

# Edge L Series

For Large Branches

Desktop Form Factor

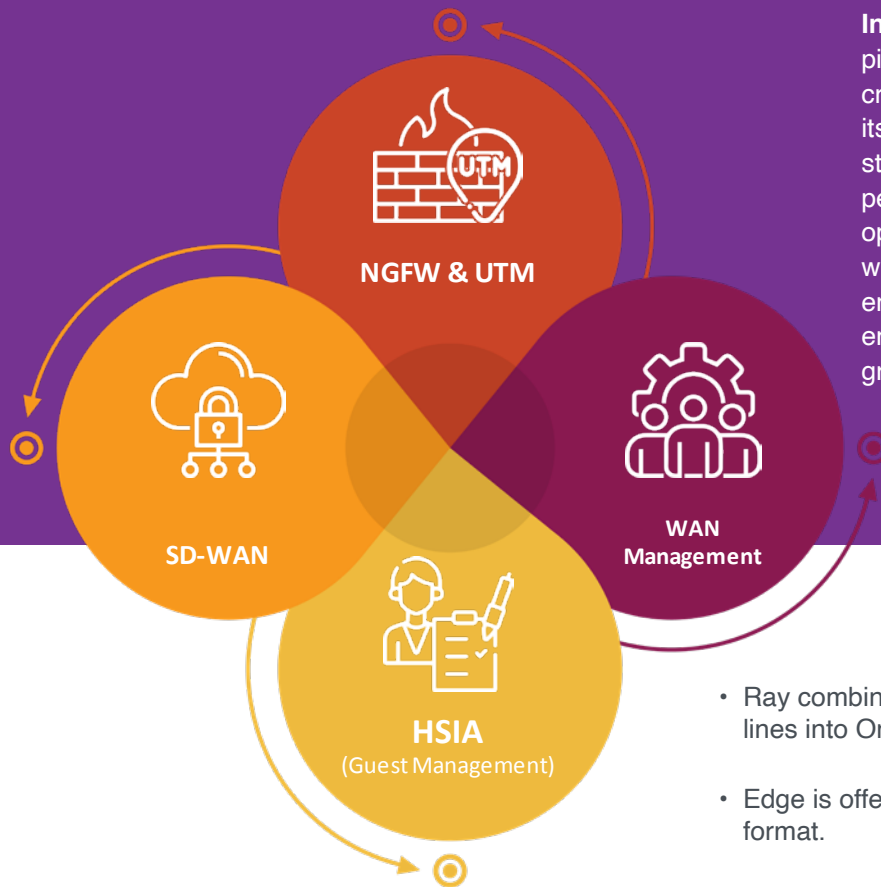


Edge L Series



Catering to Large  
Enterprise use cases.

# Ray One is a Next Generation Solution for the challenges of today.



**Introducing the Ray Edge L Series:** The pinnacle of networking hardware meticulously crafted for large to colossal enterprises. With its robust architecture, the Ray Edge L Series stands as a beacon of reliable and high-performance connectivity tailored for expansive operations. Navigate the vast digital terrains with an unwavering ally, ensuring that your enterprise thrives in the most demanding environments. The Ray Edge L Series - where grand scale meets unparalleled efficiency.

- Ray combines the features of multiple specialty product lines into One single EDGE Product line.
- Edge is offered in both Physical Appliance and Virtual format.
- Edge is managed from the same Ray Platform that manages the Ray Switch, Ray Wi-Fi and Ray Endpoint making the management fabric very simple.

## Overview

Ray's cutting-edge convergence solution effortlessly scales to any location, whether it's a remote office, branch, campus, data center, or cloud environment. Our innovative hybrid mesh firewall system is expertly managed through Ray Unified Management, ensuring seamless security across intricate hybrid infrastructures. Powered by the Ray One, our solution offers unparalleled visibility and security in multiple form factors.

Ray's Secure SD-WAN solution delivers exceptional speed, scalability, and adaptability both on-premises and in the cloud. Designed with cloud-first, security-conscious, and global enterprises in mind, Ray Secure SD-WAN also caters to the evolving needs of hybrid workforces. Our Integrated Networking approach employs a single operating system, streamlining SD-WAN, next-generation firewall (NGFW), advanced routing, and Zero Trust Network Access (ZTNA) application gateway capabilities.


## Seamlessly Merging Security and Networking

With the rise of cloud computing and hybrid work, organizations require anywhere, anytime access from any device. Traditional network architectures struggle to support this shift, causing poor user experiences and administrative complexities.

Ray's innovative Unified SASE Platform addresses these challenges by combining a wide range of networking and security capabilities into one streamlined platform. Ray One features a unified console, cohesive policy management, and a shared data lake. Our application-aware, traffic-engineered fabric simplifies design, deployment, and life cycle management for the modern digital landscape.

For More Refer our White paper on SD-WAN.

