clavister
PolarBearSeries

Clavister P80

Extreme performance firewall with excellent scalability and functionality

FEATURES AT-A-GLANCE

- High-end firewall supporting Unified Telecom Security (UTS) features, including 3GPP-compliant LTE Backhaul Security, Mobile Data Offloading and Gi/SGi Security
- Up to 120 Gbps of firewall performance housed in a 2U 19" rack appliance
- Modular architecture with six (6) Expansion Slots for added connectivity and/or crypto acceleration
- VPN Acceleration Modules boosts VPN performance up to 40 Gbps
- Lean and telecom optimized firmware ensures maximum up-time and robustness
- Robust and Reliable with capabilities to reach six nines (99,9999) availability

Clavister P80 Series is a high performance, turnkey appliance with a flexible set of Unified Telecom Security (UTS) features, including 3GPP-compliant LTE Backhaul Security and Gi/SGi Security.

The Clavister P80 Series, housed in a 2U 19" rack mount form factor, support carrier-grade robustness features, such as full hardware and software redundancy. It also comes with six (6) expansion slots, which can be fitted with interface and crypto acceleration modules.

This makes the Clavister P80 Series an ideal solution for Telecom security solutions with extreme requirements on performance and scalability.

Unified Telecom Security

LTE Backhaul Security

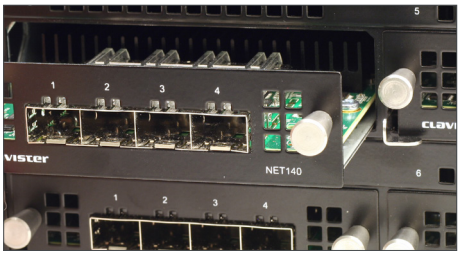
The Clavister P80 is optimized for securing the backhaul traffic in LTE/4G networks, thereby ensuring the safety of the telecom operators infrastructure and the privacy of the subscribers. Thanks to the high VPN performance and VPN tunnel density the Clavister P80 also offers supreme cost-efficiency and scalability in these scenarios.

Mobile Data Offloading

The Clavister P80 helps mobile carriers to offload high volumes of data from their 3G/4G infrastructures to a cost-effective WiFi infrastructure in a cost effective and secure way. Thanks to unique features such as Radius Relay and high firewalling capacity the transition can be smooth and future proof.

Gi/SGi Security

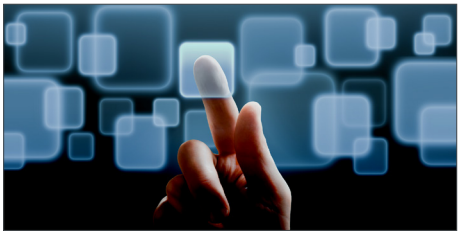
The flexibility with expansion modules combined with the high performance makes the Clavister P80 ideal for Gi/SGi Security in fast growing networks with high demands on throughput.



Designed for Flexibility

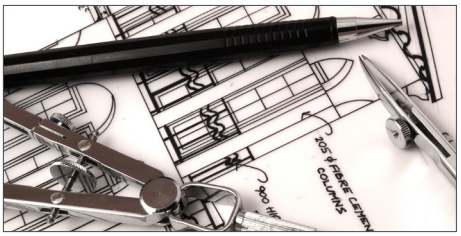
The Clavister P80 Series is equipped with eight (8) 1GbE (RJ45) built-in interfaces and six (6) additional modules slots. Currently there are two modules available: the 4 x 10GbE (SFP+) Interface Module and the VPN Crypto Accelerator Module.

This design ensures that the Clavister P80 offers maximum flexibility and allows it to be fine tuned to fit the needs for connectivity and VPN performance without having to replace entire systems as requirements changes.



Robust and Optimized for Telecom

The Clavister P80 is optimized for telecom operators in every aspect. The hardware platform itself is designed to be flexible, robust and high-performing and based on the latest technologies from Intel, including Intel Quick Assist for VPN Acceleration.



Service Availability and Up-Time

The software that empowers the Clavister P80 is, unlike most other products in the market, not cluttered with SMB features but is instead focused entirely on the needs within the telecom industry.

Instead of focusing on ad-hoc features rarely used in telecom network the Clavister P80 software has a strong focus on performance and various high-availability features.

This ensures highest possible up-time and service availability and minimal risk for inherited vulnerabilities.

