



SECURITY®

RSA® ADAPTIVE AUTHENTICATION

Balancing Risk, Preference, and Security



Tallinn, June 8th 2006

RSA Cyota Consumer Solutions





RSA® ADAPTIVE AUTHENTICATION: THE RSA CYOTA CONSUMER SOLUTION



JOINING FORCES: RSA SECURITY & CYOTA

RSA Cyota Consumer Solutions



JOINT HERITAGE



- 20 years of providing two-factor authentication
- More than 18,000 customers
- 1,200+ employees, over \$300 million in revenues, NASDAQ traded
- Over 3 million consumer tokens deployed by 90 FIs
- 86% of the Top 50 world banks use RSA Security



- Over six years in consumer authentication & online fraud
- 9 of top 12 banks in North America/UK use Cyota's services
- Over 430 million consumers protected by Cyota technology
- Operating the largest online fraud shared database - eFraudNetwork™



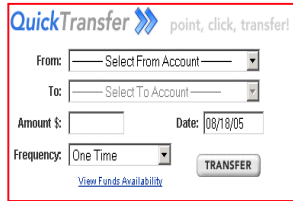
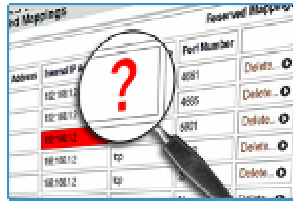


GLOBAL COVERAGE. GLOBAL CONSUMER CLIENTS.





END TO END LAYERED ONLINE PROTECTION

External Threats	Pre-Login Authentication	Strong Authentication	Transaction Protection
<p>Stop Phishing & Pharming</p> <p>via a 24x7 Service</p> 	<p>Validate Site to User</p> <p>via digital watermarks</p> 	<p>Login & Transaction Authentication</p> <p>via risk & segment based authentication</p> 	<p>Fraud & Risk Management</p> <p>via transaction monitoring</p> 



WHAT DOES IT MEAN FOR YOU?

- > The full spectrum of security solutions
- > A single, strong, long-term partner
- > Proven expertise and production results
- > Leveraging a unique cross-bank eFraudNetwork

Gartner: Innovation is key

"RSA will also benefit from Cyota's traction in the financial services fraud detection market, its customer base and its ability to innovate in a fledgling market."

– Avivah Litan, Gartner Analyst (Dec. 2005)



RSA® ADAPTIVE AUTHENTICATION: THE RSA CYOTA CONSUMER SOLUTION



A CHANGING ENVIRONMENT REQUIRES AN ADAPTIVE SOLUTION

CHANGING THREATS, REGULATIONS, AND CONSUMER BEHAVIOR

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A CHANGING ENVIRONMENT

- > Threats change
- > Regulations and guidance change – FDIC, FFIEC, SEC
- > Activities and transactions differ
- > Consumer preferences differ

ONLY ONE THING IS CERTAIN

THESE WILL KEEP ON CHANGING...



THREATS CHANGE



"Classic" Phishing

Keylogging

Malware

Spyware

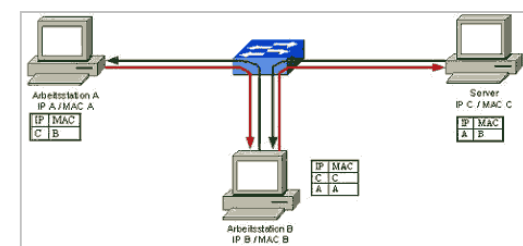
Botnets

Trojans

Man-in-the-Middle Attacks

Pharming

And More ...





CONSUMER BEHAVIOR DIFFERS

BANKING ACTIVITIES	TRANSACTION VALUES	COMPUTING BEHAVIOR	HIGH RISK
Electronic funds transfer	High monetary value transaction	Use multiple PCs from different locations	
Open new linked accounts	Medium monetary value transaction	Mostly use the same PC from same locations	
Balance check	Low monetary value transaction	Always use the same PC from same location	
			LOW RISK



WHAT *DON'T* WE NEED...

- > A “one size fits all” security
- > To ‘harass’ the wrong users

WHAT *DO* WE NEED...

- > Balance security, usability
- > Effective today and tomorrow
- > Solutions, not point products
- > A partner, not another vendor





RSA® ADAPTIVE AUTHENTICATION: THE RSA CYOTA CONSUMER SOLUTION



RSA® ADAPTIVE AUTHENTICATION

THE RSA CYOTA SOLUTION: SIMPLE. FLEXIBLE. PROVEN.

