HP NonStop Education Series

NONSTOP SECURITY OVERVIEW
- WHAT’S NEW IN 2011?

Karen Copeland
NED Product Management
Agenda

• Security and Business
• NonStop Security Overview
• Data in Motion security
• On Platform security
• Data at Rest security
• Compliance and Auditing
• Questions
Security breaches are expensive

<table>
<thead>
<tr>
<th>Security Breach</th>
<th>User records Impacted</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heartland Payment Systems (2009)</td>
<td>100,000,000+</td>
<td>$12.6M</td>
</tr>
<tr>
<td>Sony Corporation Playstation3 (2011)</td>
<td>77,000,000</td>
<td>Unknown</td>
</tr>
<tr>
<td>TJ Maxx retail stores (2007)</td>
<td>45,700,000</td>
<td>$4.5B</td>
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<tr>
<td>Deutsche Telecom (2008)</td>
<td>17,000,000</td>
<td>estimated at $1B</td>
</tr>
<tr>
<td>Dai Nippon Printing (2007)</td>
<td>9,000,000</td>
<td>$8.6M</td>
</tr>
</tbody>
</table>

Source: [http://www.privacyrights.org/ar/ChronDataBreaches.htm#CP](http://www.privacyrights.org/ar/ChronDataBreaches.htm#CP)

- How companies lose money
  - Fines
  - Stock price
  - Lost productivity
  - Customer loss/dissatisfaction
  - Government probes
  - Bad press
  - Ruined reputations

- A security breach in the U.S. today costs a company around $214 per record*

- Breach costs have risen to $7.2M per incident**

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* Source: 2010 Annual Study: U.S. Cost of a Data Breach, March 2011, Poneman Institute, LLC, Symantec

Compliance is no longer optional

- Security compliance affects businesses worldwide
- Today compliance regulations exist for nearly all industries
  - Financial, Retail, Telco, Healthcare
- Regulations get stricter each year with stronger penalties for failure
  - PCI/DSS, HIPAA, Sarbanes-Oxley, etc
- Laws continue to emerge that govern what actions a company must take when a breach occurs
  - 45 states, Washington D.C., Puerto Rico and the Virgin Islands all have legislation in this area.
HP Enterprise Security

Delivers security without impediments:
- Opens the enterprise but manages the risk
• HP employs more than 3000 security & privacy professionals

HP SOLUTION PORTFOLIO
• Application Security
• Infrastructure Security
• Information Security
• Identity and Access Management

The NonStop product portfolio helps customers achieve this for NonStop servers in their enterprise.
NonStop Security Strategy

Modernize security offerings

• Modernize NonStop security capabilities offered by HP
  - Enhance security portfolio to offer new security products
  - Move towards standard solutions where possible
  - Correct existing product shortcomings
  - Invest in areas of largest impact

• Leverage expertise inside HP
  - Secure Advantage Program
  - Security standards and HP product interoperability efforts

• Leverage Partner products
  - Examine opportunities to leverage existing partner technologies
  - Engage partners to bring new products to the market
  - Provide new security services to customers
HP NonStop Server
More secure than ever before

On Platform Security
- Virus free environment
- Modern password & userid controls
- Event logging
- LDAP integration
- Access control with key stroke logging

Data in Motion Security
- Encryption of data traffic
- Modern and standard security products
- Protects both Guardian and OSS

Data at Rest Security
- Integrated low latency data encryption
- State of the art enterprise key management

Auditing and Compliance
- Automated event collection and reporting
- Event alarms
- System and File Integrity Monitoring
- Evaluation for security compliance
- SIEM (Security Information and Event Manager) device integration

7 = New Offerings
Only authorized users can access the system. Access to data and other resources are controlled.

Network and sensitive data moving between systems or workstations cannot be deciphered if intercepted.

Stored data and sensitive customer information is protected on disk or tape.

