Data Privacy - Protection from Trusted Users

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Data Privacy
Most Common Data Losses

Ponemon Institute
2006 Annual Study: Cost of a Data Breach
“It is a serious mistake to think that mainframe applications are safe by default. They are not..... Enterprises should not experience a false sense of security simply because their mission-critical applications run on mainframes. Yet, they are often defenseless against insiders equipped with in-depth knowledge of the applications' logic and security policies — those using legitimate means to ill-exploit the system. Most attacks on legacies come from inside the enterprises, committed by their own employees... Applications should be protected from the inside out.”

Joseph Feiman, Gartner Research, September 29 2006
Implementing Security for Mainframe Legacy Applications - Worth the Investment
## Data Privacy

### Environmental Differences for data use

<table>
<thead>
<tr>
<th>Production Region</th>
<th>Test Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live customer/account information</td>
<td>Live customer/account information</td>
</tr>
<tr>
<td>Access through applications with role based information accesses</td>
<td>Direct access to the raw data</td>
</tr>
<tr>
<td>Trained access to employees through policies and agreements</td>
<td>Wider exposure to non-employees or employees across the world</td>
</tr>
<tr>
<td>Usage of data monitored and traced for compliance</td>
<td>Higher potential for unauthorized viewing and usage</td>
</tr>
<tr>
<td>Successful usage requires ‘live’ data</td>
<td>Successful testing does not require ‘live’ data</td>
</tr>
<tr>
<td>Region security mature and robust, through tools and processes</td>
<td>Region security not as robust as production</td>
</tr>
</tbody>
</table>
Test Data Privacy
How we see it being addressed

- Signing non-disclosure agreements
- Restricting security access to sensitive/confidential data
- Applying minimal “de-identifying” rules
- Implementing a complete data disguise solution with processes and procedures
## Test Data Privacy

### Internal Challenges

<table>
<thead>
<tr>
<th>Organizational</th>
<th>Political</th>
<th>Technical</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Defining ownership of the data</td>
<td>• Communication and agreement between different application</td>
<td>• Variety of platforms</td>
</tr>
<tr>
<td>• Disguise enforcement</td>
<td>groups</td>
<td>• Variety of data types</td>
</tr>
<tr>
<td>• Defining disguise standards</td>
<td>• Conflicts of interest</td>
<td>• Data complexity</td>
</tr>
<tr>
<td>• Business process management</td>
<td>• External influences</td>
<td>• Maintain shared relationships between multiple environments</td>
</tr>
<tr>
<td>• Designing and implementing corporate disguise policies and procedures</td>
<td>• Interpretation of the compliance regulations</td>
<td>• Coordination of physical implementation</td>
</tr>
</tbody>
</table>
Test Data Privacy
Requirements for Success

• **Process**
  – A clear strategy backed up by a methodology that serves as a roadmap or blueprint for an enterprise-wide data privacy initiative

• **Technology**
  – Tools that can deliver quality data that meets the integrity, consistency and usability demands of your data privacy requirements

• **Expertise**
  – The knowledge and experience to effectively manage the process and drive the technology to implement data privacy assurance in the application testing environment
Test Data Privacy
Leadership

• Provide Products, Processes and People to disguise and generate data used for:
  – Application testing
  – Data exchange
  – Internal reporting
  – Offshore / outsourced development
  – Departmental data processing
Test Data Privacy
Delivery

- Protect personal/sensitive data while maintaining:
  - Data Integrity across application(s)
  - Consistency, regardless of data source, and repeatability
  - Usability, test data should be valid and meaningful
Test Data Privacy
Solution

Production
z/OS Distributed

Unit Test
Data Privacy Manager
System Test

Test
z/OS Distributed

Acceptance Test
QA Test

Subset Extract
Privacy Audit Reports
Apply Privacy Rules
Load Maintain integrity

Privacy Manager

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Test Data Privacy
Process: Methodology

**Analyze** – Understand each application’s sensitive information

**Design** – Define strategies for disguising test data

**Develop** – Build the processes to disguise test data

**Deliver** – Deploy and maintain data protection processes
Test Data Privacy

Process: Methodology

[Project Gantt Chart Image]
Test Data Privacy
Process: Best Practices

Chapter 4: Design Phase
1.2 Design
1.2.1 Data Extract Design
1.2.2 Design relationship repository
1.2.3 Specify driving objects
1.2.4 Design extract selection criteria
1.2.5 Specify extract scope
1.2.6 Document source environment benchmarks
1.2.7 Design data extract strategy
1.2.8 Data Disguise design
1.2.9 Determine sensitive field/column disguise technique
1.2.10 Specify sensitive field/column encryption rules
1.2.11 Specify sensitive field/column translate rules
1.2.12 Specify translate table structures
Test Data Privacy
Process: Best Practices

1.2.2 Determine sensitive field/column disguise technique

Once there is an understanding of the value domains for each sensitive field and their business rules, a fictionalization strategy needs to be determined, according to the different techniques available, such as Encrypt, Translate, Generate, Mask or Age.

