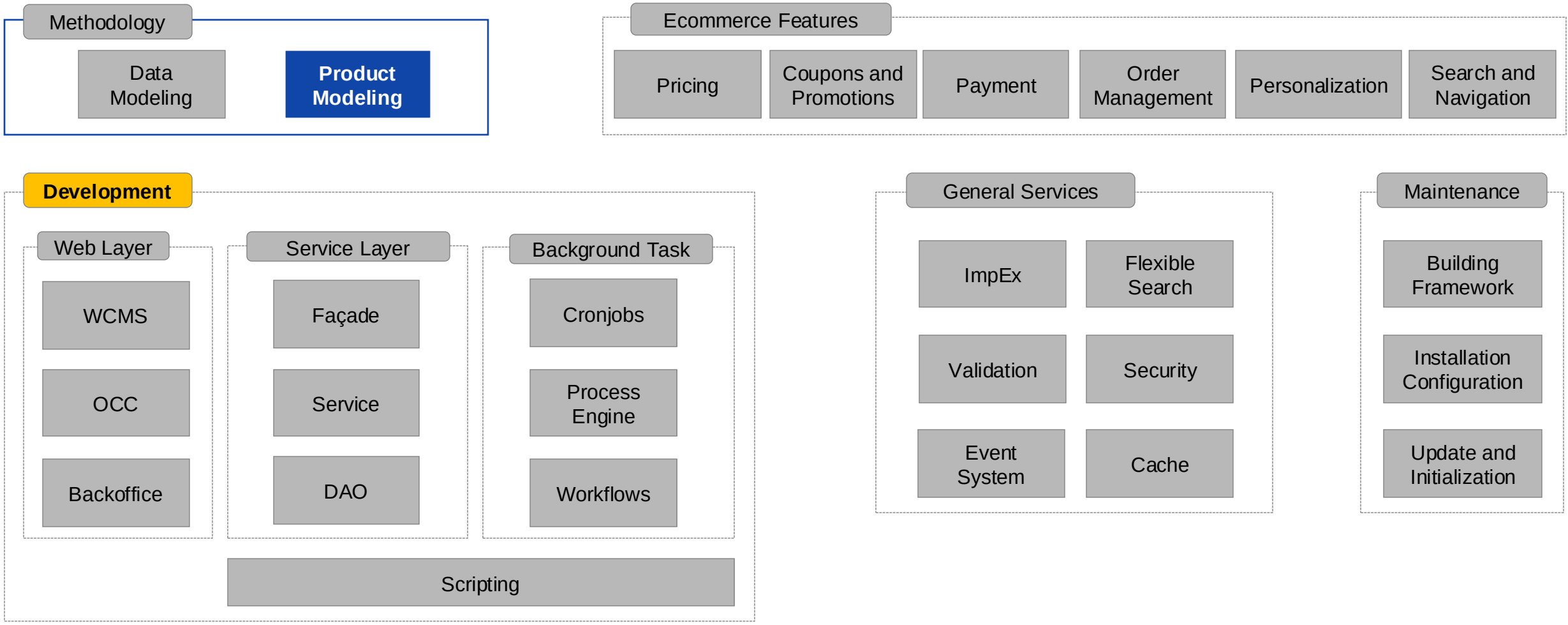
SAP Customer Experience

Product Modeling

What we will cover in this topic



We will learn about:

- Product Content Management Basics
- Product Modeling Overview
- Classification System
- Product Variants

The Context

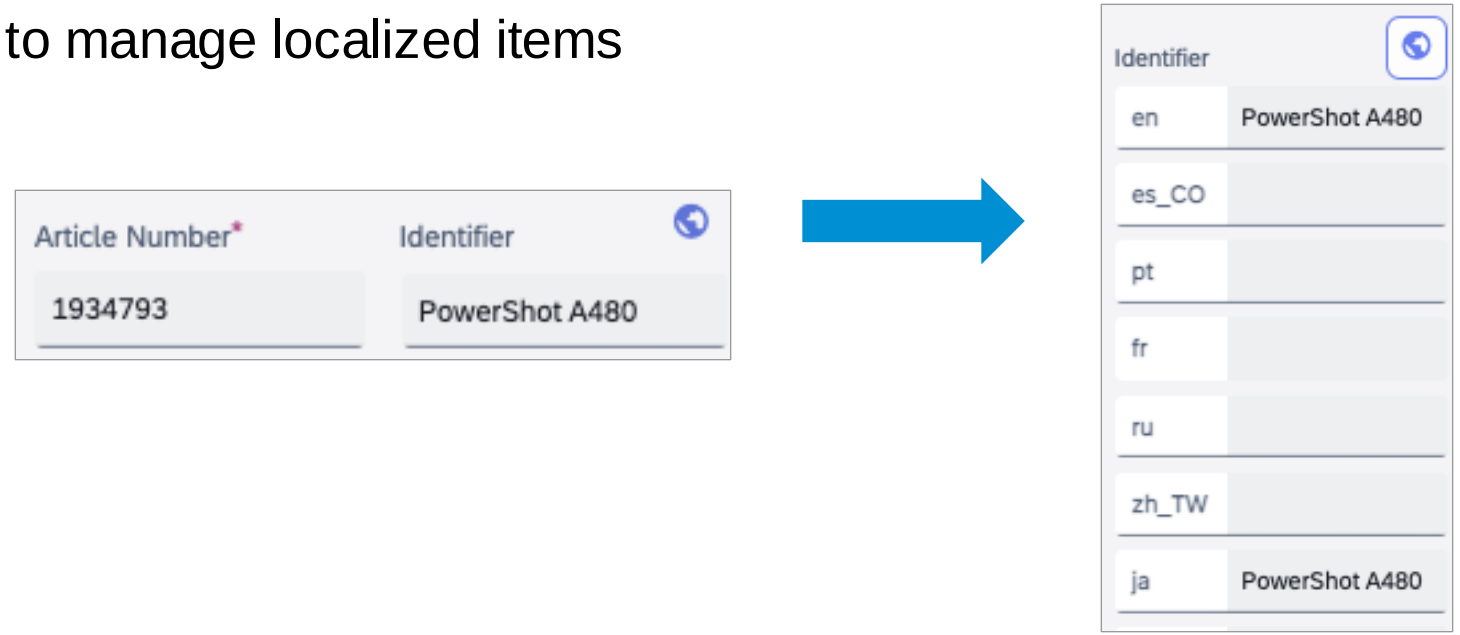
PCM (aka. Product Content Management) is an essential topic in SAP Commerce Cloud. It refers to product/category/catalog management and the synchronization of one catalog version with another.

In addition, there are four general approaches to **modeling products** in SAP Commerce Cloud: modifying the **type system**, defining and using a **classification system**, using **variant products**, and defining **configurable products**.

Product Content Management Basics

Core I18N Features

- Out-of-the-box support for:
  - Languages (localizations of business objects)
  - Countries and Regions (tax regulations)
  - Currencies (currency formats, rounding)
  - Number Formats (separation characters)
- Standard-based API (Java Locale objects)
- Intuitive UI to manage localized items



Catalog Overview

- Catalogs provide functionality to hold, structure and manage items. E.g. A product catalog contains products and related product information.
- A catalog is a list of available catalog-aware items.
- Products are the typical example of a catalog's basic elements.
- Catalogs allow you to set up visibility.
- Several catalog versions can be available in your platform.

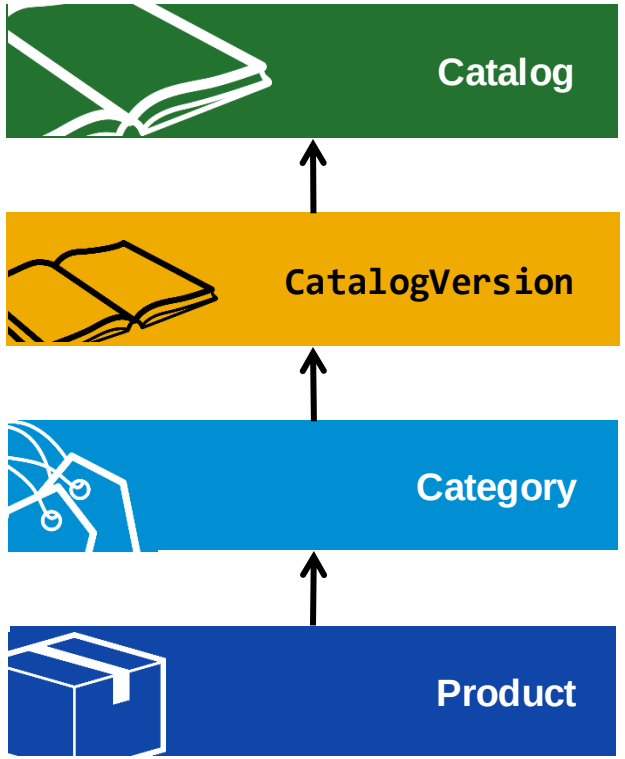
Note:

In this chapter we focus on the Product catalog, but SAP Commerce Cloud also supports other catalogs, e.g. the WCMS catalog for web components, which will be covered in a later lesson.