Security policies can be verified to be working and compliance regulations can be proven to be in place.
Available now or in the near future from HP

① On Platform
- Standard System Security
- Safeguard
- iTP Secure WebServer
- XYGATE Access Control
- XYGATE User Authentication

② Data In Motion
- iPSec (with IP CLIM)
- NonStop SSL
- NonStop SSH
- NonStop SSH - SFTP API

③ Data At Rest
- Volume Level Encryption (VLE)
- Enterprise Secure Key Manager (ESKM)
- Secure Virtual Tape System (VTS)

④ Compliance
- SafeArt
- Data Sanitization (OSM)
- XYGATE Merged Audit
- XMA Plug-in for ACI BASE24
- XMA Plug-in for HP HLR
- ArcSight Integration

= New in 2011

This is a rolling (up to three year) Statement of Direction and is subject to change without notice
NonStop OS Security Update Bundle

• New Security package introduced in 2010.
• Delivers three security products as part of the basic OS software suite.
  • Provided with the OS on new system orders
  • Available to installed J Series or H Series servers for a small upgrade fee.
  • Same products must be purchased separately for G Series platforms
• Includes the following products:
  • NonStop SSH
  • NonStop SSL
  • XYGATE Merged Audit
• Brought to the market through a business relationship with two of our Security partners.
What do the products in the bundle provide?

**Data in Motion Security**

**NonStop SSH**
A native NonStop Secure Shell capability that largely replaces the TelServ layer on the system. Support for SFTP is included.

**NonStop SSL**
A Secure Socket Layer capability that can be used to provide certificate based security for applications that run on the NonStop server.

**XYGATE Merged Audit**
A sophisticated solution for parsing security audit data and generating reports.

Sends alerts to help customers monitor security activities on their system and prepare for security audits.

Enables NonStop server integration with SIEM solutions.

**Audit Reporting and Alerts**
Enhancement Add-ons to the Security bundle

**Data in Motion Security**

**NonStop SSH**

Available now!
SFTP API Plug-in

We now offer an API for SFTP so applications which call FTP today can be pointed to SFTP easily without major coding work.

**XYGATE Merged Audit**

Available now!
Base24 Plug-in

We offer a plug-in for Merged Audit that allows you to gather events from ACI Base24 logs as part of your reporting.

**Audit Reporting and Alerts**

**Coming soon!**
**HLR Plug-in**

New plug-in will allow Telco customers to gather events from HLR (Home Location Registry) logs as part of reporting.
DATA IN MOTION SECURITY

NonStop SSL
NonStop SSH
NonStop SSH - SFTP API Plug-in
NonStop IPSec
SSL (Secure Socket Layer) is a cryptographic protocol that provides security for communicating over the Internet.

- SSL encrypts the segments of network connections at the transport layer end-to-end.
- SSL is in widespread use for web browsing, email, instant messaging and other applications.

Note that SSL capabilities already were included in a few products (including iTP Secure WebServer and OSM) prior to release of the OS Security Upgrade Bundle.
NonStop SSL Architecture

NonStop server

HP TELSERV
HP FTPSERV
HP FTPSERV
HP RSC TDP
HP ODBC
HP EXPAND

NonStop SSL
NonStop SSL
NonStop SSL
NonStop SSL
NonStop SSL
NonStop SSL

NonStop Clients

SSL Enabled 6530 Clients (J6530, MR-Win6530)
SSL Enabled FTP Clients (WS_FTP)
SSL Enabled FTP Servers (FileZilla)

RemoteProxy
RemoteProxy

HP RSC Client
HP NonStop ODBC (Driver)

HP EXPAND
NonStop SSH
What is SSH (Secure Shell) protocol?

SSH or Secure Shell is a network protocol from the UNIX environment that allows data to be exchanged using a secure channel between two networked devices.

- SSH was designed to be a replacement for Telnet and other insecure remote shells.
- SSH uses encryption to provide confidentiality and integrity of the data when it is being passed over the Internet.

HP has been providing a native SSH solution for the NonStop platform since 2007.
NonStop SSH Architecture

NonStop TACL
NonStop OSS
Other Applications
Guardian

HP NonStop SSH server

NonStop Clients
MR-Win6530 emulator on the NonStop System Console
6530 clients Any SSH enabled emulation client
SSH OSS emulation client (MR-Win6530, PuTTY)

NonStop server
SFTP client
SFTP daemon
NonStop SSH - SFTP API Plug-in

New API plug-in for NonStop SSH allows customer applications to programmatically access SFTP the same way they previously accessed FTP.