## Features

- |   |  |
|---|--|
|  <b>Acceleration</b><br>Architecture for improved performance, greater ROI, and reduced power consumption.                                   |  <b>Content Control</b><br>User-based monitoring and control of keyword content and downloadable content.   |
|  <b>Secure SD-WAN</b><br>Optimize performance for SaaS, SD-WAN, and cloud traffic With Ray One.  |  <b>Business Applications</b><br>Protect critical applications with next-gen firewall and an enterprise-class web application firewall.           |
|  <b>One Console to Manage It All</b><br>Ray One provides a single cloud management console for all your Ray Product line.                    |  <b>Phishing &amp; Spam</b><br>Protect email from spam, phishing, and data loss with policy-based email encryption, DLP, and anti-spam.           |
|  <b>Reporting in the Cloud</b><br>Flexible reporting tools for analyzing and visualizing network data over time.                           |  <b>Central Management</b><br>Powerful centralized management, reporting, and zero-touch deployment for all your Ray Product line.              |
|  <b>Isolate Infected Systems</b><br>Automatic threat response to identify and isolate compromised systems on your network.                 |  <b>Central SD-WAN Orchestration</b><br>Easily set up complex site-to-site SD-WAN overlay networks.   |
|  <b>Zero-Day and ML Protection</b><br>Instantly identify the latest ransomware and unknown threats with machine learning technology.       |  <b>Central Firewall Reporting</b><br>Create custom views of network activity and threats across your entire network.                           |
|  <b>Advanced Threat Protection</b><br>Instantly identify bots and other advanced threats while defending your network.                     |  <b>Dashboard and Alerts</b><br>Respond quickly to changes in your network with a control center that analyzes extensive back-end data sources. |
|  <b>User Identity</b><br>User identity-based policies and unique user risk analysis for better network control.                            |  <b>Reporting</b><br>Extensive, free on-box reporting and limited cloud-based reporting at no extra charge.                                     |
|  <b>Application Control</b><br>Complete visibility and control over all applications on your network with deep-packet scanning technology. |  <b>High Availability</b><br>Support  |
|  <b>Web Control</b><br>Full visibility and control over web traffic with flexible enforcement tools.                                       |  |

## Secure SD-WAN Use Cases

### Achieve Operational Efficiencies

Automate network design, deployment, and operation with a single pane of glass for comprehensive visibility, analytics, reporting, and orchestration.

### Connecting Remote Workers

Offer remote or hybrid users client-based or clientless options for always-on connections to workloads in private or public clouds, with gateways based on proximity, load, and real-time variables.

### Connecting Branch Offices

Empower branch or corporate offices with Ray Secure SD-WAN devices or third-party SD-WAN, routers, or firewalls for seamless access to workloads in private or public clouds and interoffice connections. Utilize Ray SD-WAN as an on-ramp for end-to-end observability and control over user/device-to-app performance and security.

## Ray AI Powered Security Services



### Antispam

Significantly reduce spam at the perimeter with a multi-layered approach to filtering email.



### Central SD-WAN Orchestration

Enjoy easy setup of complex site-to-site SD-WAN overlay networks with Ray's cloud-managed SD-WAN orchestration.



### ZTNA

Ray One integrates with Zero Trust Network Access (ZTNA) to provide a secure and straightforward way for users to access crucial applications and data.



### Ray Edge Gateway

Experience the Ray Edge Gateway for an affordable, secure edge access device suitable for SD-Branch, SOHO, and industrial control solutions.



### Core Networking

Utilize the most advanced enterprise-grade networking technology available for NAT, routing, and bridging with Firewall.

## Ray HSIA

### Complete control of User Wi-fi

You can easily create customized free and paid tiers that suit your hotel's unique requirements and seamlessly integrate with your own custom systems through its API. Providing guests with instant and customized connectivity has never been easier with the one-touch account slip printer that interfaces with Property Management Systems for hassle-free billing without staff intervention. Extremely helpful in hospitality use cases

## Ray Customised Log-IN options

Ray HSIA is a one-stop gateway solution for schools and universities, providing optimized bandwidth and content filtering for multimedia classrooms and on-campus roaming, offices, dormitories, and hostels. With multiple authentication methods such as LDAP, SMS OTP, and many more, student logins are seamless and secure. The dual WAN link load-balancing and multi-tier QoS, including a guaranteed bandwidth option, ensures top performance during critical periods. User form authentication and lawful intercept provide added security and compliance with contact tracing requirements.

## NGFW Use Cases



### Enterprise

Equip your demanding network with enterprise-grade protection, performance, visibility, and SD-WAN features tailored for the modern business landscape.



### Cloud

Safeguard public cloud infrastructure or hybrid networks with a robust cloud firewall solution designed for diverse network environments.



### All-in-One

Simplify and consolidate protection for small offices with an affordable, comprehensive security solution that delivers the best value and protection.



### Retail and Branch

Address the unique challenges of retail and distributed organizations with branch offices for seamless, secure connectivity.



### Schools

Cater to the specific requirements of educational institutions with RAY One's compliance and protection features designed for a safe learning environment.

