Version 3.0

MAYA SD-WAN

Software-Defined Wide Area Network

MAYA SD-WAN (Software-Defined Wide Area Network) is a next-generation network solution developed with a software-defined approach to make wide area networks (WANs) more flexible, autonomous and secure. It overcomes the limitations of traditional WANs and enables high-performance, cost-effective and easy-to-manage connections between different geographic locations by delivering a virtual WAN architecture.

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MAYA SD-WAN

Key Features:

Centralized Management

Network control is centrally managed by an SDN controller, providing a global view of the network and easier management of network resources.

Visibility

Provides real-time visibility into network performance with dashboards and alerts. This allows quickly identify and respond to issues, minimizing downtime and improving performance.

Advanced Security

Offers security features such as traffic encryption, security policies and threat detection across the entire network infrastructure.

Support for Multiple Connection Types

Different technologies such as MPLS, Broadband Internet and Mobile Networks can be used together to ensure access continuity regardless of carrier and operator.

Dynamic Traffic Management

User traffic is dynamically routed based on application needs and network performance.

Compatibility with Cloud Applications

Offers optimized connections for cloud access.

MAYA SD-WAN &
CYBERSECURITY

Network security is a critical issue to protect an organization's network infrastructure, data and devices. With the rise of digitalization, network security is vital to protecting business operations and data integrity. MAYA SD-WAN offers a dynamic, centrally managed, integrated and cost-effective solution for network security. It is ideal for companies looking to address modern threats and ensure secure connections.

Built-in Security Features

Secure end-to-end data transmission is ensured by encrypting network traffic with high-security encryption algorithms.

Centralized Security Management

Allows management of all network security policies from a single control panel, ensures policy consistency and eliminates malpractices

Application Aware Security

Classifies application traffic and applies security policies based on application needs.

Reducing Costs

Provides many built-in security features and minimizes the need for different security devices and solutions.

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Key Technologies

ULAK MAYA SD-WAN is developed with a software-defined network (SDN) approach that is fully compatible with the MEF SD-WAN 3.0 standards published by the Metro Ethernet Forum (MEF) and based on microservices architecture. The key features of MAYA SD-WAN are:
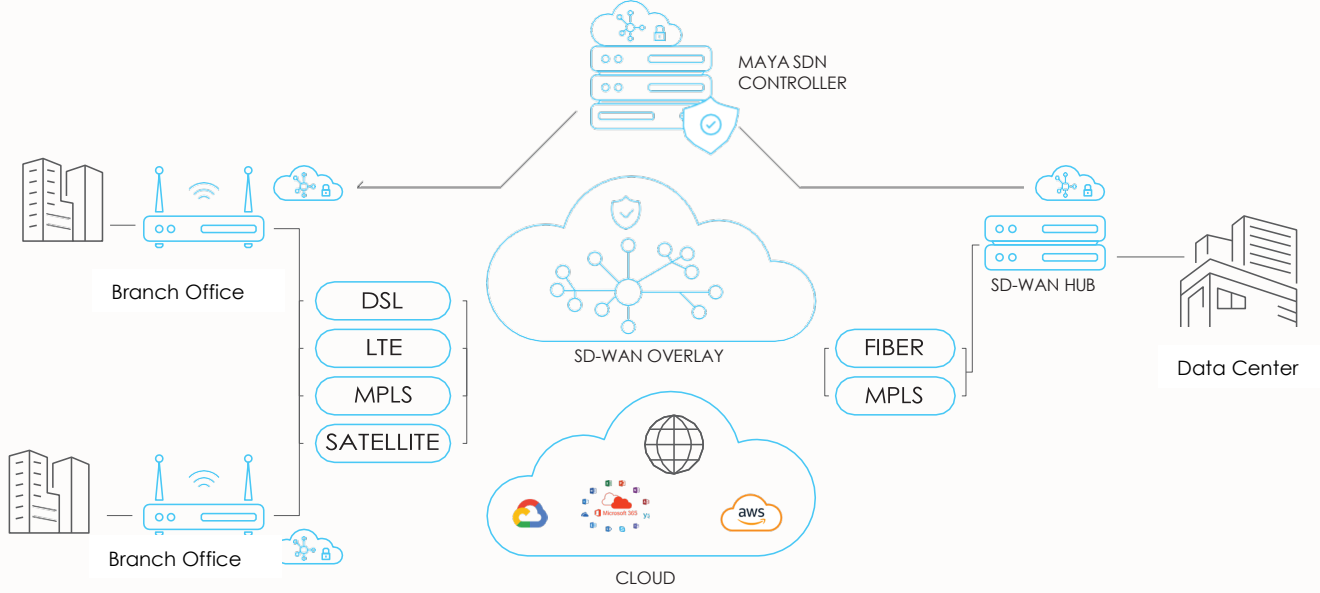
Centralized Control Plane

