Agenda

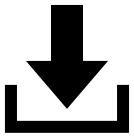
- PE Engagement Overview
- Objective and Purpose
- Next steps
- Data Vault Modelling

PE Engagement Overview

1

- Engagement with embedded SPOC

2



- Intake in DIPE by SPOC
- Portfolio with Initiative level visibility
- Prioritization

3

- Design Sprint
- Solution Management Office
- Data Architecture and Data Modelling Office
- Factory deliver alignment

4

- Delivery Schedule Commitment
- Sprint Based delivery

Objective and Purpose

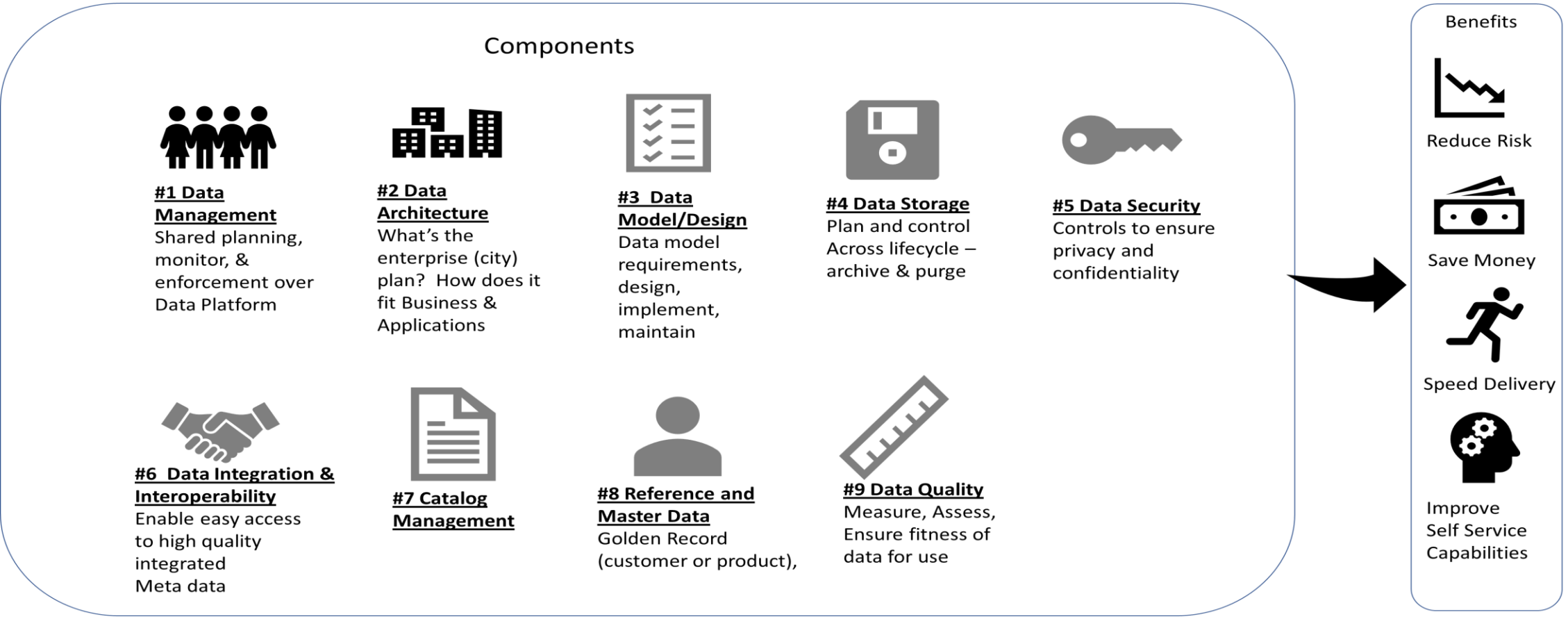
Goal

Office of the Data Architecture and Data Modelling practice is to enable the building of a world class and industry leading data platform

