



BYTESCREEN
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ByteFlow

Bytescreen BT-WAN

"Intelligent WAN Optimization for Agile Networks"



Bytescreen's SD-WAN Solution reimagines network connectivity for enterprises seeking efficiency, agility, and dependability in the new digital context. It provides a comprehensive platform that uses cutting-edge technology to intelligently manage traffic, prioritize key applications, and ensure smooth operations across distributed networks.

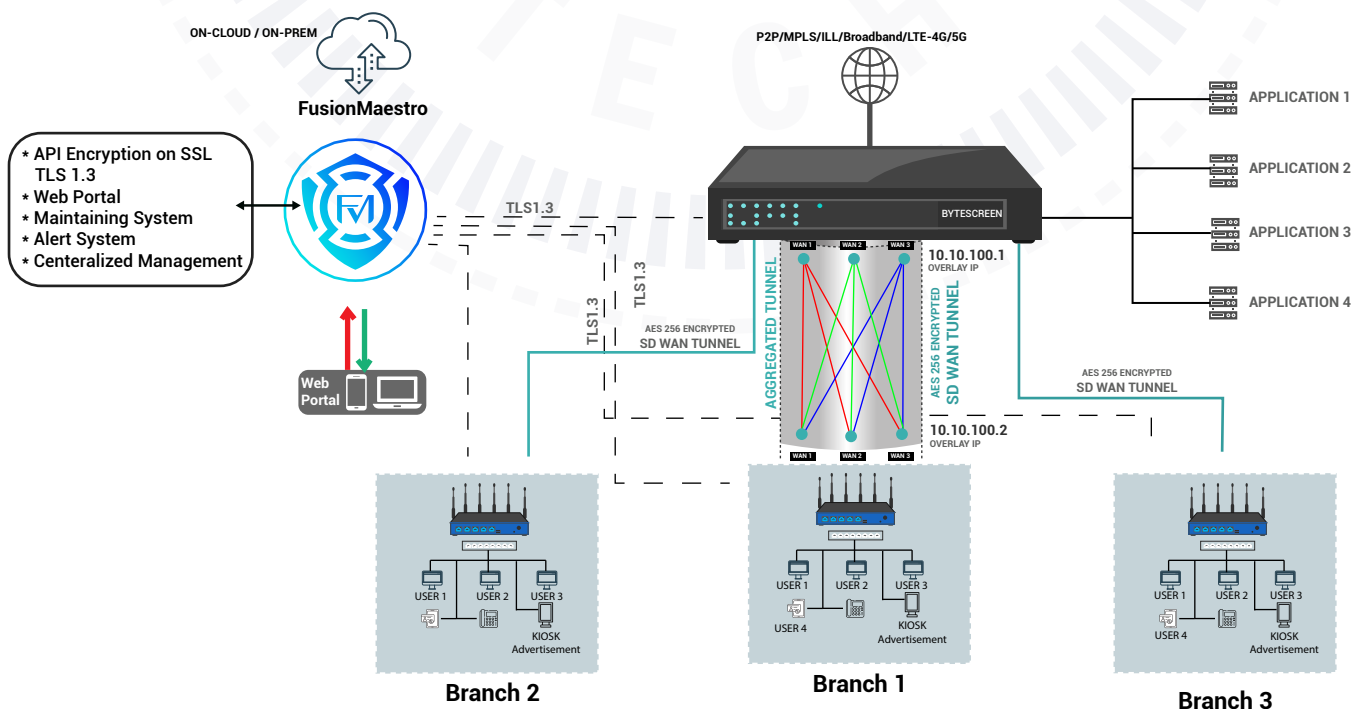
The BT-BSD Series includes SD-WAN solutions that simplify and streamline connectivity and management by integrating Software Define Technology, ensuring flexibility, enhanced performance, and cost efficiency, and are meant to redefine the way enterprises manage network connectivity. It incorporates cutting-edge PMTA technology, ensuring seamless connectivity, superior security, and reliable failover methods. Our solutions are excellent for enterprises that want to improve network resilience and scalability while lowering operational expenses.

