

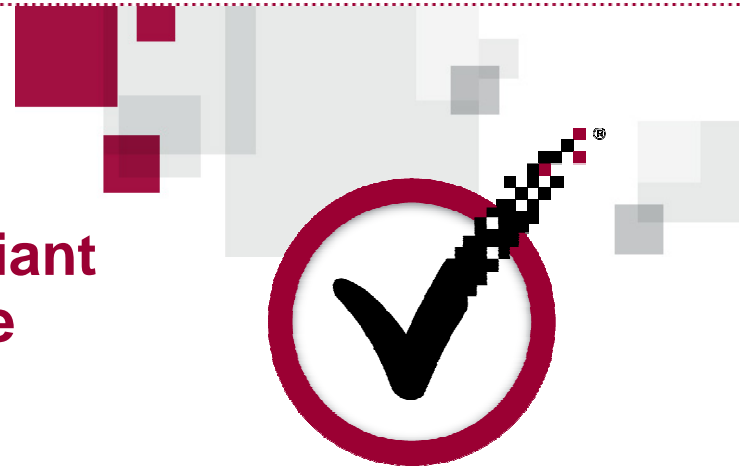


10 Steps to Secure & PCI Compliant Credit Card Processing in Oracle Receivables

Presenters: Anil Madhiredy, VeriSign Inc.
Carol Gonzales, VeriSign Inc.

Contributor: Praveen Akula, VeriSign Inc.

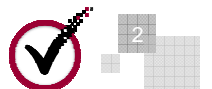
NORCAL OAUG Training Day
January 19 2010





About Us

- VeriSign, Inc. (NASDAQ: [VRSN](#)) is the trusted provider of Internet infrastructure services for the networked world. Billions of times each day, our [SSL](#), [identity and authentication](#), and [domain name services](#) allow companies and consumers all over the world to engage in trusted communications and commerce.
- Anil Madhiredy is a Senior Business Analyst in the Enterprise IT Division of VeriSign Inc
- Carol Gonzales is a Business Analyst with Financial Systems Division of VeriSign Inc
- Praveen Akula is Senior Developer with Enterprise IT Division of VeriSign Inc






Learning Objectives



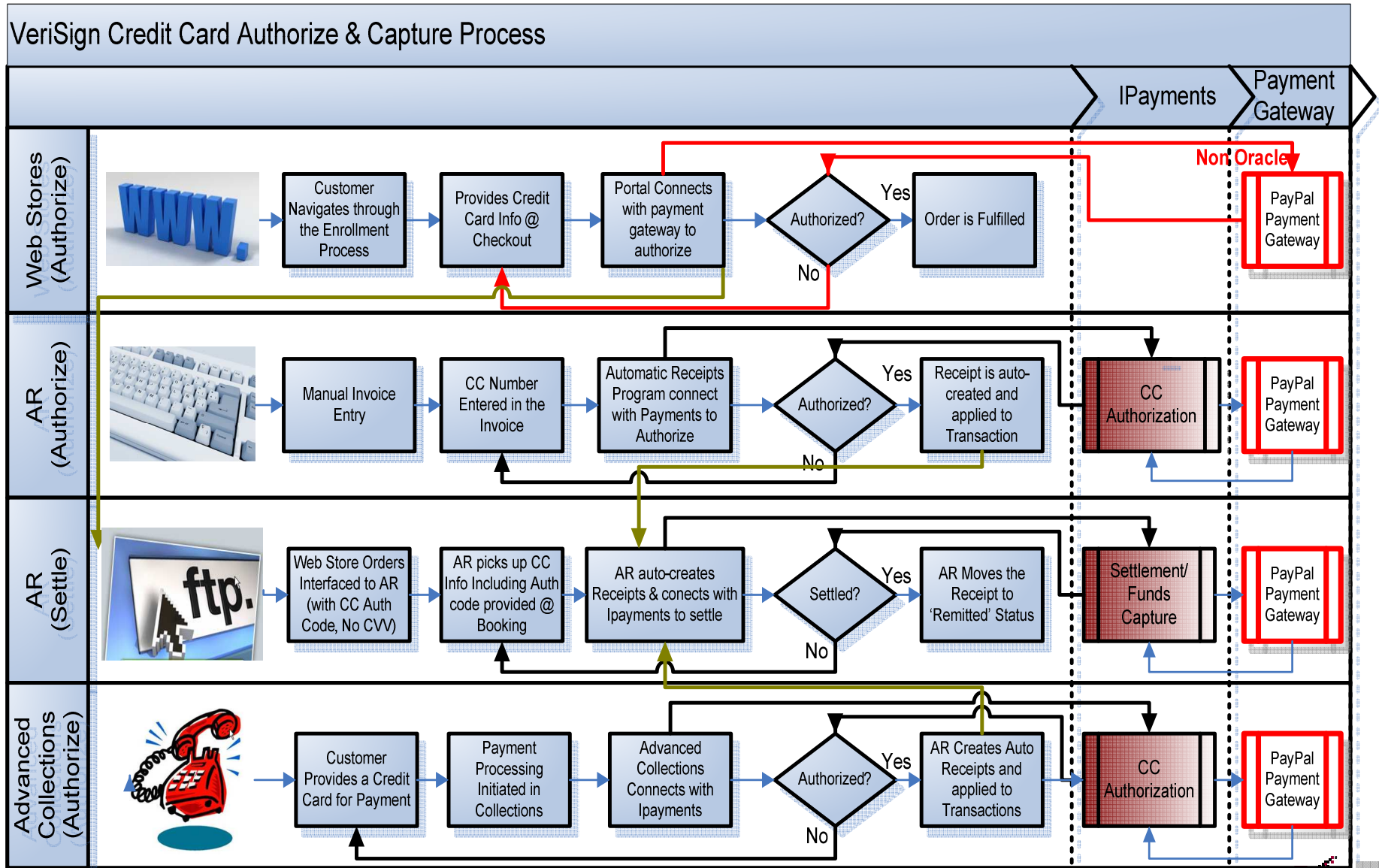
1. Learn the credit card industry guidelines for security & compliance and industry operating model
 2. Know how Oracle stores credit card data and the patches required for advanced security
 3. Understand the zero-touch credit card processing features offered by Oracle Receivables and Payments
 4. Case Study on how VeriSign Inc integrated its web stores with Oracle Payments and key lessons learnt
 5. Learn how Advanced Collections could be integrated with Payments for real-time credit card authorizations.
 6. Understand the 10 steps essential for secure & PCI compliant credit card processing model
- ** *VeriSign is no longer a Credit Card Payment Gateway. VeriSign Payment Services was sold to PayPal in 2005*
- ** *This presentation is a process oriented overview and configuration aspects are left to Q&A sessions*

Credit Cards – Why a Preferred Receipt Method?