- Provides a secure file transfer capability using SSH.
- No coldload required to install and use.
- Requires prior purchase of NonStop SSH from HP, either by having purchased the independent product or as part of the OS Security Upgrade bundle.
- A license file enables the functionality for use by your application.
Network Security – IPSec
Available now on NonStop servers with IP CLIMs

- Available on Integrity NonStop BladeSystems and selected Integrity NonStop series systems when using IP CLIMs:
  - NB54000c BladeSystems
  - NB50000c BladeSystems
  - NB50000c-CG BladeSystems
  - NS2000 systems
  - NS16x00 systems
ON PLATFORM SECURITY

Safeguard
NonStop System Console Security
iTP Secure WebServer
XYGATE Access Control
XYGATE User Authentication
Standard Security and Safeguard

**Standard OS security:**
- User identities
- Basic security controls
- Password quality enforcement

**Safeguard** (standard for H and J Series, optional for G Series):
- Enhanced security controls
- More flexible user model
- Finer-grained access controls for files, processes, devices
- User exits to allow partners or customers to selectively extend platform security
- Audit generation and reporting
Safeguard Enhancements

Recent Focus areas

• Password strength and quality
• Additional forensic information
• Improved audit granularity (especially OSS)
• Manageability improvements
• OSS controls

H06.22/J06.11 (February 2011)

• Ability to restrict OSS (POSIX) fileset access by the super ID
• Additional password quality options
• Program file ACL inheritance
• Elimination of extraneous TACL read audit for logoffs where the user does not have read access to TACL
Safeguard/Standard Security/OSS Security

RFEs under consideration (partial list)

• Make it possible to deny SUPER.SUPER the ability to alter user attributes such as password and default security.
• For unnamed processes, include the CPU and PIN in Authorization SEEP interface STOP requests.
• Introduce an administrative group that can be used by auditors to view/collect Safeguard information without also giving them the ability to alter the configuration.
• Provide a SEEP-style interface for OSS authorization.
• Support certificate-based authentication.
• Multithread the SMON
NSC (NonStop System Console) Security Program

- Qualified anti-virus and firewall packages can be added to the NSC without violating HP Support Contracts
- Customer purchases software and support from the vendor directly (Symantec, McAfee, etc)
- HP verifies that the product does not interfere with OSM or other HP software functioning on the NonStop System Console
- HP does NOT verify the vendor product’s security functionality
- HP verifies co-existence with Microsoft and vendor security patches within 30 days of announcement
- HP offers a white paper on how to secure the NSC and a document describing the NSC security policy
iTP Secure WebServer
Security Enhancements – Release 7.2 – H06.21/J06.10

• TLS 1.0 and TLS 1.1 protocol support added (SSL 3.0 already supported)
• Disabled PUT and TRACE methods by default
• Support added for UNICODE security certificates containing non-English characters in ‘Distinguished Name’
• Discontinuation of support for older, less-secure protocols and algorithms:
  – SSL 2.0
  – PCT 1.0
  – DES or RC2 encryption
• Release 7.2 does not support key lengths less than 1024 bits.
  – The supported key length range is 1024 bits to 4096 bits
iTP Secure WebServer potential enhancements

- Increase minimum key length support to 2048
- Diffie-Hellman key exchange support
- Rebase to latest version of GnuTLS
XYGATE Access Control – future offering!

Product Features

XYGATE Access Control, available in the future from HP, provides security capabilities that allow customers to set granular controls on the access to all resources of the system.

- Eliminates shared UserID use – all user tasks can be performed from a single user.
- Allows customer to control who can perform commands and sub-commands within NonStop utilities.
- Provides complete key stroke logging to monitor user activities and achieve accountability.
- Will be available as an independent product shipped on a CD for J Series, H Series and G Series.

This is a rolling (up to three year) Statement of Direction and is subject to change without notice.
XYGATE User Authentication – future offering!

