Modern Data Platforms

Dealing with Disruption in the Era of Advanced Analytics and AI

WEBINAR:

Modern Data Platforms

Dealing with Disruption in the Era of Advanced Analytics and AI

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presented by: X BY 2 Architecture First® Insurance-Canada.ca *Where insurance and technology meet*

Agenda

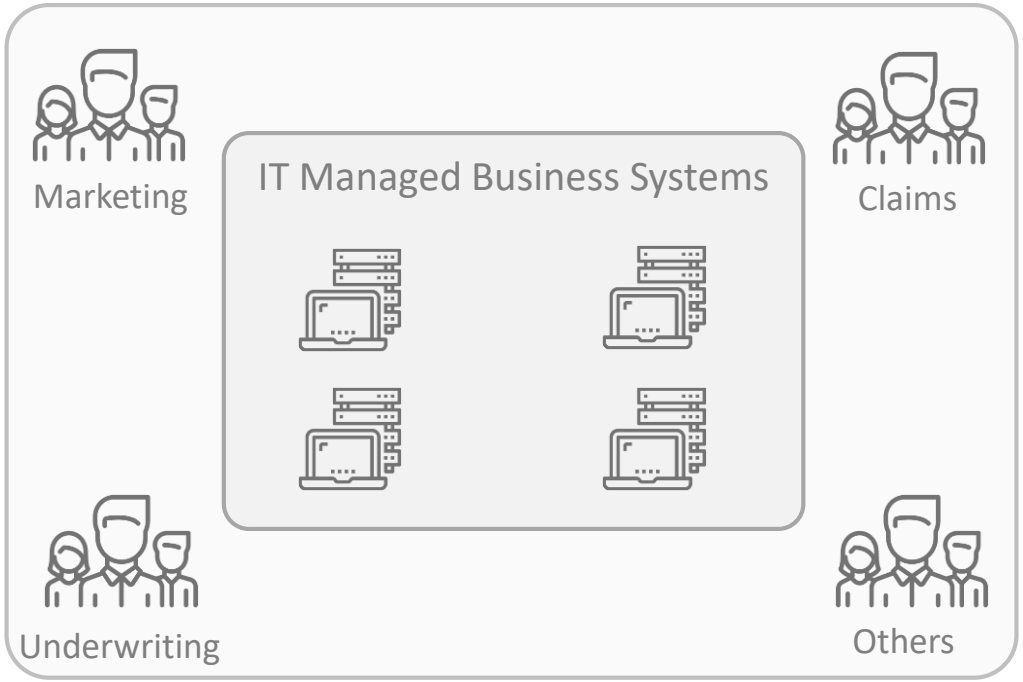
- Typical Enterprise data needs
- Traditional IT response to data needs
- New challenges and complexities
- Traditional and modern data platform architectures

Enterprise Data Needs

- Consolidate data from multiple sources
- Enable quick and simplified access to it
- Preserve history of changes
- Enforce governance on use and sharing
- Customized use of data by business user groups

