PCI Compliance in Oracle E-Business Suite

May 14, 2015

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Moderated by Phil Reimann, Director of Business Development, Integrigy Corporation

Speakers

Michael Miller

Michael Miller, CISSP-ISSMP is a Vice President of Integrigy and is responsible for Integrigy's security assessment services. For the past 17 years, Michael has exclusively focused on the Oracle E-Business Suite and has sat on Oracle's customer advisory boards for security and Oracle On-Demand.

David Kilgallon

David Kilgallon, ISA, PCIP is Director of Integration Services at CardConnect and has 25 years of experience in the IT/Application Development, Deployment, and Support fields. David has worked in positions of leadership at Oracle and Johnson & Johnson and supported numerous Fortune 500 companies.

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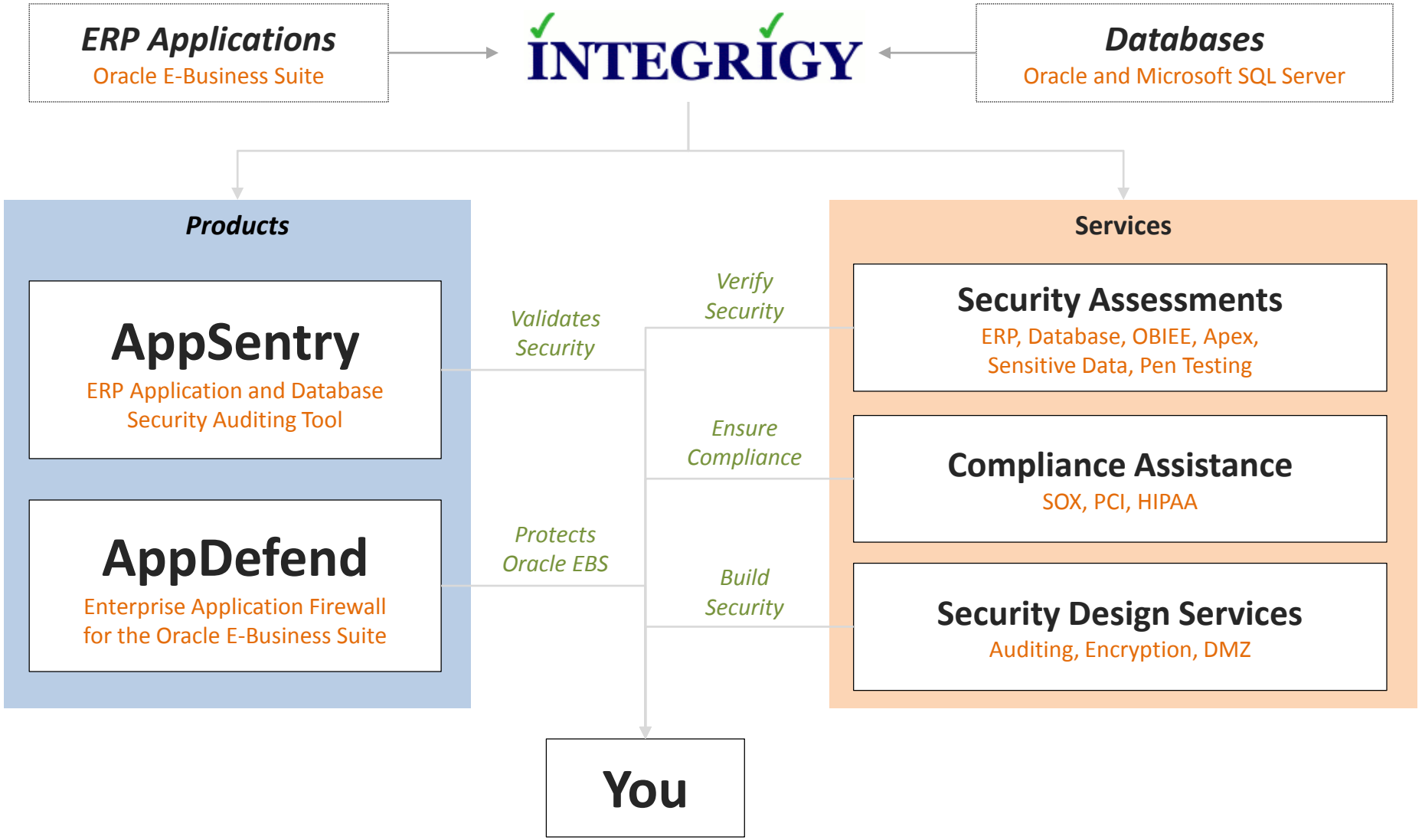
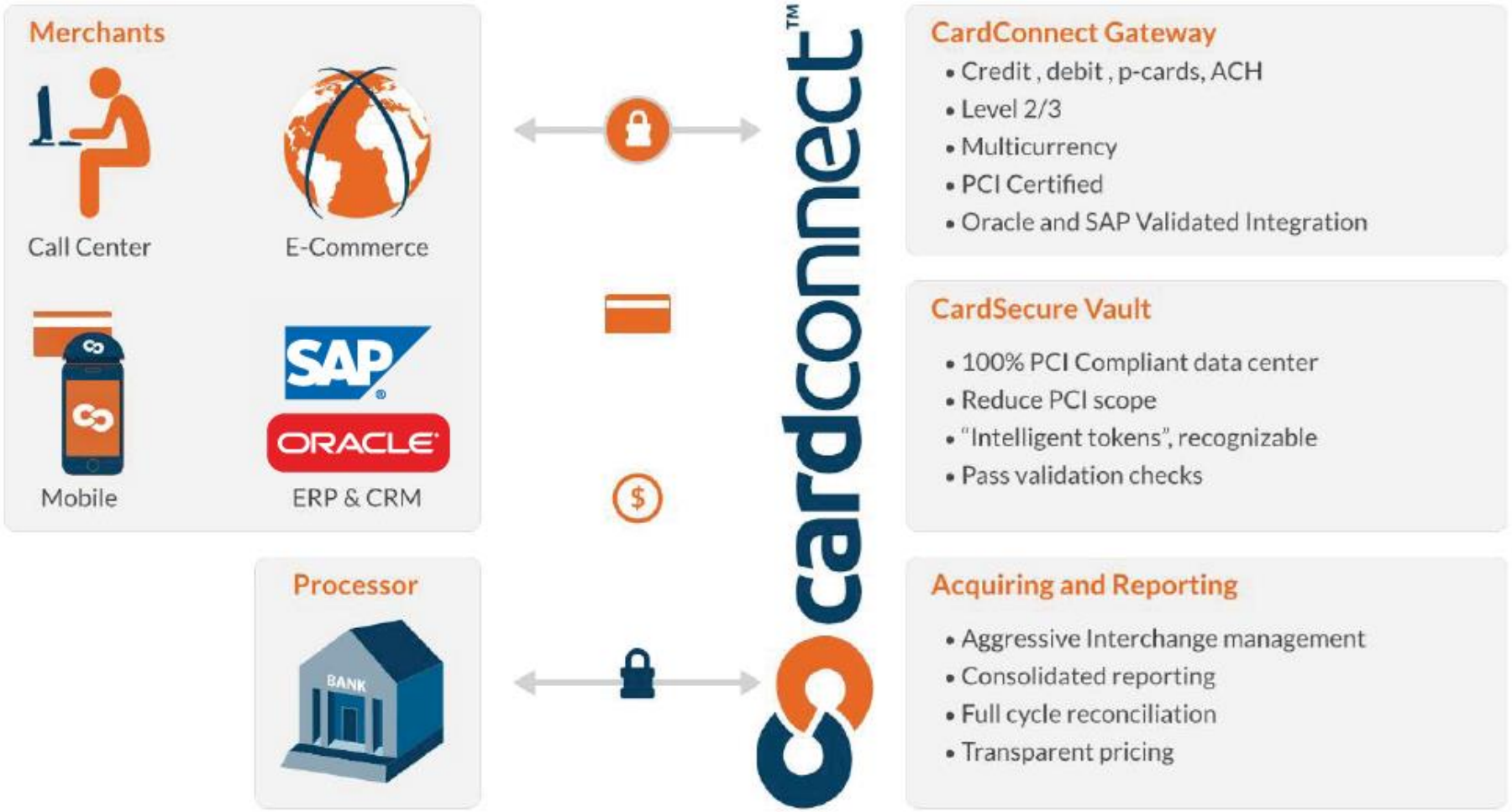
About Integrigy



