TEJAS® NETWORKS

Customer

A leading South East Asian Carrier of Carriers

Challenge

Customer needs a network that can

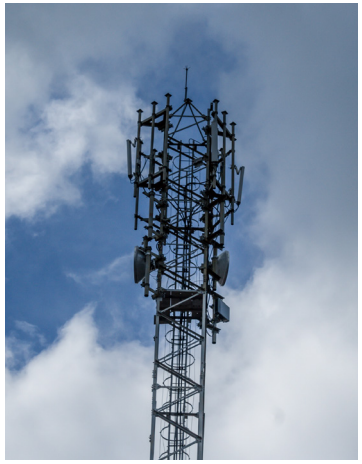
- Adhere to strict SLA commitments
- Rapid deployment
- Advanced protection against fiber cuts and node failures
- Reuse the existing network infrastructure

Solution

- TJ1400-7 is one of the industry's most feature rich packet transport and broadband access (PON/LTE) platforms. RRH support Bands 39 and 40 and 15 MHz
- Outdoor and Indoor LTE CPE for last mile connectivity
- Unified and multilayered management from TJ5500 NMS

Results

- Successfully implemented the network in band 39 and 40 LTE
- Selected for future expansion plans



A leading South East Asia based "Carrier of Carriers" selects Tejas LTE for broadband rollout

The customer is a state-backed leading South East Asian carrier of carriers (CoC) that owns an extensive fiber network spanning over 11,000 km. The customer wants to roll out pan region broadband connectivity solution for providing broadband connectivity to community centers, schools and non FTTx residential users. These regions are inaccessible through fiber and can only be accessible through wireless connectivity. Other options like satellite connectivity are extremely expensive and infeasible. This scope of work includes implementation of a state-of-the-art LTE solution that can provide last mile connectivity using Wi-Fi connectivity.

Key Requirements

The customer is deploying a large LTE based rural broadband rollout in the region and wants the network to have the below capabilities

- **Stringent SLA commitments:** The network should handle the stringent scalability, flexibility, security and reliability needs of the end-customers to support various services.
- **Reuse existing infrastructure:** The network should re-use existing tower infrastructure where available thus saving significant capital expenditure. The solution should also be customizable as per customer requirements.
- **Rapidly deployable solution:** The network should be deployed and should provide wide area broadband coverage. Users, who are deployed 5-10Km away from the tower location, can access broadband through indoor Wi-Fi Access.
- **Future proof:** The network should be highly scalable and shoud support up to 300Mbps. It should also provide ubiquitous LTE service to users on demand
- **Availability:** The backhaul and core network should be able to recover without delay in case of fiber cuts and node failures and ensure an uptime greater than 99.9%.

Tejas Networks Solution

The customer has selected Tejas converged Transport/LTE product for its backhaul and access network. The scope of work involves quick installation and commissioning of the selected customer sites using converged LTE/transport products from Tejas Networks i) TJ1400 - Metro Access platform with RRH, RAC and CEF-8 cards ii) LTE Indoor/Outdoor CPE and iii) TejNMS – the unified Network Management System.

- Tejas high capacity, macro FDD+TDD LTE eNodeB RAN on the converged access TJ1400-7 platform with 5G Release 15 upgrade support. The eNodeB protocol processing for the three sectors is handled by the Baseband card while Tejas Remote Radio Head (RRH) handles RF front end and ADC/DAC function. The RRHs are mounted on a tower while the Baseband card occupies one line card slot on the TJ1400-7 chassis.
- Compact Integrated EPC consisting of all EPC components capable of handling up to 200,000 subscribers and up to 48 Gbps backhaul data. The EPC consists of five principal components: MME, S-GW, P-GW, HSS, and PCRF. MME, HSS and PCRF are the control plane components and SGW and PGW handle the data plane (user) traffic.
- Tejas LTE Outdoor Unit CPEs to serve as LTE-to-Wi-Fi and Wi-Fi installation at Mosque, School, Hospital, Community center.
- Tejas indoor Wi-Fi ONTs which connects to the outdoor LTE CPE over