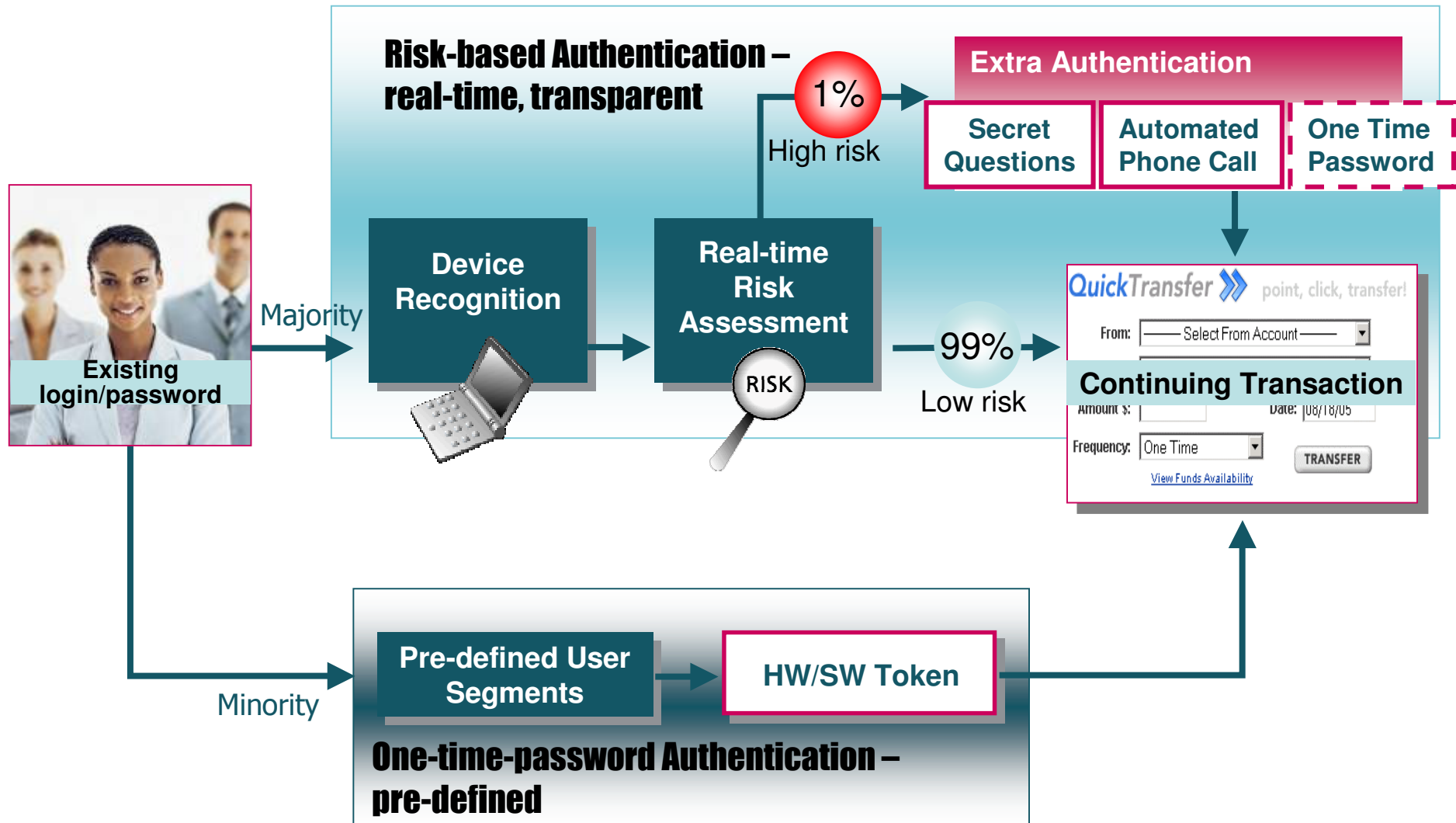
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WHAT IS RSA ADAPTIVE AUTHENTICATION?