- With the recent tightening of credit markets, companies are increasingly moving toward credit cards to transfer substantial part of credit risk to card issuer.
 - Accepting credit cards will often increase... even double your current sales
 - Credit Checking is easy and instant on Credit Card transactions & so it secures the purchase
 - Credit Cards funds are generally settled in a couple of days – it improves cash flow, helps slash credit to cash cycle and reduce the organization's Days Sales Outstanding (DSO)
- 
- Over 90% of web purchases are made using credit cards..
 - Greater scope for automation of credit card receipt model (as against checks, wires etc)
 - Your competition is already accepting credit cards. You need to accept cards in order to survive



VeriSign Implementation Overview



Credit Card Processing Models

Processing Models 	<u>VeriSign Portals</u> 	<u>Oracle Receivables</u> 
Type 1 <i>(Majority of VeriSign Portals fall into this Category)</i>	✓ Authorization <i>Order & Authorization Info passed to Oracle AR & Payments</i>	✓ Funds Capture ✓ Refunds ✓ Chargeback
Type 2 <i>(A few VeriSign Portals belong to this Category and are now converting to Type 1)</i>	<i>Orders processed without Authorization & Interfaced to Oracle Receivables</i>	✓ Authorize ✓ Funds Capture ✓ Refunds ✓ Chargeback
Type 3 <i>(Only one VeriSign Portal belong to this Category)</i>	✓ Authorize ✓ Funds Capture ✓ Refunds	@ Record Invoices & Receipts ✓ Chargeback





Step1 – Understanding Payment Card Industry Guidelines

- The PCI Security Standards Council:
 - An open global forum for security standards for credit card data protection.
 - Founded by American Express, Discover, JCB, MasterCard Worldwide and Visa Inc.
 - facilitates broad adoption of consistent data security measures on a global basis.

- PCI Data Security Standard (PCI DSS):
 - is a multifaceted security standard
 - includes requirements for
 - security management,
 - policies, procedures, network architecture,
 - software design and other critical protective measures.
 - This comprehensive standard is intended to help organizations proactively protect customer account data.





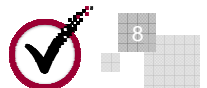
PCI Data Security Guidelines at Glance

(More info @ <https://www.pcisecuritystandards.org/>)

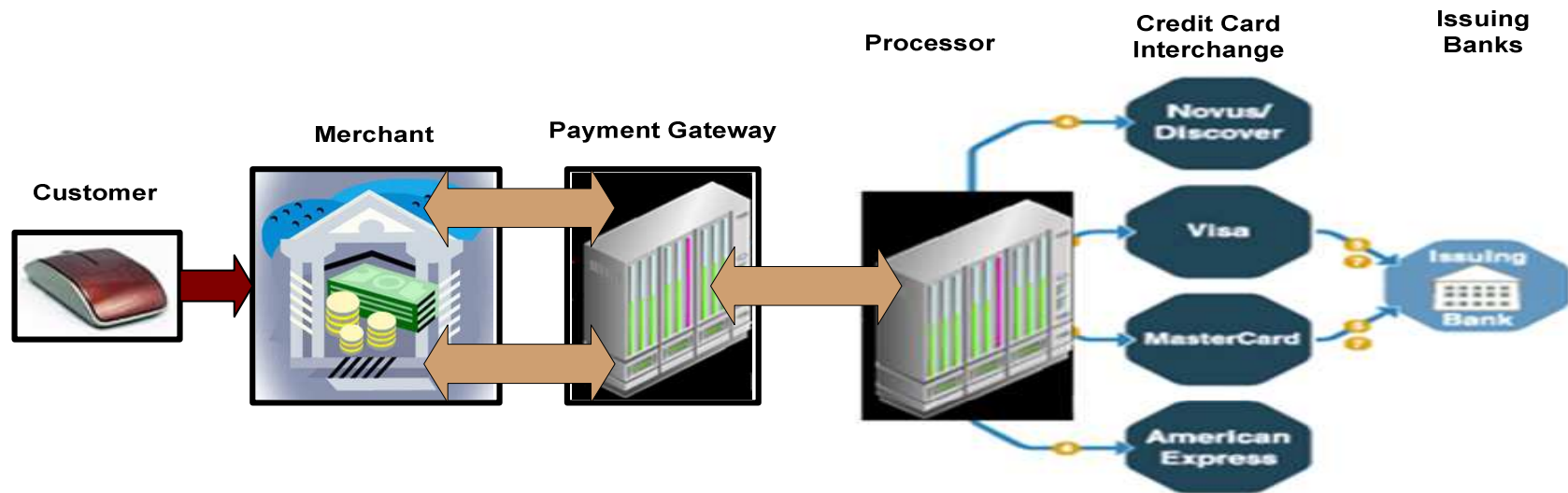
- **Build and Maintain a Secure Network**
 - Install and maintain a firewall configuration to protect cardholder data
 - Do not use vendor-supplied defaults for system passwords and other security parameters
- **Protect Cardholder Data**
 - Protect stored cardholder data
 - Encrypt transmission of cardholder data across open, public networks
- **Maintain a Vulnerability Management Program**
 - Use and regularly update anti-virus software
 - Develop and maintain secure systems and applications