> The customer has implemented our innovative LTE solution to expand the last mile access and provide advanced broadband services to end customers. The network will be flexible, reliable and scalable for years to come. LTE has emerged as the de-facto choice for mobile broadband due to its superior spectral efficiency, higher data rate, reduced latency and lower cost per bit. On an average, a 10% increase in broadband adoption results in a 1 percent increase in GDP.
>
> **-Kumar Sivarajan, CTO, Tejas Networks**

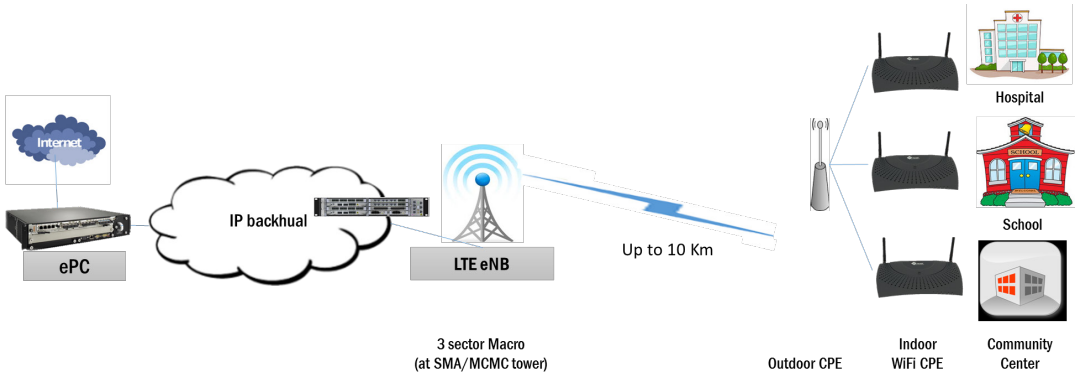
Ethernet and in future may connect to xPON.

- Tejas Element Management System is a unified, multilayered management platform with full FCAPS functionality for the complete range of Tejas products and technologies. It also provides monitoring and predictive failure analysis functions that ensure high network availability with the minimum possible user intervention.

Why Tejas Networks

After a thorough technical and commercial evaluation, the Customer selects Tejas' converged TJ1400 LTE and transport platform as the best fit for his application needs. The key benefits offered by Tejas solution are:

Ultra-Converged Broadband Access and Transport platform: TJ1400 provides cost-optimized delivery of Mobile Backhaul, Broadband Access and Enterprise services from same platform. Both Fiber broadband (xPON) and Mobile broadband (LTE) services can be delivered using an add-on blade on TJ1400. As the same platform can support both transport and access from same platform using transport and broadband cards, this ensures reuse of the existing backhaul networks equipment thus saving significant operational and capital expenditure.



Centralized Management: Advanced NMS software that considerably reduces the pains of operational transition by using a transport-friendly provisioning and management paradigm It uses Intelligent software enabled technologies which work with low infrastructure support and minimum operational costs. Tejas equipment has a small footprint and is energy efficient.

Operating Expenditure savings: Tejas equipment has small footprint and energy efficient. It also comes with significant power savings for the customer. It supports all security and synchronization requirements. RRH also has good Power Amplifier efficiency which translates to significant energy savings.

Flexible deployment: As and when a new location needs to be added, the Baseband Unit and RRH can be deployed at a central point and Internet Access can be activated within a matter of days. Moreover, the coverage radius as well as the direction can be changed depending on requirements.

Scalability: Currently the solution supports150 Mbps per cell with 10 to 50 Mbps with guaranteed QoS to end users. The same network can be extended to support additional services to enable the digital transformation of the villages.

Results

Tejas successfully completes installation and commissioning of the 35 rural habitat every quarter from the nearest fiber Point-of-Presence (POP). Tejas LTE broadband solution provides robust last mile connectivity to customers to support e-Governance, e-Education, Tele-Medicine, e-Agriculture, e-Commerce and other applications and services.

Software Enabled Transformation

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