Bytescreen SD-WAN adapts to many use cases, from small businesses to huge organizations, and offers unrivaled performance.

Key Features:

- Intelligent Path Selection & True WAN Link Aggregation
- End-to-End Application Visibility
- Zero-Touch Provisioning
- Encrypted & Secure Tunnels (IPSec, SSL)
- Centralized Orchestration via FusionMaestro
- Cloud & Multi-Cloud Integration
- Built-in WAN Optimization
- High Availability & Failover

BT-WAN Network Architecture Network



Workflow of BT-WAN

BT-WAN utilizes an overlay network built over existing transport mediums such as MPLS, Broadband, or LTE. With FusionMaestro as the centralized controller, each BT-WAN edge appliance communicates via secure encrypted tunnels, dynamically selecting the best path for application traffic based on performance metrics like latency, jitter, and packet loss. Policy-based routing ensures business-critical applications get priority, and branch sites can be brought online in minutes with zero-touch provisioning.

Fusion Maestro (A Network Management & Service Controller)

Bytescreen's Fusion Maestro is a centralized orchestrator that simplifies network management. It provides real-time monitoring, analytics, and control for all connected SD-WAN appliances. Key features include:



Key Features:

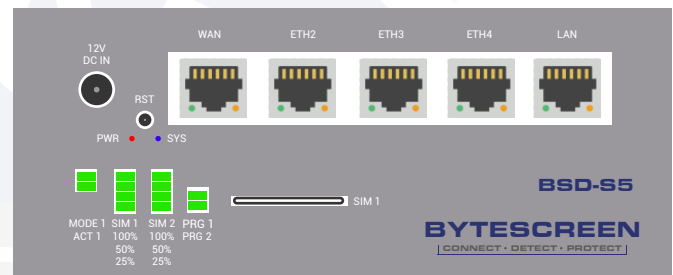
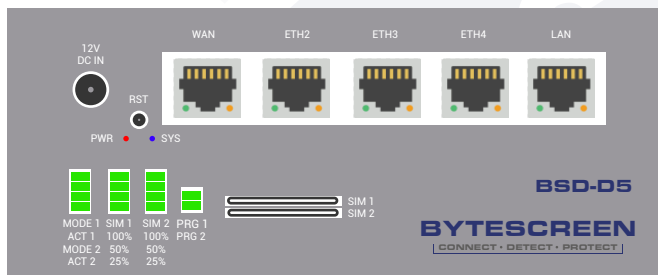
Unified Dashboard: Manage all devices from a single interface.

- Advanced Analytics: Gain insights into network performance and traffic patterns.
- Customizable Alerts: Receive notifications for critical events.
- Remote Troubleshooting: Quickly identify and resolve issues without on-site intervention.

All Appliance managed by **FusionMaestro**
Management Controller (Cloud & On-Prim)

EDGE Device

BT-WAN BSD- Series is a versatile small form factor device with an 880 MHz processor suitable for tunnels upto 30 Mbps and supporting all BSD-Series and most features from Fusion Maestro. It is a powerhouse for small branches supporting IDS/ IPS features.