Built to handle exponential data growth

Most telecom operators and mobile carriers are seing the same trend; Data and traffic volumes are growing exponential every year. Subsbscribers are expecting lightning fast connections with minimal latency to enjoy watching high quality media in real-time, lag-free video conferencing and voice calls with perfect sound.

This trend can put significant stress on infrastructure and operators must think carefully when investing in new network appliances.

The Clavister P80 has been designed with these performance needs in mind and offers market leading resource efficiency.

With a minimal footprint of two rack-units in height and 120 Gbps of firewalling performance telecom operators can secure their infrastructures without having to worry about building in bottle-necks that would require a fork-lift upgrade in just a few years.

In addtion to high firewalling performance the Clavister P80 also offers 30.000.000 concurrent connections and 40 Gbps of VPN Performance which makes it just as future-proof as it is robust and secure.

Thanks to the high performance and resource efficiency of the Clavister P80 it is also possible to build more centralized architectures, reducing the management complexity without having to worry about bandwidth issues any time soon.

Performance* and Capacity	Clavister P80
Firewall Performance (1518 bytes / 512 bytes)	120 Gbps / 75 Gbps
IPsec VPN Performance (1456 bytes / 512 bytes)	45 Gbps / 25 Gbps
Maximum Concurrent Connections	30,000,000
Maximum Concurrent IPsec VPN Tunnels	50,000
Maximum Number of Users	Unrestricted
Maximum Number of Routing Tables (Virtual Routers)	1,000

Connectivity	Clavister P80
Ethernet Interfaces	8 x 1GbE (RJ45) front-side, 2 x 1GbE (RJ45) back-side
Expansion Slot	Six (6) slot (4 high-speed and 2 half-speed) supports: 4 x 10GbE (SFP+), Crypto Accelerator
Interfaces for Management / High Availability (HA)	Yes, any Ethernet interface can be configured for Management/High Availability (HA)
Configurable Internal / External / DMZ Ports	Yes
Local Console Port	Serial Console – RJ45
Link Aggregation IEEE 802.1AX-2008 (Static/LACP)	Yes
Maximum Number of VLAN Interfaces IEEE 802.1Q	4,096
Support for High Availability (HA)	Yes
Service-VLAN Interfaces IEEE 802.1ad (Q-in-Q)	Yes

Product Specific Specification	
Form Factor / Rack Mountable	2U 19" rack mount / Yes
Dimensions (height x width x depth)	88 mm x 430 mm x 635 mm (3.46 in x 16.93 in x 25,00 in)
Hardware Weight / Package Weight	18 kg (39.68 lb) (single PSU fitted) / 25 kg (55.12 lb) (single PSU fitted)
Regulatory and Safety Standards	
Safety / EMC	UL, TUV, CCC, CB, BSMI / CE, FCC class B
Power Specifications	
Power Supply (AC)	100-240VAC, 50-60 Hz
Average Power Consumption	193 W
Redundant Power Supply	Yes, hot-swappable. **NOTE:** Unit ships with one (1) PSU
PSU Rated Power (W)	650 W (for each PSU)
Appliance Input	100-240VAC
Environmental	
Cooling	Tripple hot-swappable fan modules
Humidity	8% to 90% non-condensing
Operational Temperature	5° to 35° C (41° to 95° F)
Vibration (operating/non-operating)	
Shock (operating/non-operating)	
Warranty	All Clavister Polarbear Series products include a two (2) years standard RMA warranty.

* Maximum performance values based on the following configuration: Clavister P80 equipped with two Crypto Accelerator modules and three I/O modules (4 x 10GbE SFP+)