However, the concepts explained here are applicable to all kinds of catalogs.

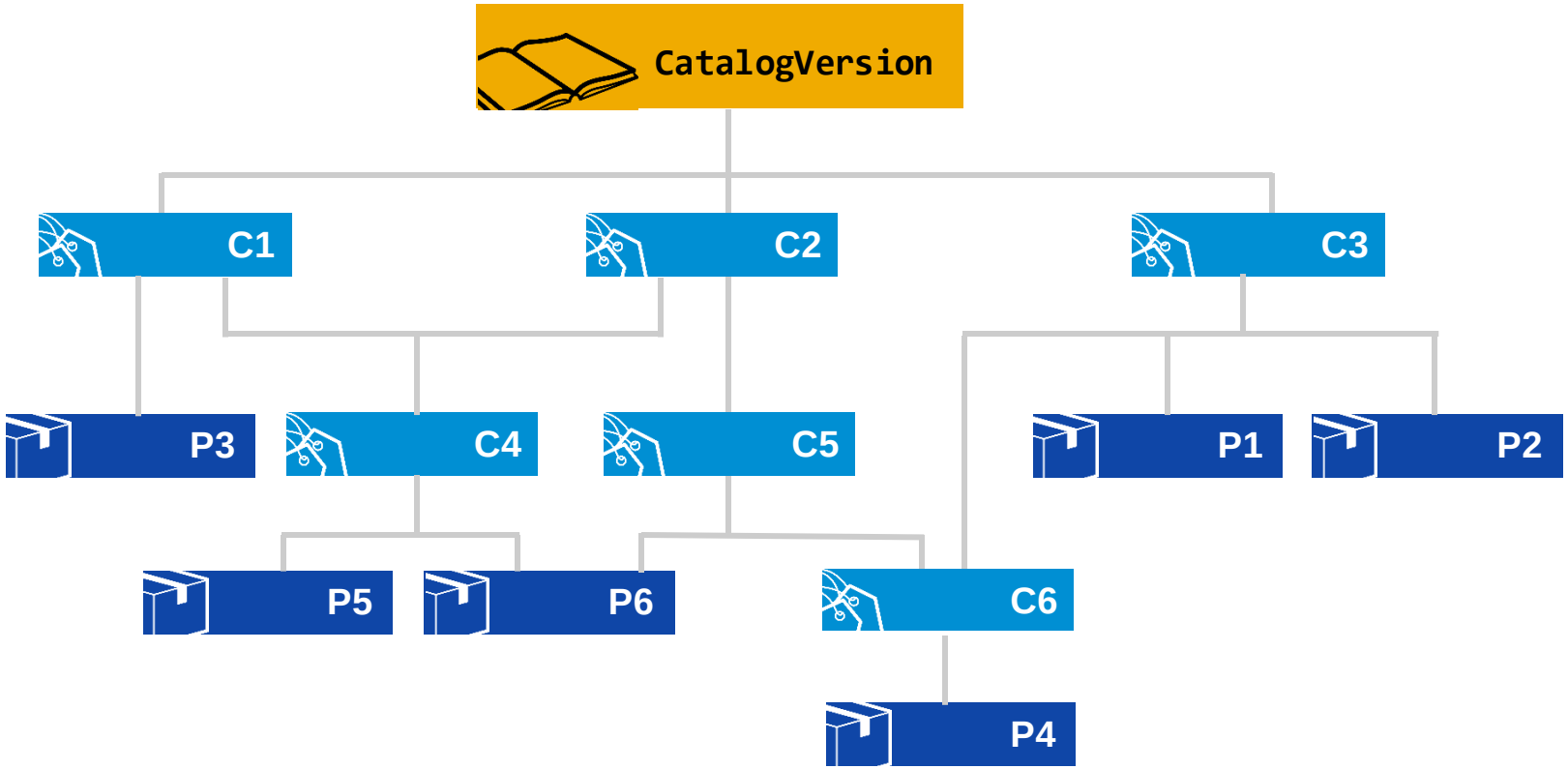
Products and Categories

- A catalog contains one or more catalog versions (e.g. staging & online)
- A catalog version has a hierarchy of categories, containing products
- Products are the basic element of a catalog, and correspond to SKUs

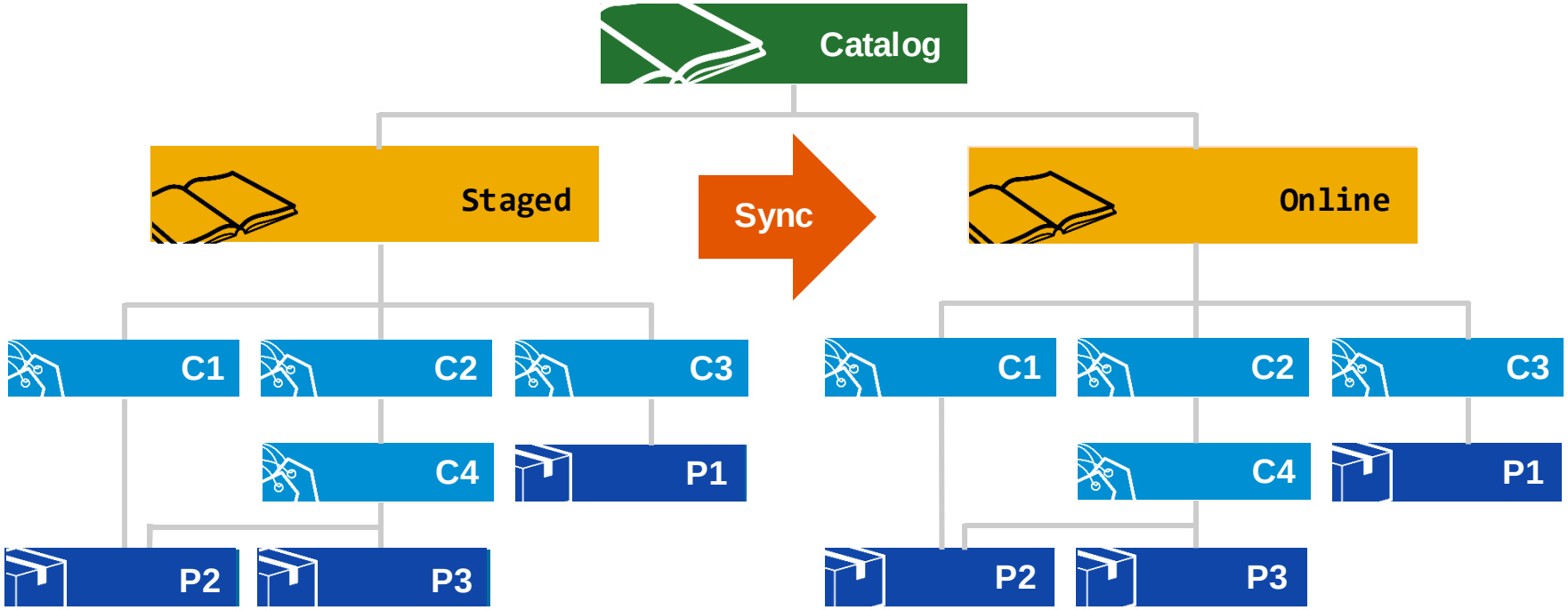


Category Structure - 1

- Categories can have multiple parent categories
- Products can belong to multiple categories



Catalog Structure - 2



Catalog Versions - Synchronization

- Synchronization copies specified content from source to target catalog versions
- Referenced items are updated to their counterparts in the target version
- Synchronization is done via a special kind of CronJob (i.e., Multi-Threaded Synchronization Job) which can be **triggered manually** or **scheduled** for one-time or recurring execution
- Synchronization can be executed on the entire catalog version, or only selected categories or on individual product(s)
- If needed, define rules to specify how product data should be copied to target

