



SMALL CELL SOLUTION



Multiband
Capacity expansion
Compact design

Comba

Who has got you covered?

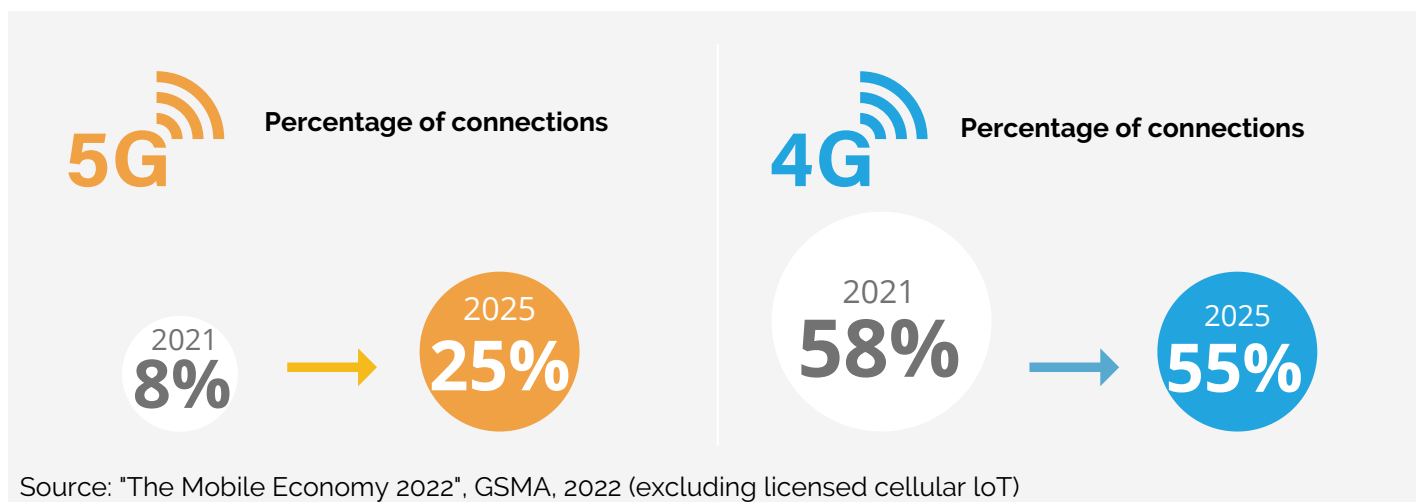
A well-known fact is that the vast majority (70%+) of the traffic in our mobile broadband networks are generated/consumed indoors. Comba sees this trend extending and even being exaggerated by 5G networks, and this focuses on **the need for dedicated indoor coverage to enhance the end-user experience.**

The Comba small cell solutions cover the need to pursue network excellence without the need to densify the macro network. The basic idea is as simple: **create the coverage where the users are located.** It also saves on the power bill and the site rental expense in most cases.

Reduce churn. A happy customer served is less likely to churn. The unilateral indoor small cell provides investment protection through high-quality and consistent service.

While one can build outside in coverage, it is often subject to unpredictable/unpreventable changes. In developing urban areas, new buildings and changes in the city architecture present challenges and may very well change existing coverage. Add to this is the annual cell site loss the operators experience each year, it is understandably challenging to keep consistent coverage for some of the most valuable customers with traditional Macro coverage.

New types of customers come with new needs. The rise of private networks in different verticals has caused a renewed interest in indoor coverage. Cellular quality and capacity are the new foundation to build upon.