About CardConnect



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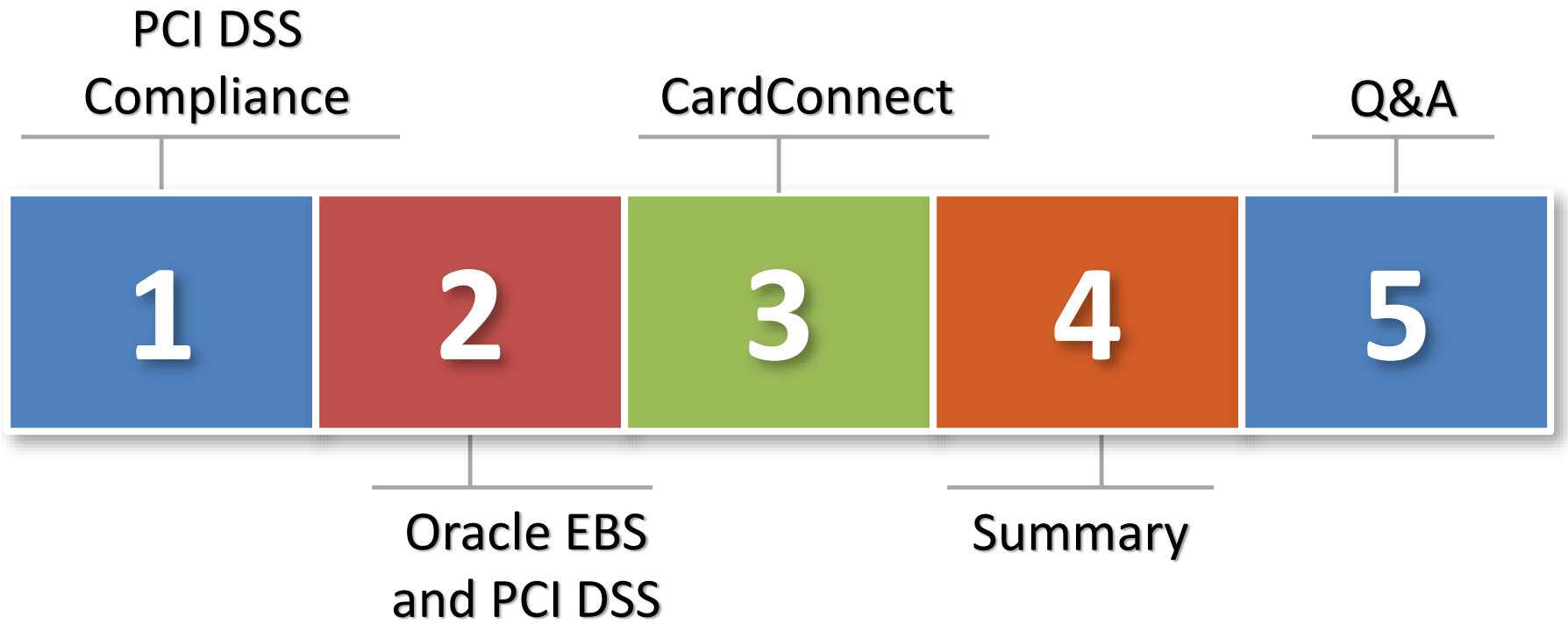

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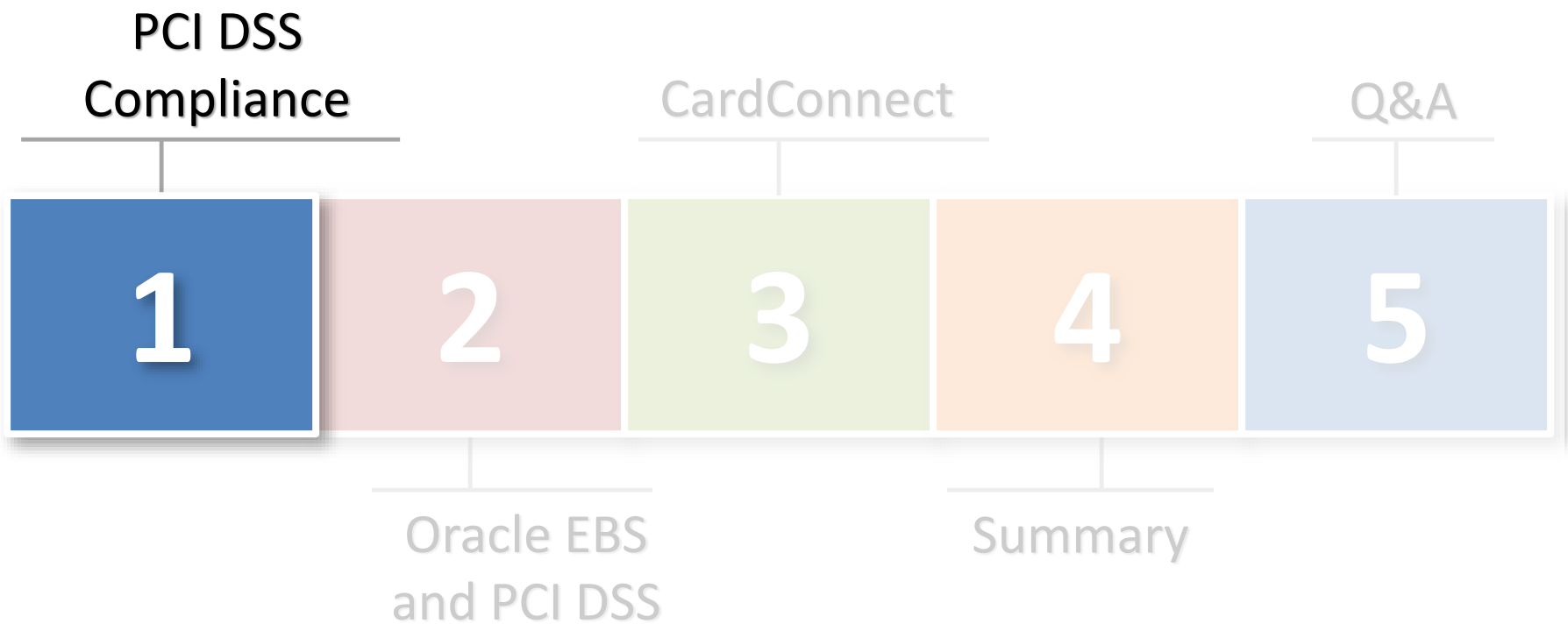

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PCI DSS

- **Payment Card Industry (PCI) Security Standards Council**
  - Sets standards and guidelines for credit cards
  - Consists of Visa, MasterCard, American Express, Discover, and JCB

- **Data Security Standard (DSS) -** 225 questions about the security of the entire technical environment as well as operational processes and procedures

DSS Requirement 3.4

- Four options to protect the Primary Account Number (PAN)
  - Truncation
  - Encryption
  - One-way hash
  - Tokens

All Oracle E-Business Suite environments that **“store, process, or transmit cardholder data”** must comply with the Data Security Standard 3.0 (PCI DSS) regardless of size or transaction volume.

