AEP Systems

Federal PKI Technical Working Group

June 2003

Company Background

- **Founded: 1998**
- **Employees: 62**
- **The marriage of two companies:**
  - Baltimore Technologies Hardware Group (Zergo) (Security)
  - AEP Systems (SSL Acceleration)
- **Headquarters: Dublin, Ireland. US Headquarters: Boston, MA**
- **Sensitive Crypto Products Developed in the UK at a government cleared secure facility**
- **Regional Offices: Hong Kong, Palo Alto & UK**
- **Core Intellectual Property: Evolved from experience in cryptographic accelerator and hardware security technology**

Mission Statement

To deliver hardware security and acceleration solutions that are fast and cost-effective to deploy

AEP SureWare Range
PK Enabling Products

- **AEP SureWare Keyper**

  Hardware security modules that offer security and performance for protected key storage, high-speed signature and hardware key generation

- **AEP SureWare A-Gate: AG-50**

  SSL VPN hardware appliances that provide secure and authenticated access from any Internet browser to internal applications

- **AEP SureWare Net: Net ED20M, Net EC20M**

  High security VPN encryptors that protect IP traffic across WAN & LAN networks

- **AEP SureWare Runner: Runner 1000 / 2000 / S1000**

  Acceleration hardware that off-loads compute-intensive cryptographic functions from a server

Customers

European Commission

REUTERS .com

Ministry of DEFENCE

Microsoft

Raytheon

BALTIMORE™
www.baltimore.com

MasterCard International

MasterCard

AEP-SureWare Keyper

- **AEP-SureWare Keyper Professional**
  - Network attached
  - FIPS 140-1 level 4
  - ITSEC E3
  - PKI applications such as Baltimore UniCERT, MS Certification Services, ValiCERT OCSP, Kyperpass OCSP, Netscape CA, RSA CA
  - General crypto applications via industry standard PKCS#11, MS CSP or JCE (Java) interfaces

- **AEP-SureWare Keyper PCI**
  - PCI card
  - FIPS 140-1 level 3
  - PCI variant of Professional
  - PCI card removal detection

AEP-SureWare Certification / Tamper Detection

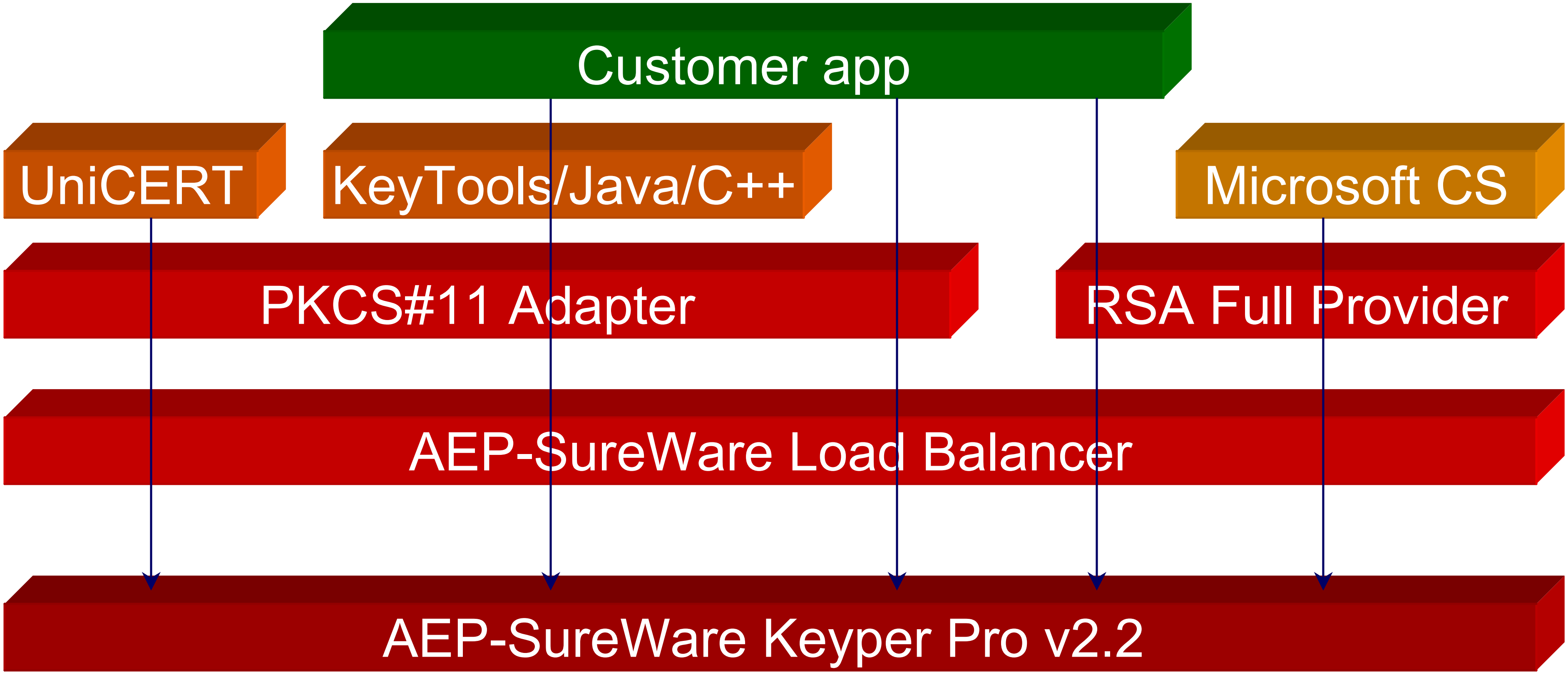
- **FIPS 140-1 L4**
  - Mesh: penetration attack
  - Power detection
  - Temperature outside 0 to 45 degrees C