- **Implement Strong Access Control Measures**
 - Restrict access to cardholder data by business need-to-know
 - Assign a unique ID to each person with computer access
 - Restrict physical access to cardholder data
- **Regularly Monitor and Test Networks**
 - Track and monitor all access to network resources and cardholder data
 - Regularly test security systems and processes
- **Maintain an Information Security Policy**
 - Maintain a policy that addresses information security

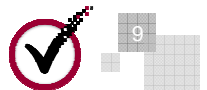


Know the Credit Card Industry Operating Model



For a typical ecommerce credit card transaction, a number of participants play key roles in the process. Those players include:

1. the customer,
2. the merchant,
3. the payment gateway,
4. the acquiring bank's processor,
5. the credit card interchange,
6. the customer's credit card issuer, (who has the final say to Approve or Decline)



Step 2: Decision to Go Via Payment Gateway or Go Direct to Payment Processor

▪ Payment Gateway Model (eg. PayPal, Authorize. net, Orbital)

Merits

- Acts as a Submitter
- Supports Real-Time Authorization & Funds Capture Model
- Switching Back-End Processor is easy
- Integrates with all processors

De-Merits

- Basic Reporting only
- Adds another Layer to Credit Card Processing
- Basic Support only – we need to contact Payment Processor for further information on a transaction.

▪ Go Direct to Payment Processor (Chase Paymentech, PayPal)

Merits

- Go Direct Approach
- Better Reporting
- Better Implementation Support

De-Merits

- Switching Processors becomes challenging, a big project in itself
- Each Portal need to write code to submit to the Processor
- Does not Support Real-Time Settlement Processing
 - 11i requires Batch Close, Batch Query & Retry Process for settlements
 - R12: Create Settlement Batches concurrent program



Step 3: Secure Credit Card Transactions

- CVV2/CSC/CVC Validation

The card security code is a 3- or 4-digit number (not part of the credit card number) that is printed on the credit Card.

Provides some assurance that the physical card is in the possession of the buyer.

DO NOT store the CVV2/CVS/CVC in your database or log files

CVV2 code validation in sub ledgers is only supported in R12 (not 11i).

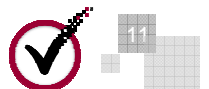
- Address Verification Service

The address verification service result is for advice only. Banks do not decline transactions based on the address verification service result



Notes:

- Please be sure to read regulations/guidelines provided by Card Issuers – VISA/Master/AMEX – on CVV2/CSC/CVC Validation
- Address Verification Service is supported only for select countries like US, Canada & UK...Please contact your processor for more guidelines
- Billing Zip Validation is leaner version of AVS where only the zip code is validated. Most merchants opt for billing zip validation instead of complete address verification



Step 4: Implement a Strong Encryption Model

- All Files that transmit credit card data should be secured & encrypted
- Credit Card Numbers are stored/referenced in Oracle in multiple Tables
- Must Apply PCI complaint Oracle Encryption Patch 4607647 to secure credit card data
- Patch provides:
 - Consolidation of primary account numbers from four tables to one
 - Encryption of primary account numbers,
 - Automatic masking of primary account numbers.
- The credit card encryption is only for the Credit Card Number
 - Cardholder name & expiration date remain as is in the existing tables.



Credit Card Data in Oracle EBS:

Module	Table
Accounts Payable (AP)	ap.ap_bank_accounts_all
Accounts Receivables (AR)	ap.ap_bank_accounts_all
Collections (IEX)	ap.ap_bank_accounts_all
Internet Expenses (OIE)	ap.ap_credit_card_trxns_all ap.ap_cards_all
iPayment (IBY)	iby.iby_trxn_summaries_all iby.iby_creditcard
iStore (IBE)	aso.aso_payments
Lease Management (OKL)	ap.ap_bank_accounts_all
Order Capture (ASO)	aso.aso_payments
Order Management (ONT)	ont.oe_order_headers_all
Service Contracts (OKS/OKC)	oks.oks_k_headers_b oks.oks_k_headers_bh oks.oks_k_lines_b oks.oks_k_lines_bh okc.okc_rules_b okc.okc_rules_bh
Student System (IGS)	igs.igs_ad_app_req igs.igs_fi_credits_all igs.igs_fi_inv_int_all



Guide to Oracle Encryption

Metalink Notes:

- **Oracle Applications Credit Card Encryption**
 - Oracle Metalink Note ID 338756.1, Oracle Corporation, 12 December 2006,
- **Does The Credit Card Encryption Patch 4607647 Impact Internet Expenses?**
 - Oracle Metalink Note ID 390032.1, Oracle Corporation, 22 January 2007,
- **Where The Credit Card Numbers Are Stored For iStore?**
 - Oracle Metalink Note ID 376708.1, Oracle Corporation, 13 July 2006
- **How To Encrypt Credit Card Data In Release 12**
 - Oracle Metalink Note ID 863053.1, Oracle Corporation, 05 October 2009
- **R12 Mandatory Wallet Patches**
 - Oracle Metalink Note ID 737364.1, Oracle Corporation, 21-JAN-2009



Must Read!



Oracle Applications 11i: Credit Cards and PCI Compliance Issues

- White Paper By Stephen Kost and Jack Kantar, Integrity Corporation



Step 5: Setup Receipt Classes, Payment Methods & Bank Accounts

Receipt Classes

Receipt Class

Name: Notes Receivable

Creation Method: Require Confirmation

Remittance Method:

Clearance Method: () []

Receipt Method

Name: Printed Name:

Effective Dates: -

Manual / Netting | **Automatic** | Bills Receivable | Bills Receivable Remittance

Debit Memos Inherit Receipt Numbers

Receipts Processing

Receipts Inherit Transaction Numbers

Number of Receipts Rule:

Receipt Maturity Date Rule:

Automatic Print Program:

Lead Days:

Funds Transfer Processing

Payment Method:





