

INDOOR WIRELESS DONE RIGHT

Wide Spectrum. Protocol Agnostic. Cost Effective.

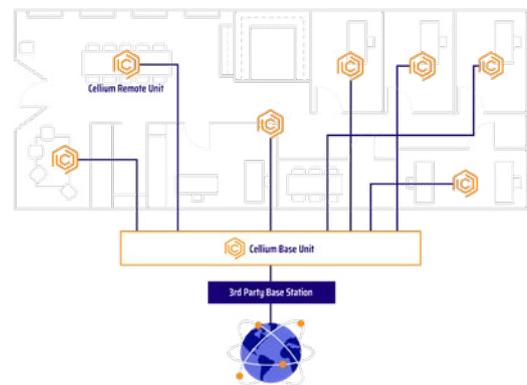
Cellium brings to market a patented technology designed to revolutionize indoor wireless connectivity.

Our intelligent SoC is the world's first to optimally distribute any sub-7 GHz wireless protocol to address the current and future needs of In-Building Wireless (IBW) connectivity. It is compatible with all existing indoor wireless technologies, including the latest cellular 5G, WiFi 6/6E, and IoT networks.

INTRODUCING A DISRUPTIVE

Indoor Wireless Coverage System

Cellium end-to-end system is comprised of a Cellium Base Unit that distributes the analog RF signal to various Cellium Remote Units mounted in the indoor space. The analog RF signal is distributed to the Remote Units over existing in-wall copper cables such as CATx or Coax. The Base Unit has antenna ports to connect to the RF interface of any third-party Signal Source or WiFi Access Point with a standard RF cable.



ADDRESSING

Indoor Wireless Coverage Challenges

Spectrum

The latest Cellular and WiFi communication protocols are designed to transmit wide bandwidth, on high frequencies and high modulation rates that require high SNR and low latency. Furthermore, each Cellular cell or Wi-Fi Access Point occupies larger parts of the available spectrum, dramatically increasing congestion and dropping the SNR/SIR, resulting in rate drop and low spectrum efficiency in dense indoor deployments.

Coverage

Intense wireless spectrum utilization has forced regulators to allocate new frequencies for 5G and WiFi 6/6E standards in higher mid-band spectrum. These frequencies suffer high penetration loss that significantly drop the SNR and consequently shorten the system coverage. Current indoor systems have significant high cost in order to distribute this signal and achieve high performance and throughput.

Deployment

In order to meet the technical requirements of high frequency and high bandwidth radio technologies, traditional indoor cellular coverage deployments require significant investment in infrastructure such as RF cables, fibers, radios, and installations for each new technology. Furthermore, most deployments are not future-proof and requires a rip-and-replace to support new bands and protocols.

Cost

Cellular 5G and WiFi 6/6E SoC consist of MIMO and higher modulation rates that require much higher processing power compared to older cellular or WiFi technology SoCs. The number of RF chains are doubled or quadrupled to keep up with the latest advances in wireless technologies, increasing the system cost.

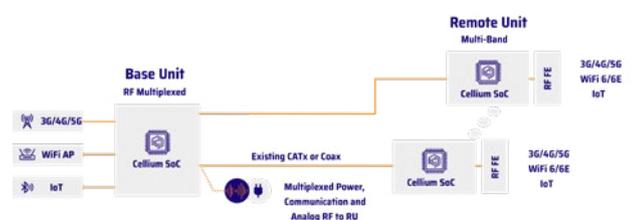
A NEW APPROACH TO

Indoor Wireless Connectivity

Cellium patented technology and SoC convert radio signals emanating from a signal source, such as Cellular small cell / RU, WiFi AP, or IoT hub at the Base Unit cable edge; and distribute it over existing in-wall CATx Ethernet copper or coaxial cables. The cables carry the wireless signals in the analog domain to multiple radio Remote Units which can be installed in every room and space within the indoor area to reconvert and transmit the signal.

System Block Diagram

A wireless protocol agnostic RF technology that handles MIMO signals with no handover or management required.



Benefits

A disruptive technology that significantly enhances the performance of indoor Cellular, WiFi and IoT wireless networks at a fraction of the cost, utilizing existing in-wall Ethernet or Coax cables as part of the wireless network.



