

Simply the
**SMARTEST
WIRELESS**
for a **MOBILE WORLD**



SmartCell

Architecture

Designed and Built for **Pervasive Performance...**

Available from **Ruckus Wireless**



 **Ruckus**
Simply Better Wireless.

The Mobile Operator Challenge

Growth in mobile Internet demand is clearly outpacing wireless network capacity, with urgent issues in concentrated areas today and credible forecasts of much more significant problems to come in the next few years.

Operators are responding with a number of measures, including extensive LTE deployments, spectrum acquisition and refarming, backhaul upgrades, movement toward more usage-based pricing, and in increasing numbers, extending their radio access network strategy with Wi-Fi and small cells.

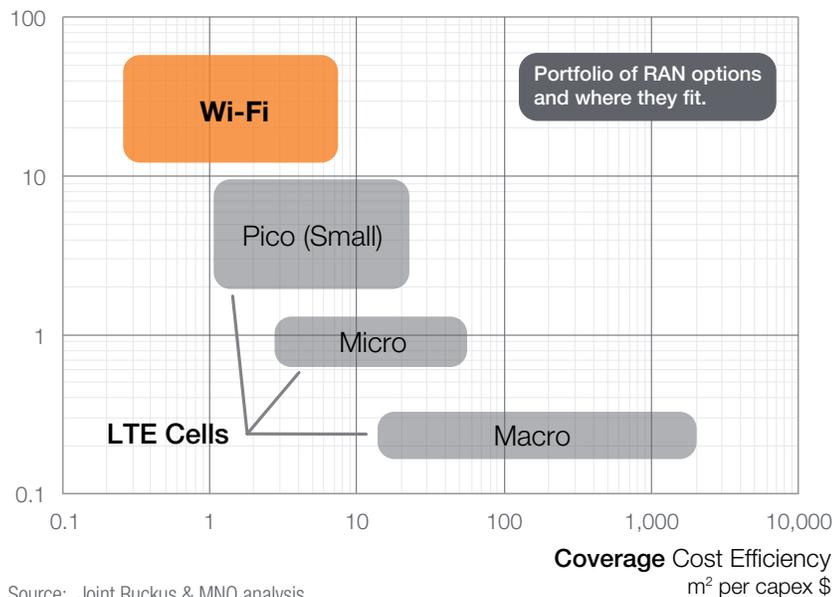
Each of these approaches has its strengths and weaknesses. LTE provides a significant advance over 3G performance for broad coverage, but its use in high-density applications is challenged by inter-cell interference and siting constraints. Suitable new spectrum is scarce, expensive, and takes a very long time to secure.

Enhancing RAN capacity with Wi-Fi has a number of advantages. Nearly all smart mobile devices support Wi-Fi today, and in fact a growing proportion (particularly tablets) rely on Wi-Fi as their only network connectivity option. Most subscribers expect to find Wi-Fi in public venues now, whether from their primary service provider, a resurgent community of hotspot providers, or the venue itself.

For operators, Wi-Fi's shorter range, high throughput, access to as much as 600 MHz of spectrum, and lower unit costs drive higher capacity per dollar of capex in high-density applications than LTE can reach (see figure 1). Finally, Wi-Fi's time-to-market advantage over LTE small cells allows operators to seize the initiative immediately in the intensifying land grab for deployment rights in high-density locations.

ECONOMICS OF COVERAGE AND CAPACITY FOR MOBILE INTERNET INFRASTRUCTURE

Capacity Cost Efficiency
 kbps per capex \$



Source: Joint Ruckus & MNO analysis.

That said, as the world's leading mobile operators move aggressively to tap these inherent advantages of Wi-Fi, they have made it clear that four critical requirements must be met for the carriers' use to succeed in practice:

1. Strong radio performance, both for access and backhaul, in the face of unprecedented subscriber growth, high interference, and challenging high-density deployments;
2. Seamless subscriber experiences, to ensure high adoption rates by making Wi-Fi as secure and easy to use as 3G or LTE;
3. Full integration with the mobile core, which is key to enabling the requisite seamless experience by leveraging existing systems for billing, lawful intercept, policy, roaming, etc.; and
4. Solutions that address the need for service innovation and monetization such as location based services, network wholesaling, analytics, and support for non-SIM devices.

