UNIBOX

WiFi Hotspot Controller

Technical Overview of

UNIBOX CONTROLLER

About Wifisoft

Wifi-soft is one of the leading companies in WiFi space that provide hardware, software and managed services for public Wi-Fi industry. Today, Wifi-soft manages thousands of Wi-Fi hotspots across the world including those in United States, Mexico, Latin America, Canada, United Kingdom, Europe, India, Middle East, Singapore, Africa and more. Over 5 million users use Wifi-soft services on various hotspots worldwide each month.

Wifi-soft's has developed carrier-class, proprietary OSS/BSS and network controller software for centrally managing and monitoring public Wi-Fi hotspots. The solution can be either deployed in the cloud or on an appliance in the NOC. The software provides wide range of services including AAA (Authentication, Authorization and Accounting), NMS, policy management, bandwidth management, credit card billing, SMS/OTP verification, CDR collection, prepaid vouchers, 24x7 monitoring, captive portals, social media integration, reporting and many more.

In addition, Wifi-soft also sells UniBox hotspot and network controllers as appliance in different configurations. These controllers comes with wide range of features like Hotspot system, Captive Portals, Multi-WAN routers, VPN server, Hotspot Billing, Advertisement, URL logging and many more. The controllers can be deployed in public venues like hotels, malls, hospitals, schools for managing guest access and also in enterprise environment.

Lastly Wifi-soft also provides cloud and controller managed access points for both indoor and outdoor deployments. The access points come in different configuration and enclosures including in-wall, ceiling mount, pole-mount and rugged designs. All access points can be configured in stand-alone, controller or cloud-managed mode. In case of cloud-managed configuration, the firmware and configurations are centrally managed in the cloud and can be pushed to remote access points from the dashboard.

In short, Wifi-soft has complete range of solutions needed for managing public WiFi access.

Wifi-soft highlights

➢ Leading company that provide Wi-Fi software and management solutions
➢ Over 14 years of successful track record
➢ Thousands of hotels, malls, airports, resorts use Wifi-soft technology today
➢ Internationally Experienced Management
➢ Proprietary, carrier-class software and hardware
➢ Serves worldwide hotspot operators, wireless ISPs and enterprises
➢ Complete solution for managed hotspots

- ➢ Highly trained technical and support team
- ➢ Partnership with world's leading Wi-Fi hardware vendors and aggregators

What We Do?

- Complete software and hardware solutions for WiFi access
- Highly reliable, customizable and scalable solutions
- Reduce CAPEX and OPEX
- Over 15 years of industry experience of managing WiFi networks
- Highly experience team to help customers build and manage wireless networks
- Prompt and personalized support to help you scale your business
- Help customers realize business goals with customized product offering

UniBox Hotspot Controller
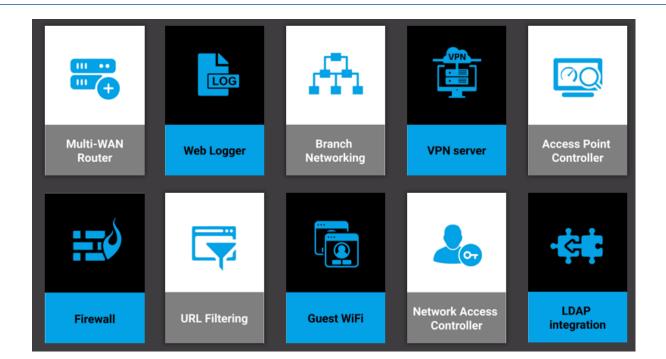
Technical Introduction

UniBox is an all-in-one network/hotspot controller that can be deployed as network access gateway for managing public WiFi hotspots or as a network controller for offices and enterprises. It provides all the features required for access control, which includes AAA, captive portal, user provisioning, LDAP/AD, Google+ integration, social media, MAC binding, bandwidth control, legal compliance, policy management, usage monitoring, credit card billing, content filtering, reporting and much more.

UniBox is usually deployed for managing WiFi hotspots in hotels, shopping malls, schools, colleges, airports, retail stores and other public venues. It can be also deployed in offices and enterprises for managing user access, enforcing policies, track usage and secure the network for both wired and wireless users.

UniBox is designed to work with **access points from any vendor** and is extremely easy to configure and deploy in the network. It comes in different models ranging from 50 to 10,000 concurrent users so can be deployed to manage a network of any scale. UniBox works seamlessly with UniMax access points making it really easy to deploy and manage these access points centrally from a single console.

