The VSM is the Edge Controller of Abloomy's Smart-Edge architecture. It can be either an on-premises appliance or deployed on commercial off-the-shelf servers in the data centers of customers or public cloud providers. Under the control of the CSP or ACS, the VSM is the execution node of Abloomy's cloud service. With programmability, the VSM can be orchestrated with cloud-managed functions hosted by the ACS or CSP, based on the policies of the customer's cloud account. It can execute these functions at the edge closest to the customer, in infinitely large-scale distributed deployment scenarios, to guarantee low latency, security, and data privacy—the fundamental requirements for any IoT application. With these cloud-managed functions, the VSM not only provides all the functions of a traditional WiFi controller such as network management and optimization, NAC and other wireless security functions but also provides portal, authentication and WiFi marketing functions. With SD-WAN, firewall, NAT, VPN and routing functionalities, it also functions as a network gateway to construct a performance-assured network infrastructure that connects employees, branches, HQ, DCs, and the cloud, all while ensuring high security, deep visibility, and 100% centralized programmability. The VSM is plug-and-play and makes the network seamlessly scalable. Once configured, the VSM can work independently even after losing connection with the ACS and CSP, and has N+N redundancy, creating an extremely reliable shared computing resource pool.

## Features

### Plug-and-Play

Both Abloomy APs and VSMs support zero-touch provisioning. When an AP or VSM registers in the cloud platform, the platform will push predefined configurations to the device, avoiding on-site work.

### Scalable Network Architecture

Abloomy adapts a distributed WiFi network architecture based on our Smart-Edge technology, creating a flexible, modularized management system for both network functions and applications. The distributed VSM layer can be scaled seamlessly and automatically creates N+N redundancy backups.

### RF Channel Optimization

Interference in WLAN radio affects AP's normal operation. The ABLOOMY platform optimizes AP's radio allocation through adaptive channel selection, avoiding interference from neighboring APs.

### Seamless Roaming

The Abloomy centralized architecture easily allows roaming. The CSP series controller supports roaming across subnets without re-authentication.

### Multiple Authentication Methods

Multiple authentication methods are included, such as SMS, WeChat, 802.1X, username and password, non-authentication, automatic authentication and more. After the first SMS/WeChat authentication, subsequent access does not require authentication, which not only improves the user experience, but also saves on SMS expenses.

URL Access Control

The VSM can capture and filter browsed URL information based on firewall policies from the CSP.

Role Based Access Control

Role based access control is the main advantage of ABLOOMY products. The platform can define different levels of access roles and authorize differentiated services for the users.

Flexible Data Forwarding

Based on the policies, the data forwarding can be done either locally by AP locally or centrally by VSM.

Ads and Content Operation

Abundant portal templates are available for customers to customize their ad page. The customer can use single page or multi-page portals to present more information.

By caching content locally, customers can save bandwidth by embedding content URL links in the portal page and enabling their Wi-Fi users to locally access videos, articles, and apps, creating a much better user experience. Meanwhile, the backend system will record statistics on viewed and downloaded content to better understand user preferences and fine-tune marketing strategies.

Social Media Operation

Social media integration improves the interactions and relationships between businesses and customers, building up long-term marketing strategies.

Abloomy Technologies, Inc. | Toll Free Number: +001-888-690-7008 | abloomy@abloomy.com

# Hardware Specifications

| VSM | VSM800 |
|---|---|
| Interfaces | 4*10/100/1000 Base-T Ethernet ports<br>1*console port<br>2*USB 2.0 ports |
| Weight | 1.5kg |
| Dimension (L*W*D) | 290mm*155mm*45mm desktop |
| AP Limits | 64 |
| Disk | 16G SSD |
| Power Supply | 12V DC |
| Consumption | 36W |
| Operating temperature | 0 ℃~40 ℃ (32 ℉~104 ℉) |
| Storage temperature | -20 ℃~80 ℃ (-68 ℉~176 ℉) |
| Humidity | 10% ~ 90%, non-condensing |

# Software Specification

| | | | |
|---|---|---|---|
| AC Discovery | Broadcast discovery | | Combined Encryptions |
| | DHCP option 43 discovery | Authentication | Radius Server |
| | DNS discovery | | LDAP |
| | Configure manually | | Built-in role-based access control |
| RF | Support AP and probe mode | | User's MAC address based authentication |
| | Support manual / automatic channel selection | | 802.1X authentication |
| | Configure RF TX/RX manually | | Social media authentication (Facebook, Google+, etc.) |
| | Configure channel size 20M/40M/80M manually | | SMS authentication |
| | Support manual /auto TX power configuration | | Customer's APP authentication |
| Data Forwarding Mode | Central forwarding mode | | UMS (Authentication & Accounting & Authorization) |
| | Distributed NAT forwarding mode | | Support multiple authentications concurrently |
| | Local transparent forwarding mode | Security | Hidden SSID, Rogue AP detection |
| | Support each SSID with Local forwarding VLAN | | User isolation and Network isolation |
| | Concurrent local and central forwarding mode | | URL capture |
| Roaming | L2 roaming between APs | | Black / white list |
| Network Protocol | Policy routing | | MAC and IP address binding |
| | ARP | | DoS attack protection |
| | 802.1P/Q | Access Management | Automatically disconnect idle traffic user |
| | DHCP Server | | Role-based access control |
| | IGMP Snooping | | Time-based access control |
| | OSPF Dynamic routing | | Location-based access control |
| | DHCP Relay | | Combine Role/Time/Location based access control |
| | DHCP Relay to multiple servers | Load Balance | Load balance based on user |
| Encryption | Open system | | Load balance based on traffic |
| | Pre-share PSK | Firewall | Stateful Firewall |
| | WEP | NAT | SNAT |
| | WPA2 Encryption | | DNAT |
| | TKIP | | DPAT |

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| Content Platform | Service types can be configurable | Ads Module | Multiple built-in Portal templates |
|---|---|---|---|
| | APP distributed as a content | | Ads browsing PV/UV statistics |
| | Ads can be inserted in the content page | | Historical Ads reports |
| | Support localized content storage | Logs and Alerts | Local logs, external log server |
| | Support remote content redirection | | Device state alerts, email alerts |
| | Historical record of content downloads | System Management | WEB, SSH, Console |