## Ray Multi Wan

### Load Balancing

Experience seamless connectivity with Ray Multi-WAN's Load Balancing feature. It intelligently distributes network traffic across multiple paths, ensuring optimal internet performance and resilience against any single point of failure. With load balancing, you can make the most of your bandwidth, optimizing resource utilization and enhancing your online experiences.

### Complete control of User Wi-fi

With Ray Multi Wan Traffic Steering, an advanced network feature that offers unparalleled control over the flow of various types of traffic within your network. Whether it's video streams, ERP sessions, HTTP sessions, or other types of traffic, you can easily prioritize or limit the bandwidth of each one to ensure optimal network performance. With Ray Multi-WTraffic Steering, you can tailor your network to suit your specific needs and deliver an exceptional user experience. Say goodbye to network congestion and hello to a more efficient and streamlined network.

### Bandwidth Policy Management

Introducing Bandwidth Management, an innovative feature that offers instant access to improvised WAN connections anytime and anywhere. With this feature you can stay connected on the go without any limitations or restrictions. Whether you're traveling to a new city or working remotely, Ray Multi-WAN has got you covered with a tailored solution that meets your unique needs. Experience the freedom of seamless connectivity.

## USE CASES

**Large Enterprises:**

A paragon of networking excellence, exclusively designed for large enterprises. With its steadfast framework, the Ray Edge L Series promises unwavering reliability and peak performance. Steer through digital landscapes confidently, knowing your enterprise is equipped to excel in challenging settings. Ray Edge L Series - the epitome of scale and efficiency.



# RAY ONE

## CORE COMPONENTS



RAY Essential



RAY Premium

Services



Edge  
Gateway



Switch



Wi-Fi



Sase

Products



Orchestration



Integration



Automation

Centralized  
Management



SD-Wan



Firewall



HSIA



Multiwan

Security driven  
Networking



Linux  
Networking



Multiple  
Interfaces



Hardware

Ray OS



Appliance



Virtual

## Ray One is a Next Generation Solution for the challenges of today.

Ray One powers Unified Networking and Security across Networks, endpoints, and clouds in a purpose-built cloud-delivered infrastructure that scales.

It employs concepts of convergence to consolidate multiple point products including Cloud SWG, NG CASB, FWaaS, SD-WAN and ADEM, into a single integrated service provide comprehensive cybersecurity protection for all users, devices, and applications and across all network edges. It reduces network and security complexity while increasing organizational agility and ensuring compliance, emphasizes interoperability as well as analytics, intelligence, centralized management, and automation, and integrates with a broad ecosystem of technologies and vendors.

What sets One Apart and distinguished is that it has a network wide visibility with a single pane of glass dashboard and control. Security comes in seamless with automatic firmware updates as well as automatic reporting. One has a unique feature of Self-provisioning for rapid deployment. One being cloud based consists of Cloud based RF Planning. Built-In spectrum analysis as well as Dual- Concurrent radios with band steering come in as features that set apart RF Planning with ONE.

As you will see further all features described in detail for Ray One, we would still like to highlight a couple of features that makes it Secured.

Ray One powered Edge Gateways, Switches and Wireless (Wi-Fi) devices are available to deploy on any network edge.



## Features

Adaption for changing business dynamics to address modern requirements funnel downs to Network Architecture. Today Ray is being managed and delivered through cloud which enhances features like scalability, speed and flexibility. Enterprises with Ray are able to leverage powerful automated, zero touch, delivering on demand and a proactive business approach. One Features help the enterprise to make intelligent decisions that adhere business goals and objectives.



### Secure SD-WAN

Ray One powers extremely Secure & Advanced SD-WAN with top-tier features like Application Identification & Control, Application-aware traffic control, and Performance Optimization Helping you enable remote working through a secure Access Client & ZTNA. Automatically optimize routing and rerouting of traffic based on WAN Link performance (latency, jitter, loss) in real time with zero impact.



### Advance Networking

Ray One powers the most advanced and Secure enterprise-grade networking technology available for NAT, routing, and bridging across all the Edges even empowering Hybrid workforce. It includes Advance routing, Dual Stack Support, static, OSPF, BGP, and RIP with full 802.1Q VLAN support, Multicast, QOS Enablement and Traffic Classification and control amongst others.



### Security

Ray One keeps the Enterprise secure even from Ransomware, Malware and even Zero Day threats through high-performance streaming deep packet inspection, next-gen IPS, web protection, DNS Filters, and app control. The powerful Enterprise policies help create Trust Zones in the Network. Ray One enables fast, coordinated detection and enforcement across the entire attack surface to counter the latest known and unknown threats in real time. The threat research is unified data sets feeding from networks, endpoints, and clouds, rich independent research, and comprehensive industry collaboration.