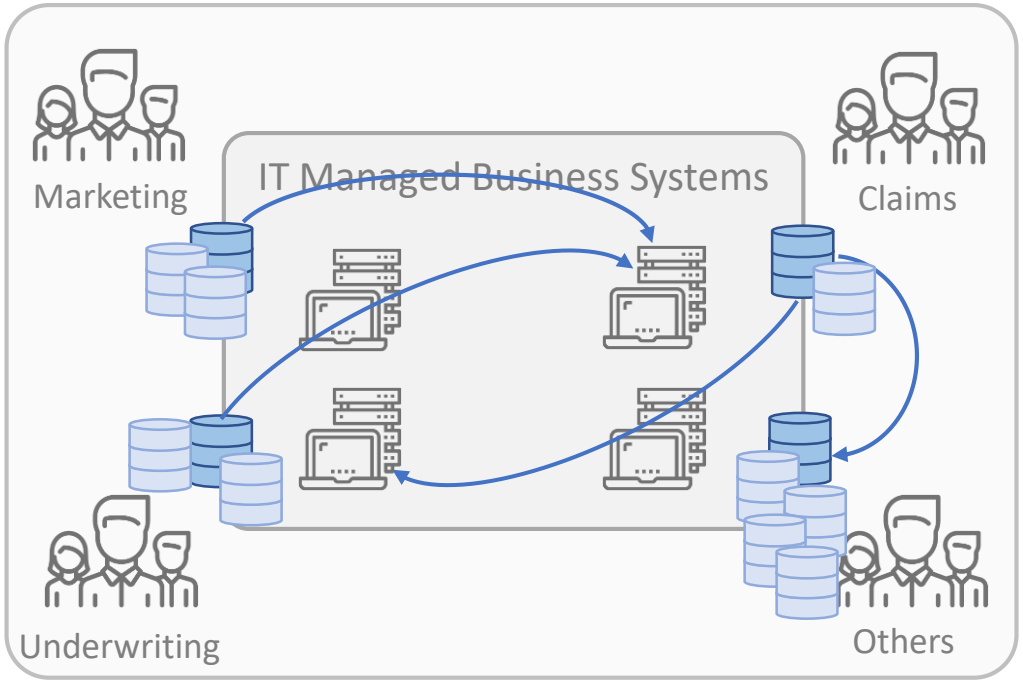
Historical IT Focus

- IT manages business systems
- Focus on running the operations and keeping the lights on
- Reporting and Analytics often limited to available capabilities within the business systems



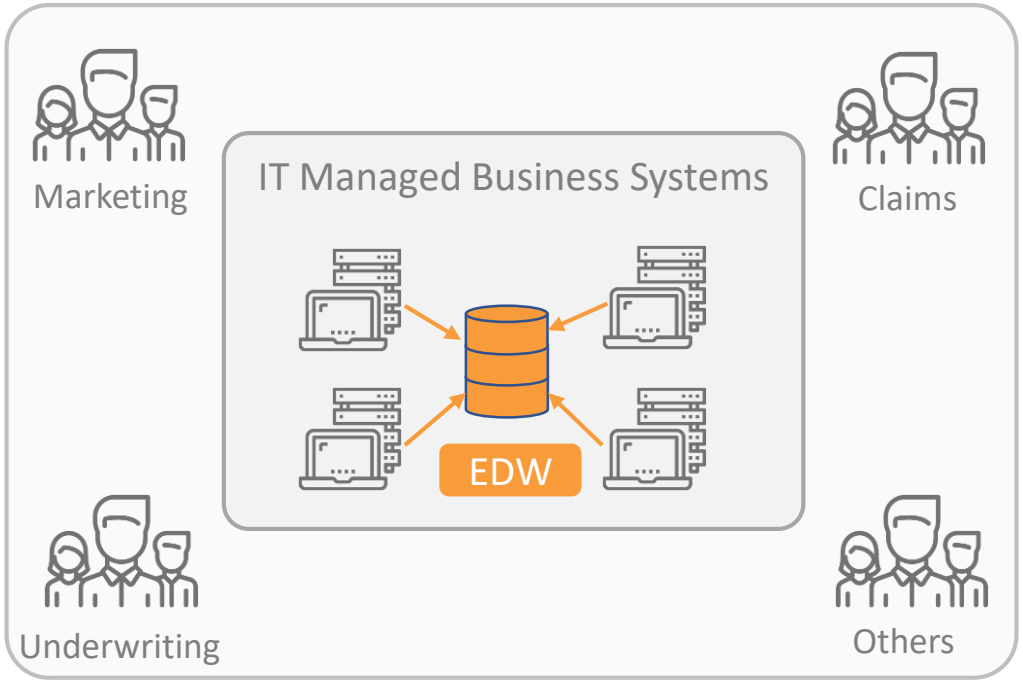
Departmental Reporting & Analytics

- Real-life analytical needs go beyond built-in reporting capabilities
- IT responds by making snapshots and backups available to users for their analysis
  - **Provides temporary relief but surfaces new problems**
  - **User need data from multiple business systems**
  - **An uncontrolled duplicate-data explosion starts to occur**



