![Wifi-soft — Helping unwire the World]

MUMBAI WIFI
CASE **STUDY**

Wifi-soft
Helping unwire the World

OVERVIEW

Mumbai is the capital city of the Indian state of Maharashtra. It is the most populous city in India. Along with the neighbouring regions of the Mumbai Metropolitan Region, it is second most populous metropolitan area in India, with a population of 21.3 million as of 2016. Mumbai lies on the Konkan coast on the west coast of India and has a deep natural harbour. Mumbai generates 6.16% of the total GDP of the country. It serves as an economic hub of India, contributing 10% of factory employment, 25% of industrial output, 33% of income tax collections, 60% of customs duty collections, 20% of central excise tax collections, 40% of India's foreign trade and ₹4,000 crore (US$620 million) in corporate taxes.

REQUIREMENTS

Mumbai became the first metro politian in India to implement successful public WiFi hotspots. over 2000 WiFi hotspots were created around the city where Wifi-soft played a pivotal role in implementing and managing the public WiFi network. The whole network was managed and monitored centrally on WiFiLAN Cloud.

Daily statistics:
o   100,000+ logins
o   50,000+ unique users
o   8 TB of data transfer
o   2000 APs

HOW WE HELPED

► Deployed 2000 outdoor APs that are able to accommodate 40-50 concurrent users each.
► Centrally managed controller with a single dashboard to control all access points
► Customised captive portal with ad space
► Cost effective solution
► Access point Monitoring
► A reduction in network fault calls
► Ability to remotely control, monitor and troubleshoot
► Seamless and scalable WiFi
► Manage user logins and control the usage
► Discourage multiple logins by the same user
► Bandwidth management
► Policy management
► Vendor agnostic hotspot platform

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Mumbai has deployed over 2000 hotspots throughout the city to facilitate its residents and enable ease of mobile off loading, proximity marketing and failover protocol.

Mumbai is the commercial and financial capital of India and is also the capital of the richest state Maharashtra. It is a thriving metropolis in Western India with an estimated population of 18.4 million. Mumbai is the wealthiest city in India and is considered to be one of the top ten centers of commerce in the world. It alone contributes around 6.2% of India's GDP and around 25% of industrial output.

The Maharashtrian government has promised the citizens of Mumbai that city-wide WiFi network will be installed and the users will be able to get free Internet service across 2000 locations in Mumbai. The city WiFi network would facilitate the growth of commerce within the city and will provide citizens affordable Internet connectivity. It would also facilitate e-governance and other online activities thus allowing common people to avail Internet services without paying a high cost.

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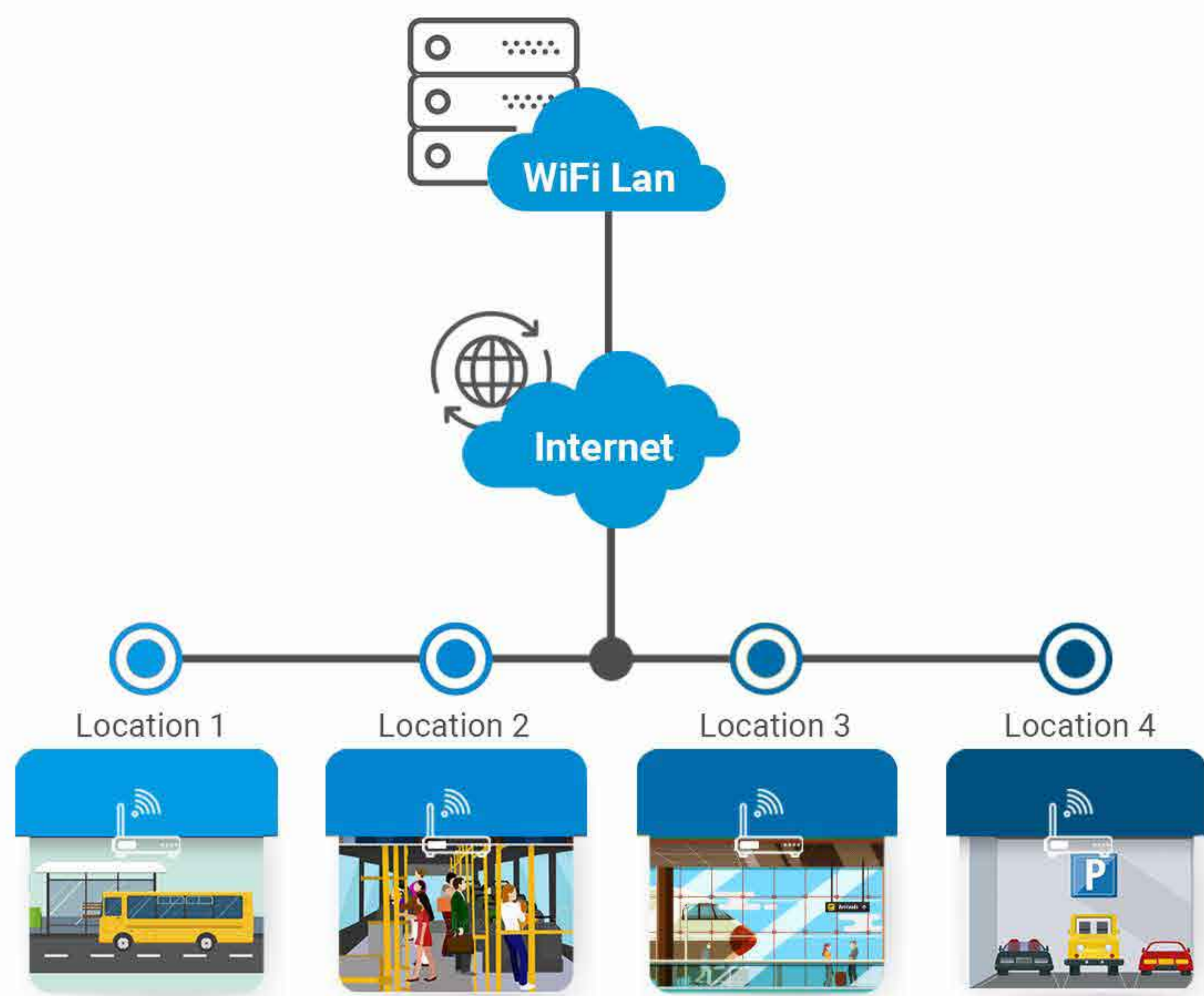
Mumbai WiFiLAN Solution Network Diagram

