While pure-play telecom companies are at the forefront of driving optic fibre cable (OFC) deployment in India, the telecom arms of key PSUs in the railways, power, and oil and gas sectors are also undertaking significant fibre network roll-outs across the country.

Although the OFC networks rolled out by RailTel, Power Grid Corporation of India Limited (Powergrid) and GailTel are aimed at addressing their in-house connectivity requirements, the companies have been using them for commercial purposes as well. Thus, an OFC network serves as a link for data and control in the oil and gas sector; helps in signalling and tracking in the railways; and supports monitoring and control in the power sector. In addition, RailTel and Powergrid are involved in the government's ambitious BharatNet project and other initiatives. RailTel has also entered the Wi-Fi space in a big way and the roll-out is being supported through OFC in the backhaul. Going forward, peaking demand for high speed broadband services and the evolving fibre-to-the-x space will create several opportunities for these players to gain from their existing OFC strength.

A look at the current status of OFC deployments by the three national utilities, the challenges faced in rolling out these networks and their future plans in these areas…

RailTel

Current status

RailTel Corporation, a wholly owned subsidiary of Indian Railways (IR), is one of the largest neutral telecom infrastructure providers in the country. The company operates a pan-Indian optic fibre network with exclusive right of way (RoW) along railway tracks across 7,000 railway stations. The total track length of IR's network is around 65,000 route km (rkm), of which RailTel's OFC network is spread across 44,500 rkm. Further, the company's OFC connectivity spans more than 4,400 railway stations (including over 600 stations on long haul and 3,800 stations on short haul). In addition, the company has a dense wavelength division multiplexing network that is spread across 25,500 km.

Role in national OFC projects

Besides its involvement in setting up a communications network for IR, the company has been an integral part of the government's nation-building information and communication technology projects. It is one of the implementing agencies for the BharatNet project. Under the first phase of the project, it has to set up 19,000 rkm of OFC in 8,679 gram panchayats across 10 states/union territories. It is also part of a project funded by the Universal Service Obligation Fund to enhance connectivity in the north-eastern states. Under the project, the company is involved in laying 12,000 rkm of OFC in six states in the Northeast. In addition, RailTel is the lead creator of the National Knowledge Network, which aims to connect campuses of the Indian Institutes of Technology, Indian Institutes of Management and other research and development institutions in the country through a high bandwidth network.

New initiatives

Apart from being involved in government initiatives, RailTel has undertaken certain independent initiatives. The key among these is the station Wi-Fi project, which the company is implementing in collaboration with Google. The project aims to provide Wi-Fi facilities at more than 700 railway stations under the A1, A and B categories. So far, RailTel has commissioned Wi-Fi services at 119 stations, and plans to cover 400 stations by 2018 and provide Wi-Fi services at 200 railway stations located in rural areas. Another key initiative taken by the company is the railway display network project with the aim to set up more than 100,000 networked displays at over 2,175 railway stations. According to RailTel, these outdoor LED displays would be connected to a single delivery platform and would display train information and coach information, etc.

RailTel is also involved in a video surveillance system project, which aims to cover 983 railway stations under the A1, A, B and C categories through surveillance services. Another initiative taken by the company is RailWire, with the aim to provide broadband services to small and medium enterprises as well as households in collaboration with domestic cable operators and managed service providers. As per RailTel, RailWire services are currently subscribed to by 105,000 customers in 416 villages and 2,800 schools in Kerala and more than 750 gram panchayats in Madhya Pradesh.

Issues and challenges

While RailTel has been making concerted efforts to expand the coverage of its services, there are certain issues facing the company. According to RailTel, competition from other OFC players poses a key challenge and it needs to constantly innovate and add value to its offerings. Further, obtaining RoW for establishing OFC networks on non-railway routes is difficult and costly. Moreover, unplanned development work carried out by local bodies, public works departments and utilities is a key challenge for rolling out OFC networks.

Powergrid

Current status

Powergrid is responsible for managing the country's power transmission network. The utility has leveraged its transmission infrastructure to provide low-cost telecom services. It currently has 90,523 km of OFC network across the country. The company has used optical ground wire (OPGW) technology to roll out its fibre network. Further, Powergrid has used OPGW with 24 fibre cables to replace earth wires in its transmission lines.

Issues and challenges

The company faces certain challenges in deploying OPGW in these live-line conditions. These include limited availability of resources for the installation of OPGW lines, which requires specialised tools and trained manpower; very few indigenous suppliers of OPGW hardware and accessories; and absence of adequate testing facilities for OPGW in the country.

Future plans

Going forward, Powergrid aims to deploy OPGW in all its upcoming transmission lines of 132 kV and above, as a part of its communication strategy. In addition, the company is planning to create standard OPGW designs for its upcoming transmission lines and encourage OPGW manufacturing in India. Meanwhile, the roll-out of 48,458 km of fibre is currently under implementation, of which 23,771 km of OFC is under execution while 24,687 km is under award.

GailTel

Current status

GailTel is the telecom and telemetry services arm of GAIL (India) Limited, the largest state-owned natural gas processing and distribution company in India. GailTel's current OFC network spans around 12,000 km and has a capacity of 2.5 Gbps. The company has its presence in more than 175 locations across the country. Its key clients include Vodafone India, Bharti Airtel, Tikona, Tata Communications, Powergrid and RailTel.

Issues and challenges

Like other players, GailTel has faced a variety of challenges in operating its OFC network. These include low profit margins, lack of policy guidelines on leasing of dark fibre, extensive damage to fibre cables due to road construction, absence of an integrated nodal agency to monitor the execution activities of various utilities, high costs of obtaining permissions for rolling out OFC networks in cities and near railway crossings, and absence of a utility corridor for trunk and last-mile connectivity.

Future plans

Despite these challenges, GailTel has planned an addition of about 5,200 km of OFC network over the next five years across Uttar Pradesh, Bihar, Jharkhand, West Bengal, Gujarat, Chhattisgarh, Maharashtra, Odisha, Madhya Pradesh, Tamil Nadu, Kerala and Karnataka. Further, the company is preparing to lay 48 fibre cables along some of GAIL's new pipelines to cater to captive and business requirements. GAIL is also exploring a partnership with service providers for sharing fibre and ducts on a long-term basis.

Based on presentations by Sanjai Kumar, General Manager, Projects, RailTel; H.H. Sharan, AGM, Load Despatch and Communication, Powergrid; and D.S. Paswan, Deputy

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