



Enabling Strong Authentication for a Digital Economy

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The Digital Economy Has Arrived...

+ More than ever, consumers are doing business online

- Retailing
- Banking and Investing
- News and Entertainment
- Personal Healthcare



+ For the consumer

- Convenience and choice

+ For the fraudster

- More opportunities to hack and steal



....Leading to Different Business Drivers

BUSINESS DRIVERS

1) Reduce Online Theft and Fraud

- Increasing online fraud losses and cyber attacks
- Americans lost about \$49.3 billion in 2007 to identity theft
- Electronic Medical Records - privacy and fraud concerns
- Social Networking sites - the new target for identity thieves
- Security versus usability - a balancing act

2) Strengthen Competitive Differentiation

- Pure product differentiation is difficult
- Security is a critical area
- Security can be an enabler to strengthen differentiation

3) Improve Customer Loyalty

- Online banking customers have higher satisfaction
- Loss of members and advertising revenue
- Costs 5x to attract new customers rather than servicing existing ones
- Business enablement with improved security

4) Reduce costs

- Security as an enabler to go "green"
- Businesses demanding open-standards based technologies
- No vendor lock-in and quick time-to-market

5) Regulation and its effects

- Evolving compliance and regulations to protect online consumers & businesses
- New guidelines globally on 2FA and fraud evolving
- FFIEC, HIPAA, Monetary Authority of Singapore driving security upgrades
- Less regulated industries may become more regulated in future

Consumer Authentication: Consumer Pains

- + Top concerns from US consumers who have not made online purchase was the possibility of information being intercepted during a transaction or accessed by unauthorized parties.
- + Increasing online banking fraud losses and cyber attacks
 - Near 40% of top 100 US banks saw an increase in online banking fraud losses in the 12 months (Aite Group 2007)
- + Stronger authentication / fraud protection deployment vs. Ultimate usability
 - Many users still don't want too much change when it comes to changing the way they authenticate to their online bank

Key Security Concerns of Consumers in the US and Europe, April-May 2006 (% of respondents in each group)

	US	Europe
Identity protection	80%	46%
Guarding personal financial information	70%	47%
Safety of family	69%	74%
Security of Internet transactions	65%	52%
Personal safety	61%	57%
Security of home computer	61%	40%
Protecting personal property	51%	51%
Terrorist attack	42%	43%
Guarding personal medical information	39%	24%
Safety of air travel	38%	32%

Note: n=1,037 (US), n=1,203 (Europe)

Source: CMO Council and the Zyman Institute of Brand Science, Emory University (ZBS), "Secure the Trust of Your Brand: Assessing the Security Mindset of Consumers," conducted by Opinion Research Corporation, September 2006

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www.eMarketer.com

Holiday Shoppers in Select Countries Worldwide Who Have Been Victims of Online Security Issues, by Type, October 2007 (% of respondents)

	Canada	France	Germany	Japan	UK	US	Total
Spyware or virus infections	54.5%	34.3%	34.2%	16.7%	45.8%	43.4%	38.1%
Phishing	31.9%	19.5%	9.3%	2.8%	31.8%	35.9%	21.8%
Online fraud	10.9%	6.1%	9.3%	4.0%	6.9%	11.1%	8.0%
Stolen credit card or bank account number	6.9%	4.1%	0.8%	1.8%	5.9%	9.6%	4.9%
Identity theft	2.5%	3.1%	2.4%	1.6%	2.3%	6.5%	3.1%

Note: n=3,626 Windows PC users

Source: Webroot Software, "State of Internet Security: Protecting Consumers Online," November 2007



The threat landscape – The customer perspective



- + *“...consumers that have a high level of trust ... are most likely to use the bank for a wider variety of complex online banking tasks than those who don't have such a degree of faith in their bank”*
- + *“...57 per cent of interviewees who stated they have a high trust in their primary bank will stop ... using the bank's online services in the event of a single privacy breach.”*
- + *“...there are lots of security measures which are not user-friendly. The challenge is to find a balance between the amount of security and user-friendliness.”*