PCI DSS 3.0 – EBS Requirement Mapping

#	Requirement	Network	Server	Database	Oracle EBS	Policy
1	Use Firewall to protect data	✓				✓
2	Do not use vendor-supplied defaults	✓	✓	✓	✓	✓
3	Protect stored cardholder data		✓	✓	✓	✓
4	Encrypt data across open, public networks	✓				
5	Use Anti-virus software		✓			✓
6	Develop and maintain secure applications	✓	✓	✓	✓	✓
7	Restrict access to cardholder data		✓	✓	✓	✓
8	Assigned unique IDs for access		✓	✓	✓	✓
9	Restrict physical access to data	✓	✓			✓
10	Track and monitor access	✓	✓	✓	✓	✓
11	Regularly test security	✓	✓	✓	✓	✓
12	Maintain information security policy					✓

PCI DSS 3.0 – EBS Compliance Effort

#	Requirement	OS/Network	Oracle DB	Oracle EBS
1	Use Firewall to protect data	1		
2	Do not use vendor-supplied defaults	3	3	2
3	Protect stored cardholder data			6
4	Encrypt data across open, public networks	1		
5	Use Anti-virus software	1		
6	Develop and maintain secure applications	1	3	5
7	Restrict access to cardholder data		2	2
8	Assigned unique IDs for access	3	4	4
9	Restrict physical access to data			
10	Track and monitor access	7	6	6
11	Regularly test security	2	1	1
12	Maintain information security policy			

High Medium Low

Oracle E-Business Suite and PCI Compliance

- **Standard installation is NOT COMPLIANT**
- **R12 provides new PCI DSS functionality**
  - Supersedes 11i functionality
  - Encrypts PAN
  - **Disabled by default**
- **PCI compliance in Oracle EBS is not a one-time setup**
  - Maintenance and on-going monitoring required

Non-Encryption PCI Requirements

Requirement 6 – Develop and maintain secure systems	• Apply Application and database CPU security patches within 30 days of release
Requirement 8 - Assign unique ID to each person with access	• No generic accounts • Every 90 days disable inactive users and change user passwords • Strict password complexity
Requirement 10 – Track and monitor all access to network resources	• Log all activity to cardholder data • Implement automated audit trails • Daily log review
Requirement 11 – Regularly test security systems and processes	• Annual application penetration test • Quarterly internal and external vulnerability scans • Deploy file integrity monitoring

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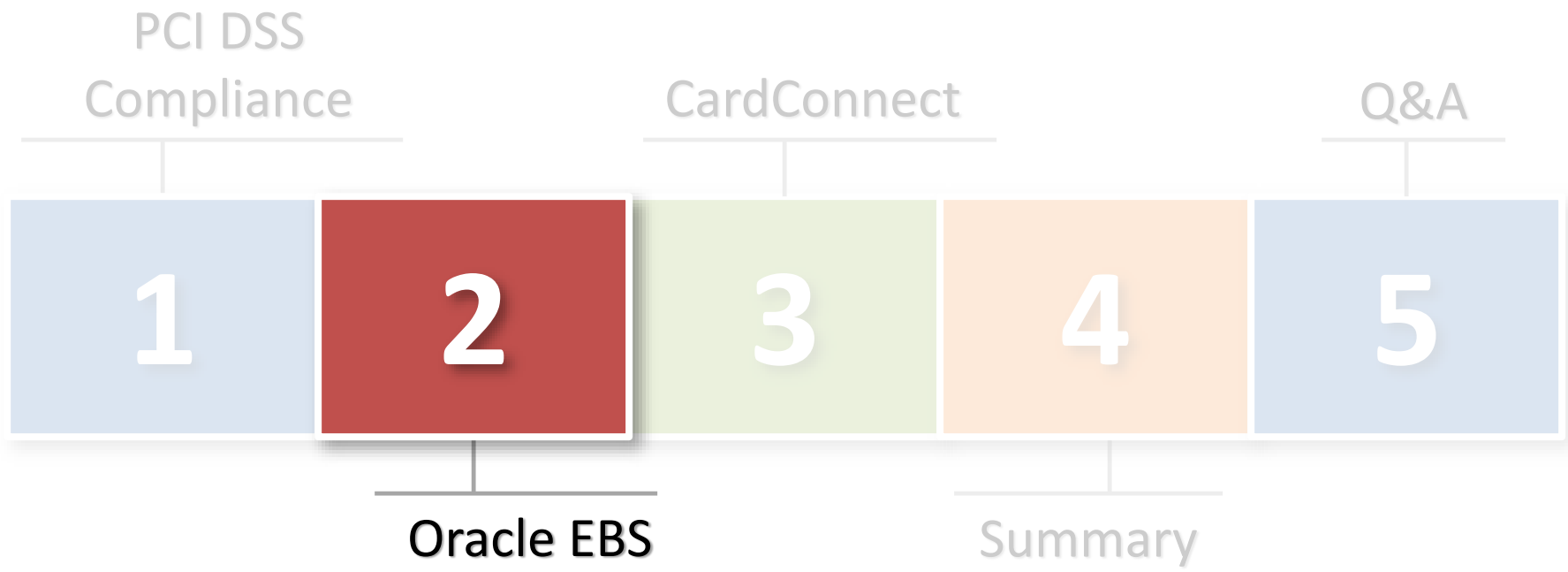

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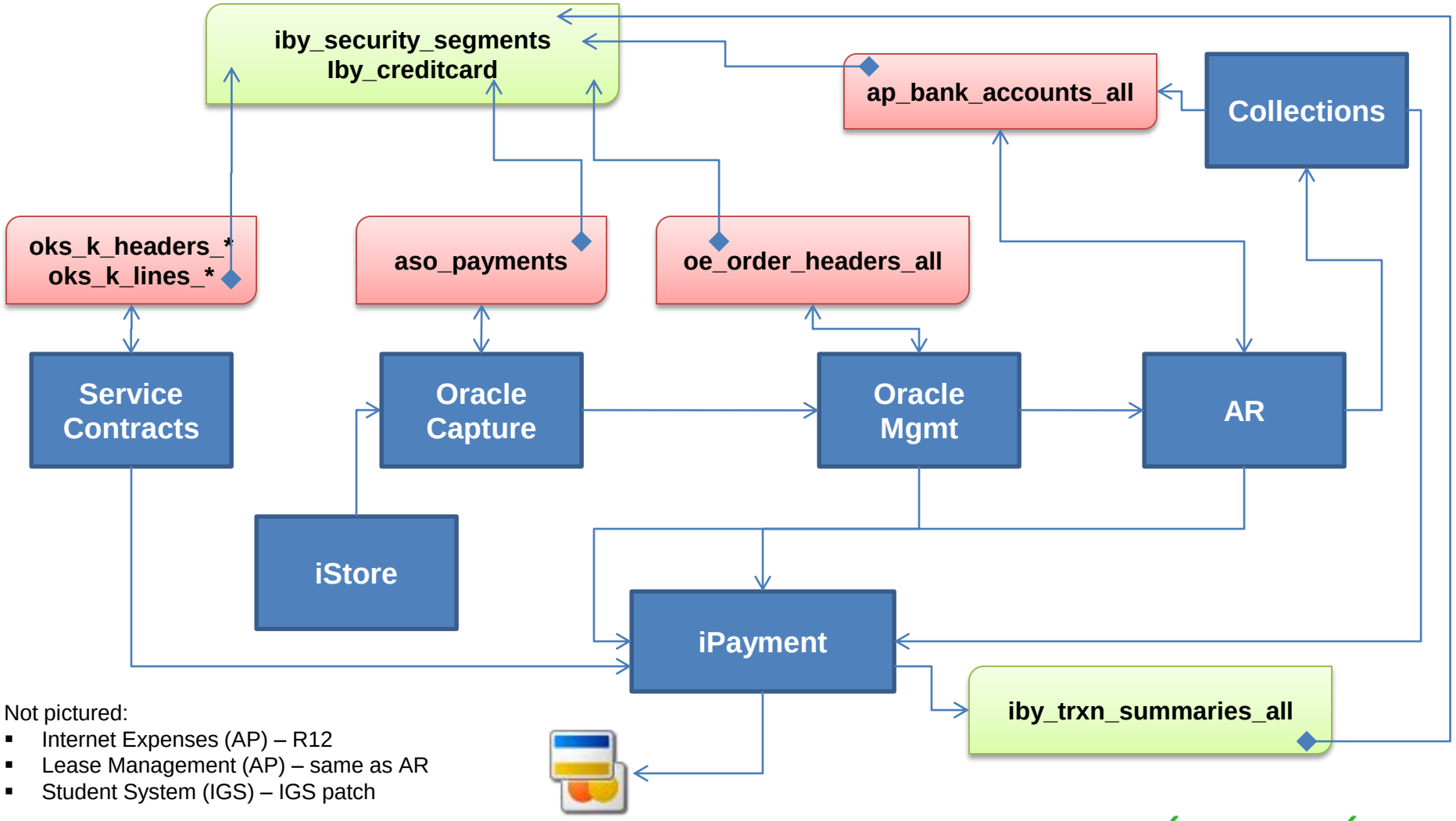
R12 Oracle Payments