Demo


R100 BIKE
849.40
R300 Bike
373.69
R200 Bike
318.97
R200 BIKe 4s
596.34
M500 BIKE
209.16
eBike E180
75.44
M550 BIKE
74.40
Y200 Bike
62.31
eBike E181
54.06
C900 BIKE
42.47
C950 BIKE
29.90
M525 BIKE
135.61
Y120 Bike
28.38
Horns
19.07
Y240 Bike
43.84
in Thousand USD, %
2,987.26 (+30.59%)
Product Revenue Won Current
in Thousand USD
444.48
Revenue New Products
Lost due to price
348
Won due to product
Won due to price
Won due to service
1,657
Top Customers
Dimension
Industry ID
Territory
Sales Unit
Country
Competitor
Measure
in Thousand USD
NA
EMEA
APJ

Product Modeling Overview

Product Modeling

SAP Commerce Cloud offers four ways to model your product data:

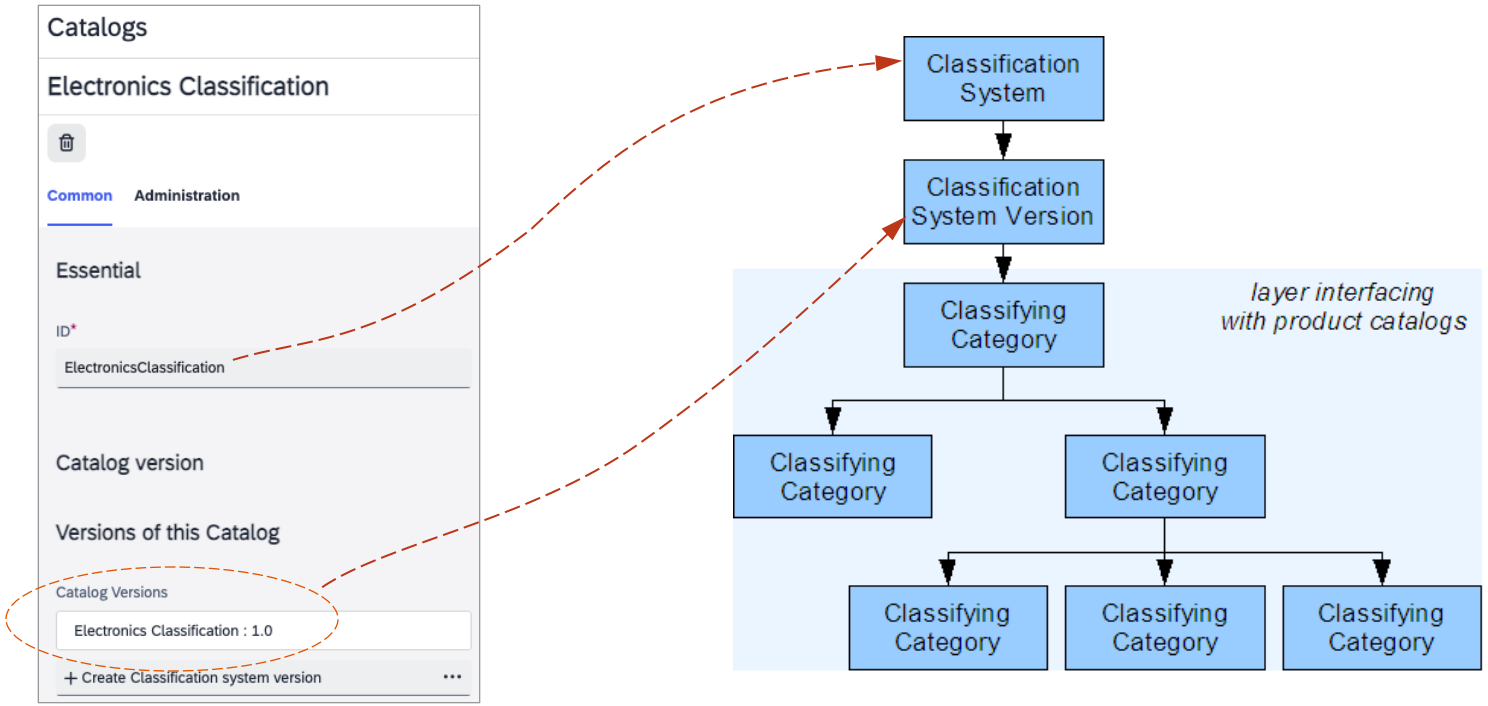
1. **Classification System**
   Allows your product attribute sets to be altered frequently, or even dynamically at runtime.
2. **Product Variants**
   Best for products that differ in some aspect from one another, but are based on the same basic model
   E .g., T-Shirt with size and colour variants.
3. **Multi Dimensional Product Variants**
   Represent variations of a base product and are offered in multiple unique combinations of these dimensions.
4. **Configurable Products**
   Provides information as user input to complete the purchase flow.
   This module is covered e.g. in **Working with Configurable Products**.

The exercise will focus on classification and multi-dimensional product variants

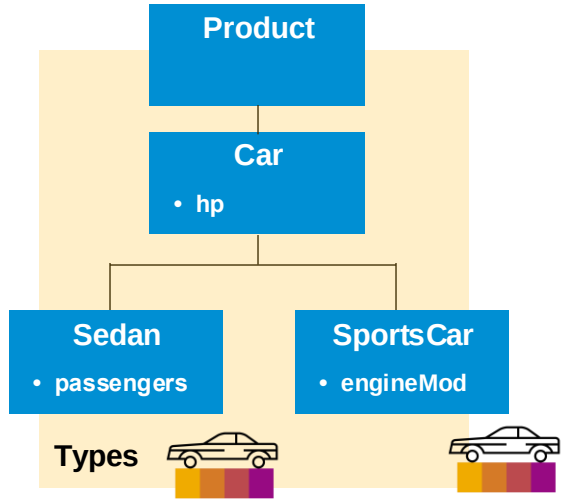
Classification System

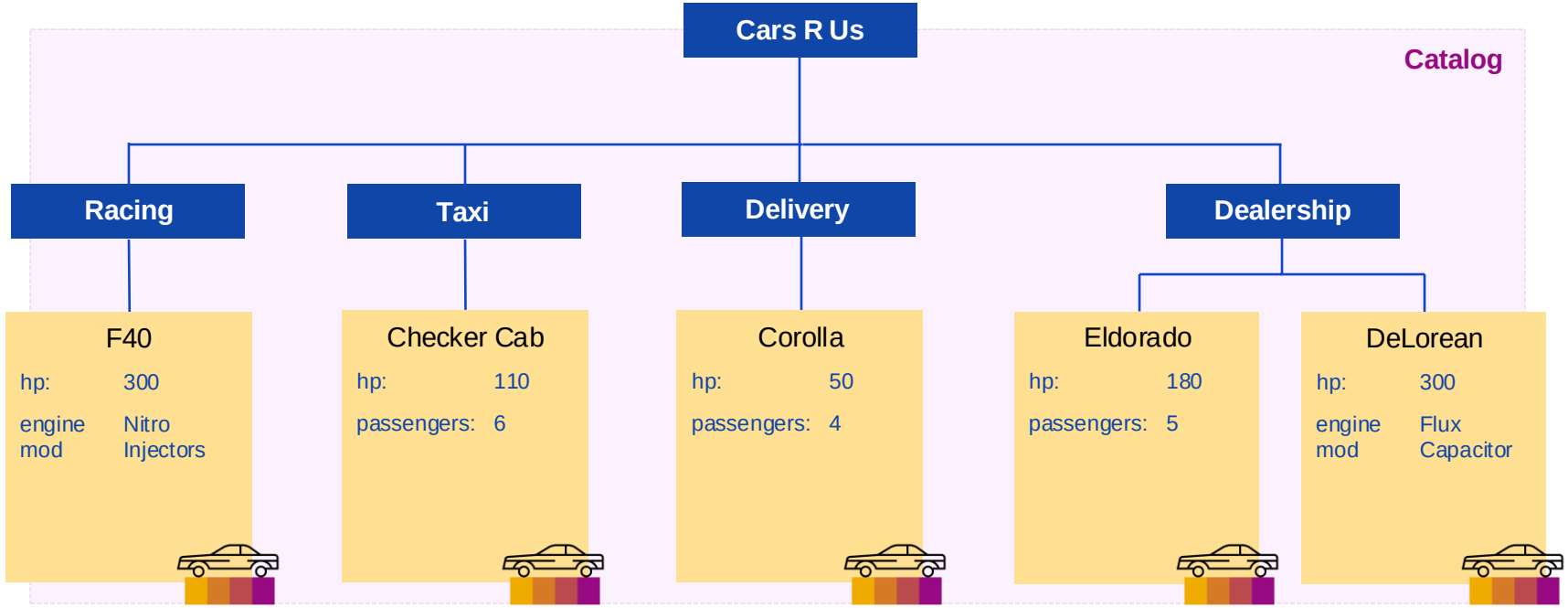
Structuring Classification Systems

- A classification system structure is similar to any ordinary product catalog
- Classification system has one or more classification system versions that themselves contain any number of classifying categories organized in a tree-like structure.
- Classifying categories also represent the layer where classification systems and product catalogs interface.