- **FIPS 140-1 L3**
  - No mesh: potted or enclosure removal detection
  - Power detection
  - Temperature outside 0 to 45 degrees C

AEP-SureWare Keyper Features

- **Standard crypto facilities**
  - Sign/verify
  - Key wrap/unwrap (can be securely switched on/off)
  - Bulk encrypt/decrypt/MAC/verify
  - 512 to 2048 bit RSA, 56 to 168 bit DES, DSA, DH
  - Key policy determines key use
  - Hardware random number generator – full entropy
  - SHA-1/MD-5
- **Key Store**
  - 500 2048 bit or 1,000 1024 bit RSA keys
- **Performance**
  - 150 1024 bit RSA signs/sec
- **Authorized key backup/restore**
- **Security Officer ‘user’ groups**
- **Up to 16 balanced by load**
- **Fault tolerant/peak load/scaleable (with AEP-SureWare Load Balancer)**
- **Secure firmware update**

AEP-SureWare Keyper Professional Application Support

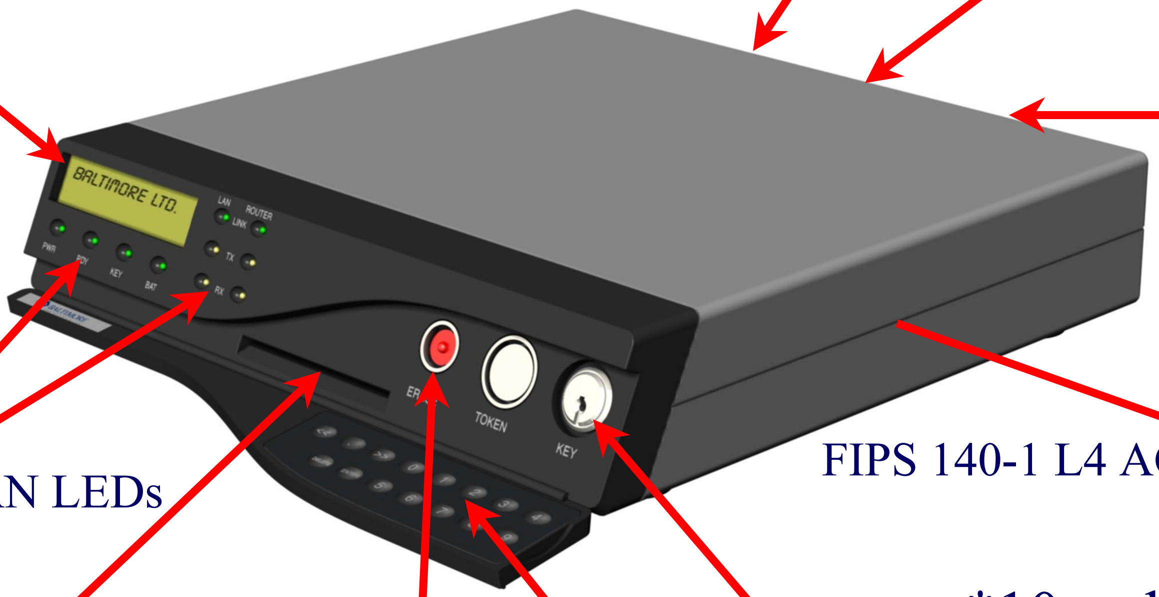


AEP systems

AEP-SureWare Keyper Professional Platforms

- **Sun Solaris (on SPARC)**
  - v2.6 (32 bit)
  - V2.7 (unofficial, customers do use with this successfully)
  - v8 (32 and 64 bit)
  - V9 (planned)
- **Hewlett-Packard (on PA-RISC)**
  - HP-UX v11 (32 and 64 bit)
- **Microsoft Windows (on Intel)**
  - NT4 (On Intel)
  - 2000
  - XP Pro (32 bit)
  - .Net Server (32 bit)
- **Java**
  - Solaris (32 bit) & Windows (32 bit) with Baltimore's KeyTools product

