Maximize Your Return on Big Data

May 15-18, 2012
Ensuring Data Privacy for Warehouses and Applications with Informatica Data Masking

Alon Rosenthal
Director, Product Marketing
Informatica
Agenda

- Trends & Challenges
- Informatica Solution Overview
- Securing Non-production Environments
- Securing Production and Data Warehouse Environments
- Summary
Data Must Be Protected
Devastating Costs of a Data Breach

Ponemon Institute

- 90% of enterprises have experienced at least one data security breach in the last year
- The cost of a breach averages $7.2 million
- 41% of all cases involve insider negligence

Hackers zap Zappos: Info from 24 million users stolen
Published January 16, 2012 | FoxNews.com

Popular online shoe retailer Zappos.com said late Sunday that hackers had accessed its network, stealing customer account information from as many as 24 million customers.

Credit card information was not stolen, company CEO Tony Hsieh said in a statement sent to users, but email addresses, billing and shipping addresses, phone numbers, the last four digits from credit cards -- and more -- may have been compromised.
Informatica Solution Overview

Informatica Dynamic Data Masking
Informatica Data Subset
Informatica Persistent Data Masking
Informatica Test Data Management
Non-production Protection

Custom CRM

Billing

Production

ERP

Data Warehouse

DEV

TEST

TRAIN

Informatica Dynamic Data Masking

Informatica Data Subset

Informatica Persistent Data Masking

Informatica Test Data Management
Informatica Data Subset
Lean Copies For Non-production Use

Time, Functional or Geographic Slice

Production Database 30TB ➔ Subset 10 TB

Time Savings Here

Space Savings Here

10 TB
10 TB
10 TB
10 TB
Informatica Persistent Data Masking
Protect Sensitive Information in Non-production

- Permanently alter sensitive data such as credit cards, address information, or names

Variety of Techniques:
- Shuffle Employee ID’s
- Substitute Names
- Constant for City
- Special Credit Card Technique

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>City</th>
<th>Credit Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>0964</td>
<td>Jeff Richards</td>
<td>Tampa</td>
<td>4417 9741 1949 9471</td>
</tr>
<tr>
<td>9388</td>
<td>Mark Moore</td>
<td>Modesto</td>
<td>4981 1341 0854 0508</td>
</tr>
<tr>
<td>2586</td>
<td>Roby Sanders</td>
<td>Fresno</td>
<td>4298 9341 9544 9114</td>
</tr>
<tr>
<td>7310</td>
<td>Jeff Richards</td>
<td>Tampa</td>
<td>4198 9481 9147 0521</td>
</tr>
</tbody>
</table>
Informatica Persistent Data Masking
Not Just a Transform

- Purpose built user interface
- Abstract policy definition
- Discovery of sensitive data and table relationships
- World class ETL environment for advanced rules
Data Masking & Test Data Management
Complete Solution Built on PowerCenter!

Define Metadata
- Build content to drive TDM processes

Discover
- Discover sensitive fields & table relationships

Subset
- Create smaller copies for nonproduction purposes

Mask
- Protect sensitive information in non-prod environments

Validate
- Ensure accuracy, complete-ness, and compliance of TDM processes

Business Glossary
Data Explorer
Data Subset
Persistent Data Masking
Data Validation

Metadata Manager
Application ILM
Application ILM
Data Quality
Enterprise Data Integration
Data Validation

INFORMATICA WORLD
Recent TDM Customers
Our Expertise and Quality of Service are Unrivaled

<table>
<thead>
<tr>
<th>Global Financial Services corp.</th>
<th>Insurance and wealth management leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOAL</td>
<td>GOAL</td>
</tr>
<tr>
<td>• Regulatory compliance</td>
<td>• Eliminate all Personally Identifiable Information (PII) from all non-production systems and databases by December 31, 2012</td>
</tr>
<tr>
<td>• Improve operational efficiencies</td>
<td>RESULTS</td>
</tr>
<tr>
<td></td>
<td>• Corporate-wide compliance with data privacy policies</td>
</tr>
<tr>
<td></td>
<td>• Expected operational efficiencies utilizing data masking shared services</td>
</tr>
<tr>
<td></td>
<td>• Will reduce reliance on home-grown solution</td>
</tr>
<tr>
<td></td>
<td>• Will meet or beat The Hartford’s internal deadline for PII protection</td>
</tr>
<tr>
<td></td>
<td>• Will satisfy internal and external audits and effectively manage risk of a data breach</td>
</tr>
</tbody>
</table>
Informatica’s TDM Solution
Process Driven Methodology
Production and Near-production Protection