### Cloud Architecture

Ray Always One Cloud is Microservices bring unparalleled agility, scale, resiliency. Ray makes it easy to add or remove new features by leveraging a microservices cloud architecture. New enhancements and bug fixes are delivered almost weekly without network disruption. Services scale up or down elastically when they're needed, eliminating the cost and complexity of monolithic hardware.



### HSIA (Captive Portal)

Ray One powers 9 kinds of Captive Portal and Guest onboarding flows with advance features like WYSIWYG, Advertisement Server, Survey engine, Payment Gateway along, Multi Language support etc. The Wi-Fi Monetization makes Ray revenue centre for the enterprise. Guest Analytics helps to make data driven business decisions that help growth and revenue.



### WAN Suite

Ray One powered Link Bonding taps into the bandwidth of multiple WAN sources to provide a single bonded data-pipe that enables higher speed and resiliency whilst being economical, fast, and easily configurable to suit any networking environment.

## Specifications

Specifications	6L
Recommended Deployment	
Enterprise Branch High Performance	
Dimensions	
Height x Width x Length (mm)	440 x 600 x 68
Weight	20 kg
Form Factor	Rack Mount, 2 RU
Enclosure Material	Metal
Hardware Specifications	
100M RJ45 WAN/LAN Ports	0
GE RJ45 WAN/LAN Ports	2
GE RJ45 PoE/+ Ports	0
2.5 Gbps RJ45 WAN/LAN Ports	0
PoE Output	N.A.
Expansion Slots	8
Management Ports	
Console Port (RJ45)	1
Other Interfaces	
USB Ports	2 X USB 3.0
System Performance	
Onboard Storage	128 GB to 1024 GB
Expandable Storage	N.A.
System Performance	
Routing	20 Gbps to 120 Gbps
Stateful Firewall	20 Gbps to 120 Gbps
SD-WAN DIA	20 Gbps to 100 Gbps
SD-WAN Site-to-Site	13 Gbps to 60 Gbps
NGFW with SD-WAN	10 Gbps to 40 Gbps
NGFW + AV with SD-WAN	4.5 Gbps to 20 Gbps
NGFW + IPS with SD-WAN	3 Gbps to 15 Gbps
NGFW + UTM with SD-WAN	2 Gbps to 10 Gbps

Wireless Specifications	
Wi-Fi Standard	N.A.
Multiple (MU) MIMO	N.A.
Maximum Wi-Fi Speeds	N.A.
Antenna Gain	N.A.
Environmental	
Operating temperature	– 0 to 50 deg C
Operating relative humidity	10% to 90% noncondensing
Nonoperating/Storage	-20°C to 70°C
Nonoperating/Storage relative humidity	10% to 90% noncondensing
Power	
AC Power Input	90-264V AC, 47/63Hz
AC Current (Maximum)	6A
Redundant Power Supplies (Hot Swappable)	Yes (Default dual AC PSU for 1+1)

## Ray One SD-Wan Specifications

<b>Architecture</b>	<b>SD-WAN Components</b>	Ray One components includes A. Centralized Network Orchestrator B. Software Defined Network Controller C. Analytic, Monitoring and Reporting engine D. Hub/Gateway device running in central locations E. Edge devices running in the remote branch locations.
	<b>IP Layer</b>	Ray One Supports both A. IPv4 B. IPv6
	<b>SD-WAN Planes</b>	Ray ONE components communicate over the below planes A. Orchestration plane B. Management Plane C. Control Plane D. Data Plane.
	<b>Central Policies</b>	The centrally deployed One Controller can create policies to manage the below. A. WAN Path Selection B. Data Plane at the DC & DR C. Traffic Break Out Policies. D. Encryption Policies
		Ray ONE can applies the Traffic Policies * Based on Flow * Based on Packet
		Ray ONE WAN Path Selection is based on the real time analytics of the WAN Links. The below parameters are considered. A. WAN Links Capacity B. WAN Quality -> Packet Loss/Drops C. WAN Quality -> Latency D. WAN Quality -> Jitter E. WAN Stability -> Link Availability F. Session Persistency Requirement G. Traffic Type H. Availability of the Remote IP address I. "Pass Through" Policy J. Type of WAN Link K. Link Flaps L. Link Errors
		Ray ONE WAN Path Selection Policies can be applied for A. All Traffic B. Application Specific Policies (Critical Applications) C. Application Specific Policies (in Multi-Hub Topology) D. Traffic Type Specific Policies. E. Session Persistency Requirement F. Destination TCP/UDP Port Number G. Destination IP address H. Source IP address.
		Ray ONE can separate the Control Path & Data Path into two different communication paths.
		Ray ONE supports the below mentioned Scheduling Algorithms A. Low Latency Queuing/Priority Queuing
	<b>NTP</b>	Ray ONE supports flexible NTP Server Configuration.
	<b>Modes</b>	The Edge Gateway can be configured in a Gateway Mode (With or Without One)
		The Edge Gateway can be configured in a Bridge Mode with Active Security (With or Without One)
		The Edge Gateway can be configured in a Bridge Mode without Active Security (With or Without One)
	<b>DHCP</b>	Ray ONE supports DHCP Server Configuration (In Gateway Mode) along with Internet Protocol (IP) host with its IP address and other related configuration
		Ray ONE supports DHCP Server Relay Configuration
	<b>Other Networking Features</b>	Ray ONE supports A. Network Address Translation (NAT) B. Port Address Translation (PAT) C. 802.1Q VLAN tagging

