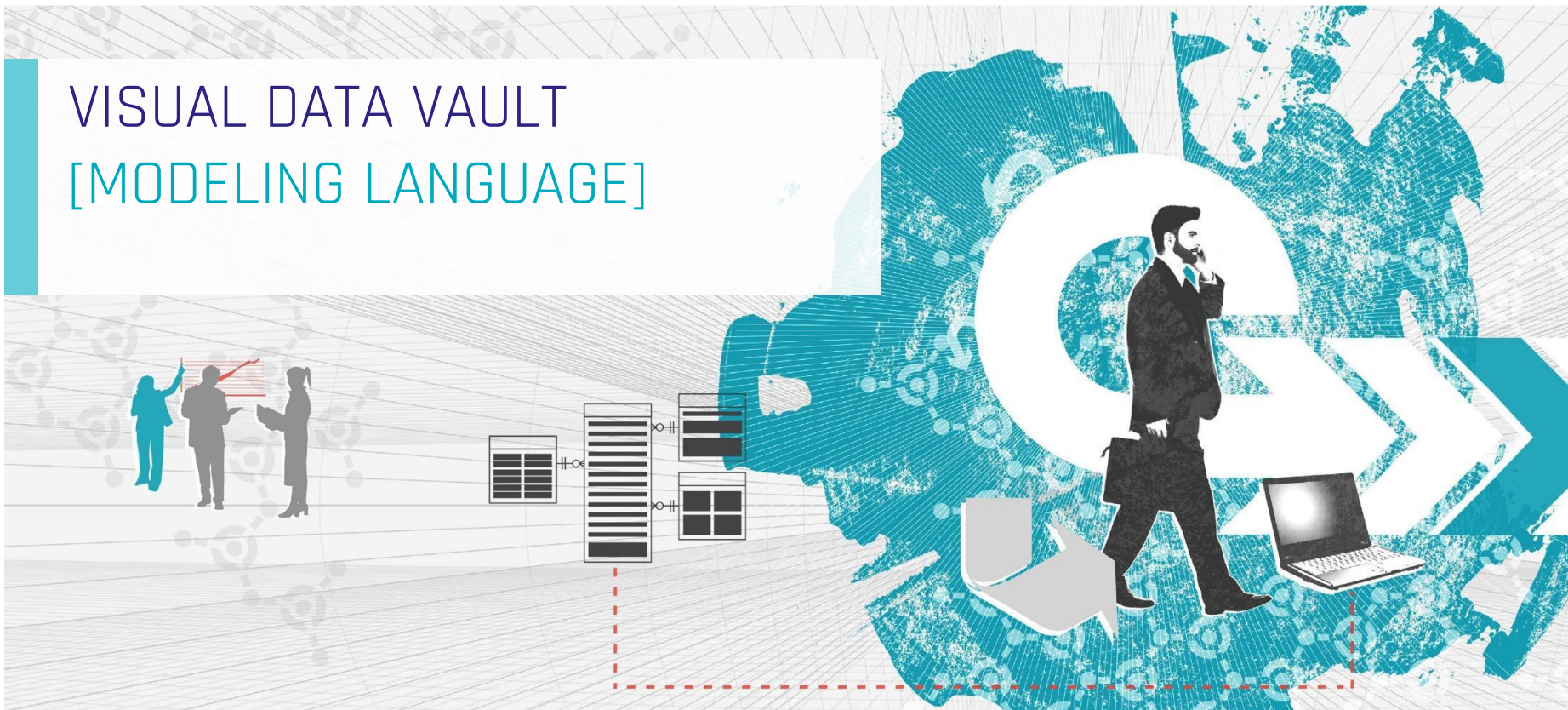


VISUAL DATA VAULT [MODELING LANGUAGE]



AGENDA



Introduction & Goals



Basic Entities



Query Assistant Tables



Reference Tables



Business Vault



Remarks

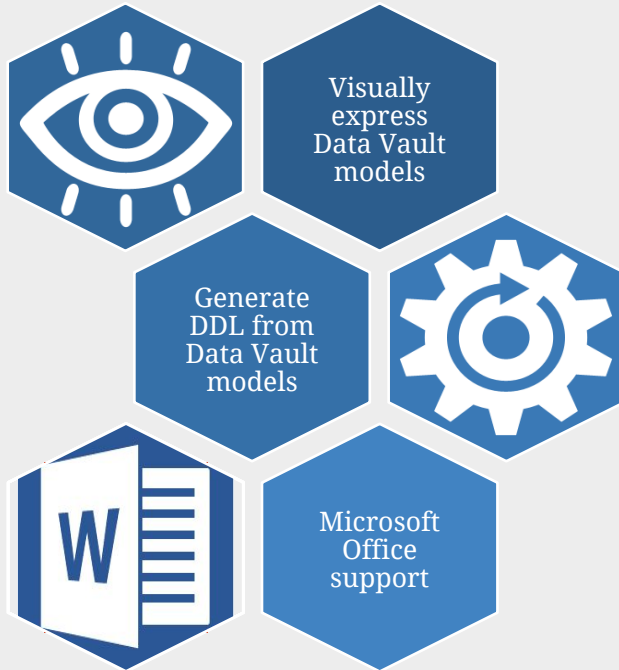


VISUAL DATA VAULT [MODELING LANGUAGE]