AEP-SureWare Keyper Professional Hardware



V24 compatible diagnostics port

2x16 LCD

10/100 FD/HD ethernet

Erase key button

FIPS 140-1 L4 ACCE module inside

Ready, alert, LAN LEDs

ISO 7816 smart card reader

Restart button

Key switch

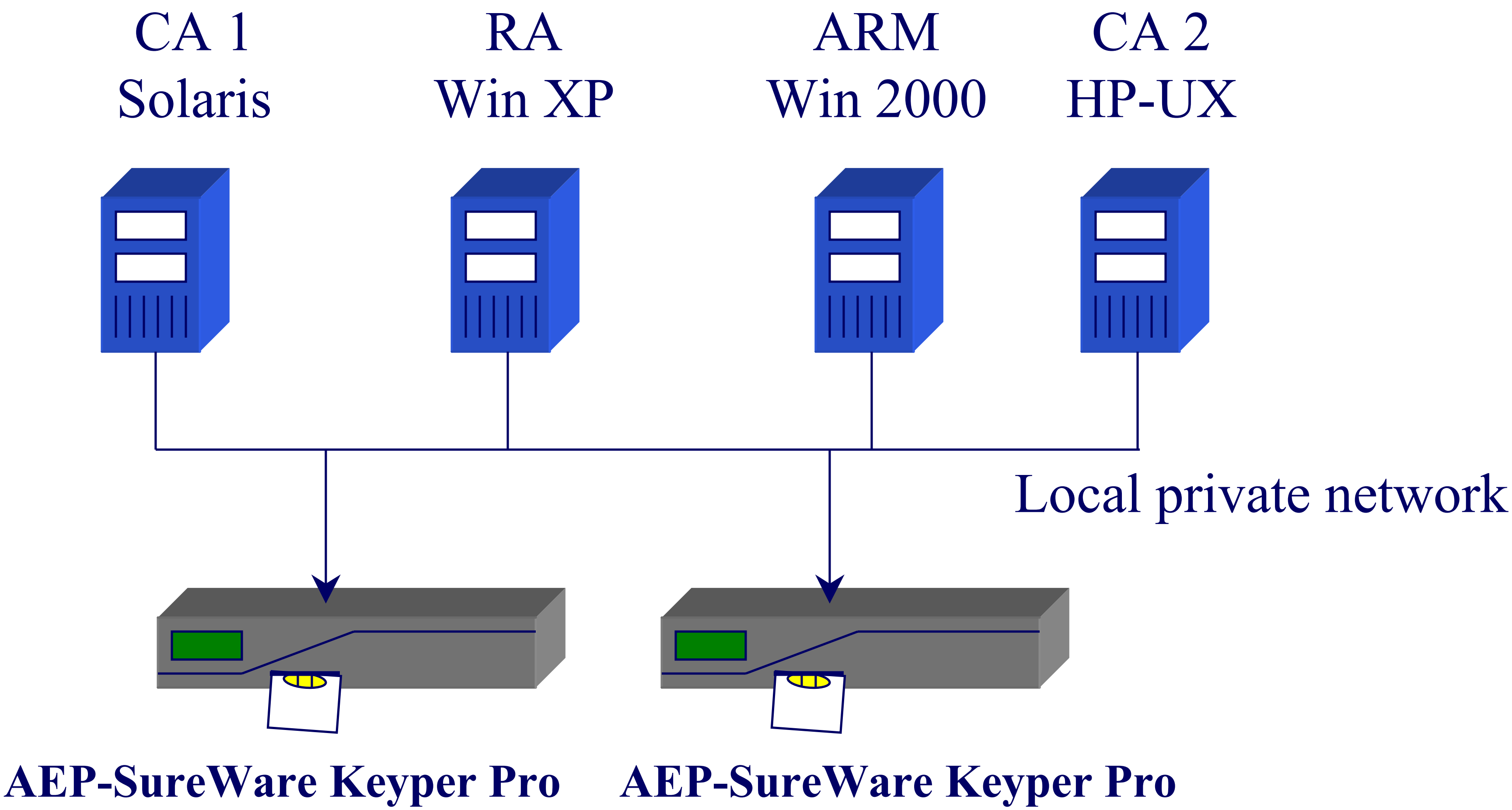
Fold up keypad

*10 yr battery life

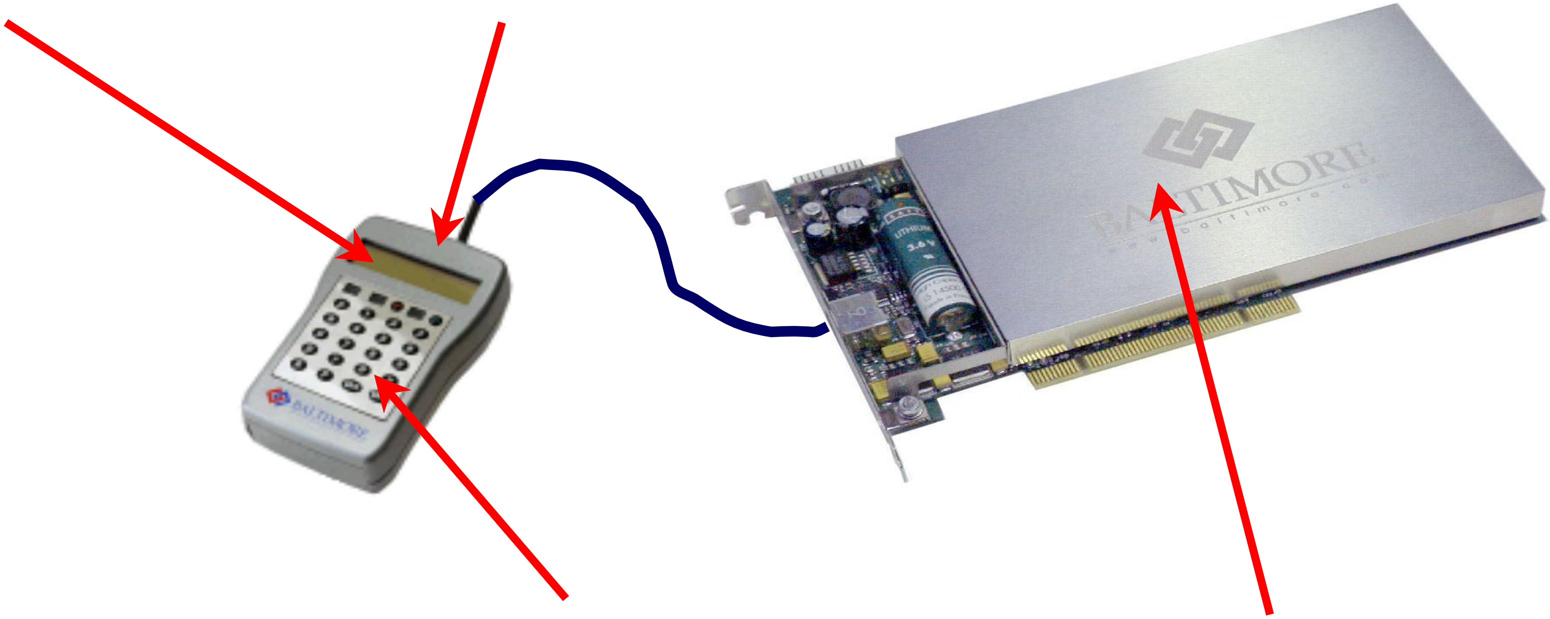
*External PSU

*Rack mount option

AEP-SureWare Keyper Professional Deployment



AEP-SureWare Keyper PCI



2x16 LCD

ISO 7816 smart card reader