Features

XYGATE User Authentication, available in the future from HP, allows customers to implement logon controls at a granular level and integrate their NonStop server into larger LDAP environments:

- Logon Controls at a granular level, including time based.
- Rules for User group logons and controls for group manager capabilities.
- Audit reporting on logon events.
- IP, Requestor and Ancestor controls.
- LDAP interface for NonStop.
- Support for RSA SecurID tokens and RADIUS authentication.
- Will be available as an independent product shipped on a CD for J Series, H Series and G Series.

This is a rolling (up to three year) Statement of Direction and is subject to change without notice.
DATA AT REST SECURITY

NonStop Volume Level Encryption (VLE)
Enterprise Secure Key Manager (ESKM)
NonStop Volume Level Encryption (VLE)

Product Features

- No modification of customer application required
- Fully integrated with NonStop infrastructure
- Low performance impact
- Online initialization, key rotation and decryption while data remains fully available to your applications
- Uses state of the art key management through integration with the HP Enterprise Secure Key Manager (ESKM)
- Meets PCI/DSS requirements for Key Management standards
- Encryption is configurable on a device basis
- Uses well known industry standards for encryption
- Supports encryption configuration and management control by designated security personnel

Supported on systems using the NonStop Storage CLIM:

- NonStop BladeSystems (NB54000 & NB50000)
- NonStop Multi-core NS2000
- Integrity NonStop NS16x00

Devices supported includes:

- SAS disks,
- StorageWorks XP Disk Arrays
- LTO Generation 4 tape drives

Note: Customers still need to take steps to maintain firewalls, authenticate users and deploy SSH or SSL to encrypt data traffic. In general install appropriate access controls to protect data in use.
Data At Rest Security
NonStop VLE Overview – architecture

- Data is encrypted as it is written to selected disks or tapes.
- Data is decrypted and appears in the clear when “in use” by authorized applications.
- SAS drives, HP StorageWorks XP disk arrays and LTO-4 Tapes are supported.
- When Secure VTS is used, data is passed through the CLIM in the clear to and from the Secure VTS subsystem.

Customers should maintain security controls on the system to protect data in use.
The right encryption key, to the right device at the right time.

Secure, centralized encryption key management
- Automates key generation, protection, and management based on security policies
- Supports unified key management across diverse products and applications

Strong auditable security
- Hardened secure server with FIPS 140-2 Level 2 validation
- Identity-based access, secure administration, logging, secure connection from ESKM to clients.
- Keys are always encrypted, internally at rest, in backups and externally on the network.

Reliable lifetime key archival
- Automatic multi-site key replication, high availability clustering, and failover
- Supports 2-6 (or more) nodes, hundreds of clients, and millions of keys
The ESKM high availability cluster supports multiple NonStop servers across one or more data centers, network connected, locally or remotely. The ESKM cluster can manage hundreds of clients and millions of keys. In addition to NonStop, ESKM can also provide key management for other HP and partner encryption solutions in your data center.
COMPLIANCE

XYGATE Compliance PRO
XYGATE Merged Audit
ArcSight and NonStop Servers
XYGATE Compliance PRO is a sophisticated and powerful tool specifically designed for the NonStop platform to help customers:

- analyze system security settings and configurations
- gather extensive system data to compare changes in the system from different points in time
- modify their security settings to improve protection of their system
- have confidence about monitoring compliance with documented evidence
- available as an independent product, ships on a CD
XYGATE Compliance PRO

Product Features

Easy investigation of NonStop security
• Comprehensive system examination and evaluation
• Provides data about security standards adherence for use with compliance auditors
• Verifies general and specific system integrity across any area of the system of interest
• Provides NonStop system-wide change control

Supports security data collection
• Dramatically improves data collection effort
• Integrates with NetBatch to automate collections and monitoring
• Uses consistent collection metrics for each cycle
• Captures data from multiple NonStop systems into a single repository for reporting

Supports security policies
• Provides a robust set of baseline policies and recommendations
• Allows users to define their own security policies
• Provides automatic tracking of security policies
• Notifies customer by email when policy failures are detected

Supports PCI, SOX and HIPAA
• Maps regulations to monitor compliance
• Meets compliance requirements for “active monitoring”
• Provides archives for audit requirements
• Regular updates keep you up to date with the latest version of requirements for PCI, SOX and HIPAA
XYGATE Compliance PRO
PCI Reporting – Violations appear in RED

Configuration issues are flagged in “red” to alert you to problems that could be identified by an auditor.
More on the report
XYGATE Compliance PRO
PCI Reporting – Details can be viewed by clicking further

Compliance requirements are explained as to how they may be applied to the NonStop server.
Compliance PRO vs. Merged Audit

XYGATE Compliance PRO
How is the system secured?