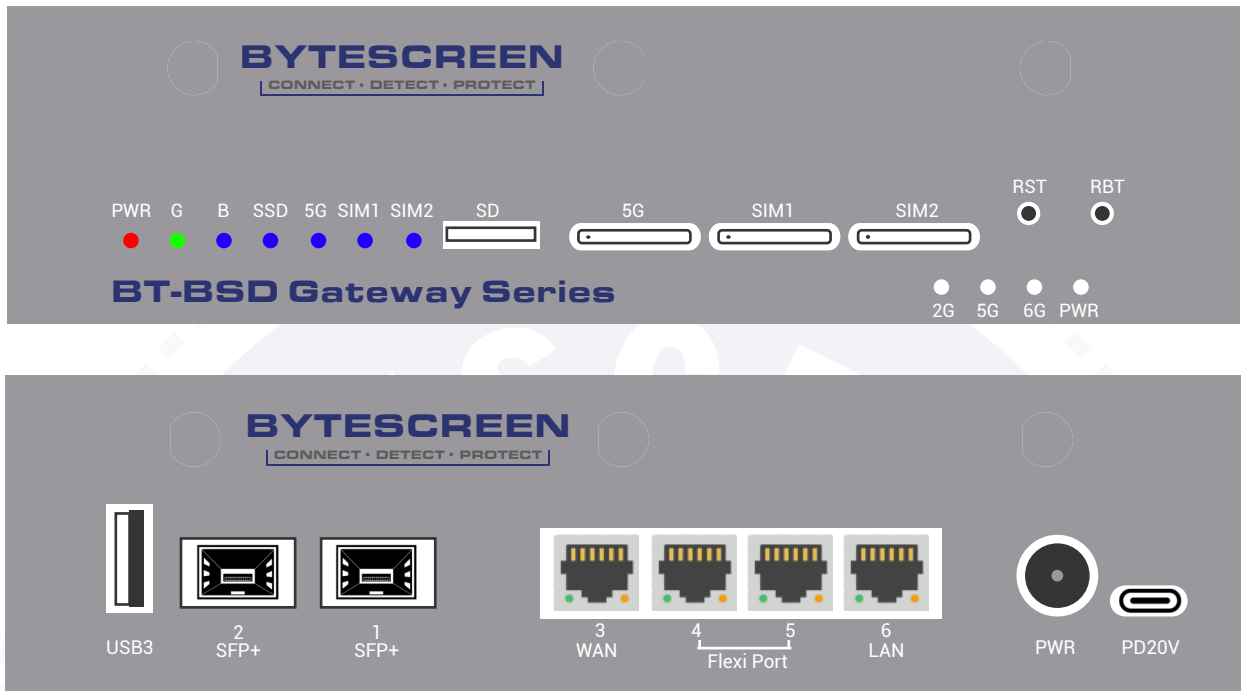


EDGE DEVICE Hardware Specification

Device Specs	BSD - D5 / D5W	BSD - S5 / S5W	BSD - B5
CPU	MIPS Multi-Core Processor	MIPS Multi-Core Processor	MIPS Multi-Core Processor
RAM	256 MB, DDR2	256 MB, DDR2	256 MB, DDR2
Flash	32MB, SPI Flash	32MB, SPI Flash	32MB, SPI Flash
Ethernet	5 x RJ45 ports, 10/100/1000 Mbps	5 x RJ45 ports, 10/100/1000 Mbps	5 x RJ45 ports, 10/100/1000 Mbps
Fixed WAN	1	1	1
Fixed LAN	1	1	1
Flexi Ethernet	3	3	3
4G LTE SIM Slots	2	1	No
4G SIM Antenna	2	1	No
WiFi	2.4 GHz	2.4 GHz	No
WiFi Antenna	2	2	No
Status LED	12 VDC, Reverse polarity protection	12 VDC, Reverse polarity protection	12 VDC, Reverse polarity protection
Power	YES	YES	YES
Power Consumption	<15W Max	<15W Max	<15W Max
Reset Button	Yes	Yes	Yes
Operating Temperature	-10 C to 65 C	-10 C to 65 C	-10 C to 65 C
Operating Humidity	10 % to 90 % non-condensing	10 % to 90 % non-condensing	10 % to 90 % non-condensing
Dimensions (WxHxD) mm	112 x 114 x 58 mm	112 x 114 x 58 mm	112 x 114 x 58 mm
Overlay Throughput	30 Mbps	30 Mbps	30 Mbps

GATEWAY DEVICE

The Gateway series is our latest robust high-end workhorse which supports tunnels of up to 450 Mbps and high-end Snort 3-based IDS / IPS features. This device comes with 4 x 1G ports and 10G x 2 SFP ports with optional 5G and WiFi 6 ensuring a future-ready device with industrial-grade hardware.



