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Discussion 7

Ensuring records are unique and validating their accuracy are two key data quality issues that matter most to Netrio. As a trusted service provider, Netrio brings together data from many vendors and client systems, each with different identifiers, formats, and metadata structures. Uniqueness is reduced when similar formats are used for the same things, which also creates issues with reliability, trust, and functional stability. Uniqueness means making sure each record represents only one real-world entity (Sebastian Coleman, 2022). If not maintained, it can lead to duplicate or overlapping records, especially when there are different systems using different identifiers for the same device or user. This can cause problems with automation, event monitoring, and correlation, and make records less reliable across the organization (Franks, 2018). Strong uniqueness minimizes naming collisions across systems and supports trust in analyses derived from organizational data.

Validity is an important consideration as well, and focuses on whether the data conforms to necessary formats, domains, and business rules (Wang & Strong, 1996). Netrio regularly encounters supplier-defined schemas that are incompatible, leading to invalid values that disrupt ingestion processes, interfere with correlation logic, and cause issues with automation. This can happen because data varies in structure,

naming, typing, and validation rules, which include incorrect domains, formats, or missing required fields. Netrio depends on its reliable data pipelines, which convert the raw, vendor-supplied data into usable, trustworthy, and actionable data. When the data is invalid, it cannot accurately reflect the intended business concepts, which leads to unreliable analytics and flawed operational decisions. If data violates business rules, it can become misleading or unusable, harming the conclusions drawn or the analytics. As Franks (2018) points out, invalid records can weaken trust in information management throughout the entire data lifecycle.

Figure 29 by Sebastian-Coleman (2022) shows the main obstacles to improving data quality. Netrio aligns with these obstacles for multiple reasons. Firstly, fragmented governance due to dispersed ownership occurs when data comes from multiple sources, such as vendors, clients, and internal systems, leaving no single person responsible for maintaining quality. Second, a lack of uniform metadata across these sources complicates normalization, hinders consistent analysis, and reduces trust. Third, when systems are incompatible due to differing schemas, formats, and validation rules, the result is data that may be invalid, inconsistent, or unusable, directly impacting overall quality (Wang & Strong, 1996).

These barriers require coordination to ensure successful remediation across systems and stakeholders. To do this, Netrio can adopt Master Data Management (MDM) to create trusted identifiers and minimize duplicates. MDM would address the issues of uniqueness and distributed ownership between parties managed by Netrio and the

organization itself. By developing clear metadata and naming standards, vendors and clients will find it easier to integrate their data with Netrio's systems and, in doing so, enhance uniformity and accuracy (Franks, 2018). Introducing data quality monitoring tools can help automatically detect duplicates, invalid entries, and inconsistencies, making the system more reliable and enabling earlier detection. Lastly, as Sebastian-Coleman (2022) states, establishing cross-system governance policies will define ownership, validation procedures, and quality standards, helping overcome organizational hurdles. Governance policies would support automation, correlation, and ingestion through MDM-created standards, metadata rules, and monitoring. These enhancements reduce the uniqueness and validity issues that disrupt ingestion, correlation, and automation. These practices can create an integrated framework that would stabilize Netrio's data quality lifecycle, enabling Netrio to deliver more consistent, predictable, and trustworthy service outcomes across all environments.

References

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