Moves the control plane from edge to a central controller. The network topology can be monitored in real time and dynamic decisions are made to optimize traffic. This ensures centralized management and consistency of network policies.

CP & DP Separation

Control Plane manages the decision-making mechanisms of the network (e.g., routing, traffic policies).Data Plane forwards data packets according to policies received from the centralized control plane.

This separation provides flexibility and simplicity in network management.

Software-Defined Management

Enables direct programming and configuration of the network by separating network control from physical hardware.

Open Standards and APIs

By using open standards it simplifies network design and operation and eliminates the reliance on proprietary hardware and software.
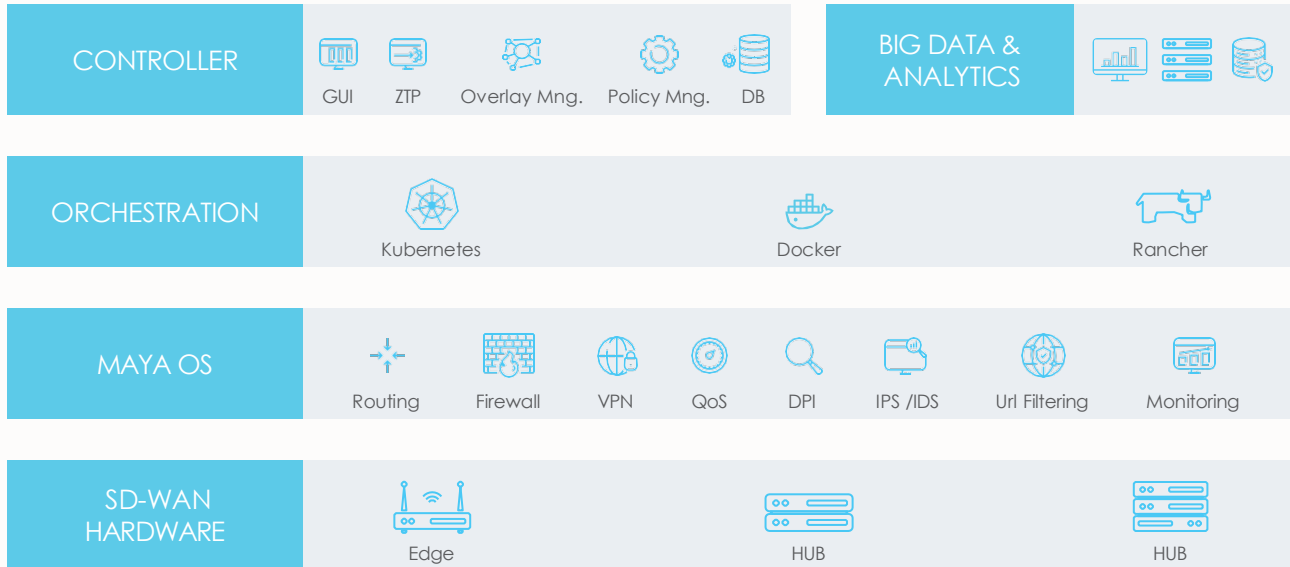
Multitenancy

Microservices architecture enables isolated management of multiple customers within the same control plane infrastructure.