GATEWAY DEVICE Hardware Specification

MODEL	BSD-D4S2 / D4S2-5G / D4S2W	BSD-B6C
CPU	ARM Multi-Core processor	Intel Multi-Core Processor
SDRAM	4 GB DDR4	8 GB RAM
Storage	8GB eMMC	240 GB SSD
On board Network	4 Port 10/100/1000Mbps Ethernet 2 x 10G SFP	6 x RJ45 ports, 10/100/1000 Mbps (Total)
SIM Slots	2 x 4G LTE +1x 5G	1/(Optional)
Antennas	8 Cellular , 4 WiFi	NA
WiFi	WiFi 6	NA
USB	1xUSB 3.2 slot	2
Buttons	Reset button, WPS button, boot switch	POWER
LEDs	Power status Led and RJ45 Led	1 x Power, 1 x HDD
DC Power	12V/5.2A	12V - 19 VDC
Operating Temperature	-10 C to 65 Cprotection	-10 C to 65 C
Operating Humidity	10 % to 90 % non-condensing	10 % to 90 % non-condensing
Dimensions (WxDxH)	440 mm x 110 mm x 45 mm	-10 C to 65 C
Overlay Throughput	450 Mbps	300 Mbps

Fusion Connect Series provides high performance and broad compatibility, ideal for enterprise environments with extensive software needs to fit perfectly in your business architecture. x86 is our highest range supporting robust implementations for the largest of clients and also acts as an appliance used for Controllers in Data centers.

FusionConnect Hardware Specification

Device Model	BSD-B6C	BSD-B8I
CPU	Intel Multi-Core Processor	Intel Multi-Core Processor
RAM	8 GB RAM	16 GB RAM
SSD	240 GB SSD	240 GB SSD
Ethernet	6 x RJ45 ports, 10/100/1000 Mbps (Total)	8 x RJ45 ports, 10/100/1000 Mbps
Rear I/O	1x Mini PCI -E, 1x USB 3.0	1x Mini PCI -E, 1x USB 3.0
Status LED	1 x Power, 1 x HDD	1 x Power, 1 x HDD
Power Supply	Single	Single
Operating Temperature	-10 C to 65 C	-10 C to 65 C
Operating Humidity	10 % to 90 % non-condensing	10 % to 90 % non-condensing
Overlay Throughput	1500 Mbps	3000 Mbps

Device Model	BSD-B84X
CPU	8 x 1GE, 4 x 10G SFP+
RAM	32 GB RAM
SSD	240 GB SSD
Ethernet	8 x RJ45 ports, 10/100/1000 Mbps, 4x 10G SFP+ (Total)
Rear I/O	1x Mini PCI -E, 1x USB 3.0
Status LED	1 x Power, 1 x HDD
Power Supply	Dual
Operating Temperature	-10 C to 65 C
Operating Humidity	10 % to 90 % non-condensing
Overlay Throughput	12000 Mbps

Hardware Deployment Scenario

UP TO 100 LOCATIONS							
COMPONENT	VCPU	RAM (GB)	HDD (GB)	NETWORK INTERFACES	INTERFACE-1	INTERFACE-2	BANDWIDTH(Mbps)
		Orchestrator					10
VM-1 (APS, API)	16	32	500	2	Public IP	Private IP	40%
VM-2 (DB Master)	16	128	1000	2	NA	Private IP	NA
		Concentrator					
CONC -SRVR1	12	16	250	2	Public IP/NATted	Private IP	as per WAN link

UP TO 5,000 LOCATIONS							
COMPONENT	VCPU	RAM (GB)	HDD (GB)	NETWORK INTERFACES	INTERFACE-1	INTERFACE-2	BANDWIDTH(Mbps)
		Orchestrator					150
VM-1 (Config API)	64	64	500	2	Public IP	Private IP	40%
VM-2 (Monitoring APIs)	64	64	500	2	Public IP	Private IP	40%
VM-3 (DB Master)	64	128	1500	2	NA	Private IP	NA
VM-4 (DB Slave-1)	64	128	1500	2	NA	Private IP	NA
VM-5 (DB Slave-2)	64	128	1500	2	NA	Private IP	NA
VM-6 (App)	24	32	500	2	Public IP	Private IP	20%
VM-7 (Proxy Server)	24	32	250	2	Public IP	Private IP	NA
		Concentrator					
CONC-SRVR1	12	16	250	2	Public IP/NATted	Private IP	as per WAN link

