Remote Service Appliance genubox

Facts & Features

Definition:
The genubox combines crypto and filter functionality with a compact application platform. It is developed for the remote management of single servers as well as complex industrial plants via unsecured networks. For the exchange of data, the appliance initializes VPN tunnels to the managed servers with strong encryption and authorization. Highly secure encryption algorithms such as AES are used.
An integrated stateful packet filter separates the maintained systems from the rest of the network, so that external access only is possible to the maintenance area.
The genubox application platform supports the implementation of custom applications for any location: monitoring and maintenance of machinery, electronic building control, or information processing e.g. to optimize data exchange over satellite connections.

Typical Use:
- Monitoring, remote control and maintenance of machinery like automation systems, printing machines, wind turbines, diesel engines of ships
- Remote administration of “Windows” server systems

Customer Service:
- Customer service directly from the manufacturer genua
- Security system management
- Hotline service / update service
- Free hardware support for three years from date of purchase
- Comprehensive training courses

Reasons to Choose genubox:
- A versatile platform for intelligent remote maintenance applications
- Strongly encrypted VPN data transfer
- SSH-based VPN to connect overlapping networks
- Connections via all terrestrial networks, and satellite
- Two factor authentification (Yubikey)
- User-friendly Windows app for convenient operation
- Remote access session can be monitored and recorded (RDP, SSH)
- Connection logging
- Redundant network access optionaly, e.g. with UMTS interface
- High availability through clusters
- High security standards guaranteed by the OpenBSD operating system
- Maintenance-free industrial hardware installed on DIN rails
- Easy integration of applications for machine monitoring, remote diagnosis, remote management access, tunnels for ASP applications, and preventive service systems
- Easy configuration via USB stick
- Administration of numerous appliances via Central Management Station genucenter

Reasons to Choose genua:
- Leading German specialist for IT security
- Founded in 1992 – implementation of numerous major projects for industrial, government, and military organizations

SecurITy made in Germany

Firewall

Stateful packet filter	State of the art firewall for manageable rulesets
Bridging firewall	Invisible firewall on the data link layer (layer 2)
Network Address Translation (NAT)	Masquerade networks behind one address
Quality of Service (QoS)	Guarantee service priorities
Queuing (traffic shaping)	Bandwidth management to control traffic volume
Traffic redirection	Forward public services to internal services
Filter criteria	Filtering decision can be based on IP address, network protocol, port, interface, flags and state
Filter action	Choice of packet handling: pass, block, drop
DDoS protection	Proxy for the TCP handshake protects services against TCP SYN floods used by DDoS attacks
Spoofing protection	Block forged packets
Packet normalisation	Reassemble fragmented packets, generate random IP identification, enforce IP header settings such as TTL and MSS
Enhanced protection	Privileged separation, sandboxing

Virtual Private Network (VPN)

SSHId	VPN on the protocol layer (layer 4, TCP)
IPsec	VPN on the network layer (layer 3)
Bridging IPsec	VPN on the link layer (layer 2)
L2TP	Support for Android, Windows, iOS, Mac OS X (layer 2)

IPsec VPN

General	
NAT-Traversal (NAT-T)	Supports connections between NATed devices
NAT for VPN	Connect locations with overlapping network ranges
High availability (sasync)	Synchronise security associations between multiple appliances to minimize failover outage
High performance replay protection	Increased replay windows
Operation Modes	
Tunnel mode	Entire IP packet is encrypted and encapsulated
Transport mode	Only the payload is encrypted
Network mode	Supports routing protocols such as OSPF over VPN connections
Layer 2 bridging	Use IPsec to connect two locations on layer 2
Transparent IPsec router	Encrypt your WAN traffic without changing your topology
IKEv2	Connect mobile or third party devices
L2TP	Support for Android, Windows, iOS, Mac OS X (layer 2)
Authentication	
RSA	De facto public-key standard
Elliptic curves	Fast key exchange
Pre-shared keys	Manually exchange secret pair of keys
PKI (X.509)	Use a certificate authority (CA) to verify keys
Algorithms	
Encryption	AES-128, AES-192, AES-256, 3DES, Blowfish, CAST

