the information security provider

Payment Card Industry Assessments & Privacy

24 February, 2011

A presentation to IAPP in Austin

Fiona Pattinson, CISSP, QSA

PCI Standards and Privacy

- Although the PCI standards cover some Personally Identifying Information it focuses ONLY on that relevant to the credit card brands i.e. “Card Holder Data” and “sensitive authentication data”

It does not consider any other legislation , regulation or best practices for storing and using PII

What is Protected?

- *PCI definitions: Account data* consists of *cardholder data* plus *sensitive authentication data.*

At a minimum, *cardholder data* consists of the full PAN. Cardholder data may also appear in the form of the full PAN plus any of the following: cardholder name, expiration date and/or service code.: See *Sensitive Authentication Data for additional data elements that may be* transmitted or processed (but not stored) as part of a payment transaction

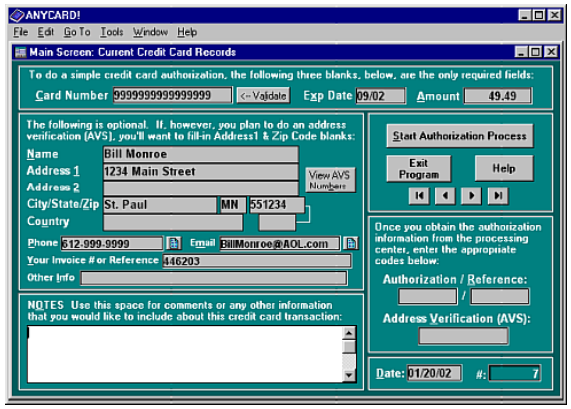
Sensitive Authentication Data : Security-related information (including but not limited to card validation codes/values, full magnetic-stripe data, PINs, and PIN blocks) used to authenticate cardholders and/or authorize payment card transactions

PAN= Primary Account Number, i.e. the credit card number

Who needs an assessment?

Any organization handling credit card information?

- If they *store* credit card information.
- If they *process* credit card information.
- If they *transmit* credit card information.



What is a QSA assessment?

Security Assurance !!!

- Each brand had their own security program and standards
- This meant duplication and some inconsistencies and gave the opportunity for rationalization
- "**All for one and one for all**"
  - **Remove duplication of effort**
  - **Focus resources more effectively**

- PCI SSC was formed to create common standards
- The brand's individual security programs continue

PCI Security Standards Council

The council manages consolidated standards for PCI compliance

- PCI Data Security Standard
- PCI Data Security Standard for Payment Applications
- Requirements for Approved Scanning Vendors

Each of the brands still runs <u>its own security program</u>

- They set different requirements for compliance
  - E.g. When an assessment by an external QSA is necessary
- They all use the same standards

The card brand security programs

Security Program	URL
The MasterCard Site Data Protection Program (SDP)	http://www.mastercard.com/us/sdp/index.html
Visa Cardholder Information Security Program (CISP)	http://usa.visa.com/merchants/risk_management/cisp_overview.html
American Express Data Security Operating Policy Compliance Program (DSOP)	https://www209.americanexpress.com/merchant/singlevoice/dsw/FrontServlet?request_type=dsw&pg_nm=spinfo&ln=en&frm=US&tabbed=complienceRequirement
Discover Information Security & Compliance (DISC)	http://www.discovernetwork.com/fraudsecurity/disc.html
JCB	http://www.jcb-global.com/english/pci/

All use the current version of the PCI DSS (currently 2.0)
- available from https://www.pcisecuritystandards.org/index.shtml

Non compliance

- If non-compliant and a breach occurs…
  - *Merchants/Service Providers have liability for the acquirer bank's losses and card re-issuance costs*
  - Fines per incident from Visa (against acquiring bank)
  - Restrictions imposed by card companies (prohibiting future credit card processing)
  - Investigative and Legal costs
  - Repayment of losses may exceed the ability to pay and cause total failure of the organization
- Other potential consequences:
  - Damaged Brand Reputation
  - Invasive media attention
  - Loss of customers

How do you know if you need a QSA?

- For most merchants the requirements will come from your merchant bank or acquiring bank.
- If you take several card brands (e.g. MasterCard, VISA , Discover, JCB and AmEx) then it will likely be the one with the greatest requirements
- Sometimes the rules are different if you have already had a security breach

PCI related scheme: Experian

- Credit bureaus now following suit with EI3PA (Experian Independent 3rd Party Assessment)

The Experian Independent 3rd Party Assessment is an annual assessment of an Experian Reseller's ability to protect the information they purchase from Experian

- Experian has not *adopted* PCI-DSS. The requirements of EI3PA have been *adapted* from PCI-DSS.

