East Indian State Government Department Links More Than 100 Subscribers at Mining Sites and Offices

"Mining operations depend on high-speed communications to keep up with productivity, compliance and safety. We are pleased to say that with the Cambium solutions, we have been able to connect our stakeholders. And when our processes evolve, the Cambium equipment evolves with us."

UPASANA MOHAPATRA,
TECHNICAL CONSULTANT,
CSM TECHNOLOGIES PVT. LTD.

Overview

MINING COMPANIES DEPEND ON WIRELESS COMMUNICATIONS that perform in remote areas and harsh environments. In Odisha, part of the east Indian state, mineral mining is one of the key drivers of the state economy, with a share of about 7% and generating $1.4 billion as non-tax revenue. CSM Technologies Pvt. Ltd. deployed a point-to-point (PTP) network for the Department of Steel and Mines for the Government of Odisha, using Cambium Networks' PTP backhaul solutions. The network is supporting the department's Integrated Mines and Mineral Management System (i3MS) and VPN connection between local and regional offices.

The Challenge

PRIOR TO THE ESTABLISHMENT OF THE PTP NETWORK, connectivity was lacking between the office of the Deputy Directorate of Mines (DDM), other mining offices and government-manned check gates. Low levels of LAN penetration among private mining sites and stakeholders further complicated the situation for the mining heartland of Odisha. Digital intervention was a challenge, especially considering the rugged and remote terrain between various nodes, hubs and end users.

In 2010, the i3MS IT solution was created by the Government of Odisha for the Steel & Mines Department. Provisioning of the wireless broadband network in the mining circles of Joda, Koira, Jajpur and Keonjhar in Odisha found its beginnings within the i3MS solution. The i3MS solution authorizes the movement of mineral ore consignment and relies on an electronic Transit Pass (eTP) with a dedicated permit system.

Given the rugged terrain, remote area, lack of large network backbone and the number of entities involved, fiber connectivity was not a feasible option. Processes were continually upgraded through technology due to the sensitive nature of mineral transactions, weighment, dispatch, receipt and end use; a wireless solution was needed to keep up.

The Solution

BEGINNING IN 2010, CSM Technologies Pvt. Ltd. decided to connect the Department of Steel and Mines with rapidly deployable, high-speed PTP backhaul solutions from Cambium Networks. CSM Technologies began by linking four check gates in Joda and followed by linking six check gates in Koira. The network has extended to cover more locations ever since.

PTP 100 *PTP 230* *PTP 650*

WHY THEY CHOSE CAMBIUM NETWORKS

- ***Low Maintenance***: The devices are highly reliable and durable.
- ***Durability***: IP-67 rated enclosures are beneficial, especially since 20-30% of their installed devices are prone to lightning strikes.

The network being used by the Department of Steel and Mines is operating both line-of-sight (LoS) and near-line-of-sight (NLoS) devices in the unlicensed band: PTP 100, PTP 230, PTP 450 and PTP 650 backhaul units. Additional equipment includes Common Module Management, Universal GPS, a PTP sync unit, reflector discs and a radio device monitoring tool.

CSM Technologies Pvt. Ltd. followed these steps to set up the network:

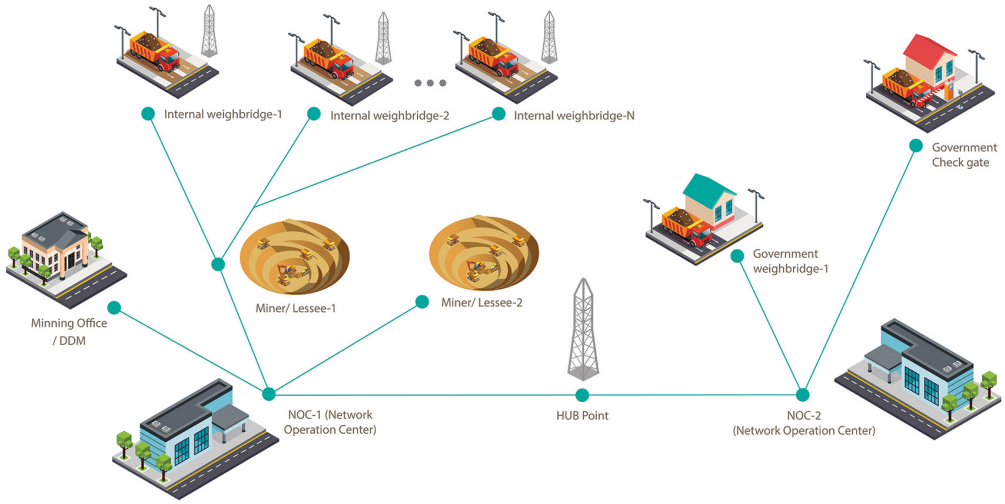
- Study the feasibility of the location, link planning and network modeling.
- Vet internally and with Cambium Networks for the optimal solution.
- Prepare a bill of materials and procure the hardware components.
- Install the hardware components and seek support from Cambium Networks if needed.
- Configure and test with end users.
- Train the end users and technical team on how to extend support and maintain the network.

APPLICATIONS

- **Internet connectivity**
- **Integrated Mines and Mineral Management System (i3MS):**
  - eTransit pass (eTP) generation at mine site dispatch points
  - eTP verification at check gates
- **IT Infrastructure Library software for i3MS support**
- **Software applications internal to lessees including Systems Applications and Products, Enterprise Resource Planning, etc.**
- **VPN connection between local and regional offices**

The Results

THE NETWORK CURRENTLY HAS MORE THAN 100 institutional subscribers including the office of the DDM, mining offices, field offices and private mining sites. Wireless broadband in a remote location with low internet penetration has made it possible to deploy software solutions for various use cases and to different stakeholders in the mining ecosystem.



