ECESSA®

ECESSA WANworX®

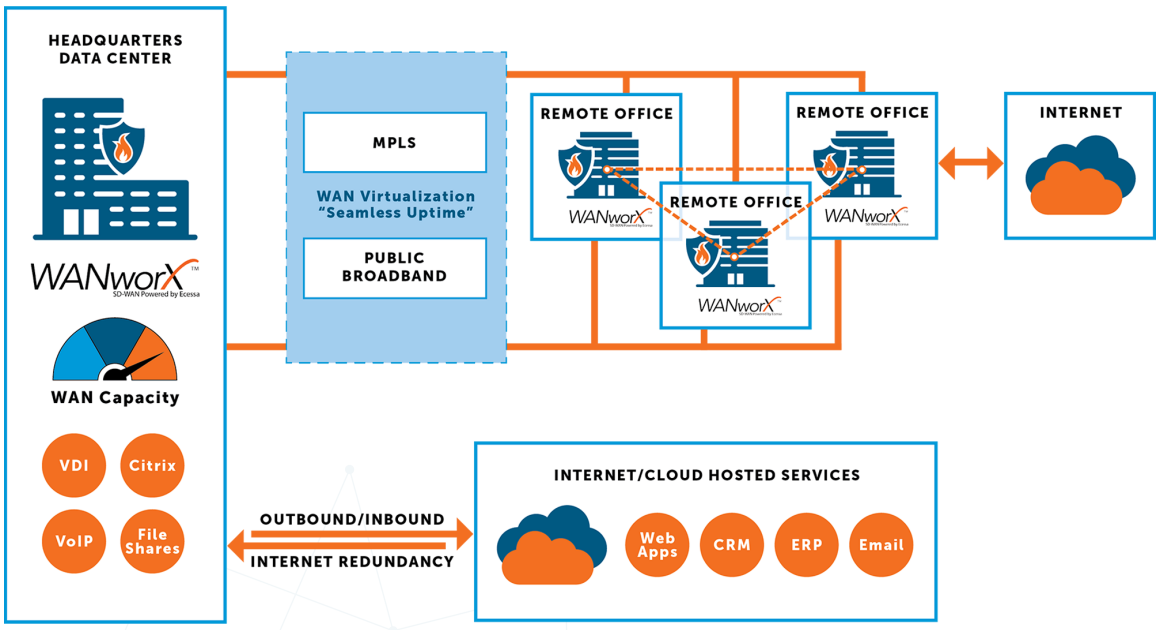
INNOVATIVE SECURE SD-WAN TECHNOLOGY

Enhance network performance, security and ROI with Ecessa WANworX®

Many of today's WAN deployments are based on older technology that was acceptable when businesses did not run at breakneck speed, cyber attacks were the stuff of movies and operations didn't grind to a halt when connectivity was disrupted. Today's cloud-based applications, data centers and distributed networks, where so much is virtualized and delivered as-a-service, make limited bandwidth, network outages and weak security unacceptable.

For these reasons, Ecessa created the WANworX® product line; the most cost effective, scalable and flexible Software-Defined Wide Area Network (SD-WAN) solutions available. The unique combination of robust hardware, innovative software, network design and support services allows organizations with multiple locations to combine private MPLS leased lines and public broadband links. This creates secure, cost effective, high capacity, high quality, reliable and resilient networks.

The Ecessa WANworX products are offered both as appliances and virtual instances. The technology leverages a dedicated Ecessa presence at the edge, data center, corporate headquarters and Cloud to provide a scalable end-to-end solution. All traffic management features are located on the appliance; policies and configurations managed through a web application. Routing and traffic shaping is done locally or globally within an existing corporate network leveraging multiple WAN connections from any combination of wired and wireless transports. The integrated Layer 7 Next Generation Firewall (NGFW) with intrusion detection and prevention and web content filtering keeps your network edge safe. You get proven SD-WAN performance and security in one easy to manage device.



Learn More – Call Today For Your Free Quote 800.669.6242.

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Business problems solved by WANworX

SD-WAN solutions, like WANworX, allow businesses to improve the user experience over any connection, whether it is premium-priced MPLS, lower-cost broadband, or cellular 4G, 5G or LTE. When coupling the potential savings in leveraging lower cost transports and reduced IT management with the efficiencies derived from increased bandwidth and connection to active-active networks, businesses can easily justify an SD-WAN deployment.

What can an organization expect with SD-WAN deployment?

