



## SOLUTION BRIEF

# SMALL FOOTPRINT EPC

### Overview

Mavenir's highly compact, small footprint, containerized, and carrier-grade Evolved Packet Core (EPC) solution is optimized for lightweight capital-efficient deployments of eMBB, IoT, and FWA applications. Suitable for on-premises, public, or private cloud deployments, Mavenir's scalable EPC software enables the same software used in larger networks to be miniaturized and used for small-form-factor applications. It inherits the same features and capabilities used for Tier-1 CSPs and simultaneously provides the small footprint required for various enterprise and small CSP deployments.

Small Footprint EPC handles various use cases across different industries such as utilities, oil and gas, factory automation, Industry 4.0, fixed wireless access, wireless internet service providers (WISPs), and cable markets.

Mavenir's Small Footprint EPC solution serves multiple access technologies – 2G, 3G, 4G, and 5G NSA. This solution is natively extensible to support emerging 5G architectural standards and provides an easy evolution path to 5G SA for customers looking to invest today in a 5G-ready solution.

CSPs can offer services to both 4G and 5G subscribers and also scale to support Multi-access Edge Computing (MEC) and private network uses on a small form factor. This inspires differentiated service offerings and enables a low-cost, flexible path to 5G.

### BENEFITS

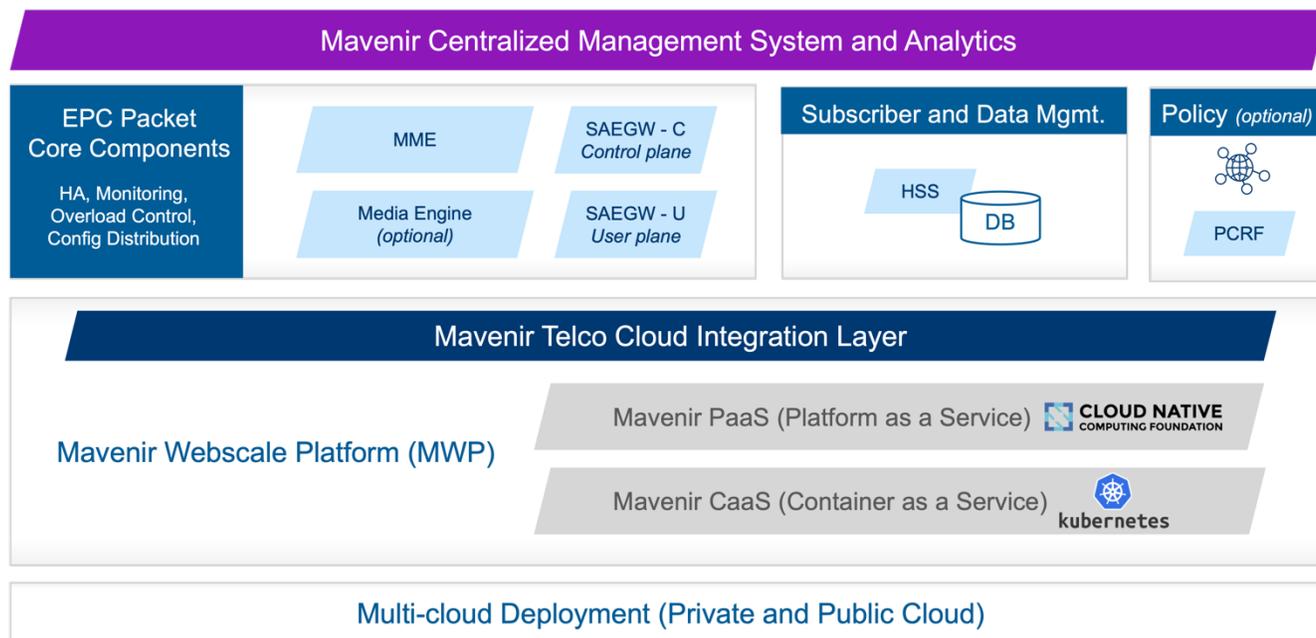
- > **Multiple opportunities using a single core** – Enable unique business opportunities for enterprises and open doors for numerous innovative services and use cases, with varying performance requirements for speed, latency, number of connections, and mobility.
- > **Slicing** – The same core can be sliced or extended to support new and different services requiring varying network performance.
- > **Small form factor** – A minimal server solution enables a system throughput of 40 Gbps and 10,000 simultaneous active users.
- > **Cost-effective** – Low-cost, lightweight hardware, a cloud-native architecture, high compute power, and open-source tools reduce costs significantly and add flexibility to the network.
- > **Maximum reliability** – Detect and address a failure at the process level and a network interface. Each packet core component is designed to support 99.999 percent availability.
- > **Clear and flexible evolution path to 5G** – A Control and User Plane Separation (CUPS) -based architecture facilitates the ability to independently scale the control plane and user plane and support edge deployments.



