About AVANU

AVANU designs and develops products for the IT infrastructure and data center environments that are full-featured, high in performance, and affordable. AVANU adds value by placing customers first with a focus on easy product user interface and excellence in customer support services. AVANU's flagship product, the WebMux™ Network Traffic Manager, is an enterprise-class application delivery network load balancing solution for managing, controlling, and securing local network Layers 4-7 traffic.

AVANU® founded in 1997 and based in San Jose, California USA started as a computer network supplier and now is a privately held network infrastructure product developer with R&D, manufacturing, and production in the United States. Graduated from the U.S. SBA 8(a)/SDB program in 2015.

About and History of WebMux

During the rapid growth of the Internet sensation of the 1980's, an engineer in California saw the need for a product that was not yet available on the market to load balance network traffic among servers in a local network. He understood the complexities and the different methods for load balancing data packets to the desired destination and he wanted his product to handle it all, but also wanted the product interface design kept simple for easy configuration, installation, and maintenance on the network. In 1987, the concept and development of the WebMux product began by a company that later became CAI Networks in 1998 with the launch of its first commercial WebMux.

CAI Networks was driven by talented and highly aptitude engineers whose only mission was to develop a product that met the needs of their customers. Throughout the years they gained their outstanding customer service reputation just by listening and then delivering the product features and functions customers asked for all at a price that was affordable.

In 1999, one of the oldest United States scientific agencies discovered the WebMux product and tested it for their services to the United States Department of Defense. To this day, the WebMux products provide the pivotal role in managing, controlling, and securing these services.

Since 2001, AVANU was a key supplier of the WebMux product line.

In 2005 after extensive testing and validation, Microsoft chose WebMux as one of the first three hardware load balancer (HLB) to support its Unified Communications (UC) Office Live Communications Server (LCS) platform.

In 2007 Oracle® certified WebMux for their Application Server 10G product.

In 2010, the WebMux products provided the games contents delivery for China's Asia Games. The WebMux products were able to deliver and handle 9 GB/s of network traffic during the games.

As a supplier, AVANU successfully sold and installed thousands of WebMux hardware appliances into major corporations, educational institutions, U.S. government entities, hosting/co-lo businesses, and small/medium size businesses.

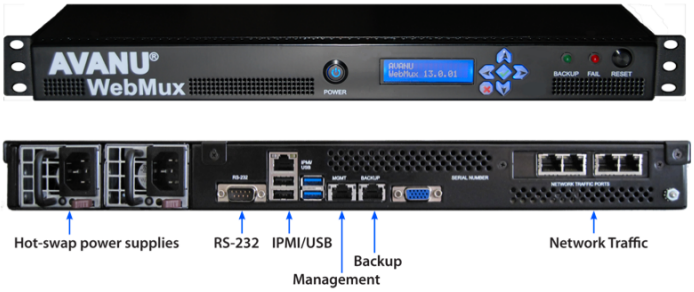
In late 2012, AVANU acquired the WebMux product line with key WebMux engineers joining AVANU to continue the flow of product development, enhancements, and customer service support.

In 2014, AVANU launched the AVANU WebMux Network Traffic Manager brand after a successful development stage of bringing WebMux up-to-date by adding new features and enhancements to the architecture platform along with higher performing hardware to support the new 64-bit architecture. AVANU was the first to introduce dual hot-swap power supplies on all models for higher reliability.

In 2015, AVANU launched the Virtual WebMux Network Traffic Manager, a software appliance to support Cloud computing environments.

Supported Platforms
- VMWare®
- Citrix XENServer®
- Microsoft® Hyper-V
- Oracle VirtualBox®
- XEN Project
- KVM (Kernal-based Virtual Machine)

In 2017, AVANU launched higher-performing WebMux network appliance models that meet a higher level SSL security and Federal Information Processing Standard (FIPS) compliance.



AVANU is the first to have application delivery network load balancing hardware appliances for all models in compliance with FIPS 140-2 Level 2 regulatory requirements with its digital monitoring and built-in physical intrusion protection. In addition, the new WebMux architecture was enhanced with newer higher performing components to support the accelerating uses and trends of the Internet for high reliability and performance.

AVANU's WebMux Network Traffic Manager is designed to deliver robust application delivery network load balancing with reliable high performance and scalability that is quick to deploy, easy to manage, provides fantastic value, and is affordable for all business sizes. The WebMux hardware appliances are built to last with solid-state design using high-grade brand server components.

AVANU's WebMux R&D, manufacturing, and production are based in the state of California, USA.