SSHId VPN

General	
Single TCP connection	Outgoing only, no problems with firewalls or NAT
Comes with NAT	Connect locations with overlapping network ranges
No interlinking	Easily prevent unwanted traffic
Compression	Increase net throughput
Operation Modes	
Bidirectional	Like any other VPN
One-direction	Offer centralised services to hundreds of branch offices (e.g. SAP)
Semi-bidirectional	E.g. allow printing at the branch office from central SAP server

Networking

General	
Redundant network access	Multiple uplinks
DNS	Enabling local DNS caching
UMTS/WLAN option	External UMTS or WLAN interface
NTP client	Obtain time from NTP servers
DHCP server	Automatically assign IP address to clients
DHCP relay	Forward DHCP queries to central DHCP server
VLAN	Supports virtual LANs to separate networks
Trunking	Aggregate multiple network interfaces on one virtual interface
PPPoE	DSL uplinks
IPv6	
Native IPv6	Fully IPv6 ready
Tunnelling	Use tunnelling to cross legacy IPv4 networks
NAT64	NAT between IPv4 and v6
Routing	
Policy based routing	Based on IP addresses/networks
Static routes	For small and easy setups
OSPFv2, v3	Popular routing protocol among large corporate networks
Virtual routing domains	Separate routing domains on one appliance
RIP	Routing Information Protocol
MPLS/LDP	Multiprotocol Label Switching/ Label Distributing Protocol

High Availability

Active-active with load balancing	Distribute load on several appliances depending on the source/destination IP address
Link aggregation	LACP: easy integration in a redundant/high-performance switch setup
Hot standby	Reserve appliance for automatic failover

Monitoring

System	System status (memory, load)
VPN	Supervise VPN connection status
NetFlow export	Monitor network traffic with the NetFlow protocol
SNMP, SNMPv3	Retrieve information via SNMP GET requests, or send SNMP TRAPs

Rendezvous

Secure	SSH Tunnels for remote maintenance
Full control	Communication must be launched from both sides
Operator GUI	Easy to use web interface to manage remote maintenance
Access authorisation	Assign or withdraw write access for maintenance engineer on the fly
Observe	Intercept cleartext on the rendezvous system
Isolate	Separate the target system from the rest of the network
Audit	Complete logging of all transactions