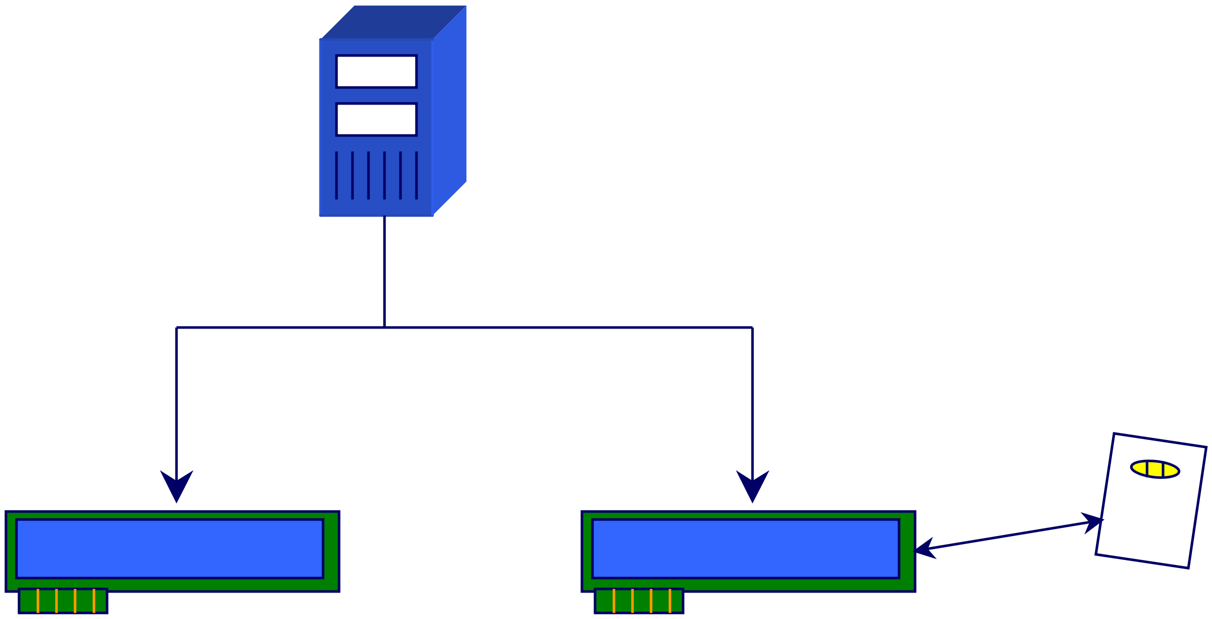
Keypad

FIPS 140-1 L3 ACCE module

*10 yr battery life

AEP-SureWare Keyper PCI Deployment

Application



AEP-SureWare Keyper PCI

AEP-SureWare Keyper PCI

Why AEP SureWare Keyper?

- The only FIPS 140-1 Level 4 HSM
- Proven track record with over 1,000 network instalations
- Support for industry leading applications
- Support for Solaris & Windows, PKCS#11, MicroSoft CAPI, and Java JCE
- Secure key storage, back-up, and recovery
- Hot removal, scalable up to 16 boxes
- Fault tolerant and load balancing

