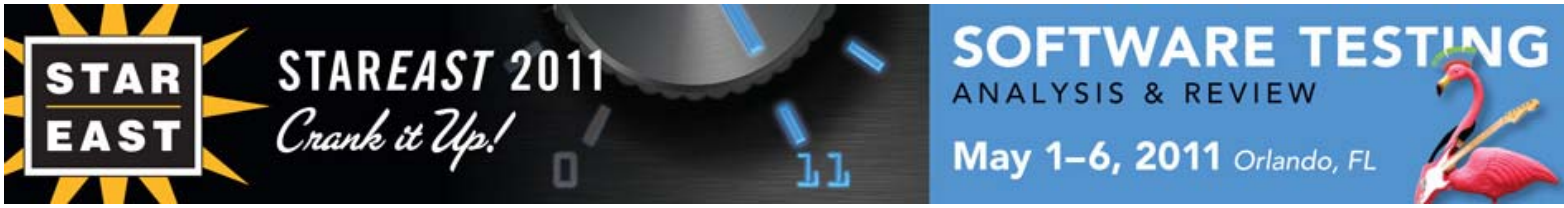

W14

Concurrent Session
5/4/2011 3:00 PM

"Data Manufacturing: A Test Data Management Solution"

Presented by:

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Fariba Alim-Marvasti is responsible for the Data Governance/Management teams at Aetna Life Insurance Company. She leads an innovative organization driving data manufacturing across Aetna along with delivery responsibilities for testing/quality assurance within the Informatics and Medical Management domains. Fariba is a results-oriented Senior IT Executive with more than twenty-five years of proven ability to lead and manage IT organizations, delivering cost-effective solutions, while maintaining productive customer relationships.

Data Manufacturing:
A Test Data Management Solution

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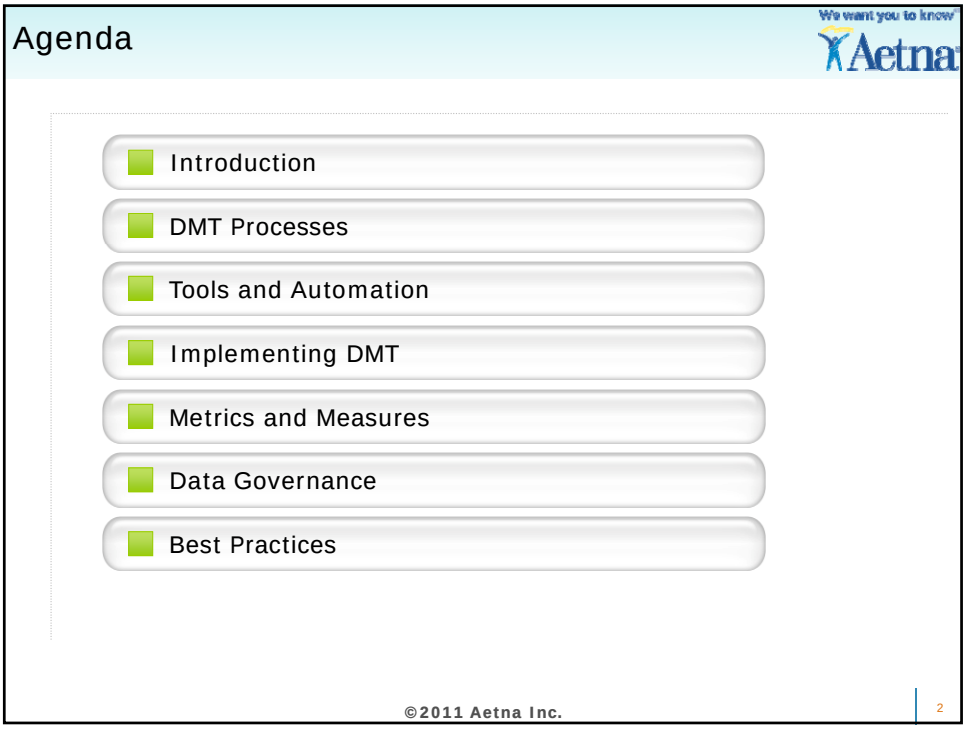
Agenda



Introduction

Test Data Management at Aetna

- ✓ The Data Management Team (DMT) was set up at Aetna in 2005 with following objectives:

Efficient On time test data support for unit, application, integration, regression, end-to-end and other testing requirements	Provide realistic as well as exception (bad) test data to increase solution quality and reduce dependency on production data

- ✓ Started as a small team and has now evolved as an Industry Leading Organization supporting a growing inventory of enterprise suite of applications
- ✓ DMT team consists of both onshore and offshore resources supporting data manufacturing needs of 1000+ users across Aetna's IT & Business teams.