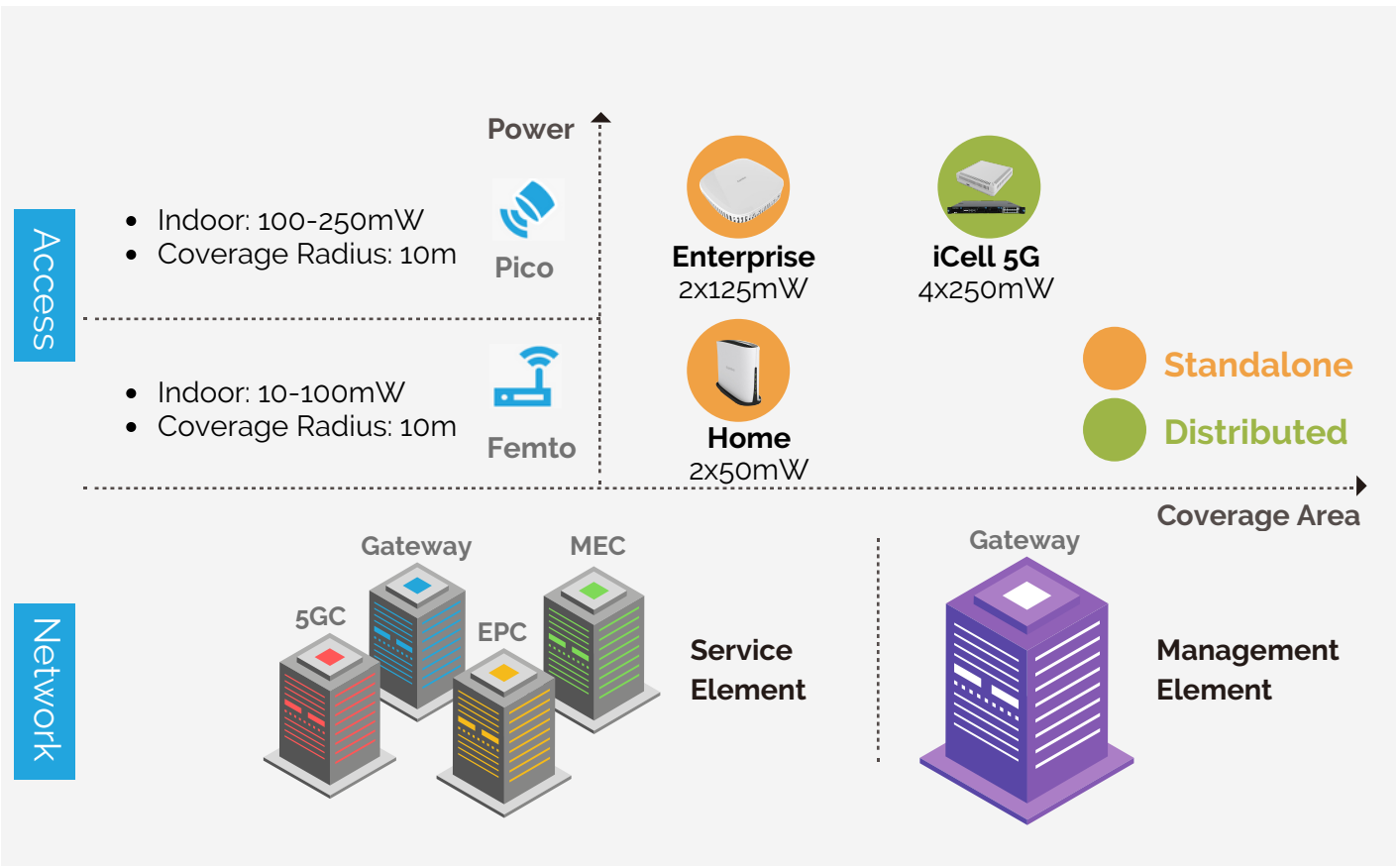
Deploy the right solution to maximize ROI and enhance user experience

Operators see small cells as the key to offer improved depth of coverage and boost traffic and voice services in densely-populated urban areas. To maximize return on investment, small cell site locations must be determined based on actual, localized data traffic demand.

Considering the right small cell for network deployment with the following important points

