



## HALTDOS ROBIN TECHSPECS

| Base Models   | HD-RBN-4100   | HD-RBN-4600               | HD-RBN-5100               | HD-RBN-5120               | HD-RBN-5400               | HD-RBN-6200               |
|---|---|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| <b>MITIGATION PERFORMANCE</b>                                     |   |                           |                           |                           |                           |                           |
| Throughput Range  | upto 4 Gbps   | upto 24 Gbps              | upto 48 Gbps              | Upto 48 Gbps              | upto 64 Gbps              | upto 120 Gbps             |
| SSL / TLS Connections per Second                                  | 22K (RSA 2K)<br>15K (ECC)   | 40K (RSA 2K)<br>25K (ECC) | 40K (RSA 2K)<br>25K (ECC) | 40K (RSA 2K)<br>25K (ECC) | 95K (RSA 2K)<br>48K (ECC) | 95K (RSA 2K)<br>48K (ECC) |
| SSL Throughput  | 4 Gbps  | 20 Gbps                   | 40 Gbps                   | 40 Gbps                   | 50 Gbps                   | 100 Gbps                  |
| TCP Connection Tracking   | 1M – 4M   | 4M – 10M                  | 10M – 15M                 | 40M – 50M                 | 10M – 25M                 | 20M – 35M                 |
| Induced Latency   | < 50 microseconds (µs)  |                           |                           |                           |                           |                           |
| <b>HARDWARE SPECS</b>   |   |                           |                           |                           |                           |                           |
| Processor   | Intel Xeon  | Intel Xeon                | Intel Xeon                | Intel Xeon                | Intel Xeon                | Intel Xeon                |
| CPU Cores   | 12  | 24                        | 32                        | 32                        | 40                        | 48                        |
| Memory  | 32 GB   | 64 GB                     | 64 GB                     | 128 GB                    | 96 GB                     | 128 GB                    |
| Hard Disk   | 256 GB SSD  | 512 GB SSD                | 1 TB SSD                  | 1 TB SSD                  | 2 TB SSD                  | 2 TB SSD                  |
| Additional Specs  | Built-in TPM Chip and Hardware HSM for SSL offloading & compression optimization<br>Option available for FIPS-140-2 (additional charge) or Non-FIPS compliant HSM |                           |                           |                           |                           |                           |
| Form Factor   | 1U/2U Rack Mount Server (19 inch mounting)  |                           |                           |                           |                           |                           |
| Power Supply  | Redundant Power Supply (Hot Swappable) AC 170-240V, 50 Hz   |                           |                           |                           |                           |                           |
| Operating Temperature   | 0° – 40° C  |                           |                           |                           |                           |                           |
| Humidity  | 8% - 95% (non-condensing)   |                           |                           |                           |                           |                           |
| <b>Hard Disk and Memory can be customized over the base model</b> |   |                           |                           |                           |                           |                           |
| <b>INSPECTION PORTS</b>   |   |                           |                           |                           |                           |                           |
| 1 GE Ports  | 8   | 8                         | 4                         | 4                         | -                         | -                         |
| 10 GE Ports   | 2   | 4                         | 4                         | 4                         | 8                         | 8                         |
| 25 GE Ports   | -   | -                         | -                         | -                         | -                         | -                         |
| 40 GE Ports   | -   | -                         | 2                         | 2                         | 2                         | 4                         |
| 100 GE Ports  | -   | -                         | -                         | -                         | -                         | -                         |
| <b>No. of ports can be customized over the base model</b>         |   |                           |                           |                           |                           |                           |
| <b>OUT OF BAND PORTS</b>  |   |                           |                           |                           |                           |                           |
| 1 GE (RJ-45) Ports  | 2   | 2                         | 2                         | 2                         | 2                         | 2                         |
| Console (RS232/RJ45) Ports  | 1   | 1                         | 1                         | 1                         | 1                         | 1                         |
| HA Ports (RJ-45/SFP/SFP+)   | 1   | 1                         | 1                         | 1                         | 1                         | 1                         |
| Input/Output (USB)  | 2   | 2                         | 2                         | 2                         | 2                         | 2                         |
| <b>TECHNOLOGY, CERTIFICATION &amp; SUPPORT</b>                    |   |                           |                           |                           |                           |                           |
| Platform  | HaltDOS Platform – hdPlatform (EAL 2+ Certified)  |                           |                           |                           |                           |                           |
| Technology  | Signature with Threat Intelligence, Machine Learning  |                           |                           |                           |                           |                           |
| Bandwidth License   | Bandwidth capping on provided license. Upgrade possible without hardware replacement upto max supported bandwidth on hardware                                     |                           |                           |                           |                           |                           |
| Additional Licenses   | Optional license for WAF, DDoS, SLB & DNS Firewall  |                           |                           |                           |                           |                           |
| Certification   | FCC, ROHS, CE compliant, Common Criteria EAL 2+   |                           |                           |                           |                           |                           |
| Support   | 24x7 Support with dedicated Account Manager   |                           |                           |                           |                           |                           |
| Warranty  | 1 year software and hardware maintenance  |                           |                           |                           |                           |                           |
| TAC Support   | TAC support in India  |                           |                           |                           |                           |                           |
| <b>OPERATION MODE</b>   |   |                           |                           |                           |                           |                           |
