E-Banking Regulatory Update

Hal R. Paretchan, CISA, CISSP, CFE
Information Technology Specialist
Federal Reserve Bank of Boston
Supervision, Regulation & Credit
(617) 973-5971 – hal.paretchan@bos.frb.org

Objectives

- Why is the guidance needed?
- E-Banking Background
- Regulatory Guidance - SR Letter 05-19
- Risk Assessment
- Effective Authentication System
- Outsourcing Responsibility
- Questions

Threat Assessment

From the perspective of the Internet user

- Malicious code
- Phishing attacks
- Vishing attacks
- Pharming

Malicious Code

- There are number of ways malicious code can get on your PC
- Visiting the wrong website
- Email attachments
  - Viruses: Zero-Day attacks go undetected

Malicious Example: World Cup

What was the big story of the World Cup?

Malicious Code: Keylogger

- Software sold on Russian Site
- As little as $20
- Capture all your keystokes and send them to attacker.
- For every website you log into – your username and password are captured.

Malicious Example: Pop-up Window

- American Express customers targeted in May 06.
- A virus attached to victim's Internet Explorer browser
- Once victim visited the legitimate site, a pop-up window appeared asking for account information

Phishing Example

Goal: Get user's personal information

Two main elements:

1. Email
   - Penalty for non-compliance
   - Time sensitive
   - Convenient link to company's website

2. Phony Website
   - Has look and feel of the real website
   - Requires you to provide your credentials
   - Some even pass you through to real website

Phishing Example: PayPal

Source:

Anti-Phishing Working Group

Committed to wiping out Internet scams and fraud

http://www.antiphishing.org/

Vishing Example: PayPal

Update your PayPal account informations

File Edit View Tools Message Help

From: Paypal Inc. [pulzajn@paypal.com]
Date:
To:
Subject: Update your PayPal account informations

PayPal

Account Verification

Dear [redacted]
You have received this email because we have strong reason to belive that your PayPal account had been recently compromised. In order to prevent any fraudulent activity from occurring we are required to open an investigation into this matter.

If your Credit/Debit Card on file is not updated within the next 48 hours, then will assume this account is fraudulent and will be suspended. We apologise for this inconvenience, but the purpose of this verification is to ensure that your PayPal account has not fraudulently used and to combat fraud attempts.

To speed up the process, you are required to call us (1-806-[redacted]) to verify your PayPal account.

We apologise in advance for any inconvenience this may cause you and we would like to thank you for cooperation as we review this matter.

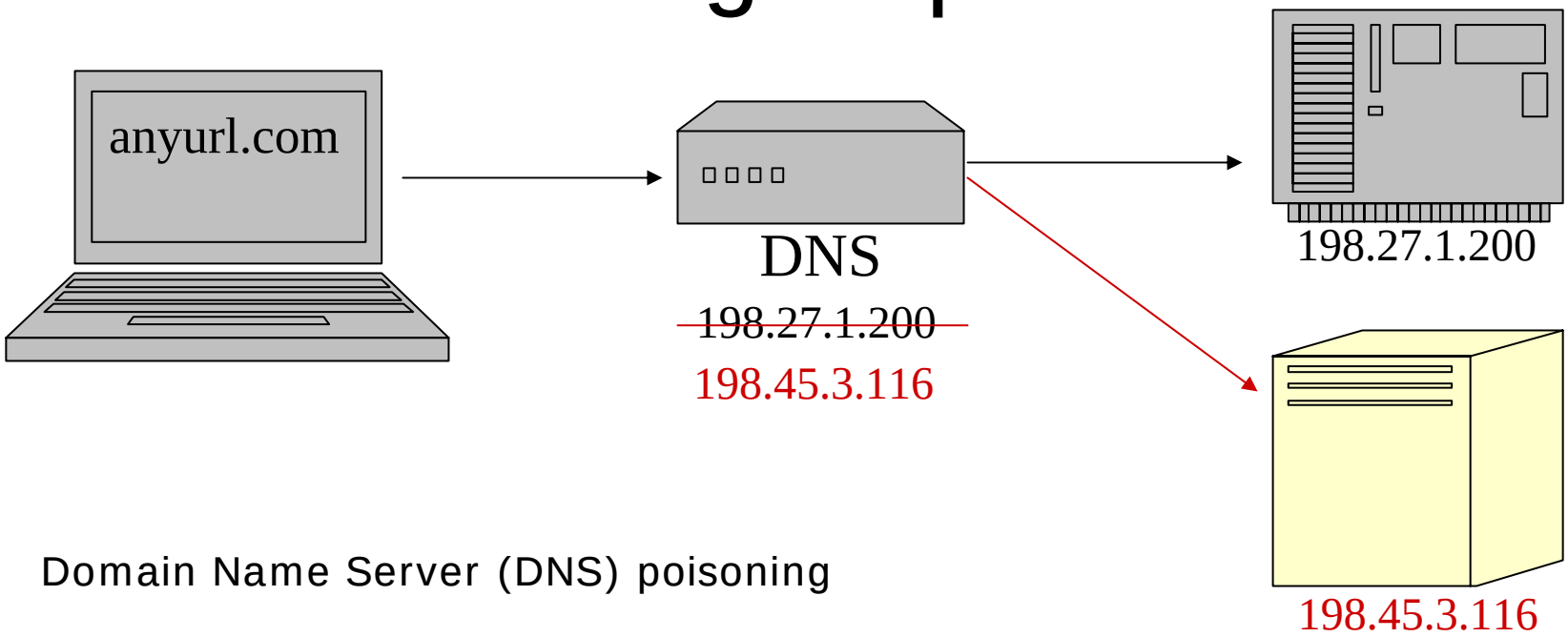
Regards,
PayPal Account Verification.
Copyright © 1999-2006 PayPal. All rights reserved.

