

Opportunities:

Nowadays, the extreme weather is reshaping human daily activities. According to IEA report, cities account for two-thirds of global energy consumption and more than 70% of annual global carbon emissions. By 2050, more than 70% of the world's population will live in cities, resulting in a massive demand growth for urban energy infrastructure.

The U.S.A. has been actively promoting a net-zero carbon emissions policy in 2019, including a plan for electric vehicles to account for 50% of new vehicles sold after 2030. In this regard, the New York Times points out that the lack of charging piles will be the biggest barrier in the process of vehicle electrification in various countries, so it is expected that in the short to long term, the market for charging piles will be very large.

By 2024, an anticipated 83 billion connected devices and sensors will be creating large, diverse datasets on a wide range of topics, such as energy consumption, air quality, and traffic patterns. Next-generation energy systems can leverage the data from these connected buildings, appliances and transportation systems to reduce energy consumption, improve grid stability and better manage city

With growing urbanization trends, a smart city can play a central role to escalate progress towards clean, low-carbon, resilient and inclusive energy systems by utilizing state-of-the-art information and communication technologies.

Solutions:

In urban area, streetlights are the most widely distributed and dense public infrastructure; hence, using streetlights is the most appropriate for the smart city. Compal hereby devises 5G Smart Pole Park in which SI builds streetlights(a.k.a. smart pole) of connectivity working upon Compal's 5G O-RAN infrastructure. On top of that, the smart pole can take advantage of 5G's large bandwidth and low latency to accommodate real-time centric applications such as video surveillance, AI crowd flow analysis, commercial advertisement streaming with electronic signage.

The 5G Smart Pole Park is not only to demonstrate the maturity of Compal 5G O-RAN solution but also the expertise of Compal in 5G deployment, construction, and maintenance. Through Compal's commodity and assistance, we can quickly deploy 5G in the needed field.

COMPAL

Package:

5G O-RAN System

- O-RU – Open interface decentralized architecture , FR1, 4T4R N78, N79
- O-DU / O-CU — SA mode , TDD patent, 256QAM DL/ 64 QAM UL, Adaptive MCS, Mobility(inter/intra handover)
- PHY Accelerator— Support offload complex computing from CPU and scalable to connect with multiple RU (high ratio)
- RIC — Support Automatic Neighborhood Relation, Cell of Detection , Mobile load Balancing.
- Network Management System — Smart base station network management system that complies with the 5G O-RAN standard

BOM	Vendor	Product drscription
O-RU	Compal	Teak
High-PHY	Compal	McLaren
O-CU/O-DU	Compal	Maple
RAN Intelligent Controller	Compal	Bach : (RIC)
Network Management System	Compal	Private 5G NMS : Golden Eye
User Equipments	Compal	MiFi : 5G router
5GC	Microsoft	AP5GC : Microsoft 5GC

Key Features:

- Open RAN standards have the benefits of introducing market competition, improving network performance, and reducing equipment costs.
- Open Interface support different O-RU or O-DU/O-CU vendors.
- PHY Accelerator increase packet processing speed and reduce CPU usage and hardware cost.
- One-click management of base station performance and resource load information to improve base station deployment, maintenance efficiency and network management performance
- Through machine learning, proactively adjust the network resource allocation between base stations in advance in response to changes in traffic environment

Suitable for:

- Telecom Operators, System Integrators (SI), Urban Planner, Local Government.



5G Network



5G Smart Pole Park



EV Charging



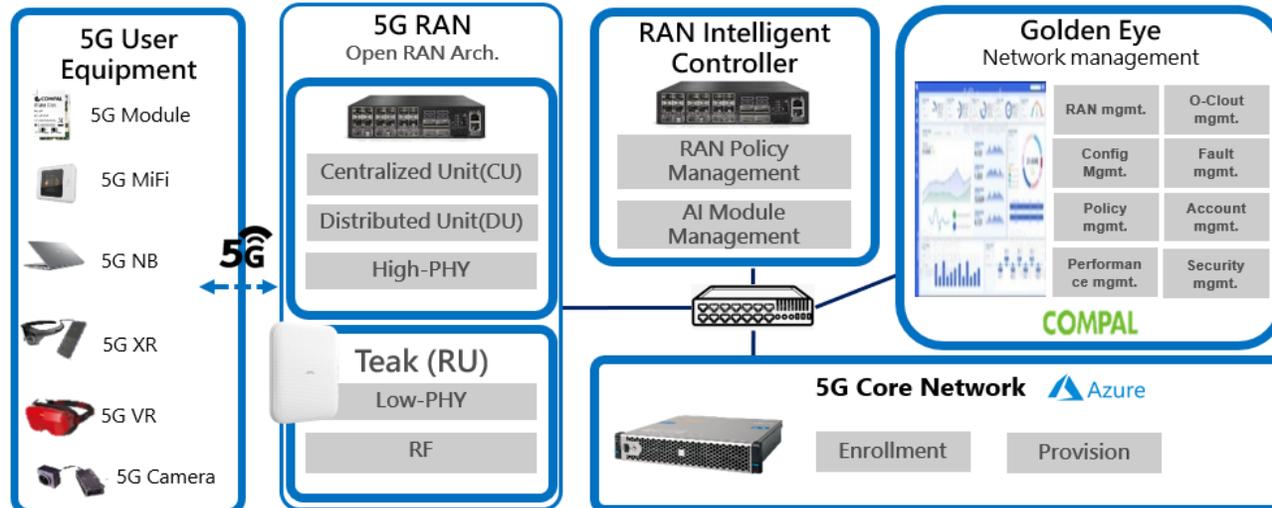
Smart Pole



Digital Signage



Smart Surveillance



Crowd Flow analysis