SOURCE: Datamonitor - Online Banking Strategies in Europe Report 2006

<http://www.datamonitor.com/~f9ebf933ee3b40b1bacfbb6b9b40f4cb~/industries/research/?pid=DMFS1950&type=Report>

Selecting the Optimal Level of Consumer Authentication

If Risk is low:

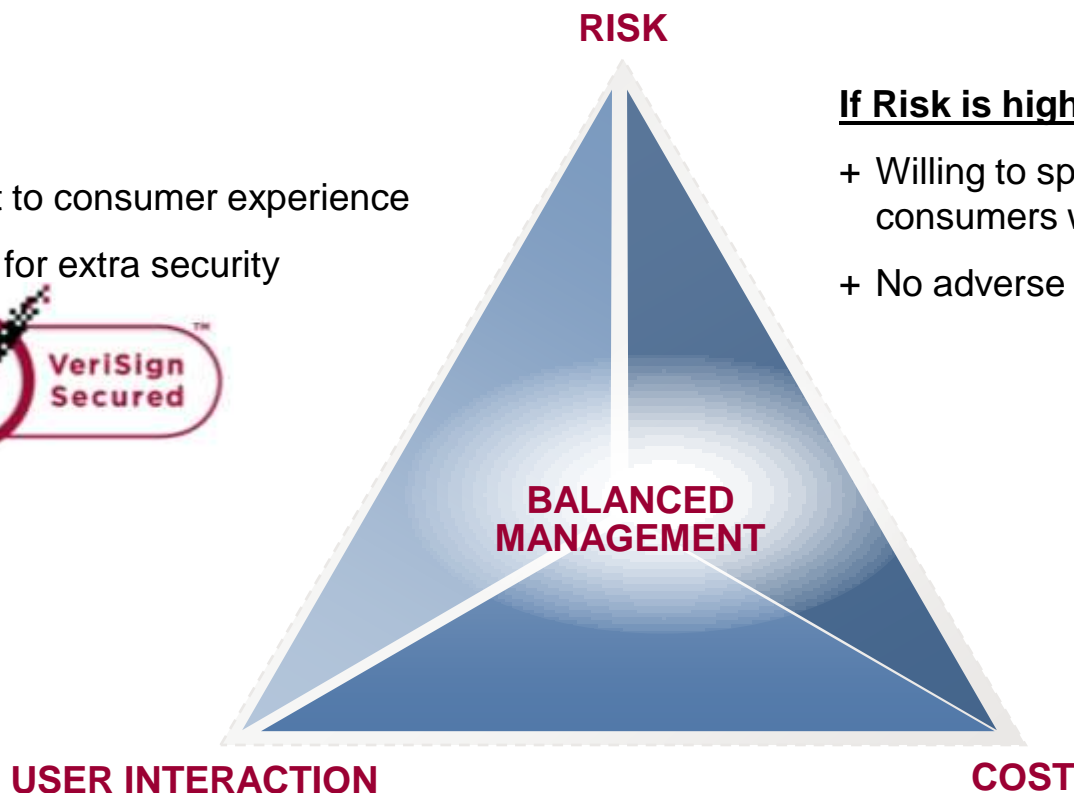
- + Minimal impact to consumer experience
- + Minimal spend for extra security

EV SSL



If Risk is high:

- + Willing to spend for stronger auth and consumers willing to absorb some cost
- + No adverse impact to consumer experience



Risk can be measured by:

- + Financial Assets
- + Personal Identifiable Information (PII)
- + Customer Retention
- + Brand Protection

Security versus Usability – Our Research Support

5

Where would you like to use your security token?