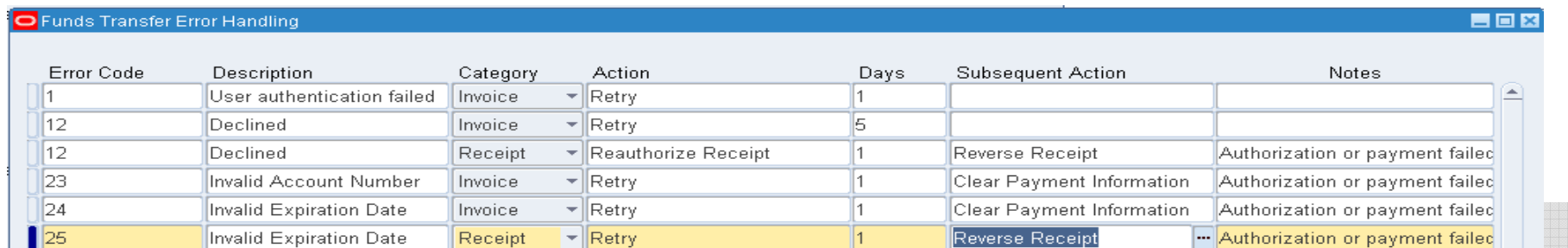
Step 6: Define Payee, Payment System & Routing Rules

- **Payment System**
 - Third party payment processor or gateway that you want Payments to send credit card processing requests.
 - Examples: Paymetech, FirstDataNorth, PayPal, Cybercash
- **Payee:**
 - Entity that will receive funds in an e-Commerce transaction.
 - Generally this is:
 - a merchant identifier (like PayPal USD) or
 - an accounting rollup organization of a merchant (like 011-USD-vsxxxx)
 - Payee is tied to a AR Receipt Method using Merchant ref (in 11i) and Routing rules (in R12)
- **Routing Rules**
 - Routing Rules are used by Oracle Payments to route the payment transactions to the right Payment System accounts (merchant accounts)
 - You can route by currency, operating unit, receipt method, card type, amount, org id



Step 7: Define CC Error Handling Model

- Oracle provides ability to manage CC Error Handling via application setup – you can instruct the application what action to perform if it hits a specific error during authorization or funds capture
- Options Include
 - Retry of Authorization or Settlement Request
 - Clear Payment Information
 - Reverse Receipt (For Funds Capture Request only)
 - Reverse Receipt or Re-authorize Receipt (Funds Capture Requests only)
- After Retry for set number of days, AR flags the receipt with error code.
 - Error Receipts/Invoices are available in Correct Funds Transfer Errors Form for manual remediation.



Error Code	Description	Category	Action	Days	Subsequent Action	Notes
1	User authentication failed	Invoice	Retry	1		
12	Declined	Invoice	Retry	5		
12	Declined	Receipt	Reauthorize Receipt	1	Reverse Receipt	Authorization or payment failed
23	Invalid Account Number	Invoice	Retry	1	Clear Payment Information	Authorization or payment failed
24	Invalid Expiration Date	Invoice	Retry	1	Clear Payment Information	Authorization or payment failed
25	Invalid Expiration Date	Receipt	Retry	1	Reverse Receipt	Authorization or payment failed



