Node’s virtualized application hosting platform spans the three wireless interfaces, Enterprise premise, Mobile Operator core, and the Internet to enable the creation of unique services that span the architectural air-gap between the Mobile Operator and the Enterprise.

Between the Mobile Operator and Enterprise there is a technology air-gap that is not addressable by Enterprises or their traditional technology suppliers because it must be bridged from the Mobile Operator’s network towards the Enterprise. Addressing it can increase the usability of Enterprise technologies or create unique services that will make Enterprise IT more successful with their own customers and will elevate the Mobile Operators delivering the services to a Strategic role.
Mobile Operator Opportunities

Coverage and capacity in 3G, Wi-Fi, and LTE that is uniform is a foundation for offering Services. In Enterprise facilities, on average, 40% of the employees change work locations annually. As Enterprise employees “un-wire”, no matter where the work from in the facility they need wireless services to be successful. The SpiderCloud E-RAN’s ease of deployment and low price point greatly enlarges the Total Addressable Market that is available to the Mobile Operator. The E-RAN addresses the delivery gap above Enterprise Femto and below DAS.

‘Consumerization of IT’, BYOD, and the unstoppable wave of wireless devices into the Enterprise combined with CapEx challenges offers a unique opportunity for Mobile Operators to transform their Enterprise customer relationships from buying devices to a full suite of services that leverage the core business of the Operator.

Managed Services Supporting Business Drivers

• Aligns with business and operational efficiencies offered by Mobile Operators – Operating networks at-scale is the core business. The service delivery model will need to be adapted to the higher touch requirement and less of a strict template due to customer network variance.
• Medium size Enterprises don’t have the people in-house to adequately stay ahead of the complexity – This can be a significant problem to support the business customers. In addition, when someone good does emerge and get trained, a larger Enterprise lures them away with salary and benefits that the mid-size Enterprise cannot compete against.

In this time of change, Mobile Operators have the opportunity to increase ARPU by offering unique application and cloud-based services along with elevating themselves to the role of Trusted Advisor. This change in approach can help a Mobile Operator acquire more subscribers inside the Enterprise by offering more coverage, network capacity, and compelling services. Managed Services transform the Sales lead-in from low cost devices and deep discounts on rate plans to valuable offerings to Enterprise IT.

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Managed Wi-Fi and Policy Enforcement

The Wi-Fi Network has capacity for 16 Wi-Fi SSID’s in both 802.11 frequency bands.

The Services Node supports SSID authentication:

• Enterprise 802.1X (PEAP, TLS, … via RADIUS to LDAP/AD)
• Captive Portal
• Hotspot 2.0
• WISPr
• Mobile Offload.

The Enterprise 802.1X authenticated SSID can be directed to the Enterprise network directly or via DMZ at 1Gb LAN rate and leverage the Enterprise’s Internet Border access policies.
Web Security and Content Filtering

Wi-Fi Data Traffic must be secured to protect the Enterprise from liabilities associated with the activities of device owners or delivery of harmful malware. In many countries, if the Enterprise does not manage guest usage, they are still held accountable by regulatory or industry bodies for their guest's actions. For example, movie/music downloads via Bit Torrent become the responsibility of the Enterprise. In those instances, the Services Node can direct Internet traffic to Cloud based Services such as ScanSafe or Zscalar that can leverage their global Cloud services to do the filtering/security work for the Enterprise's guests.

Enterprise Mobility Management

Enterprise Mobility Management “EMM” application suites such as Airwatch or Mobile Iron can be hosted by the Mobile Operator on the Services Node to enable fast local delivery of these services to the Enterprise. For very large deployments where the capacity of the Services Node cannot support the full suite, select operational components can run on the Services Node while connecting to an engine in the Mobile Operator's Cloud hosting center.

Cloud PBX Voice+IM/Presence

The Services Node can process irregular length phone numbers dialed or texted by the mobile devices and send them to the Enterprise UC environment. This solves a usability problem that is hindering Enterprise UC adoption on mobile devices. With this solution, voice, IM, and Presence integration requires no software to be deployed to devices nor does it force the Enterprise into restrictions on supported devices. Up to now, UC strategies have been a way to move telephony from desk phones into computers and have not fully factored in the culture shift to mobile devices and Corporate Owned Personally Enabled (COPE)/Bring Your Own Device (BYOD) thinking change that has occurred over the last few years. With Cloud PBX Voice, the Mobile Operator provides a uniquely valuable service in the network plumbing.

Location IQ

The Services Node is not a Location Based Services (LBS) platform, but it can greatly raise the Location IQ of other LBS platforms by providing a variety of data points that can be used in both Enterprises and Venues for useful services. Prototypes have been created that provide very rich data feeds to energy management, conference room management, notification/alert, queue length, and time tracking systems that have very practical use in Enterprises.

Innovation Engine = Global Revenue Source

Finally, the Services Node’s architectural location, robust virtualization platform, and API's creates new opportunities. There will be many innovative software packages developed in the future to realize the needs of both Mobile Operators and Enterprises. For Enterprise software innovators, we provide a fertile new place to create service concepts that, up until now, were impossible to realize. For Mobile Operators that innovate new services, there is a global opportunity to license those software packages to other Mobile Operators and create new revenue flows.