Improved Network Performance

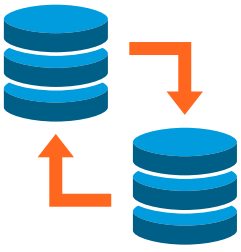
There has been a dramatic increase in network complexity, demanding a new approach to how IT looks at its network and application performance infrastructures. Organizations are reliant on virtualization and new highly distributed application architectures, along with the reliance on remotely hosted business applications. Applications are coming from everywhere—the Cloud, Software as a Service (SaaS), data centers or branch, and even from users adding applications never approved by IT departments. This means performance can suffer due to the limitations of physics, as well as network complexity.

Additional Bandwidth

- Add broadband Internet services to augment MPLS for a secure hybrid WAN.
- Put standby failover lines to work as part of an active network, available to seamlessly carry all traffic in case of a primary link failure.

Improved Application Performance

- Predictable application performance regardless of link quality, WAN disruptions, jitter, delay, or packet loss. WANworX monitors and adjusts traffic paths in real-time for exceptional application performance.
- Quickly roll out bandwidth-intensive applications such as video, Virtual Desktop Infrastructure (VDI) and guest Wi-Fi, with lower costs and greater user experience.
- Best-in-market performance on UCaaS and VoIP. No more dropped meetings or calls.



Network Redundancy

One of the most expensive, and least quantifiable, costs associated with technology and networking today is the cost of downtime. The more organizations rely on technology for their day-to-day operations, the more detrimental any amount of downtime becomes.

Business Continuity Demands a Highly Reliable and Resilient WAN

- Achieve greater than 99.999% WAN performance over public/private Internet links.
- Application traffic is prioritized and routed over the best links.

Never Down® Performance Eliminates the Need for Failover

- Traffic instantly routes to one of your alternate links so you never experience application interruption, even in the event of link disruptions.
- 100% uptime = Never Down network peace of mind.

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Enhanced Network Security

Security and resiliency are at the top of every network's must-have list. With the need to securely off-load Internet traffic at the edge and encrypt sensitive business data traversing public broadband circuits, strong security features are essential throughout the network. The WANworX built-in firewall includes Layer 7 intrusion detection and prevention functions so you can deploy industry-leading SD-WAN and a Next Generation Firewall with a single device.

WANworX security features include:

- Intrusion Detection and Prevention (IDS/IPS)
- Selectable threat classes (Malware, Ransomware, DDoS)
- Psec and SSL VPNs (site-to-site & client-to-site)
- Website filter
- Custom rules engine
- Threat package updates (automatic and configurable)
- Custom in-bound and out-bound rules
- Quality of Service (QoS) engine
- Access Control List (ACL) with change logs
- Full read/write control of all rules and policies
- Full reporting, logging and alerting

Reduced Telecom and Networking Expenses

Many of the new SD-WAN solutions can be used to improve and secure Internet connectivity, making it more competitive with expensive legacy WAN technologies such as MPLS. In some cases, SD-WAN technology uses Internet broadband connections to augment, or even replace, more expensive solutions. Ecessa SD-WAN uses Layer 7 NGFW and Virtual Private Networking (VPN) technology to make public broadband Internet connections secure. Additionally, SD-WAN has the advantage of removing potentially expensive routing hardware by provisioning connectivity and services via the Cloud.

Manage or Reduce Connectivity Costs

- Use lower-cost broadband services to supplement or replace MPLS, with better price performance, resulting in faster ROI.
- Use Ecessa's integrated Next Generation Firewall to consolidate network devices.

Single Carrier Reliance and Last Mile Issues

- Combine multiple carriers' links to eliminate single provider failure and last mile vulnerability.
- End reliance on high cost MPLS by applying WANworX Quality of Service (QoS) to all connections.
- Make broadband a viable enterprise alternative.

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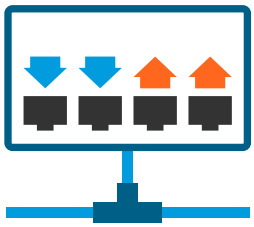

Network Scalability

Enterprise customers are demanding more flexible, open and cloud-based WAN technologies, rather than installing proprietary or specialized WAN technology that often involves expensive fixed circuits, or proprietary hardware.

Company Growth

- Scales so you can add locations incrementally.
- Creates the flexibility to use broadband connections and/or MPLS at new locations.
- Supports high bandwidth with native 10 Gbps Ethernet fiber and copper connectivity and up to 20 Gbps total throughput.

EGAN
Building on Promises Kept

Case Study: Impressive ROI and fast Payback

Egan Company, a large commercial construction firm headquartered in Minneapolis, MN, saves over $100,000 annually per site in technology expenses using WANworX SD-WAN solutions. WANworX has allowed Egan to decommission their MPLS network and instead use multiple, lower cost Internet connections. WANworX also improves their application performance, enabling additional cost savings by leveraging VDI, which eliminates significant equipment and maintenance expenses.