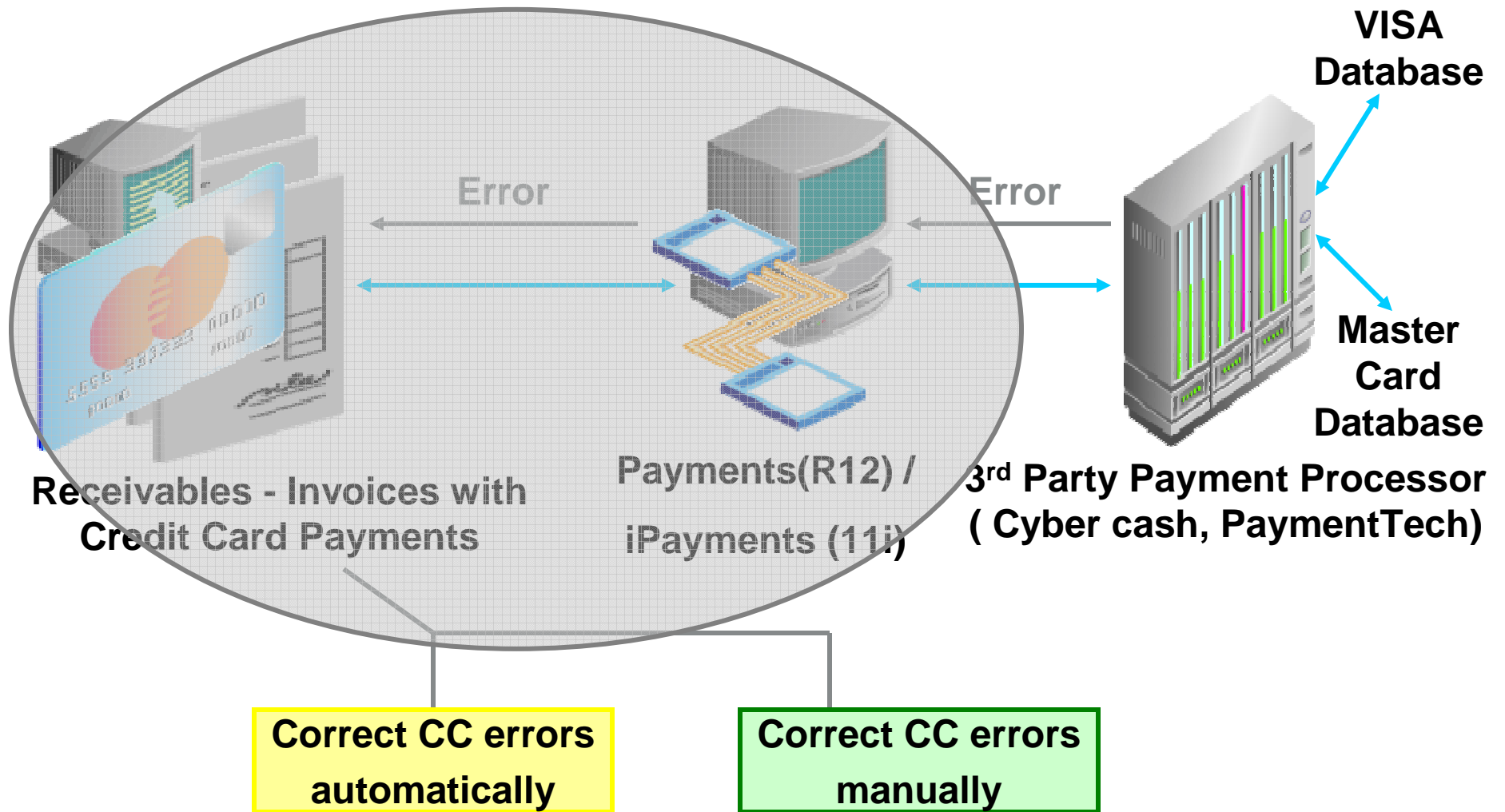
Oracle Terms and Definitions

Term	Definition
Authorization	Third Party payment processor verifying your credit card and reserving payment from your credit card
Funds Capture	Credit card issuer (e.g. Visa or Master card) has reserved the receipt amount and has agreed to remit this amount to the payee's (merchant's) bank
PSON – Payment Server ID	A unique number that is used to identify the receipt that closes a transaction. Appears in the receipt after successful CC authorization e.g. AR_1166
Approval Code	A unique number (e.g.223132883) generated by a third party payment processor to indicate that the credit card authorization is successful

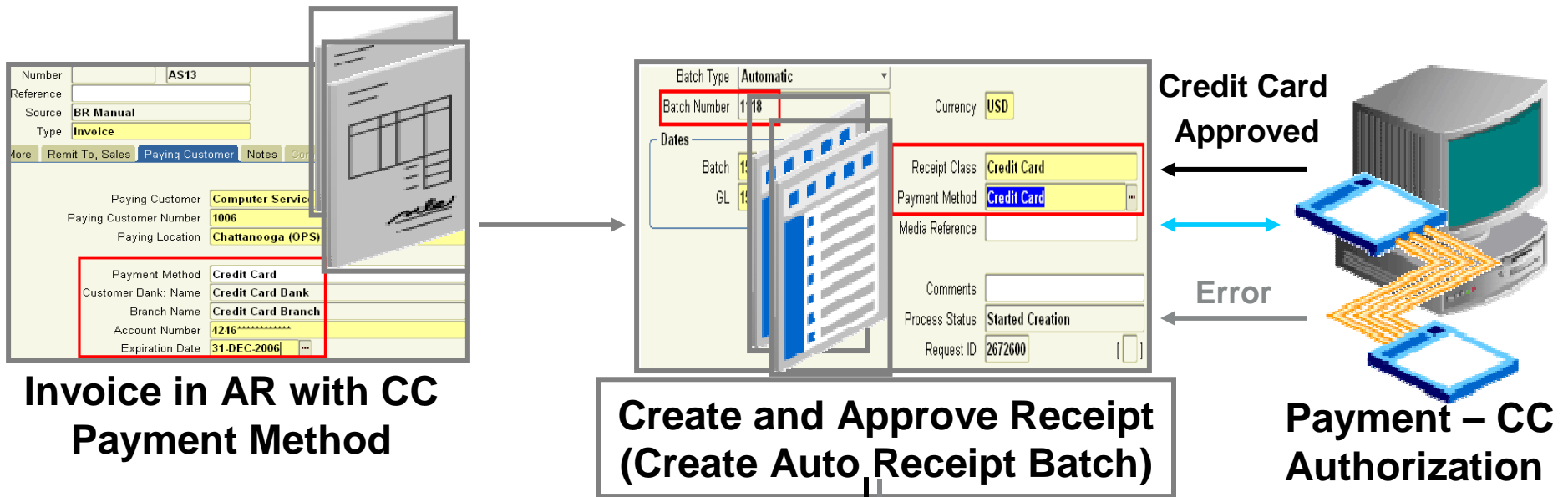




Credit Card Payment Processing in AR



Credit Card Authorization Process



CC authorization successful

Receipt created with PSON and Approval Code

CC authorization failed

Receipt NOT Created

Use Credit Card / Funds Transfer Error Handling feature to correct errors

- Retry
- Clear Payment Information

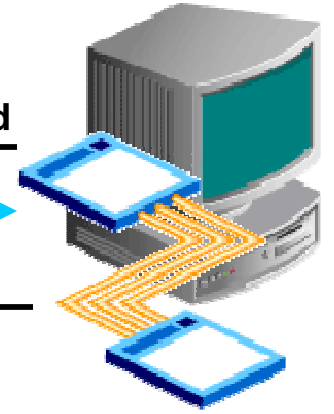
Credit Card Funds Capture Process

Receipt with PSON and Approval Code (Authorized CC)

Create and Approve Remittances

Funds Captured

Error



Payment CC Capture

CC capture successful

CC capture failed

**Payment Captured
Receipt status = Remitted**

Receipt remittance failed

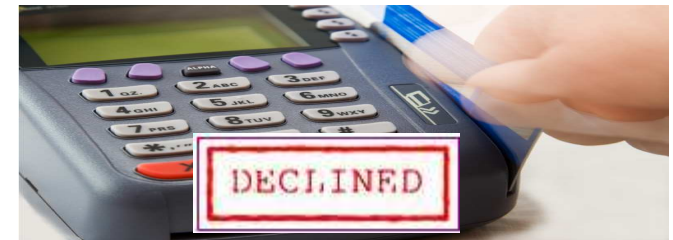
Use Credit Card / Funds Transfer Error Handling feature to correct errors

