

## CASE STUDY

BLUETOWN



### H8 enables Bluetown with High-level Deployment Architecture to provide Wi-Fi services in India, Ghana and Mozambique

- › 5,20,000+ Registered Subscribers and counting...
- › 1100+ Access Points
- › PM WANI roll-out, supporting WANI Token Handler Framework for India Operations



## Height8 Technologies

Founded in 2010 and headquartered in Ahmedabad (Gujarat), Height8 Technologies (H8) is a transformational technology solution-provider, that delivers carrier-grade IP-based solutions in an aptly-integrated portfolio of OSS, BSS, CRM, Wi-Fi SMP & Device Management to Telcos, ISPs and CSPs. With an experience of more than a decade and a team of technology-experts, Height8 has global footprints with 300+ deployments in nearly 12 countries, with strong presence in Asia (SAARC & Middle East countries) and Africa. Today nearly 50+ million subscribers are registered on H8 product-portfolio and almost 8+ million subscribers are managed by large telecom companies through H8 platform.












### H8 Wi-Fi: Solution Specialization

H8 presents a fully integrated platform that provides CSPs, smart cities, cable operators, airports, hotels and other public Wi-Fi hotspots with multiple avenues to monetize their Wi-Fi setup and engage with their customers. With our carrier-grade Wi-Fi future-ready platform, comprising authentication, billing, captive portal, location-specific services, subscriber-analytics, Mobile App and Integration with Mobile Core, service-providers can deliver Wi-Fi connectivity to end-users and connected devices under

various business-models, execute advertising strategies and provide Wi-Fi access blanket deals. Having Cloud-based architecture for centralized network management, we offer a customizable and highly scalable Wi-Fi experience, so that service-providers can gain new revenue-sources and leads, make strategic partnerships and quickly adapt to changing market-needs.

## H8 Wi Fi SMP:

### Key Features

-  Seamless access and multiple authentication methods
-  Open, pluggable and vendor-agnostic for seamless integration
-  Cloud-based architecture
-  Multi-tenant and multi-hierarchy network- support
-  H8 AAA's proxy support in Wi-Fi Roaming
-  Implementation of advertising strategies
-  Identification of usage-patterns through subscriber-analytics
-  Dynamic & flexible charging models
-  Pre-paid/Post-paid Billing
-  Customizable Wi-Fi experience
-  Various monetization models

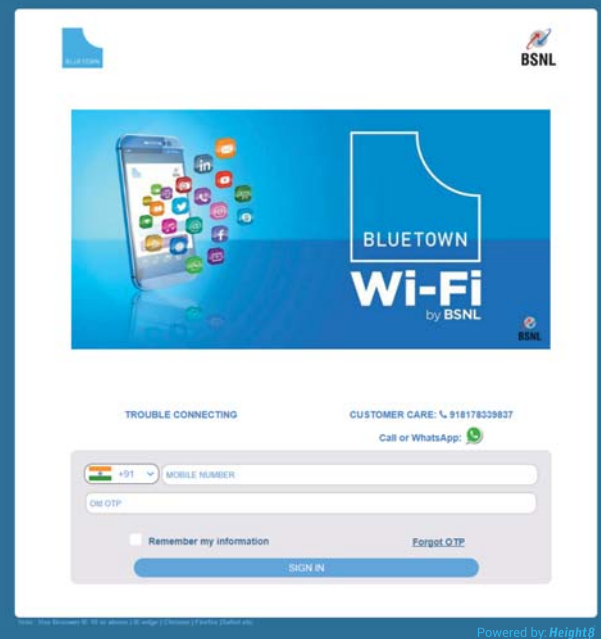
## H8 Wi Fi SMP:

### Specialities

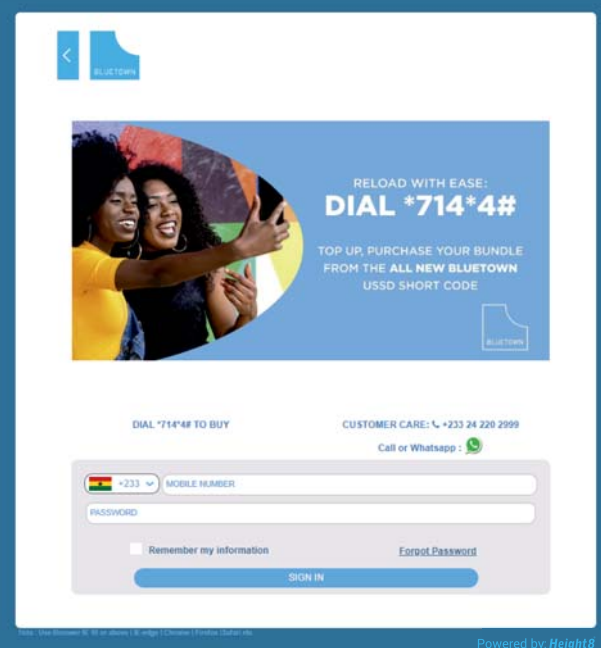
-  Retail Wi-Fi
-  Corporate Wi-Fi
-  3G/4G Wi-Fi Offload
-  Hotspot Management
-  Dynamic Captive Portal
-  Hotel/University/Hospital Wi-Fi

BLUETOWN

Headquartered in Denmark, with offices in Ghana and India, Bluetown is a global Wi-Fi solution-provider, with a focus to bring connectivity in the rural areas of the world. With current deployments in India, Africa, Middle East and South America, Bluetown is always on hunt to find versatile and cost-effective technology for expanding its services into rural areas of different countries with Wi-Fi solutions, that lower communication-costs, increase security-protection, enhance productivity and bring in best-in-class user-experience.



Bluetown Wi-Fi by BSNL login screen. The header shows the Bluetown logo and BSNL logo. The main banner features a smartphone with various app icons and the text 'BLUETOWN Wi-Fi by BSNL'. Below the banner, there are links for 'TROUBLE CONNECTING' and 'CUSTOMER CARE: ☎ 918178309837'. The login form includes a dropdown for country code (+91), a text field for 'MOBILE NUMBER', and a text field for 'ONE OTP'. There is a checkbox for 'Remember my information' and a link for 'Forgot OTP'. A 'SIGN IN' button is at the bottom. The footer mentions 'Powered by Height8'.



Bluetown Wi-Fi reload screen. The header shows the Bluetown logo. The main banner features a photo of two women and the text 'RELOAD WITH EASE: DIAL \*714\*4#'. Below the banner, there are links for 'DIAL \*714\*4# TO BUY' and 'CUSTOMER CARE: ☎ +233 24 220 2999'. The login form includes a dropdown for country code (+233), a text field for 'MOBILE NUMBER', and a text field for 'PASSWORD'. There is a checkbox for 'Remember my information' and a link for 'Forgot Password'. A 'SIGN IN' button is at the bottom. The footer mentions 'Powered by Height8'.

## Background

Bluetown had to provide a seamless and secure Wi-Fi internet-experience to its customers in India, Ghana and Mozambique. They met several Wi-Fi operators to implement the OSS/BSS and captive portal solution for this project, but finally found the requisite technical skills and industry-experience in H8 and engaged us for implementing the project of this scale. A simple, clear and attractive user-interface, that was easy to navigate and provide full access in the shortest time possible, was needed with precise SLA Reporting Tools to ensure various reports, maximum up-time, integrated ticket management and workflow-based inventory management system along with the CRM.



## Challenges

Building the right network-architecture and setting up the data centre operations in 3 different countries was a huge task. The implementation was to be done for deployment, management and support for end-to-end Wi-Fi services, in integration with multi-access controllers, multi-payment gateways and multi-captive portals across India, Ghana and Mozambique. Though demonstrating the product in view of their requirements in a time-span of a few days was a challenge in itself, yet H8 had an elaborate technical round with Bluetown's technical team-members, for the complete functionality of the solution.

**Based on the customization delineated in the Proof-Of-Concept, installation and integration of AP-devices in Live Environment within a short extent of time along with User Acceptance Testing completion for all the 3 deployments (India, Ghana and Mozambique) was a gigantic challenge before us.**

It seemed really tough to integrate multiple access controllers across the 3 countries and design location-wise multi-lingual captive portals as per Bluetown's specifications, but H8 was upbeat to take this challenge and went ahead to zero in on the specific approach for the project.