- Examine for compliance
- Compare system configuration & security settings against:
  - Regulations
  - PCI/DSS, SOX, HIPAA, etc
  - Best practices
  - Internal security policies
  - Review recommendations
  - Stay up to date with latest standards

- Integrity Checking
- Compare files
- Compare entire systems

- Access Mapping
- Examine what users access
- Compare access across systems

- Extensive Reporting
- Prove compliance to Auditors & Senior Management

XYGATE Merged Audit
What is happening on the system?

- Consolidate Audit Logs
  - Gather from NonStop audit sources across the entire NonStop network
  - Filter to include only what you need
  - Run detailed canned reports
  - Customize reports to meet your needs

- Receive Alerts
  - EMS
  - Send to eMail or Pager
  - Security Event Display includes visual and auditory alerts

- Enterprise Security
  - Deliver NonStop audit data to SIEM solutions (like ArcSight)
  - Integrate NonStop data into the Enterprise Security Architecture
XYGATE Merged Audit

What has been happening on my system?

XYGATE Merged Audit provides sophisticated security reporting and should be of interest to all customers who need to monitor security events on their servers:

• Report on NonStop server security activities with predefined or customized reports.
• Create a single repository on the NonStop for audit data from multiple servers.
• Filter to extract selected data of interest
• Receive and customize security alerts
• Integrate with enterprise audit tools and systems such as Security Information and Event Management (SIEM) solutions.
XYGATE Merged Audit Architecture

This is a rolling (up to three year) Statement of Direction and is subject to change without notice.
• ArcSight is the leading SIEM* solution provider in the industry
  • ArcSight ETRM (Enterprise Threat and Risk Management platform) is an integrated product suite for collecting, analyzing and assessing security and risk information across the Data Center
• ArcSight became part of HP in October 2010
• Some NonStop customers already use XYGATE Merged Audit to stream data to the ArcSight product
• We expect to announce formal HP support for this option in the future

*SIEM – Security Information and Event Manager

This is a rolling (up to three year) Statement of Direction and is subject to change without notice
Summary

• HP continues to invest in security product offerings and capabilities for the NonStop platforms.

• We recognize the concerns customers have about protecting sensitive data in a world where sophisticated cybercrime is reported everyday.

• We also realize the challenge customers face to meet increasing security compliance and regulations.

• The HP NonStop team is happy to meet with you to discuss security needs or concerns at any time.
MORE SECURITY TALKS

- NonStop Server Security Technical Update with Wendy Bartlett on Wednesday, August 24th at 9am Pacific
- NonStop OS and OSS Update, including OSS Security Enhancements with Wendy Bartlett and Jim Smullen on Monday, August 29th at 9am Pacific
- Visit: www.hp.com/go/nonstop/security to learn about Security products available for the Integrity NonStop server.
NONSTOP SECURITY CONTACTS
WHO TO CALL AT HP

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karen.copeland@hp.com

Wendy Bartlett
Distinguished Technologist, NonStop
wendy.bartlett@hp.com
QUESTIONS?
MORE SECURITY INFORMATION
HP AND PARTNER URLS
## HP Security Websites
### HP and Secure Advantage Program

<table>
<thead>
<tr>
<th>Website</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP NonStop External Web Pages</td>
<td><a href="http://www.hp.com/go/nonstop/security">http://www.hp.com/go/nonstop/security</a></td>
</tr>
<tr>
<td>HP Secure Advantage Program</td>
<td><a href="http://www.hp.com/security">http://www.hp.com/security</a></td>
</tr>
<tr>
<td>HP Enterprise Secure Key Manager</td>
<td><a href="http://www.hp.com/go/eskm">http://www.hp.com/go/eskm</a></td>
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<tr>
<td>Arc Sight</td>
<td><a href="http://www.arcsight.com/">http://www.arcsight.com/</a></td>
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</table>
# On Platform Security