Virtual Deployment Scenario

VM BASED HEAD END						
COMPONENT	FOR 2 TO 20 LOCATIONS					
	VCPU	RAM (GB)	HD (GB)	VPORTS	INTERFACE-1	INTERFACE-2
Orchestrator						
VM-1 (APS, API and DB Server)	16	8	150	2	Public IP	Private IP
Concentrator						
CONC-SRV1	8	4	64	2	Public IP/NATted	Private IP

Component	Model	Mode	UP TO 5,000 LOCATIONS						
			CPU	RAM (GB)	HD (GB)	Network Interfaces	Interface-1	Interface-2	Bandwidth (Mbps)
			Orchestrator					150Mbps	
Config API Server	Lenovo Thinksystem HR630X, CPU:2X Intel 6134, 1GbE Quad port2x 550W	NA	32	64	500	2	Public IP	Private IP	30%
Monitoring API Server	Lenovo Thinksystem HR630X, CPU:2X Intel 6134, 1GbE Quad port2x 550W	NA	32	64	500	2	Public IP	Private IP	50%
DB Master Server	Lenovo Thinksystem HR630X, CPU:2X Intel 6134, 1GbE Quad port2x 550W	NA	32	128	1500	2	NA	Private IP	NA
DB Slave-1 Server	Lenovo Thinksystem HR630X, CPU:2X Intel 6134, 1GbE Quad port2x 550W	NA	32	128	1500	2	NA	Private IP	NA
DB Slave-2 Server	Lenovo Thinksystem HR630X, CPU:2X Intel 6134, 1GbE Quad port2x 550W	NA	32	128	1500	2	NA	Private IP	NA
App Server	Lenovo Thinksystem HR630X, CPU:2X Intel 6134, 1GbE Quad port2x 550W	NA	12	32	500	2	Public IP	Private IP	20%
Proxy Server	Lenovo Thinksystem HR630X, CPU:2X Intel 6134, 1GbE Quad port2x 550W	NA	12	32	250	2	Public IP	Private IP	NA
			Concentrator						
CONC-SRV1	Lenovo Thinksystem HR630X, CPU:2X Intel 6134, 1GbE Quad port2x 550W	HA (2 Models)	16	32	250	3	Public IP/NATted	Private IP	as per WAN link

Note:

- VM Instance type is as per Size mentioned. In case of Concentrator deployment on AWS cloud T2 type VM instance is must.
- For all type of Orchestrator components, RedHat 9/CentOS 9 is must
- For all type of Concentrator installation UniGR8Ways Embedded Linux OS image will be provided.
- Public and Private IP can be considered once final deployment model.
- Usually /29 or /28 Private IP pool can be used for Orchestrator components depending On the size of deployment.
- For Concentrator and Orchestrator, same public IP pool with /29 or /28 can be used.
- The pool can be decided on the number of total nodes.
- The bandwidth mention is for API based monitoring and configuration requirement
- In VM deployment no HA configuration for Concentrator is offered
- The Orchestrator in HA mode is in road-map FY25-26-Q2
- Recommended to conduct PoC at 2-5 sites.

Note:

- For all type of Orchestrator components, Redhat 9/CentOS 9 is must
- For all type of Concentrator installation UniGR8Ways Embedded Linux OS image will be deployed.
- Public and Private IP can be considered once deployment is finalized and low level design is closed.
- For Private IP pool allocation, /28 pool is recommended for Orchestrator components
- Depending on the size of deployment.
- For Concentrator and Orchestrator, /28 public Ip pool can be used. The subnet can be decided on the number of total server nodes.
- The bandwidth mention is for API based monitoring and configuration requirement.
- The Orchestrator in HA mode is in road-map FY25-26-Q2
- In case if Concentrator is considered in the HA mode then HW replica is needed.
- Networking components such as L2/L3 Switches, Firewall devices related design and BoQ
- Can be provided basis on the design requirement.
- Recommended to conduct PoC at 2-5 sites.