INTRODUCTION AND GOALS



OFFICIAL STANDARD PROPOSED BY DANIEL LINSTEDT



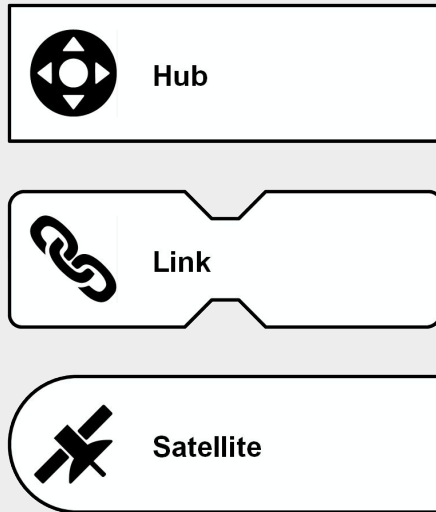
Download the Visio Stencil and Whitepaper
www.visualdatavault.com

VISUAL DATA VAULT [MODELING LANGUAGE]

BASIC ENTITIES

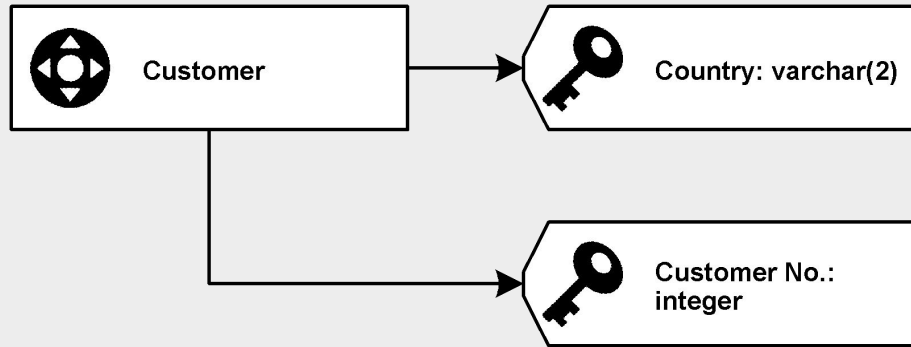


INTRODUCTION



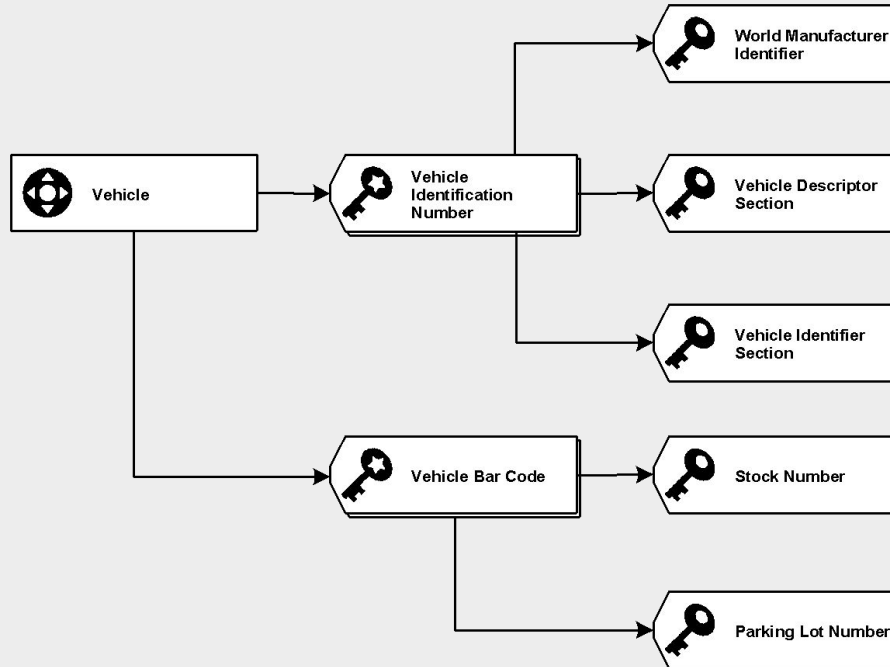
- Hubs represent business entities
- Links store the relationship between two or more Hubs
- Satellites contain descriptive Data from Hubs and Links