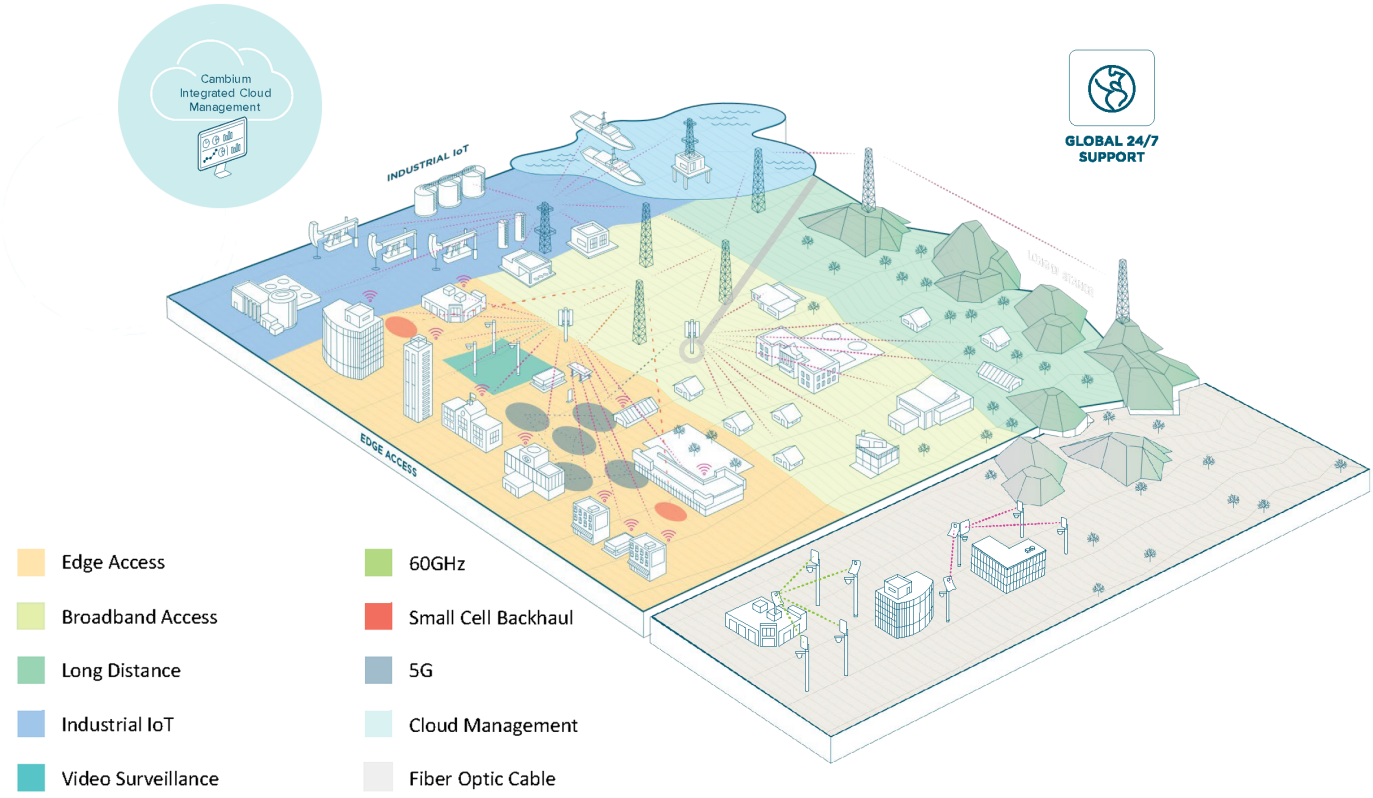
Results for their business include:

- *High network availability:* Applications requiring connectivity for daily operations are supported.
- *Sustainable and scalable:* The initial grid between the office of the DDM and mining offices has grown to provide connectivity to private mining sites in Joda, Koira, Jajpur and Keonjhar.
- *High range:* Today, the network includes long PTP links. The distance between SAIL's Bolani mines to KJST Pillar 2 is 28 kilometers; the link between OMC Gandhamardan and Daitari hilltop in Jajpur is 70 kilometers.
- *Increased turnaround time*: Processes critical to mineral movement, such as verification at check gates, run more smoothly.

The wireless broadband links originally created in 2010, which rely heavily on PTP connectivity, have been continually upgraded. As a next step, the Department of Steel and Mines and CSM Technologies Pvt. Ltd. plan to add VoIP for helpdesk and feedback management as well as connectivity for non-LoS locations.

BEST PRACTICES

- To achieve an optimal outcome, collaborate with all teams involved before setup and installation.
- Maintain bulk device deployment across a closed user group for long-term cost saving



Cambium Networks' Gigabit wireless solutions enable municipal, enterprise and service provider operators to tailor connectivity to meet exact requirements and grow as needs evolve.

ABOUT CAMBIUM NETWORKS

Cambium Networks delivers wireless communications that work for businesses, communities and cities worldwide. Millions of our radios are deployed to connect people, places and things with a unified wireless fabric that spans multiple standards and frequencies of fixed wireless and Wi-Fi, all managed centrally via the cloud. Our multi-gigabit wireless fabric offers a compelling value proposition over traditional fiber and alternative wireless solutions. We work with our Cambium certified ConnectedPartners to deliver purpose-built networks for service provider, enterprise, industrial, and government connectivity solutions in urban, suburban, and rural environments, with wireless that just works.

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