Features (Fusion Maestro & Fusion Connect)	
Features	Description
Orchestrator Access	Web based access from the internet and intranet user. Deploy SSL certificate and check access.
Orchestrator Dash-board	Enable Orchestrator dash-board view
Left panel view	Branch site visibility on the map as per lat/long provided in the site address
Branch View	The left panel includes User management, reporting, branch view, TT section.
Right Panel View	Orchestrator right panel access as per RBAC configuration for Groups and Users
Group creation	Support to create user groups such as Admin, Fault(View), Configuration.
User creation	Support users and assign them to specific groups to grant appropriate access.
Real-time SLA reports	Near real-time(with 5 minutes sampling and polling) for all type of measurement supported.
Historical reports	View on historical reports for hourly, weekly, monthly and yearly duration, export these reports.
Company Master	Configuration support for Company master i.e. Organization as an enterprises with multitenant configuration.
Department Master	Configuration support for organization with inter-organisation grouping under department master menu.
Role Master	Support to define role within the organization
Orchestrator device panel	Orchestrator device panel access as per RBAC configuration for specific user and groups
Device access	CPE device representation with access to change configuration to authorized users
Alerts view	Support for notifiable alerts on the dashboard as well as email based notification.
Configuration Logs	Support for view configuration logs and download in the readable and export format
Tunnel Visibility report	Support for tunnel configuration, status and traffic movement.
Tunnel Down report	Support to view Tunnel status report
Firmware upgrade	Firmware upgrade options for CPE devices and group of CPE devices
Customer care report	Support to create TT report.
HA configuration	Concentrator config and view in the HA mode(within DC or DR sites)
Client Server Mapping	Client devices mapping with servers for appropriate configuration to effect and establish tunnels.
DC-DR configuration	Config support for DC and DR devices
DC-DR Switch over	DC to DR and vice a versa switchover from Orchestrator
CPE details	CPE device view through single glass of pane
CPE reboot logs	To view CPE reboot logs from watch-dog option on Orchestrator
Active Alerts	To support active alerts, map view and site view
Traffic Routing	Concentrator plays vital role to connect SDWAN tunnel and route traffic between Applications and remote sites.
Encryption support	Concentrator enables encryption types and apply on the tunnel to ensure secured traffic.
PMTA enablement	Concentrator ensure smooth communication over multiple type of WAN links using Packet based Multi-tunnel aggregation.
Management	Concentrator communicates with Orchestrator to configure policy, rules for traffic movement.