AEP SureWare Net

- High security product targeted at Public Sector SBU and high value Finance industry solutions
-
- Purpose-designed to meet stringent Government security standards
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- Purpose-designed to meet Managed Service Providers’ requirements
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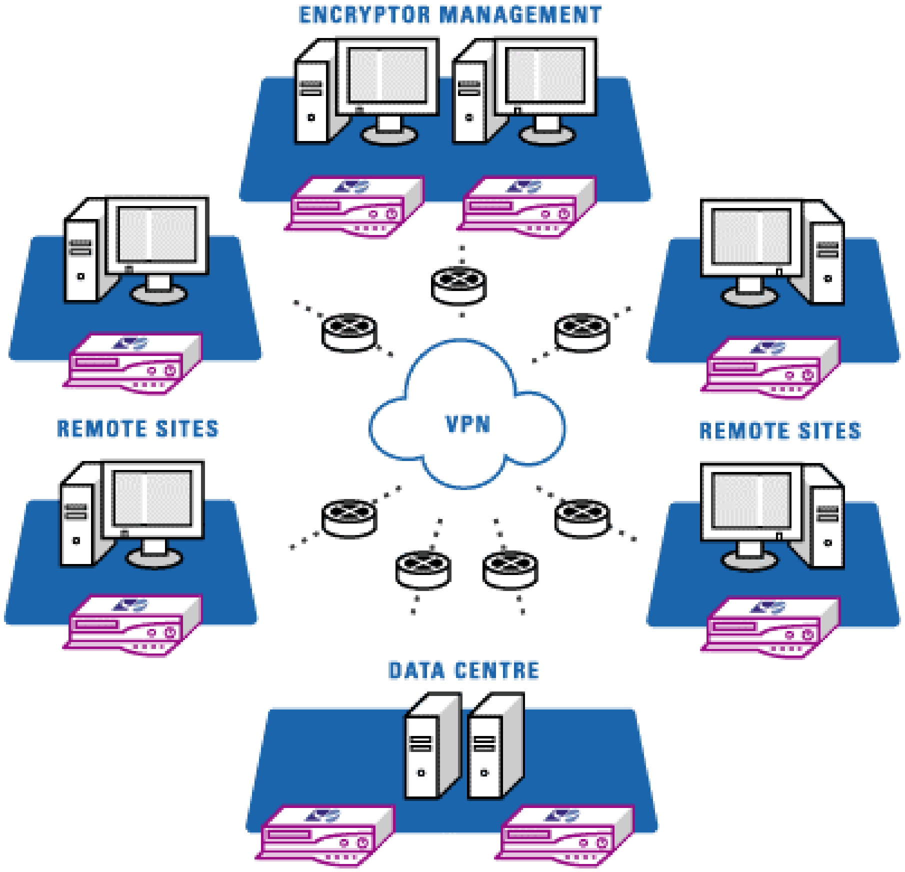
- Network integration and central management functionality designed to minimise implementation and running costs