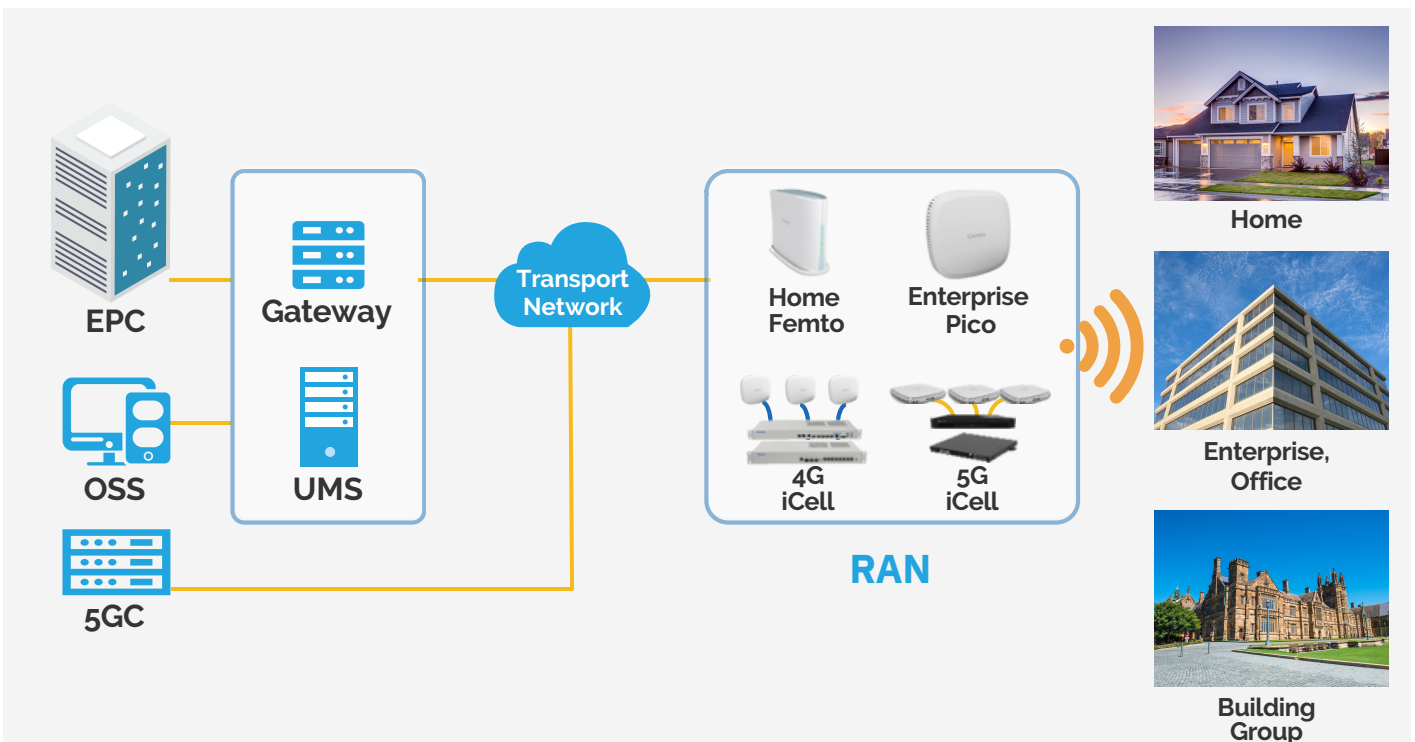
- ✔ power level of small
- ✔ cell coverage area
- ✔ regional band allocation
- ✔ the number of users serviced

Small Cell Solutions Overview



Small Cell Solution for Home, Enterprise and Building Group

The Comba small cell solutions target three domains **Residential**, **Small-to-Medium Enterprise**, and **Campus**. The solutions enable fit-for-purpose deployments to cater for improved indoor coverage and enhanced data capacity. Typical applications range from hotspot traffic offload and white spots coverage to private networks.



Solution Features & Highlights

✔ Easy Power & Synchronization

Simplify network deployment, and shorten engineering period

✔ Flexible Backhaul

Fixed broadband backhaul reduces OPEX on backhaul transmission, power and operations

✔ Security & Signal Aggregation

Works in all kinds of transport network

✔ Unified Management











Single platform for software upgrade, power configuration, and service activation.

Scenario Oriented Product Design

Comba small cells are designed for a variety of capacity targets to fit each deployment scenario's needs, thus **reducing the total cost of ownership** while **facilitating easy site acquisition and deployment**.

Standard broadband networks can be used for backhaul, and synchronization can be achieved over these using adaptive clock recovery.

The visual appearance of the indoor units is of **a contemporary design** that blends into a modern office, campus, or home environment with a neutral color.