Please do not reply to this e-mail. Mail sent to this address cannot be answered.

Similar to Phishing but instead you are given a phone number to call.

Again you are asked for personal information.

Pharming Explained



Domain Name Server (DNS) poisoning

- DNS is like a phonebook for the Internet
  www.anyurl.com = 198.27.1.200
- Good IP addresses are replaced with bad ones redirecting user
- Your browser would not know the difference

What do all these attacks have in common?

- Thieves want your credentials
- They want them to enter your username & password and get access to your funds
- Or they want to sell them to other thieves

How does this make money?

In the Pay Pal scams, if you send 100,000 emails…
and 1% of the recipients thinks it is real and goes to the phishing website…
and 1% of them actually submits their information…
you just stole 10 credit cards.

10 @ $1,000.00 = $10,0000

e-Banking Background

E-Banking is:

‘the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels’

FFIEC E-Banking Booklet – August 2003

Two Types of Websites

Informational

- Provides customers with general information on bank's products and services
- Includes contact information

Transactional

- Provides customers with the ability to conduct transactions through the website
  - Initiating banking transactions
  - Buying products and services

Transactional e-Banking Retail/Wholesale Products & Svcs.

RETAIL

- Account Management
- Bill payment and presentment
- New account opening
- Consumer wire transfer
- Investment/Brokerage services
- Loan application and approval
- Account aggregation

WHOLESALE

- Account Management
- Cash management
- Commercial wire transfer
- Business-to-business payments
- Employee benefits/pension administration

Regulatory Guidance SR Letter 05-19

SR 05-19 Interagency Guidance on Authentication in an Internet Banking Environment

- *Updates and replaces 2001 FFIEC guidance entitled 'Authentication in an Electronic Banking Environment'*

Federal Financial Institutions Examination Council

Authentication in an Internet Banking Environment

Purpose

On August 8, 2001, the FFIEC agencies[1] (agencies) issued guidance entitled *Authentication in an Electronic Banking Environment* (2001 Guidance). The 2001 Guidance focused on risk management controls necessary to authenticate the identity of retail and commercial customers accessing Internet-based financial services. Since 2001, there have been significant legal and technological changes with respect to the protection of customer information;[2] increasing incidents of fraud, including identity theft; and the introduction of improved authentication technologies. This updated guidance replaces the 2001 Guidance and specifically addresses why financial institutions regulated by the agencies should conduct risk-based assessments, evaluate customer awareness programs, and develop security measures to reliably authenticate customers remotely accessing their Internet-based financial services.

This guidance applies to both retail and commercial customers and does not endorse any particular technology. Financial institutions should use this guidance when evaluating and implementing authentication systems and practices whether they are provided internally or by a service provider. Although this guidance is focused on the risks and risk management techniques associated with the Internet delivery channel, the principles are applicable to all forms of electronic banking activities.