"With Ecessa's help our virtual PCs and VoIP systems at our remote sites have far greater usability and far greater reliability." Jim Nonn, CIO, Egan Company

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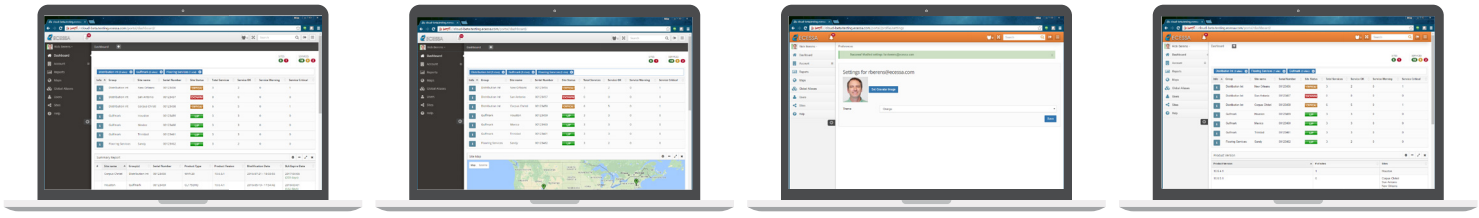
ECESSA Insight®

Management tools

Ecessa Insight® is a centralized, browser-accessed management tool that gives IT staff the ability to configure, manage and monitor Ecessa solutions. Ecessa Insight is an end-to-end management tool that assists in the deployment of any Ecessa product, and gives detailed network and historic device performance data. It can easily be customized with multiple user-definable apps such as maps, dashboards and reports.

Ecessa Insight's widget-based framework allows users to build a single-pane-of-glass view, simplifying common management tasks involved in configuration and monitoring. This highly configurable and flexible interface enables organizations to view multiple layers of physical and geographical topologies. Everything from configuration changes to an overview of network status can be accomplished on any device, anywhere, at any time. This minimizes the time required to manage the network and provides unprecedented insight into network and application performance.



Other benefits provided by WANworX SD-WAN

WAN Resiliency

You're doing everything you can to ensure your network is Never Down. That's Ecessa's mission. We help you leverage WAN links from different carriers and manage the flow of traffic over all lines, giving you predictable application performance regardless of link quality, WAN disruptions, jitter, delay, or packet loss. WANworX monitors and adjusts traffic paths in real time for exceptional application performance.

High Availability (Hardware Failover)

All Ecessa products support active hardware failover. In the unlikely event of a controller failure the secondary device will seamlessly take control of all traffic, adding another layer of network resiliency.

Advanced Network Security

Ecessa's built-in firewall includes Layer 7 intrusion detection and prevention functions (IDS/IPS) so you can create an even more secure private network with Next Generation Firewall (NGFW) security at the edge, while providing Never Down® connectivity between sites and to the Internet. It can replace your existing firewall or work in conjunction with it.

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Disaster Recovery (Geographic Redundancy)

Because you must always be ready for disasters, every Ecessa device supports full mesh networking, allowing you to designate a remote/branch unit to take over network control in the event of a data center failure.

Fault Tolerance (Fail-to-Wire)

Ecessa's Fail-to-Wire option keeps a data path open during unexpected interruption, like power losses, of an Ecessa unit.

Management Features

Ecessa provides multi-tier management services via CLI, device GUI and web application interfaces; there is a convenient method for any user. Global management of all enterprise and remote WAN assets is provided by Ecessa Insight with a single-pane-of-glass design. Features also include QoS traffic management for guaranteed performance for all business-critical applications.

Monitoring and Reporting

All Ecessa products support Simple Network Management Protocol (SNMP), netflow, remote syslog, email notifications and comprehensive alert logs for immediate awareness and network troubleshooting.

VoIP Support Features

For organizations with SIP-based applications, WANworX supports SIP load balancing and seamless call failover using WAN virtualization, which means your VoIP network will be rock solid and your calls will not drop due to WAN issues.

Same IP Failover

WANworX Virtual Instance support for Azure provides for Same IP Failover so you never lose connection to your cloud-based VoIP, UCaaS and other applications.

DNS Features

Authoritative DNS provides local WAN redundancy. DNS Dual-Role provides disaster recovery survivability and server failover provides true server redundancy.

Load Balancing

WANworX features intelligent traffic management and load balancing and can be configured with WAN link redundancy, automatic failover and failback protection for 24/7 Internet availability.