Hubs



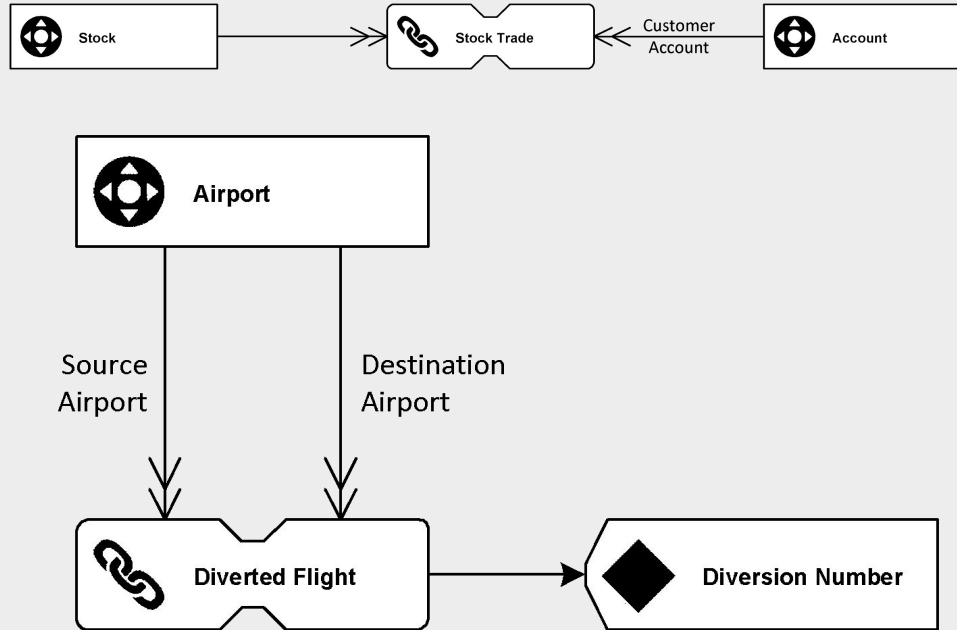
- A list of Business Keys
- Business Keys are attached to Hubs
- Composite Keys are modeled by adding multiple keys to Hub
- Business Keys might have data types

Smart Keys



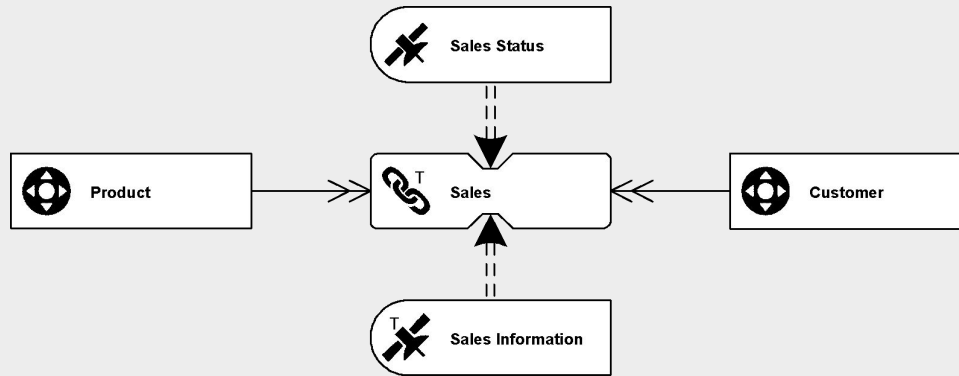
- Smart Keys are keys with some logical structure
- Not a composite key
- Do not model check sums
- Do not model smart key if format is unclear or multiple format definitions are possible
- Possible to integrate in composite key
- Composite key might consist of multiple smart keys

Links



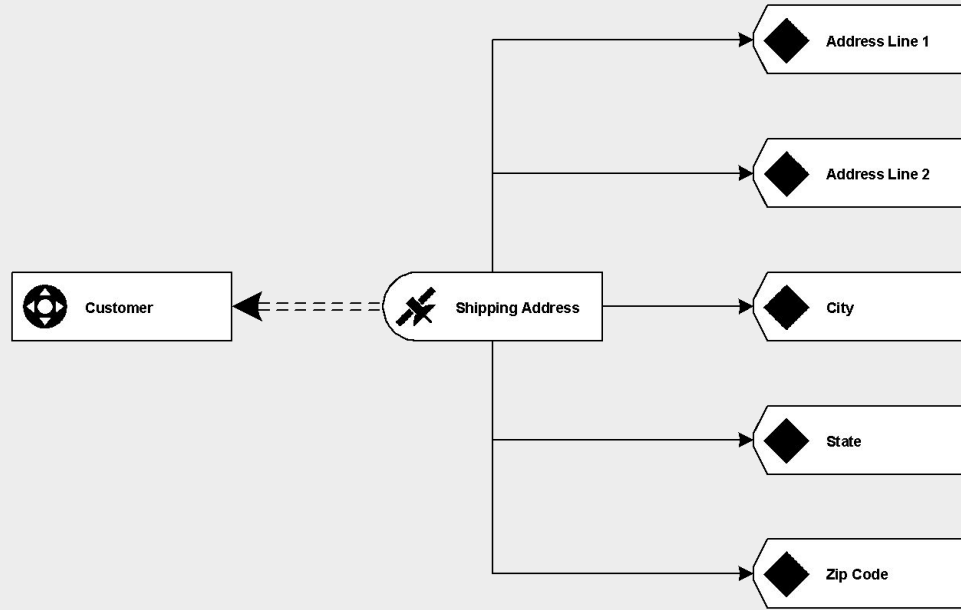
- Links connect hubs
- Relationships or transactions
- Read: „Stock used by Stock Trade“
 - Check comments in Visio stencil
- Link reference might be overwritten (add name to connector)
- Important for multiple references of the same hub in one link
- Possible to add attributes to links (e.g., degenerated fields)