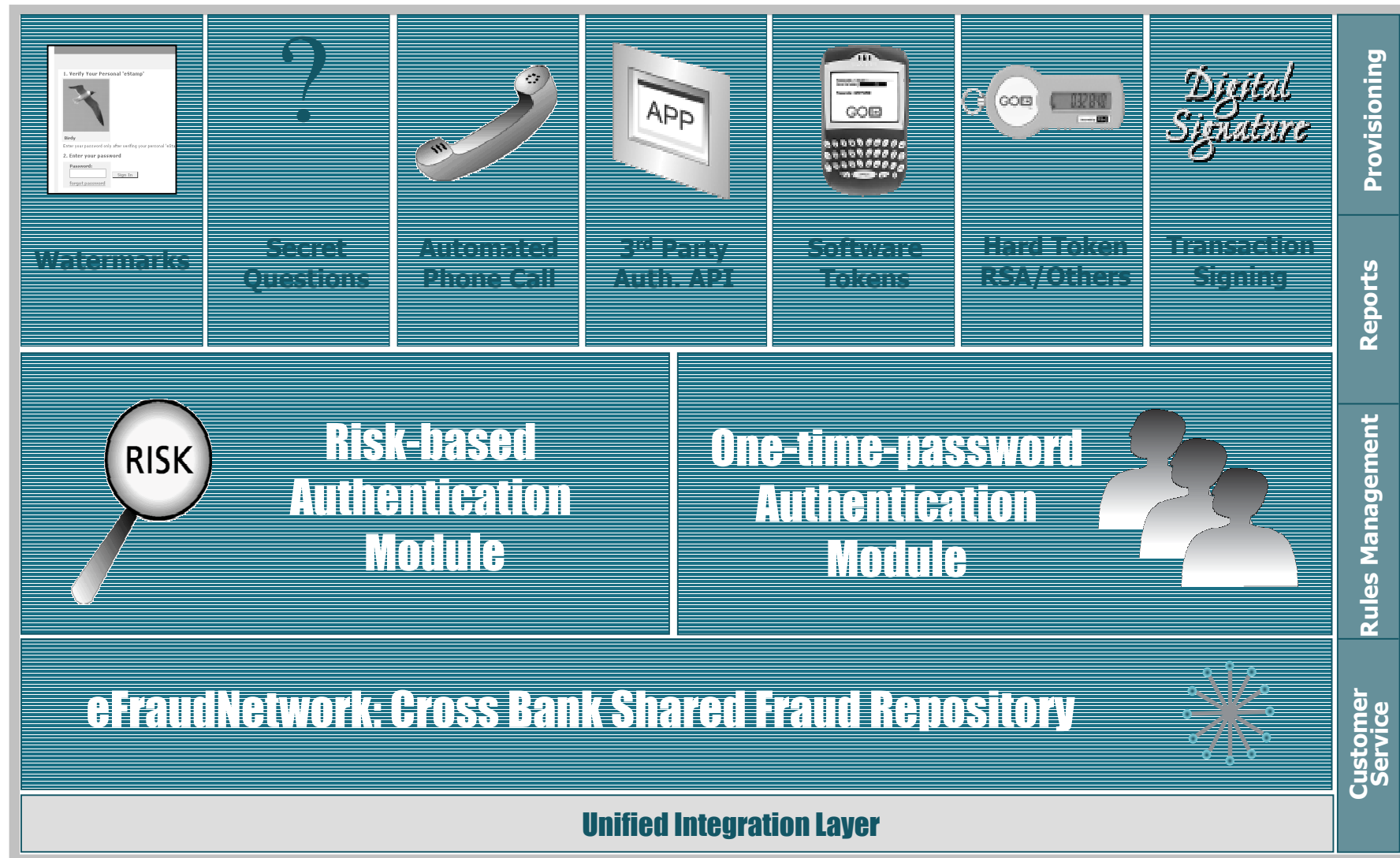
- > Widest spectrum of authentication methods and vehicles
- > Dynamically adjusted security based upon customer, regulation, risk
- > Behind-the-scenes, transparent authentication for majority of users
- > Coupled with tangible security for high-risk/security-savvy segments

Flexible, layered authentication that matches security with transaction risk, customer need and preference





ADAPTIVE AUTHENTICATION MODEL





RSA® ADAPTIVE AUTHENTICATION: THE RSA CYOTA CONSUMER SOLUTION



CROSS-BANK FRAUD NETWORK

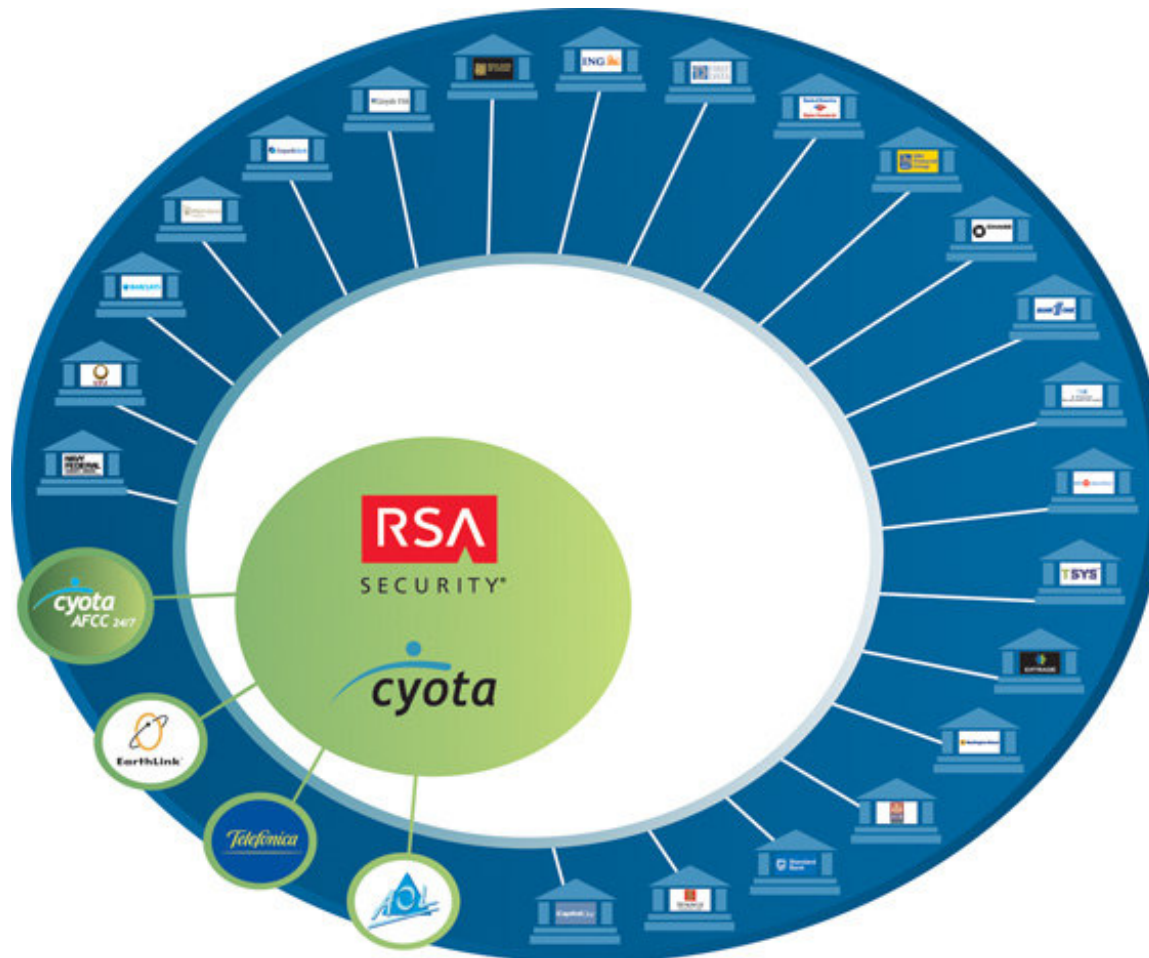
AT THE CORE: THE RSA CYOTA eFraudNetwork™