The Solution: The Ruckus SmartCell Architecture

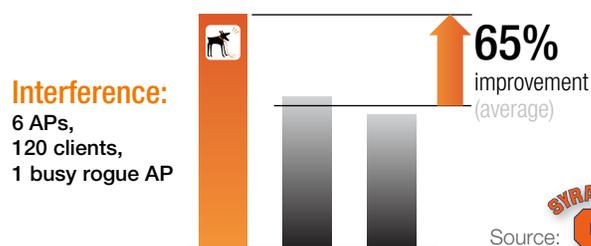
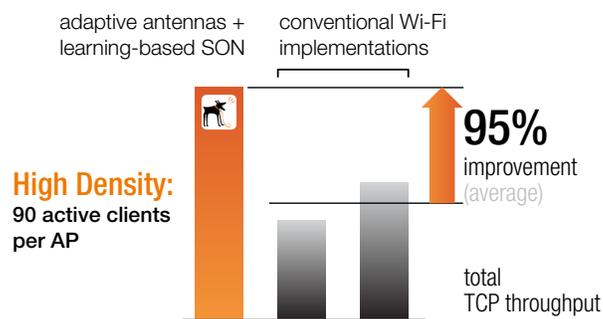
The Ruckus SmartCell Architecture combines the industry's broadest and highest-performing radio portfolio with the SmartCell™ Gateway 200 for unrivaled scale and flexibility in cellular integration. Our end-to-end solution leads the field in addressing each of the key requirements for truly successful carrier-class Wi-Fi, at last giving the technology a long-term role as a full peer to 3G/LTE in the mobile operator's RAN strategy toolbox.

Powered by our unique BeamFlex adaptive antenna technology and a host of smart, self-organizing network behaviors, our access points (APs) and small-cell backhaul solutions deliver the ultimate in radio performance in challenging high-density applications.

Through our leadership in both developing and implementing the standards work in process at the Wireless Broadband Alliance, the Wi-Fi Alliance, and 3GPP, our complete solution delivers on the promise of seamless subscriber experiences, leveraging the Hotspot 2.0 initiative as well as established standards such as 802.1x.

Our SmartCell Gateway 200 (SCG) offers the unique combination of a massively scalable WLAN controller architecture — supporting 10,000 APs and 100,000 active subscribers per 2U chassis — along with the interface flexibility required to support full integration into the mobile packet core via the 3GPP standard for trusted WLAN access. The SCG 200 also supports the multitenancy features required for inter-operator wholesaling and neutral-host deployments.

The portfolio is completed by a rich EMS and analytics platform developed through our work with several of the world's largest carrier Wi-Fi deployments to date, including KDDI, Time Warner, and Sky.



Ruckus: Wi-Fi's True Innovator

The product of our intense focus on carrier class solutions is a suite of unique and continually-improving technologies that surround 100% industry-standard 802.11 with a wealth of extensively field-proven enhancements, working in concert to deliver what we call Pervasive Performance, including:

- adaptive antennas which deliver 2x better connection speeds and AP capacity in challenging high-density and high-interference circumstances
- smart meshing for resilient, high-capacity, low-cost backhaul
- self-organizing, dynamic channel optimization based on actual realizable capacity



*The Ruckus SmartCell 8800 & SmartCell Gateway 200.
Designed and built for Pervasive Performance.*

The SmartCell 200 Gateway extends our tradition of innovation to Wi-Fi/cellular integration. Working within the framework of Wi-Fi and 3GPP standards, we have developed the industry's most scalable, flexible, and efficient platform for bringing Wi-Fi traffic into the mobile core. Key features include:

- support for trusted WLAN access per 3GPP standards
- support for 10,000 APs, 100,000 active clients, and 20 Gbps of throughput per 2U chassis
- Hotspot 2.0 support for seamless roaming

To learn more about the Ruckus SmartCell Architecture visit www.ruckuswireless.com or scan the code here.