Both MNTL and L&T had earlier installed a city-wide surveillance system of IP cameras in prominent areas in the city. It was decided to use the same surveillance network for city wide WiFi hotspots. Each hotspot would have an outdoor access point mounted on the pole near the surveillance camera. L&T had chosen Aruba and Fortinet access points that could be easily mounted on the poles and provided a good WiFi coverage in the area.

MTNL was responsible for provide the Internet backhaul for the WiFi project. Being one of the incumbent companies in Mumbai, MTNL had already laid out fiber cables across the city and was able to provide Internet connectivity to all the areas where WiFi hotspots were to be installed.

However, MTNL lacked the expertise of managing the public WiFi network and didn't have the necessary technology for providing a seamless and secure WiFi Internet experience. It is mandatory for any public WiFi hotspot in India to provide SMS/OTP-based two factor authentication process and also maintain a complete log of each users browsing session. MTNL also wanted to implement various policies and control the time and quota each user would avail in the WiFi session. Finally MTNL wanted a central interface for managing and monitoring all the remote access points with an ability to generate daily, weekly and monthly reports.

MTNL had engaged several WiFi operators for implementing the OSS/BSS and captive portal solution for this project. However, none of these companies were

able to provide a robust and reliable solution that MTNL and L&T needed. Moreover, many of these companies lacked the technical skills and industry experience for implementing a project of this scale.

MTNL engaged Wifi-soft to carry out the proof-of-concept at 5 different locations within the city. This helped them evaluate the technical capabilities and industry experience of Wifi-soft's team. Wifi-soft was able to deploy the complete OSS/BSS and captive portal solution that integrated with both Aruba and Fortinet access points and controllers. Given that Wifi-soft had over 12 years of experience of managing public WiFi, it was able to implement the complete backend solution in less than 7 days. MTNL and L&T team went around the city to test the complete functionality of the solution. On successful completing a proof-of-concept, MTNL allowed Wifi-soft to engage as technology partner for the project. Wifisoft not only provided the OSS/BSS technology but also helped MTNL and L&T in designing and configuring the core network. Wifi-soft engineers assisted MTNL in building the right network architecture and also setting up the data center operations. They also worked with L&T in configuring, testing and commissioning the access points and controllers. Total of 1300 Aruba access points and 700 Fortinet access points were installed in 70+ circles around the city. All access points were managed by their respective wireless controllers and end users received IP addresses from the central DHCP server.

Wifi-soft also designed a multi-lingual captive portal as per the design and specifications of MTNL. The captive portal implemented the SMS/OTP login method as per TRAI/DoT requirements. Each user's mobile number was validated by the system before the user was given free Internet access. The system also controlled the duration of each session and speed and bandwidth quota allocated to each user.

Wifi-soft also maintain all the session history, URL logs and access logs for each individual user. Daily, weekly and monthly reports were generated automatically and delivered to the concerned authorities. Wifi-soft also maintained a live dashboard that displayed the real-time statistics of the whole network on a single interface.

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> **"** *Mumbai WiFi was a challenging project for us. We deployed over 2000 access points and managed the network through our 'WifiLAN', a Cloud based network controller. We registered over 100000+ logins each day and there was over 8 TB of data that was transferred among approximately 50000+ unique users. Our solution is very stable so we could execute the project without any glitches. Hope we get to be a part of more projects like this, it was truly exhilarating.*
>
> *- Rishikesh Ghare*
> *CEO, Wifi-soft Solutions Pvt. Ltd.*

The project was inaugurated by the honorable chief minister of Maharashtra – Mr. Devendra Phadnavis on 8th February 2017 and was made available to the people of Mumbai. Within a week, over 250,000 people registered for the Internet service. Each day over 75,000 people availed the free WiFi service and 8TB of data was consumed on a daily basis. The system was designed to scale for handling over 2 million logins per day.

The project was a resounding success and several media agencies carried the news about the project for several weeks. Although there were few connectivity issues at some of the locations, but L&T and MTNL teams reacted quickly to resolve the issues. Within a few weeks, the system was operating normally and delivered WiFi Internet service to the residents of mumbai round the clock. Mumbai became the first major city in India to deliver a free WiFi service to its residents.

Excerpt

https://en.wikipedia.org/wiki/Mumbai

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