WHY WE SHOULD CARE, NOW?

EU GENERAL DATA PROTECTION REGULATION

monitoring, reviewing and assessing your data processing procedures..

minimise data processing and retention of data..

building in safeguards to all data processing activities..

auditable data impact assessments will need to be conducted to review any risky processing activities..
WHY WE SHOULD CARE, NOW?

MARKET DRIVERS

Globally, the cost of a data breach averaged $136 per compromised record, Total Cost of per Incident in Germany was US $4.8m and $5.4m in US. *Ponemon Institute and Symantec, June 2013*

- **7.8** weeks to add a new data source to data warehouses
- **7** weeks to build a complex dashboard or report…
- **33%** of the organizations needs more than **3** months to add a new data source " *TDWI BI Benchmark Report*

...Without data virtualization, you risk knowing less about your customers…**fewer** real-time business insights, lose your competitive advantage, and spend more to address data challenges…*Forester, 2013 – Forester Information Fabric*
Highly sensitive data still required for reports/analysis

**Challenge/Cost**
New regulations and laws require the protection of personal identifiable, sensitive or commercial sensitive data, but that same data is required for meaningful reporting and analysis.
DATA MASKING FOR DATA SECURITY

MASKING

- Personal contact information (e.g. name, address, email, phone number, etc.)
- Government-issued ID numbers (e.g. driver’s license, social security card, passport, tax IDs, etc.)
- Financial information (e.g. credit card numbers, bank account numbers, account values, etc.)
- Health information (e.g. public health records, drug study results, etc.)

Initial functions to aid in protecting Personally Identifiable Information (PII)
• Data masking is implemented using a set of rules and arguments
• applied to a column of a table or view managed by Federation Server

```sql
CREATE VIEW "SASData"."Customers"."CUSTOMERS_HASH" AS
SELECT
  A."Customer_ID",
  A."Customer_Country",
  A."Customer_Gender",
  SYSCAT.DM_MASK(
    'HASH',
    "Customer_Name",
    'alg',
    'MD5',
    'KEY',
    '213e8ba8b7f84796b97a996d54277f2f') AS "HASH_Customer_Name"
FROM
  "SASData"."Customers"."CUSTOMERS" AS A
```
Encryption will maintain data integrity such that primary/foreign key relationships are preserved.
ENHANCED DATA SECURITY: DATA MASKING FUNCTIONS

AES Encryption

```
ALTER SERVER {options PACKAGE(name 'DM', xset ENCRYPT_KEY '212e8ba6b7f84796a87a985d54277f2f')}
```
ENHANCED DATA SECURITY: DATA MASKING FUNCTIONS

AES Decryption

CREATE VIEW "SASData"."Customers"."CUSTOMERS_DECRIPTED" AS
SELECT
  A."CUSTOMER_ID",
  A."CUSTOMER_COUNTRY",
  A."CUSTOMER_GENDER",
  SYSCTLM.DM.MASK ('DECRYPT',
    BTRIM ('"ENC_CUSTOMER_NAME"'),
    'alg',
    'AES',
    'KEY',
    '21d08ba8b7f84796a87a986d54277f2f') AS 'customer_Name'
FROM
  "SASData"."Customers"."CUSTOMERS_ENCRYPTED" AS A
**ENHANCED DATA SECURITY: DATA MASKING FUNCTIONS**

- The available encryption algorithms:

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AES/FIPS*</td>
<td>AES/FIPS: RSA licensed FIPS compliant AES encryption.</td>
</tr>
<tr>
<td>AES*</td>
<td>RSA-licensed AES encryption.</td>
</tr>
<tr>
<td>SAS002</td>
<td>SAS Proprietary.</td>
</tr>
<tr>
<td>BASE64</td>
<td>Base 64 encoding.</td>
</tr>
<tr>
<td>SAS004</td>
<td>Alias for AES/FIPS.</td>
</tr>
<tr>
<td>SAS003</td>
<td>Alias for AES.</td>
</tr>
<tr>
<td>SAS001</td>
<td>Alias for BASE64.</td>
</tr>
</tbody>
</table>

*Note: *AES/FIPS and AES require installation of SAS Secure.
DATA FEDERATION FOR FSI
GET ACCESS TO BUSINESS DATA
RISK, M&A, COMPLIANCE, FRAUD & CLAIMS

Role-Based Access/Compliance/Chinese Walls

MDM
ABC Inc
XYZ Inc
Risk
Positions

John Smith
Jane Smith
Deposits
Withdrawals

Customer On-boarding
Financial Frauds
Marketing Offers

Federation Server
Authorization (Create, Read, Update, Delete)

Virtualized View of the Financial Transactional Data
Core Banking ATMs Insurance Market Data

Cards Loans Core Banking CRM

Big Data Fraud Prevention

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Data Federation Market Trends

- Augment The Data Warehouse (77%)
- Prototyping (45%)
- Real Time Data Within An Application (39%)
- Drill Into Other Systems such as DWH (30%)
- Query Non-Relational Data Sources (25%)
- Enterprise View of Multiple Data Warehouses (24%)
- Supporting ETL Processes (19%)
- Query External Data (16%)
- Delivering 360-Degree View (15%)

**WHY Data Federation**

66% cited the reason for launching Data Virtualization projects for these requirements.

*Data Virtualization: Perceptions and Market Trends* – Wayne Eckerson
*TechTarget, April 2013*