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WORLD'S LARGEST ONLINE FRAUD FIGHTING COMMUNITY

The eFraudNetwork





WHAT IS THE eFraudNetwork?

- > Fraudster database: Cross-bank, shared – IPs / Devices and more...
- > Expansive: Over 50 large banks; issuers; brokerages and major ISPs
- > Broad members: Authentication, risk management, anti-phishing customers
- > Value to you: Don't fight fraudsters alone!
- > Not a vision, a reality: Live data, signed contracts, demonstrated savings

Client Quote:

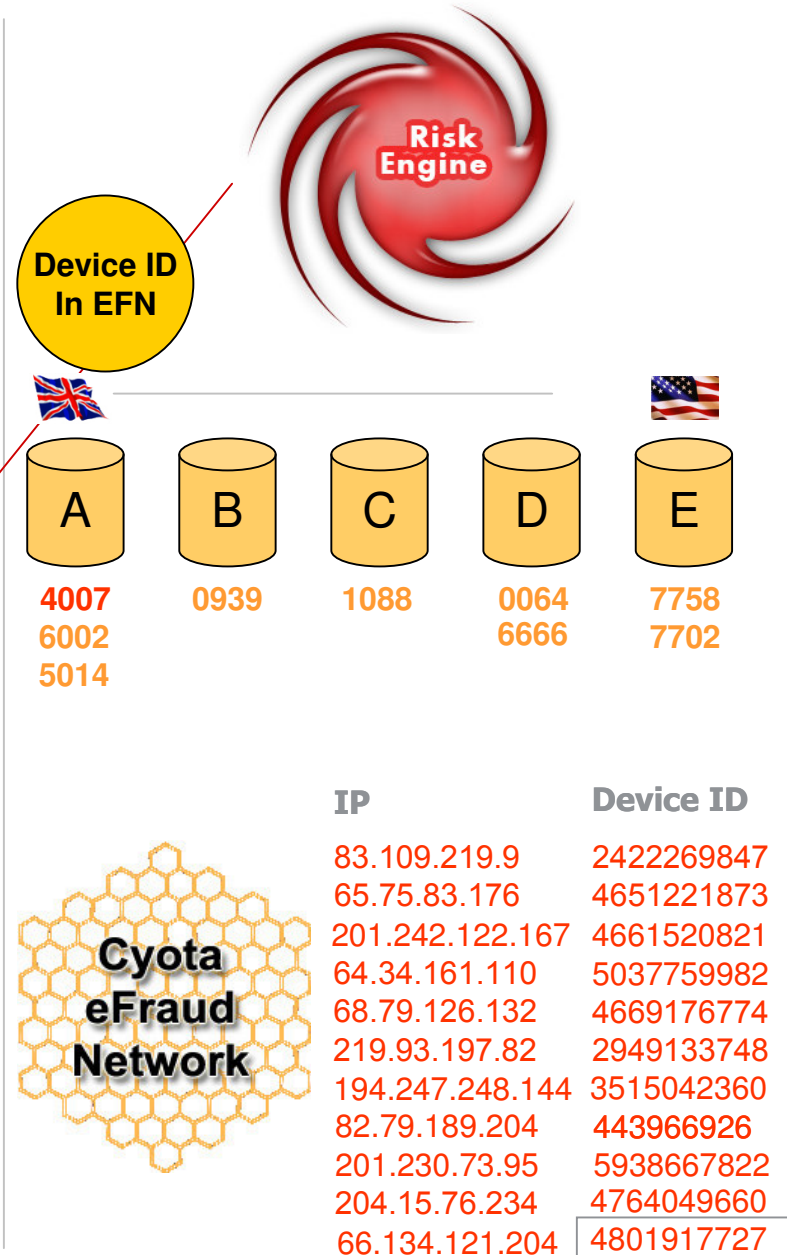
"We selected Cyota because its eFraudNetwork enables us to leverage the collective fraud insight and diligence of so many global banks..." -December 2005

Client Quote:

"Because online fraud crosses international boundaries, WaMu is further protecting its customers by joining a real-time world-wide fraud detection network" -December 2005