- 3-10x** Bandwidth
- 50%** Power Consumption
- 75%** Physical Size
- 25%** System Cost
- 10%** Latency

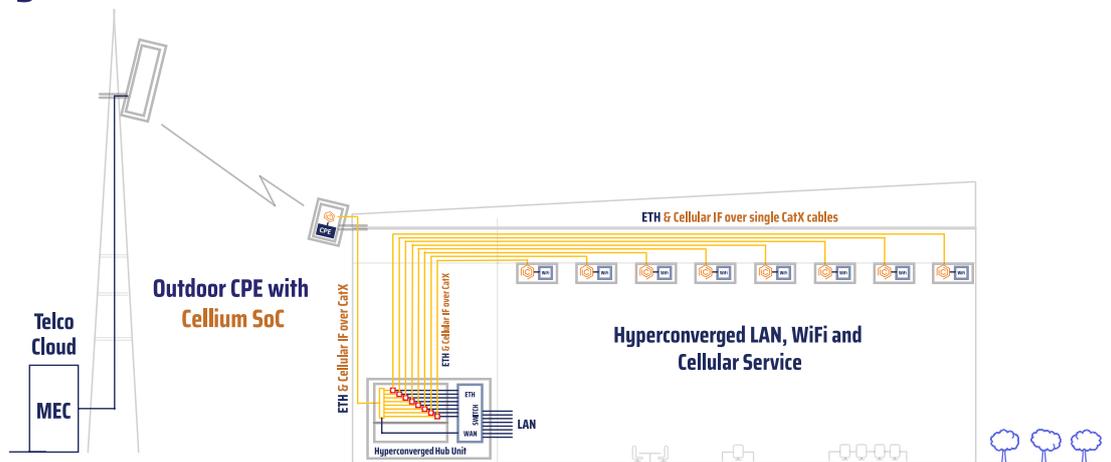


- Any Band Up to 7GHz
- Automatic Cable Adaptation
- Simple RF planning & Installation
- No inter-cell interference (Robustness)
- No Handover between RUs

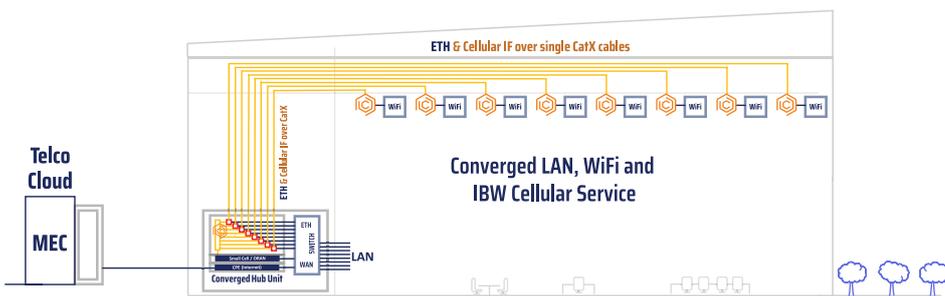
SCALABLE AND MODULAR SOLUTION

Hyperconverged 5G/4G FWA WAN, WiFi LAN and IBW Network

While service providers are targeting new revenue streams from 5G FWA and WiFi LAN services to small and medium businesses, in order to support the 5G IoT and mobility services indoor, traditionally a dedicated IBW system was required, Cellium Insphere SoC enables hyperconverged FWA WAN and indoor WiFi and IBW service based on low-cost indoor distributed repeater systems.



On-premises (Local) Service Provider and Private Networks



For Enterprises in larger buildings, when businesses needs more capacity, or when on-premises, local private network is deployed, Cellium Insphere SoC enables increased bandwidth over the CatX cables, reduced system cost, high performance and smooth mobility via an interface to local small cell or ORAN radio unit (ORU).

FWA: Fixed Wireless Access | **IBW:** In-Building Wireless | **MEC:** Multi-access Edge Computing | **CPE:** Customer Premise Equipment | **SoC:** System on a Chip

The Company

Cellium is a multidisciplinary technology company focused on providing indoor wireless connectivity solutions that support backward compatibility, as well as the latest current and future generation technologies, to future-proof investment of cellular, WiFi and IoT networks essential to the enterprise, retail, education, healthcare, hospitality, venue, and other market segments.

Our SoC enables the distribution of a wide sub-7GHz RF spectrum between a base unit and multiple distributed radio units over standard CATx Ethernet or Coax cables in the most efficient, high performance, and cost effective way; overcoming the challenges neutral hosts, integrators, and end-users face in traditional DAS and DRS deployments.

Contact us at www.cellium.net