- **Oracle Payments** – new R12 module consolidates all payment activity within Oracle Financials
  - Including processing and storage of credit cards

- **Secure Payments Repository** – part of Oracle Payments
  - Consolidates storage of TCA party external accounts
  - Provides PCI encryption and masking – **disabled by default**

Oracle Financial Modules Using Secure Payment Repository		
▪ Oracle Advanced Collections	▪ Oracle Order Capture	▪ Oracle Payments
▪ Oracle iExpenses	▪ Oracle Order Management	▪ Oracle Quoting
▪ Oracle iReceivables	▪ Oracle Partner Management	▪ Oracle Service Contracts
▪ Oracle iStore	▪ Oracle Payables	

Oracle Credit Card Encryption Design



Not pictured:

- Internet Expenses (AP) – R12
- Lease Management (AP) – same as AR
- Student System (IGS) – IGS patch

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Enabling E-Business Credit Card Protection

Three step process to enable encryption

1. Create Payment wallet
2. Set protection configuration options
3. Encrypt existing cardholder data

Issue: Test and Development Instances

- **6.4.3** – No production or “live” cardholder data allowed for test or development
- **3.5** – Protection of encryption keys
- **Building non-production instances**
  1. Production payment wallet rotated and securely wiped
  2. Location of Payment wallet reset
  3. Remove, purge and/or scramble production cardholder data

Issue: Purge Cardholder Data

- **3.1** – Keep cardholder data storage to a minimum
  - Limit storage and retention time to that which is required for legal, regulatory, and business requirements
  - A quarterly process to purge data that exceeds defined retention

- Oracle does not provide a single solution to purge Cardholder data
  - Most modules **DO NOT** provide purging solutions – bugs and enhancements exist

- **Purging Cardholder data**
  1. Consult module implementation guides
  2. Custom purge or obfuscate (scramble)
  3. Include all instances (test and non-production)

Issue: Where Else Might Cardholder Data Exist?

- **Custom tables**
  - Customizations may be used to store or process credit card data
- **"Maintenance tables"**
  - DBA copies tables to make backup prior to direct SQL update
  - iby.iby_security_segments_011510
- **Interface tables**
  - Credit card numbers are often accepted in external applications and sent to Oracle EBS
- **Interface files**
  - Flat files used for interfaces or batch processing
- **Log files**
  - Log files generated by the application (e.g., Oracle Payments)

Where is Sensitive Data in Oracle EBS?

Credit Card Data	`iby_security_segments (encrypted)`
	`ap_bank_accounts_all`
	`oe_order_headers_all`
	`aso_payments`
	`oks_k_headers_*`
	`oks_k_lines_*`
	`iby_trxn_summaries_all`
	`iby_creditcard`

Social Security Number
(National Identifier)
(Tax ID)
	`per_all_people_f`
	`hr_h2pi_employees`
	`ben_reporting`
	`ap_suppliers`
	`ap_suppliers_int`
	`po_vendors_obs`

Bank Account Number	`ap_checks_all`
	`ap_invoice_payments_all`
	`ap_selected_invoice_checks_all`

Protected Health Information (PHI)	Order Management Accounts Receivables Human Resources

Protection of Cardholder Data

- **PCI DSS is comprehensive**
  - Entire environment is in-scope
- **PCI DSS compliance is costly and on-going**
  - Financial costs and velocity to business
- **Tokenization alternative to encryption**
  - Store cardholder data outside of Application
  - PCI DSS approved

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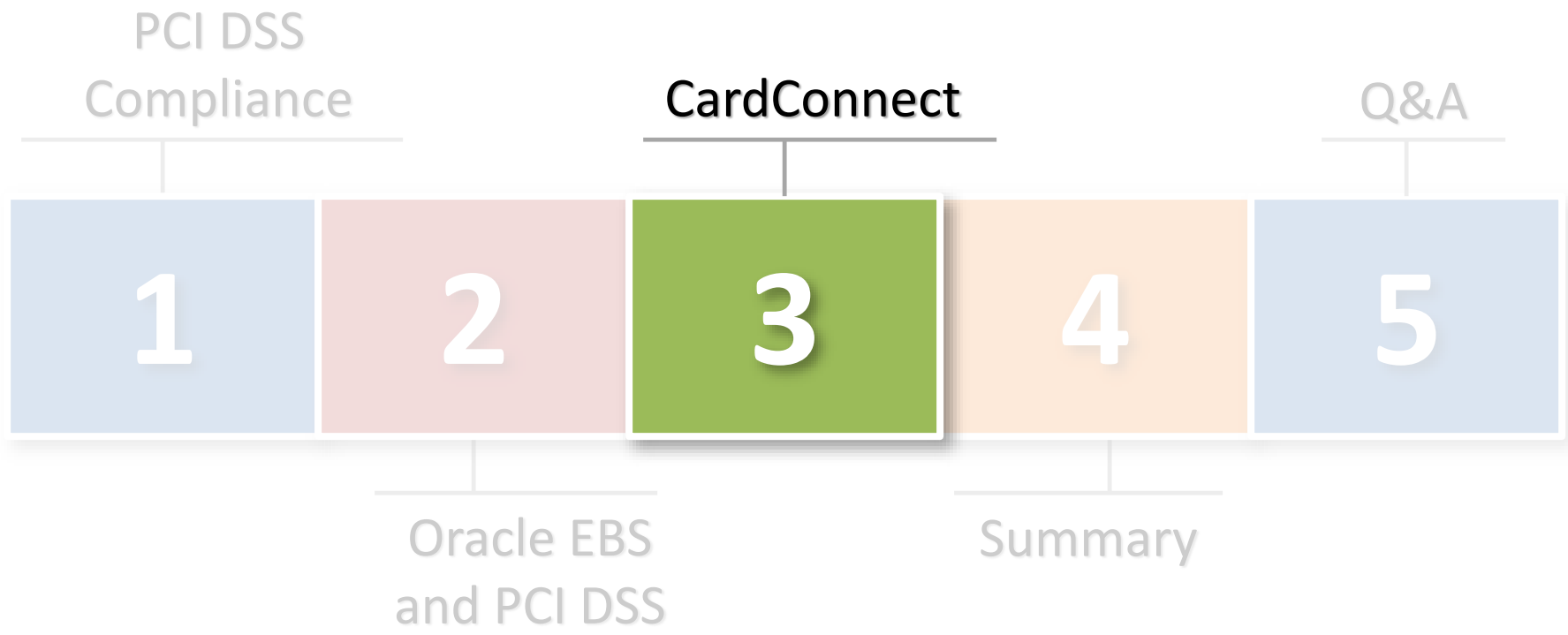