A combination of these techniques allows maintaining data integrity, consistency and usability. Some techniques apply better to certain types of fields as illustrated below:

<table>
<thead>
<tr>
<th>Data element</th>
<th>Recommended Disguise Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name (First, Last, Middle, Maiden, Aliases, Prefixes, Suffixes)</td>
<td>Translation, Generation</td>
</tr>
<tr>
<td>Address (Street, City, State, Zip)</td>
<td>Translation, Generation</td>
</tr>
<tr>
<td>Social Security Number</td>
<td>Encryption</td>
</tr>
<tr>
<td>Driver License Number</td>
<td>Encryption</td>
</tr>
<tr>
<td>Passport Number</td>
<td>Encryption</td>
</tr>
</tbody>
</table>

1.2.2.1 Specify sensitive field/column translate rules

This task is a prerequisite for the customer data privacy program for each of the data fields to identify the data disguise technique. The table below lists some guidelines and potential values to be considered when selecting the different techniques:

<table>
<thead>
<tr>
<th>Table No.</th>
<th>Map To</th>
<th>Table Type</th>
<th>Map From</th>
<th>Values Available</th>
<th>Translate</th>
<th>Encrypt</th>
<th>Generate</th>
<th>Mask</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>0123</td>
<td>Item</td>
<td>Table</td>
<td>Field</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>4567</td>
<td>Field</td>
<td>Table</td>
<td>Field</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

As a general guide, Table 1 lists the descrambling of the following fields that are likely to contain sensitive data.
Test Data Privacy

Analyze

• **Gather and document information about:**
  – Applications to be treated
  – Data structures involved
  – Existing data relationships
  – Data Classification Scheme to understand sensitive data elements
  – Processes acting upon or impacting sensitive data
Test Data Privacy
Managing the Analysis Tasks

Most applications have documentation about the data elements, structures, formats, relationships and dependencies. In many cases an application data model is already in electronic form via software engineering and data modeling tools.

This task is about obtaining such information for subsequent analysis of what is considered sensitive data. A Subject Matter Expert, Business Analyst, or Database Designer should be familiar with this information.
Test Data Privacy
Managing the Analysis Tasks

Data Modeling Tools

Data Management Tools

File-AID/DB2 /DBA-Xpert
Impact Analysis

File-AID/Data Solutions Analysis

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Test Data Privacy
Managing the Analysis Tasks

Compuware Program Analyzer for Abend-AID, Xpediter and Strobe
Test Data Privacy
Analysis Deliverables

Document current test requirements over sensitive fields

<table>
<thead>
<tr>
<th>Process</th>
<th>Sensitive field</th>
<th>SIC SEC NUM</th>
<th>CREDIT CARD NUM</th>
<th>CONTACT_ADDRESS</th>
<th>PASSWORD</th>
<th>Table Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM 801</td>
<td>No validations exist</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGRAM 802</td>
<td>MOD-10 check-digit validation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGRAM 803</td>
<td>First name and last name are concatenated to be displayed on screen and written in reports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGRAM 804</td>
<td>First two digits are validated for each credit card type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGRAM 805</td>
<td>City, State and Zip must match</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGRAM 806</td>
<td>Street, City, State, a Zip passed to CODE validation function on return 1 for True, 0 for False</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGRAM 807</td>
<td>Last name, Comma, First Name, Comma, Middle Initial is term is validated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Document data stores/entities and relationships
Test Data Privacy
Design

- Define application disguise strategy and process
  - Source extract criteria for data (filters, naming conventions, etc.)
  - Security rules for supporting files
  - Structure, value domain (content), population strategy for translate table(s)
  - Target environment(s) and load method(s) to be used
  - Field-level obfuscation rules (encrypt, translate, age, generate)
Test Data Privacy
Disguise Techniques

- **Encrypt**: Replace sensitive values with formulated data based on a user-defined key.
- **Translate**: Replace sensitive values with meaningful, readable data using a translation table.
- **Age**: Replace sensitive dates consistently while maintaining the integrity of a date field.
- **Mask**: Conceal partial fields.
- **Generate**: Generate fictitious data from scratch or from some other source.
Test Data Privacy
Managing the Design Tasks

Once there is an understanding of the value domains for each field and their business rules, a fictitiousization strategy needs to be determined for each sensitive data element according to the different techniques available, such as Encrypt, Translate, Generate or Age.