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MAYA SD-WAN

Key Components

The MAYA SD-WAN solution consists of various layers, each of which corresponds to a different service or integration. This structure provides many advantages such as easy deployment and management, scalability and flexibility.

CONTROLLER						BIG DATA & ANALYTICS	
	GUI	ZTP	Overlay Mng.	Policy Mng.	DB		

ORCHESTRATION			
	Kubernetes	Docker	Rancher

MAYA OS								
	Routing	Firewall	VPN	QoS	DPI	IPS /IDS	Url Filtering	Monitoring

SD-WAN HARDWARE			
	Edge	HUB	HUB

SD-WAN CPE

SD-WAN CPEs are physical devices deployed at remote customer locations (such as branches and offices) within the SD-WAN network. The MAYA SD-WAN supports both X-86 and ARM-based hardwares due to its platform-independent architecture.

- **Edge:** Hardware deployed at branch locations within the WAN infrastructure, running the MAYA-OS operating system.
- **HUB:** High-capacity network devices deployed at central locations to concentrate overlay tunnels, also running the MAYA-OS operating system.

MAYA-OS

MAYA-OS is a Linux based network operating system developed by Ulak, customized for SD-WAN CPEs and includes a variety of advanced network management and cybersecurity functions.

Core Functions:

- Routing
- Firewall (L4-L7)
- QoS
- Overlay Tunnel

- IPS/IDS
- URL Filtering
- Application Control
- SLA Awareness

- Traffic Optimization
- DHCP, NTP, DNS
- Monitoring
- Logging

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Orchestration

Provides coordination and control of services and resources within the system infrastructure.

Core Functions:

- Infrastructure Resource Management and Automation
- Multitenancy Management

- Inventory Management
- Zero Touch Provisioning (ZTP)

Controller

Manages all network traffic and cybersecurity policies within the Wide Area Network (WAN) infrastructure and applies to endpoints.

Core Functions:

- Overlay Tunnel
- Traffic Management

- Template and Policy Management
- License Management

Big Data & Analytics

Analyzes data and metrics collected from the network infrastructure to monitor network performance, detect issues and identify security breaches.

Core Functions:

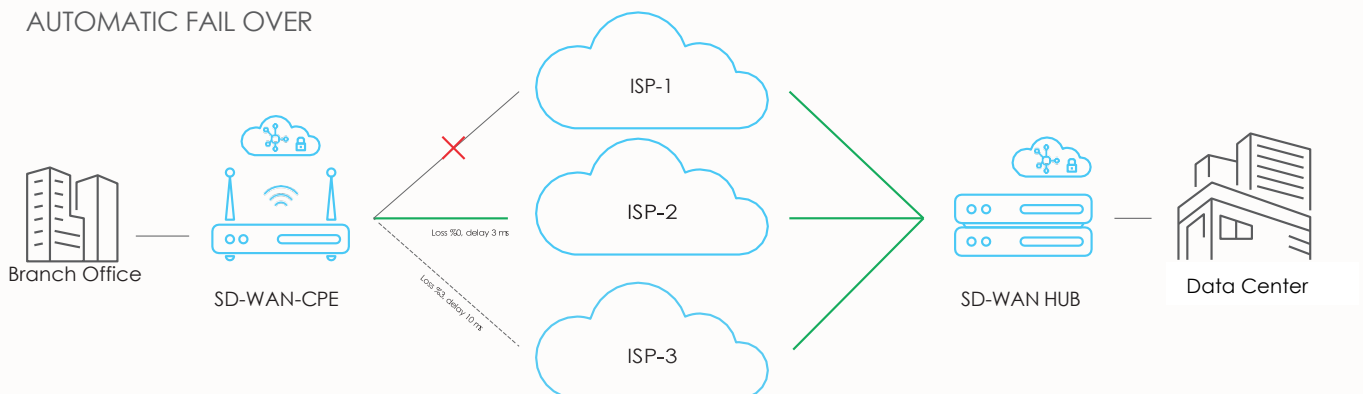- Data Collection
- Data Analysis

- Alarm Managemenet
- Reporting

MAYA SD-WAN

Key Benefits

High Availability

SLA aware routing enables redirect traffic to the optimum wan link within seconds. This way, applications are least affected by poor network performance.

