Overview of Cisco IEC6400 Gateway

Overview of Edge Compute Appliance

The IEC6400 Edge Compute Appliance acts as the MPLS gateway in a URWB network. One of the most important functionalities of the IEC6400 gateway is to handle aggregated throughput up to 40 Gbps.

The IEC6400 gateway uses the Ultra-Reliable Wireless Backhaul (URWB) technology with Cisco UCS C220 M6 Rack Server that enables you to extend the benefits of URWB to large-scale, high-capacity-demanding wireless networks. The IEC6400 gateway is designed to operate in URWB Layer 2 and 3 networks. It serves as an aggregation point for all the MPLS-over-the-communications within networks with numerous industrial wireless (IW) gateways requiring multi-Gbps aggregated throughput. IEC6400 gateway is part of the IW product's family with Wi-Fi 6 capability.

The Cisco UCS C220 M6 server supports:

- 2x 10GBase-T Ethernet LAN on Motherboard (LOM) ports used as data ports

- Support for an optional Cisco VIC, providing 4x 10/25G SFP28 data ports, which extends the throughput capability up to 40 Gbps

- 1x Gigabit Ethernet dedicated management port to access the UCS Cisco Integrated Management Controller (IMC) interface. The IMC offers CLI and web interface to manage configurations of the gateway hardware.

- 2x power supply connectors

- 1 KVM port

- Secure Boot

The following table lists the UCS C220 M6 server details:

Feature	Description
Chassis	One rack-unit (1RU) chassis
Hard disk	480 GB SSD SATA

| Feature	Description
Central processor	Intel 4310 2.1 GHz/120 W 12C/18 MB DDR4 2667 MHz
Memory	16 GB
Power specification	2x 1050 W AC Power Supply

Note   Each power supply in the server has a power cord. Standard power cords or jumper power cords are available for connection to the server. The shorter jumper power cords, for use in racks, are available as an optional alternative to the standard power cords.

For more details about UCS C220 M6 server physical, environmental, power and power cord specifications, see *Cisco UCS C220 M6 Server Installation and Service Guide - Server Specifications*.

Architecture

Below is the sample architecture on how the IEC6400 gateway operates in a URWB Fluidity L3 network:

Figure 1: IEC6400 Gateway Architecture
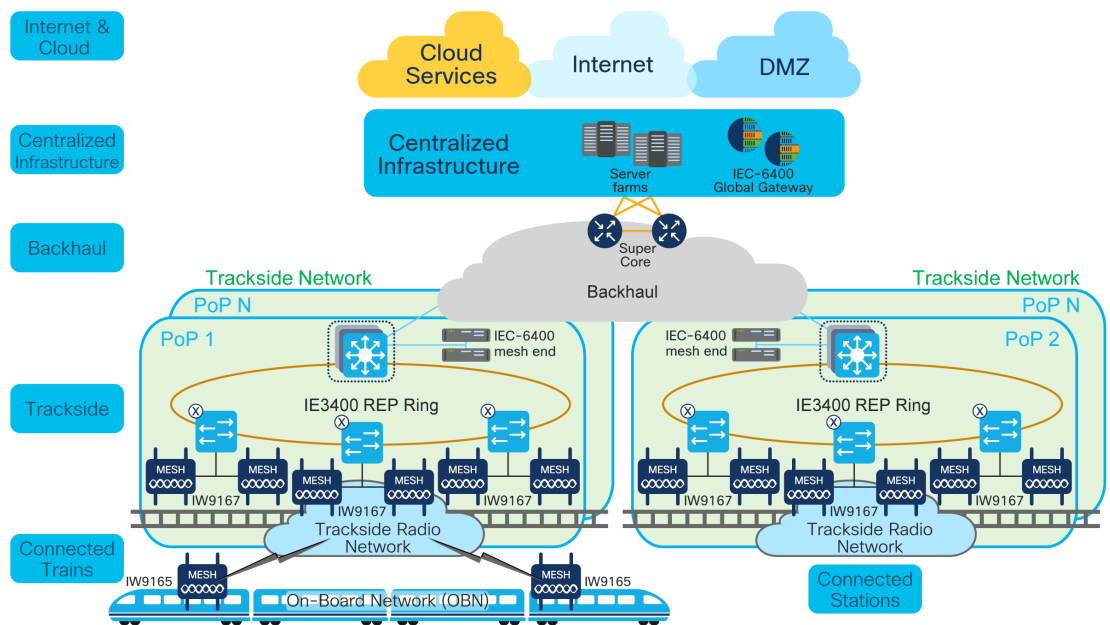
The IEC6400 gateway establishes a fixed architecture and implements the multiprotocol label switching (MPLS) protocol which uses labels rather than network addresses to guide data from one node to another node. This functionality increases the IP packet delivery rate.