Transactional Links



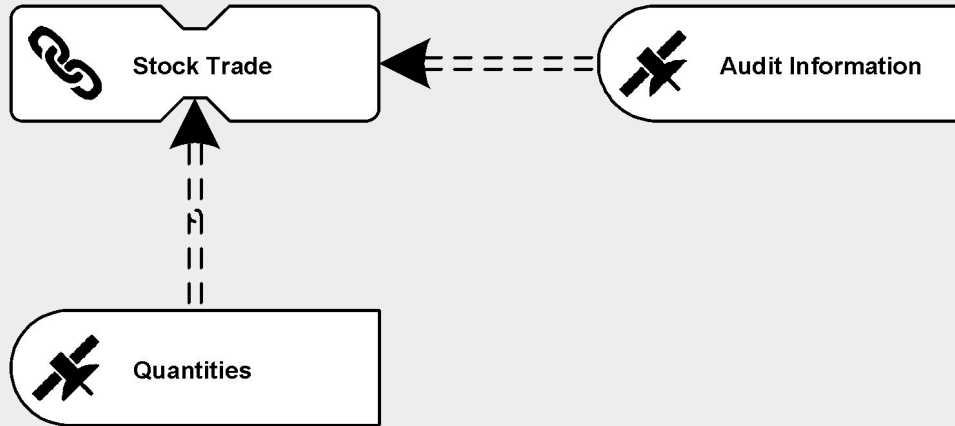
- Special form of link
- Data cannot legally change
- No end date
- Notice the annotation in the icon
- Transactional satellites are discussed later

Satellites (1/2)



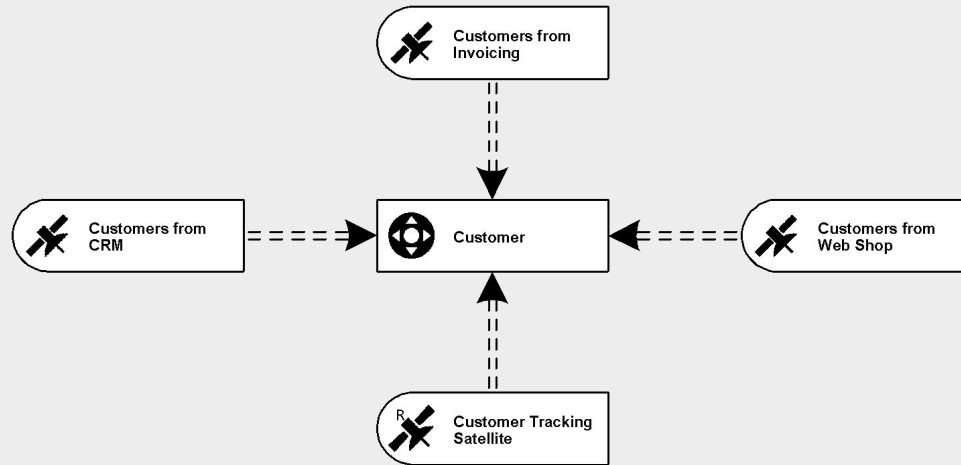
- Satellites store descriptive data
- Usually historized
- Data is stored in attributes
- Attached to hubs or links

Satellites (2/2)



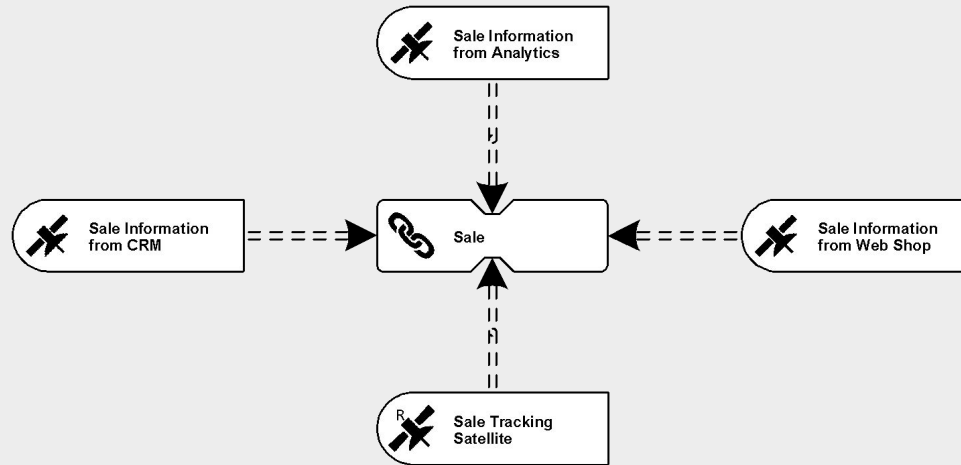
- Links and hubs might have multiple satellites