Date	Time	IP	Geo Location Country	Geo Location City	Bank	last 4 digits	Device Tag
Dec 15	12:52	83.109.219.9	Norway	Oslo	A	4007	2422269847
Dec 15	12:53	65.75.83.176	Bahamas	Nassau	A	4007	4651221873
Dec 15	15:45	201.242.122.167	Venezuela	Caracas	A	4007	4661520821
Dec 15	15:48	201.242.122.167	Venezuela	Caracas	E	7558	4661520821
Dec 15	15:49	201.242.122.167	Venezuela	Caracas	E	7702	4661520821
Dec 15	15:49	201.242.122.167	Venezuela	Caracas	A	6002	4661520821
Dec 15	15:48	201.242.122.167	Venezuela	Caracas	A	5014	4661520821
Dec 15	17:50	64.34.161.110	USA	San Diego CA	A	5014	5037759982
Dec 15	17:52	68.79.126.132	USA	Southfield MI	A	5014	4669176774
Dec 15	17:29	219.93.197.82	Malaysia	Petaling	A	5014	2949133748
Dec 13	21:03	64.34.161.110	USA	San Diego CA	B	0939	3515042360
Dec 13	21:04	64.34.161.110	USA	San Diego CA	C	1088	3515042360
Dec 15	19:25	194.247.248.144	UK	London	C	1088	443966926
Dec 16	09:01	83.109.219.9	Norway	Oslo	D	0064	5938667822
Dec 16	09:15	82.79.189.204	Romania	Constanta	D	0064	4764049660
Dec 16	09:46	201.230.73.95	Peru	Lurigancho	D	0064	5938667822
Dec 16	10:05	204.15.76.234	USA	Canyon Country CA	D	0064	4801917727
Dec 16	14:52	66.134.121.204	USA	Los angeles CA	D	6666	4801917727





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RISK-BASED AUTHENTICATION MODULE

LOW FALSE POSITIVES: LOW IMPACT ON CUSTOMER EXPERIENCE & CARE

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RISK-BASED AUTHENTICATION MODULE

- > Each user's device and profile is authenticated behind the scenes
 - Device fingerprinting - Browser; Optional Cookies/Flash Object; OS...
 - Internet data profiling - IP Address, ISP; Geo-location; Connection type
 - User behavioral profiling - What you do and how, on a transactional level
 - eFraudNetwork - via "clustering" and "coloring"
- > A risk score [0-1000] is generated for each activity in real time
- > Institution controls full set of rules, enabling model customization

Client Quote:

"Risk-based Authentication has proven to be a very effective approach. The system is innovative and works far better than traditional tools that were never designed to meet the challenge of Internet fraud." -October 2005



RISK-BASED AUTHENTICATION MODULE: BENEFITS

- > Optimal usability enabled by sophisticated technology
- > Automatic learning of new devices
- > Proven
 - Production for 16 months
 - 80% fraud reduction
 - Low false positive
- > Minimizes customer service impact
- > Self learning through the eFraudNetwork

Client Quote:



"It's vital that [customers] be protected while not impacting their user experience. With Risk-based Authentication, PSECU customers won't notice any difference in the way they bank online, but can sleep at night knowing they're secure." - July 2005



RISK-BASED AUTHENTICATION OPTIONS

> Risk Based Authentication

- Personal questions

Please answer the following secret questions:

What is the name of your grandfather (your mother's father)?

What high school did you attend?

- Out of band automated phone call



- Integration with additional authenticators





AUTHENTICATION: PERSONAL QUESTIONS

- > Powerful 2nd factor authentication with life questions
- > Leveraging RSA Cyota's experience with eCommerce authentication
 - Used today by 7/10 top banks in US, 4/5 banks in UK
- > User prompted with questions during high-risk transactions
- > Answers gathered during low-risk sessions and kept on file
 - Leveraging 'on the fly' collection mechanism

Please answer the following secret questions:

What is the name of your grandfather (your mother's father)?

What high school did you attend?



SOPHISTICATED MATCHING ALGORITHM

- > Case Study 2004 - balancing security with usability / support costs
- > Users requested to provide name on file: **25% failure rate**
- > Solution – proprietary secret questions matching-algorithms:
 - ~50 Common Prefixes ignored: MR, MRS, MAJ, LORD etc.
 - ~30 Common Suffixes ignored: I, II, III, IV, PLC etc.
 - Option of ignoring middle name initial / word order
 - Option of ignoring spaces, separators, case sensitive
 - "Double Metaphone" to match words that sound alike
 - "Levenshtein Distance" to match common typos
- > Reduced errors rates (and support issues) from **25% to 0.3%**



AUTHENTICATION: AUTOMATED PHONE CALL

- > Unique phone-web synchronized technology
- > Original technology used by PayPal, Associated Bank, SSA etc.
- > Built-in to RSA solution, no need for further investment by FI
 - Includes (via i-net) all telephone equipment & controller interfaces
 - Fully integrated: transaction specific, built-in authentication feedback
 - Fixed cost for phone calls, no variable fees involved!
- > Can be enhanced with:
 - Voice fingerprinting
 - Biometrics voice recognition



**Post login;
Attempt Bill Pay**



ABC Bank - online banking - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print Mail Address Book Feeds

Address http://212.150.210.27/esphinx_demo/esphinx_demo/phone_authentication.jsp Go Links SnagIt

ABC Bank
ABC Bank to Make Things possible

Home | My Balance | Bill Payment | Transfer Funds | eSphinx | Log off

Bill Payment - Authentication

For additional security we would like to authenticate you prior to performing the activity.