AVANU Contact

Web Site: avanu.com

Telephone: 1.888.248.4900 (US Toll Free); 1.408.248.8960 (International)
Product Information: Ext 201
Product Technical Support: Ext 202

Emails: mailto:info@avanu.com; mailto:techsupport@avanu.com

WebMux™ Network Traffic Manager

Manage, Control, and Secure Local Network Traffic for High Availability of Applications and Services

It is all about the user experience on your network and keeping everyone connected℠

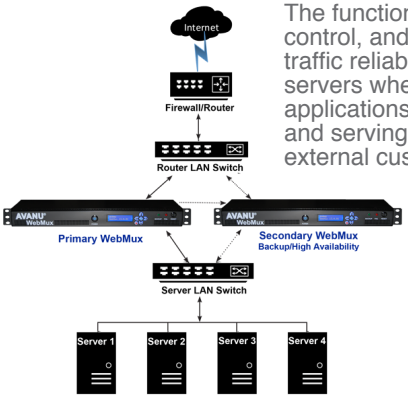
AVANU®

Enterprise-class Application Delivery Network Load Balancing Solution

Manage, Control, and Secure Local (Layers 4-7) Network Traffic for High Availability of Applications and Services
Reliable High Performance • Quick to Deploy • Easy to Manage • Fantastic Value • Affordable
Excellence in Customer Support

AVANU based in the United States develops and designs high quality products for IT infrastructures and data centers. The WebMux Network Traffic Manager is a full-featured and reliable high performing enterprise-class application delivery network load balancing solution that is affordable for all business sizes. It is designed to be quick to deploy and easy to manage.

WebMux acts like an applications doctor to keep your local network traffic in top condition to assure high availability with the applications and services your business offers.



The functions of WebMux are to manage, control, and securely deliver the local traffic reliably to the back-end network servers where the TCP/UDP IP applications and services are processed and serving your internal users and external customers.

TCP/UDP IP Applications and Services (Examples)

Unified Communications (unified messaging, instant messaging, presence information, voice/VoIP, mobility, audio/web/video conferencing, fixed-mobile convergence, desktop sharing, data sharing plus more)

E-Commerce • FTP Servers • Internet gaming • POP servers
IoT device services • Call centers • Social media
Terminal servers • Video streaming • Web servers
Internal operations (accounting, database record management, etc.)

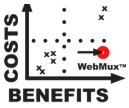
Some company offerings that are supported by WebMux include Microsoft Skype® for Business, Lync® Server, Exchange® Server, SharePoint®, Xbox® Live Games, Internet Information Services (IIS) for Windows® Server, Oracle WebLogic® Application Server, IBM WebSphere®, Pexip® Unity, Unify® Unified Communications to name a few.

Scalable Platforms

Virtual WebMux software appliances for Cloud computing network environments.

WebMux network hardware appliances for reliable robust high-performanace, plug-and-run deployment ease, and built to last quality with server-grade components.

WebMux Highlights



Affordable
High Return on Investment

- Full extensive load balancing features on all models
- Self-contained (no royalty or extra hidden costs)
- Cost savings on manpower hours time
- No certified training required for WebMux installation
- No costly script writing required to setup or maintain
- No additional maintenance contract required with purchase
- Purchases come with a full year of product technical support
- Network hardware appliances include two (2) years product warranty (parts and labor) and one (1) year of firmware updates

"Thank you to everyone for being persistent and hammering out solid products. We must have the most robust solution with the best throughput. I appreciate all of the effort."
System Engineering Division Chief, United States Federal Government

"Since partnering with AVANU, we have experienced seeing how AVANU has a dedicated focus to meeting their customers' real-life requirements. Our customers are very enthusiastic about AVANU's new WebMux platform."
Vice-President Systems Integrator

Contact Us Today!

1.888.248.4900 U.S. Toll Free
1.408.248.8960 International
info@avanu.com

General Information • WebMux Demonstration
Technical Pre- and Post Sales Support
Free Virtual WebMux Software Appliance for Evaluation

Commonly used market terms for local network load balancing solutions Application Delivery Network (ADN) Load Balancer, Network Traffic Manager (NTM), Application Delivery Controller (ADC), Load Balancer (LB), Hardware Load Balancer (HLB), Network Load Balancer(NLB), Server Load Balancer (SLB), and Local Traffic Manager (LTM).

www.avanu.com

Contact AVANU for features not listed or to request a demonstration

WebMux - Virtual Appliance	AVE-100	AVE-300	AVE-500	AVE-1000
Network Layers	4-7	4-7	4-7	4-7
O/S Processor Architecture (bit)	64	64	64	64
Load Balancing Network Traffic Throughput (Internet Link-max Gbits/s less any overhead)	1.0	3.0	5.0	10.0
Servers/Farm Support (Max-Real/Virtual)	4,999	4,999	4,999	4,999
Technical Support	1 Year	1 Year	1 Year	1 Year
FIPS-2 Level 1 Compliant	Yes	Yes	Yes	Yes
TAA Compliant (Developed in USA)	Yes	Yes	Yes	Yes
Factory Pre-configuration (optional)	Yes	Yes	Yes	Yes