Record Tracking Satellites (1/2)



- Usually data comes from multiple sources
- Record tracking satellites track the availability of keys and associations in source systems
- Special satellite variant
- Normalized or de-normalized version is not indicated (physical features are not covered by the modeling language)

Record Tracking Satellites (2/2)



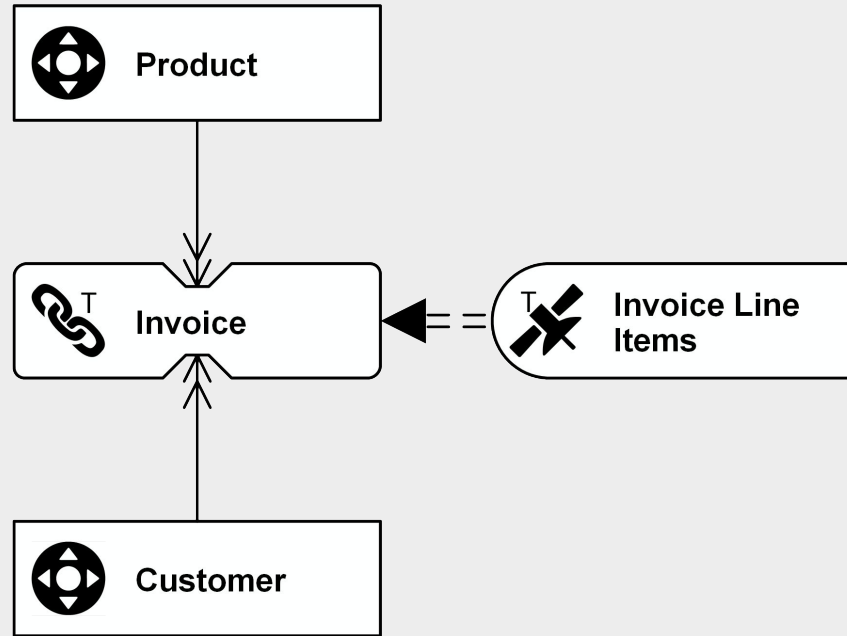
- Link version of record tracking satellite
- Follows the hub version (record tracking satellite can be added to hub or link)

Status Tracking Satellites



- Attached to hub or link
- Follows general satellite structure
- There is always a Status attribute

Transactional Satellites



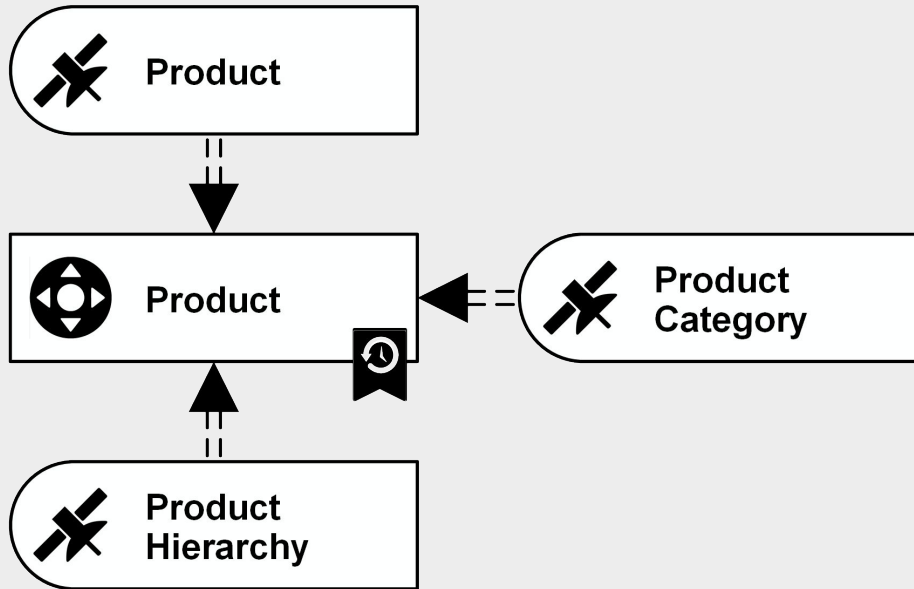
- Alternative to transactional links
- Transactional satellites are attached to transactional links
- They store no history
- Attributes are added to the satellite structure
- Introduced to allow automated generation of DDL from such models

VISUAL DATA VAULT [MODELING LANGUAGE]