- Retry (Clear errors)
- Reauthorize Receipts
- Reverse Receipts

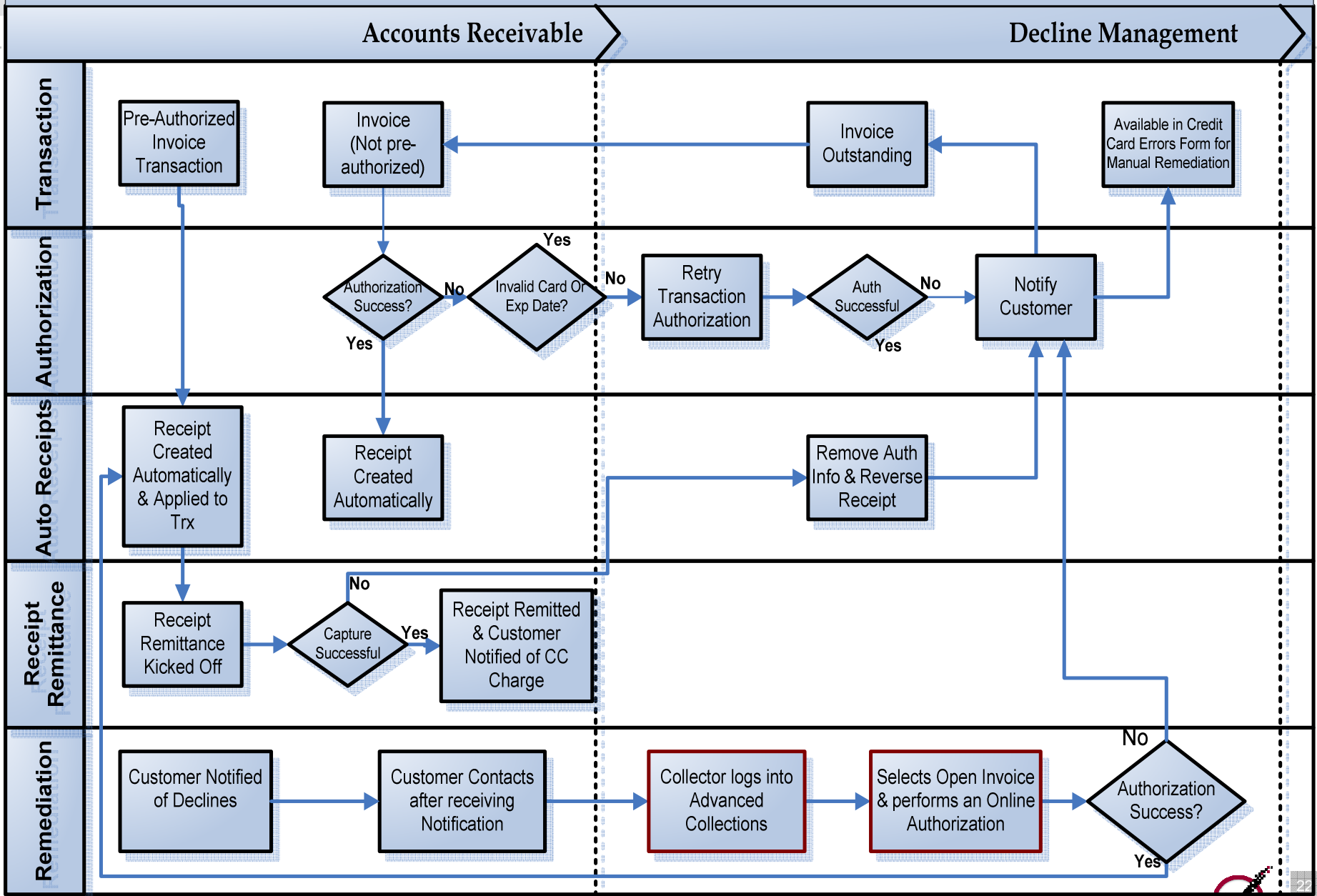


Step 8: Define Decline Management Model

- Be Realistic : Expect some Credit Cards to get declined
- Separate the wheat from the chaff
 - Technical Errors Vs Real Declines
 - Network Not Available Vs Insufficient Funds
- Define an Automated Decline Management Model
 - Automatically Retry Declined Cards (for a define time period)
 - Notify Customers of (real) declines
 - Decide whether to provide customers with a reason code for decline
 - Have a process to accept new cards or retry existing credit cards
 - Integrate Declines Management Strategy with Dunning & Collections Process
 - Enable Credit Card Integration in Advanced Collections so Collectors can do real-time authorizations when in contact with customers.



VeriSign Credit Card Decline Management Process (Zero Touch except for boxes in Red)

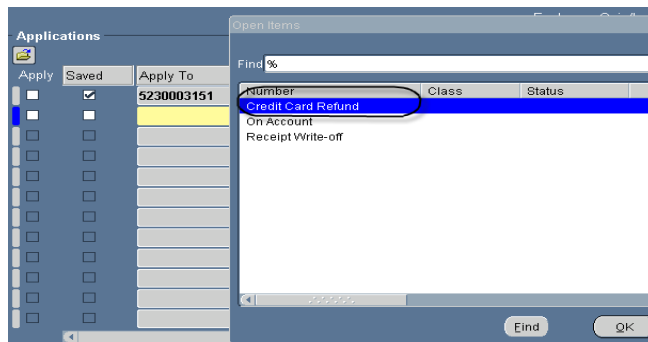


Step 9 Refund & Chargeback Processing



Refunds Submitted in Oracle AR

- Identify Receipt to be Refunded
- Un Apply Receipt from Invoice
- Apply to 'Credit Card Refund' Receivable Activity



Miscellaneous Receipt

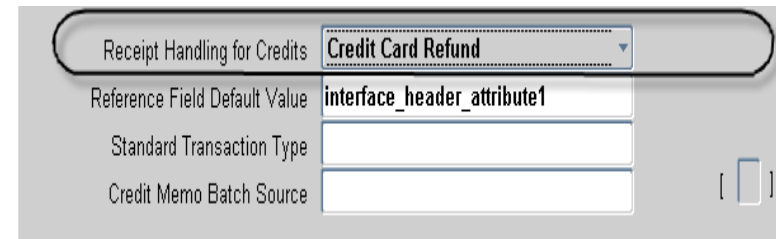
- Remittance process will select the Negative Receipt to process refunds with Payment System

Chargeback Processing

- Identify Receipt to be charged back
- Reverse Receipt
- Clear Credit Card Information on the Original Invoice so the invoice is not picked up for Auto Receipts Program again

Refund Requests Interfaced to Oracle from Portals/Store Fronts or OM

- Refund request interfaced through Auto Invoice as a Credit Memo
- Transaction Source needs to be set to process Automatic handling of credits



- Create a Credit Memo
- Un Apply the Original Invoice from the Receipt
- Apply the Credit Memo to the Original Invoice
- Apply a Credit Card Refund Activity to the Original Receipt
- Create a Miscellaneous Receipt for the negative amount.