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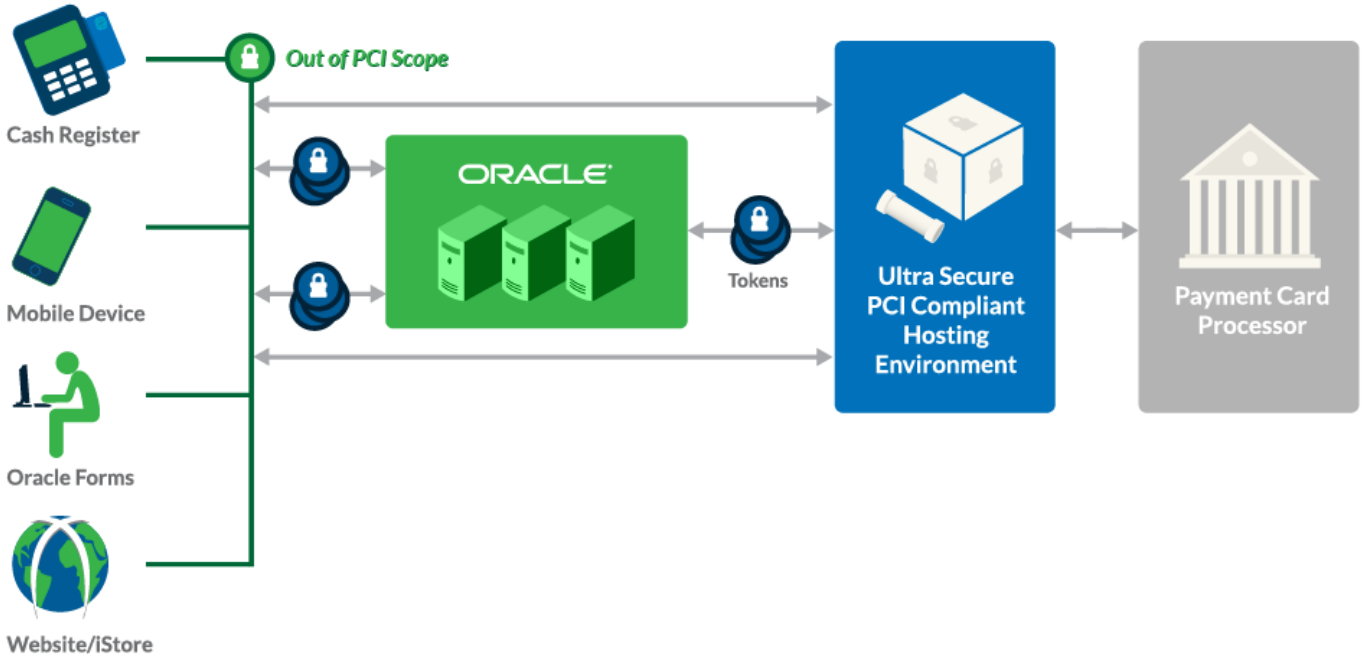
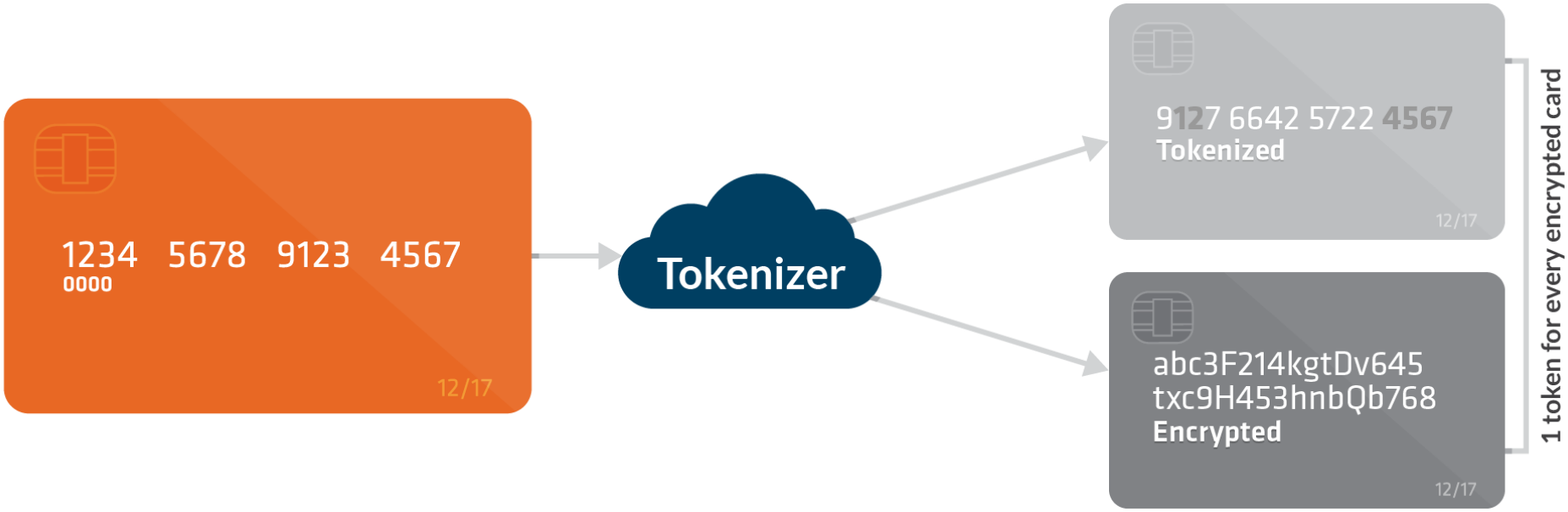
Why Tokenize?



- If scrambling and purging card data makes Oracle EBS PCI compliant, why spend more for tokenization?
- Tokenization removes sensitive payment data from your Oracle EBS entirely – reduces PCI scope and ultimately reduces cost.

