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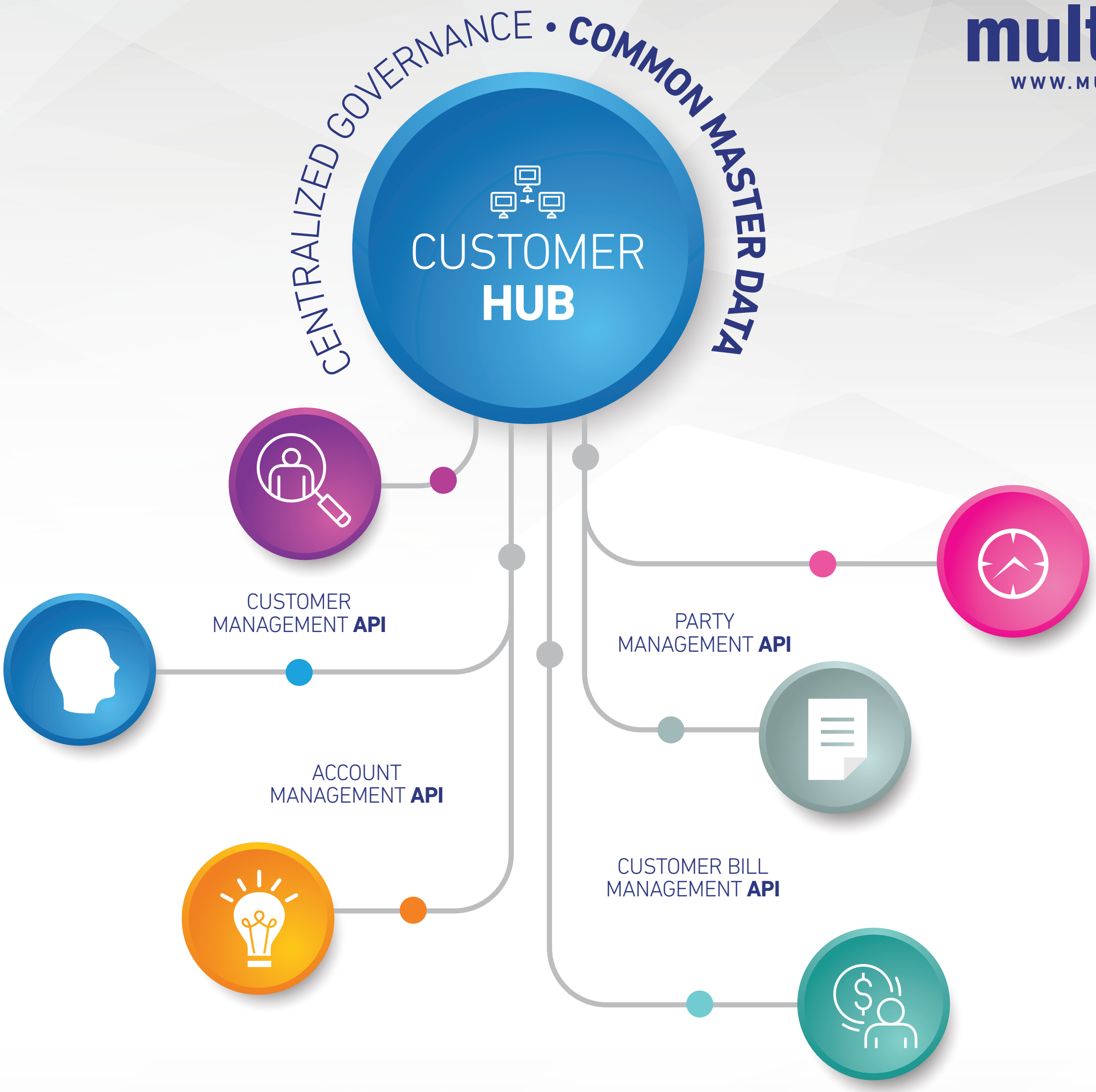

Customer**HUB**

SOLUTION FOR **ACCOUNT MANAGEMENT**
BASED ON **MICRO SERVICES**

Customer Hub is the solution for Customer and Account Data Management based on architecture principle of **Micro services**.

The growing complexity of digital business drives an initiative that master data should be collected centrally and connected in a distributed fashion. Customer Hub is both effective and efficient at mediating differing semantics to support data sharing and integration across applications and meet the needs of the business in terms of process and analytic integrity.

It unifies set of processes and entities related to customer data management through all its stages, thus enabling ingestion, integration and provisioning of customer's data between a range of producing and consuming applications and data stores.