(Open question—please select a maximum of three)

Online Banks	84%
Online shopping / gaming	67%
Online brokerages	52%
Healthcare	49%
Multiple banks	26%
Multiple online brokerages	9%

* VeriSign eBay Live Survey, June 2007-2008

Leading Companies Turn Security Into Revenue

- + Increased Account Activity through Higher Consumer Confidence
 - Larger accounts and more sophisticated transactions
 - Linking accounts to other activity outside the enterprise
 - “Top-of-Wallet” differentiation
- + Customer Acquisition
 - Using security to attract the security-sensitive customer
- + Competitive Differentiation
 - Branding the customer experience as “trust”
- + Cost Reduction
 - Link security to reduction of paper statements accomplishes both higher security and cost reduction
- + Customer Retention
 - Embedding security into device such as phone or PC

Companies Who Leverage Trust / Security in their Brand

- + FedEx
 - When it absolutely, positively has to be there overnight
- + Michelin
 - Because so much is riding on your tires
- + Volvo
 - Long perceived by soccer moms as the safest car on the road
- + Whole Foods
 - Wholesome and organic food products
- + Master Locks
 - Tough under fire
- + Amazon.com and eBay
 - Safe, assured e-commerce
- + VeriSign
 - The trusted provider of Internet infrastructure services for the digital world

VOLVO

FedEx

**WHOLE
FOODS
MARKET**

amazon.com.

VeriSign®



eBay®

VeriSign®

Key Factors to Enable Next Gen Strong Auth

- + Open Standards Based - Future Proof
- + Consumer Choices – Flexibility of Credential Type
- + Concept of Token Sharing
 - Enablement into Consumer Digital Wallets
- + Self-Service Administration
- + Ease of Integration into Existing Applications
- + Provided at Lower Cost



Open Standards Based - Future Proof



- + 71 active members and counting
- + 15 interoperable shipping products

Flexibility - OATH

- + OATH OTP submitted to IETF
- + OATH Java added to IETF proposal
- + Royalty free IP for the whole Internet community
- + Already Many OATH Compliant Solutions
 - Aladdin
 - Authenex
 - Axalto
 - Diversinet
 - GemPlus
 - RedCanon
 - Vasco
 - VeriSign