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	<b>Deep Packet Classification and Identification (DPI)</b>	Ray ONE has built-in DPI to enable Application-Aware A. WAN Path Selection B. Analytics & Reporting
		Ray ONE supports * Application Visibility * Application Reporting * Application Marking * Application Policy
	<b>Forward Error Correction/Packet Duplication</b>	Ray ONE supports Forward Error Correction/Packet Duplication for A. Real Time applications like Voice and Video B. Critical Applications C. All TCP Traffic
	<b>Scalability</b>	The Ray ONE DevOps based Scaling enables scaling of A. Centralized Network Orchestrator B. Software Defined Network Controller C. Analytic, Monitoring and Reporting engine
		The Ray ONE is built on Modern Microservices enabling Services scale up or down elastically when they're needed both in Scheduled or On-demand Modes.
		The Ray ONE can be installed as a VM enabling the HUB to be scaled to support thousands of branches at the same time.
	<b>API &amp; Open Extensibility</b>	Ray ONE provides a Developer SDK for Integration with being 100% accessible through APIs.
	<b>QoS</b>	Ray ONE provides bidirectional QoS capabilities of marking, classification, policy and shaping over the encrypted channel
		Ray ONE provides Traffic Priority Levels based on A. Application B. Destination TCP/UDP Port Number C. Destination IP address D. Source IP address.
		QoS Policies to A. Allocate a maximum bandwidth usage cap B. Allow/Deny Overflow C. Per Tunnel This can be applied based on A. Class of Traffic.
<b>Dashboard</b>	<b>VPN</b>	Ray ONE supports the below Tunnels A. L2TP B. GRE/EoGRE C. SSLVPN D. L2TP/IPSEC E. PPTP F. Wireguard
	<b>Dynamic Routing</b>	Ray ONE supports the below Dynamic Routing Protocols A. OSPF B. BGP
	<b>Multicast Support</b>	Ray ONE One supports below Multicast Protocols PIM (with some restrictions) IGMP
	<b>Packet Capture</b>	Ray ONE supports Packet Capture A. Per Interface B. Per Device
	<b>Link Dashboard</b>	Ray One shows all the links with details visually in Ray ONE centrally.
	<b>Appliance Dashboard</b>	Ray One shows all the devices Edge Gateways, Switch & Wi-Fi in Ray ONE. They all can be managed centrally.
		Ray ONE shows the status of the devices as * Device Online/Offline * Site Online/Offline/Partial

		<p>Ray ONE shows all the below key Vitals about all the devices in real-time</p> <ul style="list-style-type: none"> <li>* CPU</li> <li>* Memory</li> <li>* Storage</li> </ul>
	<b>Link Dashboard</b>	<p>Ray ONE shows the Link Statistics as below</p> <ul style="list-style-type: none"> <li>* Statistic bandwidth usage of available links</li> <li>* Network statistics, including continuous performance monitoring of loss, latency, and packet ordering for all network paths and link utilization</li> </ul> <p>Ray ONE shows the Link Performance metrics such as, but not limited to:</p> <ol style="list-style-type: none"> <li>Packet loss</li> <li>Round trip Timer</li> <li>Throughput, traffic volume</li> <li>Jitter</li> </ol>
	<b>Traffic Statistics</b>	<p>Ray ONE Dashboard are refreshed at a specific Interval.</p> <p>Ray ONE provides a Network Flow diagram to illustrate network communication between multiple application tiers.</p> <p>Ray ONE provides a Network Flow diagram to illustrate network communication between multiple application tiers</p> <p>Ray ONE provides the Network Traffic Analysis over</p> <ul style="list-style-type: none"> <li>* Months,</li> <li>* Days</li> <li>* Minutes</li> </ul> <p>depeneding on the Log Storage configuration</p> <p>Ray ONE enables the export of Traffic Statistics in the below formats</p> <ul style="list-style-type: none"> <li>* Net Flow</li> <li>* SIEM collector</li> <li>* Excel (CSV)</li> </ul> <p>Below are the key Ray ONE One Traffic reports</p> <ul style="list-style-type: none"> <li>* Top IP Sources</li> <li>* Top Destinations</li> <li>* Traffic statistics of all the included path</li> <li>* Specific application utilization</li> <li>* Path performance</li> <li>* Top 20 Applications by usage &amp; Network Traffic</li> <li>* Top 100 LAN Users by Bandwidth Usage</li> <li>* Top 100 Wi-Fi Users by Bandwidth Usage</li> <li>* Traffic, latency and Bandwidth utilization per user/location/site/branches/application.</li> </ul> <p>Ray ONE shows the application response time with the following components:</p> <ol style="list-style-type: none"> <li>Network bandwidth</li> <li>Network latency</li> <li>Network congestion</li> <li>Network protocol (e g TCP)</li> </ol> <p>Ray ONE QOS Dashboard mentions</p> <ul style="list-style-type: none"> <li>* QoS performance on a per-class basis</li> </ul>
	<b>Security Dashboard</b>	<p>Below are the key Ray ONE Security reports</p> <ul style="list-style-type: none"> <li>* Infected Hosts</li> <li>* Prevented Attacks</li> <li>* Detected Attacks</li> <li>* Attack Trends.</li> </ul>
	<b>Client Dashboard</b>	<p>Ray ONE gives complete visibility of the clients connected to the Ray ONE including</p> <ul style="list-style-type: none"> <li>* Device Details</li> <li>* IP Addressing Scheme</li> <li>* Device Status</li> <li>* Usage Log</li> <li>* Network Activities</li> <li>* Bandwidth Consumption</li> <li>* Applications Accessed</li> </ul>
	<b>Reports</b>	<p>The reports can be exported from the Dashboard or can be scheduled to be generated at a pre-defined interval.</p> <p>Ray ONE allows emailing of the reports to an Individual or a Group of users.</p> <p>Ray ONE Custom Report function allows the users to create customizable Reports using user generated Queries from the Library of Ray Report Entities.</p>