Pay From Account "Self Service" XXXXXXXX1234		
Payment Date	Payee	Payment Amount
01/01/2005	XXXXXXXX1876	\$900

We are now calling the number you have selected: Home (+1)

During the call we will ask you to approve the activity by entering the following number:

5611

Once you complete this, the bill payment will be approved and you will be automatically taken to the confirmation page.

If you would like to place another call, [click here](#)

Done



**Few Trx are Risky;
Require Extra Auth**

- If you are expecting this call press the # Key
- To confirm: **Bill Payment**
- For the amount of: **\$900**
- Account ending with: **1876**
- Please enter the confirmation code that currently appears on your screen





ABC Bank - online banking - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Print Mail News RSS Feeds

Address http://212.150.210.27/esphinx_demo/esphinx_demo/bill_payment_phone_auth.jsp?request_id=11&phone_str=%20Home%20(%201-201-XXX3722) Go Links SnagIt

ABC Bank
ABC Bank To Make Things Possible

Locations | Contact Us | Help | [Sign In](#) | [Log off](#)

My Accounts **Payments & Transfers** Customer Service

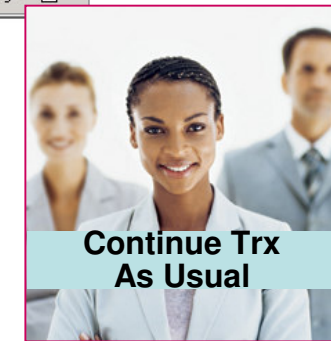
Bill Payment Confirmation

Future-Dated Payments may be edited or canceled prior to the payment date.
Current Day Payments may be edited or canceled prior to the [outoff time](#) on the Payment Date.
 Select [Pending Payments](#) to edit or cancel payments.

Pay From Account: SELF SERVICE XXXXXXXX1234			
Payment Date	Payee	Payment Amount	Reference Number
01/01/2005	ABC Credit XXXXXXXX1876	\$900	485216

Would you like to make another Payment? [Yes](#) [No](#)