Product Features

Firewall	
Stateful Firewall	IPv4, IPv6
IP Policies	ALLOW, DROP and REJECT
IP Session Tracking	Stateful, Stateless
TCP Sequence Number Tracking / Scrambling	Yes / Yes
SCTP Session Tracking	Stateless
ICMP and ICMPv6 Echo Sequence Number Tracking	Yes
IP Blacklisting / Whitelisting	Yes / Yes
Threshold Rules	Flow Count, Flow Rate
Threshold Rule Actions	Audit, Drop, Random Drop, Reject, Blacklist
Threshold Rule Grouping	Source or Destination IP/Network/Interface
Ingress Filtering / IP Spoofing Protection	
Access Rules	IPv4, IPv6
Strict Reverse Path Forwarding (RPF)	Yes
Feasible RPF by using Interface Equivalence	Yes
Address and Port Translation	
Policy-Based	Yes
Dynamic NAT (Source) / Symmetric NAT	IPv4 / IPv4
NAT Pools	IPv4
Determistic NAT	IPv4
Port Block Allocation	IPv4
Static Source Translation	IPv4, IPV6
Static Destination Translation (Virtual IP / Port Forward)	IPv4, IPV6
NAT Hairpinning	Yes
Connectivity	
Ethernet Interfaces	1GbE, 10GbE
VLAN Interface, IEEE 802.1Q	Yes
Service-VLAN Interfaces, IEEE 802.1ad (Q-in-Q)	Yes
Configurable MTU	Yes
Routing	
Static Routing	IPv4, IPv6
Policy-Based Routing (PBR)	IPv4, IPv6
Virtual Routing (VR)	Yes
Multiple Routing Tables	Yes
Asymmetric Routing	Yes
Source-Based Routing	Yes
Route Failover	IPv4, IPv6
Route Monitoring Methods	ARP, ND, ICMP Echo, ICMPv6 Echo
IPv6 Router Advertisement	Yes
Dynamic Routing	
Route Import Filtering / Route Export Filtering	Yes / Yes
OSPFv2 Routing Process (RFC2328)	Yes, multiple
OSPFv2 RFC1583 Compatibility Mode	Yes
OSPFv2 over VPN	Yes
Interface IP Address Assignment	
Static	IPv4, IPv6
DHCPv4 Client	Ethernet, VLAN, Service-VLAN
IPv6 Stateless Address Auto Configuration (SLAAC)	Yes
IKE Config Mode	IPsec tunnels
Multiple IPv4 / IPv6 Addresses per Interface	Yes / Yes
Network Services	
DHCPv4 Server	Yes, multiple
DHCP Server Custom Options	Yes
IP Pool	IPv4
Address Resolution Protocol (ARP)	Yes
ARP Publish	Yes
Static ARP Entries	Yes
Proxy ARP	Yes
Neighbor Discovery (ND)	Yes
ND Publish	Yes
Static ND Entries	Yes
Proxy ND	Yes
Path MTU Discovery	IPv4, IPv6

Bandwidth Management (QoS)	
DSCP Forwarding	Yes
DSCP Copy to Outer Header	VLAN, IPsec
Static DSCP Assignment	VLAN, IKE, IPsec, Traffic Shaping
Dynamic DSCP Assignment	Traffic Shaping
ECN Propagation to Inner Header	IPsec
Traffic Shaping	
Policy-Based	IPv4, IPv6
DSCP-Based	Yes
Hierarchical Quality of Service (HQoS)	Yes
Traffic Limits / Guarantees / Prioritization	Bandwith (bps), Packet Rate (pps)
Application Layer Gateway (ALG)	
FTP	Allow, NAT, SAT
SIP	Allow, SAT
IPsec VPN	
Key Exchange	Manual, IKEv1, IKEv2
Roaming Client Tunnels	Yes
Hub-and-Spoke VPN	Yes
Subnet-to-Subnet VPN	Yes
NAT Traversal (NAT-T)	Yes
Dial-on-Demand	Yes
Routes to Remote Network	Manual, Automatic
Receive Interface Filtering	Yes
Virtual Routing (VR)	User Data, IKE, ESP
Policy-Based Routing (PBR)	User Data, IKE, ESP
Asymmetric Routing	Yes
Configurable MTU	Yes
IPsec Pass-through	Yes
IKE	
IKE Encryption	AES-128-CBC, AES-192-CBC, AES-256-CBC, 3DES-CBC
IKE Authentication / Integrity	HMAC-SHA1-96, HMAC-SHA-256-128, HMAC-SHA-384-192, HMAC-SHA-512-256, HMAC-MD5-96, AES-XCBC-MAC-96
Diffie-Hellman (DH) Groups	1, 2, 5, 14, 15, 16, 17, 18, 19, 20, 21
IKE Identity	IP, FQDN, E-mail, X.500 Distinguished-Name (DN)
Rekey	IKEv1, IKEv2, IPsec
SA Lifetime	Seconds
Perfect Forward Secrecy (PFS)	Yes
Dead Peer Detection (DPD)	Yes
IKE Config Mode	Client, Server
IKE Negotiation over	IPv4, IPv6
IKE Traffic Selectors	IPv4, IPv6
IPsec Security Association (SA) Granularity	Net
DSCP Assignment	Static
IKEv1	
Authentication	Pre-Shared Keys (PSK), X.509 Certificates, XAUTH
Phase 1	Main Mode, Aggressive Mode
Phase 2	Quick Mode
Initial Contact Notification	Yes
IKEv2	
Authentication	Pre-Shared Keys (PSK), X.509 Certificates, EAP
Pseudo-Random Function (PRF)	PRF-HMAC-SHA1, PRF-HMAC-SHA-256, PRF-HMAC-SHA-384, PRF-HMAC-SHA-512, PRF-HMAC-MD5, AES-XCBC-PRF-128
Certificates	
Self-Signed Certificates	Yes
Certificate Signature Algorithms	RSA, ECDSA-256, ECDSA-384, ECDSA-521
Certificate Authority (CA) Issued Certificates	Yes, e.g. VeriSign, Entrust
Certificate Requests	PKCS#1, PKCS#3, PKCS#7, PKCS#10
Certificate Revocation List (CRL) Protocols	LDAP, HTTP
CRL Distribution Points (CDP)	From Certificate, Static
CRL Fail-Mode Behavior	Conditional, Enforced
Certificate Management Protocols	CMPv2
IPsec	
IPsec Protocols	ESP
IPsec Modes	Tunnel
IPsec Encryption	AES-128-CBC, AES-192-CBC, AES-256-CBC, 3DES-CBC, NULL
IPsec Authentication / Integrity	HMAC-SHA1-96, HMAC-SHA-256-128, HMAC-SHA-384-192, HMAC-SHA-512-256, HMAC-MD5-96, AES-XCBC-MAC-96