WebMux - Network Hardware Appliance	A425	A525	A620	A625	A725	A825
Network Layers	4-7	4-7	4-7	4-7	4-7	4-7
O/S Processor Architecture (bit)	64	64	64	64	64	64
CPU Processor (Intel Xeon Cores/Threads)	Quad/4	8/16	10/16	10/16	14/28	18/36
Load Balancing Network Traffic Throughput (Internet Link-max Gbits/s less any overhead)	4.0	4.0	20.0	40.0	50.0	80.0
Network Type	Copper	Copper	Copper	Copper	Copper	Cooper
Network Port Connector Type	RJ45	RJ45	RJ45/SPF+	RJ45/SPF+	SFP28	QSFP+
Load Balancing Network Traffic Ports	4x 1GbE	4x 1GbE	2x 10GbE	4x 10GbE	2x 25GbE	2x 40GbE
IPMI Port	Yes	Yes	Yes	Yes	Yes	Yes
Management Port	Yes	Yes	Yes	Yes	Yes	Yes
ECC Memory (GB)	8	16	32	32	64	128
Solid State Drive (SSD)	Yes	Yes	Yes	Yes	Yes	Yes
Smart Temperature Control Fans	Yes	Yes	Yes	Yes	Yes	Yes
Power Supply (Hot-Swap, 400w)	Single/Dual	Single/Dual	Dual	Dual	Dual	Dual
Servers/Farm Support (Max-Real/Virtual)	4,999	4,999	4,999	4,999	4,999	4,999
Front LCD Panel (Quick Configuration)	Yes	Yes	Yes	Yes	Yes	Yes
Digital Intrusion Monitoring/Physical Detection	Yes	Yes	Yes	Yes	Yes	Yes
Chassis	1U	1U	1U	1U	1U	1U
Hardware Warranty	2 Years	2 Years	2 Years	2 Years	2 Years	2 Years
Technical Support	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
FIPS-2 Level 1, 2 Compliant	Yes	Yes	Yes	Yes	Yes	Yes
TAA Compliant (Developed & Manufactured in USA)	Yes	Yes	Yes	Yes	Yes	Yes
Factory Pre-configuration (optional)	Yes	Yes	Yes	Yes	Yes	Yes

WebMux Feature Highlights (Network Hardware and Virtual Appliance Models)

General Operations

- Application and Services Setup/Configuration Wizards
- Intuitive Web-based Graphical User Interface (GUI)
- Compression-Software
- HTTP Caching
- Health Checks (Applications and Services)

Network

- One-armed Single Network
- One-armed Direct Server Return (DSR)
- Two-armed Network Address Translation (NAT)
- Two-armed Transparent
- Active/Active WAN
- Active/Passive High Availability
- Adaptive Load Balancing
- Bonding/Teaming Ports (802.3ad/LACP)
- Content Encoding (HTTP Compression)
- Reverse Proxy
- Multiple Address and Port (MAP™)
- Multiple Gateway Network Failover
- Multiple VLAN Trunking (IEEE 802.1Q)

Load Balancing - Scheduling Algorithms

- HTTP to HTTPS Redirect
- Least Connection, Least Connection-Persistent
- Round Robin, Round Robin Persistent
- Weighted Fastest Response, Weighted Fastest Response—Persistent
- Weighted Least Connection, Weighted Least Connections—Persistent
- Weighted Round Robin, Weighted Round Robin—Persistent
- Dynamic Ratio
- Fixed Priority Pre-emptive Scheduling
- IP Persistence
- Layer 7 Persistence

Internet Protocol (IP) Support

- ASP
- Basic Layer 2 Protocols (ie. STP, MSTP, RSTP....)
- DNS
- FTP
- HTTP
- HTTPS (SSL/TLS; SNI-Server Name Indication
- IMAP
- IPv4/IPv6
- LDAP
- NNTP
- POP3
- RDP (Terminal Services)
- SMTP
- SNMP
- SSH
- Streaming Media
- TCP/UDP Applications and Services
- TFTP

Security and SSL

- Access Control List System
- Authentication - LDAP, TACACS+
- Automatic Attack Detection (AAD)
- Digital Monitoring/Built-in Physical Intrusion Protection (HW appliance)
- DoS/DDos Protection (Flood Control™ UDP/TCP level)
- IP Address Filtering
- SSL (FIPS 140-2 compliant)
- SSL Acceleration
- SSL Certificates (Third Party Support)
- SSL Certificate Signing Request (CSR)
- SSL Termination/Offloading
- SSL Encryption Strength (bits) 1024, 2048, 4096, 8192
- TCP Protocols Support
- Web Application Firewall (FireEdge™ for Apps WAF)

SUBJECT TO CHANGE WITHOUT NOTICE

AVANU®

The Application Delivery Network Load Balancer Market

How to Supercharge Your Network to Supercharge Your Bottom Line

What is an application delivery network (ADN) load balancer and why is it essential to the network infrastructure?