Done Internet





ONE-TIME-PASSWORD AUTHENTICATION OPTIONS





CASE STUDIES

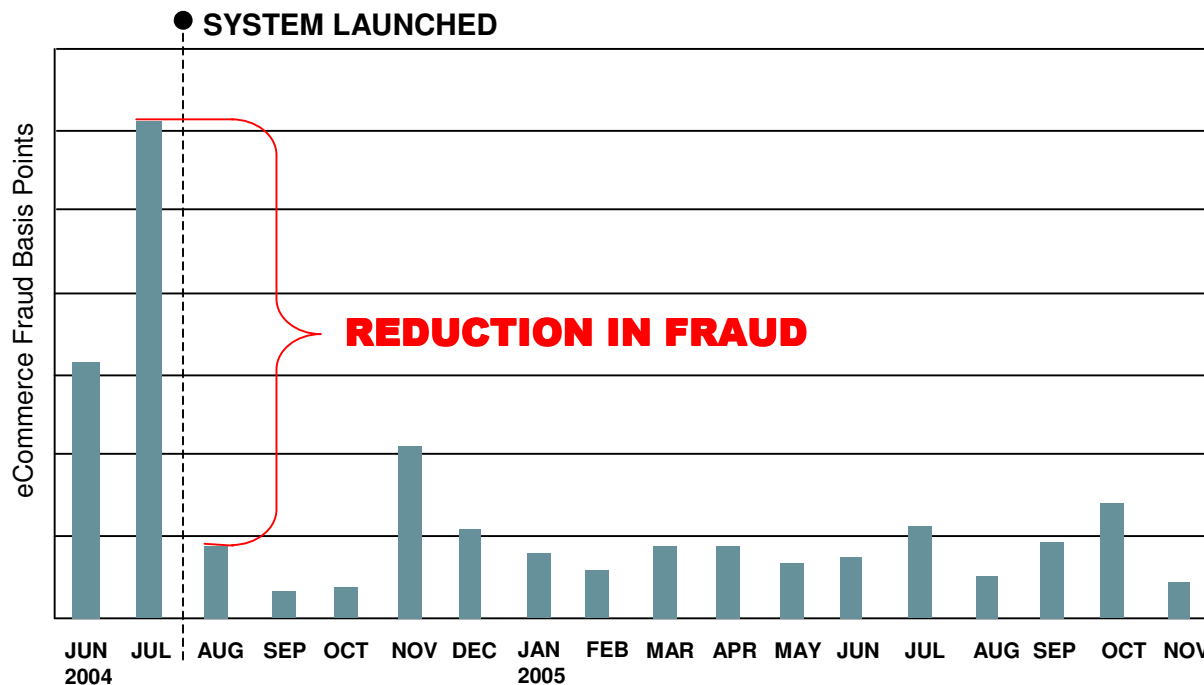
LIVE DATA AND PRODUCTION RESULTS



RISK-BASED AUTHENTICATION RESULTS

Case Study: Deployment at 5 institutions including HBOS

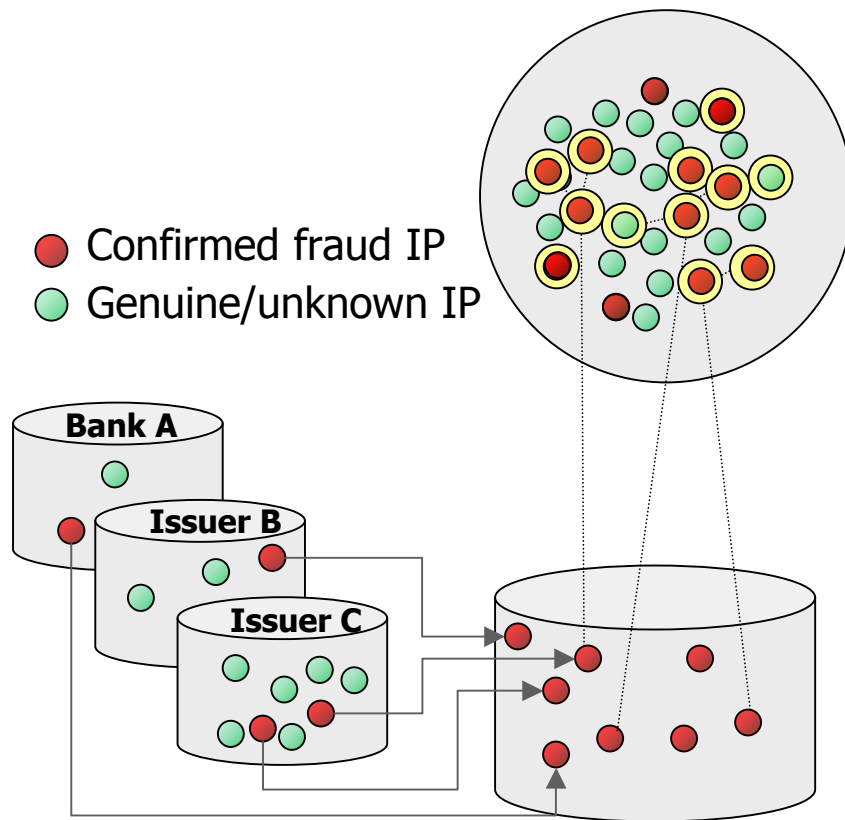
- > System policy was set to authenticate high-risk transactions
- > ~50% of blocked transactions were validated by calling users
- > **Results: 80% fraud reduction, 1:1 Genuine : Fraud ratio**





eFraudNetwork CASE STUDY: A TOP US FINANCIAL INSTITUTION IN DECEMBER 2005

The eFraudNetwork is fed by 50 large and thousands of smaller banks & card issuers.



Step 1: Three months of transaction data provided (several terabytes of data)

Step 2: RSA Cyota matched data against eFraudNetwork, identifying direct matches and using coloring to link trx via account / device ID

Step 3: Real fraudulent data provided for comparison.

Results: eFraudNetwork and coloring found **60%** of fraud, with only **0.2%** false positives

Step 4: RSA Cyota also fed the data to the complete Risk Engine. Following this analysis the reported detection rate was **80%**

RSA Cyota eFraudNetwork



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THANK YOU. QUESTIONS?



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BACK-END ADMINISTRATION

USER-FRIENDLY WEB-BASED SUPPORTING APPLICATIONS

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BACK-END ADMINISTRATION TOOLS

> Web-based:

- Customer service
- Case management
- Risk policy management
- Reporting applications

> Secure:

- IP restricted (for ASP model)
- Role-based access and permissions
- Full audit trail

> Integration with existing back office applications via:

- Single sign-on
- API



BACK-END CUSTOMER SERVICE

> Enables CSRs to cancel suspensions and trigger collection

Case Management
Rules Management
MIS Reports
FI Rep Administration
Customer Service
Menu
Reselect FI
Exit

Identify User

Dear Customer Service Representative, you must validate the identity of the user according to the ABC Bank authentication procedures prior to providing information or performing any activities on this user's account

Enter User ID:

User Details

Name:	N/A	User Status:	Active	Authentication Blocked:	No
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What would you like to do?

Add Comments:

Activity History

Last 20 activities performed by the user (during the last 90 days):

Date and time	User Activity	Action	Action Result	Amount	Payee Name	Case Status
3/6/06 12:57 PM(EST)	Login	Exclude	N/A	N/A	N/A	New
3/6/06 12:47 PM(EST)	Login	Exclude	N/A	N/A	N/A	New
3/6/06 12:22 PM(EST)	Login	Exclude	N/A	N/A	N/A	New
3/6/06 12:22 PM(EST)	Login	Exclude	N/A	N/A	N/A	New
3/6/06 12:20 PM(EST)	Change Password	Exclude	N/A	N/A	N/A	New
3/6/06 12:18 PM(EST)	Login	Elevate Security - Redirect	N/A	N/A	N/A	New