Need to Manufacture Test Data

Advantages of using Manufactured Data as opposed to Production Data

Data Confidentiality and Security	▪ Eliminate risk of exposure of sensitive and confidential production data thereby prevent financial costs and loss of reputation
Test Coverage	▪ Simulate Production like scenarios (including "yet to occur" and future business scenarios) to improve coverage and to maintain data integrity across systems
Reusability	▪ Increase efficiency through reuse of test data by eliminating redundant scenarios found in production data.
Quality	▪ Better Solution quality due to the early identification of Data Scenarios and integration of Test Data Management as part of the Software Development Life Cycle.

DMT Resourcing Model

Recommended Resourcing Model

Onshore

Offshore

One lead to track and assign Data Manufacturing activities	At least one primary and one secondary resource for each Domain or Application supported.	Additional Resources for scheduling of jobs or additional capacity as required (Offshore)

✓*Higher Demand areas such as core upstream applications and those with large volume data needs may need additional staffing*

✓*Core skills required are Application knowledge, Data Analysis Skill, Technical knowledge (Database, Scripting, Automation) and Customer Service Skills*

DMT Processes

Test Data Management Lifecycle

Determine Types of Tests
E.g. Unit, System Tests, etc. to be supported with Manufactured Data.

Identify Applications
(Member, Plan, etc.).

Learn the Application – Build Subject Matter Expertise (SMEs).

Define Data Request Templates
Define data elements to be manufactured. Predefined templates help the application team and data team communicate data needs.

Define Operations
Process to communicate Data Requests, validate data received, Service Level Agreements etc.

Deliver Test Data
Define metrics and processes to deliver data needs and quickly identify and resolve issues.

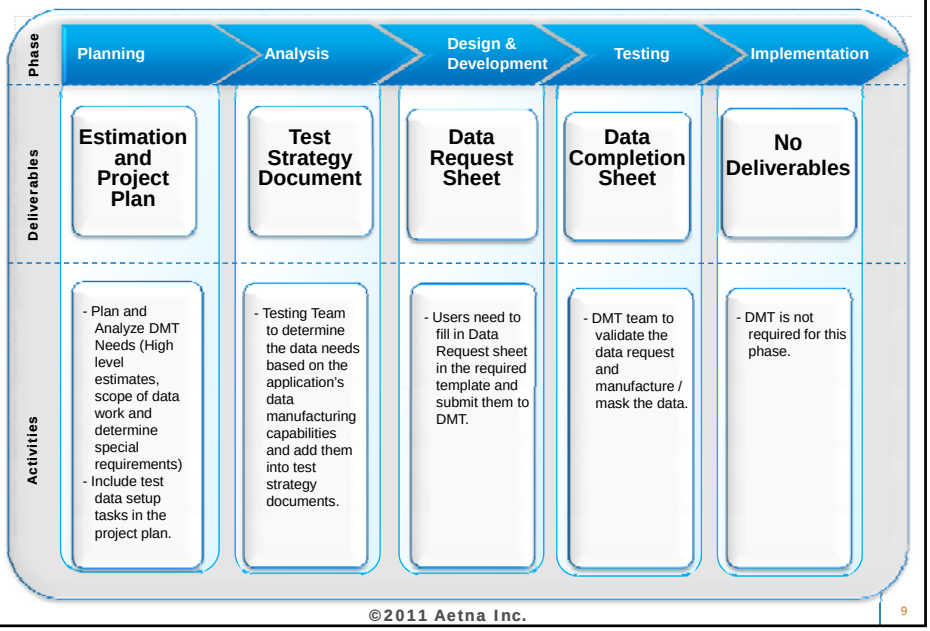
Identify and Refresh Reference Data
Non-sensitive lookup data need not be manufactured and instead can be refreshed from production for test use.

Environment Setup
Execute purge / cleanup processes to clean out any residual production data and ensure the continuity of data as an asset.

Integrate
For Test Data Manufacture to be successful it should be made a key part of an applications development process.

