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30 years of telecom
Solutions for the All-IP Network

Adax Security Gateway - SEG+

Low-Cost, High-Bandwidth, Highly-Scalable, Carrier-Grade Solution for Wireless Networks

Introduction

Adax SEG+ is a complete Security Gateway product for 3G and 4G wireless networks in a fully integrated 1U or 2U appliance that secures the connection between untrusted networks and the core. With up to 80Gbps of IPsec traffic the Adax SEG+ delivers performance, reliability and scalability in a complete, carrier-grade, Security Gateway solution. The on-board switch provides up to 16 x 1G or 4 x 10G interfaces to the network and dual 10G or dual 40G connectivity to the core without the need for an extra switch blade or module. High-Availability solutions are also available where system or network interface redundancy is required. The Adax SEG+ enables standards-compliant authentication, confidentiality and data integrity, and with hundreds of proven IPsec implementations Adax provides the advanced levels of protection, reliability, and performance mandated by OEM customers, MNOs and MVNOs.

Robust Security Performance through Hardware Acceleration

Adax SEG+ implements the most current IPsec security features including MOBIKE, IKEv2, TCP/IP firewall, IPv6/IPv4 support, and 64-bit platform support. Pre-integration with the Cavium Octeon II high-speed security processors on the Adax blades and boards provides the hardware acceleration essential for performance-critical security algorithms and protocols.

SEG+ Benefits

- Complete carrier-grade security solution in a box or on a card
- Highly scalable solution from 1U/10G to 2U/80G of IPsec traffic
  - Larger system options also available
- Integrated on-board switch delivers:
  - 16 x 1G or 4 x 10G interfaces to the network
  - Redundant 10G or 40G interfaces to the core
- High performance and throughput with Adax hardware acceleration of IPsec
- 40G interfaces to the core simplify network design
- Robust and reliable carrier-grade solution with High Availability option
- Complete IPsec cryptography and authentication
- Standards-Based VPNC certified interoperability
- Support for the latest industry standards resulting in future proof security implementations
- Secure mobility with support for MOBIKE*

* Future option

Applications

The Adax SEG+ provides robust, high-speed, security functions for a variety of applications including:

- Small Cell Networks for both 3G and 4G
- Home Node-B and Home eNode-B Gateways
- Wi-Fi Networks
- LTE-EPC
- Test and Simulation Tools
- M2M

Complete Telecom Security Solution

The Adax SEG+ provides a complete, standards-compliant IPsec implementation including IPsec cryptography algorithms such as AES, DES, 3DES, RSA, SHA-1, SHA-2, MD5, Diffie-Hellman, ECDH, ECDSA, and PKI.

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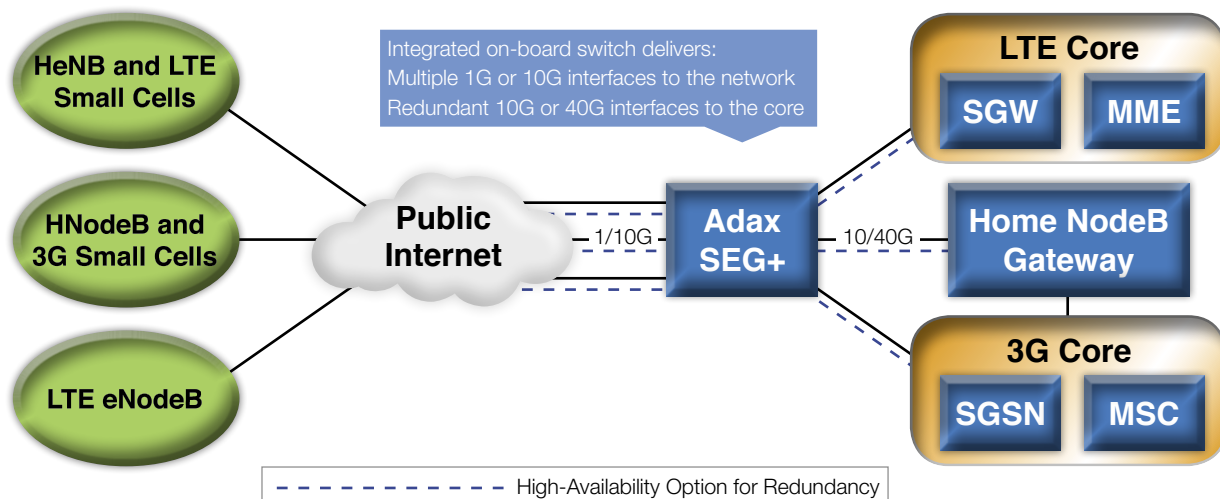
Multiple Hardware Options