Advent of Enterprise Data Warehouse

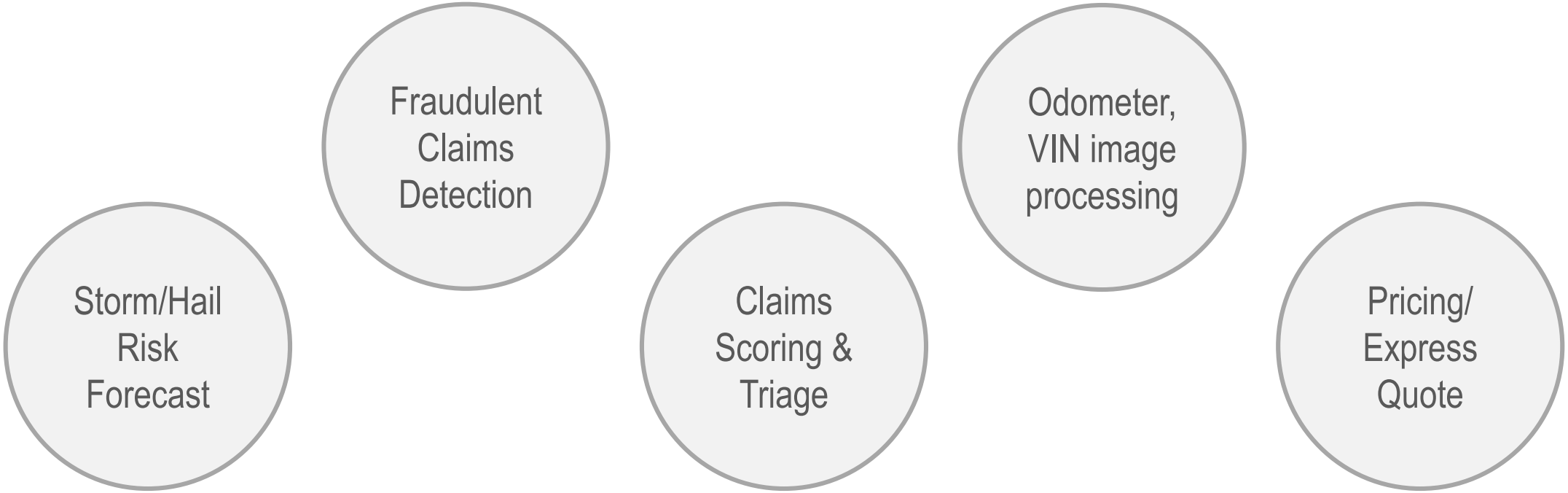
- IT is expected to provide a solution to this problem
- IT responds with a proven industry pattern of EDW
- EDW offers the following promises :
  - **Common data store for all Source-system data**
  - **Single source of truth**
  - **Based on an integrated and standardized Enterprise data model**
  - **Managed via a unified Governance structure**



Key Challenges faced by EDW-Architecture

Speed-to-Market	Ingesting and delivering data from new sources quickly
Data Accessibility	Making maximum data available for use, not just a subset
Data Manageability	Enabling processes and systems to catalog, define, track and secure data in all its flows and uses
Flexibility	Incorporating change without incurring significant rework and downstream impact
Scalability & Elasticity	• Handling increasing data-volumes while maintaining performance • Shrinking and growing resources on-demand

AI / ML Use Cases



Modern Disruptors facing EDW Architecture

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The nature of data EDW was originally meant to handle has changed:

- Volume of data is much bigger
- Variety of data structure within a dataset is much higher
- Data is coming at much higher speed
- Unstructured data does not fit schema based models

Additionally, new challenges have emerged on the data-consumption side:

- Real-time and event-driven needs come head to head with batch based EDW
- Higher algorithmic and machine use of data is gaining prevalence

Review of Traditional vs. Modern Data-Architectures

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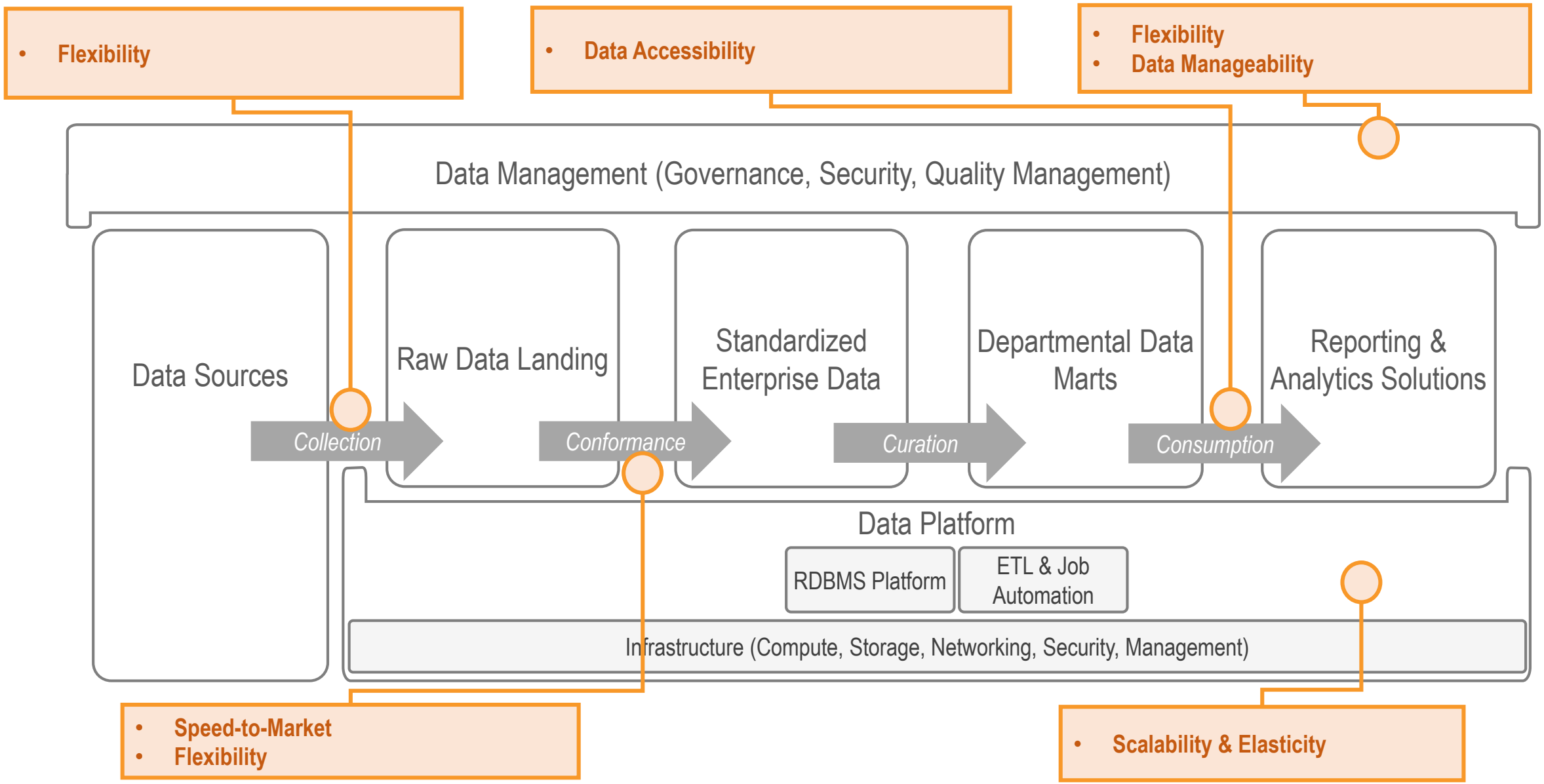
- Traditional EDW Reference Architecture and its limitations viz. modern challenges
- A modern Architecture approach and how it addresses the challenges
- A relevant EDW modernization Case-Study