A combination of these techniques allow to maintain data integrity, consistency and usability. Some techniques apply better to certain types of fields. For instance, names and addresses are usually translated, while phone numbers and codes are normally encrypted.
Test Data Privacy

Develop

Production

Data Privacy Manager

Test

z/OS

Distributed

Subset Extract

• Build
• Test
• Validate

Load
Maintain integrity

z/OS

Distributed
Test Data Privacy
Development tasks – z/OS Relationships

| Base object: | D701CW01.PROD.CUSTOMER_TBL |
| Line Commands: | S = Select Relationship to Modify |
|               | A = Add Application Relationship |
|               | D = Delete Relationship |
|               | I = Relationship Information |

<table>
<thead>
<tr>
<th>CMD</th>
<th>Parent/Dependent</th>
<th>Obj</th>
<th>Rel</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>_</td>
<td>D701CW01.PROD.CUSTOMER_TBL</td>
<td>DB2</td>
<td>RI</td>
<td>AR</td>
<td>ASSOCIATED REL.</td>
</tr>
<tr>
<td></td>
<td>D701CW01.PROD.CONTACT_TBL</td>
<td>DB2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_</td>
<td>D701CW01.PROD.CUSTOMER_TBL</td>
<td>DB2</td>
<td>AR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D701CW01.PROD.ORDER_TBL</td>
<td>DB2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_</td>
<td>'SUSJDL0.FLEX.KEYFILE.EXTRACT'</td>
<td>MVS</td>
<td>AR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D701CW01.PROD.CUSTOMER_TBL</td>
<td>DB2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_</td>
<td>D701CW01.PROD.ORDER_TBL</td>
<td>DB2</td>
<td>RI</td>
<td>ASSOCIATED REL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D701CW01.PROD.ORDER_LINE_TBL</td>
<td>DB2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_</td>
<td>D701CW01.PROD.PART_TBL</td>
<td>DB2</td>
<td>RI</td>
<td>ASSOCIATED REL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>D701CW01.PROD.ORDER_LINE_TBL</td>
<td>DB2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Test Data Privacy
Development tasks – z/OS Extract Scope

File-AID/RDX ---- Graphical Relationship Display --------- Row 1 to 11 of 11
Command ==>  

TAB to Table and press ENTER for an Option List
* Denotes the table is involved in additional relationships

<table>
<thead>
<tr>
<th>DB2-PART_20</th>
</tr>
</thead>
<tbody>
<tr>
<td>__</td>
</tr>
<tr>
<td>__</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DB2-ORDER_TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>__</td>
</tr>
</tbody>
</table>

AR/RI
Test Data Privacy
Development tasks – Disguise z/OS Extract

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Driving Object</td>
</tr>
<tr>
<td>2</td>
<td>Extract Scope and</td>
</tr>
<tr>
<td></td>
<td>Detailed Extract Views</td>
</tr>
<tr>
<td>3</td>
<td>Unrelated Objects</td>
</tr>
<tr>
<td>4</td>
<td>External Key File</td>
</tr>
<tr>
<td>5</td>
<td>Selection Criteria</td>
</tr>
<tr>
<td>6</td>
<td>IMS Key File</td>
</tr>
<tr>
<td>7</td>
<td>Extract File DISGUISED</td>
</tr>
<tr>
<td>8</td>
<td>Continue with Load</td>
</tr>
<tr>
<td>9</td>
<td>Save Extract Request</td>
</tr>
<tr>
<td>10</td>
<td>View JCL</td>
</tr>
<tr>
<td>11</td>
<td>Submit JCL</td>
</tr>
</tbody>
</table>
Test Data Privacy
Development tasks – Disguise Set Up

Data Privacy Manager

- Build
- Test
- Validate

File-AID/Data Solutions ------- Criteria Menu --- TEMPORARY -----------------
OPTION ==> _