| Network Operations  | Inline L3   |                           |                           |                           |                           |                           |
| IP Stack  | Dual IPv4 & IPv6 stack  |                           |                           |                           |                           |                           |
| IP Fragmentation  | IP defragmentation & TCP stream assembly  |                           |                           |                           |                           |                           |
| Jumbo Frames  | Yes   |                           |                           |                           |                           |                           |
| Tunnelling Protocols  | VLAN, MPLS, GRE, L2TP, GTP, IPinIP  |                           |                           |                           |                           |                           |
| Dynamic Routing Protocols   | BGP, OSPF, RIP v1, RIP v2   |                           |                           |                           |                           |                           |
| Link Aggregation  | Support for link bundling via LACP  |                           |                           |                           |                           |                           |
| <b>HIGH AVAILABILITY</b>  |   |                           |                           |                           |                           |                           |
| Multiple Appliances   | N + 1 Active - Active or Active – Passive with VRRP equivalent  |                           |                           |                           |                           |                           |
| Management Modes  | Standalone / Centralized Management (VM or appliance) with HaltDOS Hawk   |                           |                           |                           |                           |                           |
| Secure Communication  | Secure communication between centralized management and HA appliances for state synchronization   |                           |                           |                           |                           |                           |
| <b>INTEGRATION FEATURES</b>                                       |   |                           |                           |                           |                           |                           |
| Custom Threat Intel   | Integration with 3 <sup>rd</sup> party Threat Intelligence (TI) feeds   |                           |                           |                           |                           |                           |
| Storage and Export  | Local retention of logs, reports and events. Support for export to 3 <sup>rd</sup> party storage  |                           |                           |                           |                           |                           |
| NIMS Integration  | Support for SNMP, NTP / SNTP, DNS, Web Proxy integration  |                           |                           |                           |                           |                           |
| Notification Integration  | Notification & Logging via SNMP, SMTP, SMS Gateway and 3 <sup>rd</sup> party integration via API hooks  |                           |                           |                           |                           |                           |
| SIEM Integration  | Support for integration with SIEM and Syslog services   |                           |                           |                           |                           |                           |
| AAA Integration   | Support for integration via RADIUS and TACACS+  |                           |                           |                           |                           |                           |
| Identity Management   | Inbuilt with support for integration with AD / SAML / LDAP  |                           |                           |                           |                           |                           |
| <b>MANAGEMENT FEATURES</b>  |   |                           |                           |                           |                           |                           |
| Graphical User Interface (GUI)                                    | Secure web interface over HTTPs with support for all modern browsers  |                           |                           |                           |                           |                           |
| Command Line Interface (CLI)                                      | Command Line Interface over SSH or console port   |                           |                           |                           |                           |                           |
| API Integration   | Yes (XML or JSON)   |                           |                           |                           |                           |                           |
| System Management   | IPMI 2.0 Compliant  |                           |                           |                           |                           |                           |
| Logging   | Centralized logging of system, services, MIS, incidents   |                           |                           |                           |                           |                           |
| Dashboards  | Real-Time & historical dashboards with custom duration. Support for custom dashboards   |                           |                           |                           |                           |                           |
| System Status Dashboard   | Status dashboard for 1-click health check   |                           |                           |                           |                           |                           |
| Reporting   | Periodic daily, weekly or monthly reports in PDF or Excel   |                           |                           |                           |                           |                           |
| RBAC Administration   | Configurable user profiles with role based access control   |                           |                           |                           |                           |                           |
| Backup  | Automatic or manual backup and restore  |                           |                           |                           |                           |                           |
| Policy Management   | On the fly configuration updates on mitigation appliances   |                           |                           |                           |                           |                           |
| Events / Alerts   | Detailed event and alert reporting on attack, health, etc.  |                           |                           |                           |                           |                           |
| Forensic  | Network forensic and packet capture capability for traffic examination and diagnosis  |                           |                           |                           |                           |                           |
| HaltDOS Threat Stream   | Periodic threat intel updates (Signatures, Geo IP, Bad IP, TOR IP, Anon Proxy, etc.) from HaltDOS   |                           |                           |                           |                           |                           |
| Updates   | Update and upgrade management on version releases and patch updates from HaltDOS  |                           |                           |                           |                           |                           |
| <b>LLB FEATURES</b>   |   |                           |                           |                           |                           |                           |