Purpose

- Design data structures to meet integration demands
- Standardize Data and Information architecture to align with Data Standards
- Enforce Data Quality, Data Security & Data Storage standards
- Manage and govern TFS Data Model
- Enforce TFS Reference & Master Data rules
- Validate Data Model against Functional and Process needs
- Interact regularly with Enterprise Architecture, Internal and External partners
- Raise issues for items that don't follow guidelines and standards

Objective and Purpose



Data Model and Data Architecture Management

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Next Steps

Cadence

Weekly

60 minutes session

Documentation

Github

Teams Wiki

Participants

Product Designers

Tech Leads

Factory Owners

Weekly Agenda

Scrum like user stories

Data Vault Modelling

Data Vault

Data Vault Organization of Objects:

HUB - Consists of unique list of Business Keys and Multi Tenancy

SATELLITE - Consists of descriptive data of parent Hub or Link that can change over time

LINK – Represents relationships/associations, hierarchies, transactions and events

HUB
Hub Hash Key (PK)
Business Key
Load Date Timestamp
Record Source

SATELLITE
Hub Hash Key (PK)(FK)
Load Date Timestamp (PK)
Non-Key Attribute1
Non-Key Attribute2
Load End Date Timestamp
Hash Difference
Record Source

LINK
Link Hash Key (PK)
Hub Hash Key (FK)
Load Date Timestamp
Record Source

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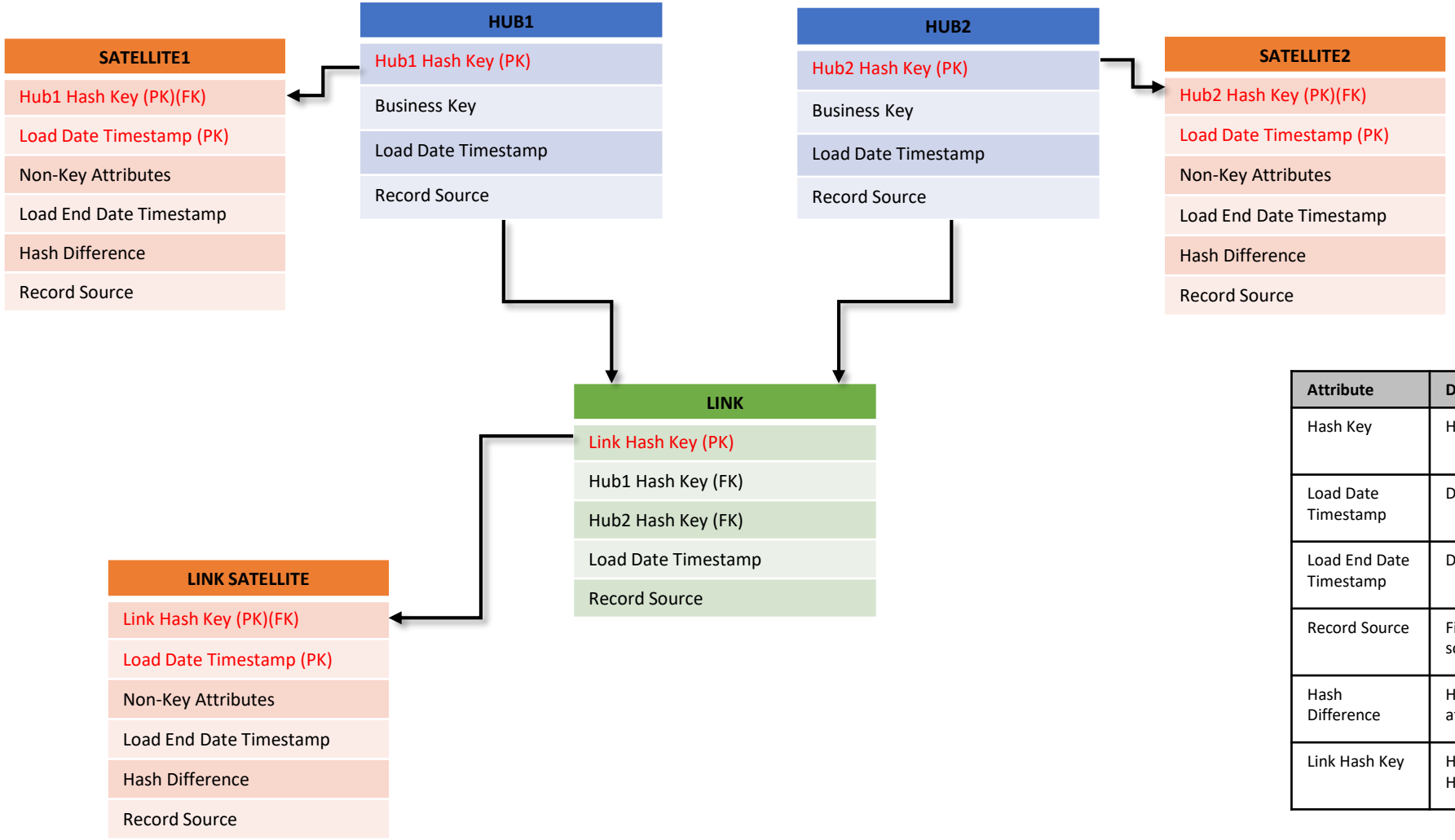
Data Vault – Overview of Data Model