Refund Accounting Overview



Steps	Trx Type	Accounting Entry		
Step # 1	Invoice Creation	Receivables DR	Original Trx Accounting	
		Unearned Rev Cr		
		Unearned Rev Dr		
		Revenue Cr		
Step # 2	Receipt Confirmation (CC Authorization)	Confirmation A/c Dr Receivables A/c Cr		
Step # 3	Receipt Remittance (CC Capture)	Remittance A/c Dr Confirmation A/c Cr		
Step # 4	Receipt Clearing	Cash A/c Dr Remittance A/c Cr		
Step # 5	Credit Invoice (Apply to Credit Memo)	Revenue Dr		Refund Accounting
		Unearned Revenue Dr		
		Receivables Cr		
Step # 6	Unapply Original Receipt	Receivables Dr Unapplied Receipt A/c Cr		
Step # 7	Apply to Credit Card Refund Activity	Unapplied Receipt A/c Dr Credit Card Refund Activity A/c Cr		
Step # 8	Refund Receipt (Confirmed Status)	Credit Card Refund Activity A/c Dr Confirmation A/c Cr		
Step # 9	Refund Receipt (Remitted Status)	Confirmation A/c Dr Remittance A/c Cr		
Step # 10	Refund Receipt (Cleared Status)	Remittance A/c Dr Cash A/c Cr		





T – Account Representation

(XXX – denotes Original Receipt Amount ; YYY denotes Refund Amount)



Receivables A/c			
Unearned Revenue (For Original Transaction)	(1) XXX	Confirmation A/c (Original Receipt)	(2) XXX
Unapplied Receipts A/c (Unapply Original Receipt)	(6) YYY	Unearned Rev Revenue A/c (Credit Memo Application)	(5) YYY
Unapplied Receipts A/c			
Credit Card Refund A/c (Application of Original Receipt to Credit Card Refund Activity)	(7) YYY	Receivables A/c (Unapply Original Receipt)	(6) YYY
Credit Card Refund A/c			
Confirmation A/c (Refund Receipt Creation)	(8) YYY	Unapplied Receipts A/c (Application of Original Receipt to Credit Card Refund Activity)	(7) YYY

Confirmation A/c			
Receivables A/c (For Original Receipt)	(2) XXX	Remittance A/c (For Original Receipt)	(3) XXX
Remittance A/c (For Refund)	(9) YYY	Credit Card Refund A/c (Refund Receipt Creation)	(8) YYY
Remittance A/c			
Confirmation A/c (For Original Receipt)	(3) XXX	Cash A/c (For Original Receipt)	(4) XXX
Cash A/c (For Refund)	(10) YYY	Confirmation A/c (For Refund)	(9) YYY
Cash A/c			
Remittance A/c (For Original Receipt)	(4) XXX	Remittance A/c (For Refund)	(10) YYY





Step 10: Implement Daily Transaction Monitor

- A well automated credit card processing model requires a good monitoring tool to ensure that the zero-touch process is working fine
- Pre-requisites of Monitoring Report
 - Transaction Report per Payee
 - Daily (end of business day report)
 - Actionable
 - Preferably as a Email Notification
 - Transaction Summary (Authorizations / Settlement Processed)
 - Summary of Credit Card Errors/Declines
 - Card Type Transaction Breakup
- Tip: Watch out for Unknown Errors (AR Flags Invoices Receipt as Error with no error-code or description – Requires log file reviews to debug)
 - 3 Types of Unknown Errors
 - Inbound Communication Cut-offs
 - Outbound Communication Cut-off
 - Internal AR Validation (Capture Amount cannot exceed Auth Amount)
 - Oracle Patches Available for some of the above errors.



VeriSign Daily Transaction Report



Credit/Purchase Card : DAILY Transaction Reporting for: 07-JAN,2010 To: 07-JAN,2010 Payee:
 (Amount in USD)

	Total Numbers	Total Amount
All Transactions	592	
Total Authorizations Requests	591	
Total Capture/Settlement Requests	824	
Total Refunds/Credits	1	
Total Authorization Settled	824	
Total Authorization Pending Capture	1	
Total Credit Card Transactions	592	
Total Purchase Card Transactions	0	

Transaction Summary

	Total Requets	Total Succeeded	Total Failed	Total Pending
Total Authorizations Requests	591	578	13	0
Total Capture/Settlement Requests	824	824	0	0
Total Refunds/Credits	1	1	0	0

Transaction Failure Summary

Authorization Failure Cause	Transactions	Amount
12 - Declined	9	
24 - Invalid expiration date	4	
Total	13	

Settlement Failure Cause	Transactions	Amount
	0	0
Total	0	0

Card Type Summary

	Transactions	Amount
AMEX	143	
DISCOVER	2	
MASTERCARD	172	
VISA	274	





Real Time Authorizations from Advanced Collections

- VeriSign has enabled Advanced Collections Integration with Oracle Payments that has *real time* Integration with BEPs like PayPal, Paymentech, Citibank etc
- Thanks to the above Integration, Collection Agent can process *real time* credit card authorizations from Advanced Collections and process payment immediately