 Home Small Cell	 8 Active users	 Home, small office, retail shop	 4G
 Enterprise Small Cell	 32 Active users	 Small enterprise, business center, club house, cafe	 4G
 iCell	 200/400 Active users	 Big enterprise, hotel, shopping mall, hospital	 4G 5G

Speedy deployment of in-building networks that enable new value-added services

Comba Femto helps an individual or small office customers extend LTE coverage and capacity to indoor environments in a secure, cost-effective manner.

Stand-alone Home Small Cell



- 8 active users
- 1588 ACR/Air Interface Sync
- Voice recovery technology for VoLTE
- LTE 2x2 MIMO @ 50mW per path



Scale easily to build for today and adapt for tomorrow

Comba Enterprise Pico provides a flexible, low-impact and high-performance solution that integrates easily with all core networks.

Stand-alone Enterprise Small Cell



- 32 active users
- 1588 ACR/Air Interface Sync
- Voice recovery technology for VoLTE
- LTE 2x2 MIMO @ 125mW per path
- PoE+ Power Supply



High Capacity In-Building Coverage

Comba's Distributed iCell is a high capacity solution designed for medium-size multi-story commercial buildings with high demands on user traffic.

Distributed iCell



X1

X4

X32

AU

SW

DP

Specification

- Baseband unit
- Support 200 active users
- 1 Carrier

Specification

- Data aggregation & forwarding
- Support 8 DP per SW
- Supply power to DP via PoE+

Specification

- LTE 2x125mW@20MHz
- 2T2R
- PoE+ power supply

Distributed Small Cell - 4G + 5G iCell



X1

X8

X64

AU

SW

DP

Specification

- Up to 4xNR + 4xLTE
- Support 4 SW with direct connection
- 3GPP Release 15, Upgradable
- 400 active users / Carrier

Specification

- Data Aggregation & Forwarding
- Cascade up to 2 level
- Support 8 DP per SW
- Supply power to DP via a hybrid cable

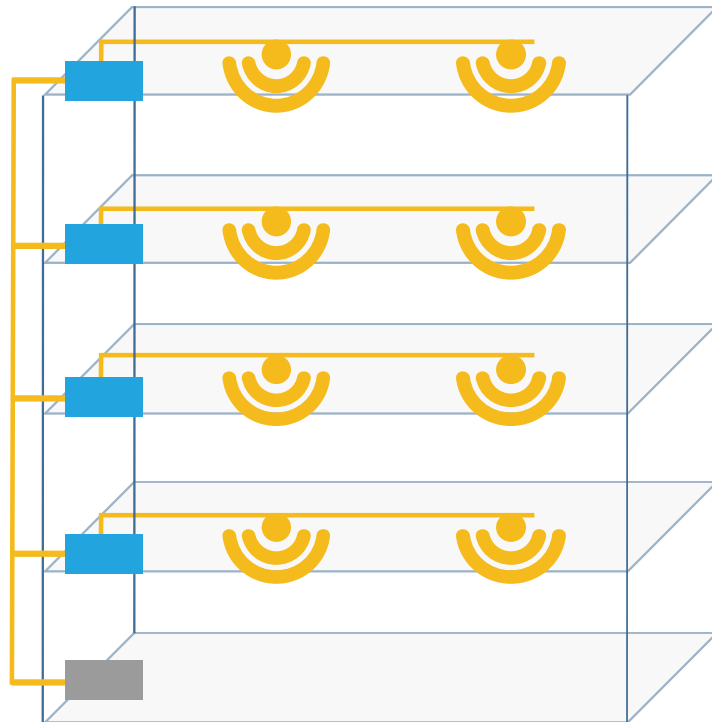
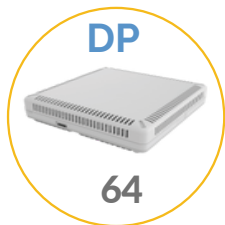
Specification