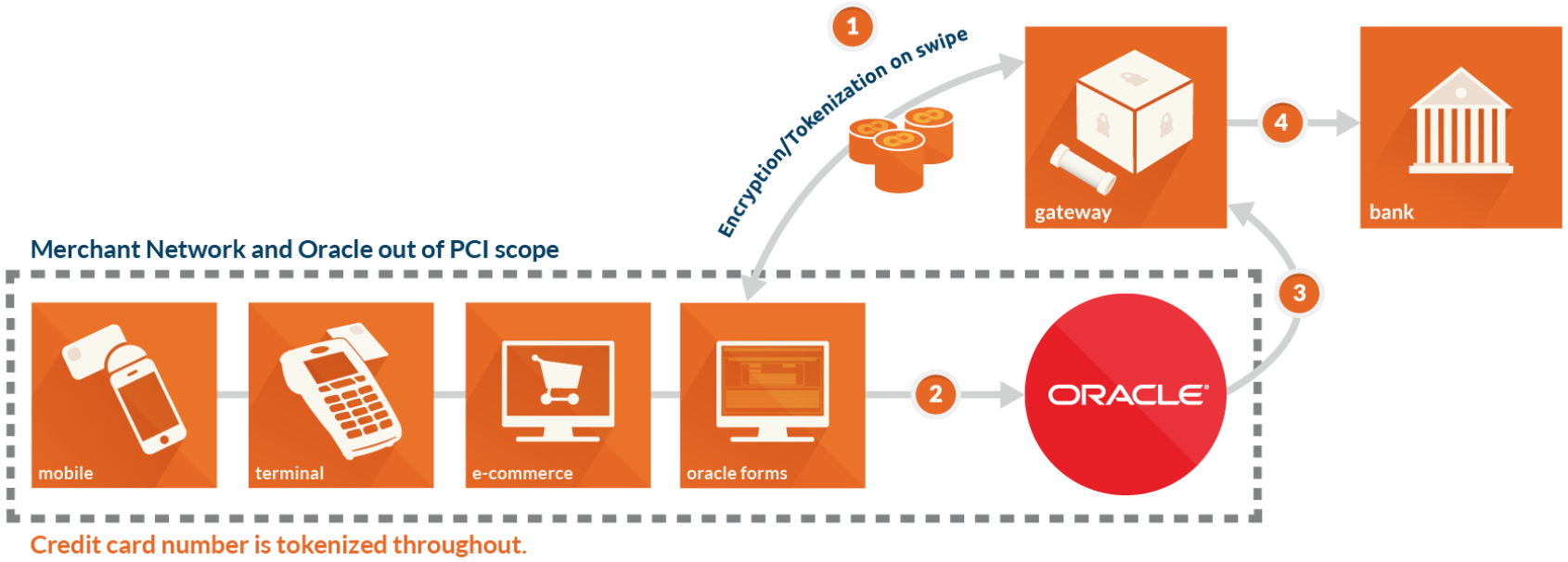
Secure Existing Data



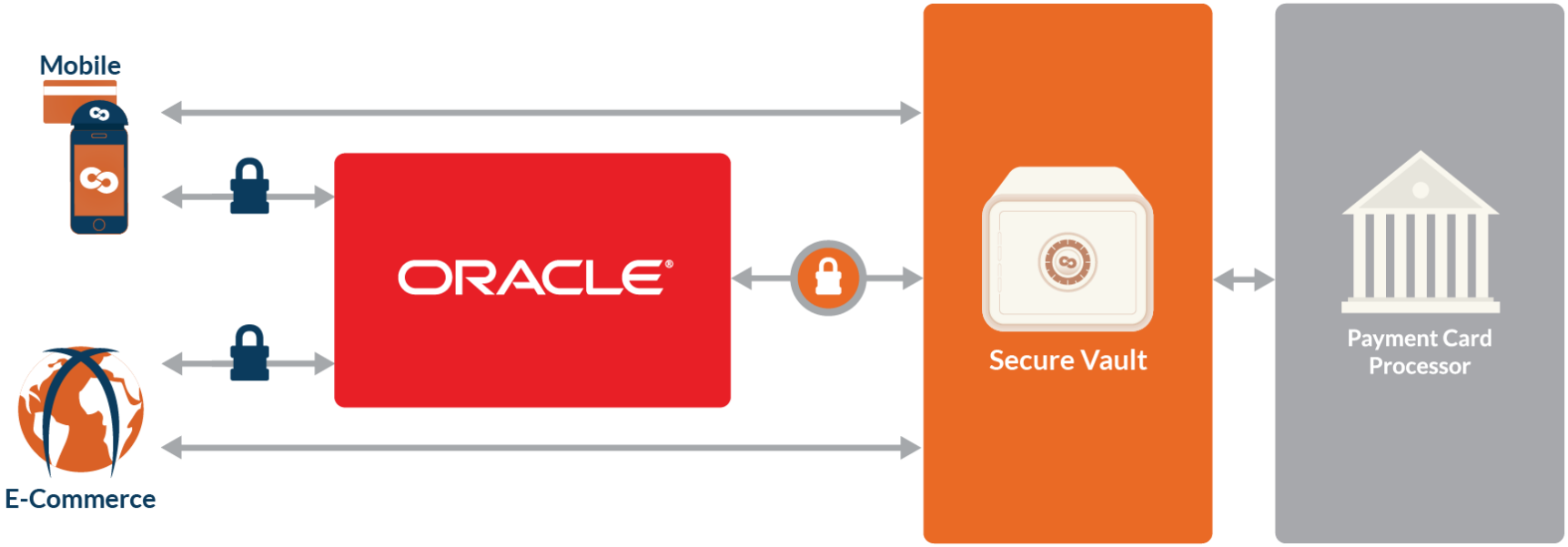
- Remove historical payment card data from Oracle EBS via batch tokenization
- Implement encryption and tokenization for all new transactions

Secure Future Transactions

- Apply to existing sales channels
  - Oracle Forms, iStore, integrations
  - POS, Mobile, e-commerce, and more
- Oracle-to-Gateway integration



Security: Tokenization

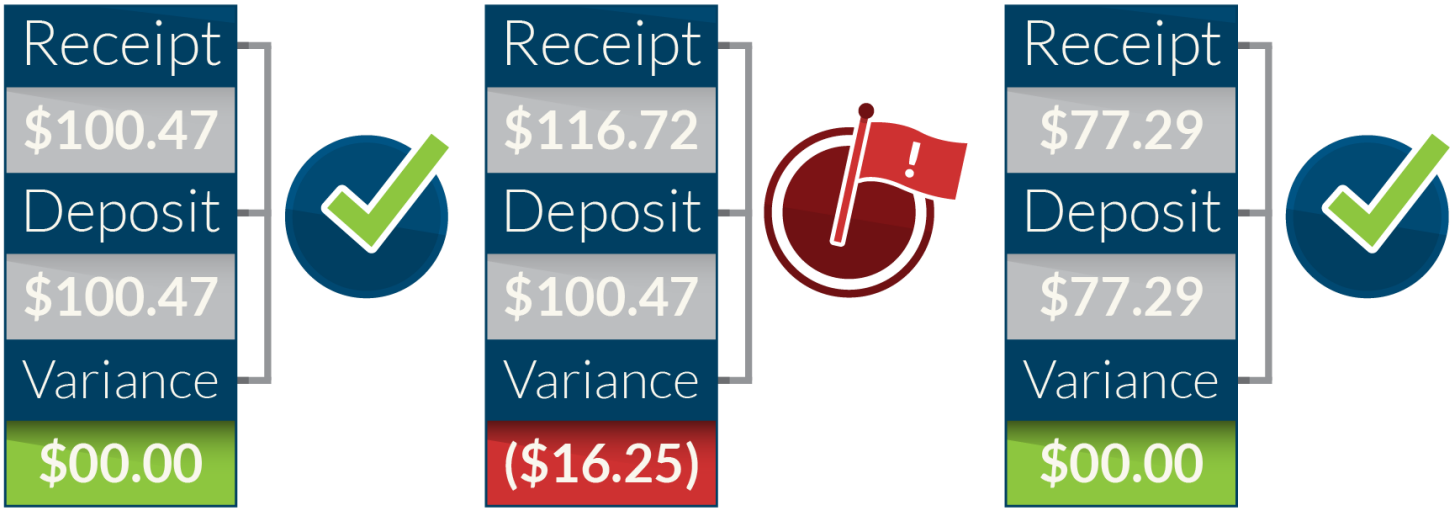


- CardConnect's method of encryption and patented tokenization
  - Irreversible tokens
  - Single-use vs. Multi-use Tokens

Security: Vaulted Hosting

- Hosted off-site payment vault
  - Is it in the *cloud*?
  - Security Requirements

Additional Benefits



- Modifications to Oracle E-Business – **None**
- Enhanced Automatic Reconciliation
  - Settle matched transactions instantly
  - Discrepant transactions are marked with a red flag for review
  - Expedited settlement and automates fee posting

PCI Cost Components

Merchant Level	Initial Scope	Becoming Compliant	Annual PCI Cost
Level 1 Merchant *Over 6 million Visa transactions per year*	$250,000	$550,000-$1,000,000	$250,000
Level 2 Merchant *1M to 6M Visa transactions per year*	$125,000	$260,000-$500,000	$100,000
Level 3 and 4 Merchants *Up to 1M transactions per year*	$50,000	$75,000-$90,000	$35,000