AEP SureWare Net VPN Encryption



Network Security Gateway Encryption

- Fully Managed IP encryption
- Full PKI Key Management
- Separate Network Management
- IPSEC ESP Tunnelling
- Ethernet Full Wire Rate Performance

Key Features

- **Key Management**
  - On-Line CA
  - Encryptor generated Public/Private key pairs
  - Encryptor generated traffic keys
- **Security Policy Implementation and Enforcement**
  - Certificates
  - Certificate Revocation
  - Encryption network configuration
  - Encryptor configuration
- **Algorithms can be updated**
- **Subnet Support**
  - Up to 10 sub-nets per encryptor
- **QoS enabled**
- **NAT, SNMP,DHCP**
  - Network protocol support

Value Added Functionality:

•Independently assured defence against active network attacks

• Aggressive payload, trojan horse, spoofing, replay, man-in-the-middle

•Defence against availability attacks

•Resistant to swamping

•Control of end-user network access capability

Formal Approvals:

•CAPS*

•ITSEC E3

•DIPCOG**

•Crypto kernel assessed to FIPS 140-1(4)

•EU Council of Ministers assessment

•European Commission assessment

*UK Government Approval Scheme

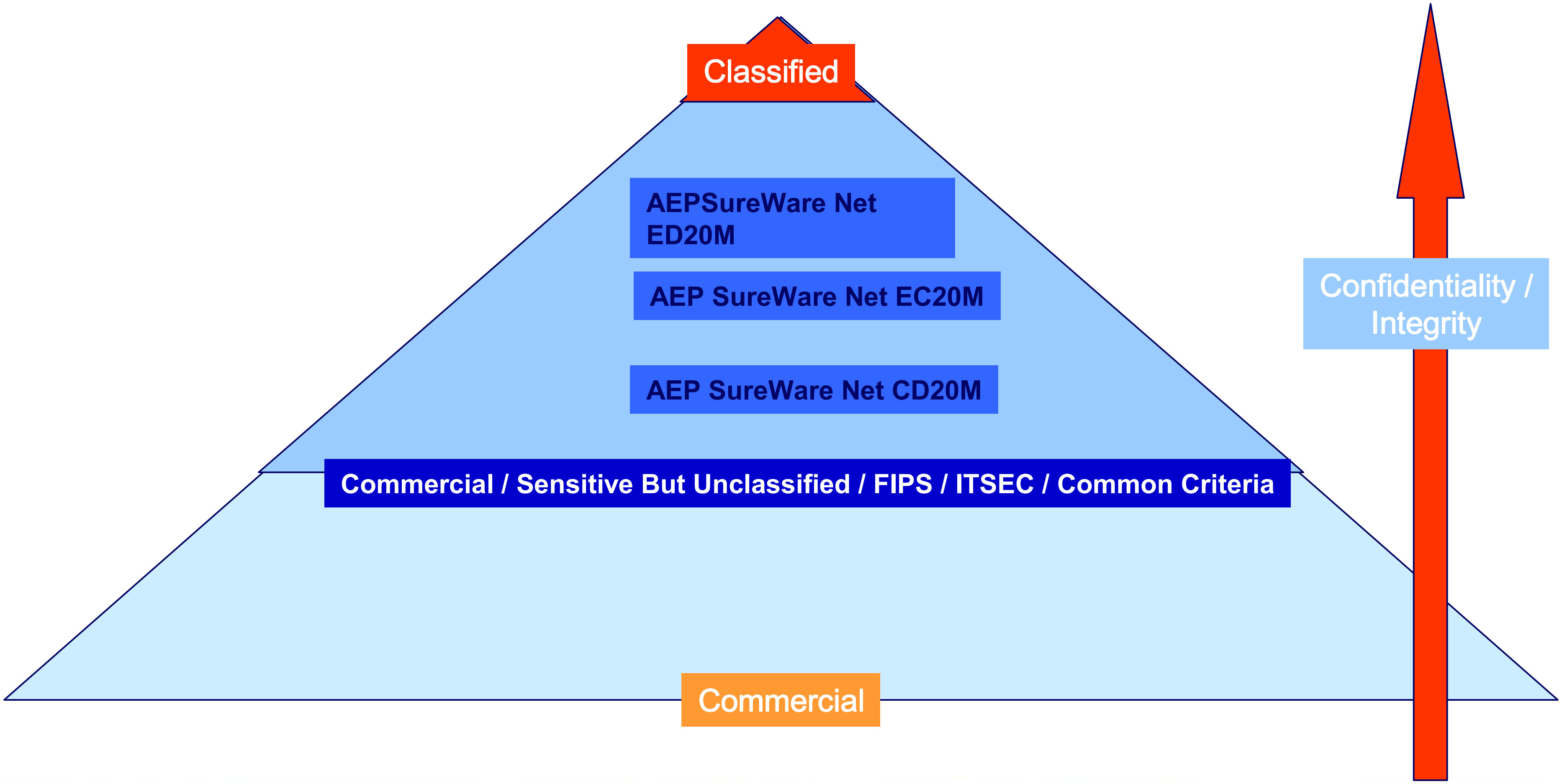
**UK Ministry of Defence Approval Scheme