- NR:4x250mW @20MHz
- LTE:2 x 125mW @100MHz
- 2T2R/4T4R

Simplified Small Cell Architecture

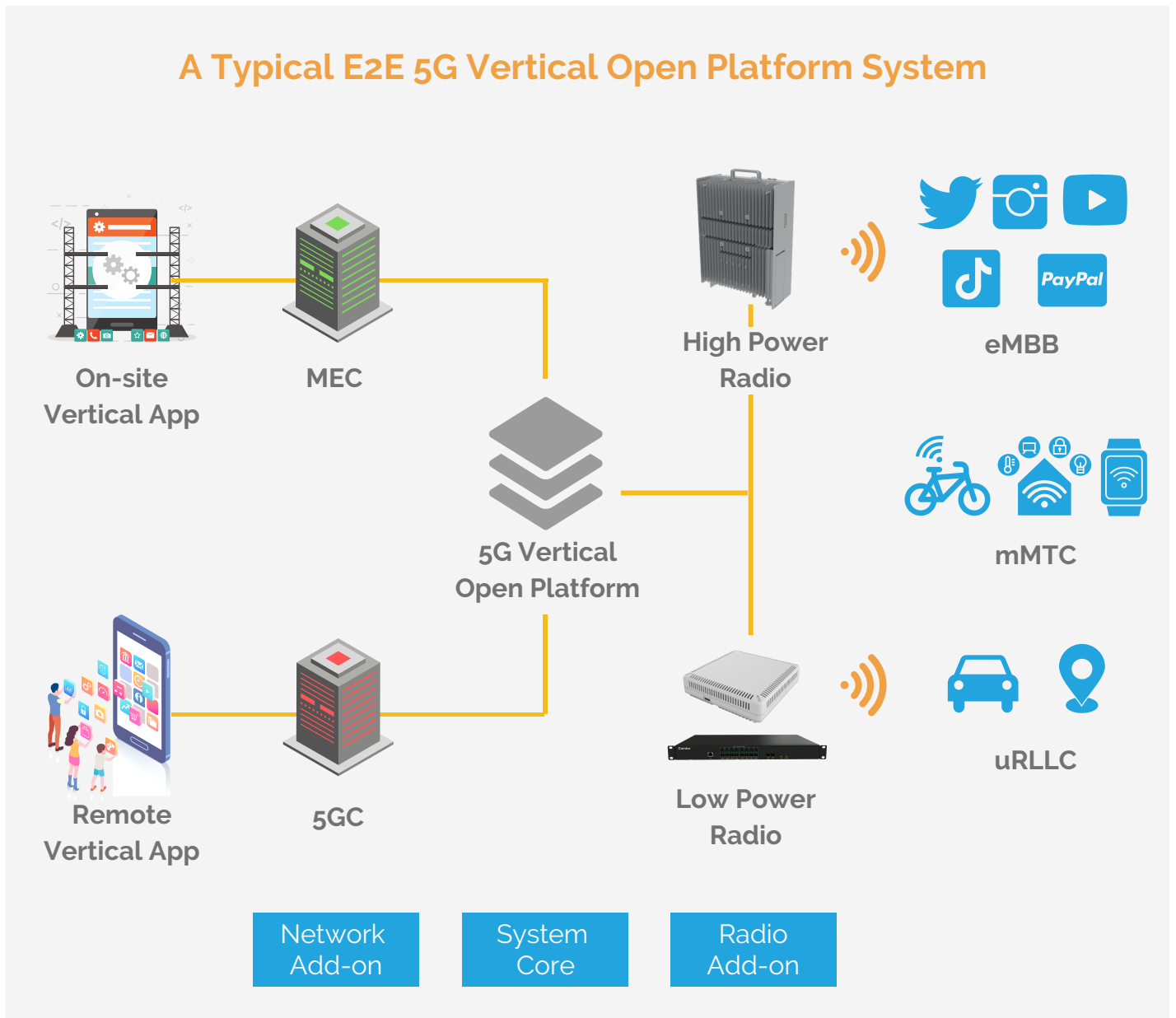
Comba's Distributed iCell is a cost-effective solution designed for medium-size multi-story commercial buildings with high demands on user traffic.

Distributed iCell



Industrial Satisfaction with Lite Capacity Network Element

A Typical E2E 5G Vertical Open Platform System



We got you covered !





Enabling communications, anywhere, everywhere.

We listen and answer to your needs with our experience and capability in the industry

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