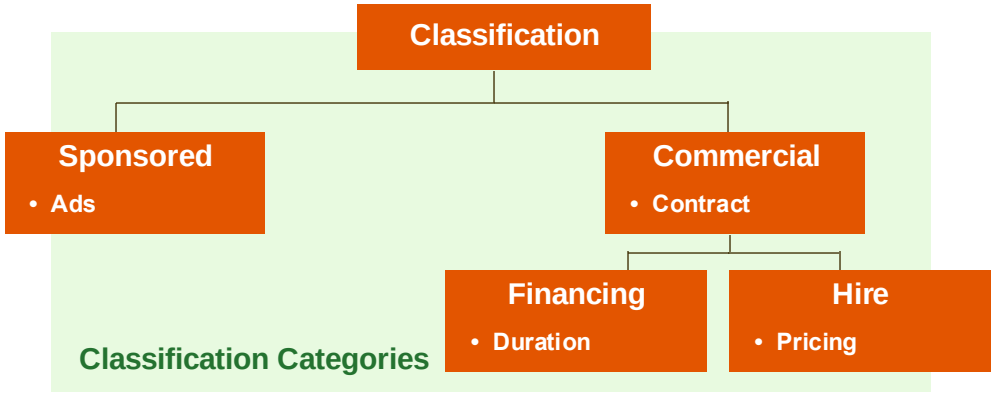


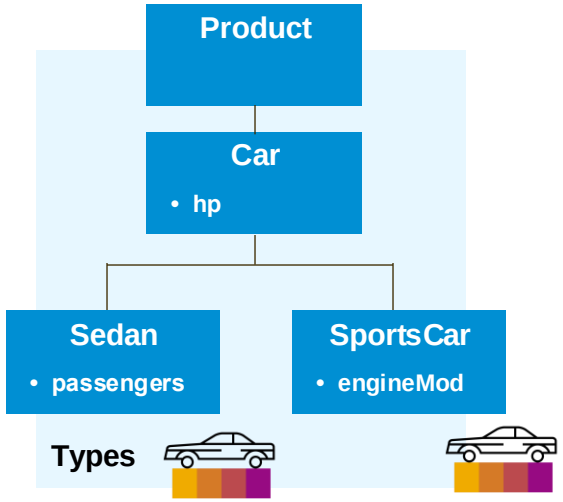
Add Properties by Extending the Type System

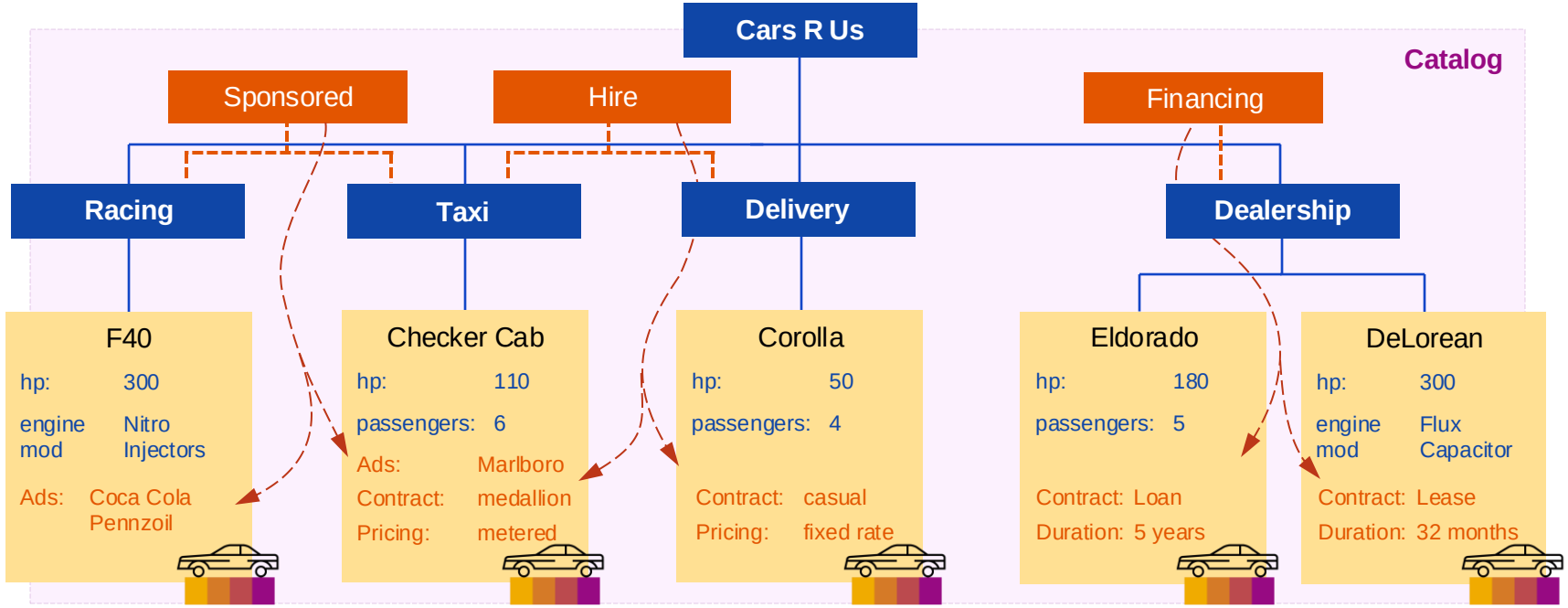




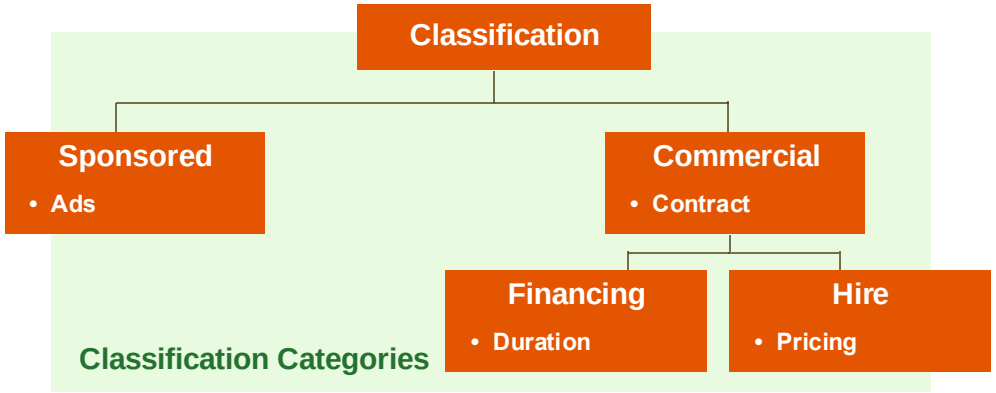
Add Features using Classification Categories