It encompass various functions including hotspot controller/gateway, RADIUS Server, Captive Portal server, URL logger, Web Filtering server, VPN server and Multi-WAN router. All the functions come integrated in a single GUI thus allowing administrator to easily control and manage the wireless network.

| Multi-WAN Router | Web Logger | Branch Networking | VPN server | Access Point Controller |
| Firewall | URL Filtering | Guest WiFi | Network Access Controller | LDAP integration |

UniBox – Features

- **All-in-one Access Controller**
- **Multiple Hotspots**
- **AP Controller**
- **On-board Captive Portal**
- **SSO / Two-Factor Authentication**
- **Hotspot Billing**
- **Prepaid Vouchers**
- **PMS Integration**
- **Bandwidth & Policy Control**
- **Web Logger**
- **VPN Server**
- **URL Filtering**
- **Multi-WAN / Load Balancing**
- **WiFi Advertisement**
- **Branch Networking**
- **Reporting & Analytics**

Features	Description
What is UniBox?	UniBox is an intelligent access controller and hotspot gateway that provides complete control on your wired and wireless network. Which helps network administrators to centrally manage their networks, avoid unauthorized access, enforce policies and track real-time network activity.
Where it can be used?	UniBox controllers that is specially designed for managing network access in any small, medium-sized or large venues like hotels/inns, shopping malls, educational institutes, universities, airports, enterprises or corporate offices and public Wi-Fi hotspots. UniBox is capable of handling concurrent user sessions and is built on reliable Linux platform to provide high availability and

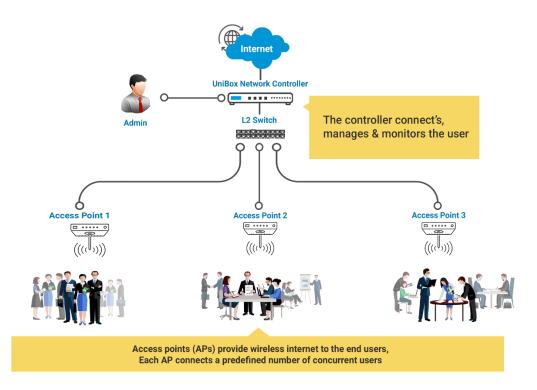|	
	performance for large and medium-sized networks.
UniBox functionality	UniBox is usually deployed for managing WiFi hotspots in hotels, shopping malls, schools, colleges, airports, retail stores and other public venues. It can be also deployed in offices and enterprises for managing user access, enforcing policies, track usage and secure the network for both wired and wireless users.
Hotspot Management Gateway	This is the core functionality of UniBox controller to manage the WiFi hotspots as per the TRAI/DoT norms. End-to-end hotspot management functions. You don't need additional AAA or captive portal services since all these functions are built inside the UniBox controller. Unified hotspot controller for managing guest login and management WiFi network.
Guest User Authentication	To know the user and to verify the users with Username and Password/OTP/Social Media/Prepaid Voucher/PMS these are the types of Authentication
AAA RADIUS Server	UNIBOX has in-built AAA-RADIUS Server architecture, which stands for Authentication, Accountability and Administration of the users and network.
Bandwidth Management	Control bandwidth speed and quota for individual user or group. In any WiFi hotspot Control bandwidth utilization and enforce fair usage and access policies. Through the UniBox you can able to set the Upload data limit, Download data limit, Usage limit and session limit and able to apply the bandwidth restriction policies.
Lawful Interception	UniBox can be deployed for lawful interception and legal compliance for any public or enterprise network. It provides multiple features like web logging, URL filtering, two-factor authentication, CDR recording and more for ensuring compliance with the local regulator.
Captive Portal Server	UniBox is a captive portal server which are fully branded and customized captive portals for rich user experience. We can set different types of captive portals according to the type of authentication.
Policy Management	You can set different bandwidth policies and restrictions on the internet usage in the wifi network to all the users in the same network. You can also create multiple group of the users and you can able to apply different policies on multiple groups.
Concurrency Limit	You can set the limit on users to use the number of devices in a given single time
Single Console Management	UniBox provides a dashboard for managing the complete network through a single interface. All network statistics, user data usage, revenue reports, analytics, customer behaviour and loads of diagnostics information is available at a click of a mouse.
User Activity Report	UniBox supports both user activity reports and web logging. UniBox comes with a local SSD storage to store all the customer information. Web logs are stored in compressed files and can be downloaded daily on a central server.

