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Test Data Management Reinvented - Deliver realistic, compliant test data in minutes, not days

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Rising demand for Test Data Management (TDM) in the CSP test environment

As most of the projects today adopt the agile development model to cater to the changing customer demands, CSPs are leveraging TDM systems in test environment to enhance data security. Below are some of the key reasons for it:

Security

- Private and personally identifiable information (PII) often gets exposed in test environment
- Commercially sensitive data with financial, operational, or strategic initiatives gets pulled into a test cycle

Provisioning and test scenario coverage

- Production data is huge in volume and does not provide full coverage to all the test scenarios (e.g. negative scenarios and exceptions)
- Manual data creation is time consuming and doesn't provide full coverage to all the test scenarios
- Lack of test data repository is a challenge for development/testing teams in accessing historical data

Popular TDM tools like CA TDM, TestBench, Solix and HP TDM help in mitigating these challenges. The key features of TDM tools are:

Data profiling for better understanding of source data

**Data subsetting** to slice production data to enable faster data processing

Data masking to ensure no sensitive data is leaked into non-production environment

Synthetic test data creation for test scenario coverage

Test data repository to provide on demand test data for developers/ testers

TDM tools have been successful in resolving security and test coverage challenges to a great extent. However, there are a few critical challenges that are still unaddressed by TDM. This insight discusses those challenges and provides enablers to overcome them.

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Challenges in standard TDM implementation

Standard TDM Implementation

Hadoop   **Netezza**   **Mongo DB**

Source Data (Production)

TDM Tool

Test Environment
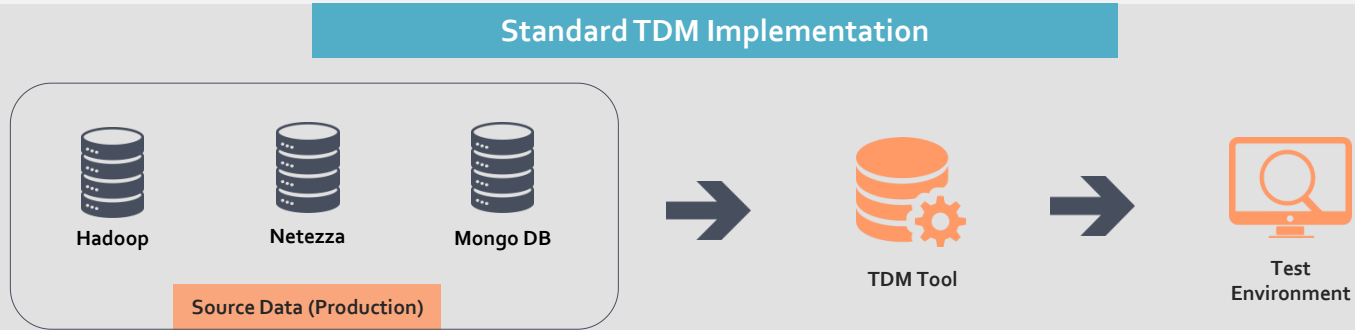
TDM

Integration with source system

- Many source systems do not use any industry standard databases (DBs) like Oracle, SQL etc.
- Accessing such NoSQL DBs and understanding the table structure, relationship etc. is a challenge for the TDM tool. (For e.g. **Salesforce** has NoSQL DB and TDM tools face integration challenges with Salesforce)

Sensitive data exposure

- TDMs provide data security to a certain level. However, sensitive data is still exposed to the TDM users/teams

Delays in test data creation

- TDM can create synthetic data quickly. However, extracting huge data from production and processing it is often time-consuming

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Key functionalities of data security & integration agent

Seamless integration

- Data security and integration agent provides quicker integration APIs to integrate a TDM system with any of the source systems

- Flexibility to support any type of database system on the source side

- Ability to integrate with NoSQL DB systems on the source

Database integration mapping

- Analyses source database schema, tables, and relationships using minimum amount of data (compared to TDM)

- Creates tables, triggers and sequences in accordance with the TDM tool's DB structure

Enhanced security

- Creates automated masking scripts that minimize data exposure

- Generates automated scripts that are password protected

Data discovery

- Extracts only relevant data (tables and relationship) from the source which enables faster processing

- Provides configurations for sensitive data/personally identifiable information (PII), data access and masking policies

Benefits

- ⭐ Faster integration with the source system

- ⭐ Production refresh is not required for test data

- ⭐ Withdrawing the generated data is possible in case of data pollution. TDM doesn't need to go to the production. Instead, the data can be accessed from the agent's staging DB.