The integrated solution of the APR2 and Pkt2-AMCs in a complete 1U or 2U system delivers the perfect Security Gateway appliance. Multiple 1G or 10G interfaces and dual 10G or 40G connectivity to the core is built in with the on-board switch. The aggregation of multiple 1G or 10G network interfaces in to the 40G connectivity to the core simplifies network configuration and management without the need for an extra switch blade or module. Remote monitoring and management is also included using a simplified shelf manager for temperature and fan control.

The Adax Security Gateway appliance provides robust, high-speed, security functions and packet processing and control and data plane services can be added for telecom applications. The result is excellent system performance and unparalleled ease of network integration in a cost-effective 1U or 2U platform that delivers all the advantages of ATCA at a significantly lower price point.

In addition to the complete 1U or 2U SEG+ the Adax Security Gateway software is also available on the Adax APR2 ATCA Packet Processing blade and individual AMC and PCIe modules for integration across a broad range of platforms including ATCA, Rack Mount Servers and Blade Servers.

Running standard Linux makes for ease of portability between the platforms and applications. The result is excellent security system performance and unparalleled ease of integration with any network node.

Complete Scalability

Adax SEG+ scales extremely well using the multi-core architecture of the Adax hardware and includes remote access features and high-availability of IPsec Security Associations for node redundancy and failover. The small runtime footprint with linear deterministic memory allocation ensures seamless scalability to meet the highest performance demands. The 1U and 2U systems are standard but larger systems are also available for complete scalability.

Performance Data

	Low-End	High-End
VPN encryption/decryption	Up to 4 x 10G or 16 x 1G	Up to 8 x 10G or 32 x 1G
Concurrent Connections	20 million	150 million
Concurrent VPN Tunnels	200,000	1.5 million
IKE Simultaneous set-up and tear-downs	320/sec	2,560 (8x320)
IKE Staggered set-up and tear-downs	2000/sec	16,000 (8x2000)

Specifications

Complete IPsec Cryptography
- AES, DES, 3DES, RSA, SHA-1, SHA-2, MD5, Diffie-Hellman, ECDH, ECDSA, PKI IKEv2 Policy Manager (RFC 5996)
- Dual-mode IKEv2/IKEv1 policy manager with:
  – Auto-negotiation and IKEv1 fall-back features
  – MOBIKE (RFC 4555, RFC 4621)
  – Multiple authentication support (RFC 4739)
  – Dead peer detection
  – Re-keying

Authentication
- Robust IKEv2/v1 authentication with:
  – X.509 certificates
  – XAUTH
  – EAP
  – Pre-shared keys

Remote Access Support
- Built-in IP address allocation
- NAT and NAT Traversal
- EAP authentication with multiple methods:
  – EAP-SIM
  – EAP-AKA
  – EAP-MD5
  – EAP-TLS
- RADIUS server authentication

Other Features
- IPv4 and IPv6 support
- High availability APIs import/export of IPsec SAs
- Stateful TCP/IP firewall with attack prevention
- ALG framework with example implementations for common protocols (HTTP, SIP, FTP, CIFS)
- IPCOMP with the deflate algorithm
- Support for OCF (Open Cryptographic Framework)
- Support for Linux 4K kernel stacks

Platform Support (see separate datasheets for full specifications)
- Adax 1U and 2U Application Ready Platforms
- Adax PacketRunner2, Pkt2-AMC and Pkt2-PCIe

Hardware Acceleration
- Cavium Octeon II on Adax PacketRunner2, Pkt2-AMC and Pkt2-PCIe boards

All specifications are subject to change without notice. SEG+ 1014/05

Adax is an industry leader in high performance packet processing, security, and network infrastructure for the All-IP network delivering a highly flexible set of protocol controllers, packet processing boards, software protocols, and integrated systems. Adax meets today's challenges of performance, scalability, cost-effectiveness and high availability with solutions for LTE networks and beyond whilst reducing CAPEX and OPEX.