AUTOMATIC FAIL OVER

Branch Office — SD-WAN-CPE — ISP-1 / ISP-2 / ISP-3 — SD-WAN HUB — Data Center

Loss %0, delay 3 ms
Loss %3, delay 10 ms

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Enhances Business Efficiency

By restricting access to non-business applications, it improves user experience when accessing critical applications and increases overall business efficiency.
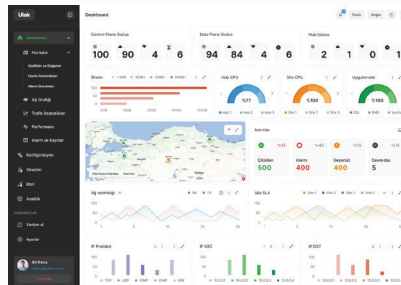

Simplifies Operations and Management

WAN networks are becoming more complex due to the increase in the number of devices and applications connecting to the network. MAYA Controller helps in managing this complexity by providing a single interface for monitoring and managing network performance and security.
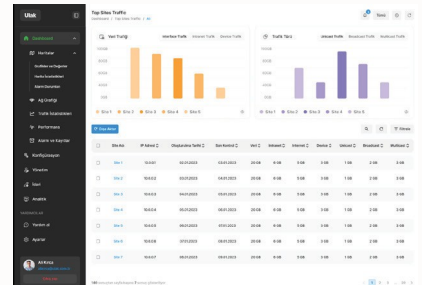
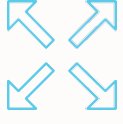Centralized Management:
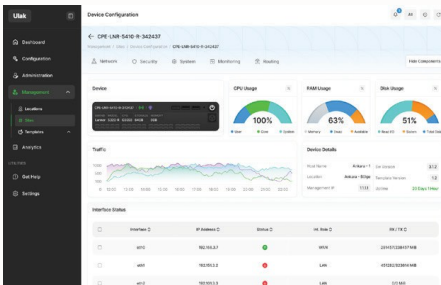
| SYSTEM STATUS | TOPOLOGY STATUS | FIELD STATUS |

MAYA SD-WAN

Licensing Types and Features

MAYA SD-WAN licensing model is based on Feature Set (Functionality) and Scale (Location Size).

SCALE:
Small (<50 users)
Medium (50-100 users)
Large (>100 users)

FEATURE SET:

BASE
ADVANCED
ADVANCED PLUS

CATEGORY	FEATURE	BASE	ADVANCED	ADVANCED PLUS
Core SD-WAN	Centralized Management - Multi-tenancy	✓	✓	✓
	Web-Based GUI	✓	✓	✓
	Role-Based Access / Multi-User Support	✓	✓	✓
	Template-Based Configuration Management	✓	✓	✓
	Dynamic Overlay – Encrypted Traffic Tunneling	✓	✓	✓
	IP Routing (BGP, OSPF, ISIS, PBR, Multicast)	✓	✓	✓
	Application-Based Traffic Routing	✗	✓	✓
	SLA Awareness	✓	✓	✓
	Multi-WAN Link Support (MPLS, Broadband, LTE/5G)	✓	✓	✓
	Wireless Access Point (WiFi AP)	✓	✓	✓
	Quality of Service (QoS) Management	✓	✓	✓
	Application-Based QoS Management	✗	✓	✓
	Network Services (VLAN, Bonding, NAT, NTP, DHCP)	✓	✓	✓
	Field and Device Management	✓	✓	✓
	Zero Touch Provisioning	✓	✓	✓
	Device Redundancy	✓	✓	✓
Security	Stateful Firewall (L4)	✓	✓	✓
	Application-Based Firewall (L7)	✗	✓	✓
	IPS/IDS	✗	✓	✓
	URL / Category Filtering	✗	✓	✓
	Legacy Tunnel Support (IPSEC, GRE, VxLAN)	✓	✓	✓
Monitoring	System Dashboard	✓	✓	✓
	LOG / SYSLOG / Netflow	✓	✓	✓
	Alarm Management	✓	✓	✓
	Big Data	✗	✗	✓
	Network Analytics / Reporting	✗	✗	✓