BACK-END RISK POLICY MANAGMENT

> Enables FI to configure risk/authentication policy

Payee

☐ Payee type is Biller

☐ Payee ownership is Same Ownership

☐ Payee bank is Same Bank

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User Profile

☐ Days since the user ID appeared for the first time =

☐ Days since the user ID appeared for the last time =

☐ Number of times the user ID has appeared =

☐ Extra Authentication was requested and failed for this user ID

☐ Ground speed = KPH

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eFraudNetwork Data

☐ Should match Device Fingerprints that appear in confirmed fraud lists

☐ Should match Payee that appears in fraudulent payees lists

☐ Should match IP addresses that appear in confirmed fraud IP list

☐ Should match IP addresses that appear in Risky Proxy IP Address List

☐ Should match IP addresses that appear in High Velocity IP Address List

☐ Should match IP countries that appear in High Risk IP country list

☐ Should match IP countries that appear in Low Risk IP country list

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BACK-END CASE MANAGEMENT

> Enables FIs to investigate suspected fraudulent transactions

CASE MANAGEMENT

FILTER CASES

Filter By: None

Case Status: Open Cases

Period: Last 7 days

From: Nov / 15 / 2005

To: Nov / 15 / 2005

Go

LIST CASES

Date	User ID	Case Status	User Activity	Action	Rule ID
11/14/2005	netoscope	New	Login	Bevate Security - redir	0000006
11/14/2005	netoscope	New	Login	Bevate Security - redir	0000006
11/14/2005	netoscope7	New	Login	Bevate Security - redir	0000006
11/14/2005	netoscope72	New	Login	Bevate Security - redir	0000006
11/14/2005	netoscope72	New	Login	Bevate Security - redir	0000006
11/14/2005	netoscope72	New	Login	Bevate Security - redir	0000006
11/14/2005	netoscope72	New	Login	Bevate Security - redir	0000006
11/14/2005	netoscope72	New	Login	Bevate Security - redir	0000006
11/14/2005	netoscope8	New	Login	Bevate Security - redir	0000006
11/13/2005	aria52	New	Login	Review	0100024

ABC Bank

CASE MANAGEMENT

Case Details

Date & Time: 10/10/2005 08:27 (GMT) | Action: Bevate Security - redir | Next Contact: 10/10/2005 12:00 (GMT)

User Activity: Login | Risk Score: 0 | Review Until Time: NA

User Details

User ID: 10101889 | User Status: Active

WI: 872-8-9728141

Update Case

Case Status: Could not contact customer | **Update** | **Cancel**

Next Contact Attempt: Oct / 10 / 2005 | 13 / 50

Account Transactions During Last 90 days (up to 200):

Update Date	User Activity	Rule ID	Risk Score	FI Action	IP Address	IP Country	Case Status
10/10/2005	Login	0000006	0	Bevate Security - redir	212.143.210.089	NA	Could not contact customer
10/10/2005	Login	0000006	0	Bevate Security - redir	212.143.210.089	NA	Could not contact customer
10/10/2005	Login	0000006	0	Coiled	212.143.210.089	NA	New

The selected transactions will be updated according to this case

Case Comments: @COSTA01, 10/10/2005 12:00 (GMT): Changed status to 'Could not contact customer'.

Last Update Date: 10/10/2005 12:02 (GMT) | Last Updated By: NA


Transaction

IP Country:	NA	IP Address:	212.143.210.089	Rule ID:	0000006
IP Range:	NA	IP Country:	NA	Rule Name:	Bevate Security - redir
IP City:	NA	ISP:	NA	Rule ID:	0000006
Connection Type:	NA	Cookie:	NA	Rule Name:	Bevate Security - redir
				Action:	NA



BACK-END REPORTING

> Provides required system behavior statistics



REPORTS
Application Menu
Exit

Please select month: June 2006
Please select report: All
Go
Save as Excel

[Logout](#)
[Return to the category selection page](#)

eSphinx Executive Report:

	Total		Device and behavioral profile authentication				Risk analysis		Extra Authentication				
	Active Users	Total Activities	# failed device auth	% of total	# failed behavioral profile auth	% of total	# with a risk score > 900	% of total	# Extra Authenticated	% of total	# failed extra auth	% of extra auth	False Alarm ratio
Total for: Dec-05	7,560,948	10,129,527	639,332	6.31%	1,139,774	11.25%	20,259	0.20%	9,117	0.09%	273	3.00%	1:10118
Jan-06	2,524,674	3,013,343	213,111	7.07%	379,925	12.61%	6,027	0.20%	3,039	0.10%	91	3.00%	1:10024
Feb-06	2,526,217	3,135,546	215,242	6.86%	383,724	12.24%	6,271	0.20%	3,069	0.10%	92	3.00%	1:10059
Mar-06	2,527,760	3,451,311	217,394	6.30%	387,561	11.23%	6,903	0.20%	3,100	0.09%	93	3.00%	1:10341
Apr-06	2,529,303	3,354,260	219,568	6.55%	391,437	11.67%	6,709	0.20%	3,131	0.09%	94	3.00%	1:10120
May-06	2,530,846	3,663,246	221,764	6.05%	395,351	10.79%	7,326	0.20%	3,162	0.09%	95	3.00%	1:12165
Jun-06	2,532,389	4,023,118	223,981	5.57%	399,305	9.93%	8,046	0.20%	3,194	0.08%	96	3.00%	1:13321
Total for this Period	15,171,189	20,640,824	1,311,060	6.35%	2,337,302	11.32%	41,282	0.20%	18,695	0.09%	561	3.00%	1:10872
Total for: June-06	22,732,137	30,770,351	1,950,392	6.34%	3,477,076	11.30%	61,541	0.20%	27,812	0.09%	834	3.00%	1:10611