Consumer Authentication Concepts



Some Definitions

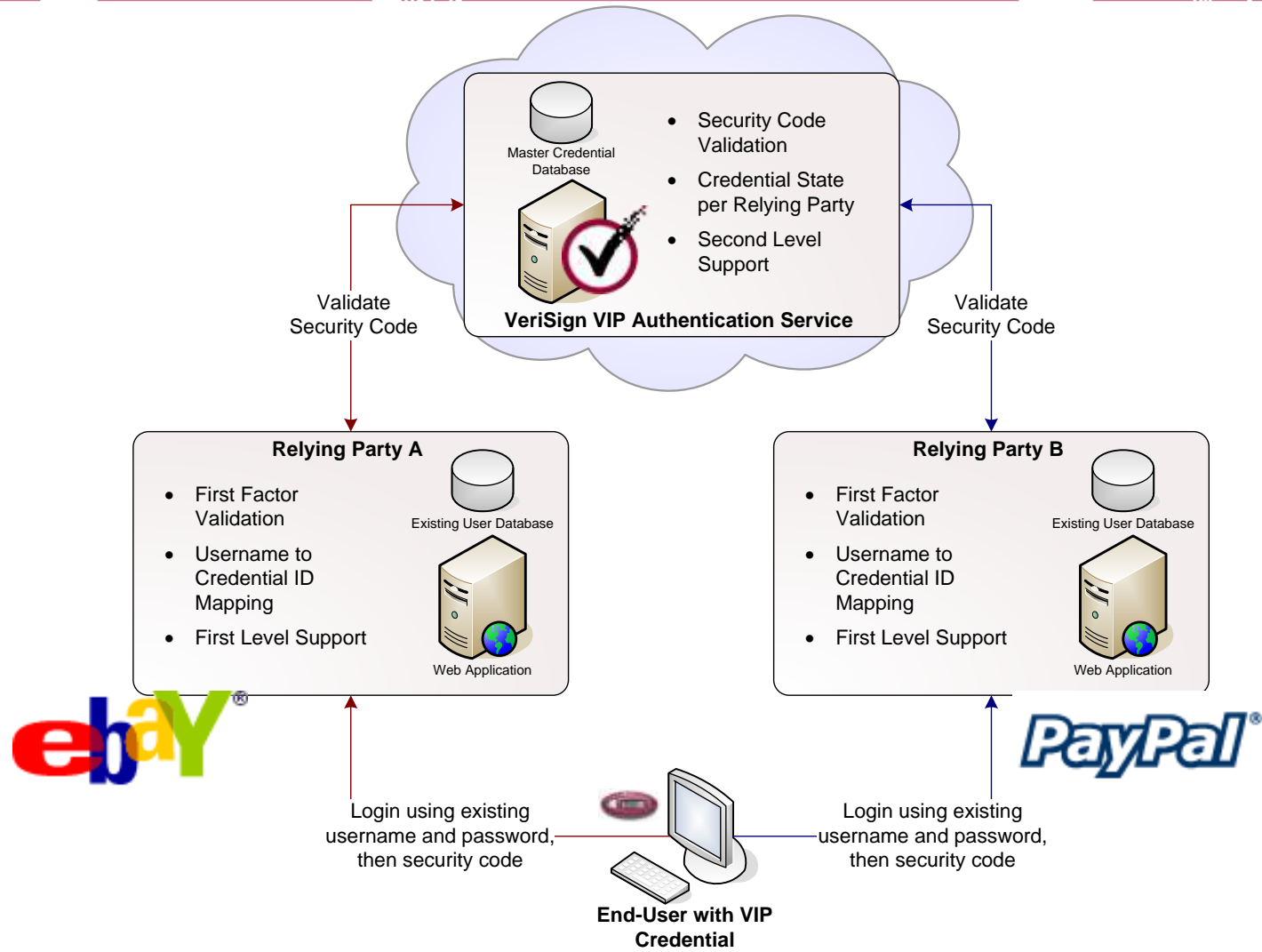
- + **First Factor**
 - “Something you know” – a user’s existing username and password
- + **Second Factor**
 - “Something you have” – an additional layer of authentication beyond username and password
- + **VIP Credential**
 - Hardware or software which acts as the user’s second factor
 - Generates security codes
 - Has an anonymous Credential ID, but no user identity information
- + **Security Code**
 - A six digit code generated by a VIP Credential