QUERY ASSISTANT TABLES

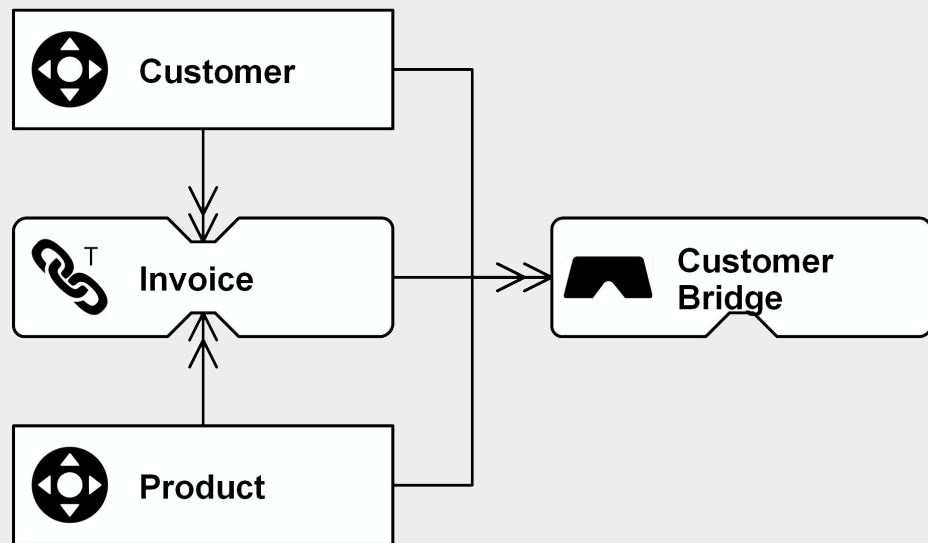


PIT Table



- PIT table spans the satellites of one hub or link for performance reasons
- Implemented as a ribbon that is attached to the hub or link symbol
- All satellites are affected by the PIT

Bridge Table



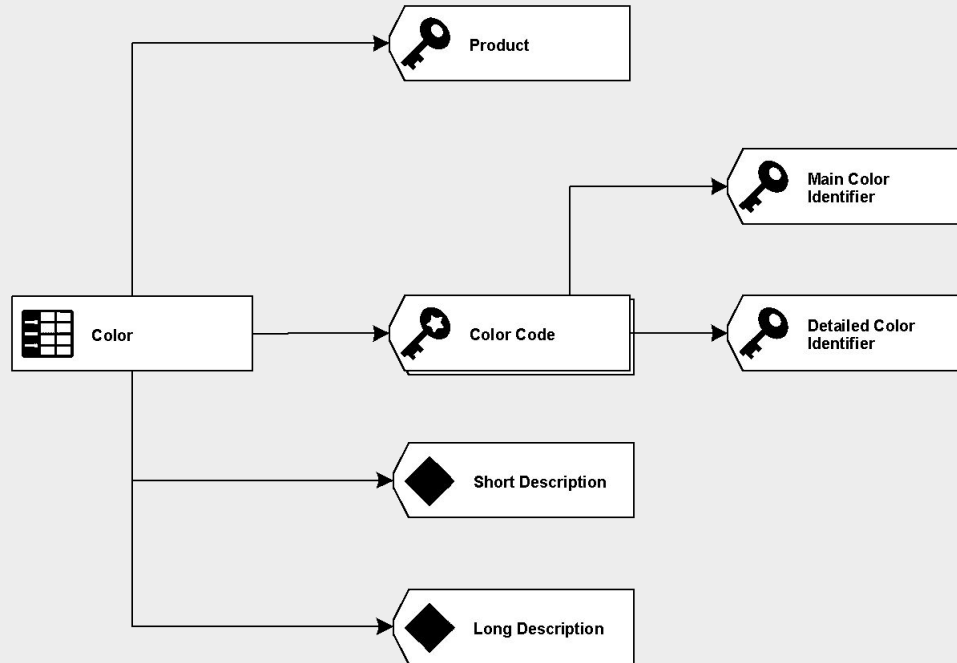
- Bridges improve join performance between hubs and links
- Hub or link is “used by” bridge

VISUAL DATA VAULT [MODELING LANGUAGE]