Traditional EDW Reference Architecture & its Challenges

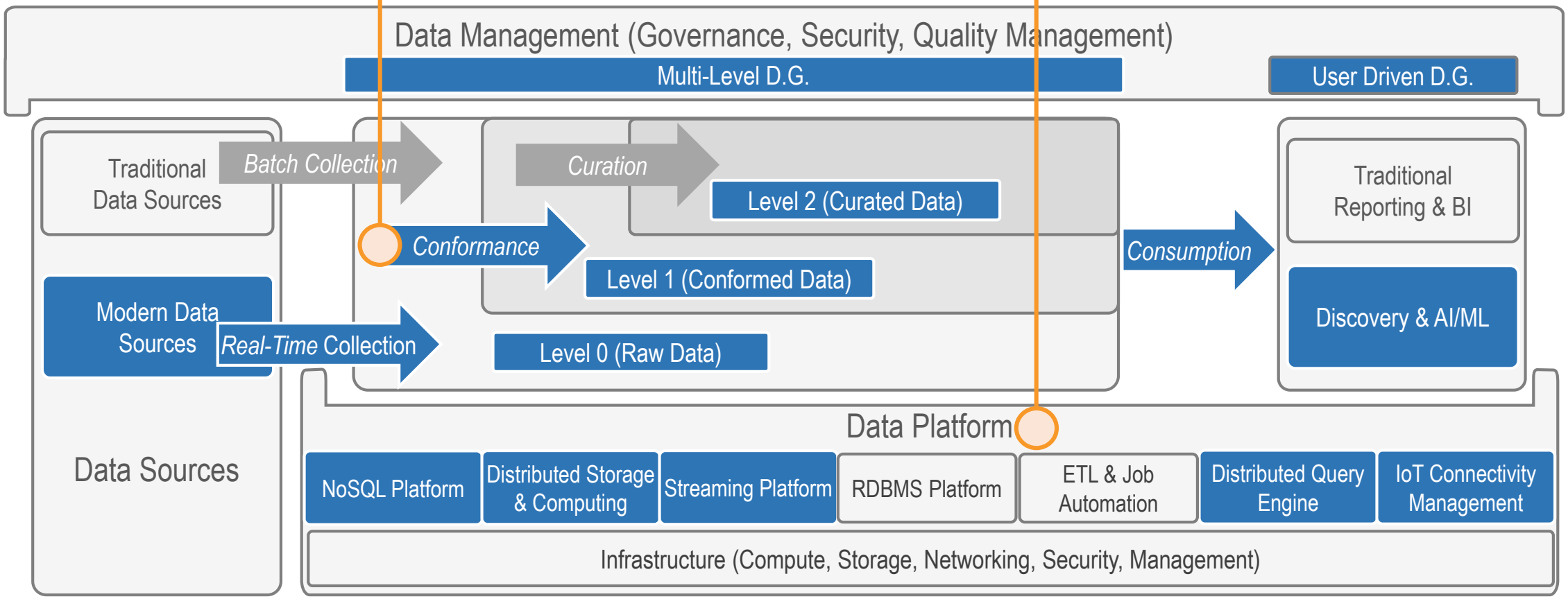


Proposed Approach To Address EDW Challenges

Speed-to-Market : With minimal hand-coding, a new Claims systems' database Landed in its entirety using Sqoop