Features Of Edge,Gateway Devices					
Category	BSD-B5	BSD-S5	BSD-D5	BSD-B4S2	BSD-B6C
Hardened and Crushproof OS	YES	YES	YES	YES	YES
PMTA (Packet-based Multi Tunnel Aggregation)	YES	YES	YES	YES	YES
PMTA Based WAN Link Aggregation & Failover	YES	YES	YES	YES	YES
WAN and LAN Virtual Segmentation	YES	YES	YES	YES	YES
Multi WAN Support Including LTE Network & WAN & LAN Segmentation	YES	YES	YES	YES	YES
AI-Based WAN Selection & Optimization	YES	YES	YES	YES	YES
Flexi LAN & WAN Port	YES	YES	YES	YES	YES
Geo IP Filter	YES	YES	YES	YES	YES
Anomaly Detection	YES	YES	YES	YES	YES
Multi-Segmentation IPS Policy	YES	YES	YES	YES	YES
Role Based Administration	YES	YES	YES	YES	YES
Quality of Service	YES	YES	YES	YES	YES
Local DHCP & DNS Support	YES	YES	YES	YES	YES
ACL-Based DHCP Server	YES	YES	YES	YES	YES
AES128/256 Bit Per Session Encryption & Compression	YES	YES	YES	YES	YES
Dynamic Time-based Key Rotation (Lifetime)	YES	YES	YES	YES	YES
Block URL Based on web patterns	YES	YES	YES	YES	YES
Keyword, file extension block	YES	YES	YES	YES	YES
Time Based Policy Scheduled	YES	YES	YES	YES	YES
3rd Party REST Support	YES	YES	YES	YES	YES
NAS (Network Access Server)	YES	YES	YES	YES	YES
Vulnerability Assessment Dashboard	YES	YES	YES	YES	YES
Gateway Anti-Virus	YES	YES	YES	YES	YES
Domain & Content Filter	YES	YES	YES	YES	YES
Wi-Fi Controller to support Multi-brand Access Points	YES	YES	YES	YES	YES
Advance GUI-Based Diagnostics Tool	YES	YES	YES	YES	YES
LAN Security Audit and analysis	YES	YES	YES	YES	YES
Advance Logs & Reports	YES	YES	YES	YES	YES
Security Intelligence IP, URL, Domain.	YES	YES	YES	YES	YES
Centralize Network & Service Management	YES	YES	YES	YES	YES
Network Management System	YES	YES	YES	YES	YES
Zero Touch provisioning	YES	YES	YES	YES	YES
True SDWAN	YES	YES	YES	YES	YES
Multi -WAN Support	YES	YES	YES	YES	YES
IP Persistence	YES	YES	YES	YES	YES
WAN aware routing	YES	YES	YES	YES	YES

Category	BSD-B5	BSD-S5	BSD-D5	BSD-B4S2	BSD-B6C
WAN Fail-over	YES	YES	YES	YES	YES
Application Aware Routing	YES	YES	YES	YES	YES
Multi-Cloud Support	YES	YES	YES	YES	YES
Multitenant Orchestrator	YES	YES	YES	YES	YES
Third Party REST API Integration	YES	YES	YES	YES	YES
Overlay Topology	YES	YES	YES	YES	YES
Standard VPN Support	YES	YES	YES	YES	YES
Dynamic Key Rotation	YES	YES	YES	YES	YES
WAN Aggregation	YES	YES	YES	YES	YES
Routing Type	YES	YES	YES	YES	YES
PPPoE Support	YES	YES	YES	YES	YES
DNS Support	YES	YES	YES	YES	YES
NAT Support	YES	YES	YES	YES	YES
DHCP Support	YES	YES	YES	YES	YES
VLAN support	YES	YES	YES	YES	YES
Mobile App support	YES	YES	YES	YES	YES
Third Party REST API Integration	YES	YES	YES	YES	YES
Intelligent CPE (SMS based DC-DR Switch over)	YES	YES	YES	YES	YES
Self-healing (reboot through SMS)	YES	YES	YES	YES	YES
Location Anamoly Detection	YES	YES	YES	YES	YES
WAN grouping & Failover	YES	YES	YES	YES	YES
Domain Filter	YES	YES	YES	YES	YES
Geo-country Filter	YES	YES	YES	YES	YES
DDoS	YES	YES	YES	YES	YES
SSL Inspection	YES	YES	YES	YES	YES
IPS/IDS	YES	YES	YES	YES	YES
SSL VPN	YES	YES	YES	YES	YES
IPSec VPN	YES	YES	YES	YES	YES
Spam protection	YES	YES	YES	YES	YES
User device discovery	YES	YES	YES	YES	YES
System Up time	YES	YES	YES	YES	YES
Host Name wise exploration	YES	YES	YES	YES	YES
Enduser HDD, RAM, CPU, OS details	YES	YES	YES	YES	YES
HDD, RAM, CPU utilization	YES	YES	YES	YES	YES
Browser App Identification	YES	YES	YES	YES	YES
Applications installed on the end user system	YES	YES	YES	YES	YES
Loopback, PPPoE, Tunnel	YES	YES	YES	YES	YES
User Isolation	YES	YES	YES	YES	YES
Category wise traffic action	YES	YES	YES	YES	YES
Interface utilization	YES	YES	YES	YES	YES
SNMP-v1/v2/v3, ICMP, WMI	YES	YES	YES	YES	YES
Centralized & Cloud based	YES	YES	YES	YES	YES
On-premise	YES	YES	YES	YES	YES
Wi-Fi AP view	YES	YES	YES	YES	YES
WLAN user details	YES	YES	YES	YES	YES
AP Control	YES	YES	YES	YES	YES
AP Dashboard view	YES	YES	YES	YES	YES
Pie-chart representation	YES	YES	YES	YES	YES
Wi-Fi floor-plan & AP locations	YES	YES	YES	YES	YES
LDAP integration	YES	YES	YES	YES	YES
Local Database access	YES	YES	YES	YES	YES
RADIUS based authentication	YES	YES	YES	YES	YES
TACACS+	YES	YES	YES	YES	YES
Certificate Revocation	YES	YES	YES	YES	YES
Network Access Server	YES	YES	YES	YES	YES
Multi-Factor Authentication (MFA)	YES	YES	YES	YES	YES
User ID unlock	YES	YES	YES	YES	YES
Password Encryption	YES	YES	YES	YES	YES
Password History	YES	YES	YES	YES	YES
LTE 4G SIM Support		YES	YES	YES	YES
CPE Health Monitoring				YES	YES
HA Mode Support				YES	YES
Stateful Firewall				YES	YES
URL Filter				YES	YES
Content Filter				YES	YES
Application Filter				YES	YES
Malware Attack Support				YES	YES
Phishing Attack Support				YES	YES
Ransomware Attack Support				YES	YES
Zero Trust Security				YES	YES
Gateway Anti-Virus				YES	YES