<b>Deployment</b>	<b>Deployment Modes</b>	<p>Ray ONE is available as</p> <ul style="list-style-type: none"> <li>a. On-Premise as an Appliance</li> <li>b. On-Premise as a VNF</li> <li>c. Centralized Cloud-based Solution</li> <li>d. On-Premise on generic compatible Hardware</li> </ul>
	<b>High Availability</b>	<p>Ray ONE High Availability is available in the below modes</p> <ul style="list-style-type: none"> <li>a. Active/Passive</li> <li>b. Active/Active</li> </ul> <p>In both cases, the failover is automatic.</p> <p>Ray ONE Supports DC-DR Mode with all the Redundancies of all SD-WAN components.</p>
	<b>Network Deployment</b>	<p>Ray ONE Device can be deployed both as</p> <ul style="list-style-type: none"> <li>a. In-line with Network</li> <li>b. Off-line with Network</li> </ul>
<b>SD-WAN</b>	<b>Topology</b>	<p>Ray ONE can create Topology Segments as below</p> <ul style="list-style-type: none"> <li>A. Multiple End-To-End Segments</li> <li>B. Per Segment</li> </ul>
		<p>Ray ONE supports the below Network Topologies</p> <ul style="list-style-type: none"> <li>A. Single Hub &amp; Spoke</li> <li>B. Multiple Hub &amp; Spoke</li> <li>C. Partial Mesh</li> <li>D. Full Mesh</li> </ul> <p>The Network creation is Automatic &amp; Dynamic. The Network creation can be On-Demand.</p>
		<p>Ray ONE can Automatically Retrieve</p> <ul style="list-style-type: none"> <li>A. Network LAN Information</li> <li>B. Path MTU (Maximum Transmission Unit)</li> </ul>
		<p>Ray ONE automatically adjusts &amp; applies with</p> <ul style="list-style-type: none"> <li>A. Changes in Physical Connectivity</li> <li>B. Addition of one or more branch devices</li> </ul>
		<p>Ray ONE supports the below Topologies</p> <ul style="list-style-type: none"> <li>A. Full Ray Network</li> <li>B. Hybrid Network with other SD-WAN Vendor</li> <li>C. Hybrid Network with MPLS</li> <li>D. Hybrid Network with No SD-WAN</li> </ul>
<b>Link Features</b>	<b>Link Monitoring</b>	<p>Ray ONE monitors the link for Quality with the following parameters in the focus</p> <ul style="list-style-type: none"> <li>* Packet Loss</li> <li>* Jitter</li> <li>* Link Errors</li> <li>* Bandwidth Utilization</li> <li>* Application utilization from bandwidth</li> <li>* User (i.e. end user IP) utilization from bandwidth</li> <li>* Link Flaps</li> <li>* Link Errors</li> </ul> <p>The above can be shown over a customized time period or in real-time.</p>
	<b>Link Load Balance</b>	<p>Ray ONE supports Link Load Balance with multiple links. The Key Use are</p> <ul style="list-style-type: none"> <li>A. High bandwidth applications have as much bandwidth as they need to perform optimally.</li> </ul>
	<b>Link Failover</b>	<p>Ray ONE supports Link Failover Model with multiple links. The Key Use are</p> <ul style="list-style-type: none"> <li>A. Automatically migrate traffic to Alternative Link.</li> <li>B. Seamless Application Accessibility.</li> </ul>
		No TCP Session break when Link Failover/Link Loss due to any reasons.
		No UDP Session break when Link Failover/Link Loss due to any reasons.
	<b>Link Aggregation</b>	<p>Ray ONE supports</p> <ul style="list-style-type: none"> <li>A. Packet-Level Link Aggregation</li> <li>B. Packet Order Correction (POC) algorithms</li> </ul> <p>Enabling the</p> <ul style="list-style-type: none"> <li>A. Use of multiple links simultaneously by distributing the packets across multiple links.</li> <li>B. Mitigate against latency and packet drops</li> </ul>