Scalable

WANworX controllers scale to fit your needs. From small office/home office to branch/remote office to data center, we'll help you configure a virtualized WAN to suit your needs today - with the ability to grow as your data needs inevitably expand.

Unparalleled Support

Ecessa provides guaranteed guided deployment assistance and 24/7 toll-free technical service.

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Unit specifications

Data Center/Headquarter Solutions

	WANworX WVDC-10	WANworX WVDC-20	WANworX WVDC-30	WANworX WVDC-40	WANworX WVDC-50	WANworX WVDC-60	WANworX WVDC-VI
Redundant WAN Links Supported	Up to 15	Up to 15	Up to 25	Up to 25	Up to 25	Up to 25	Server Dependent
Remote Sites (Tunnels) Supported	Up to 25	Up to 50	Up to 500	Up to 500	Up to 500	Up to 500	Server Dependent
Total Throughput	350 Mbps	750 Mbps	1.25 Gbps	4 Gbps	10 Gbps	20 Gbps	See Virtual Product Performance Matrix
VPN Accelerator Card (Optional)					3 Gbps	4 Gbps	
Encrypted Throughput	175 Mbps	450 Mbps	600 Mbps	2 Gbps	2 Gbps	2 Gbps	See Virtual Product Performance Matrix
IDS/IPS/Firewall Throughput	120 Mbps	250 Mbps	700 Mbps	800 Mbps	900 Mbps	1.6 Gbps	See Virtual Product Performance Matrix
Maximum Recommended Users	100	200	400	700	1000	2000	See Virtual Product Performance Matrix
Interface Speeds	10/100/1000 (Ethernet)	10/100/1000 (Ethernet)	10/100/1000 (Ethernet)	10/100/1000 (Ethernet) 10 Gbps (Fiber or Copper)	10/100/1000 (Ethernet) 10 Gbps (Fiber or Copper)	10/100/1000 (Ethernet) 10 Gbps (Fiber or Copper)	Server Dependent
Number of Ports	6 x 1G	6 x 1G	6 x 1G	6 x 1G 2 x 10G SFP+	14 x 1G 2 x 10G SFP+	14 x 1G 4 x 10G SFP+	Server Dependent
Intelligent Load Balancing	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound
Next Generation Firewall with IDS/IPS	✓	✓	✓	✓	✓	✓	✓
Built-in VPN (IPsec & SSL)	✓	✓	✓	✓	✓	✓	✓
Full Mesh Network Routing	✓	✓	✓	✓	✓	✓	✓
Full Authoritative DNS Server	✓	✓	✓	✓	✓	✓	✓
QoS Traffic Management	✓	✓	✓	✓	✓	✓	✓
Event Reporting (SNMP, netflow)	✓	✓	✓	✓	✓	✓	✓
High Availability (HA Support)	✓	✓	✓	✓	✓	✓	✓
Fail-to-Wire / Network Bypass	✓	✓	✓	✓	✓	✓	Server Dependent
Ecessa Insight Compatible	✓	✓	✓	✓	✓	✓	✓
Power	Adapter 100-240 Volt 50-60 Hz. 36 Watts	Adapter 100-240 Volt 50-60 Hz. 40 Watts	Integrated 100-240 Volt 50-60 Hz. 220 Watts	Integrated 100-240 Volt 50-60 Hz. 220 Watts	Integrated, Redundant, Hot Swappable 100-240 Volt 50-60 Hz. 300 Watts	Integrated, Redundant, Hot Swappable 100-240 Volt 50-60 Hz. 300 Watts	Server Dependent
Form Factor and Mounting Options	Desktop	1U	1U	1U	1U	1U	Virtual
Dimensions (WxDxH)	9.4"x6.5"x1.7"	9.1"x7.8"x1.7"	16.9"x16.3"x1.7"	16.9"x16.3"x1.7"	17"x18.4"x1.7"	17"x18.4"x1.7"	N/A
Part Number	WVDC-10	WVDC-20	WVDC-30	WVDC-40	WVDC-50	WVDC-60	WVDC-VI