AEP SureWare Net Users

- Defence Departments
- Defence Industry
- National and International Government
- National and International Criminal Justice Agencies

- Reference sites:
- 2 UK National Criminal Justice Networks
- Pan European Criminal Justice Network
- Pan European Diplomatic Network
- Pan European Government Infrastructure Network

The Security Pyramid



Classified

AEPSureWare Net ED20M

AEP SureWare Net EC20M

AEP SureWare Net CD20M

Commercial / Sensitive But Unclassified / FIPS / ITSEC / Common Criteria

Commercial

Confidentiality / Integrity

AEP SureWare Net for the US Market

- Established high-security encryption system designed and built in the United Kingdom
- Deployed on Classified and SBU systems in Europe
- New type of COTS Product
- Purpose built to meet government standards
- AEP Systems commitment to FIPS
  - one of only 3 manufacturers to have a Level 4 certified product

AEP SureWare A-Gate

- **Secure SSL VPN Appliance**

  Next generation security appliance for secure remote access
- **Authenticated Access**

  Provides secure and authenticated access between internal Web/RDP servers and Web browsers
- **Industry Protocols**

  Encrypts communications using SSL
- **Simplified Usage**

  Easier to use and set up than a traditional VPN
- **Flexible Deployment**

  Supports more user access scenarios

Save Time & Money

- **Simplifies usage & deployment of secure remote access**
  - Allows authorized out-of-office staff to connect to corporate resources securely from anywhere at anytime
  - Enables secure partner access with no impact or access requirements on partner systems
- **Reduces IT spend**
  - Reduces deployment time and management overhead typically associated with traditional VPNs
  - Negates floating laptop requirement for occasional travellers

Benefits and ROI

- **Lower TCO than traditional IPsec VPN***
  - 40% savings over IPsec VPN in year 1
  - 30% savings over IPsec VPN in subsequent years
- **Reduced hardware costs**
  - No need for floating laptops for occasional travelers
    - Typical SME would have 5-10 spares
  - Light users (e.g. e-mail only) can operate without laptops
- **Rapid Deployment**
  - Notify user of URL
  - Use existing enterprise authentication schemes
  - Avoid costs of retrofitting systems to support secure access

•Produced by the Yankee Group
http://www.yankeegroup.com

SureWare A-Gate as a PK Enabler

- Provides secure authenticated access to corporate resources from anywhere
- Minimal administration required to configure and deploy secure remote access
- Routine maintenance can be carried out remotely
- One-time cost. No further investment needed post-deployment
- Integrates with existing network and PKI systems
- Extend enterprise applications to employees, business partners and customers