Ordering Information:

Part-Code	Product Description
BSD-S5,S5,D5W	5 x 1 G Ethernet Ports (1x WAN - Fixed, 1 x LAN Fixed 3 x Ethernet - Flexi Ports), 2 x 4G/LTE SIM Port, WiFi 802.11AC
BSD-B4, D4S2, D4SW	4 x 1 G Ethernet Ports (1x WAN - Fixed, 1 x LAN Fixed 2 x Ethernet - Flexi Ports), 2x4G/5G, Wi-Fi 802.11ac,
BSD-B6C	6 x 1 G Ethernet Ports (1x WAN - Fixed, 1 x LAN Fixed 4 x Ethernet - Flexi Ports), 1 x 4G/LTE SIM Port/Optional
BSD-B8I	8 x 1 G Ethernet Ports, 1x Mini PCI -E, 1x USB 3.0
Key Features	Stateful firewall, SD-WAN, Domain/URL Filter, IPSec VPN, CIPS, Vulnerability Assessment
BSD-B84X	8 x RJ45 ports, 10/100/1000 Mbps, 4x 10G SFP+ (Total), 1x Mini PCI -E, 1x USB 3.0, Dual Power Supply
BSD-FusionMaestro-Cloud	FusionMaestro Cloud-Based Network Management
BSD-FusionMaestro-On-Prem	FusionMaestro On-Prem Based Network Management

Need Help? Get BYTESCREEN Expert Support

Bytescreen offers direct OEM assistance through experienced professionals for product configuration and support. TAC advises customers on security best practices to enhance network reliability and prevent hacking attempts.

For Technical Assist: support@bytescreentech.com

BYTESCREEN Tech Pvt Ltd stands firm in our mission to redefine the landscape of networking solutions through innovation, reliability, and customer-centricity. We are committed to pushing the boundaries of technology to deliver products and services that not only meet but exceed the evolving needs of our clients. As we continue to evolve & grow, our dedication to excellence remains unwavering. We invite you to explore our comprehensive range of networking solutions, tailored to empower businesses of all sizes and industries to thrive in the digital era. Whether you're seeking robust security measures, seamless connectivity, or advanced management tools, BYTESCREEN Tech is here to support your journey towards success.

Contact Details:

For inquiries, collaboration opportunities, or to learn more about how BYTESCREEN Tech can elevate your network infrastructure, please don't hesitate to reach out to us.

sales@bytescreentech.com
www.bytescreentech.com