REFERENCE TABLES

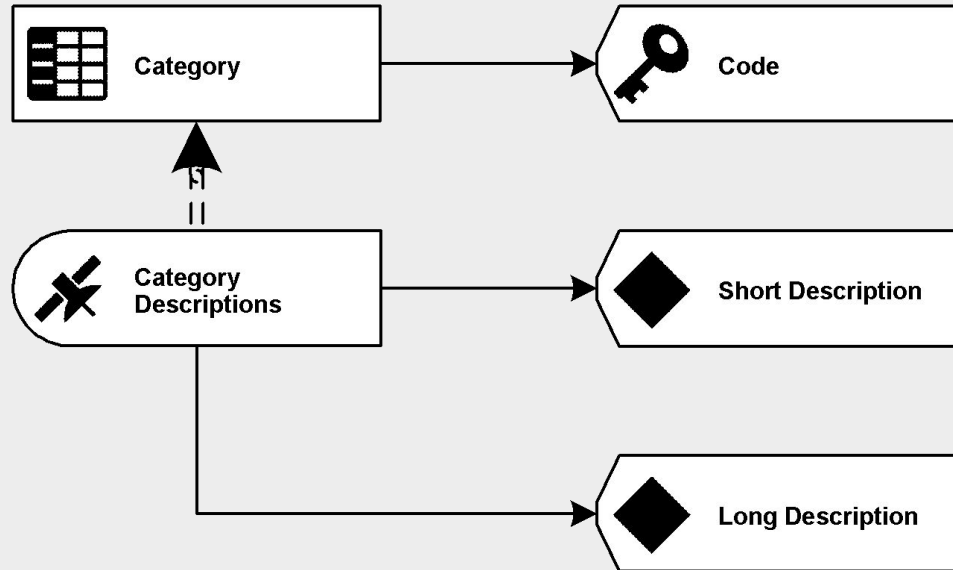


No-History Reference Tables



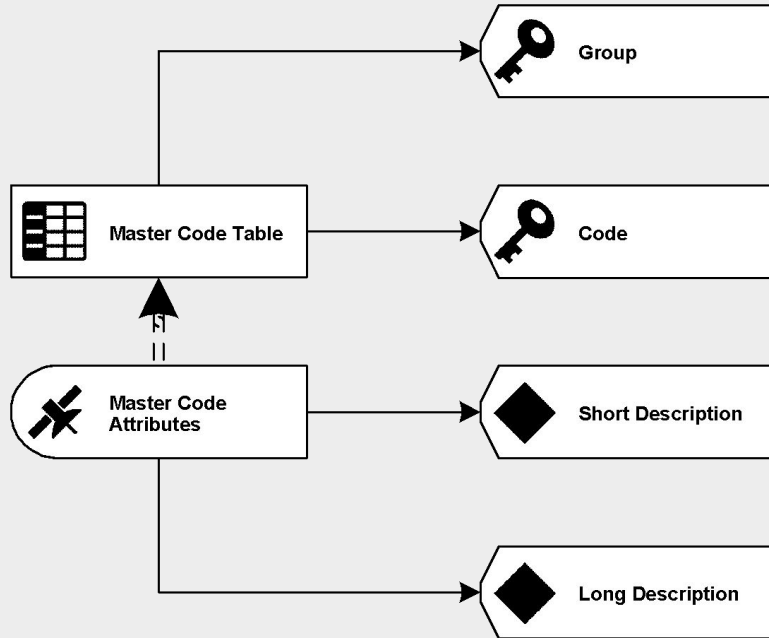
- Reference tables are lookup tables that store descriptive data
- Have at least one business key
- Have multiple attributes
- Business key might be a smart key
- Business key might be composite key
- No history (flat structure)

History Based Reference Tables



- Similar to no-history reference table
- Has business key in table
- Satellite stores attributes with history-tracking
- Satellite follows standard rules for satellites

History Based Reference Tables



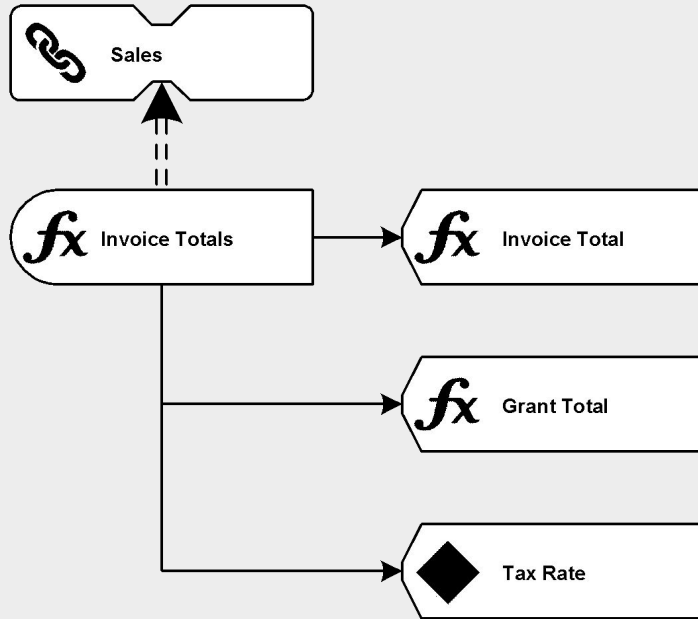
- Master code table for commonly used codes and their descriptions
- Reference table contains two business keys (Code & Group)
- History-based Satellite for the descriptive attributes

VISUAL DATA VAULT [MODELING LANGUAGE]