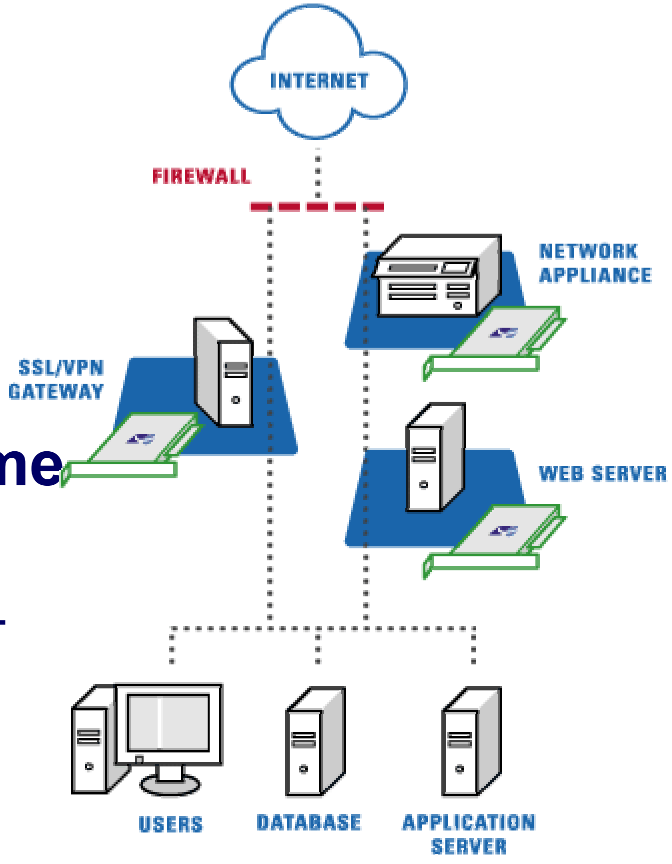
SureWare Runner

- **An SSL accelerator used to offload the processing of secure transactions from a server or appliance**

- **Why?**
  - Because SSL processing is CPU intensive
  - Servers providing SSL connections spend over 90% of their processor time handling cryptography *(source : RSA)*

What Does AEP SureWare Runner do?

- **Reduces IT spend**
  - Less servers needed to process SSL
  - Smaller data center
- **Improves customer response time**
  - Increases the processing time for SSL
- **Delivers more CPU resource to applications**



Benefits

- Easy-to-deploy
- Offers good price performance
- Extensive OS & API support
- Multiple form factors
- HP and Microsoft ‘Designed for Windows’ certified

Return on Investment

- **Reduces IT Spend**
  - Improved ROI from existing hardware

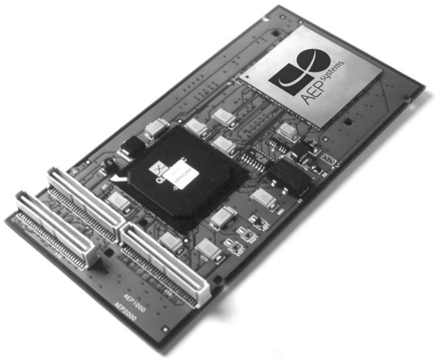
- **Alleviates server bottlenecks**
  - Better server response times
  - Better customer experience

- **Allows more applications to be delivered to the Web eg Microsoft .Net**

- **Plug & Play solution that is easy-to-deploy**

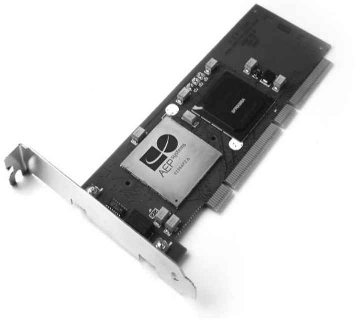
- **Extensive OS, API & form factors supported**

Form Factors



AEP SureWare Runner PMC

AEP SureWare Runner IDE



AEP SureWare Runner PCI

AEP SureWare Runner S1000

AEP Systems
Product & Technology Differentiators

- **Full hardware security product capability:**

  Complete product design / development (hardware and software)

  ASICs to appliances

  Boards to high-security HSMs

- **High-speed, high-security products:**

  SureWare Keyper speed up to 2000 TPS

  SureWare Net at full wire rate

  FIPS 140-1(2) Level 4 / ITSEC / CC capability

- **Secure appliances:**

  Ability to deliver accredited appliances

AEP systems

www.aepsystems.com

High-Speed Security Solutions