Digital Integration
Standardising Event Data Collection & Management

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Agenda

- Examining the challenges involved in digitally integrating Event Data
- &
- Why standardizing Event Data Collection and Management is a pre-requisite to a successful Digital Transformation Journey
- Neural Technologies’ 4 Digital Integration steps!
  - Event Data Classification & Standardisation
  - Event Data Collection & Distribution
  - Event Data Life Cycle Management
  - Event Data Driven Decision Making
- The ideal Event Data Lake (ELD) Platform
Digital Integration

Why is it so important?
Ubiquity of Event Data in every Business Process

- Event Data is at the heart of any communications service provider and it is always as a result of a business process.

- TM Forum’s Business Process Framework (eTOM) which is an integral of the TM Forum’s Frameworx is an illustration of such association.

- In the digital enterprise world, the Event Data records associated with each of these business processes are equal to financial assets.

- Depending on business process, the Event Data in question (and its required formats, volumes etc.) needs to be consumed.
So, Event Data drives DT Journeys however there are challenges...

- Digital Transformation Tracker 3 Survey
- **Question**: *When it comes to aligning organisation and culture for digital transformation, there are a number of challenges specific to generating and using different data sets. Please rank the following “data challenges” in order of importance*
  1. Ability to get the required data
  2. Data quality
  3. Ability to analyse the data in a manageable way for desired business outcomes
  4. Ability to model required organization and culture for desired business outcomes
  5. Unsure how data can address organization and culture
How to deal with the Event Data challenges?

• The **Open Digital Architecture (ODA)** from TMF was created to assists Communications Service Providers to become **Digital Service Providers**, and enable them to integrate a complete **digital ecosystem**

• **Security, Data & Governance** is an integrated part throughout all the layers
But more concretely, what is it we needed?

In a recent published TMF Quick Insights Report *“Building a Data Lake to Drive Digital Transformation”* the steps highlighted were as follows:

- Set the strategy
- Clean and Curate data
- Collaborate on a Standard approach
- Embrace existing standards
- Use a proven approach
- Start small
Event Data Classification & Standardisation
Event Data Classification & Standardisation is the preparation step

**Event Data Classification**

- **Event Data definition and quality**
  - Defining the format, data types, quality, content of the Event Data treated, and information compliancy to the business needs

- **Event Data loss prevention**
  - Applying administrative and technical controls, based on their criticality to the business

- **Event Data security and privacy**
  - Ensuring the protection of sensitive or classified information (e.g. GDPR Compliancy requirements);

- **Event Data ageing-based retention**
  - As per regulatory licensing agreements and business needs, complying to the internal and external audit requirements

**Event Data Standardisation**

- **Organising the Event Data**
  - To ensure proper Event Data governance over time by leveraging the TM Forum’s Shared Information Data (SID) model as a reference.
    - Event Data cleaning, enrichment and transformation as per business lexicon.
Event Data Collection & Distribution
Various challenges with Event Data Collection & Distribution...

- Volume, Velocity and Variety of the Event Data and their Input & Output format requirements
- Various Service Level Agreements (SLAs) around processing speed and expected information & format, from source/target application and users plus security and privacy
- Limited resources, requiring an efficient use of the Event Data
- Avoiding duplication and processing of the same event
Event Data Tool Set that is able to address such challenges...

- Event Data Collection across numerous sources regardless of structure and format
  - Event Data at Rest for Batch Processing
  - Event Data in Motion
    - Near Real-Time Processing
    - Real-Time Processing
- Event Data distribution to downstream applications
  - Microservices, Roaming, Enterprise Data Warehouse, Management Information Support (MIS) Reporting, etc.
- Complex Event Data Collection
  - Event Data interface driver e.g. Live Event Data Streaming
  - Event Data coherence
  - Event Data enrichment & stitching
- Event Data delivery - API layer
  - Hypertext Transfer Protocol (HTTP)
  - Representational State Transfer (REST)
  - Simple Object Access Protocol (SOAP)
  - TM Forum Open APIs
- High-Volume & Velocity computing
Event Data Life Cycle Management
Event Data Life Cycle Management the following are required...

- **Data Collection**
  - The act of collecting Event Data values that do not yet exist and have never existed within the enterprise

- **Data Preparation**
  - The preparation (Pre-Processing) of Event Data to points at which Data Synthesis and Data Usage occur

- **Data Synthesis**
  - The creation of Event Data values via inductive logic, using other Event Data as input

- **Data Usage**
  - The application of Event Data as information to tasks that the enterprise needs to run and manage itself

- **Data Distribution**
  - The sending of Event Data to a location outside of the enterprise

- **Data Archival**
  - The copying of data to an environment where it is stored in case it is needed again in an active production environment

- **Data Purging**
  - The removal of every copy of a data item from the enterprise

<table>
<thead>
<tr>
<th>Event Data Age</th>
<th>Usage Frequency</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &lt; 15 days</td>
<td>10 times a day</td>
<td>HOT Storage</td>
</tr>
<tr>
<td>15 days &gt; Age &lt; 1 month</td>
<td>5 times a week</td>
<td>WARM Storage</td>
</tr>
<tr>
<td>1 month &lt; Age &lt; 2 months</td>
<td>5 times a month</td>
<td>COLD Storage</td>
</tr>
<tr>
<td>2 months &lt; Age &lt; 3 months</td>
<td>5 times a quarter</td>
<td>FROZEN Storage</td>
</tr>
</tbody>
</table>

- **Event Data Temperature**
  - HOT: For data that needs immediate access.
  - WARM: For data that is accessed regularly.
  - COLD: For data that is accessed less frequently.
  - FROZEN: For data that is rarely accessed.

![Event Data Temperature Diagram](https://via.placeholder.com/150)

**Archived**
Event Data Driven Decision Making
Event Data decision making, a standardised reporting framework is needed

- Specifically, a **Telecommunications Specific Data Wearhouse (DWH) model** aligned to TM Forum’s **SID** that establishes different levels of analysis to deliver business values
- **Predefined set of KPIs** derived from the Event Data collected
- We use the Professor Russell Ackoff definition of delivering business wisdom

**Level – 1: Descriptive Analysis**
- Delivering Management Information System (MIS) Reporting (Hourly to Yearly)
- Ad-hoc Reporting & on-demand Information Delivery
- Enterprise Performance Measurement: Business KPIs & Targets

**Level – 2: Predictive Analysis**
- What-if and Cross-Tab Analysis
- Waterfall Modelling
- Point-In-Time/Rolling-Time Window Analysis

**Level – 3: Mining Modelling & Forecasting**
- KPI Forecasting
- Supervised & Un-supervised Modelling (predictive churn, clustering...)

**Level – 4: Prescriptive Analysis**
- Contextual Marketing
- Fraud Management
Introducing the Ideal Event Data Lake Platform...

- **Platform**
  - A group of *digitised services* that can be *adapted* and *integrated* via *configuration* to the various processes and systems as required
  - A *micro-service architecture* with “develop once & use multiple times” strategy

- **Event Data Lake (Inside Platform)**
  - Store Event Data on the *best* and *most suited big data technology* for its type and way of processing (input and output)
  - *Fully managed* by providing the various users *controlled access*

- **Key Characteristics**
  - The *complexity* and *physical location* of the underlying Event Data storage and processing technology is *hidden* to the users
  - The access is through *one consistent method* regardless of how the Event Data is physically stored
Thank you