BUSINESS VAULT

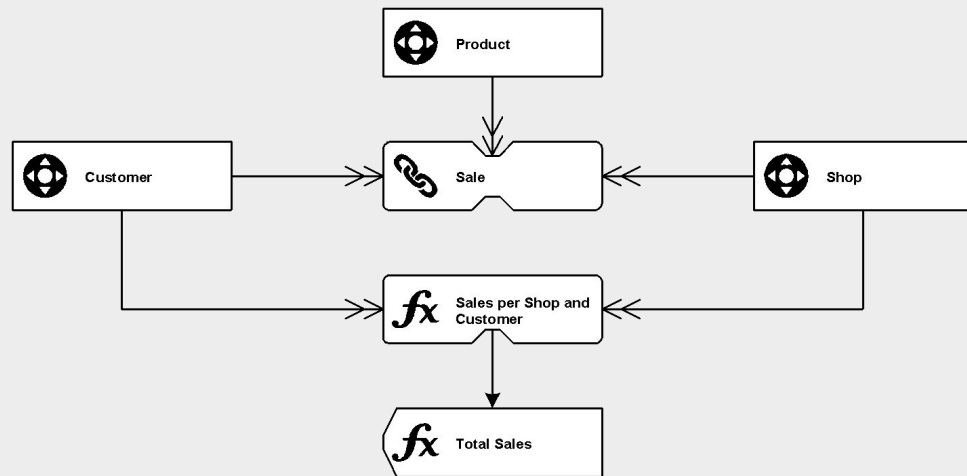


Computed Satellite



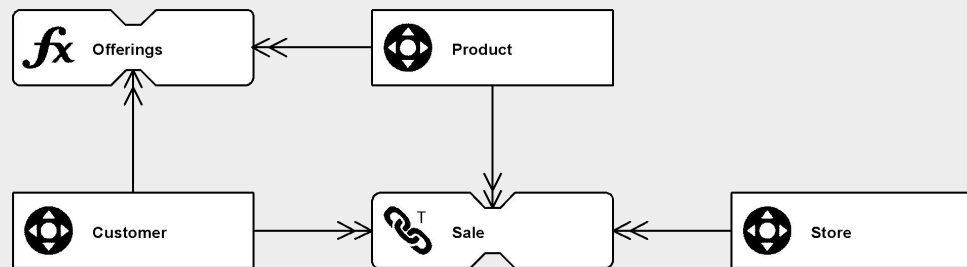
- Computed satellites describe a hub or link with computed descriptive attributes
- Added to the hub or link in the same way as standard satellites
- Computed attributes are added to the satellite
- Might contain non-computed attributes (e.g. attributes that are duplicated from another satellite for convenience)

Computed Aggregate Links



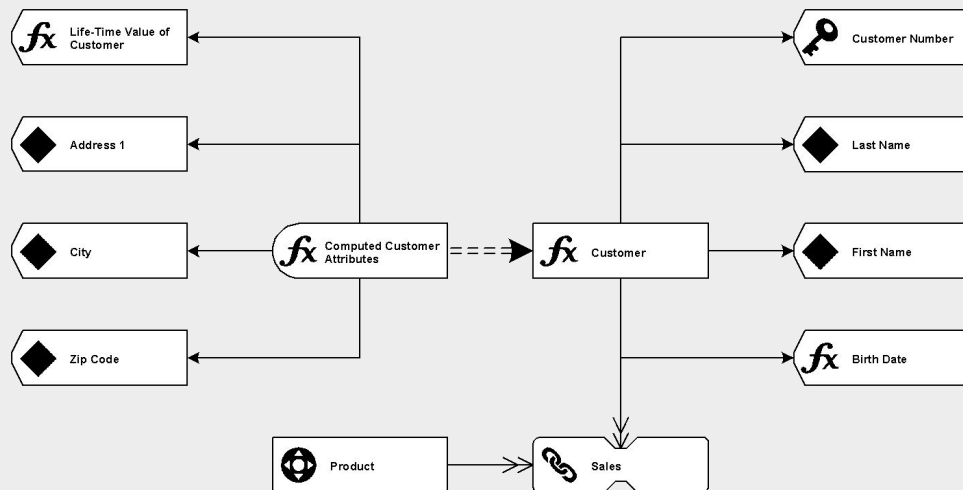
- Concept is similar to a bridge
- Changes the grain of a link
- Aggregates values and adds them as computed attributes to the link

Exploration Links



- These links are not available in source systems
- Added artificially to the Data Vault for exploration purposes
- Connects hubs that are not directly connected in source systems
- Basket Analysis

Business Vault Tables



- Business Vault tables have no prescribed format
- Have business keys and attributes
- Might have computed attributes
- Might have computed satellites attached
- Can be added to the Raw Data Vault by ordinary links that reference the primary key of the Business Vault table

VISUAL DATA VAULT [MODELING LANGUAGE]

REMARKS



REMARKS

- Logical modeling, no physical features
- Visio Themes are not supported (yet)
- More features to come:
 - Inline attributes
 - Validation rules (prevent hub on hub, etc.)
 - What else?
- Don't copy from Visio and paste into Word or PowerPoint
 - Instead: export to WMF for better quality
- Vendor support package available
- Check out www.scalefree.com

A photograph of a modern industrial factory floor. Several yellow robotic arms are visible, working on assembling car parts. The background shows a complex network of pipes and structural beams, with bright overhead lighting.

YOUR FEEDBACK IS
APPRECIATED

www.scalefree.com