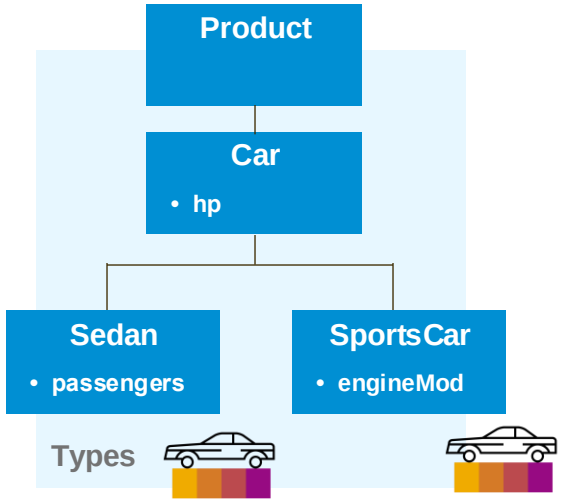


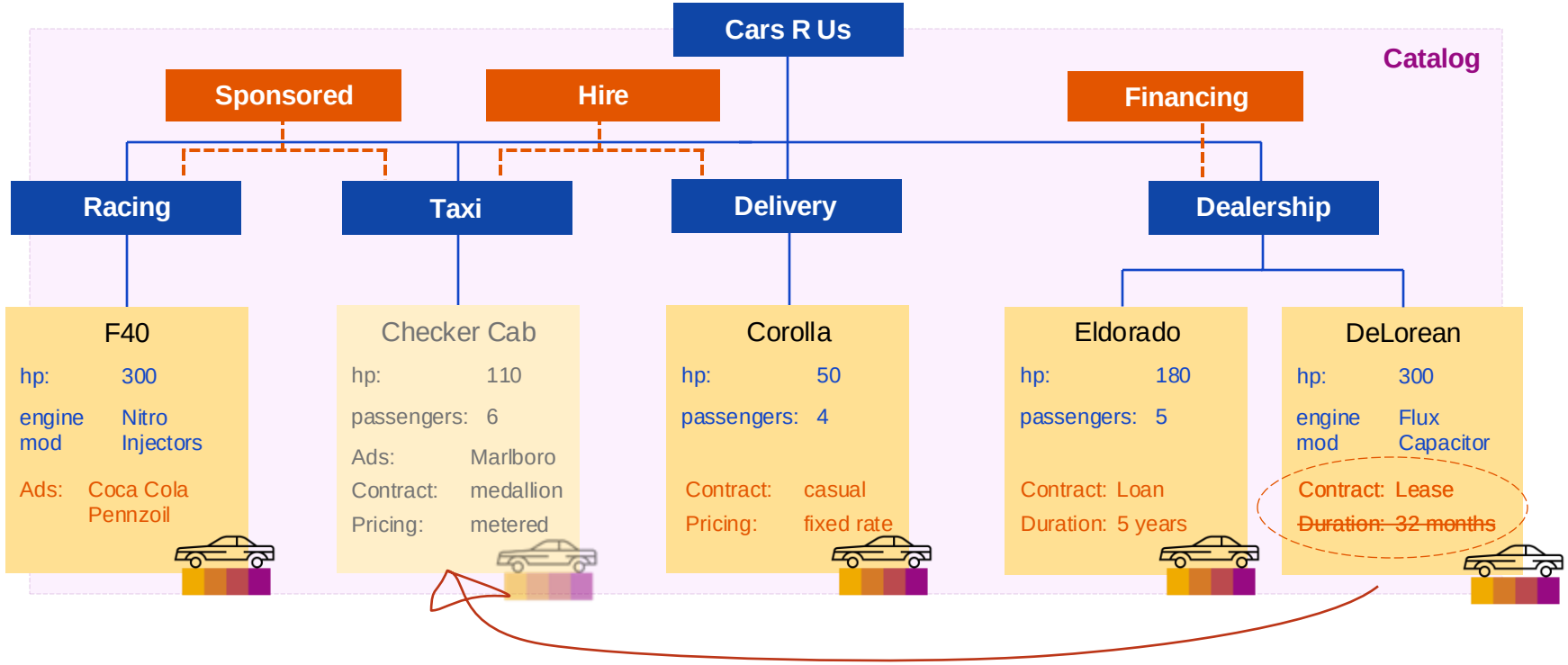




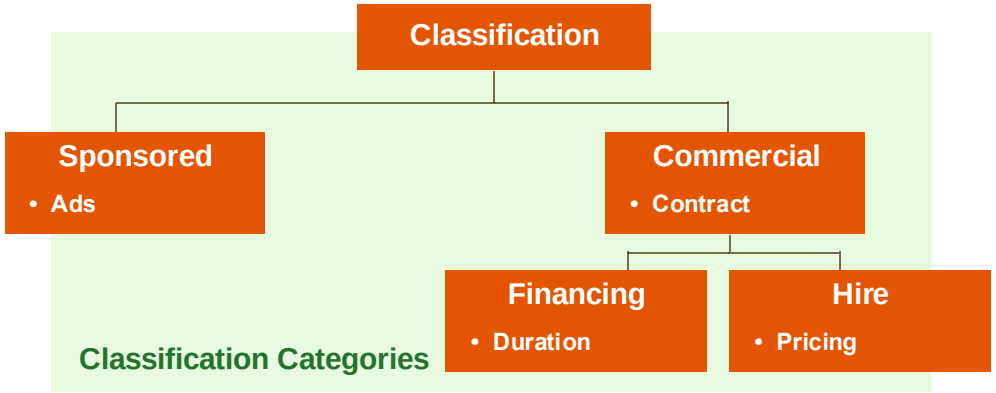
Reassign Product • 1

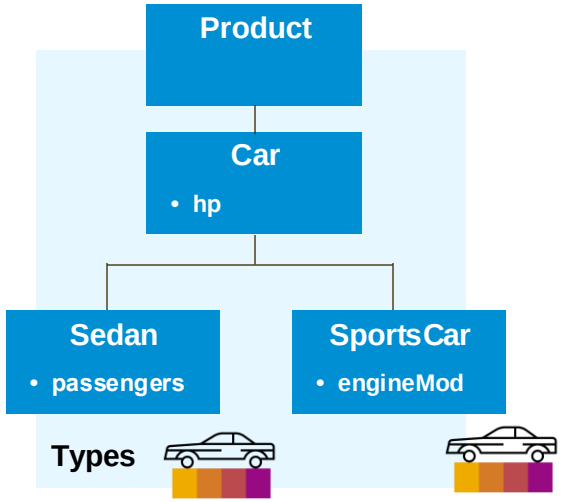


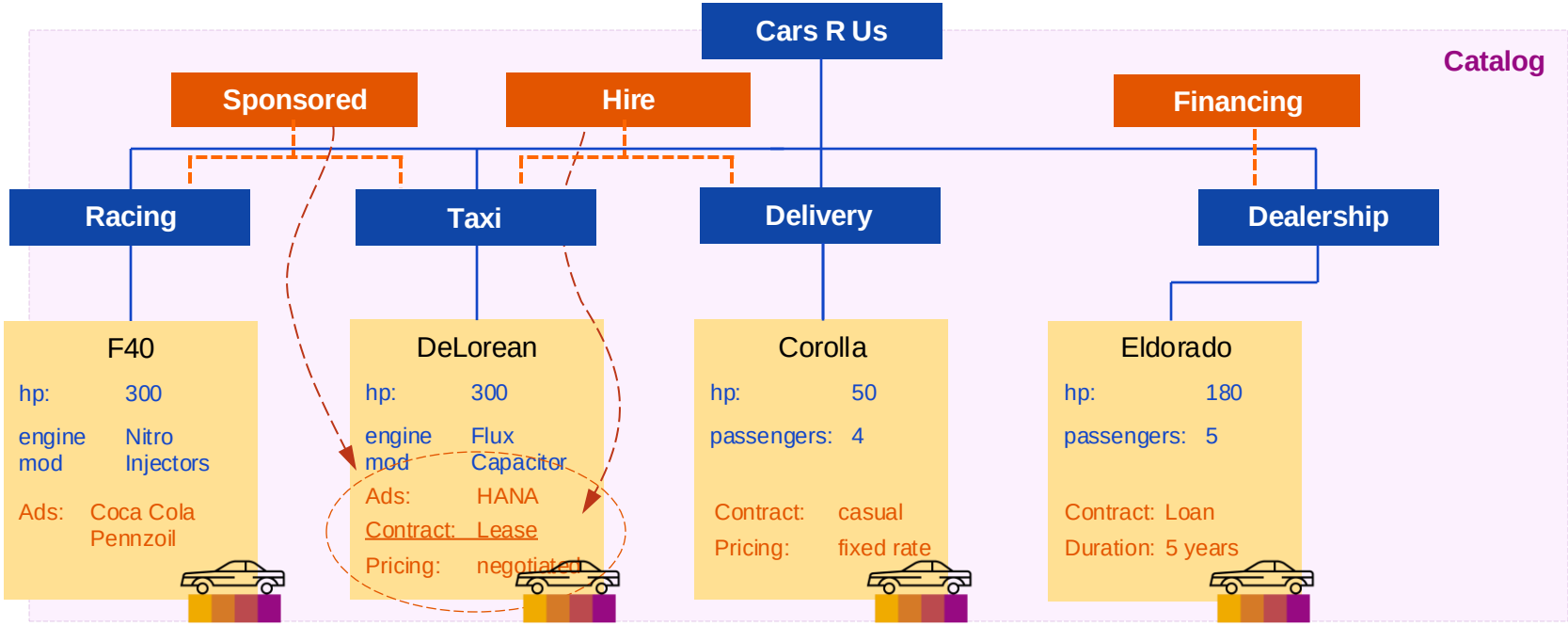




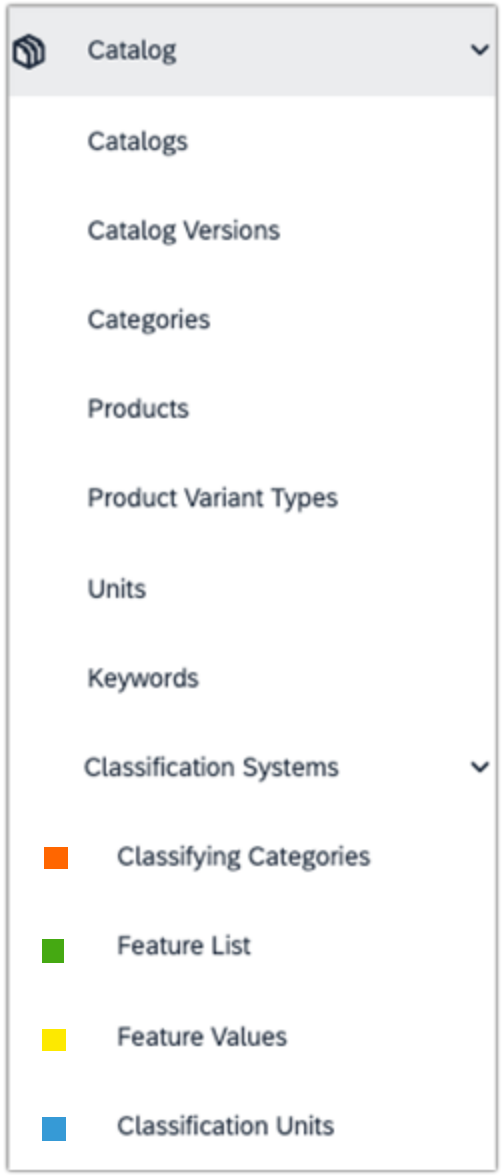
Reassign Product • 2





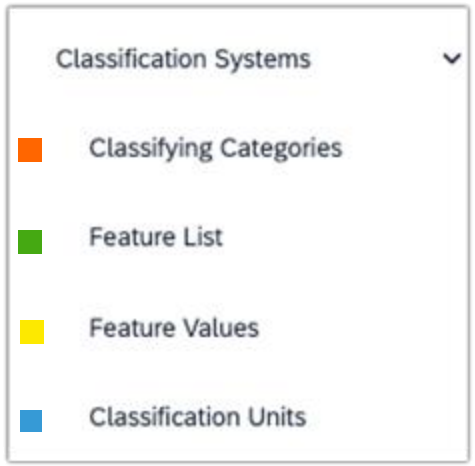


Classification objects in the Backoffice



- **Classifying Categories** keep track of the properties they confer in a list ClassAttributeAssignmentModel objects
  - Each contains a reference to:
    - a Feature descriptor (required)
    - an array of Feature descriptor Values (optional)
    - a Classification Unit (optional)
- The **Feature descriptor** identifies the property
- The **Feature descriptor Values** provide valid choices for the property, much like an enumeration
- The **Classification Units** facilitates conversion to other units of the same *type*, using its Conversion factor attribute. For example, the *centimeter*, *meter*, and *kilometer* units might all have the *length* type, and a conversion factor of 0.01, 1, and 1000, respectively.