Attribute	Description
Hash Key	Hash representation of Business Keys
Load Date Timestamp	Date and Time of data insert
Load End Date Timestamp	Date and Time of expiry data
Record Source	File name or Table name of the source system
Hash Difference	Hash representation of all non-key attributes and meta data
Link Hash Key	Hash representation of associative Hub Business Keys

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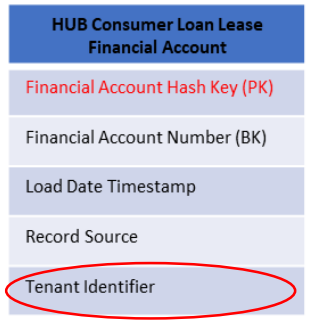
Data Vault – Multi Tenancy and Product Line of Business

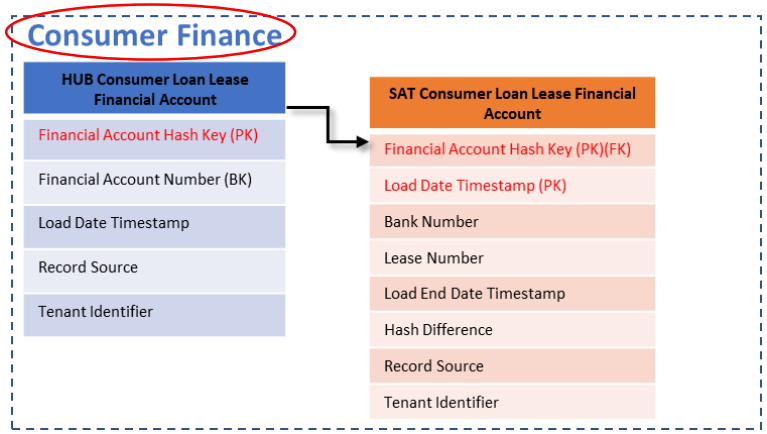
Multi Tenancy:

- Data segregation at Hub level with Tenant ID
- Different Vaults
- Different S3 buckets



Product Line of Business:

- Data segregation by Domain
  Example: Insurance, Commercial Finance, Consumer Finance, etc.
- Introducing Hubs, Satellites and Links by Product Line of Business