Extensibility

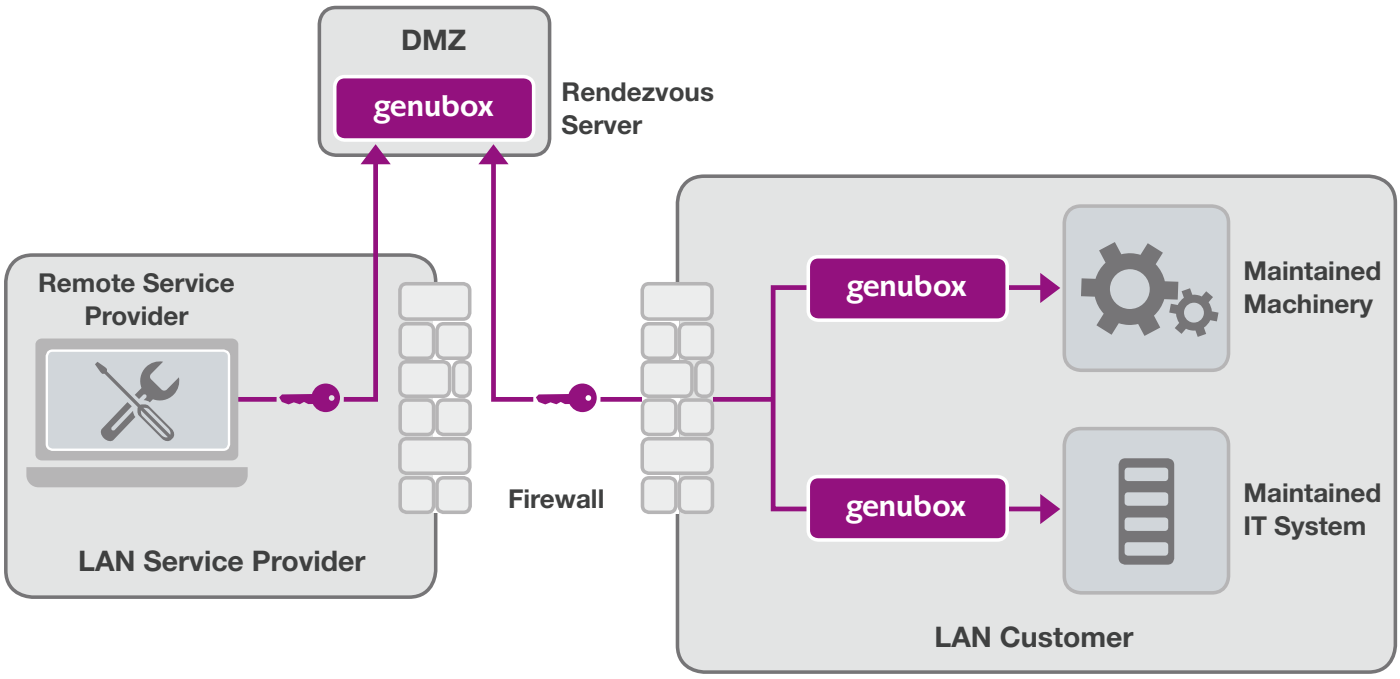
Optional modules	Cache (DNS, HTTP), URL filter
Application platform	Add your own custom software

Administration

General	
Web GUI	Powerful web-based user interface secured with TLS/SSL (HTTPS)
Online help	Instant help via user interface
Shell access	Local using console or serial interface, remotely using SSH
Cronjobs	Schedule jobs at specific times
Flexible configuration	Easily modify/add files to the system
USB update	Fix inaccessible systems with an USB stick
Patch Management	
GUI	Get and install patches via GUI
Automatic updates	Automate the process of fetching updates for the appliance
Patch rollback	Return to previous patch level
Logging	
Syslog	Use a third party syslog server to store logs
Hard drive	Use appliance hard drive for storage, if available
Memory	Logs are recorded in memory
Central	Use genucenter to concentrate the logs on one system
Debugging	
Network	Powerful command-line-tools: tcpdump, traceroute, ping, etc.
Firewall	Monitor firewall states, rules and logs
VPN	VPN connection status overview and problem analysis
Root shell	The shell offers full root access
Central Management	
Central Management	Easy administration of several (hundred) systems with Management Station genucenter

Application Example

Setup with Rendezvous in the DMZ of the Service Provider



Secure Remote Maintenance via Rendezvous in the DMZ

Companies with a large number of machines on the one hand, and providers of remote maintenance on the other, are faced with the need to set up an increasing number of remote maintenance connections. This means remote maintenance service providers need to have access to external company networks. This touches directly on the sensitive area of IT security: If unauthorized persons or malicious codes manage to hack into the LAN via this maintenance access, this can have serious consequences.

genua has developed a solution that allows you to keep a close eye on every maintenance access. The concept: One-way access to external networks is not permitted. Instead, at an agreed time, the remote maintenance provider and the customer create VPN connections to a server in a demilitarized zone (DMZ), i.e. outside their own networks. A continuous connection is created only once the rendezvous has been established on the server. This connection now allows the remote maintenance provider to access the machine that is being monitored. In this process, the maintenance connection allows access only to the machine being monitored, since the genubox uses its firewall function to isolate this area from the rest of the LAN.

This prevents any access to other areas of the external network. In addition, all activity is logged, so that access can be traced at all times. This rendezvous solution makes it possible for both service providers and companies to operate in a secure way as many remote maintenance connections as they like.

Further information:
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