XYGATE Data Protection

Optimizing Voltage Security Tokenization and Encryption
for HP NonStop Environments

GTUG April 2015
Agenda

• Introduction to XYPRO
• Introduction to HP Voltage Data-centric Security
• Data Protection for the HP NonStop
  • Unique Requirements
  • HP Voltage SecureData Optimization with XYPRO XDP
  • XDP Deployment Options
• Summary
Your Speakers today

Anna Russell
EMEA Account Director,
HP Security Voltage

Andrew Price
VP Technology
XYPRO Technology
About XYPRO

• Specialists in mission-critical security and compliance
• Founded in 1983 – over 30 years working with the HP NonStop community
• XYGATE Merged Audit (XMA) and XYGATE User Authentication (XUA) bundled with NonStop OS
• We wrote the books on HP NonStop security
• Partnered with Voltage Security to bring industry-leading tokenization and encryption to HP NonStop community
XYPRO Solutions

Compliance
- Security Policy Development
- Configuration Monitoring
- Compliance Alerting
- PCI, HIPAA, SOX

Access Control
- Individual Accountability
- Keystroke Logging
- Privileged Access Management

Data Security
- FIPS - Validated Encryption
- Format-Preserving Encryption
- Tokenization
- Masking

Device-Centric Authentication
- Multi-Factor Authentication
- Transaction Protection
- Strong, Scalable, Transparent

Audit
- Consolidated Security Data
- Event Monitoring
- Audit Reporting
- Interface to SIEMs

Safeguard Management
- Advanced Security Admin Tools
- Single Sign-On
- Safeguard Audit Information

Database Management
- SQL/MX, SQL/MP, Enscribe
- Storage Management
- Partition Analysis
- Monitoring and Correction Reporting

Identity Management
- Enterprise Identity & Access Management (IAM) Adaptors
  for HP NonStop Server

XYGATE
Security Solutions

Partnership with
HP Security Voltage
The Effects of Data breaches

Shocking Numbers

- Estimated losses of $400 Million
- 700 Million compromised records
- 79,790 Security Incidents last year
The Effects of Data breaches

- 2,122 Confirmed Data Breaches in 2014
- The forecasted average loss for a breach of 1,000 records is between $52,000 and $87,000.
Traditional “Solutions” to Data Breaches

• Protecting data at rest is easy, isn’t it? Why are we still seeing these breaches?
• Two problems
  • Traditional infrastructure solutions do not protect the data consistently throughout the enterprise
  • Implementing traditional encryption solutions is hard!

XYPRO has been partnering with HP Security Voltage for over two years to address these issues
About HP Security Voltage

• HP Security Voltage: Founded in 2002 out of Stanford University, based in Cupertino, California.
• Acquired by HP: February 2015
• Mission: To protect the world’s sensitive data
• By: Providing encryption and tokenization solutions that protect data wherever it is used or stored

• Market Leadership:
  – PCI solutions are used by six of the top eight U.S. payment processors
  – Provide the world’s most pervasive email encryption solutions
  – Contribute technology to multiple standards organizations
Major Security Breaches Continue To Occur...

WHY?
Major Security Breaches Continue To Occur...

Why?

Impossible to protect against every vulnerability – IT infrastructures will continue to be breached

Impossible to keep all data behind a firewall – there is no longer the concept of a “perimeter”

The data must be pervasively protected

Why has this not happened to date?
Problems with Traditional Data Protection

- Need to change data structures and applications
- Fully encrypted data is unusable until decrypted
- Key management can be a nightmare
- Requires multiple, piecemeal solutions, which create multiple security gaps
Multiple Solutions with Multiple Security Gaps

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<th>Data Ecosystem</th>
<th>Security Gaps</th>
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Advantages of HP Security Voltage Data Protection

- Minimal change to data structures and applications
- Protected data behaves correctly in applications and analytics
- Simplified operations via Stateless Key Management
- End-to-end Security within a consistent Data Protection Framework

Key Database
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HP Security Voltage Provides This Protection

Data Security Coverage

Data-centric Security

Traditional IT

Infrastructure Security

End-to-end

Security Gaps

Data & Applications

Security Gap

Middleware

Security Gap

Databases

Security Gap

File Systems

Security Gap

Storage

Data Protection

Ecosystem

HP Security Voltage
NonStop Environment: Unique Data Protection Requirements

• Protect extremely sensitive data and mission-critical applications
• Support older legacy applications and newer (often ported) applications
• Support a wide variety of data types including payments and other PII (e.g., SSN, DoB)
• Support NonStop’s OS personalities and executable types
• Conform to NonStop fault tolerance fundamentals
• Be highly performant
• Be secure and integrate with NonStop’s unique security framework
XDP - powered by HP Security Voltage