- ⭐ PII compliance: Configuration provided by the agent for sensitive and PII data adds one more layer of data security and ensures non-exposure of sensitive data

Automated secure data extractor & loader

Secure Extraction

- Automated scripts securely expedite extraction of data from the source system

- Extract table, relationship and schema information from the source system without manual intervention thus enabling enhanced data security
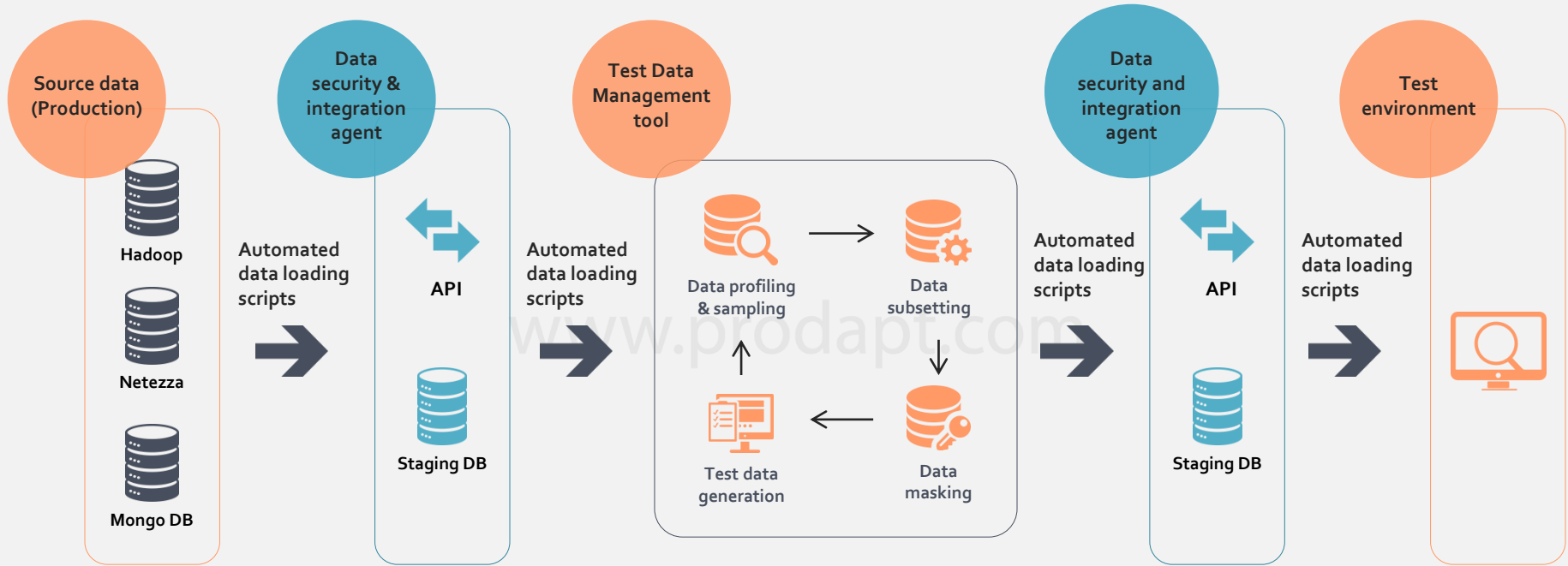
Automated data loading

- Helps to load data from source to agent and agent to TDM tool in a secured (password-protected) manner

- Helps to load data from TDM to test environment in a secured manner

Benefits

⭐ ID/ password protected scripts ensure that no PII/sensitive data is shared unintentionally with any of the test teams

⭐ Automated script-based, one-click masking accelerates the test data creation process

⭐ Automated scripts minimize the delay of data delivery from repository to developers/testers and accelerate the entire testing cycle

⭐ Automated scripts ensure data delivery to all touchpoints with zero manual intervention. This improves data security and efficiency. Even TDM admins will not have access to PII and other sensitive data.

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Recommended architecture with data security and integration agent

Source data (Production)
- Hadoop
- Netezza
- Mongo DB

Automated data loading scripts

Data security & integration agent
- API
- Staging DB

Automated data loading scripts

Test Data Management tool
- Data profiling & sampling
- Data subsetting
- Test data generation
- Data masking

Automated data loading scripts

Data security and integration agent
- API
- Staging DB

Automated data loading scripts

Test environment

Introducing a data security and integration agent between the source and TDM tool as well as between TDM tool and test environment addresses the critical integration and security issues.

Automated data loading scripts enable faster and secured data delivery from source to TDM and from TDM to test environment.
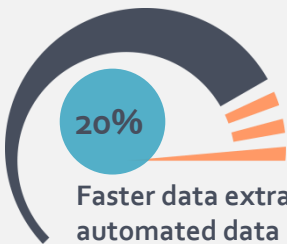
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Key takeaways

100%

PII compliance, as no production data is exposed to testing or TDM environment
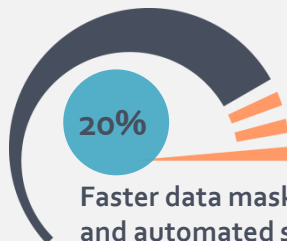
30%

Increase in productivity through agent-based slicing

20%

Faster data extraction through automated data loading scripts

26%

Increase in defect finding rate per day through faster processing

20%

Faster data masking through agent and automated scripts

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THANK YOU!

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