

# VSM5000 (Edge Controller)



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.

### Virtual Network Cloud Service

Virtualization is the backbone to constructing wireless cloud service platforms. ABLOOMY can distribute network application modules and devices dynamically via the NaaS cloud service. Customers can purchase application modules and devices as required, achieving a

reliable, secure and smooth basic network service. With the flexible and customizable virtual cloud service, ABLOOMY enhances the quality and efficiency of Wi-Fi operation for customers.

### 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, while the roaming domain is not limited by subnets. This characteristic allows clients to focus on the Wi-Fi coverage, instead of existing network plans, which simplifies network planning and reduces the cost.

### Multiple Authentication Methods

Multiple authentication methods are included, such as SMS,

Facebook, Google+, 802.1X, username and password, non-authentication, automatic authentication and more. After the first SMS/Social media authentication, subsequent access does not require authentication, which not only improves the user experience, but also saves on SMS expenses.

#### [Build VPN Private Cloud Network Dynamically](#)

The ABLOOMY cloud service management satisfies the needs of dedicated Wi-Fi at events. With the CSP cloud platform, the enterprise can bring an AP to an event to extend their VPN.

#### [URL Access Control](#)

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

#### [Probe](#)

The ABLOOMY AP supports probe functions. When the terminal's Wi-Fi is enabled, the AP will obtain the device's MAC and signal strength. The probe supports real-time monitoring and WLAN environment analysis for network adjustment. Working with the ABLOOMY data analytics server (VDS), the probe will create heat maps and analysis charts for long-term marketing.

#### [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.

#### [Localized Operation and Management](#)

For security-sensitive customers, both operation and security functions can be localized to the customers' premises; these functions include advertisement management, content cache, social media,

applications by industries, data analytics and AAA (accounting, authentication, authorization).

#### [Centralized Management of Wireless and Wired Network](#)

The wireless and wired terminals can share centralized VSM, authentication, access control and other functions to reduce costs.

#### [Customized Local Network Services](#)

All local Wi-Fi network services are managed and operated in the cloud. With a leveled multi-tenant feature, ABLOOMY's solution makes NaaS possible and allows customers to customize their local network services without a dependency on the ownership of the hardware.

#### [Data Analytics](#)

Collects and visualizes data from both the network and the physical world, providing visibility regarding network status and visitor statistics.

#### [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.

## Hardware Specifications

VSM	VSM5000
<b>Interfaces</b>	6*10/100/1000 Base-T Ethernet ports 1*console port 2*USB 2.0 ports
<b>Weight</b>	7.5kg
<b>Dimension (L*W*D)</b>	440mm*455mm*45mm
<b>AP Limits</b>	1024
<b>Disk</b>	128G SSD
<b>Power Supply</b>	110-240 VAC
<b>Consumption</b>	200W
<b>Operating temperature</b>	0 °C~40 °C (32 °F~104 °F)
<b>Storage temperature</b>	-20 °C~80 °C (-68 °F~176 °F)
<b>Humidity</b>	10% ~ 90%, non-condensing

## Software Specification

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

	Service types can be configurable
Content Platform	APP distributed as a content
	Ads can be inserted in the content page
	Support localized content storage
	Support remote content redirection
	Historical record of content downloads

Ads Module	Multiple built-in Portal templates
	Ads browsing PV/UV statistics
	Historical Ads reports
Logs and Alerts	Local logs, external log server
	Device state alerts, email alerts
System Management	WEB, SSH, Console