In the computer world, a local area network (LAN) is an entity's network infrastructure that connects local computers, computer servers or server farms, switches, routers, and firewalls that are commonly connected to the public Internet.

An ADN load balancer is similar to a router with the exception of having a specific role to manage, deliver securely, and reliably local network traffic (Layers 4-7) to and from the back-end servers/server farms.

Throughout the years there have been many terms used in the market to reference the basic functions of load balancing local network traffic. Here are a few common ones: application delivery network (ADN) load balancer, network traffic manager (NTM), application delivery controller (ADC), load balancer (LB), hardware load balancer (HLB), network load balancer (NLB), server load balancer (SLB), and local traffic manager (LTM).

For the purpose of this article, we are using the term ADN load balancer to address the question how it can supercharge your network to supercharge your bottom line.

Let's first take a closer look at how your company's network is crucial to the business operations where it could serve both internal and external users. What would be the consequences if your internal organization or external customers and prospects cannot connect to your network back-end servers where the applications are servicing their needs? One could only imagine the high frustration levels, whether it is connecting to your web site, having conversations through VoIP, social media interactions, streaming videos, playing games, managing IoT devices, or accessing internal accounting records, emails, database records, etc.

It makes good business sense to take a close look at the fundamentals of your network as today's livelihood highly depends on it.

The first question to ask, is your network always performing at its full potential even during peak traffic times, providing maximum service and availability for all your users? Second, have you considered the enormous hidden costs from a less than optimal performing network that may be eroding the company's bottom line? Negative impacts could include employees taking longer to do their work and existing or potential customers will lose patience and move to your competitors. These hidden cost dangers are easy to overlook, but could be dramatically reduced by making a wise change to your network infrastructure.

For a high positive payoff, it may be wise to consider a network upgrade by investing in an application delivery network load balancing solution. It will prevent the negative hidden cost effects by efficiently managing and delivering reliably and securely your users' data traffic to and from your internal back-end network of servers servicing their needs.

Here are a few examples and benefits of an ADN load balancer:

Performance: The traffic to servers is distributed among the server farm so that a site can handle more than a single server alone. Other features, such as SSL Offloading and HTTP cache, help reduce impact on server resources.

Scalability: After a server farm has been created, more servers can be still be added should more capacity be needed.

Redundancy/Fault Tolerance: A farm contains several servers that serve the same site. If a server should fail, a health check will detect the failed server and send requests to the remaining servers. Therefore, keeping all applications and services working.

Reduce Maintenance Downtime: Servers in a farm can be taken offline for maintenance without interrupting applications and services for the user.

There are many choices of application delivery network load balancer solutions. Ideally one will meet your local network load balancing requirements where its total net cost will not eat up the positive cost savings. To review your load balancing needs, here are some example questions to answer:

- What is the out-the-door price?
- Do I need certification and training to install it myself?
- Must I hire certified personnel to do the configuration and installation? How much does this cost in time and money?
- How easy is the product to maintain without having certified or trained personnel?
- Does the initial price include product configuration?
- Will the product meet my future requirements as my network evolves without paying extra for add-on features?
- Will the manufacturer charge for new product features added?
- What is the annual support and product registration cost?
- Are there annual royalty fees?

Some considerations are harder to quantify in monetary terms:

- What is the manufacturer's quality of service, both before and after purchase?
- What is the product's reliability reputation?
- How long has the product been on the market?

What about products with multiple functions that integrate load balancing with other services?

- Are there hidden unnecessary costs for the load balancing configuration?
- How fast can the load balancing function be up and running in the network?
- Do all product functions provide optimal performance for the network?
- What if one function of such a product fails, does it become a single point of failure for all its functions?
- Overall will you be paying more for the multi-functions' annual royalty and/or support services?

After you assess the possibilities for load balancing your local (Layers 4-7) network, it should become clear what meets your requirements and budget.

One reputable and excellent choice to consider is the WebMux™ Network Traffic Manager from AVANU®. WebMux has been proven and tested over time to be a powerful and reliable enterprise-class application delivery network load balancing solution. The product is self-contained and designed to be easy and fast to set up, configure, and manage without any special training or certifications.

In summary, AVANU's WebMux offers bottom line savings (product cost, time, labor, and maintenance) offering more performance value for a high return on investment.

AVANU offers scalable Virtual WebMux software appliances for cloud environments, as well as network hardware appliances for reliable high performing plug-and-run deployments to meet your load balancing and performance requirements.

For information on AVANU WebMux Network Traffic Manager, visit their web site at 'www[dot]avanu[dot]com; email 'info[at]avanu[dot]com; or call 1.888.248.4900 U.S. Toll Free Number; 1.408.248.8960 International.

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