Summary of Key Points

The agencies consider single-factor authentication, as the only control mechanism, to be inadequate for high-risk transactions involving access to customer information or the movement of funds to other parties. Financial institutions offering Internet-based products and services to their customers should use effective methods to authenticate the identity of customers using those products and services. The authentication techniques employed by the financial institution should be appropriate to the risks associated with those products and services. Account fraud and identity theft are frequently the result of single-factor (e.g., ID/password) authentication exploitation. Where risk assessments indicate that the use of

[1] Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, National Credit Union Administration, Office of the Comptroller of the Currency, and Office of Thrift Supervision.
[2] Customer information means any record containing nonpublic personal information as defined in the Interagency Guidelines Establishing Information Security Standards at section 1.C.2. 12 CFR Part 30, app. B (OCC); 12 CFR Part 208, app. D-2 and Part 225, app. F (FRB); 12 CFR Part 364, app. B (FDIC); 12 CFR Part 570, app. B (OTS); and 12 CFR Part 748, app. A (NCUA).

SR 05-19 Key Points

- A High-Risk Transaction is a transaction that involves access to Customer Information or the movement of funds to other parties.

- Using single factor authentication as the only control mechanism is inadequate for High-risk Transactions.

- Not “Multifactor”

SR 05-19 Compliance

By December 31, 2006:

- Financial Institutions are require to have completed a risk assessment of all their e-Banking products and services and identify all High Risk transactions.

- Develop and fully implement a plan to mitigate the risks.

Risk Assessment

The risks should be assessed based of the following:

- Type of customer (e.g. retail or commercial)
- Customer's transactional capabilities (e.g. bill payment, wire transfer, loan origination)
- Sensitivity of customer information
- Ease of using communication method
- Volume of transactions

Based on the assessment a Financial Institution will determine what level of authentication is required.

Effective Authentication Systems…

- Safeguard Customer Information
- Prevent Money Laundering
- Prevent Terrorist Financing
- Reduce Fraud
- Inhibit Identity Theft
- Promote legal enforceability of electronic agreements and transactions

Strong Authentication

Combination of 2 or more of the following:

1. Something you KNOW
   - PIN, Password, Account #, UserID
2. Something you HAVE
   - Token, SecureID, Card, Smart Card
   - Geo Location
3. Something you ARE
   - Biometrics
4. Mutual authentication

Single Factor authentication uses only one!

Single Factor vs. Multifactor Authentication

Single factor (Used for low risk product and services) :

Pros – cheaper, easier to implement, less burden on customer

Cons – weak security and more susceptible to phishing attacks

Multifactor (Used for High Risk products and services) :

Pros – greater level of security and non-repudiation

Cons – expensive, complicated to implement and puts a greater burden on customer

Guidance does not specifically require the use of Multifactor authentication; layered security and other means are permitted.

Authentication Methods

- Customer passwords
- Bingo Cards
- Personal identification numbers (PINs)
- Digital Certificates using public key infrastructure (PKI)
- Smart Cards
- One-time passwords
- USB plug-ins
- Transaction profile scripts
- Biometric identification
- Mutual Authentication
- Out of Band Authentication

Layered Security

- Analyze customer activities to identify suspicious patterns
- Establish preset transaction limits
- Establish preset list of transaction recipients
- Out of band confirmations

Outsourcing Responsibility

While the institution does not have to manage the daily administration of the website component systems, its management and board remain responsible for the content, performance, and security of the e-banking system.

Third Party Oversight

Types of monitoring reports:

- E-banking service availability
- Activity levels and service
- Performance efficiency
- Security incidents
- Vendor stability
- Quality assurance

E-BANKING

Useful Links

- Report ID Theft to FTC
  www.consumer.gov/idtheft

- FFIEC E-Banking Handbook
  www.ffiec.gov/ffiecinfobase/booklets/e_banking/e_banking.pdf

- SR 05-19 Guidance on Authentication in an Internet Banking Environment
  www.federalreserve.gov/boarddocs/srletters/2005/sr0519.htm

- SR 04-14 FFIEC Brochure with Information on Internet "Phishing“
  www.federalreserve.gov/boarddocs/srletters/2004/sr0414.htm