Field-programmable gate arrays (FPGA) make exceptionally fast signal processing possible. genua’s new VPN gateway for securely encrypted high-speed transfers of larger quantities of data makes use of this advantage.

genuscreen 40G VPN is based on the Firewall & VPN Appliance genuscreen. The dedicated 40G VPN interface focuses solely on throughput and latency.

As a VPN concentrator, genuscreen 40G VPN ensures that – especially in complex VPN structures – branch locations, offices and external properties can be connected to an appliance in the data center with very low latency and very high speed.

### Reasons to Choose genuscreen 40G VPN

- True 2 x 40 Gbit/s, low latency (≤ 20 μs)
- Arbitrary packet mix
- Full-duplex line speed
- Up to 1024 simultaneous connections
- Approved for classification levels German VS-NfD, NATO RESTRICTED, and RESTREINT UE/EU RESTRICTED
- Simple and fast integration in existing ecosystems

### Typical Use

**Interconnection of data centers**
- Interconnection with 2 x 40 Gbit/sec high-speed
- Encryption on layer 3 in accordance with IPsec standard

**VPN concentrator**
- Use in central data centers for the termination of up to 512 bidirectional VPN connections
- Connection of branch offices

### Customer Service

- Customer service directly from the manufacturer
- Security system management
- Hotline service/update service
- Comprehensive training courses
# Excellence in Digital Security

## High-Performance Ports

### Operation Modes
- **Tunnel mode**: The entire IP packet is encrypted and encapsulated
- **Layer 2 bridging**: Use IPsec to connect two locations on layer 2

### Algorithms
- **Encryption**: AES256-GCM with full 16 byte integrity check

### Performance / Speed
- **2 x 40 Gbit/s**: Full-duplex line rate (constant throughput for all packet mixes)
- **Clients**: Can act as a high-speed concentrator for up to 512 bidirectional connections

## Standard Ports

### NAT traversal (NAT-T)
Supports connections between NATed devices

### NAT for VPN
Connect locations with overlapping network ranges

### High availability (sasync)
Synchronize security associations between multiple appliances to minimize downtime

### High-performance replay protection
Increased replay windows

### Operation Modes
- **Tunnel mode**: The entire IP packet is encrypted and encapsulated
- **Network mode**: Supports routing protocols such as OSPF over VPN connections
- **Transparent IPsec router**: Encrypt your WAN traffic without changing your topology

### Algorithms
- **Encryption**: AES-128, AES-192, AES-256, 3DES, Blowfish, CAST

### Performance / Speed
- **10G**: Full-duplex line rate
- **2048 clients**: Capability to concentrate of up to 2048 remote clients using one appliance in the data center, providing complete protocol support from genuscreen

## General

### 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
- **IKEv2**: Connect mobile or third-party devices

### Networking
- **Redundant network access**: Multiple uplinks on standard ports
- **DNS**: Enable 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**: Support virtual LANs to separate networks on the standard ports
- **Trunking**: Aggregate multiple network interfaces on one virtual interface on the standard ports
- **PPPoE**: DSL uplinks on the standard ports
### Administration

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web GUI</td>
<td>Powerful web-based user interface secured with TLS/SSL (HTTPS)</td>
</tr>
<tr>
<td>Online help</td>
<td>Instant help via user interface</td>
</tr>
<tr>
<td>Shell access</td>
<td>Local access using console or serial interface, remotely using SSH</td>
</tr>
<tr>
<td>Cronjobs</td>
<td>Schedule jobs at specific times</td>
</tr>
<tr>
<td>Flexible configuration</td>
<td>Easily modify/add files to the system</td>
</tr>
<tr>
<td>USB update</td>
<td>Fix inaccessible systems with a USB stick</td>
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</tbody>
</table>

### Patch Management

<table>
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<tbody>
<tr>
<td>GUI</td>
<td>Retrieve and install patches via GUI</td>
</tr>
<tr>
<td>Automatic updates</td>
<td>Automate the process of fetching updates for the appliance</td>
</tr>
</tbody>
</table>

### Logging

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Syslog</td>
<td>Use a third-party syslog server to store logs</td>
</tr>
<tr>
<td>Hard drive</td>
<td>Use appliance's hard drive for storage, if available</td>
</tr>
<tr>
<td>Memory</td>
<td>Logs are recorded in memory</td>
</tr>
<tr>
<td>Central</td>
<td>Use genucenter to consolidate the logs on one system</td>
</tr>
</tbody>
</table>

### Debugging

<table>
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<tbody>
<tr>
<td>Network</td>
<td>Powerful command-line tools: tcpdump, traceroute, ping, etc.</td>
</tr>
<tr>
<td>VPN</td>
<td>VPN connection status overview and problem analysis</td>
</tr>
<tr>
<td>Root shell</td>
<td>The shell offers full root access</td>
</tr>
</tbody>
</table>

### Central Management

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Central Management</td>
<td>Easy administration of several (hundred) systems with Central Management Station genucenter</td>
</tr>
</tbody>
</table>
Use Cases

Secure, High-Speed Interconnection of Data Centers

- Interconnection of data centers or locations with 2 x 40 Gbit/sec
- IPsec-standard-compliant encryption on layer 3 (network layer)
- If necessary, two networks can be bridged on layer 2 (data link layer); encrypted frames remain routable thanks to encapsulation in IP and IPsec ESP header
- Connection and backup of two data centers or locations
- Connection of external backup data centers in separate fire zones across property lines
- High-availability and geo-redundant data centers must be 200 km apart according to the directive of the German Federal Office for Information Security (BSI)

High-Speed Location Connection with VPN Concentrator

- Use in central data centers for the termination of a large number of VPN connections
- Connection of external properties, offices or locations with 2 x 40 Gbit/sec high-speed and very low latency

Further Information:
www.genua.eu/genuscreen-40g-vpn