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CPE Specifications

Desktop CPE

1U Server-CPE

2U Server-CPE

MODEL	ULK-SDW-T001	ULK-SDW-T002	ULK-SDW-T003	ULK-SDW-T004	ULK-SDW-T005
10/100/1000 Base-T	4	4	4	6	6
1G Fiber SFP	1	N/A	N/A	N/A	N/A
10G Fiber SFP+	N/A	2	2	4	4
40G Fiber QSFP+	N/A	N/A	N/A	N/A	N/A
LTE/5G Module	O	O	O	O	O
CPU	4 Core	4 Core	8 Core	8 Core	16 Core
RAM	2 GB	4 GB	8 GB	16 GB	16 GB
HD Capacity	32 GB	32 GB	64 GB	64 GB	64 GB

MODEL	ULK-SDW-T006	ULK-SDW-T007	ULK-SDW-T008	ULK-SDW-T009	ULK-SDW-T010
10/100/1000 Base-T	4	4	4	4	4
1G Fiber SFP	N/A	N/A	N/A	N/A	N/A
10G Fiber SFP+	4	4	4	4	4
40G Fiber QSFP+	N/A	2	4	4	4
LTE/5G Module	O	O	O	O	O
CPU	24 Core	32 Core	48 Core	64 Core	96 Core
RAM	24 GB	32 GB	32 GB	96 GB	128 GB
HD Capacity	1 TB	1 TB	1 TB	1 TB	1 TB

*O: Optional

*N/A: Not Available

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Performence Scaling

MODEL	ULK-SDW-T001	ULK-SDW-T002	ULK-SDW-T003	ULK-SDW-T004	ULK-SDW-T005
Hardware Type	Desktop	Desktop	Desktop	Desktop	Desktop
Routing (L3)	2 Gbps	3 Gbps	4 Gbps	5 Gbps	10 Gbps
Firewall Performance (L4)	600 Mbps	800 Mbps	1.5 Gbps	2 Gbps	3 Gbps
Firewall Performance (L7)	200 Mbps	400 Mbps	800 Mbps	1 Gbps	2 Gbps
VPN (256-bit encryption)	600 Mbps	800 Mbps	1.5 Gbps	2 Gbps	3 Gbps
IPS/IDS	200 Mbps	400 Mbps	800 Mbps	1 Gbps	2 Gbps
URL Filtering	200 Mbps	400 Mbps	800 Mbps	1 Gbps	2 Gbps

MODEL	ULK-SDW-T006	ULK-SDW-T007	ULK-SDW-T008	ULK-SDW-T009	ULK-SDW-T010
Hardware Type	1U Server	1U Server	1U Server	2U Server	2U Server
Routing (L3)	20 Gbps	30 Gbps	40 Gbps	50 Gbps	60 Gbps
Firewall Performance (L4)	8 Gbps	12 Gbps	15 Gbps	20 Gbps	30 Gbps
Firewall Performance (L7)	4 Gbps	6 Gbps	8 Gbps	10 Gbps	15 Gbps
VPN (256-bit encryption)	8 Gbps	12 Gbps	15 gbps	20 Gbps	30 Gbps
IPS/IDS	4 Gbps	6 Gbps	8 Gbps	10 Gbps	15 Gbps
URL Filtering	4 Gbps	6 Gbps	8 Gbps	10 Gbps	15 Gbps

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