Cisco Premium Mobile Broadband 1.0

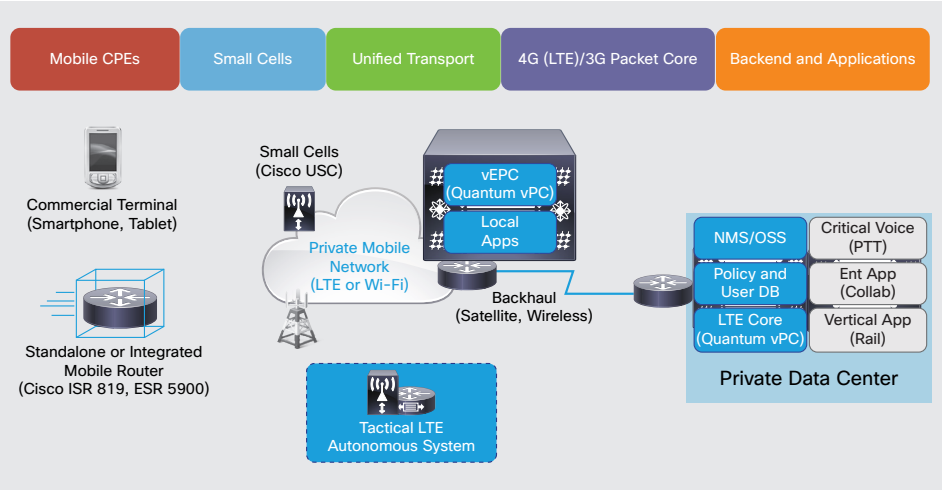
A Solution to the Transportation Industry's Complex Communications Challenges

- **What it is:** Cisco® Premium Mobile Broadband (PMB) 1.0 is a foundational mobile network component of the Cisco Transportation Smart Solution (TSS). It is an integrated 4G Long-Term Evolution (LTE) network serving railways, public safety, mass transit, and other locations with rich media services. The location could be in a railway station, trackside, or onboard a moving train. It could also be in a police car or fire truck. Or at a dangerous scene where first responders need contextual information about the situation at hand on their smartphones or tablets.
- **What it does:** PMB 1.0 delivers high-bandwidth, consistent connectivity to rail operators, mass-transit passengers, first responders, and others. Connections reach across network boundaries. Intended as a private mobile broadband network, it goes far beyond traditional land mobile radio (LMR) and low-speed data to offer video, collaborative communications, and operational automation. Cisco PMB works across many radios, device types, and mobile operator networks. It can work independently of public LTE networks and also in coordination with them. And it's an enabler of the emerging Internet of Things (IoT) for critical machine-to-machine (M2M) communications.
- **What problem(s) it solves:** Traditional transportation-industry networks have been fragmented across different wireless frequencies, technologies, and geographic areas. The resulting islands of connectivity have created network barriers. These barriers have impeded important communications, whether from a rail system to a train or among geographically dispersed first responders during nationwide disasters. Similarly, it's been tough for first responders to get the detailed information they need from dispatchers to appropriately respond to emergency situations – such as the history of a suspect or the real-time conditions of a burning building.

Cisco PMB 1.0, however, stitches all these networks together for one solid, unified experience. One that delivers rich, collaborative communications such as video, even as users and vehicles cross network boundaries.

Figure 1 shows the Cisco PMB 1.0 common solution framework.

Figure 1. Cisco PMB 1.0 Common Solution Framework



The Mobile Network Foundation of Cisco TSS

PMB 1.0 is the multiservice mobile access network that underlies the Cisco TSS. Cisco TSS also comprises several other components, such as Cisco Connected Rail applications. PMB 1.0 helps transportation operators evolve from predominantly voice and very limited data services to rich media communications. It offers built-in future-proofing for capacity growth and for new applications and business models.

- **Railroad applications:** Cisco PMB 1.0 works with other Cisco TSS solutions to keep transportation safe, efficient, and mobile. For example, it provides connectivity among railcars, rail tracks, rail stations, and your data center. Combined with Wi-Fi, it also supplies an effective alternative for rail passenger network traffic off-loading.

- **Public safety applications:** Like railroads and mass-transit agencies, public-safety organizations can benefit by consolidating older LMR and low-speed data networks with newer technology. They can connect LMR networks to converged mobile broadband networks serving mission-critical applications with video and collaboration services.

  To that end, the U.S. government is funding a nationwide 4G LTE public-safety network for first responders. 4G LTE operates at speeds of 50 Mbps downstream and 25 Mbps upstream in the U.S. and at twice these speeds in other parts of the world. Cisco PMB will comply with the public-safety network mandate and is available to other countries building similar networks. PMB 1.0 enables roaming across Wi-Fi to LTE, 3G to 4G, wired to wireless, and private to public networks. The network supports both centralized and distributed architectures with all available LTE features supported.

What Makes Cisco PMB 1.0 Different?

The holistic PMB 1.0 architecture is fully validated and supported by Cisco Advanced Services. We give you ongoing guidance and change-management support. We expertly assess, manage, and design your architecture to help you reduce deployment costs. You'll end up with a well-engineered network design that gives you:

- Greater operational efficiency
- Scalability
- Security
- Higher profitability

The Cisco PMB solution supports a virtualized packet core. The virtual core can run in Cisco Integrated Services Routers (ISRs) in branch sites or in Cisco Unified Computing System™ (Cisco UCS®) servers, which integrate computing, networking, and virtualization resources in your data center. So as an enterprise, you can build your own private PMB networks using your own licensed spectrum. Similarly, if you are a service provider, a mobile virtual network operator (MVNO), or systems integrator, you can use Cisco PMB 1.0 validated designs to offer managed, cloud, and integration services.

Business Benefits

Safety is always first for transportation operators. But you also need to be competitive and increase revenue. One of the best ways to do that is to make your passengers happy.

Passengers want constant wireless connections for their phones and tablets. They also want mobile applications for schedule updates and route information. PMB makes that possible. You can also use it for digital advertising to generate revenue. You can deliver these and other amenities to passengers while enjoying the following benefits:

- Increased safety using M2M applications that trigger automatic overrides when necessary
- Improved operational efficiency by integrating multiple separate networks into one
- Providing situational context to first responders using real-time video systems

Why Turn to Cisco?

Cisco is in this market to stay. Here's why.

We're collaborating with the industry's transportation giants. We're listening to their input and making a major investment with our validated designs. Our complete end-to-end architecture and service provider relationships set us apart. We can now deliver rich, collaborative, and connected experiences in the transportation industry. These experiences are up to the standards that you've come to expect – and that your users have come to expect – in the consumer market.

You have the tremendous advantage of having our software ready to be adapted to any option. And we can deliver more functions to you by activating the right licenses without any software changes.

Cisco Services: From strategy to execution, we help you plan, build, manage, and support your Cisco Transportation Smart Solution. We apply our industry leading experience to help you improve system operational efficiency, scalability, security, and profitability. With an end-to-end approach that aligns outcomes to your business goals.

Next Steps

Visit us on the web to learn more about Cisco Premium Mobile Broadband. To discuss your organization's mobility initiative and requirements, contact your local Cisco representative or Cisco partner.

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