0 OPTIONS  - Selection criteria options default
1 DATE AGING  - Aging criteria 1 sets
2.1 EURO CONVERSION  - Euro Conversion criteria 0 sets
2.2 TRIANGULATION  - Currency Triangulation 0 sets
3.1 DATE PATTERN ANALYSIS  - Date Pattern criteria 0 sets
3.2 VALIDATION  - Validate criteria 0 sets
3.3 DATA ANALYSIS  - Data Analysis criteria 0 sets
4 TRANSLATOR  - Data Translator criteria 1 sets
5 GENERATOR  - Data Generator criteria 1 sets
6 FIELD EXITS  - Utilities criteria 0 sets
7 DATA ENCRYPTION  - Data Encryption Criteria 1 sets

Member list description ==> ____________________________________________
Long ==> ____________________________
Description ==> ____________________

Use ENTER to continue
Use VIEW to display criteria request  SAVE to write criteria request
Use END to return to Input Spec Panel  CANCEL to restart at Input Spec Panel
Test Data Privacy
Development tasks – z/OS Load

File-AID/RDX -------------- Load Menu -------------- USER Profile: RDXMENU
Option ===> _

Primary commands: menu-number, ALL, REFerence, REQUEST, MODE
Line commands: $ or / to create flow through selected options.

Extract File name ===> HFHSAS0.SCOTT.RDX.EXTRACT
Description ===> DB2-FRSAMP.CUST_STUFF

- 1 Load Object Specifications
- 2 Source/Target Mapping
- 3 Target Environment
- 4 Existing Data Options
- 5 Insert Processing Options
- 6 Save Load Request
- 7 View JCL
- 8 Submit JCL

Current Values
SSID=D701, Load Method=SQL Insert
0 of 6 Objects are excluded
Create: Tables=6 + DB, Files=0

None

Test
Load Maintain integrity
z/OS
Disguised Extract
Test Data Privacy
Development tasks – Distributed Extract

Production

Subset Extract

Distributed Extract

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San Francisco Chapter

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Test Data Privacy
Development tasks – Distributed Disguise

Data Privacy Manager

• Build
• Test
• Validate
Test Data Privacy
Development tasks – Distributed Disguise
Test Data Privacy Delivery
Test Data Privacy
Managing the Delivery Tasks
# Test Data Privacy

Delivery – Output Results

<table>
<thead>
<tr>
<th>Original Data</th>
<th>Disguised Data</th>
<th>Rule Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary Ward</td>
<td>Jill Jones</td>
<td>Translated</td>
</tr>
<tr>
<td>03-20-1962</td>
<td>04-18-1962</td>
<td>Aged</td>
</tr>
<tr>
<td>104 Main Street</td>
<td>111 State Avenue</td>
<td>Translated</td>
</tr>
<tr>
<td>Flint, MI 48025</td>
<td>Flint, MI 48025</td>
<td>Unchanged</td>
</tr>
<tr>
<td>370-55-2939</td>
<td>431-81-6492</td>
<td>Encrypted</td>
</tr>
<tr>
<td>4294 5730 5839 3037</td>
<td>42XX XXXX XXXX9 3037</td>
<td>Masked</td>
</tr>
<tr>
<td>$300,000</td>
<td>$126,877</td>
<td>Encrypted</td>
</tr>
<tr>
<td>null</td>
<td>(810) 609-2873</td>
<td>Generated</td>
</tr>
</tbody>
</table>

- **Translated**
- **Aged**
- **Translated**
- **Unchanged**
- **Encrypted**
- **Masked**
- **Encrypted**
- **Generated**
Test Data Privacy
Delivery – Audit Reports
Test Data Privacy
Delivery - Disguise Rule Administration

File-AID/RDX --------- Data Disguise - Object List --------- Row 1 to 5 of 5
Command ===> Scroll ===> CSR

Primary Commands: ObjectIn, ObjectOut, Find, Size
Line Commands: S = Select I = Info
O = ObjectOut R = Related objects L = List DB

SSID: D701 Location: D701Cw01
Object Name Disguised Columns/Fields
---------------------------------------- +
- PROD CONTACT_TBL CONTACT_NAME, CUSTOMER_NUMBER
- PROD CUSTOMER_TBL CUSTOMER_NUMBER
- PROD ORDER_LINE_TBL SOC_SEC_NUM, CREDIT_CARD_NUM, CREDIT_CARD_NUMBER, ...
- PROD ORDER_TBL ...
- PROD PART_TBL

*****************************************************************************
Bottom of data **************************************************************************
Test Data Privacy Delivery - Disguise Rule Administration
Test Data Privacy
Delivery - Validation of Results

- Verify Disguised Data is Properly Testing:
  - New or modified code
  - Critical business logic