- EI3PA differs from PCI-DSS in that it assesses how a Reseller provides protection of Experian-provided data rather than cardholder data. (A much bigger set of PII and sensitive information)
- See www.experian.com/resellercompliance for more information

The compliance requirements

- Requirements for compliance are very complex.
  - Merchant levels. (levels 1-4 are defined by payment brands)
    - Levels are based on transaction volume as determined by Acquiring banks
    - There are exceptions (e.g. if you have had a breach in the past)
  - Service Provider levels (defined by payment brands)
    - Determined by the brand, acquirer, merchant or service provider
- Comply with the PCI DSS
  - Show that you do using an Attestation of Compliance
  - PLUS a completed
    - Self Assessment Questionnaire (SAQ) or
    - A Report of Compliance (ROC)

The compliance requirements

- Secondly everyone **storing, processing or transmitting** card holder data has to comply with the PCI DSS.
  - Depending on the merchant or Service Provider level you will need to demonstrate compliance annually through one of:
    - Completing an Self Assessment Questionnaire (SAQ): There are four different kinds of SAQ from SAQ A to SAQ D or
    - Undergoing an assessment from an external organization accredited by the PCI SSC. These are called Qualified Security Assessors
    - NOTE: Providing proper separation can be employed and conflict of interest avoided, the company may be able to perform it's own assessments using Internal Security Assessors (ISAs) qualified by the PCI SSC.

The 12 requirements of PCI-DSS

Build and Maintain a Secure Network	
1	Install and maintain a firewall configuration to protect cardholder data
2.	Do not use vendor-supplied defaults for system passwords and other security parameters
Protect Cardholder Data	
3.	Protect stored cardholder data
4.	Encrypt transmission of cardholder data sent across open, public networks
Maintain a Vulnerability Management Program	
5.	Use and regularly update anti-virus software
6.	Develop and maintain secure systems and applications
Implement Strong Access Control Measures	
7.	Restrict access to cardholder data by business need-to-know
8.	Assign a unique ID to each person with computer access
9.	Restrict physical access to cardholder data
Regularly Monitor and Test Networks	
10.	Track and monitor all access to network resources and cardholder data
11.	Regularly test security systems and processes
Maintain an Information Security Policy	
12.	Maintain a policy that addresses information security – Connected Entities and Contracts

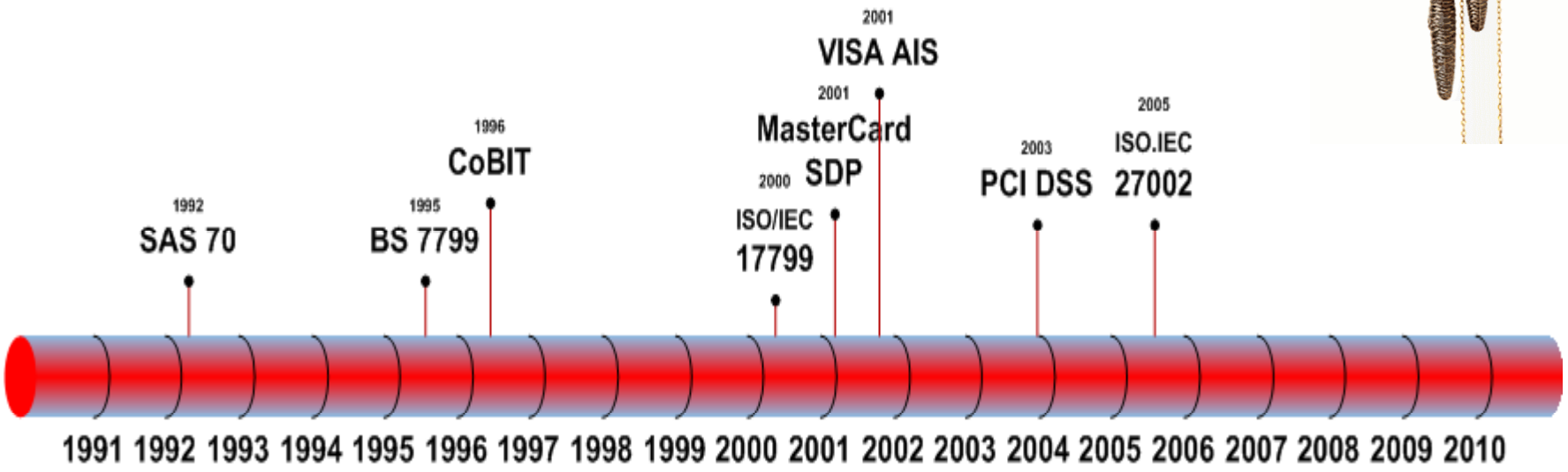
Some Characteristics of PCI DSS

Some attributes of the PCI DSS that can be used to compare it to other standards

- It is a compliance standard
- PCI DSS is relatively new (PCI DSS 1.0 was December 2004) although the basis : Note that Card Brand standards are older (e.g. VISA 's AIS as part of the CISP since 2001)
- The requirements are based on a risk analysis for the Card Brands
- Risk management process in the standard is not a driver of the controls implemented