## Mavenir’s Small Footprint EPC Solution

This fully redundant containerized EPC solution, running on the Mavenir Kubernetes-based Webscale Platform (MWP), includes:

- > Containerized MME and HSS.
- > A converged core. The control plane function of the 4G Gateway (the SAEGW-C) is combined with 5GC SMF. The user plane function (SAEGW-U) is combined with 5GC UPF. Together they provide a combined 4G and 5G Converged Core.
- > The Mavenir Centralized Management System (mCMS) and Analytics system provide FCAPS capability.



Mavenir’s Small Footprint EPC solution is 3GPP compliant, allowing small deployments with up to 10,000 users and 40 Gbps throughput systems. The capacity can be extended as required. The solution can be hosted on any COTS servers powered by second or third-generation Intel® Xeon® Scalable processors to deliver higher performance.

It supports multiple services such as broadband communications for mobile devices, IIoT data, and voice. Each service type is differentiated with appropriate policy and QoS. Costs are contained through a highly optimized platform that natively collapses EPC functions to create a minimal footprint and inter-nodal overhead LTE solution. The inherent scalability of the cloud-native microservices allows any-size deployment and easy incremental growth.



## Enabling Industrial Automation with Mavenir EPC Solutions

Mavenir’s telco-grade Small Footprint EPC solution provides enterprises and industries the agility, flexibility, and central intelligence necessary for delivering high performance while managing user experience for services across verticals.

Figure 1 shows various uses for Small Footprint EPC. Factories, mines, warehouses, ports, airports, hospitals, public areas, utilities, railways, or any large facility can deploy a dedicated network for their specific needs.