Multiple WAN and Load balancing	UniBox provides more flexibility on setting multiple WAN since each port can be individually configured as WAN or LAN port.
URL Filtering	UniBox also provides a comprehensive web filtering tool. URLs can be filtered based on their category. UniBox 3.0 onwards supports group-based content filtering thus allowing administrators to define different filtering policies for each group of users.
Group Based Content Filtering	Classify bandwidth, URL filtering, access control and other features as per the user groups
Auto Data Sync	Sync data automatically or enable automatic updates and increase your productivity
Available Models	UniBox is available in wide range of models to cater to networks of any size and depends up on the concurrent users size from 50 to 10,000 concurrent users
Built-in AP Controller	When deployed with UniMax access points, UniBox functions as a AP controller thus allowing administrator to centrally manage and monitor all their access points. We can also call it as a Network Monitoring System.
Multiple Hotspots	Create multiple hotspots to own and operate wifi at multiple locations simultaneously with one device.
Virtual PMS	Deliver the same user experience as a PMS system at no additional cost
WiFi Advertisement	UniBox v3.1 and above provides a complete WiFi advertisement module integrated with UniBox. The advertisement module allows admins to setup captive portal image and video ads, ad inserts and statistics about ads.
Branch Networking	UniBox can be deployed to setup branch networking for remote offices. This can be used as replacement for MPLS networks. Remote Unibox can form a VPN tunnel to the central controller and various access policies can be defined to configure the access to network elements.

Deployment Scenarios

UniBox can be deployed in two configurations –

Standalone

In stand-alone mode, UniBox will function as an integrated platform which combines all the functions needed for managing public networks like WiFi hotspots. The operators don't need any other services to run their networks. UniBox comes with built-in AAA server, captive portal system, web server, DHCP service, local database and on-board storage. This operating mode is ideal for single venue hotspots where central management is not desirable.

Cloud-Managed

In this mode, UniBox functions as an intelligent controller while utilizing the AAA, captive portal and other services from the central server or cloud. This operating mode is ideal for managing multiple, remote networks centrally and having a single console to monitor all the network activity.

UniMax Access Points

Wifi-soft's range of access points are marketed under the brand UniMax. We offer both indoor and outdoor access points that are reliable, long-range and affordable. The access points come in different models for in-wall, ceiling, wall, pole-mount and outdoor installations.
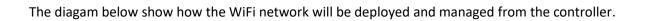
Each access points functions in three modes – stand-alone, controller-managed and cloud-managed. In case of standalone configuration, the access point can be deployed individually and can be configured separately. The intuitive web interface allows the administrator to configure the wireless, security and other settings on the AP.
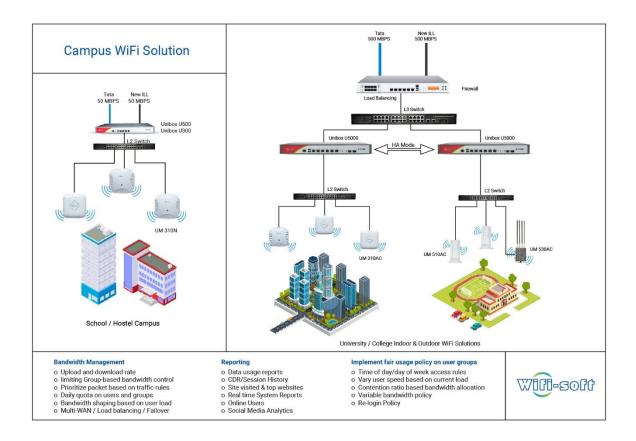
In controller managed configuration, the access points work seamlessly with our UniBox controllers. The controller provides an interface to auto-discover, provision and manage the access points. Multiple access points can be managed centrally using the controller.

Each AP can be mesh enabled to design a self-healing and self-organizing mesh network. All APs have a hotspot mode that provides captive portal and AAA integration.

Technical Solution

The diagam below show how the WiFi network will be deployed and managed from the controller.

The network deployment will consists of UniBox controller running on a bridge wireless network. The access points can be deployed in various places within the network to provide WiFi coverage to the given geographical area. Each access point will be configured in bridge-mode and will be primarily responsible for relying the traffic back to the controller for authentication and accounting.

The UniBox will function as the DHCP server on the network and will issue IP addresses to the end user devices. All the Internet traffic of the end users will be routed through the UniBox i.e. UniBox will be installed inline the network. Being inline, UniBox will be able to control the traffic and policies on the end users.