## Solution

First of all, H8 formed and deployed multiple teams to perform parallel tasks. While having continuous discussions with the technical team from Bluetown, we chalked out our plans in following processes:

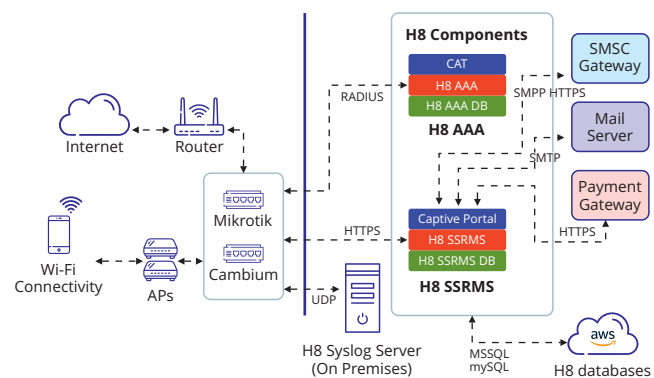
- › Setting up of a Project Room
- › Formation of Sr. Management and Supporting Teams for the project
- › Daily interaction with task-centric SPOCs
- › Weekly Governance Calls with all the stakeholders
- › Working on captive portal customization for each deployment, including business-flows as per the respective countries
- › Preparation on setting up servers to deploy our solution
- › Preparation for Commercial Launch
- › Setting up of the Support Team after Commercial Launch

The above diagram presents a high-level server, placement of different network-components and a comprehensive connectivity-view, which has been replicated for all the 3 deployments in India, Ghana and Mozambique.

The abovementioned table specifies the integration done with respective vendors in each of the 3 deployments. Databases used for H8's Products, namely SSRMS and AAA, are MSSQL and MySQL respectively and the products have been deployed in AWS Cloud.

H8 formed a specialized team to deploy the solution, including BSS and OSS applications. Integration with Access Controllers from vendors, namely Mikrotik and Cambium, was completed in the First Attempt itself. All access points were managed by their respective wireless controllers and end-users received IP address from the central server. The subsequent integrations were done with Payment Gateway vendors to support online payment functionality and SMSC vendors to support SMS-notifications. Everything was done, deployed and successfully tested. Additionally, we empowered Bluetown's Reseller Mobile App with functionalities, enabling its partners/resellers to attend to their customers using its services.

### High-level Deployment Architecture



	India	Ghana	Mozambique
Payment Gateway	Billdesk, Paytm, BSNL, BSNL Wallet	Expresspay, Hubtel	Expresspay
SMSC Gateway	Gupshup	Hubtel, Infobip	Infobip
Access Controllers	Mikrotik, Cambium	Mikrotik, Cambium	Mikrotik

## Impact

### On-boarding functionality:

H8's Captive Portal pages provided the functionality to onboard users. The pages were developed as per Bluetown's requirements. Using the "New User Registration" page, new subscribers could self-register for the service. Auto-notifications were sent to the registered users.

**Flexibility in plans:** H8's Administration Portal, SSRMS, provided the Free, Paid and Sponsored plans, as required by Bluetown. Quota and/or Time-based Limits, reflecting the control on the duration of each session and speed and bandwidth quota allocated to each user, were created in SSRMS. Features supporting daily usage limit, resetting quota, hotspot applicable plans etc. provided an increased flexibility for Bluetown in creating market-strategies.

**Hotspot Management:** With any AP set-up at a location under a single Hotspot, H8's SSRMS provided Hotspot Configuration, wherein a unique name as an identifier could have 1 or more APs configured with unique MAC, facilitating subscribers to get connected to only configured APs. Additionally, Hotspot-based listing of plans, with support for "Free Plan", provided Bluetown with the control required to show/hide the plans, related to Hotspot. H8 also provided additional control to support "Free Plan" for a limited number of times in a month.

**Releases without downtime:** Bluetown had made the earnest request that their subscribers mustn't be impacted during any release, as that would affect their collections and revenue and also customer-satisfaction. H8 has been providing releases in production, without any downtime so far.

**Positive bearing on operations:** H8 came up with proactive alerts, sent to customers on events such as "Available Time" or "Available Quota", which have increased the customer-satisfaction conspicuously, thereby ensuring accuracy in revenue-recognition.



**Support for Branding:** To meet the requirement of putting banners and/or images for different hotspots, H8's Advertisement Module provided Bluetown to show different images/banners for different Hotspots, making possible location-specific advertisements.

**Support for various services:** Based on H8's product, Bluetown sells attractive B-2-B Wi-Fi services to hotels, healthcare-providers, enterprises, stadiums and retailers to create business-opportunities and enhance indoor-coverage for itself. Our Wi-Fi SMP helps Bluetown to manage the traffic and access for various usages like Carrier Wi-Fi and Wi-Fi Offload through captive portal-based authentication.