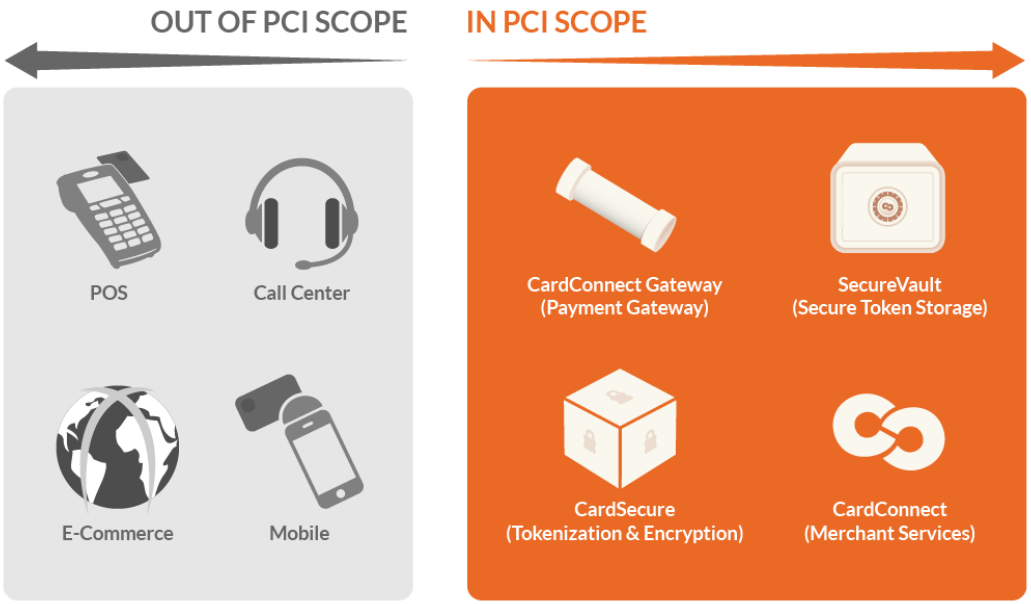
Source: PayPlum, http://www.payplum.com/#!pci-costs/c1ed1

Risks of Non-Compliance

- If a merchant is found to be non-compliant, Visa and MasterCard may fine them up to $25,000 per month
  - **Merchants are liable if a breach occurs and the fines may be huge, even into the millions**
- Costs of a breach are estimated to be $100-$200 per compromised record

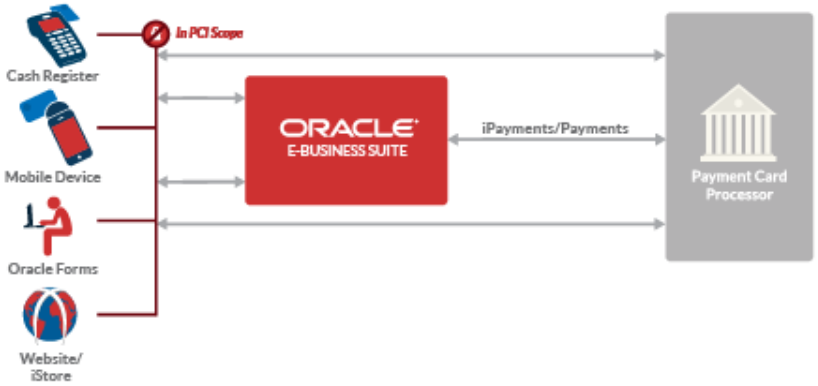
Source: PCI Standard, http://www.pcistandard.com/card-association-fines/; Ponemon Institute: 2013 Cost of Data Breach Study; PCI Compliance Guide, http://www.pcicomplianceguide.org/pcifaqs.php#11

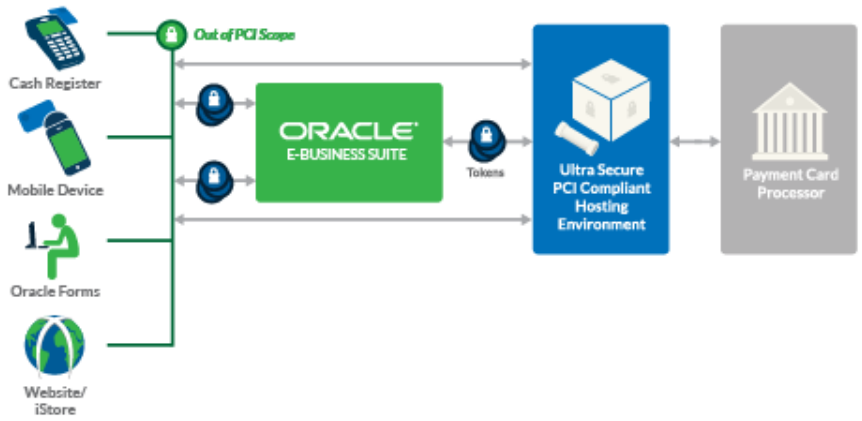
PCI Scope Reduction



Before	After
SAQ-D	SAQ-A/B
QSA Costs - $100,000+	Reduced Audit Requirements - $3,000
2 Full-Time Equivalents	1 Full-Time Equivalent

Standard vs. Integrated





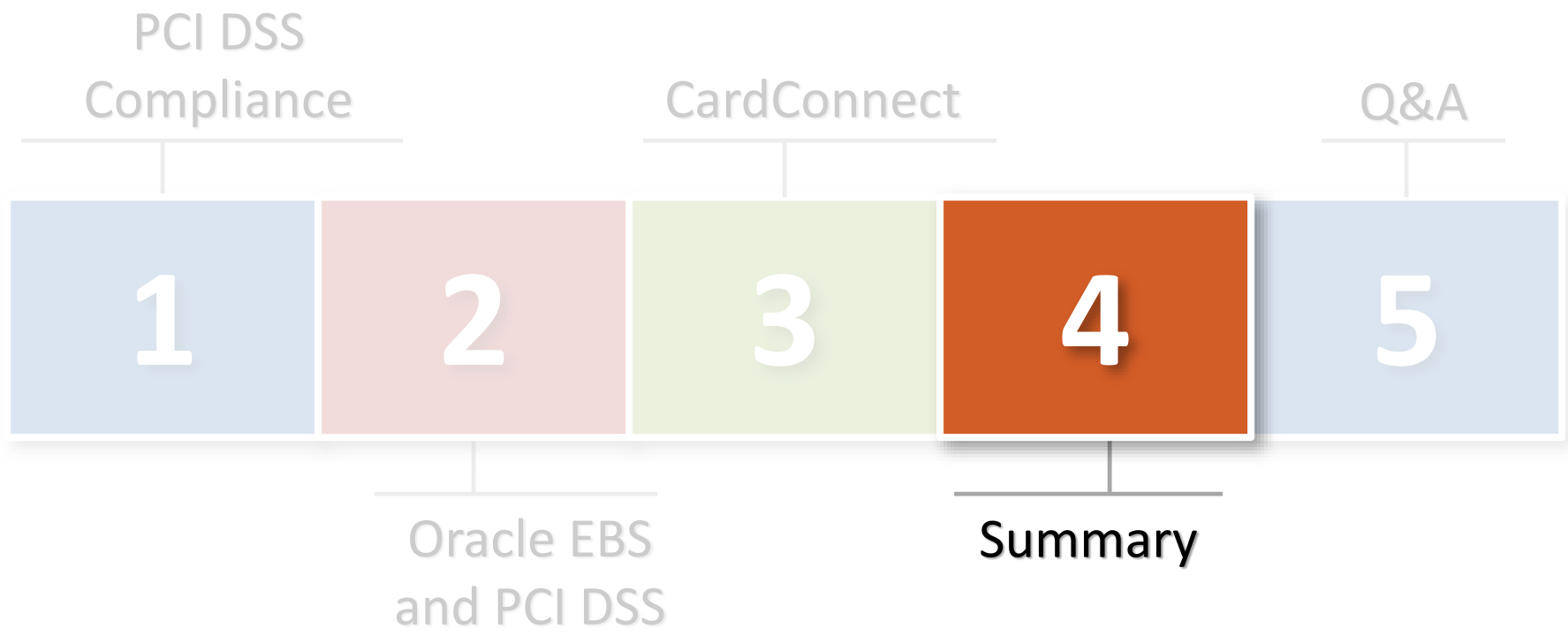
Areas of Concern

- **Card data stored and transmitted within your environment**
  Requires PCI questionnaire D and possibly not compliant
- **Data is only encrypted**
  Encryption greatly reduces risk, but does not guarantee that information is safe from a hack
- **No support for level 2 and 3 payment data**
  Results in higher interchange fees
- **Bank deposit information is not reported into Oracle**
  Creates reconciliation nightmares

