



# Bridging the Digital Divide in Mumbai

In today's digital age, internet connectivity is as essential as food, shelter, and clothing. However, even in India's largest cities, there are areas where reliable internet remains a distant dream. These underdeveloped pockets, often nestled within the bustling metropolis, are home to thriving businesses that face daily challenges due to poor connectivity.

## Dharavi - In the Heart of Mumbai

Mumbai, India's bustling metropolis, is a city of contrasts. While it's renowned for its towering skyscrapers and glamorous lifestyle, there's Dharavi in a hidden heartland of the city, one of Asia's largest slums. Despite its proximity to the city's commercial and cultural hubs, Dharavi remains a stark reminder of the digital divide that persists even in urban centers.



## The Urban Connectivity Divide:

Cities like Mumbai are often portrayed as hubs of innovation and economic prosperity, yet within these urban landscapes exist communities like Dharavi. Despite being the heart of Mumbai, where film shoots, small industries, and billion-rupee businesses operate, the infrastructure is woefully inadequate. Narrow lanes, densely packed housing, and unplanned settlements make it almost impossible to establish robust network infrastructure. For businesses in these areas, unreliable internet is more than just an inconvenience; it's a significant barrier to growth.



## A Leading Real Estate Giant's Vision

A leading real estate giant, part of the world's largest conglomerate with a turnover of Rs 22,644.47 crore, recognized the untapped potential of Dharavi. Their vision was to create a sustainable, inclusive community that would not only improve the lives of its residents but also contribute to Mumbai's economic growth. A crucial component of this transformation was ensuring seamless internet connectivity which was a major challenge in such an environment.

## Challenge

Challenge ki jagah Ensuring seamless connectivity for their offices located in Mumbai's most economically diverse areas, including Dharavi and Mahim, was a high-stakes endeavor. Without reliable internet, their operations could come to a standstill, significantly impacting their business.

## Client Requirements

Their needs were varied, reflecting the unique challenges posed by each location:

- Mahim Scrapyard, Mumbai:** Required two enterprise broadband connections with 500 Mbps and 300 Mbps bandwidth, converging on a single CPE equipped with secure SD-WAN.
- Gurgaon, Haryana:** Needed a single ILL/Broadband connectivity with 200/500 Mbps and an IP Pool for ILL alongside a static IP for Broadband.
- Dharavi, Mumbai (Portsmouth Office):** Demanded a managed office solution with two enterprise broadband connections of 100 Mbps each, terminating on secure SD-WAN CPEs across two different rooms.
- Shri Ganesh Vidya Mandir, Dharavi:** Required a SD-WAN CPE paired with a 300 Mbps Broadband with dual protection paths.

## Deployment Challenges

There were significant hurdles for network deployment. The densely packed housing, narrow lanes, and informal settlements made traditional infrastructure installation difficult. Moreover, the lack of proper planning and documentation, coupled with disputes over land ownership, further complicated the process.