Format Preserving Encryption and Secure Stateless Tokenization, Optimized for Mission Critical NonStop Environments
XYGATE Data Protection (XDP)

• Optimizes Voltage SecureData for NonStop environments
  • Simplifies Voltage implementation
  • Enhances Voltage functionality
  • Integrates Voltage to NonStop security framework
  • Enhances Voltage fault-tolerance, parallelism and scalability
  • Provides NonStop database-specific tools for Voltage

• Can be implemented in two ways
  • As an intercept library, requiring absolutely no changes to the application
  • As an SDK that requires a small amount of programming in the customer’s preferred programming language
Traditional Encryption and Payment Processing

Live Data Capture – Credit Card Primary Account Number (PAN)

Payment Authorization

Settlement Processes

Logs, Reports & Backups

Customer Service Application

Clear Data

Rentional Encryption Requires Database Schema and Application Re-engineering

Traditional Key Management adds complexity and cost

Requires Decryption of whole encrypted PAN, even if we only need last 4 digits
Data Protection Technologies

• Format-Preserving Encryption (FPE)
• Secure Stateless Tokenization (SST)
• Page-Integrated Encryption (PIE)

• Protects structured data while maintaining functional and analytic integrity of the data
• High-performance tokenization without database management headaches
• Extends end-to-end protection to browser, through and beyond the SSL tunnel
• Minimizes implementation time while maximizing data value
Data-centric Security and Payment Processing

- Payment Authorization Processes
- Settlement Processes
- Logs, Reports & Backups
- Customer Service Application

Live Data Encrypted in Secure Reader end-to-end to Payment Authorization Host

PAN: 7412 87 52 8346 0000

SST Tokenized PAN Data used throughout. No Live Data in internal processes or systems

Last 4 Digits already available without change
**XDP Intercept Library**

- No application changes required
- XDP intercept library functions by overlaying the system’s I/O procedures with additional functionality to encrypt/tokenize on the fly
- All sensitive data is protected in the database
- Application sees clear data and is unaware that an intercept library is being used
- XDP configuration files control behavior (such as which files or fields to access and protect)
**XDP SDK**

- Lightweight programmatic interface that can embed directly into NonStop application
- Enables multi-threaded NonStop applications to have non-blocking access to Voltage encryption/tokenization engine
- Supports multiple programming languages
- Minimal code changes
Data-centric Security – Case studies

A Large Latin American Payments Switch
- Tokenize PAN data stored in Sun-Solaris
- No Data-structure Changes
- Quick launch (installing & implementing)
- Next stage tokenize PAN data in BASE24 (Legacy Payments Application)
Data-centric Security – Case studies

A Top 10 Financial Institution
- PCI scope reduction for HP Nonstop and IBM mainframe
- Mission-critical core transaction and card issuer systems
- Voltage tokenization natively on core processing platforms
- Streamlined PCI compliance, reduced risk of internal and external access
- Minimal business impact including to complex z/OS Hogan applications

“Tokenization impact on average auth response time is miniscule”, HP NonStop POS Team member
Data-centric Security – Case studies

A Large Health Retailer
- PII scope reduction for HP Nonstop and IBM mainframe
- Mission-critical medical patient and prescription systems
- Voltage tokenization natively on core platforms
- Streamlined PII protection, reduced risk of internal and external access
- Minimal business impact including to complex z/OS applications
XYPRO/Voltage Advantages

- Industry-leading Voltage Security tokenization and encryption
  - Standards-based
  - Industry-proven
  - Multi-platform support
  - Runs natively on NonStop
  - Support for wide variety of data types
  - Stateless key management
  - Flexible

- XDP optimization of Voltage for NonStop environments
  - No application changes required on NonStop
  - Support for nowaited/non-blocking encryption/tokenization
  - Support for NonStop’s OS personalities and executable types
  - Multiple language support: C, TAL and COBOL
  - Distributed architecture provides fault-tolerance, parallelism and scalability
  - Built-in access control and auditing, as with all XYGATE products

XYGATE® Data Protection
Data-Centric Security
XDP

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Thank you!

Format-Preserving Encryption (FPE) & Secure-Stateless-Tokenization (SST)

- No database or application changes
- Enscribe, SQL/MP and SQL/MX support
- Multiple data type support
- Native and Non-Native code support
- True enterprise scalability
- Quick Implementation

"Neutralize the Breach"