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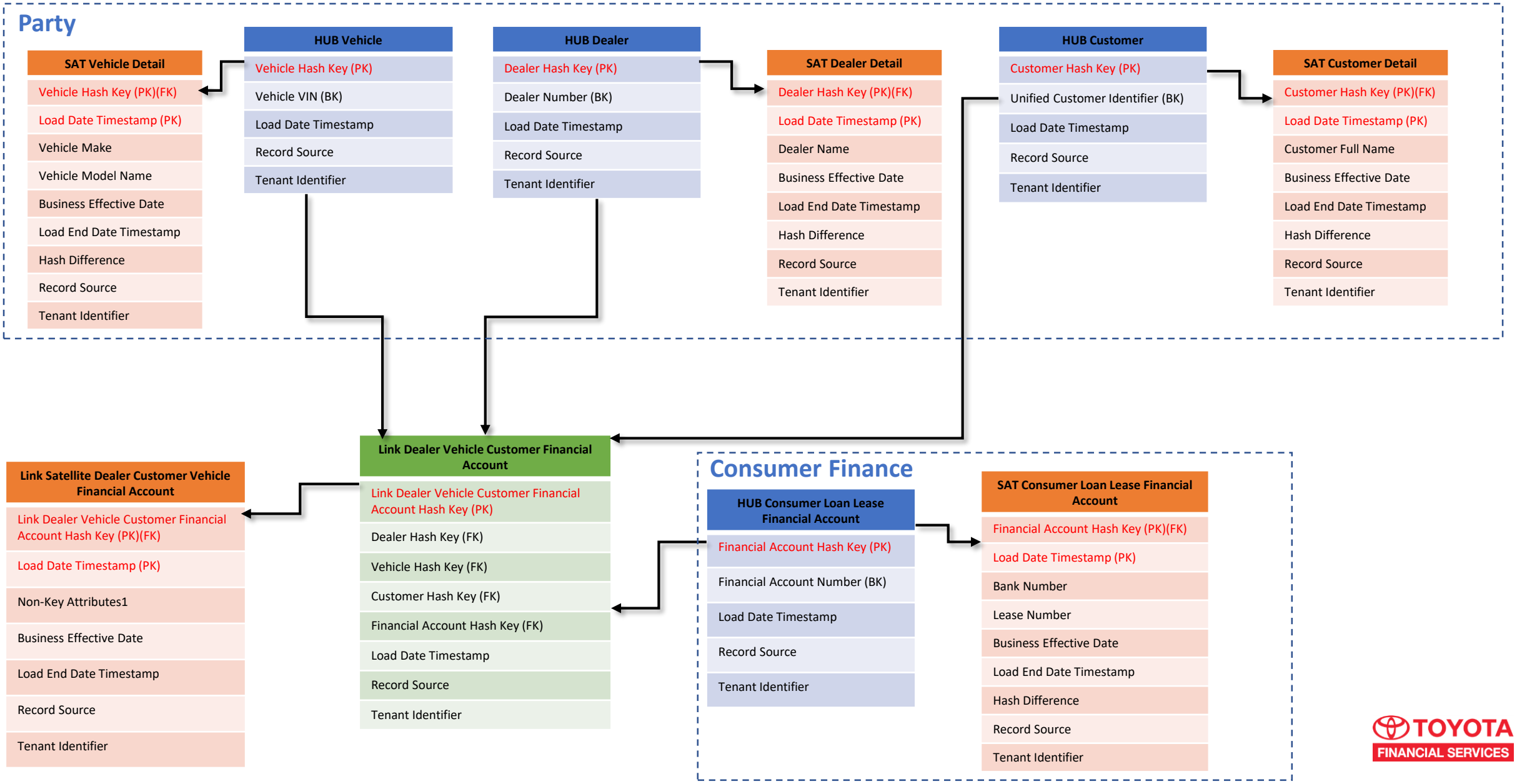
Data Vault – POC Data Model based on CCP



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Data Vault – Example of Hub & Satellite

Hash Key on Business Key (Ex: Dealer Number & Tenant ID)

Hub Dealer

HUB_DEALER_HKEY	DEALER_NUMBER	LOAD_DTS	RECORD_SOURCE	TENANT_ID
D4ABE726D93FF9C90D068D6F0D9943E1	03056	14-JUL-20 09.03.26.000000000 PM	HOST	T001

Tenant ID indicates Multi Tenancy (Ex: T001 for Toyota, T002 for Mazda)