Some Characteristics of PCI DSS

- PCI DSS is relatively new , and arguably not so mature



What to expect from a QSA led assessment

Phase 1: Preparation

Scoping → Gap Analysis → Remediation

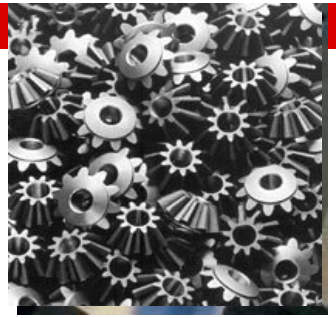
Phase 2: Formal Assessment

QSA Assessment → Reporting

Phase 3: Maintenance & Monitoring

Monitoring

An Approach for Compliance



Understand the assessment requirements and how your technology choices supports you in meeting them.

- There may be differences in how controls can be met or interpretations needed for your environment. e.g.:
  - Malware requirements in PCI DSS
  - File Integrity Checking for PCI

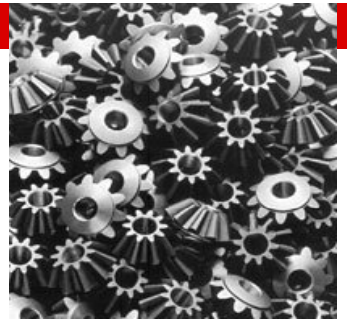
Have a GOOD and effective risk management process.

- That matches YOUR organization

Specify compensating controls wisely

- Too many compensating controls are a red flag: but they are OK if necessary!

An Approach for Compliance



Reuse other assessment results

- PIA,COBIT,FISMA, ISO/IEC 27001, SAS/70, SOX, etc.

Do not reinvent the wheel!

Use assurance given by product certifications:

Vendors spend a lot of resource and money giving you this assurance

Use it!

- Common Criteria, FIPS 140-2 etc.

Integrate security management systems:

Leverage systems

- Privacy management, awareness training, HR processes, internal audit of organizational processes and others are common
- BUT each assessor still needs to make his or her own determination

SHARE

Who is involved?

The key people in the subject organization

- Security officer / team – typically lead the project
- IT department
- Developers
- Operations (e.g. call center)
- Management, internal auditors, HR, other relevant departments

Third party providers

- Hosting providers, ISP, Payment Processors, backup providers
- Consultants , expert in PCI compliance (May be the QSA)
- A QSA company
- QSA assessment team

Scoping

- Work with your QSA to discuss the scope of the assessment
  - It is the QSA's responsibility to determine the scope
- Determine the extent of the card holder data environment
  - Where is sensitive data (PAN and track data) held?
  - Systems, PCs, call center records (voice recordings, videos)
  - Spreadsheets, E-mails, Instant messaging etc?
  - Accounts department? Development department? Test machines?
- Reduce the scope
  - Are networks segmented?
  - Is encryption or tokenization used?

Gap analysis / readiness assessment.

For a first time assessment allow for this to be a significant effort.

For subsequent efforts focus on improvements, efficiencies and maintenance of compliance

May be performed by a QSA or consultant. Note this is not a PCI SSC formal activity – It is performed on a consultancy basis

In order to achieve compliance, be prepared to discuss and implement appropriate:

- compensating controls and
- remediation

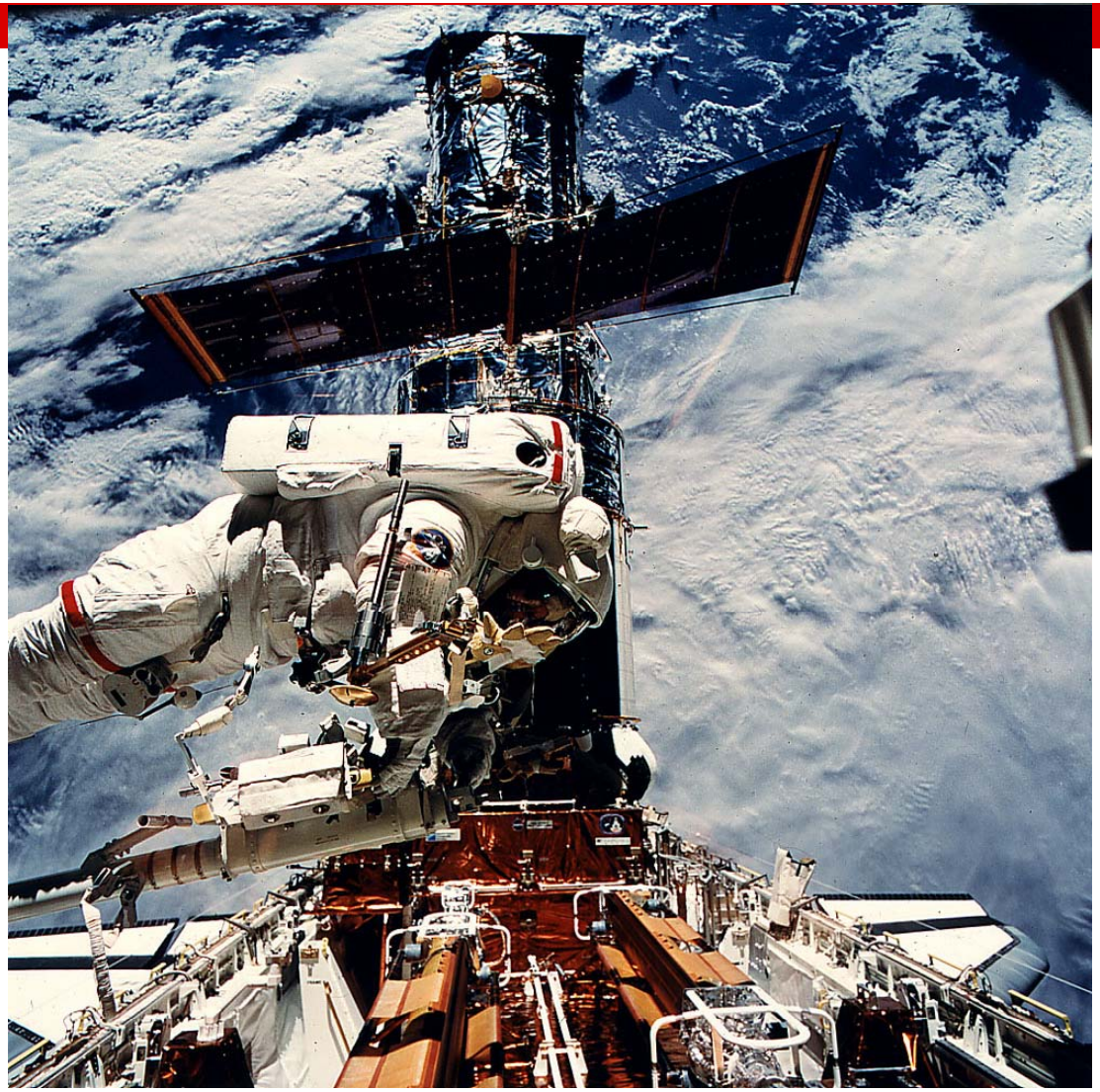
Remediation

- It happens to all of us!

PCI DSS is a compliance standard

That means there is little leeway for non-compliance. Compensating controls can be considered where reasonable

The costs of remediation depend on how close you are to meeting the standard



Some things you will need

These are requirements that are often not in place for the first time assessment and often need records showing compliance for a year:

- Quarterly external network vulnerability scanning from an ASV
- Internal and External network penetration tests
  - Annual or after each major change (Consider this if remediation involves significant change.)
- Developer compliance with OWASP or similar programs for security assurance in development processes

Formal assessment

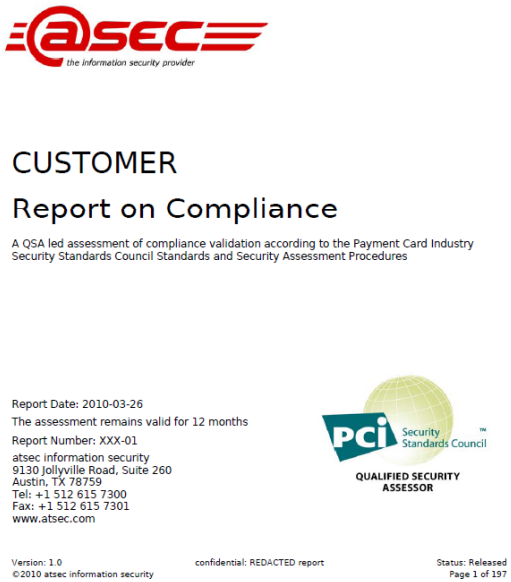
The formal assessment by a QSA will involve:

- Determining sampling methods
- Agreeing compensating controls
- Analysing documentation
  - Process, configuration standards, records etc.
- Reviewing systems and device configurations
- Interviewing

Reporting

- A document that is typically very lengthy.