IPsec Outer Protocol	IPv4, IPv6
IPsec Inner Protocol	IPv4, IPv6
IPsec Pre-Fragmentation	IPv4, IPv6
IPsec Post-Fragmentation	IPv4, IPv6
Don't Fragment (DF) Bit	Copy to Outer Header, Static
DSCP Assignment	Copy to Outer Header, Static
ECN Propagation to Inner Header	Yes
Replay Attack Prevention (Anti-Replay)	Yes
Traffic Flow Confidentiality (TFC)	Inbound
User Authentication	
Local User Database	Yes, multiple
RADIUS Authentication Protocols	PAP, CHAP, EAP
RADIUS EAP Header Verification	EAP-SIM, EAP-AKA/AKA', EAP-MD5
XAUTH IKEv1 Authentication	Yes
Security Management	
SSH/SCP Management	Password, Pre-Shared Keys (PSK)
Management Authentication	Local User Database, RADIUS
Command Line Interface (CLI)	Yes
Access Levels	Admin, Auditor
Remote Fail-Safe Configuration	Yes
Local Console (RS-232)	Yes
Scripting (CLI)	Yes
Packet Capture (PCAP)	Yes, with filters
System Upgrade	SSH/SCP. From version 2.10.00 and later
System and Configuration Backup	SSH/SCP
SNTP Time Sync Client	NTPv3 (RFC1305), NTPv4 (RFC5905)
Configurable Time Zone	Location, UTC offset
Automatic Daylight Saving Time (DST) Adjustment	Yes
Monitoring	
Syslog	Yes, multiple servers
Real-Time Log (CLI)	Yes, filter
Log Settings per Policy	Yes
SNMPv2c Polling / Traps	Yes / Yes
Real-Time Performance Monitoring	CLI, SNMP
Key Metrics Monitoring	Yes, e.g. CPU Load and Memory
Hardware Key Metrics Monitoring	Fan Speeds, CPU and System Temperatures, Voltages, PSU Status, etc
High Availability	
Active Node with Passive Backup	Yes
Shared Virtual IP	IPv4, IPV6
Firewall Connection State Synchronization	IPv4, IPV6
IKE and IPsec State Synchronization	IPv4, IPV6
User State Synchronization	Yes
DHCPv4 Client State Synchronization	Yes
DHCPv4 Server State Synchronization	Yes
Configuration Synchronization	Yes
Device Failure Detection	Yes
Dead Interface Detection	ARP, ND
Average Failover Time	< 800 ms

Specifications subject to change without further notice.
Specifications in this document is based on cOS Stream 3.00.00.

About Clavister

Clavister (NASDAQ: CLAV) is a leading security provider for fixed, mobile and virtual network environments. Its award-winning solutions give enterprises, cloud service providers and telecoms operators the highest levels of protection against threats, with unmatched reliability. Clavister's performance in the security sector was recognized with the Product Quality Leadership Award from Frost & Sullivan. The company was founded in Sweden in 1997, with its solutions available globally through its network of channel partners. To learn more, visit www.clavister.com.

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