Status Reporting and Metrics

Data Manufacturing Integration into Project Lifecycle



Reusability and Training

Reusability : - To achieve maximum reusability in DMT process, the following should be considered

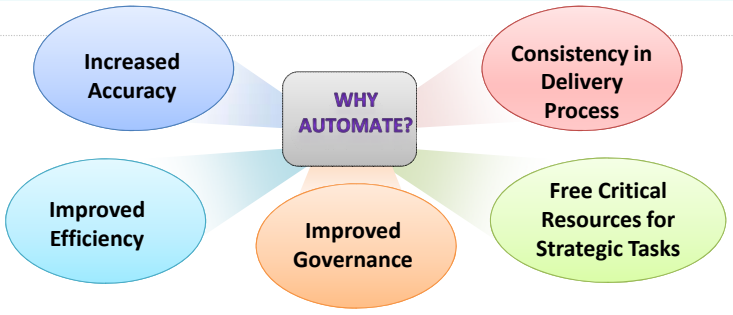
Build and maintain a data repository at an application/domain level	Build user friendly utilities which will help the application teams to run queries to find existing data	Build traceability of data for various scenarios so that existing data can be traced and reused

Training : - For DMT to become a success, training is an essential ingredient for both the DMT team and the rest of the Organization.

DMT Training	Organizational Training
✓Data Request processes and procedures ✓Applications and domains ✓Technical training ✓Application Enhancements ✓Privacy and compliance guidelines	✓DMT awareness ✓Data Request processes and procedures ✓Privacy and compliance guidelines

Tools and Automation

Why Automate Data Creation?



Candidate Automation Tools

Data Extraction	Data Creation	Reporting	Data Validation
✓Create an inventory of available test data ✓Data investigation and mining ✓Validate completeness and accuracy of batch processes	✓Create test data at application level	✓Reporting DMT data to management to identify risks and issues	✓Validation and inspection of data to ensure that it confirms to set governance or compliance standards

Implementing DMT

DMT Implementation Steps

"DMT implementation depends upon various factors in the organization like system size, tools and capabilities, team size"

- Identify Executive Sponsorship to represent and support the DMT.
- Identify the scope of data manufacturing
- Identify business processes, batch processes and data sources supporting the data workflow
- Identify a data manufacturing team
- Analyze and document data characteristics
- Build data inventories and data templates
- Develop Data Management Request/ Tracking Process
- Build tooling to generate input data from templates and data inventories
- Establish data management reporting mechanisms
- Build automation strategy for DMT

Metrics and Measures

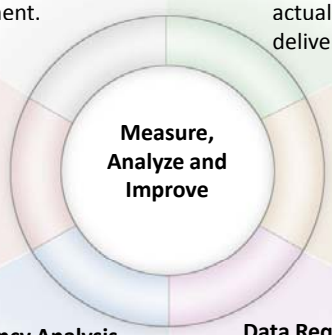
Metrics and Measures

Domain Level Metrics

Domain level status reporting to Management.

Performance Metrics

Compare the expected received versus Delivered to actual received versus delivered.



Weekly Status Metrics

Report management the ongoing data support activities along with issues impacting data setup.

Cost Benefit Metrics

Reporting of the total effort of data manufacturing versus the domain level testing efforts.

Data Request Efficiency Analysis

Measure the efficiency of data requests at a release level across environments.

Data Request Efficiency Metrics

Provide overview of data request efficiency and depict the progress made on efficiency over certain period of time.

Data Governance

Data Governance / Masking Strategy

Data Governance Board

A Data Governance Board needs to be established to review and enforce mitigations to any instances of production data usage in the non-production environment. The Data Governance process ensures risks are mitigated through data manufacturing, access control, and data masking as applicable.
The Data Governance Board needs to reinforce a consistent data strategy and be comprised of respected key individual across the organization. A well documented Charter is required for handling exceptions as they arise.

Data Masking

Before using production data for exception requests, to avoid misuse, various masking techniques can be adopted as described below:

- ❑Scrambling – Swapping names or numbers
- ❑Encryption and Masking – Sensitive data can be encrypted
- ❑Randomizing – Replacing numeric fields with random numbers
- ❑Look-up Fields – Substituting a value from a predefined list
- ❑Partial De-identification - Maintaining the necessary data values, but substituting, removing, or randomizing the attributes' remaining data

Best Practices

Measures of a Successful DMT Engagement

- Mapping the test requirement and data request enabling re-use of existing data
- Minimal exceptions / emergency requests
- Business / application team sign-off on initial data manufacture requirements
- DMT's partnership with the application/domain team to understand data requirements
- Timely delivery within Service Levels for data in response to requests
- Application team and DMT clarity on using the Data Request Templates

Your Next Steps

- ✓ **Create a value proposition**
- ✓ **Obtain initial funding**
- ✓ **Socialize data manufacture advantages with stakeholders and team**
- ✓ **Select a medium complexity pilot for Data Manufacturing**
- ✓ **Implement pilot**
- ✓ **Identify and implement lessons learnt**
- ✓ **Expand**

Thank you

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