Payment Method

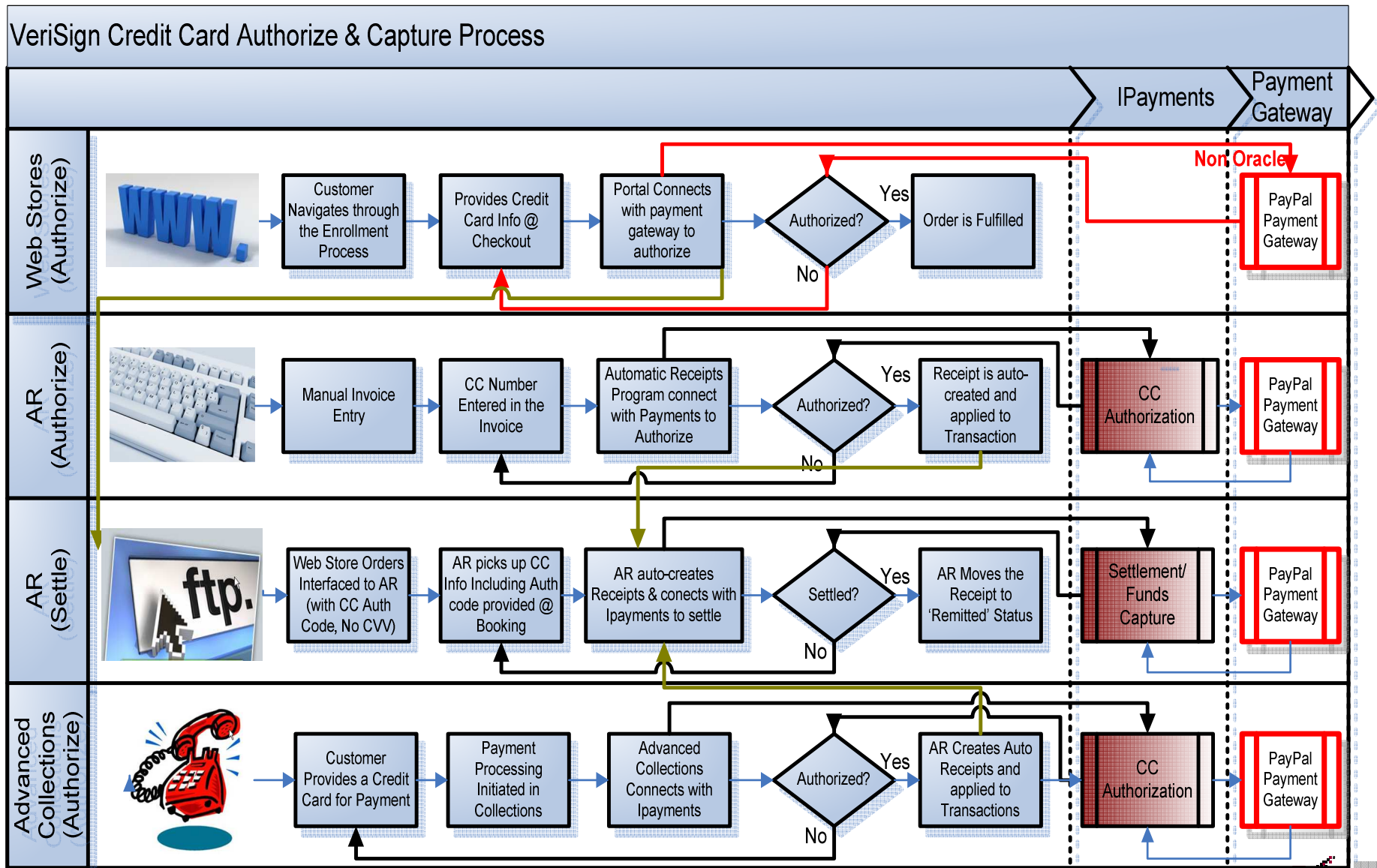
Bank Transfer Credit Card Promise Mass Promise

Payment Method	Credit Card	Billing Address	<input type="text"/>
Card Brand	Visa	Financial Institution Name	<input type="text"/>
Credit Card Number	<input type="text"/>	Additional Information	<input type="text"/>
Security Code	<input type="text"/>		

Note



VeriSign Implementation Overview (Review)



VeriSign Implementation – Lessons Learned

▪ Portal Integrations

- CVV2/CID/CSC validations responses differs across different card providers. Some issuing banks do not support CVV2 /CSC validation. Strategy for handle Neutral responses
- Given the global nature of the web stores, we needed to regulate input values for Billing Zip – some cases the customer did not enter valid zip codes that caused delays in credit card processing
- Contact American Express to switch on 'CSC' validation for AMEX cards. For VISA & Master, Discover, this was not required.

▪ Oracle EBS

- Automatic Remittance Program causes receipt remittance to error internally if capture amount > authorized amount, requiring manual intervention. Oracle Patch available to remove this validation.



▪ Oracle EBS (contd.)

- Inbound Communication from payment system Cut-off due to "ECServlet security token rejected" - **May lead to double authorization or settlements**
- Oracle did not identify Purchase Cards
- Correct Credit Card Errors Form unstable and not user friendly
- Testing Credit Card Transactions will be challenge
 - *as tests are based on test credit cards and set of simulated rules like Amount < 1000 for approvals; Amount > 1000 for declines*





VeriSign Implementation – Benefits



- CVV2/CSC validation helps filter credit card fraud
- Zero Touch, secure & PCI compliant credit card processing model
- Pre-authorization of credit cards lead to substantial reduction in bad debt write-off
- Credit Card funds are settled in a couple of days – improves cash flow, helps slash credit to cash cycle and reduce the organization’s Days Sales Outstanding (DSO)
- Zero Touch Declines Management contributes to better & more efficient collections process
- One-Touch Refund Process led to better efficiency
- Daily Transaction Monitor helped trouble-shooting easier
- Excel Friendly Credit Card Reporting & Oracle’s Unique Payment Server ID helps Receipt Tracking and Receipts Reconciliation user-friendly and efficient.





10 Essential Steps to Credit Card Processing



1. Understand PCI Compliant Credit Card Guidelines
2. Decision on Payment Gateway vs. Payment Processor Model
3. Define Security Model – CSC/CVV2 & Billing Zip Validations
4. Implement a Strong Encryption Model
5. Setup Receipt Class, Payment Method & Bank Accounts
6. Setup Payment System, Payee & Routing Rules
7. Setup Credit Cards Error Handling Model
8. Define Declines Management Model
9. Understand Refund & Chargeback Processing
10. Daily Transaction Monitor & Reporting



Q & A