## NonStop Partner Offerings - At A Glance

<table>
<thead>
<tr>
<th>Partner</th>
<th>Products Offered</th>
</tr>
</thead>
</table>
| ACI            | **ACI Enterprise Security Services**: AF (Application Firewall)  
**ACI Enterprise Security Services**: Single Sign-On (Former InSession SafeTGate products)                                                                                                                                                                                                                                         |
| comForte       | **SafePoint Product Suite**: **NEW**: Integrator: User provisioning directly out of corporate user directory.  
Alarms: Real Time Alerts, Admin: Safeguard & User Administration, Reports: reporting, **SecurSSO**: Real Single-Sign on based on Kerberos protocol                                                                                                                                                        |
| CSP (Computer Security Products) | **Protect XP**: Safeguard Mgmt, **CSP PassPort**: Access Control, **Alert-Plus**: Real Time Security Alerts, **Tandem Security Analyzer**, **ProtectUX**: OSS file mgmt/security, **CSP Authenticator**: Two factor authentication, **NIMS**: NonStop Id Mgmt System – LDAP, **CSP SpoolView**: Graphic spooler mgmt; **FIC**: File Integrity Checker |
| Greenhouse     | **iWAMs**: Integrated Web Administration Mgmt Suite, **$AS Authentication Server**: Security Utilities, **DiskWipe**, **Inset**: Field Encryption, **MPWD**: Modem Port Watch Dog, **PWQASEEP**: Password controls, **PWCOSEEP**: Process Control SEEP, **PASSYNC**: Password Sync, **SECOM**: Secure Command, **SFTP**: Secure FTP, **MyLogin**: Single Sign-On, **OBI**: Object Integrity checker |
**Access PRO**: Access and Process controls (includes Spooler), **$CMON**, RBAC and Keystroke logging.                                                                                                                                                                                      |
# Data In Motion

## NonStop Partner Offerings - At a Glance

<table>
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<tbody>
<tr>
<td>ACI</td>
<td>ACI Enterprise Security Services : SSL</td>
</tr>
<tr>
<td>Bowden</td>
<td>Bowden SSL</td>
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<tr>
<td></td>
<td>Bowden SSH</td>
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<tr>
<td></td>
<td>Bowden Secure FTP</td>
</tr>
<tr>
<td>CAIL</td>
<td>CAIL Security Facility: Native SSL for Telnet, ODBC, RSC, etc. + Authentication, Native SSH, Secure FTP with SSH (SFTP) + SSL (FTPS)</td>
</tr>
<tr>
<td>CSP</td>
<td>CSP Client Shield : SSL/TLS client encryption</td>
</tr>
<tr>
<td>(Computer Security Products)</td>
<td>CSP FTP Shield : FTP data encryption</td>
</tr>
<tr>
<td>comForte</td>
<td>SecurPrint : SSL for Printers &amp; Spooler</td>
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<tr>
<td>XYPRO</td>
<td>XYPRO Secure Shell</td>
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<tr>
<td></td>
<td>XYPRO Secure Communications Client : SSL</td>
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<td>XYPRO Host Encryption : SSL Encryption for NonStop Host</td>
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</table>
# Data At Rest

## NonStop Partner Offerings - At a Glance

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| comForte   | **NEW** SecurData: Encryption and Tokenization for ENSCRIBE applications. (software)  
SecurLib : Data Encryption library & key management for application use, supports HP ESKM (software)  
SecurTape : Encryption of data through Backup/Restore (software) |
| Crossroads | Disk and Tape Encryption & key management (hardware & software)                                                                                   |
| Greenhouse | Inset : Field Encryption for applications (software)  
BaReLib (Backup Restore Library) : DES Security to the data stream                                                                                  |
| Opsol      | Omni-Crypto : Encryption infrastructure for ACI applications (software)                                                                                |
| TSI        | Tape Encryption : Offers encryption appliances for Tape Encryption  (hardware & software)                                                            |
| Voltage    | SecureData API and Toolkit : Encrypt and Decrypt Database Columns using Format Preserving Encryption (FPE) algorithms.  No changes to underlying data schemas and few changes to applications. (software) |
| XYPRO      | Encryption Library for NonStop : application tool kit (includes SQL/MP file level encryption) (software)  
Encryption SW Key Manager for NonStop  (software)  
Encryption SW Key Manager Lite for NonStop (software) |
# Audit and Compliance
## NonStop Partner Offerings - At a Glance