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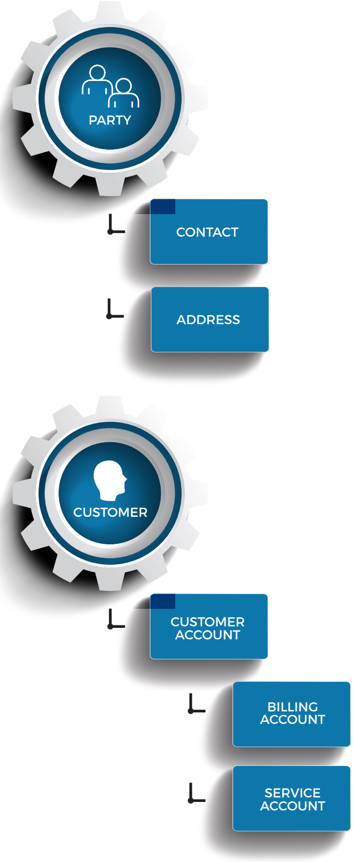
- Based on architecture principle of Micro services that are fully aligned with TM Forum Open API specification
- Enables detailed and correct customer insight
- TM Forum SID based Customer entities
- Unification and standardization of master data and business rules for all producing and consuming systems
- Northbound and Southbound service integration (Collection and Propagation of Customer data from and to all subscribed systems)
- "Privacy by Desing"
- Exceptional performance
- Simplified operations
  - Unified search
  - Reduction of „dirty" customers' data (less data cleaning activities)
  - Easier education of new agents

CUSTOMER HUB

SID based Customer entities



PARTY

CONTACT

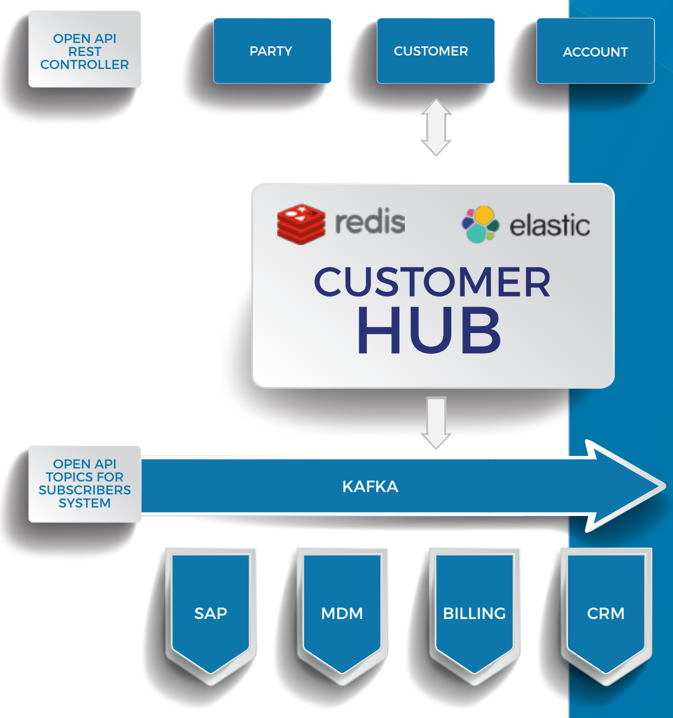
ADDRESS

CUSTOMER

CUSTOMER ACCOUNT

BILLING ACCOUNT

SERVICE ACCOUNT



OPEN API REST CONTROLLER

PARTY

CUSTOMER

ACCOUNT

redis

elastic

CUSTOMER HUB

OPEN API TOPICS FOR SUBSCRIBERS SYSTEM

KAFKA

SAP

MDM

BILLING

CRM

Upon CH implementation it is expected that all customer/account creation and Account and Contact identifiers allocation should be done by use of CH microservices.

Customer management processes include:

- Creation of Customers – from simple to complex (VPN customers, Wholesale customers, etc.)
- Creation of Parties, as a potential Customers
- Creation of Account and Party hierarchies with desired depth
- Advanced functionalities for Contacts/Addresses administration
- Lifecycle management for all entities

Technology

- Solution is built by using current proven technologies for development, deployment, data caching and continuous integration (Redis, Eleastic, Kafka)
- Microservice approach assures better flexibility, scalability and concurrent lifecycle of different versions for specific service
- CH communication is handled through Open API Layer
  - Frontend communication is performed through Open API REST controller.
  - Backend communication (propagation of changes to subscribed systems) is done through Kafka topics
- Database agnostic
  - Persistence is supported through major popular open source databases
  - In-memory database option

Requirements for latency, scalability and concurrency — in addition to requirements for persistence and governance — are critical considerations for CH design and implementation.

- Business rules configurator
  - Codebook preconditions, Linked codebooks – online and configuration driven
  - Lifecycle rules – dependent rules, chain rules
  - Complex rules that span across different objects
  - Context based data validations
- Configuration driven code generation
  - DB entities and hierarchy
  - Interfaces (Open API & DB API)
  - Data validations
- Advanced caching mechanism
  - In-memory caching of Customer Data (DB as a backup layer)
  - Caching of search keys
  - Robust asynchronous Cache refreshing
- Easy horizontal scaling
  - Stateless API requests
  - Automatic service scaling
- Data Security
  - Audit, History