Wifisoft also provides controller managed smart access points for end user access in the WiFi network. These access points can be managed centrally through UniBox AP management features. **UniBox is designed to work with any branded access point so it can be also deployed along with the existing access points if needed.**

Client can also deploy a combination of UniMax and third party access points. Only UniMax access points can be managed through UniBox interface.

UniBox will be responsible for performing user authentication, enforcing time/data and speed restrictions on the users, enforce access privielges, perform accounting, track user sessions and monitor the health of the network.

Unibox can be also deployed in high availability mode in which another UniBox can be deployed in cold standy. In case the primary UniBox goes down, the secondary UniBox can takeover the operations of the network.

UniBox can be also deployed in conjunction of a hardware firewall. In this scenario, the UniBox can perform the access control, policy enforcement, user accounting and other management activity while the firewall can be configured ahead of UniBox to perform intrution prevention and detection activities.

All UniBox managed access points can be managed and monitored centrally through a single console. UniBox is designed to auto-discover the UniMax access points in the network and auto configure them. This significantly reduces the installation and setup time for the network.

Access Points

Since the WiFi deployments will be done in outdoor and indoor environment and we would like to propose our UM310AC and UM530AC model for this project. Both APs can be managed and monitored from the central controller
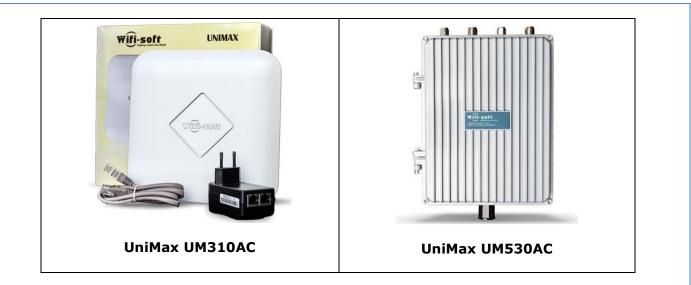
UM-530AC is an enterprise-grade, outdoor, rugged access point for remote and cost-effective WiFi deployments. It comes with 2x2 MIMO antenna. It offers speeds up to 1200 Mbps and is compatible with 802.11 ac/n/b/g standards.

UM310Ac is also an enterprise-grade, indoor, ceiling mount access point designed specically for managing dense RF environments. It comes with 2X2 MU-MIMO antenna and is designed to offer speeds upto 1200 Mbps. It supports dual-band 2.4GHz and 5 Ghz and comes with built-in 5 DBi antennas.

All APs can be powered using passive high power 802.3af or 802.3at PoE (**injector is included**) and hence can be remotely powered. It comes with built-in Omni directional antennas for providing maximum coverage in outdoor environments.

The UniMax APs can be configured in bridge or hotspot mode and provide seamless installation and configuration. It is designed to seamlessly work with the central AP controller or UniBox.

All UniMax APs are designed to form a self organizing and self healing mesh network to extend the range of the wireless networks. The mesh network can be used for outdoor networks in which the cabling is difficult. It is ideally suited for public WiFi since it enables operators to expand the WiFi coverage with minimal cost.

| UniMax UM310AC | UniMax UM530AC |

Here are the highlights of Wifisoft Smart APs

1. **Controller Managed**
2. **High Power, Long Range**
3. **Captive Portals**
4. **Bandwidth Management**
5. **Outdoor enclosures**
6. **Mesh Enabled**
7. **Plug-n-Play Setup**
8. **Remote firmware upgrade**
9. **PoE Capable**

Central AP Controller

UniBox Controller comes with a software module that is responsible for centrally managing remote access points. Each UniMax access point is capable of auto-discovering itself when installed behind the UniBox controller. The AP also can download the current configuration and automatically setup RF and network parameters.

The AP controller module provides the following functions -

1. **AP discovery and provisioning**
2. **AP Management and Provisioning**
3. **Configuration Management**
4. **Firmware upgrades**
5. **RF Management**
6. **AP health monitoring**
7. **Usage and bandwidth statistics**
8. **Wireless Meshing**
9. **Heat Maps**

Conclusion

UniBox is designed to provide the complete hotspot solution to the network operator. When used in conjuction with UniMax access points, it delivers a complete RF and network access technology needed to build and operate a enterprise-class wireless network. The solution offers unmatched features and provides a central, single-console administration to the network administrators.