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| CSP (Computer Security Products) | **AuditView**: Audit reporting  
**CRM**: Comprehensive Compliance Reporting Module  
**TSA**: Reports on deviations from accepted security standards  
**FIC**: File Integrity Checker monitors critical files, creates alerts and reports |
| comForte      | **SafePoint Product Suite**                                                                                                                     |
| Greenhouse    | **Curious**: Safeguard for Auditors  
**Reprieve**: Safeguard PCI Controls                                                                                                           |
| XYPRO         | **XYGATE Audit PRO**: Merged Audit Reporting Product, Event monitor  
**XYGATE Compliance PRO**: Security Compliance Wizard and GUI                                                                                 |
<table>
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Backup Slides
Security Products by Platform at a glance

<table>
<thead>
<tr>
<th>J Series</th>
<th>H Series</th>
<th>G Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Multi-Core &amp; BladeSystems)</td>
<td>(NonStop Integrity)</td>
<td>(S-series Platforms)</td>
</tr>
<tr>
<td>Safeguard &amp; SafeArt</td>
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<tr>
<td>Data Sanitization (OSM)</td>
<td>Data Sanitization (OSM)</td>
<td>NonStop SSH – full license</td>
</tr>
<tr>
<td>iTP Secure WebServer</td>
<td>iTP Secure WebServer</td>
<td>NonStop SSH – FTP license only</td>
</tr>
<tr>
<td>NonStop Security Update Bundle</td>
<td>NonStop Security Update Bundle</td>
<td>Secure Virtual Tape Subsystem (VTS)</td>
</tr>
<tr>
<td>Includes: NonStop SSH</td>
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<td>Data Sanitization (in OSM)</td>
</tr>
<tr>
<td>NonStop SSL</td>
<td>NonStop SSL</td>
<td>XYGATE Merged Audit (XMA)</td>
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<td>SFTP API Plug-in</td>
</tr>
<tr>
<td>Volume Level Encryption (VLE)</td>
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<td>XMA Plug-in for ACI Base24</td>
</tr>
<tr>
<td>Enterprise Secure Key Manager (ESKM)</td>
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<td>XMA Plug-in for HP HLR</td>
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<tr>
<td>Secure Virtual Tape Subsystem (VTS)</td>
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<td>XYGATE Compliance PRO</td>
</tr>
<tr>
<td>IPSec (with purchase of IP CLIM)</td>
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<td>XYGATE Access Control</td>
</tr>
<tr>
<td>NonStop Security Update Bundle</td>
<td>NonStop Security Update Bundle</td>
<td>XYGATE User Authentication</td>
</tr>
<tr>
<td>{For servers purchased before Sept 2010}</td>
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<td>ArcSight Integration</td>
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- **Included with the system out of the box**
- **Purchased separately**
- **New Offerings**
# Comparison between SSH and SSL

<table>
<thead>
<tr>
<th>Topic</th>
<th>SSH</th>
<th>SSL</th>
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</thead>
<tbody>
<tr>
<td>Origin</td>
<td>UNIX/Linux environments</td>
<td>Web browser/server environments</td>
</tr>
<tr>
<td>Key Exchange</td>
<td>Public/Private key cryptography</td>
<td>Public/Private key cryptography</td>
</tr>
<tr>
<td>Session Encryption</td>
<td>symmetric encryption algorithm</td>
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<tr>
<td>Peer Authentication</td>
<td>Requires each endpoint to individually trust every other endpoint using a public key or user name and password or password authentication</td>
<td>Uses “certificate authority” method or “CA” to delegate trust by issuing certificates for authentication.</td>
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<tr>
<td>Terminal based Access</td>
<td>Completely replaces Telnet layer on the system</td>
<td>Adds SSL layer to Telnet</td>
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<td>Advantages</td>
<td>Easier self key generation and configuration.</td>
<td>Easier large scale deployment Support of more protocols</td>
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