- Online and Printed Reports

- Risk Metrics

- Change Management Signoff Requirements

- Auditing Documentation
Test Data Privacy
Delivery – Improved Test Data

- Improve Test Coverage
  - Data flow analysis
  - Program level analysis

- Know What is Needed

- Remove Redundant Test Data for Efficiency
Test Data Privacy
Compuware experience across various industries

Financial Services Companies
- Large Australian Financial Institution
- Leading US SE Financial Services Company
- Global Financial Services Firm, Private Banking
- Midsize US Investment and Financial Firm
- US Life and Financial Services Co
- Large US / NE Investment Company
- Global Financial Services organization-Latin America

Retail
- Large Provider of PC Equipment

Manufacturing
- Financial Arm of Automotive Company

Insurance Companies
- Global European Insurance Company
- Large US / NE Life Insurance Company
- US Midwest Property & Casualty/Life/Auto Ins. Co.
- US Leading Health Insurance Company

Healthcare
- Large US Midwest Health Insurance Provider
- Leading US Integrated Healthcare Organization
Test Data Privacy: Case Study
Addressing HIPAA Compliance

• Large Health Management Organization
  – Public scrutiny and huge corporate liability due to data breach
  – Many of their applications were offshore
  – Complex environment containing a variety of data types

• Solution: Compuware’s Data Privacy Solution
  – Promoted internal communication and provided strategic implementation consulting
  – Used multi phased project templates and Compuware Experts to conduct pilot

The end result: Successfully secured the test data for their initial 40 applications and continue to secure all 1500
Test Data Privacy: Case Study
Reducing Risk of Exposure

- **Largest US Consumer and Small Business Bank**
  - Needed to transmit sensitive data to different locations around the company, as well as to an offshore partner
  - Complex, heterogeneous environment with many technologies and applications
  - Required a test bed with consistent data from all applications

- **Solution: Compuware’s Data Privacy Solution**
  - Used a data model to simplify managing disguise data consistency across enterprise systems
  - Implemented top 8 high risk applications

The end result: Successfully de-identified data for high risk applications, maintaining usability and integrity for internal and offshore use
Test Data Privacy: Case Study
SOX/GLB Compliance

- **Property & Casualty / Life / Auto Insurance Co.**
  - Executive Management saw internal risk
  - Wanted to disguise SSN, DL# and Last Name in Test & Dev.
  - Required disguising z/OS DB2, AS400/DB2 data

- **Solution: Compuware’s Data Privacy Solution**
  - Defined disguise rules to sensitive field elements
  - Created extract disguise jobs to disguise sensitive data
  - Provide audit reports as needed to substantiate compliance

*The end result: Successfully automated a repeatable process for protecting sensitive data*
Test Data Privacy: Case Study
SOX/GLB/SEC Compliance

• **Financial Services Firm**
  – Highly sensitive financial data
  – Millions of financial transactions containing sensitive customer data
  – Required disguising data enterprise wide
  – IT Risk and Security is top priority

• **Solution: Compuware’s Data Privacy Solution**
  – Lower cost of regulatory compliance
  – Reduced risk and liability associated with data privacy
  – Deter misuse and exposure to unauthorized users

*The end result: Provided an auditable disguise process to substantiate compliance*
Test Data Privacy: Case Study
Reducing Risk of Exposure

- **Leading Direct Consumer Electronics Manufacturer**
  - Discovered liability of using production data in test
  - Accidentally sent out bogus invoices and emails during a test cycle
  - Responding to enterprise-wide business process improvement initiatives such as:
    - Test driven development
    - Automated quality assurance
    - Global data management

- **Solution: File-AID/CS**
  - Increased the frequency of test cycles while improving data quality
  - Prevents database and application downtime during test data preparation

*The end result: Sanitize PII to protect from privacy abuse and meet audit requirements*
Test Data Privacy: Case Study
Reducing Risk of Exposure

• **$2B Securities Company**
  – Dedicated to safe/secure test data for investment products
  – Passes client files to outside vendors and off-shore exposure to critical data
  – Heavy IAM and Sybase usage requiring cross-platform consistency
  – Stringent Sr. Management security expectations

• **Solution: Compuware’s Data Privacy Solution**
  – Analyzed critical fields for consistency/symmetry
  – Utilization of multiple disguise techniques
  – Provides test data cleansing, consistency and congruency across platforms, audit trails, and the ability to handle volume processing

*The end result: Delivered Phase-1 of the disguise project within their timeframes, on-budget*
Test Data Privacy: Case Study
SOX/GLB/Insurance Compliance