QA processes for the document by the QSA are thorough. Expect this to take some time.


CUSTOMER

Report on Compliance

A QSA led assessment of compliance validation according to the Payment Card Industry Security Standards Council Standards and Security Assessment Procedures

Report Date: 2010-03-26
The assessment remains valid for 12 months
Report Number: XXX-01

atsec information security
9130 Jollyville Road, Suite 260
Austin, TX 78759
Tel: +1 512 615 7300
Fax: +1 512 615 7301
www.atsec.com

QUALIFIED SECURITY ASSESSOR

Version: 1.0
©2010 atsec information security

confidential: REDACTED report

Status: Released
Page 1 of 197

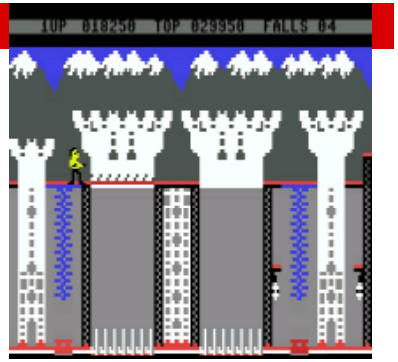
YOUR representative must also have time to read it. They must sign it asserting that :

- the ROC has been reviewed and that no errors or omissions known to the representative are present in the report.
- that all information provided to the QSA is correct and that no relevant information has been withheld from them.

Ongoing Monitoring

- Clarifications
  - merchant/organization clarifies/updates report statements (if applicable) upon bank request
- Further advice and consulting post-assessment
- Preparation for the next annual assessment

Pitfalls: Choosing Your Assessor



Choosing you assessor (skills and competency)

- Do they understand the other legislation, privacy and security requirements of your organization?
- Do they have experience with your technology choices?
- Do they understand the additional security built in to such systems, or do they try and map it to more common paradigms?

Conflict of Interest

- Don't choose assessor that tries to sell you their product, a partner's product, or consultancy

Transfer of Risk!

- Your assessor assumes risk when they make statements about your systems. Are they mature enough to realize this?

PCI Pitfalls: Snake Oil & Silver Bullets

We're sorry but unfortunately there are no

- Silver bullets
- Magic tools
- Wondrous applications

Some good things that PCI compliance may bring to PII protection

- PCI encourage scope reduction through consolidating cardholder data in as small a scope as possible.
- Tokenization techniques are becoming more popular, that may be extended to other PII and encourages the use of encryption (data at rest) and end to end encryption (data in transit)
- Any reduction in vulnerabilities & risk reduction of an organizations sensitive data has to be good….
- Applying similar controls and requirements to PCI to other PII data MAY help
- Mandatory PCI compliance includes a large population of organizations

Can a ROC or SAQ support a PIA?

Possibly….

Take care to understand the scope of the cardholder data environment. Some PII is more than likely outside the scope of the PCI assessment

Remember that (probably) not all PII is included. PCI does not care about SSN, biometric templates, security questions/answers etc. Take care to understand how the requirements affect PII not within the PCI definition of account data

The reports are only attested to be true on the date of the report.

Biometrics?

- Biometrics is not really mentioned in the PCI standards

They may be used as part of the answer to some of the requirements (e.g. two factor authentication) but the PII involved would not be protected by PCI DSS

atsec IS one of the first accredited NVLAP biometrics testing laboratories and the ONLY U.S. laboratory accredited for Scenario Testing - Human Crew – Lab

We offer to return and talk about that topic to you!

Resources

The PCI SSC Web Site: https://www.pcisecuritystandards.org/index.shtml

PCI Quick Reference Guide:
https://www.pcisecuritystandards.org/pdfs/pci_ssc_quick_guide.pdf

SAQs: https://www.pcisecuritystandards.org/saq/index.shtml#saq

Cryptographic Algorithms for the Payment Card Industry

http://www.atsec.com/downloads/white-papers/cryptographic_algorithms_PCI.pdf

Payment Card Industry Compliance For Large Computing Systems White Paper

http://www.atsec.com/us/pci-lcs.html

Popular overview of PCI requirements:
http://www.youtube.com/watch?v=OceYWri86Ts