	Traffic Break Out Policies	Ray ONE Supports the below Traffic Break Out Policies A. At the local at branch B. At a Centralized location C. At a Remote Location	
		The Traffic Break Out Policy can be applied A. Per Application B. For all Traffic in the Branch	
	Link Configuration	Ray ONE Supports the below Links A. MPLS B. LTE/4G C. VSAT D. RF E. Broadband F. 5G	
		All supported Links can be simultaneously utilized for Traffic.	
		Link Configuration Includes A. WAN Bandwidth (Dynamically Updated) B. WAN Provider	
		Advance Link Monitoring via A. Manual Speed Check B. Scheduled Speed Check C. Manual Network Quality Check D. Scheduled Network Quality Check	
	Security	Trusted Access	"Hub & Spoke: Spoke only communicates with ""Trusted"" Hub nodes in DC & DR Mesh: Mesh Nodes only communicates with ""Trusted"" Neighbour Nodes"
			Ray ONE provides option to enable Two Factor Authentication of the device before the communication initiation.
			Zero Trust authentication between controllers, orchestration, and management Planes
		Encryption	"All the Traffic Tunnels in below Topology are fully Encrypted. A. Single Hub & Spoke B. Multiple Hub & Spoke C. Partial Mesh D. Full Mesh"
Ray ONE uses Industry Standard Protocol (AES -256) to provide Strong Encryption.			
Ray ONE Encryption Policies enables to create A. Per transport encryption keys to encrypt traffic. B. Refresh Policy of encryption keys per Topology Segment B.1. Automated Time Based Refresh B.2. Manual			
Network Security		Ray ONE enables the below Security Services › Stateful Firewall › Deep Packet Inspection › Application and user control › Intrusion Detection System (IDS/IPS) › Intrusion Prevention System (IPS) › Advanced malware detection › Zero Day threat intelligence feeds › Lateral Movement Protection › DDoS Mitigation › UDP Flood Protection › Ping of Death Protection	
		Flood Protection	Ray ONE enables protection against Network flood, especially at the Edge Denial of Service (DOS) Distributed Denial of Service (DDOS) protection
		Security Notifications	Real-time Threat Alert
Network Activity Log	Ray ONE enables centralized log view for all the Network devices		
Interoperability	Ray SD-WAN is interoperable with standard SD-WAN providers.		

<b>Monitoring</b>	<b>Integration</b>	Ray ONE and Ray Edge Gateways, Ray Switch & Ray Wi-Fi support the below SNMP standards for monitoring A. SNMPv3 B. SNMPv2c C. SNMPv1
<b>Logging</b>	<b>Logging Integrations</b>	Ray shall store the logs in the below Internal Systems * Central Analytic, Monitoring and Reporting engine
		Ray shall store the logs in the below External Systems * SYSLOG Server * SIEM
		Ray provides the log storage in the below means * Internal Log Storage * External Log Storage
	<b>Log Storage</b>	Ray provides the log storage duration below 7-day Log storage (Default) 1-Month Storage* 3-Month Storage* 6-Month Storage* 12-Month Storage* * Additional Costs Apply
	<b>Log Archival</b>	Ray ONE automatically archives the logs post the default period in a long Term storage for an easy access.
	<b>Log Analysis</b>	Ray ONE provides Log retrieval for * Analysis * Correlation * Reporting * Forensic purposes * Root cause analysis for debugging Issues * Baseline Performance parameters * Alerts for performance deviations
		Ray ONE Root Cause Analysis (RCA) provides * Detection and alert on network congestion * Details on the Client facing/causing Congestion * Details on the Site/URL/Application facing/causing Congestion
	<b>Notifications</b>	Ray ONE provides instant Notifications for Critical Events via the below mediums * Email * SMS * SMS is Optional Charge
		Ray ONE integrates with 3rd Party * Email Gateway * SMS Gateway
	<b>Audit Trail</b>	Ray ONE maintains Audit Trail to log all the activities performed on the Ray ONE
		Ray ONE must not override any settings or changes but create a copy of the same to ensure the changes can be reverted.
<b>Logging</b>	<b>Alerts</b>	Ray ONE provides Alerts Mechanism to set Alerts for various conditions on the Logs & Graphs
		Based on the Alert the system can › Create a Case › Execute a Script › Send Message › Generate Report › Modify a watchlist › Trigger an automatic IPS block › Trigger an External API
<b>Logging</b>	<b>Backup Management</b>	Ray ONE supports the Backup of the Configurations of both * Centrally in Ray ONE * Locally in the Edge Gateway
		Ray ONE Backup Management enables * Manual Backups * Scheduled Backups
		Ray ONE Backup Management Advance Backup Functions like * Upload Backup * Delete Backup