Benefits of Integrating Secure Payment Acceptance

- **Greatly reduce compliance efforts**
  Survey decreases from SAQ D to SAQ B for Card-present environments; SAQ D to SAQ A for Card-Not-Present Environments
- **Reduce costs**
  Lower interchange rates and encryption costs
- **Eliminate risk**
  Maintain brand reputation and customer loyalty; mitigate threats of financial penalties and lawsuits
- **Increase efficiency**
  Take advantage of automated bank deposit level reconciliation

Summary



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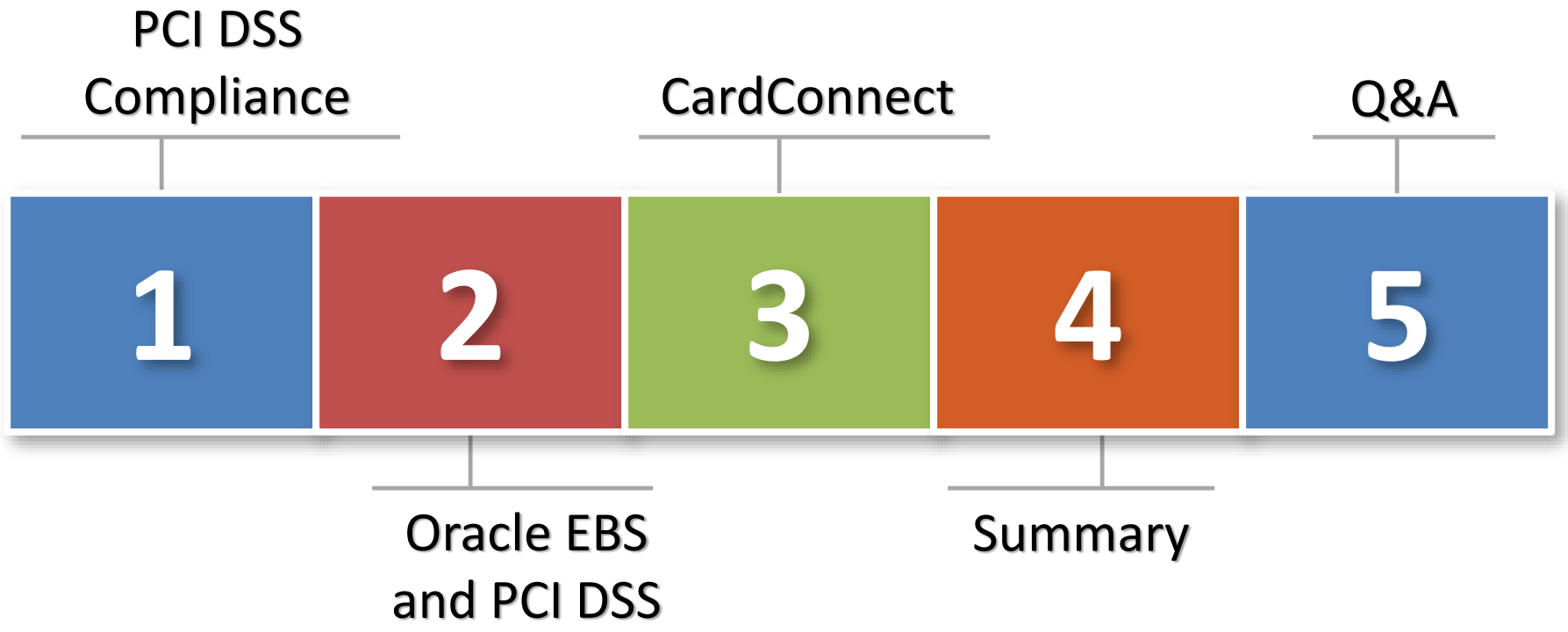
Summary



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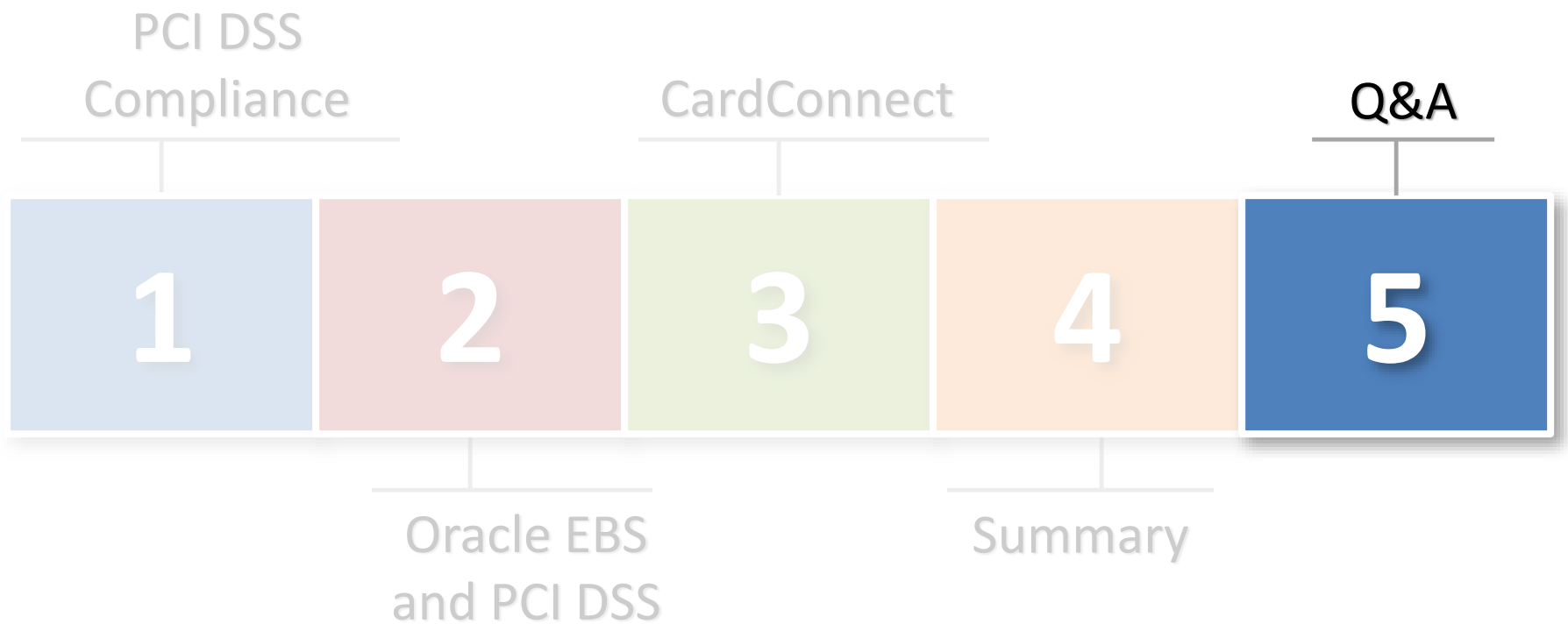
Q&A



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