Inspired by the Offline World

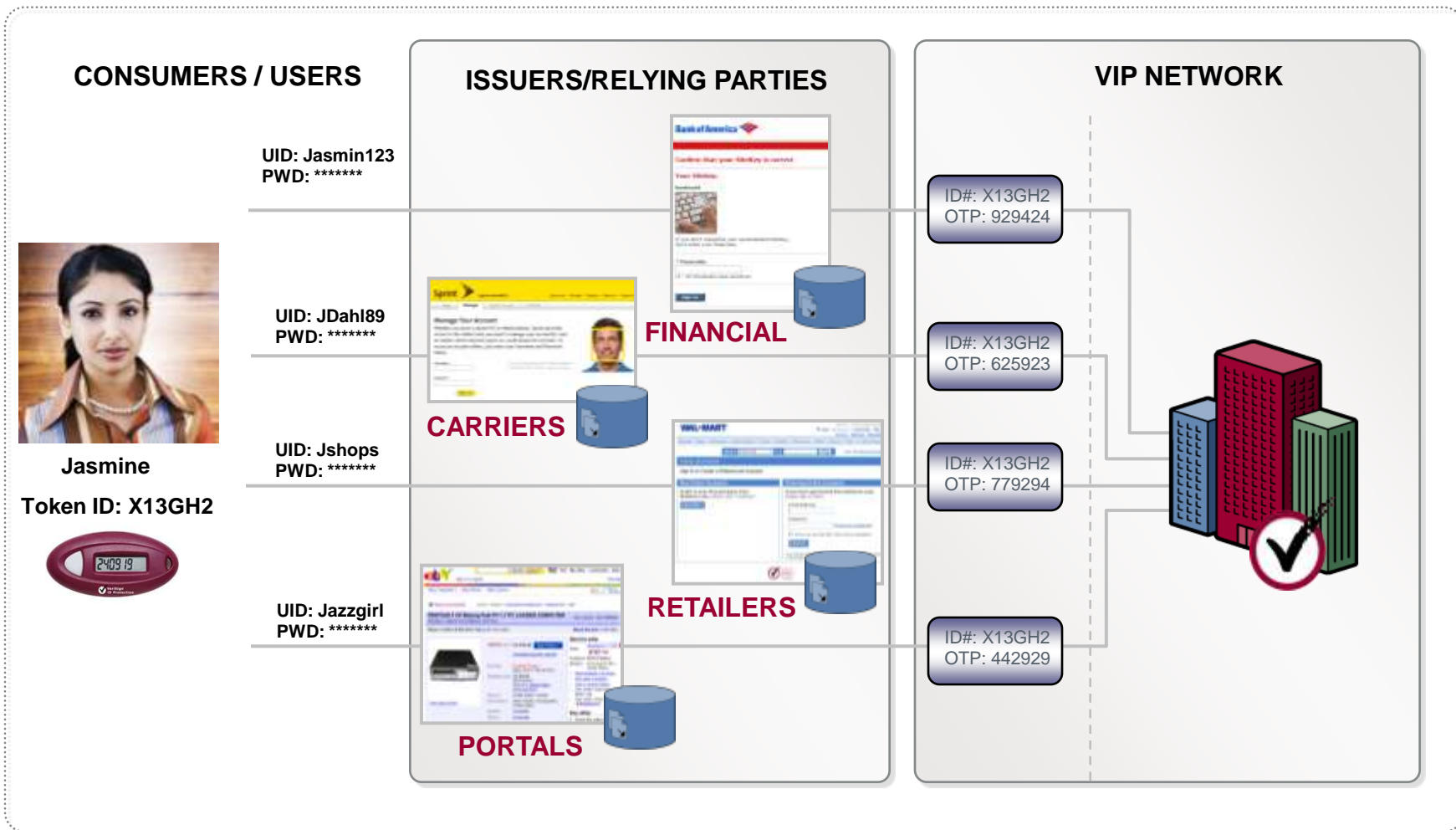


- + An ATM card works across all the banks on the Cirrus network
- + A VIP credential works across all web sites on the VIP network