  - A unit's *symbol* attribute can be appended to value when it is displayed — **kg** for kilograms, **Mb** for megabytes, **"** for inches, etc.

Elements of a Classification System



ClassAttribute Assignment Model

FeatureDescriptorType=String|Number|Boolean|Date|Reference|Valuelist
FeatureDesciptor
Unit

FeatureDescriptor
Contract

ClassificationUnit
terms

ClassAttribute Assignment Model

FeatureDescriptorType=ValueList
FeatureDesciptor
Unit
FeatureDescriptorValues

FeatureDescriptor
Pricing

ClassificationUnit
rate

allClassification AttributeAssignments

ClassificationCategory
Hire

Category
Taxi

Sedan
Corolla

```
code         checkercab
hp           110
passengers   6
Contract     199 terms
Pricing      metered rate
...
```

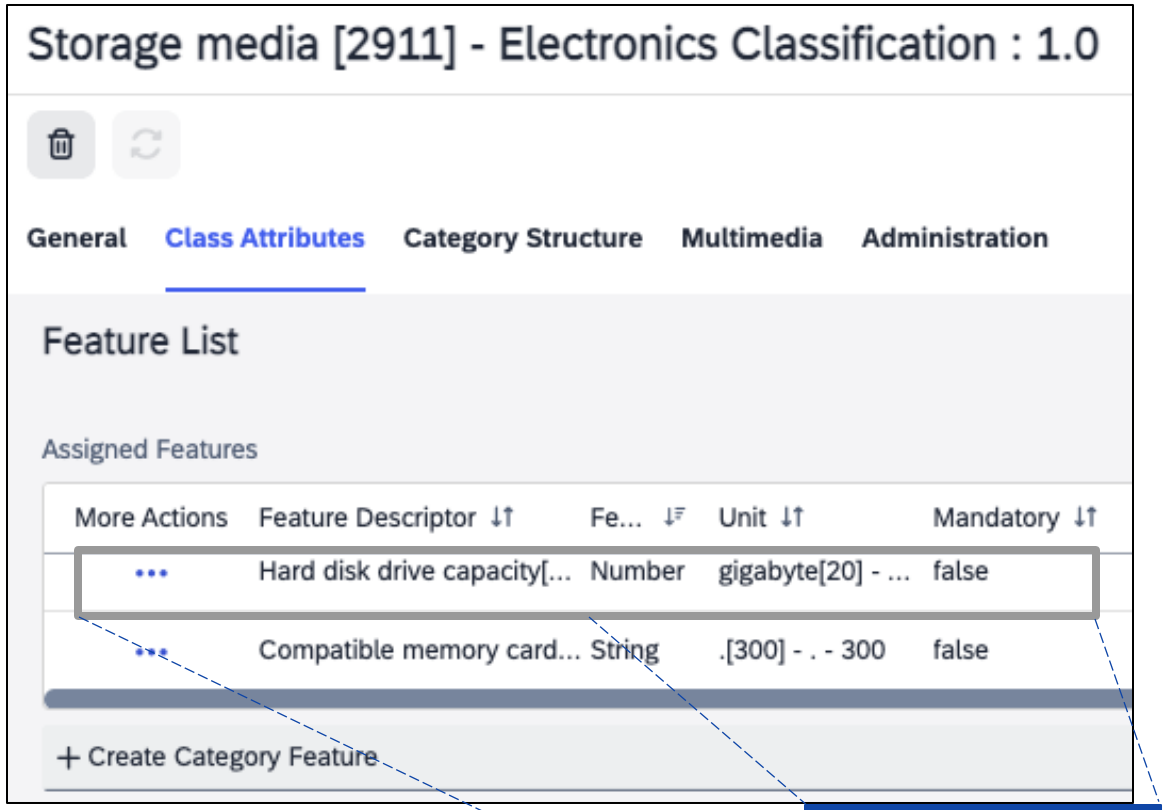
FeatureValue
metered

FeatureValue
negotiated

FeatureValue
fixed rate

FeatureValue
salaried

Accessing the ClassAttributeAssignmentModel



ClassAttribute Assignment Model

FeatureDescriptorType=Number

FeatureDesciptor

Unit

FeatureDescriptor
Hard disk drive capacity

ClassificationUnit
gigabyte [20]