- **Large Mutual Life Insurance Company**
  - Executive Management saw internal risk of exposing sensitive production data
  - Were impacted by various state insurance laws
  - Requirement to disguise the Consumer System application first which included z/OS and Oracle data

- **Solution: Compuware Test Data Privacy Solution**
  - Data Disguise routines needed to be reversible during early phases of implementation so downstream systems would not be impacted
  - Defined disguise rules for consistent results on z/OS and Oracle data
  - Translate tables were populated from data in the distributed environment and moved to the mainframe for consistent disguise

*The end result: Created a repeatable process to subset and disguise data which included audit reports for validation*
We deliver a comprehensive solution that includes:

- Integrated and proven technology
  - File-AID/Data Solutions, File-AID/RDX, and File-AID/CS
- Defined, repeatable processes for automated product execution
- Project templates that fully document the tasks for each step in the process
- Documentation to substantiate compliance
- Product-generated, standardized reports for ongoing auditability
- People with project management and data privacy implementation experience
Test Data Privacy

Why Compuware?  We are Experienced!

• We have assisted with implementation of nearly 40 Data Privacy Projects in the US and Canada over the past 3 years
  – Several Test Data Privacy customers also in Europe, Australia, Latin American, Brazil and South Africa
  – Companies are mostly Insurance, Financial Services, Retail and Health Care organizations

• We can assist with any stage of the project; analysis, design, development or delivery

• We have the ability to adapt to out of the box scenarios and situations
Test Data Privacy
The Value Proposition

- Lowers cost of regulatory compliance
- Reduces risk and liability associated with data privacy
- Improves test data quality while maximizing testing efficiency
- Provides an end-to-end solution from a single company
How do you protect against sensitive data breaches where users are authorized to access the data?
Application Auditing
Where’s Your Risk?

“Contrary to what most people believe, the majority of identity thefts are inside jobs.”

Judith Collins
Michigan State University
Identity Theft Survey

“Gartner estimates that more than 70% of unauthorized access to information systems is committed by employees, as are more than 95% of intrusions that result in significant financial losses.”

Richard Mogull
Gartner Senior Analyst
Compuware's solution for Application Auditing acts like a surveillance camera for your applications by efficiently recording internal activity between users and their applications. Not only does this deter inappropriate activities, but it also provides an audit trail that can be retrieved to investigate details of a data breach—and limit its impact.
Application Auditing
Methods currently used to prevent unauthorized access

RACF, ACF2 or Top Secret 
authenticate the user at login.

If this is done properly, you will 
lock out external users, but 
trusted internal users still have 
access to the application and a 
breach could still occur.

RACF, ACF2 or Top Secret 
secure 
access to the application and data.
Application Auditing
What we do: Record End-User Activity

- End-users are notified that all their application activity is being recorded
- Key application communication is recorded
- Repository of Audit Trail information is saved, protected and ready for use
Application Auditing
Example of Investigating Suspicious Activity

• An end-user is suspected of misusing client data
• Reports are created to pull up that user’s activity from the repository
• Results are shown in a web browser
• Can focus within a date range or other criteria
Application Auditing
The Global Record Repository: Valuable, Reusable Assets
"As an IT Auditor, I see Compuware Hiperstation for Application Auditing as a 'proactive defense' tool. By recording end-user application activity, a company can prevent and investigate fraud and data security breaches - helping to reduce the potential for significant damage. Hiperstation's detailed forensic information and audit reports are indispensable tools that provide indisputable proof that can be used to detect problems or policy violations; prevent incidents from becoming larger; and reduce the scope of an incident response."

*Paul L. Haley*

*IT Auditor, CISA*
Application Auditing
Case Study Example: An Audit Trail of Evidence

• **Large Federal Government Agency**
  – Highly sensitive online transactions
  – Hundreds of end users all over the world producing 8+ million daily transactions
  – IT security is top priority

• **Solution: Hiperstation**
  – Record and save all application traffic
  – Search repository for suspected misuse
  – Use information for legal proceedings
Application Auditing: Savings With a Targeted Notification

Example: You have 100 CSR’s supporting 100,000 customers; avg. customer acquisition cost is $200; expected lifetime revenue is $1,000 per customer

**Notify All Customers**
- 100,000 Customers $\times$
- 1% Lost Customer Rate =
- 1,000 Lost Customers

**Limit Notification**
- 1,000 Customers $\times$
- 1% Lost Customer Rate =
- 10 Lost Customers

$\$1,200,000$ vs. $\$12,000$