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| Load Balancing Algorithms                              | Round robin (RR), weighted round robin, minimum packet loss, persistent hash, tuneable hash, least connections, least response time, least bandwidth, minimum jitter, etc. |
| NAT Rules  | Support for static NAT, dynamic NAT, SNAT, DNAT, PAT, Full NAT   |
| Health Monitoring                                      | Link monitoring with instant failover (<1s). Support for TCP, HTTP, DNS, ICMP or script based monitoring   |
| Routing Rules  | Custom rules for Static and Policy based routing   |
| Dual Stack Lite  | Support for NAT 46 / 64 and DNS 46 / 64 with DNS Proxy   |
| Traffic Shaping  | Traffic shaping and QoS on inbound and outbound links  |
| <b>GSLB FEATURES</b>                                   |  |
| Global Load Balancing                                  | Routing traffic across multiple data centers based on health checks  |
| Local Load Balancing                                   | Outbound WAN link selection based on link health   |
| Operation Mode   | Option for Authoritative or Recursive operational modes  |
| Routing Rules  | Custom rules for Static and Policy based routing   |
| Network Mode   | Support DNS over HTTP, UDP, TCP & SSL as well as DNSSEC  |
| DNS Firewall   | Protecting DNS infrastructure from bot attacks   |
| <b>DDOS MITIGATION FEATURES (ADDITIONAL LICENSING)</b> |  |
| Comprehensive Protection                               | Layer 3 to Layer 7 protection covering Network, Protocol, Application, Reflection / Amplification and 0-day DDoS attacks   |
| DDoS Detection & Mitigation                            | Attack detection & mitigation in less than 18s and 10s respectively  |
| Block Actions  | Drop Packet, Terminate Connection (RST), Blacklist (temporary or permanent), Send Challenge (TCP, HTTP, DNS), Rate Limiting  |
| Hybrid DDoS Integration                                | Support for integration with Halted Cloud Scrubbing or ISP clean pipe services   |
| Bi-Directional   | Support for both inbound and outbound traffic protection   |
| Deep Packet Inspection                                 | Protection against malformed packets (TCP, UDP, ICMP, Ping of death, DNS, HTTP, SIP, SNMP, IPv4, IPv6, Fragmented packets, etc.)   |
| Enforce RFC Compliance                                 | Protection against misbehaving clients sending invalid or out of state packets   |
| Bot Protection   | Automatic detection and blocking of bot traffic with support for manual bot policy   |
| Behaviour Analysis                                     | Network behaviour analysis for anomaly detection and packet scoring technology   |
| Multiple Security Profiles                             | Support for multiple security profiles for enforcing different policy for different sub-networks (Src, Dst IP Prefix, VLAN)  |
| Rate Limit & QoS Management                            | Rate limit capability for bandwidth and QoS management   |
| Blacklist / Whitelist                                  | Support for temporary or permanent Blacklisting and Whitelisting based on IP, IP prefix, domain, country, etc  |
| Malicious Source Protection                            | Protection against TOR IP, Bad Reputation IP / domain, dark IP, malicious Bots, proxies, resolvers, etc  |
| Custom Signatures                                      | Support for user defined custom rules with support for REGEX and byte matching   |
| SYN Flood Protection                                   | TCP SYN flood protection with SYN Proxy and connection aging   |
| Challenge & Response                                   | Support for TCP, HTTP, DNS challenge and response for validation of traffic from suspicious sources  |
| Connection Based Protection                            | Protection against TCP connection DDoS attacks such as sockstress, connection / src, zombie flood, SSL renegotiations, etc   |
| DNS Protection   | Built-in DNS firewall capability for protecting DNS infrastructure against DNS DDoS attacks (Water Torture, NXDomain, etc.)  |
| L7 DDoS Protection                                     | Protection against low & slow attacks such as Slowloris, R.U.D.Y., slow HTTP GET / POST, etc   |
| Machine Learning Protection                            | Automatic learning counter measures and dynamic signature creation upon attack detection   |
| Signatures for Known Vulnerabilities                   | Built-in rules for known vulnerabilities (server, web, mail, FTP, SIP, SQL, DNS, etc.)   |

Version: v6.1

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