Flexibility : Addition of a new column in Policy Admin system's schema is readily absorbed in Level-0 storage

Scalability & Elasticity: New Cloud-storage added quickly to Land a brand-new Source database, while un-used compute nodes 'turned-off' to avoid expenditure

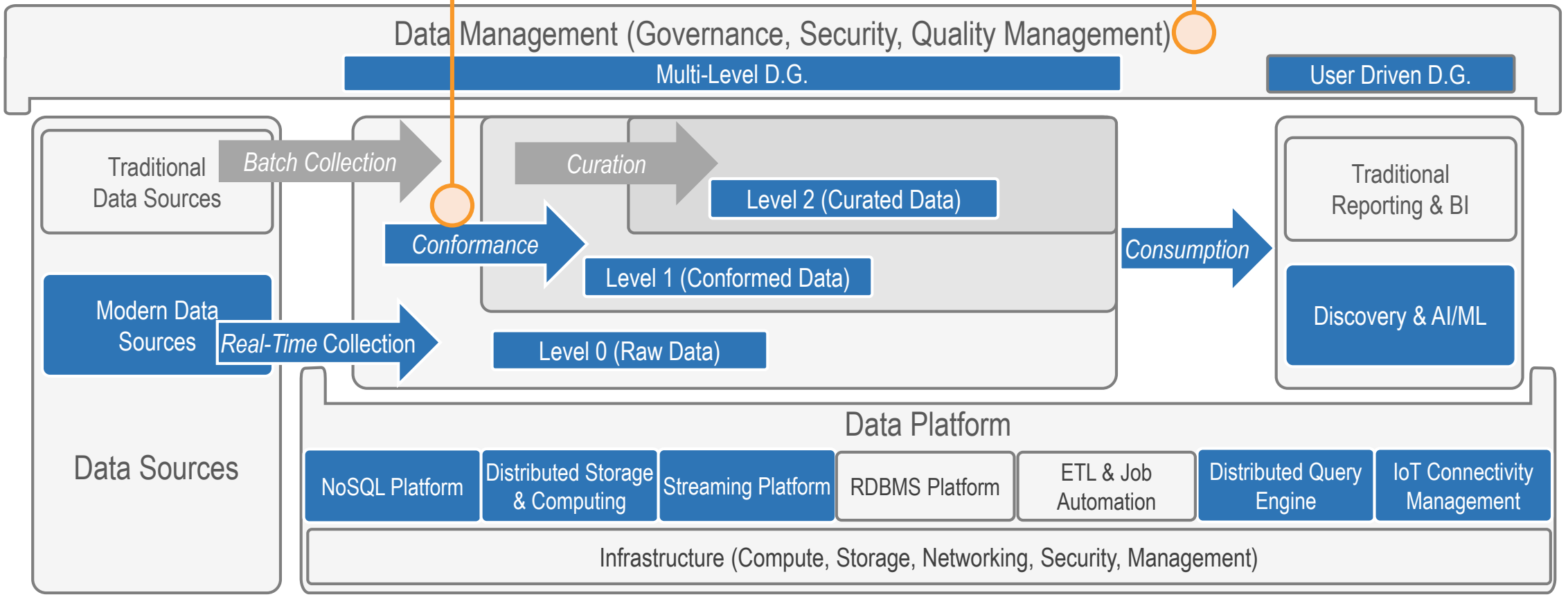


Proposed Approach To Address EDW Challenges

Speed-to-Market: 'Good-enough' attributes of a new Policy Line added to EDW relatively quickly in order to update Combined Book-of-business Dashboards