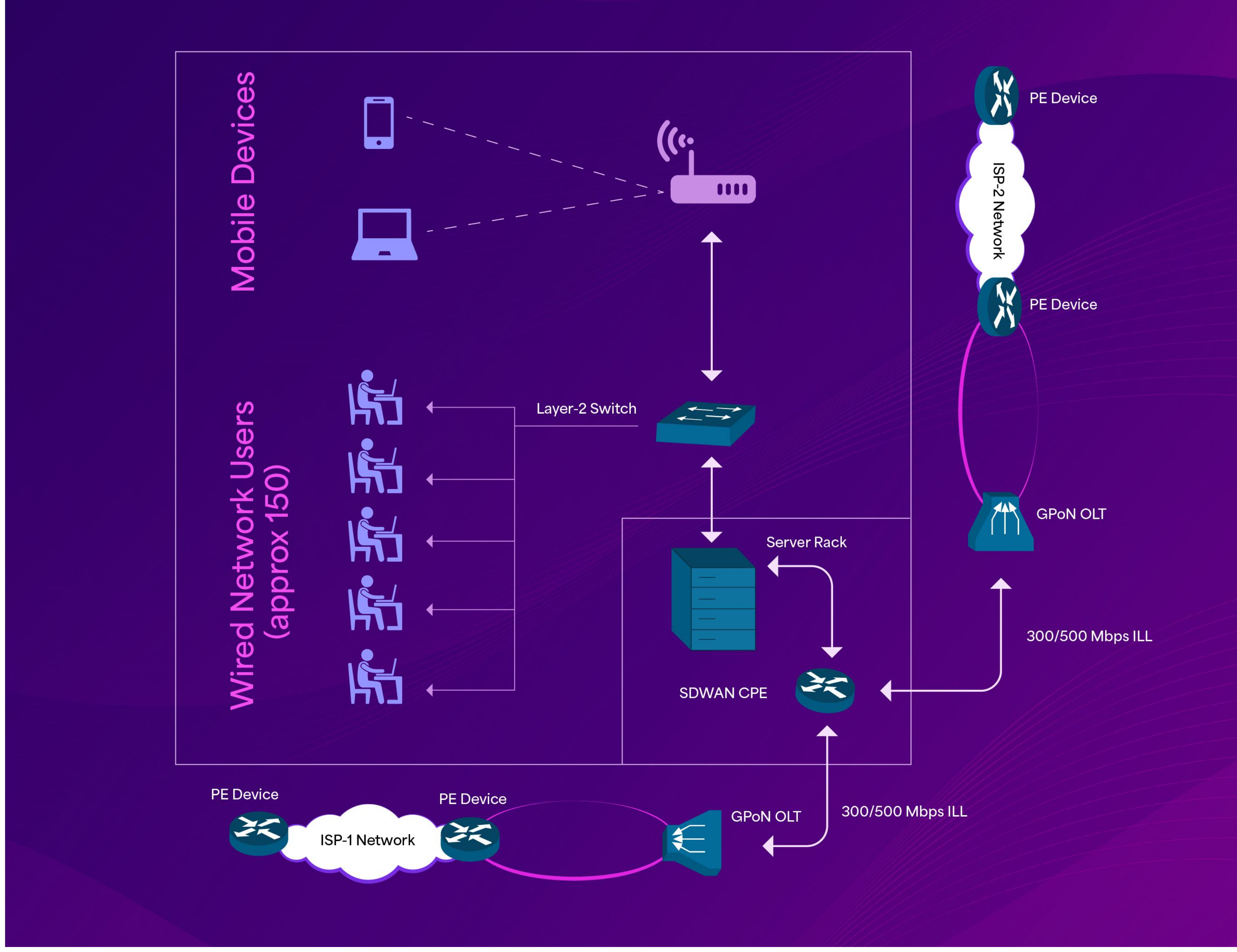


Deploying a reliable network in areas like Dharavi is fraught with challenges:

Dense Population and Unplanned Infrastructure: The chaotic nature of these neighborhoods, with their narrow streets and unplanned layouts, made it nearly impossible to transport and deploy standard equipment. The absence of accurate maps further complicated planning.

## Strategic Approach

When it comes to deploying network infrastructure, there is no one-size-fits-all approach. Hence, we tailor our solutions to overcome all the restrictions and geographical barriers and allow businesses to achieve their objectives. For such challenging environments, we decided to deploy a combination of our proprietary solutions: NetX + OneX. Both solutions were combined to meet client connectivity continuity with almost zero downtime or issues. OneX laid the foundation of SD-WAN, which abstracts the concept of private line connectivity, like MPLS, into a software-controlled overlay network. This is supported over physical broadband access and wireless, and MPLS networks. WAN functionalities, like switches and routers, are implemented using virtualized network functions (VNFs) that run on simplified infrastructure, which looks like a single rack server per branch office. Another important thing to mention is that SD-WAN doesn't require much infrastructure. SD-WANs are also independent of MPLS networks and can establish connections with standard broadband access, Wi-Fi, LTE, and 5G. They can easily direct and smartly direct the traffic over the best connection available, enhancing network performance in confined areas with limited infrastructure. Sometimes, the SD-WAN connection might face challenges, and a NetX solution is deployed to provide a broadband connection. With broadband and SD-WAN, businesses have the flexibility to use broadband access and wireless networks. The primary and secondary broadband connectivity are from two different providers, so there is no discontinuity.



## Impact and Outcome

CelerityX provides the most pervasive broadband network with more than 10,000+ connectivity partners nationwide. Here are the benefits that the client received from our deployed solution:

The centralized billing and monitoring make it easy to manage different vendors and services and put everything in one invoice. The centralized monitoring dashboard provides a 360-degree view of the deployed solution to evaluate performance, usage, and maintenance from one place.

SLA tracking and monitoring against pre-defined metrics, like uptime, latency, and response time, become simplified, ensuring proactive management and swift issue resolution.

The establishment of redundant Network Operations Centers (NOCs) allows for uninterrupted network monitoring and management, even if one NOC experiences an outage.

## Conclusion

The story of Dharavi is one of resilience, and the businesses operating within its confines deserve the same. CelerityX's tailored solutions ensured that even in the most challenging conditions, reliable internet was not just a possibility but a reality. By bridging the connectivity gap in these underdeveloped urban areas, CelerityX is helping businesses not only survive but thrive. If your organization faces similar challenges, our experts are ready to craft a solution that fits your unique needs, ensuring you can focus on what matters most—growing your business.