Informatica Dynamic Data Masking

Informatica Data Subset

Informatica Persistent Data Masking

Informatica Test Data Management

Production

Custom

CRM

ERP

Data Warehouse

Billing

DEV

TEST

TRAIN
Production Environment Protection
Dynamic Data Masking

Authorized User
(Sr. Analyst)

Original Values
3890-6784-2945-0093
3245-9999-2456-7658

Unauthorized User
(IT Administrator)

Masked Values
xxxx-xxxx-xxxx-0093
xxxx-xxxx-xxxx-7658

Unauthorized User
(Offshore Support)

Scrambled Values
1234-6789-1000-4422
2233-6789-3456-5555

Dynamic Data Masking
applies rules based on user context

Database containing
sensitive data

Value in database
3890-6784-2945-0093
3245-9999-2456-7658
Dynamic Data Masking
Seeing Is Believing!

- Dramatically decrease the risk of a data breach
- Easily customize data masking solutions for different regulatory requirements (GLBA, DDPA, PIPA, HIPAA etc.)
- Eliminate cost resulting from damage to reputation
- Increase productivity through fast protected access to production data
- Works for applications and data warehouses!
Dynamic Data Masking in SAP

- Anonymizing PII, Auditing user activity, Securing other reporting and development tools that access SAP database
Production Environment Protection
Additional Protection Means

• Central database activity auditing across heterogeneous databases

• Alerting unauthorized usage

• Applying row level security, restricting accessible personal and sensitive information (PII)

• Blocking unauthorized user requests and protecting against SQL Injection
Recent DDM Customers
Easy Demonstration/POC & Short Sales Cycle

**GOAL**
- Privacy protection, regulatory compliance, and PCI-DSS credit card masking across production and near-production environments

**RESULTS**
- Since March 2010 personal information in LHS Billing, Siebel, Clarify and custom Telco applications is protected
- Satisfied high profile privacy regulation compliance audit

**GOAL**
- To proactively control access to private information data.

**RESULTS**
- Successfully anonymized private information accessed by consultants, other external parties, IT personnel, and developers
- Currently protecting approximately 100 production databases
Encryption and DDM
Like an Unlocked Safe

- Encryption protects data at rest -> infrastructure DBA’s accessing DB files in storage
- Yet application screens, reports and development tools present the data in the clear (original values)

--> **Having Encryption without DDM is like having a Safe but leaving the door open to everybody**

All users: authorized & unauthorized

Original Credit Card is shown to everyone (including unauthorized users)

<table>
<thead>
<tr>
<th>Credit Card Numbers</th>
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<tbody>
<tr>
<td>4417 9741 1949 9471</td>
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<td>4298 9341 9544 9114</td>
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Encrypted Credit Card stored in the database

<table>
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<tr>
<th>Encrypted Card Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>010AB1011231123112</td>
</tr>
<tr>
<td>201A1021132CABAA</td>
</tr>
<tr>
<td>22112ABB102211220</td>
</tr>
</tbody>
</table>
Encryption and DDM
Locking the Safe’s Door

- DDM selectively decrypts the data ONLY for authorized users. Unauthorized users will see the data masked!

<table>
<thead>
<tr>
<th>Original credit card numbers shown to authorized end-users</th>
</tr>
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<td>4417 9741 1949 9471</td>
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</table>

<table>
<thead>
<tr>
<th>Only masked credit cards shown to unauthorized end-users</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXXX XXXX XXXX 9471</td>
</tr>
<tr>
<td>XXXX XXXX XXXX 0508</td>
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Performance and High-availability

- DDM is used by one of the largest European Siebel installation for about two years
- Peaks reached 1,000 Transactions per second
- DDM installed as a Linux cluster for high-availability and load balance

Customer experience:
- Throughput untouched by DDM
- No DDM downtime since go-live
- DDM consumption less then 3% of total DB CPU cores
- No performance penalties have been identified
Dynamic Data Masking Architecture

Authorized User (Sr. Analyst)

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<td>3245-9999-2456-7658</td>
<td>xxxx-xxxx-xxxx-7658</td>
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Unauthorized User (IT Administrator)

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<td>1234-6789-1000-4422</td>
</tr>
<tr>
<td>2233-6789-3456-5555</td>
</tr>
</tbody>
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Unauthorized User (Offshore Support)

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<td>xxxx-xxxx-xxxx-0093</td>
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Connection Rules

External Java program matchers

Database stored procedure matchers

SQL Processing Rules

Database Protocol proxy services

Database containing sensitive data

Auditing repository loader
Summary
Common Customer Usage

• Securing IT personnel, production support, DBAs and developers across production, near and non-production environments

• Securing business applications and reporting tools from business users

• Securing outsourcing and offshore access to production and with replications

• Ensuring compliance with ever-increasing global regulatory requirements
Thank you