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Unit specifications

Remote Solutions

	WANworX WVR-10	WANworX WVR-20	WANworX WVR-30	WANworX WVR-40	WANworX WVR-50	WANworX WVR-60	WANworX WVR-70
Redundant WAN Links Supported	Up to 3	Up to 15	Up to 15	Up to 25	Up to 25	Up to 25	Up to 25
Remote Sites (Tunnels) Supported	Up to 3	Up to 25	Up to 50	Up to 500	Up to 500	Up to 500	Up to 500
Traffic Throughput	150 Mbps	350 Mbps	750 Mbps	1.25 Gbps	4 Gbps	10 Gbps	20 Gbps
VPN Accelerator Card (Optional)						3 Gbps	4 Gpbs
Encrypted Throughput	75 Mbps	175 Mbps	450 Mbps	600 Mbps	2 Gbps	2 Gbps	2 Gbps
IDS/IPS/Firewall Throughput	100 Mbps	120 Mbps	250 Mbps	700 Mbps	800 Mbps	900 Mbps	1.6 Gbps
Maximum Recommended Users	50	100	200	400	700	1000	2000
Interface Speeds	10/100/1000 (Ethernet)	10/100/1000 (Ethernet)	10/100/1000 (Ethernet)	10/100/1000 (Ethernet)	10/100/1000 (Ethernet) 10 Gbps (Fiber or Copper)	10/100/1000 (Ethernet) 10 Gbps (Fiber or Copper)	10/100/1000 (Ethernet) 10 Gbps (Fiber or Copper)
Number of Ports	6 x 1G	6 x 1G	6 x 1G	6 x 1G	6 x 1G 2 x 10G SFP+	14 x 1G 2 x 10G SFP+	14 x 1G 4 x 10G SFP+
Intelligent Load Balancing	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound	Inbound & Outbound
Next Generation Firewall with IDS/IPS	✓	✓	✓	✓	✓	✓	✓
Built-in VPN (IPsec & SSL)	✓	✓	✓	✓	✓	✓	✓
Full Mesh Network Routing	✓	✓	✓	✓	✓	✓	✓
Full Authoritative DNS Server	✓	✓	✓	✓	✓	✓	✓
QoS Traffic Management	✓	✓	✓	✓	✓	✓	✓
Event Reporting (SNMP, netflow)	✓	✓	✓	✓	✓	✓	✓
High Availability (HA Support)	✓	✓	✓	✓	✓	✓	✓
Fail-to-Wire / Network Bypass	✓	✓	✓	✓	✓	✓	✓
Ecessa Insight Compatible	✓	✓	✓	✓	✓	✓	✓
Power	Adapter 100-240 Volt 50-60 Hz. 36 Watts	Adapter 100-240 Volt 50-60 Hz. 36 Watts	Adapter 100-240 Volt 50-60 Hz. 40 Watts	Integrated 100-240 Volt 50-60 Hz. 220 Watts	Integrated 100-240 Volt 50-60 Hz. 220 Watts	Integrated, Redundant, Hot Swappable 100-240 Volt 50-60 Hz. 300 Watts	Integrated, Redundant, Hot Swappable 100-240 Volt 50-60 Hz. 300 Watts
Form Factor and Mounting Options	Desktop	Desktop	1U	1U	1U	1U	1U
Dimensions (WxDxH)	9.4"x6.5"x1.7"	9.4"x6.5"x1.7"	9.1"x7.8"x1.7"	16.9"x16.3"x1.7"	16.9"x16.3"x1.7"	17"x18.4"x1.7"	17"x18.4"x1.7"
Part Number	WVR-10	WVR-20	WVR-30	WVR-40	WVR-50	WVR-60	WVR-70

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Virtual Product Performance Matrix

				Minimum Bi-Directional Throughput (Mbps)			
Processor	RAM (Gbytes)	Speed (GHz)	# of Cores	WAN-WAN	SD-WAN	VPN	Encrypted SD-WAN
Intel Core i5, i7, Xeon	4	2	4	980	360	280	225
			2	872	320	249	200
			1	776	285	222	178
		2.4	4	1150	420	325	250
			2	1024	374	289	223
			1	911	333	257	198
		2.8	4	1200	475	380	275
			2	1068	423	338	245
			1	951	376	301	218
		3.1	4	1500	1000	350	550
			2	1355	890	579	490
			1	1188	792	515	436

About Ecessa

Ecessa designs and manufactures networking hardware and software that provide constant and seamless network connectivity for businesses. The company's line of WAN controllers has over 10,000 field installations. Ecessa Edge®, PowerLink™ and WANworX® controllers enable organizations of all sizes to use any type of private or public network bandwidth to reliably run their Internet and cloud-based applications, connect their offices worldwide and distribute traffic among a fabric of multiple, diverse WAN links, ensuring business continuity by removing bottlenecks and eliminating network downtime. The company's SD-WAN technology optimizes security and Never Down® performance of business-critical applications, aids in lowering IT costs and makes it easier to provision, maintain and support business networks and the applications that run over them. Ecessa is a Pineapple Holdings, Inc. (Nasdaq: PEGY) company.

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