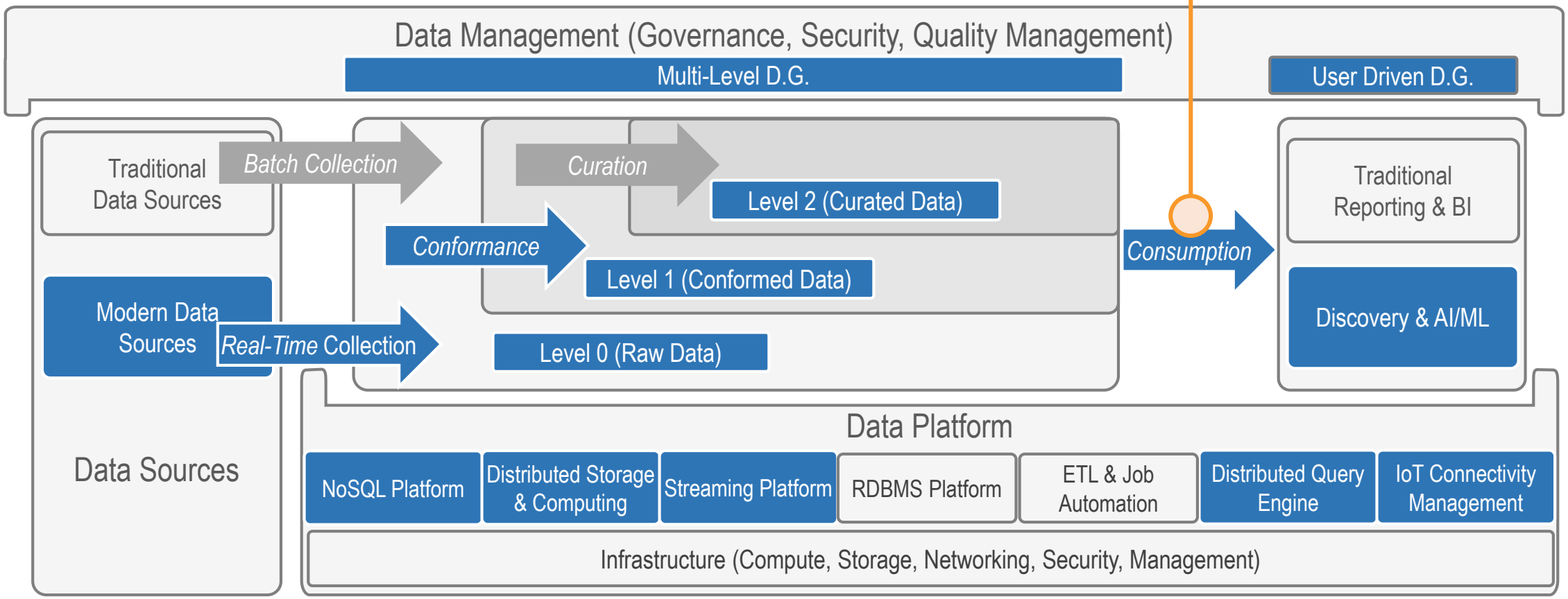
Data Manageability : Automated Profiling provides deeper insights about Claims data immediately after Collection

Flexibility: Earned Premium meta-data made available in both Legacy and Modern forms, subjective to specific use



Proposed Approach To Address EDW Challenges

Data Accessibility: Real-time fraud detection now possible on Claims data just landed - before it's Conformed into an Enterprise model



A Customer Implementation

Multiline Property & Casualty Insurer

Fortune 500 Insurer with multi-billion dollars in written premiums

Customer had an EDW based data architecture

Faced with modern business use cases, they needed to add new capabilities

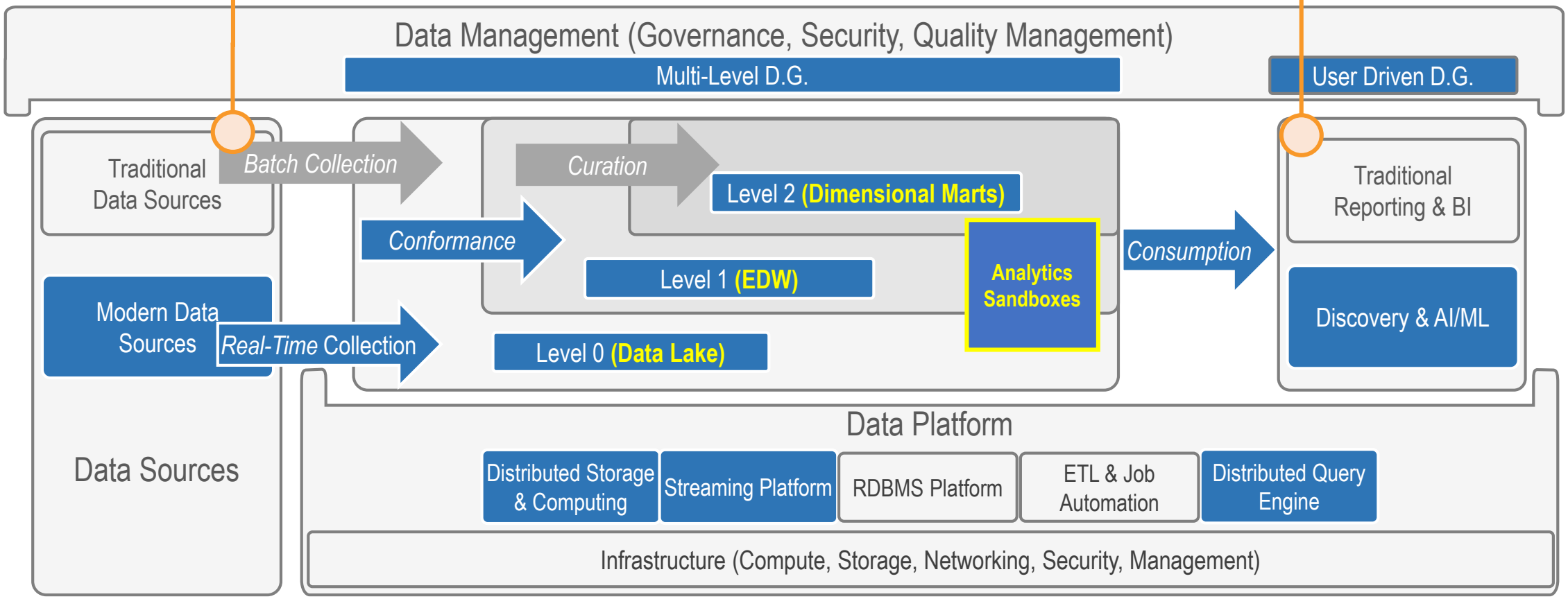
Preserving and building upon existing investment was important