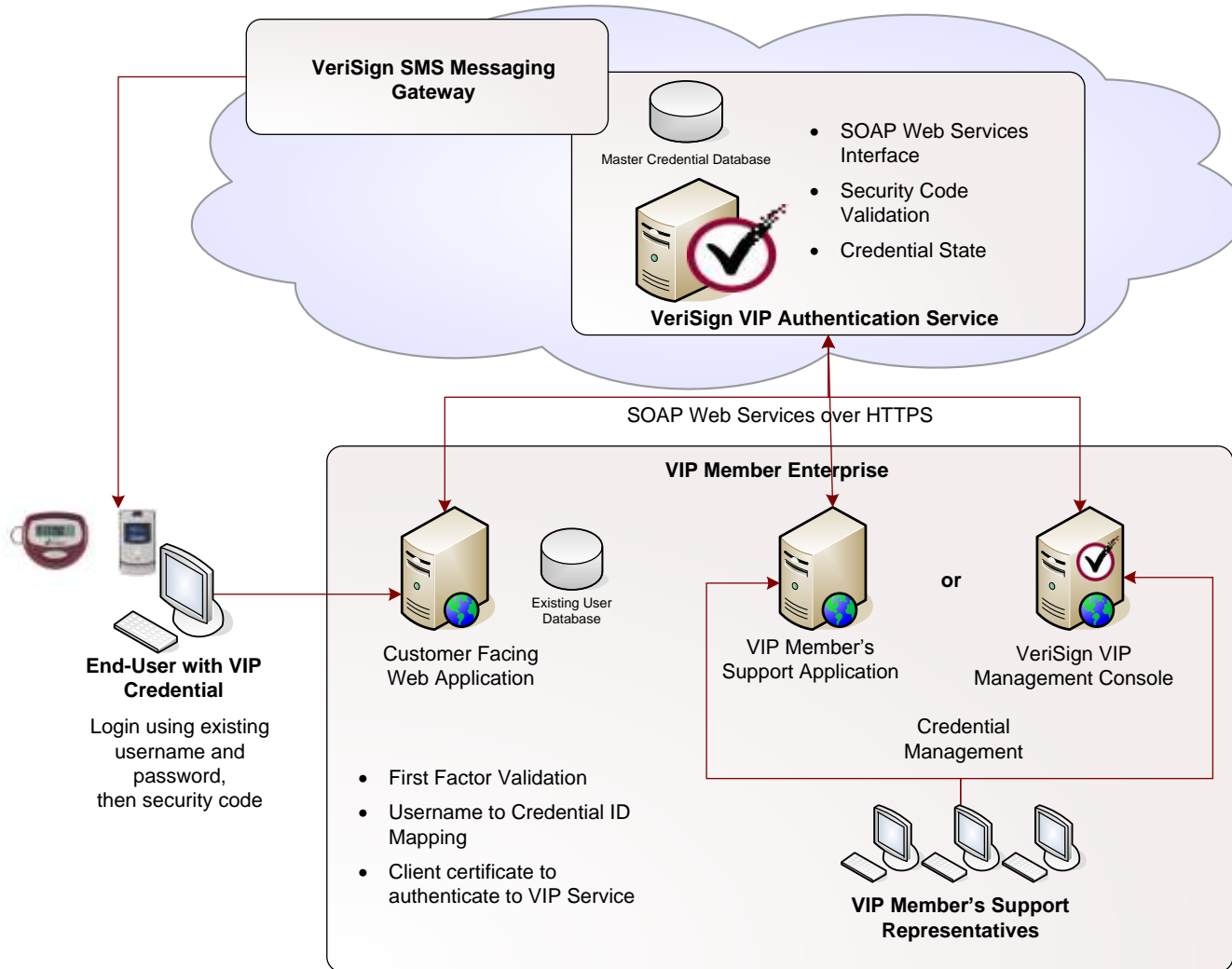
Token Sharing



Sharing Second Factor Authentication



Ease of Integration - Web Services Deployment



Ease of Use

Activate Your PayPal Security Key - PayPal - Microsoft Internet Explorer provided by VeriSign

https://www.paypal.com/us/cgi-bin/webscr?cmd=_activate-security-key

PayPal, Inc. [US] Google

File Edit View Favorites Tools Help Links >>

Activate Your PayPal Security Key - PayPal

My Account Send Money Request Money Merchant Services Auction Tools

Products & Services

Activate Your PayPal Security Key

Enter your PayPal Security Key details and click **Activate**. [I don't have a PayPal Security Key.](#)

Step 1: Enter the serial number printed on the back of your PayPal Security Key.

Serial Number:

Step 2: Press the button on your PayPal Security Key and enter the code that appears.

Six-Digit Code:

Step 3: Wait 30 seconds for the display to clear and press the button again. Enter the code that appears.

Next Six-Digit Code:

Once your PayPal Security Key is activated, you will need it every time you log in to your PayPal account. To log in, you will enter your user name and password along with the security code generated by your PayPal Security Key.

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Done

Internet 100%

Start Microsoft... Windo... Inbox -... Sales N... 4 Micr... Activa... Inbox -... 8:43 AM

eBay / PayPal 'Security Key' Exceeds Expectations

- + February 2007 Public Launch with no associated marketing
- + Demand has been significantly exceeded expectations – consumers want this level of security
- + Increasing country deployments over the next several months
- + 87% rate usability as good to excellent
- + **Anecdotal**

“Incredibly easy”....”I love it—I’m going to make my password less complex because I’ll always carry my security key”....”**It is going to go with me everywhere**”.....

“I think **with the added security I’ll take advantage of the 5.03% interest rate on cash deposited**”

“A nice product **I wish my own financial institution would institute**.....”