ClassificationCategory
Storage media [2911]

allClassification AttributeAssignments

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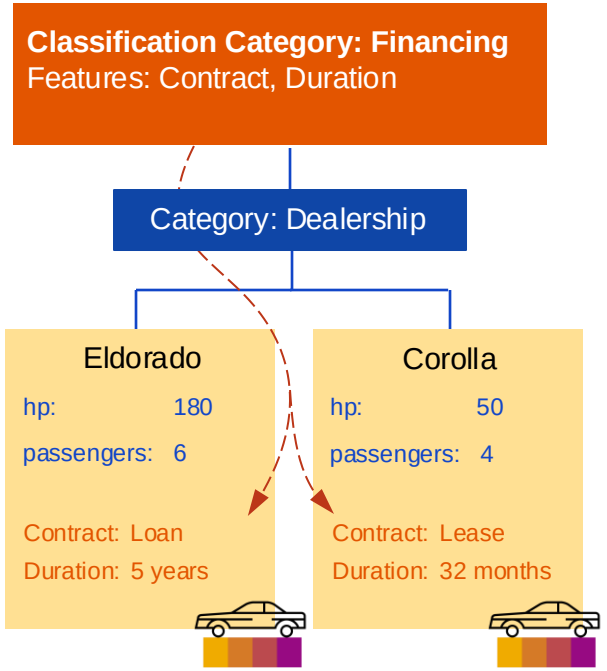
eBike E181
54.06
C900 BIKE
42.47
C950 BIKE
29.90
M525 BIKE
135.61
Y120 Bike
28.38
Horns
19.07
Y240 Bike
43.84
in Thousand USD, %
2,987.26 (+30.59%)
Product Revenue Won Current
in Thousand USD
444.48
Revenue New Products
Lost due to price
348
Won due to product
Won due to price
Won due to service
1,657
Top Customers
Dimension
Industry ID
Territory
Sales Unit
Country
Competitor
Measure
in Thousand USD
NA
EMEA
APJ

Classification – Review – Key Facts

- Classification simplifies management of frequently-changing product attribute sets
- These sets are handled as classification features, defined in classification categories
- Regular categories contain products and can be assigned to classification categories
  - Any product of a classified category gain the features defined for all classification categories above it in the hierarchy
- Classification systems are handled via classification catalogs, fully independent of product catalogs
- Multi-classification is supported
  - Any category can be assigned to 0, 1 or many classification categories



Product features vs Product attributes

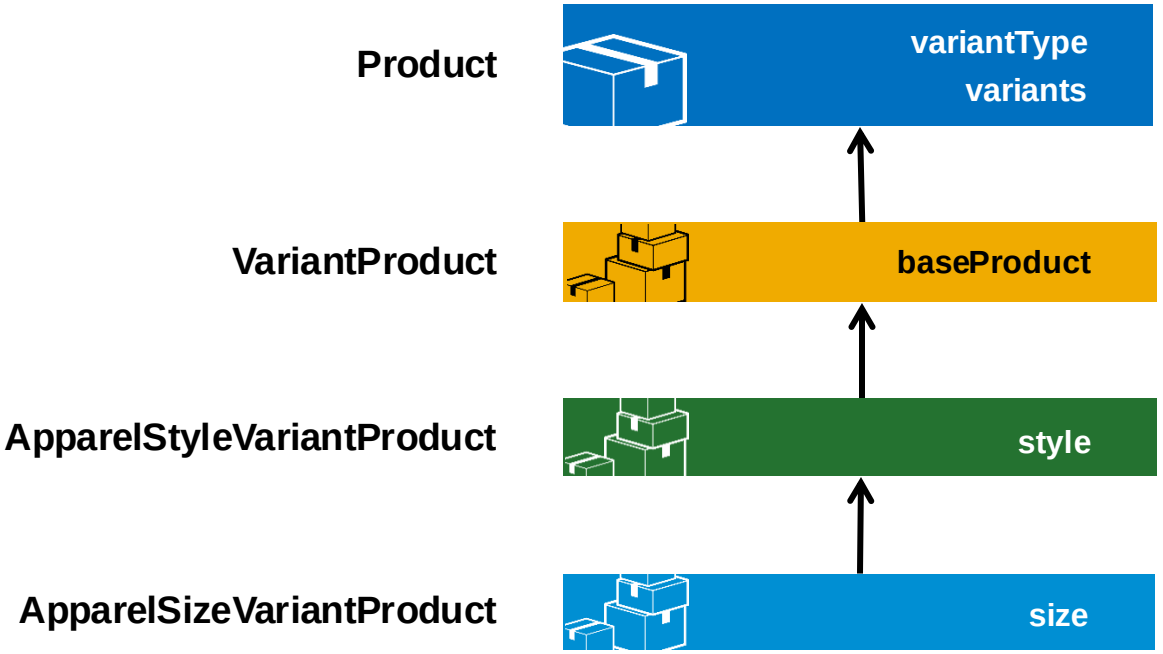
- **Product features (aka Class attributes)**
  - Created from Classification System (of Classification Categories)
  - Dynamically defined in Backoffice – no ant build or system update is involved
  - Cost in terms of performance and scalability (implemented via complex set of relations)
  - Not easily accessible via FlexibleSearch (dynamic definitions not “knowable” at build time)
  - Accessible through navigating SAP Commerce Cloud API
  - Should be used for situations where
    - the attributes change frequently,
    - or for attributes that are shared only by a small range of products,
    - or for properties that are only used for visual presentation and not by any business logic.

- **Product attributes**
  - Defined in `*-items.xml` file
  - Statically defined, and ”known" at build time
  - More efficient and simpler, usable for queries and business logic,
    but changes require build, restart, and deployment
  - Should be used for attributes that always belong to most items (e.g. height, width) or for attributes that are Item references (e.g., reference to Media)