Satellite Dealer Detail

HUB_DEALER_HKEY	LOAD_DTS	BRANCH_NUMBER	DEALER_NAME	RECORD_SOURCE	LOAD_END_DTS	TENANT_ID	HASH_DIFF
D4ABE726D93FF9C90D068D6F0D9943E1	14-JUL-20 09.54.48.000000000 PM	023	NAUGHTON INC.DBA LIBERTYY	HOST	14-JUL-20 09.55.57.000000000 PM	T001	C52EB4CBB10CF4EA61E72649C167E94D
D4ABE726D93FF9C90D068D6F0D9943E1	14-JUL-20 09.55.57.000000000 PM	023	NAUGHTON INC.DBA LIBERTY POC	HOST	14-JUL-20 09.57.51.000000000 PM	T001	1E64C5266DD9F1878B021190BC7E2252
D4ABE726D93FF9C90D068D6F0D9943E1	14-JUL-20 09.57.51.000000000 PM	023	NAUGHTON INC.DBA LIBERTY	HOST		T001	461C676B9D38DA4CBE22705DA76B6B47

Satellite table shows the record history:

for same dealer number,
different dealer names inserted,
different hash diff keys generated,
previous records were expired with Ending date,
active record indicates without Ending date

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Data Vault – Example of Link & Link Satellite

Hub Dealer

HUB_DEALER_HKEY	DEALER_NUMBER	LOAD_DTS	RECORD_SOURCE	TENANT_ID
D4ABE726D93FF9C90D068D6F0D9943E1	03056	14-JUL-20 09.03.26.000000000 PM	HOST	T001

Hub Vehicle

HUB_VEHICLE_HKEY	VEHICLE_VIN	LOAD_DTS	RECORD_SOURCE	TENANT_ID
2FEFBDDC3C80B50DC3C791C1CD5BB7A3	ABCD0TEV1DD123456	17-JUL-20 12.16.23.000000000 AM	HOST	T001

Hub Financial Account

HUB_FINANCIAL_ACCOUNT_HKEY	FINANCIAL_ACCOUNT_NUMBER	LOAD_DTS	RECORD_SOURCE	TENANT_ID
7696D3DEE41385E214DF5878FD3C1A85	0271234567	19-JUL-20 09.47.46.000000000 PM	HOST	T001

Hash Key on Business Keys (Ex: Financial Account Number, Dealer Number, VIN & Tenant ID)

Link

LNK_FINANCIAL_ACCOUNT_HKEY	HUB_FINANCIAL_ACCOUNT_HKEY	HUB_DEALER_HKEY	HUB_VEHICLE_HKEY	LOAD_DTS	RECORD_SOURCE	TENANT_ID
18813CD32BBB0936391850196C3D1DC9	7696D3DEE41385E214DF5878FD3C1A85	D4ABE726D93FF9C90D068D6F0D9943E1	2FEFBDDC3C80B50DC3C791C1CD5BB7A3	23-JUL-20 10.01.59.00 0000000 PM	HOST	T001

Hash Keys loaded from associated parent Hubs

Link Satellite

LNK_FINANCIAL_ACCOUNT_HKEY	LOAD_DTS	INTEREST_PAID_YTD_AMOUNT	LAST_PAYMENT_AMOUNT	LOAD_END_DTS	RECORD_SOURCE	TENANT_ID	HASH_DIFF
18813CD32BBB0936391850196C3D1DC9	23-JUL-20 11.46.30.000000000 PM	462.46	1000.1		HOST	T001	C15FF25254057D7B04FA48ACB30F46BB

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Data Vault – Loading Strategy

Scenario Type	Strategic Considerations
Processing late arriving data	a) Transaction arrives before the Master data, example VIN • Populate Link Satellite, Master data when it arrives b) Persist the data in the exception tables and report it to the concerned teams/business stakeholders. c) Process the data into Hubs, Hub Satellites, Links and Link Satellites when it is available
Data Quality issues	• Completeness – data is missing or unusable • Conformity – data is stored in non-standard format • Consistency – data values give conflicting information • Accuracy – data is incorrect or out of date • Duplicates – data records or attributes are repeated. As part of Data Vault, this scenario will not occur • Integrity – data is missing or not referenced Approach is to: a) Persist the data in the exception tables and report it to the concerned teams/business stakeholders. b) Process the data into Hubs, Hub Satellites, Links and Link Satellites when it is available
Data Reconciliation	Routine data reconciliation process to reconcile missing data, latency of data and data integrity
Processing data out of sequence	Applying metadata rules around record tracking to enforce and prevent the processing out of sequence data

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