Personal Auto
Commercial Auto
Personal Property
Worker's Compensation
Business Owner Policy
Tailored Package
Umbrella
Bond

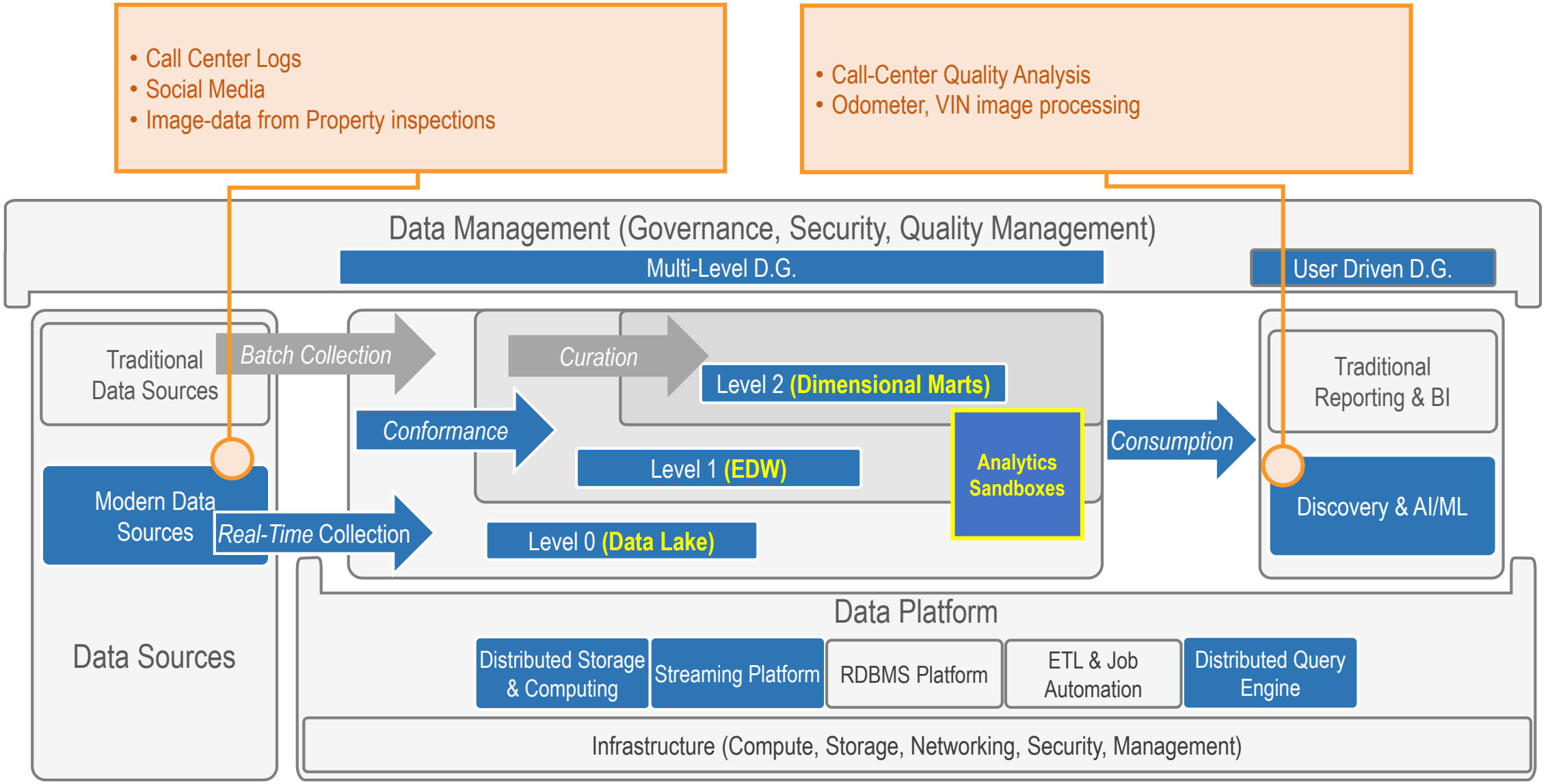
Implementation Architecture

- Claims Processing System
- Policy Administration Systems
- ERP
- Public data files (e.g. from Census Bureau)

- Claims and Policy Dashboards
- Branch Workload Management Solution
- Self-Service Reporting



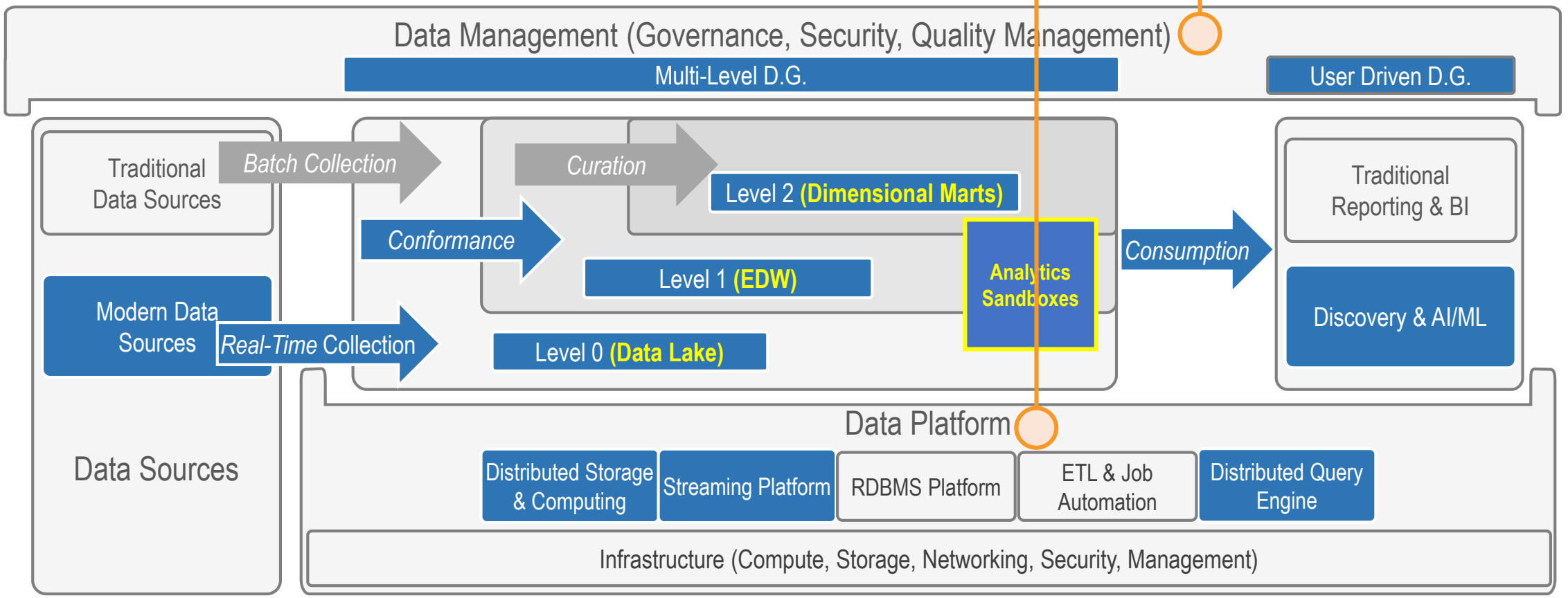
Implementation Architecture



Implementation Architecture

- Distributed Storage & Computing: HortonWorks HDP
- Streaming Platform: Apache Kafka
- RDBMS : SQL Server
- ETL Platform : Wherescape Red / SSIS / Aapche Sqoop
- Distributed Query : Apache HIVE

- Podium Data Management (Catalog , Profile, Lineage) for Data-Lake
- Collibra Data-Governance for the Enterprise Data Assets
- Integration b/w Podium and Collibra



Take-aways

Modern data platforms are more complex than before
and require thoughtful architecture

Evolutionary approaches are available to modernize existing data platforms

Your journey should start today, if it hasn't already

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Questions & Answers

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