**Acute focus on customer-satisfaction:** "Auto Login" for a configured number of days was used to give subscribers a non-interactive login to the services from any or selected Hotspots, eliminating the case of failed or delayed SMS-delivery in some areas. Recharging facility from Captive Portal, USSD, Resellers and Walk-in ensured that subscribers didn't have to wait to recharge, using internet services.

**BI Reporting:** We provide a range of Daily and Monthly reports, that dig insights into the usage, recharge, CP Hits, Hotspots in use, unique users, unique device MACs etc. for the Bluetown management and their Business Analysis team.





**The Bluetown project has been a resounding success for us. Coming up with a stable solution and executing 100% E-2-E roll-out within a few days in a challenging project was truly exhilarating. Presently, the system has been Live for more than 4 years and many enhanced features have also been added to it, including PM WANI roll-out, supporting WANI Token Handling Framework for India operations.**

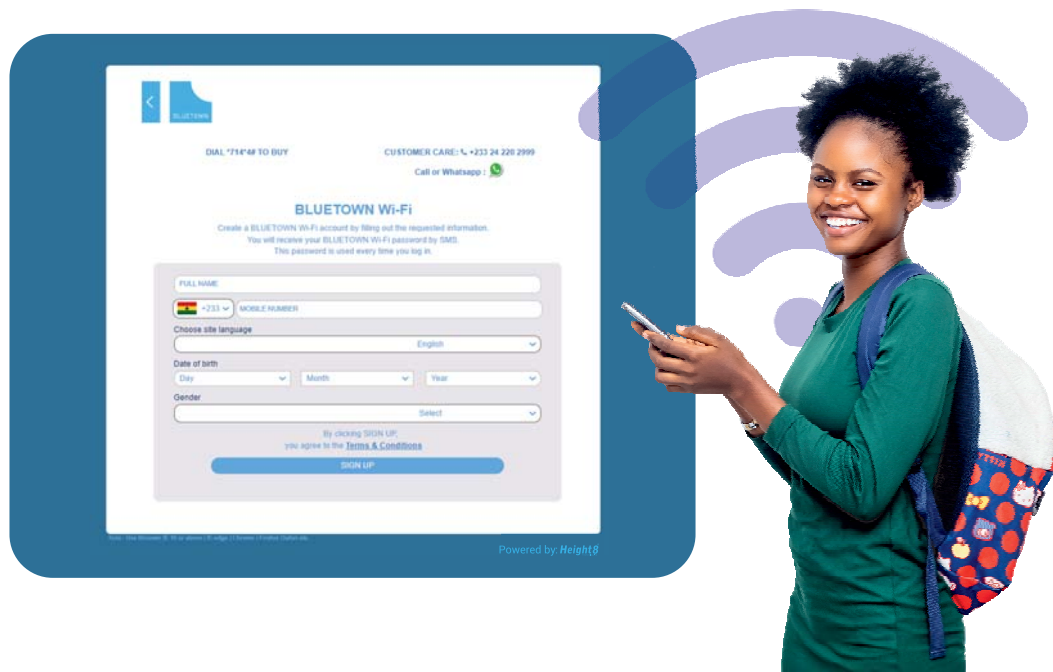
Number of  
Access Points  
**1100+**

Number of  
Registered Subscribers  
**5,20,000+**

Average number of  
Active Subscribers  
**45,000**



Specially developed features	Brief Description	India 	Ghana 
Hotspot-Enterprise Wi-Fi	Subscribers registered on this type of hotspot can only connect and use service from such type of hotspots	✓	✓
Hotspot-Public Wi-Fi	Subscribers registered on this type of hotspot can only connect and use service from such type of hotspots	✓	✓
Hotspot-Restriction	Control "New User Registration" from hotspot. If enabled, then only new users can register for the service from captive portal.	✓	✓
Hotspot-Plans	Subscribers can subscribe to plans visible on the connected hotspot	✓	✓
Hotspot-Auto Login	Control support for "Auto Login" for limited days from the hotspot. AP requires to be configured for Mac Based Login. This ensures forceful login from Captive Portal after configured days is reached.	✓	✓
PMWANI	Support for PMWANI framework as defined by Government of India. Integration with Token Handler Vendor CDoT.	✓	✗



**Height8**<sup>®</sup>  
Technologies  
Reaching for the stars

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