Identifying Gateway Mesh Capability

Although the wireless access points can be configured in both Mesh Point and Mesh End modes, the IEC6400 gateway can only be configured as a Mesh End. Irrespective of its configuration and operational mode, each gateway is shipped from the factory with a unique mesh identification (ID) number (also called the Mesh ID), and it is in the form of 5.a.b.c.

The triplet a.b.c uniquely identifies the individual physical hardware gateway. The Mesh ID number serves as the identifier for the configurator interface that is used to configure the gateway. The mesh ID number is permanent and cannot be changed.

IEC6400 Gateways

The IEC6400 gateway is deployed at the data center level to ensure IP address reachability throughout the entire network. The gateway has total three LAN interfaces (see Figure 3: Rear Panel View):

- One dedicated to CIMC management port (port 9) to access the CIMC CLI

- Two dedicated ethernet data ports (ports 10 and 11) to access the gateway's GUI and CLI

The gateway and all other edge gateways must be provided with a private LAN IP address, and they are accessed through the private IP addresses.

External Features

Front Panel Overview

The following figure shows the front panel features of the IEC6400 gateway:
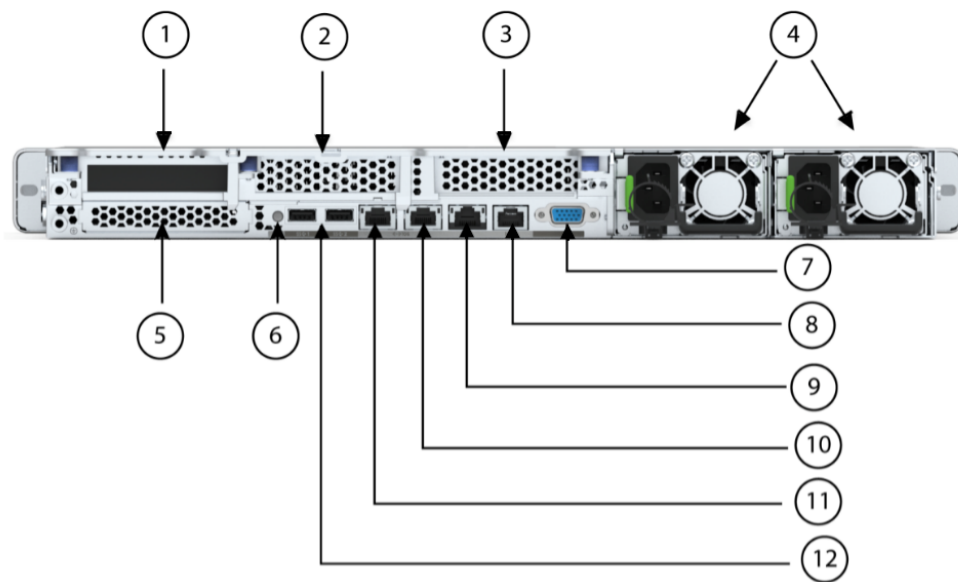
Figure 2: Front Panel View
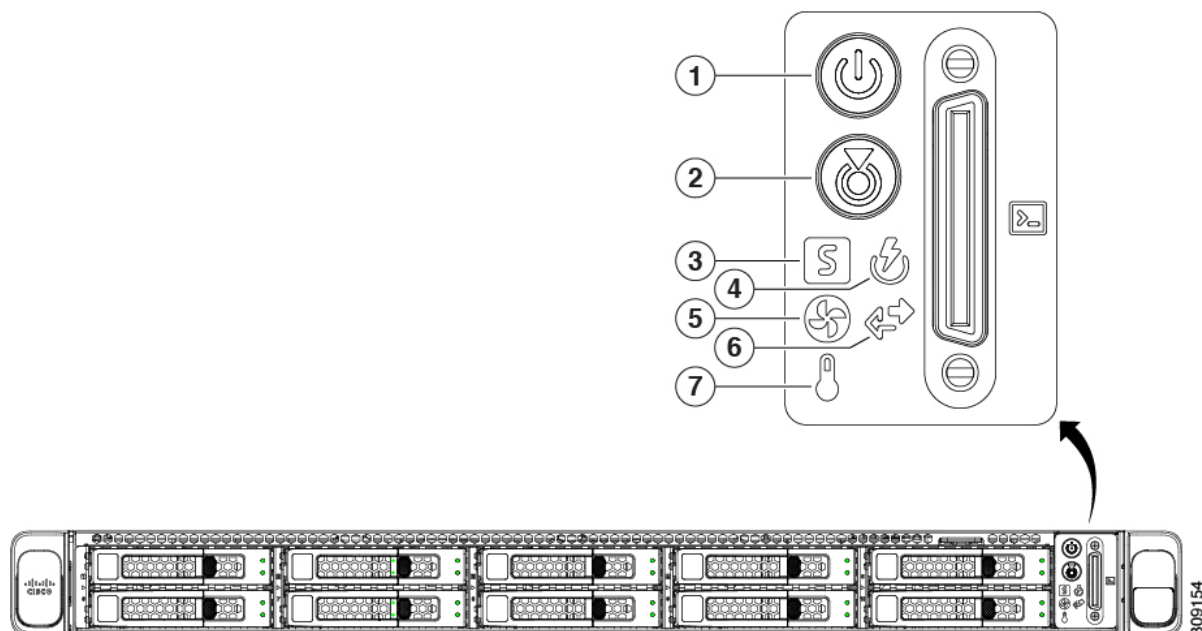
Identification Number in the Front Panel	LED/Button Details
(1)	Power button/LED
(2)	Unit identification
(3)	System health status
(4)	Power supply status
(5)	Fan status
(6)	Network link activity
(7)	Temperature status

Rear Panel Overview

The following figure shows the rear panel features of the IEC6400 gateway:

Figure 3: Rear Panel View

Identification Number in the Rear Panel	Slot Details
(1)	Riser 1, which is controlled by CPU 1: • Supports one PCIe slot • Slot 1 is half height, ¾ length, x16
(2)	Riser 2 (blanking panel)
(3)	Riser 3 (blanking panel)

Identification Number in the Rear Panel	Slot Details
(4)	Power supply units (2x which can be redundant when configured in 1+1 power mode)
(5)	Modular LAN-on-motherboard (mLOM)
(6)	System identification button/LED
(7)	VGA video port (DB-15 connector)
(8)	COM port (RJ-45 connector)
(9)	1 GbE dedicated Ethernet IMC management port
(10) and (11)	Dual 1 Gb/10 GbE Ethernet data ports (LAN1 and LAN2) LAN1 is left connector LAN2 is left connector
(12)	USB 3.0 ports (2x)

UCS C220 M6 server LED pattern

For more details about UCS C220 M6 server LED pattern, see Status LEDs and Buttons.