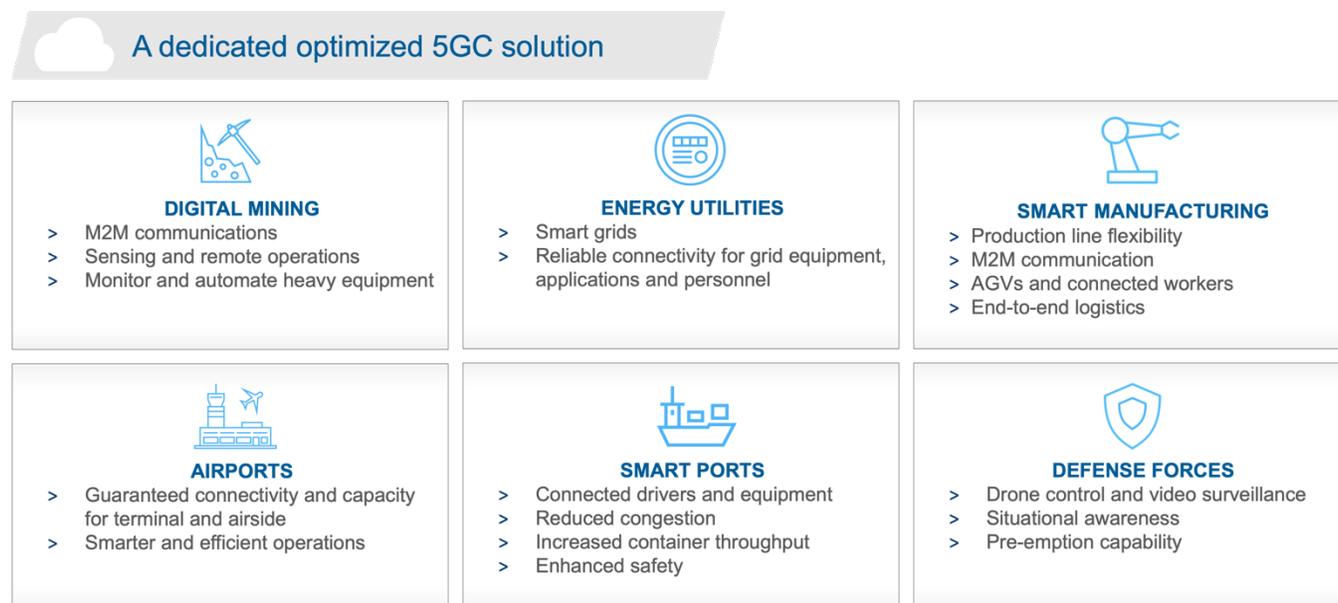


Figure 1: Deploy a dedicated network for specific needs

As network demands grow or change, CSPs can effectively respond promptly without incurring added CAPEX and OPEX, thus providing a low-cost adjustable growth path.

Mavenir’s solution includes integrated network management and a built-in analytics framework enabling real-time monitoring of the EPC network.

### The management framework includes features such as:

- > Fault, Configuration, Accounting, Performance, and Security (FCAPS)
- > Online and offline charging (CDR)
- > Remote monitoring and diagnostics
- > Key Performance Indicator (KPI) monitoring
- > Per event Transaction Record Logging (TRL)
- > Subscriber Level Tracing (SLT)



Mavenir's Small Footprint EPC solution uses a 4-server configuration (with redundancy) that delivers an optimum lean hardware footprint. It comprises MME, SAEGW-U, SAEGW-C, HSS, mCMS, and analytics. Expansion options below, and a customized solution with a PCRF and media engine are available.

## Expansion Options

### Local breakout or edge deployment

Mavenir's Small Footprint EPC solution empowers enterprises to extend the centrally deployed, containerized EPC by adding remote UPFs (SAEGW-U) for local traffic breakouts. Enterprises can scale devices or users with edge deployments and efficiently process larger volumes of data.

A local or edge data center reduces costs, risk, latency, and connectivity constraints in complex environments rendering them more feasible for real-time and mission-critical applications.

### Capacity addition

Mavenir's Small Footprint EPC solution capacity extends beyond 10,000 subscribers by adding a server with MME, SAEGW-C, SAEGW-U, and HSS instances.

## FEATURES

Mavenir's Small Footprint EPC includes but is not limited to the following features:

- > 5G NSA option 3x
- > ClIoT optimization
- > Mobility management
- > NAS security
- > Session management
- > DCN support
- > Device support (NB-IoT, Cat-M1)
- > Networking functions (Dual-stack IPv4 and IPv6, VLAN tagging, static routes)
- > Lawful intercept support
- > Policy and charging
- > UE IP address assignment
- > RADIUS support (Authentication, accounting, IP pool management)
- > DPI support, HHE

## About Mavenir

Mavenir is building the future of networks and pioneering advanced technology, focusing on the vision of a single, software-based automated network that runs on any cloud. As the industry's only end-to-end, cloud-native network software provider, Mavenir is transforming the way the world connects, accelerating software network transformation for 250+ Communications Service Providers in over 120 countries, which serve more than 50% of the world's subscribers.

For more on Mavenir solutions please visit our website at [www.mavenir.com](http://www.mavenir.com)