<b>Management</b>	<b>Restore Management</b>	Ray ONE supports restore of * Individual Profiles to revert to old configurations * All configurations
	<b>Management Access</b>	Ray ONE provides a unified access to all the appliances from a central Platform.
		Ray appliance can be configured via * Ray ONE Web GUI * SSH Access * CLI * Device Web Access The above can be disabled through configurations
	<b>Provisioning</b>	Ray ONE enables Zero Touch Device Configuration The device once connected pulls complete Policies and Configurations from Ray ONE enabling Rapid Site Provisioning.
		Ray ONE creates SD-WAN Network (Overlay) as soon as the devices are connected.
	<b>Security</b>	Ray ONE web access is protected via 256 bit encryption for better Web Security.
	<b>Management Access Authentication</b>	Ray ONE supports Authentication Integration over A. RADIUS B. TACACS C. TACACS+ D. oAuth E. Username/Password F. LDAP
		Ray ONE supports authentication via NAC with A. Microsoft Active Directory
	<b>Cluster/Site Management</b>	Ray ONE supports distributed management features to enable Multi-Site Management.
		The Wireless Controller must support Site creation based on Logical location or Physical Location.
		The Site Management must be Hierarchical in Nature with support for unlimited number of sites in Hierarchy.
		The Wireless Controller must support creating the Configuration at all levels of the Site Hierarchy.
		The Wireless Controller must be able to publish the configurations at all levels of the Site Hierarchy. The settings created on the Parent Sites automatically get published in the Child/Sub Sites.
		The Wireless Controller must support central Dashboard to view the status of all Sites in one single screen.
	<b>Role Based Access</b>	The Wireless Controller must have the possibility to assign a user with a role for each specific Site.
		Role Management allows the Administrator to create and assign the role with a granularity of each function with access like Read Only, Update Only, Create, Delete, etc.
		The Wireless Controller must support Top-Down hierarchical access. The User created on the Top Site can have access to all the Child/Sub Sites.
	<b>Update Management</b>	Ray ONE rolls out the below Updates 1) System Update. Large Update that combines multiple patches, requires downtime. 2) Patch Update. Functionality Updates, Bug Fixes etc. Quick rollout, Less Bandwidth Consumption, No downtime, 3) Security Update. Security Fixes to plug any immediate vulnerabilities. No downtime.
		The Updates can be implemented as 1. All devices/site (Manually/Scheduled) 2. In selected devices/site (Manually/Scheduled) Notifications are sent before & after the automatic activities
		Ray ONE supports both Software Upgrade as well as Downgrade. Individual Profiles (Configurations) as maintained in Version Controlled manner and can be rolled back to a previous version.
<b>Networking</b>	<b>L3 Features</b>	Ray ONE Supports the below Key Advance Networking Features * L3 Network Segmentation * Virtual Private Network
<b>Support</b>	<b>Third Party Declaration</b>	Ray ONE runs on RayOS a custom optimized version of Linux. All the components
<b>Testing</b>	<b>Testing Tools</b>	Ray ONE provides built-in Traffic Generator to simulate transactions to test certain features.

## SUBSCRIPTIONS

ESSENTIAL	CONNECT	PROTECT	TOTAL
Cloud Subscription	Cloud Subscription	Cloud Subscription	Cloud Subscription
Essential Support	Essential Support	Essential Support	Essential Support
L3 Networking	L3 Networking	L3 Networking	L3 Networking
RRM	RRM	RRM	RRM
WAN Suite	WAN Suite	WAN Suite	WAN Suite
	SD-WAN	SD-WAN	SD-WAN
	SASE	SASE	SASE
		Network & Web Protection	Network & Web Protection
		Captive Portal	Captive Portal
			EYE
			INSIGHTS
			VIGIL
12 Months (Renewal required)	12 Months (Renewal required)	12 Months (Renewal required)	12 Months (Renewal required)
36 Months (Renewal required)	36 Months (Renewal required)	36 Months (Renewal required)	36 Months (Renewal required)
60 Months (Essential Lifetime)	60 Months (Essential Lifetime)	60 Months (Essential Lifetime)	60 Months (Essential Lifetime)

## Hardware Warranties

Essential Hardware Warranty	Premium Hardware Warranty
Available for 1,3 & 5 years	Available for 1, 3 & 5 years
Return & Replace Warranty	Advance Replacement with NBD Shipping

## RAY Edge L Series Software Support

Essential Software Support	Premium Software Support
Available for 1, 3 & 5 years	Available for 1,3 & 5 Years
Support time 8*5 Support time 24*7	Support time 24*7
Email Support Email Support	Email Support
Web Support Web Support	Web Support
Chat Support Chat Support	Chat Support

For More details on warranty visit: [www.ray.life](http://www.ray.life)

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