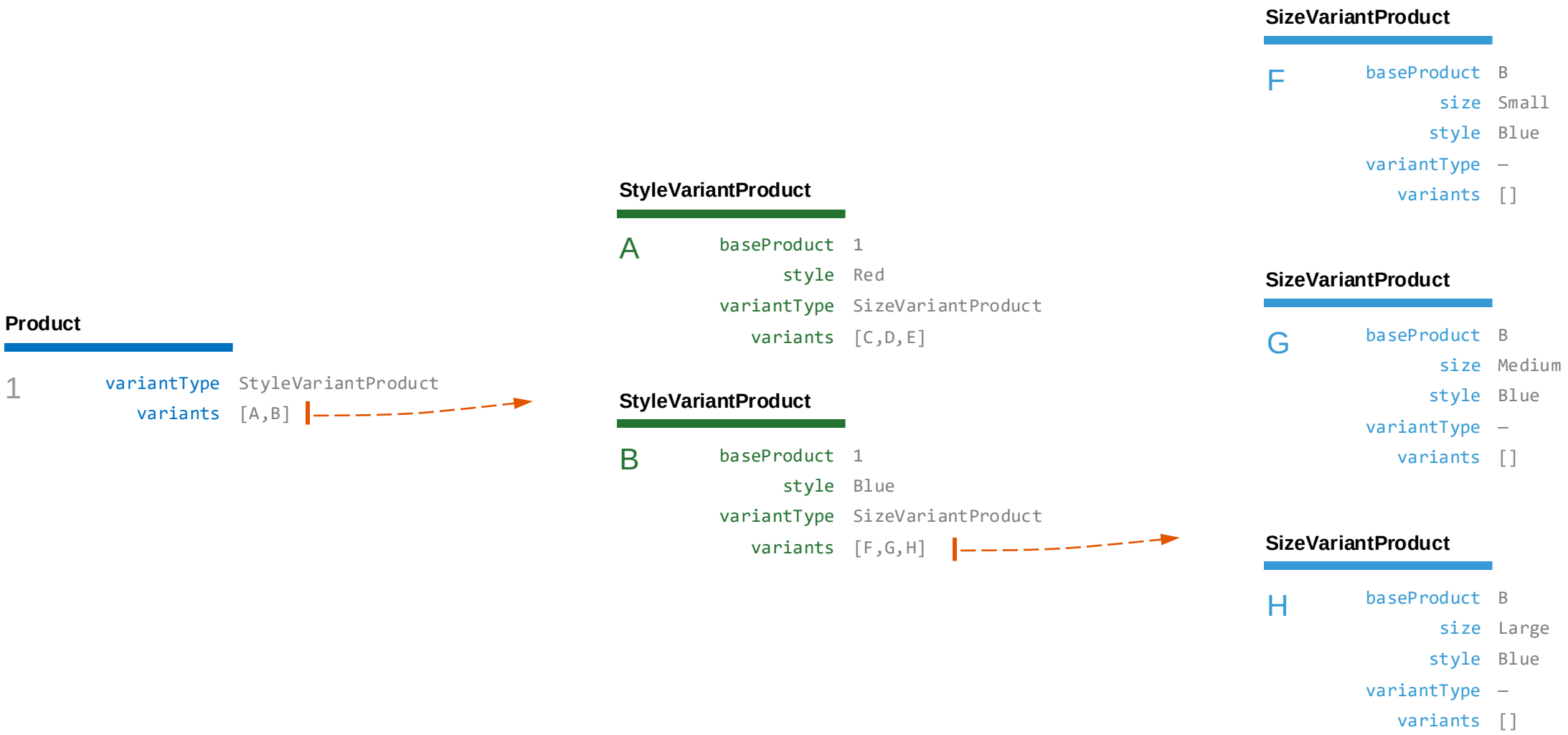
Product Variants

Product Variants Model

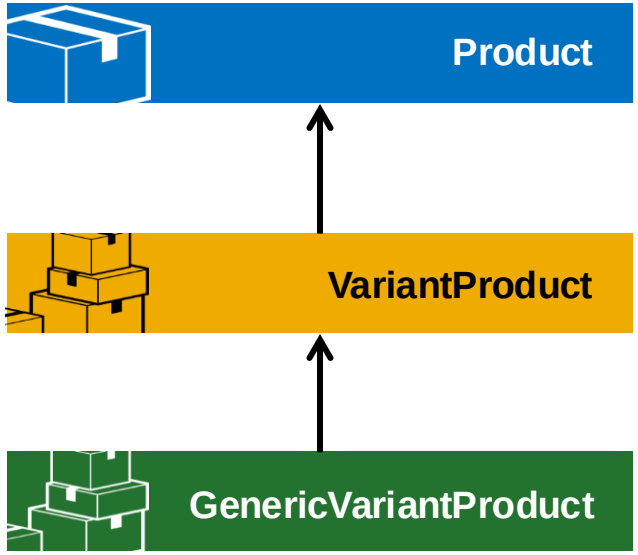
- Variants are products that differ in some aspects but are based on same model. For example, color or size are variants of a base product which is a T-shirt

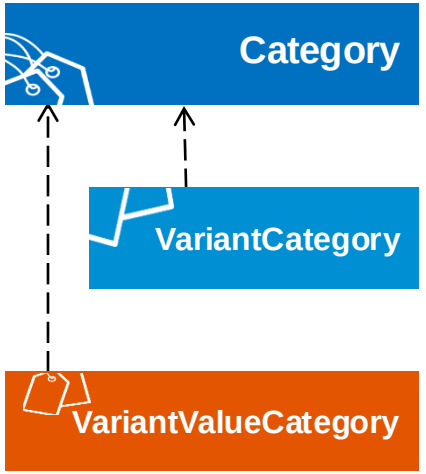


Basic Variant Products • Structure

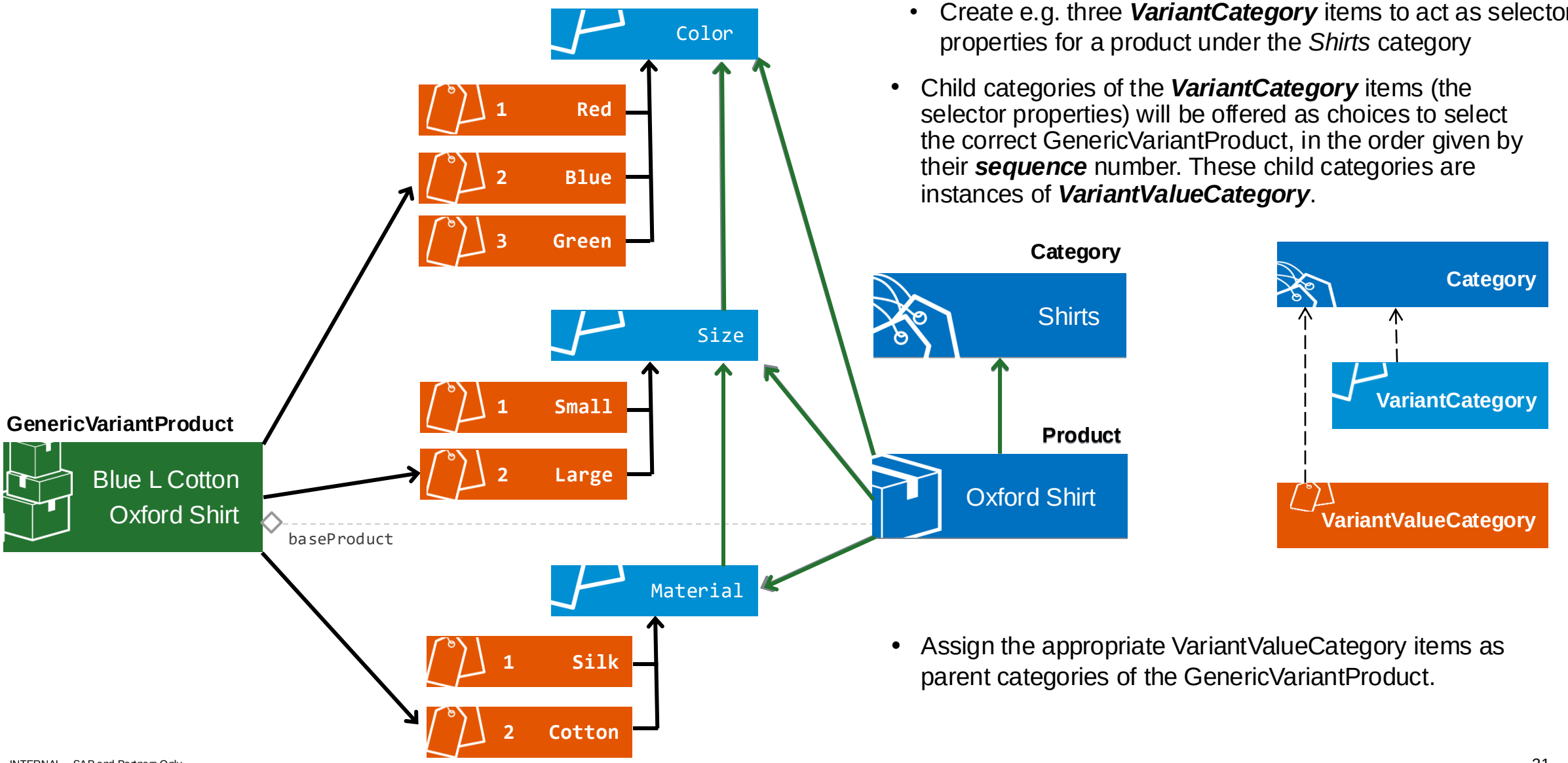


Multi-dimensional Product Variants





Multi-dimensional Product Variants • 2



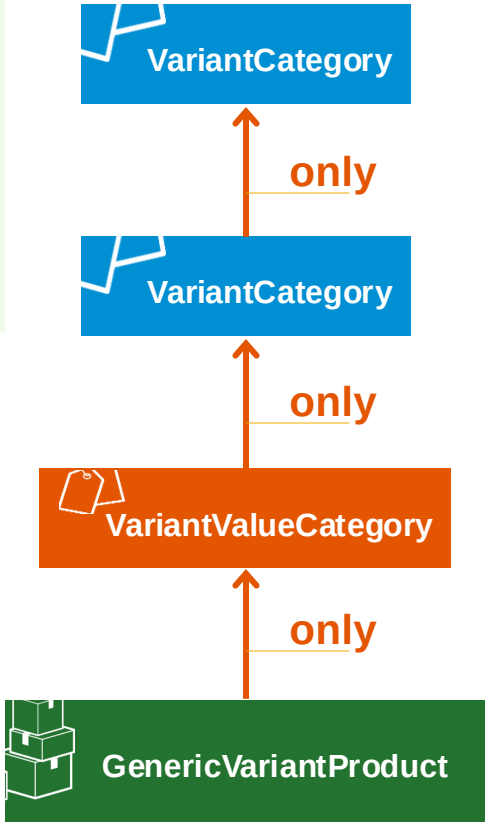
- Create e.g. three ***VariantCategory*** items to act as selector properties for a product under the *Shirts* category
- Child categories of the ***VariantCategory*** items (the selector properties) will be offered as choices to select the correct GenericVariantProduct, in the order given by their ***sequence*** number. These child categories are instances of ***VariantValueCategory***.

- Assign the appropriate VariantValueCategory items as parent categories of the GenericVariantProduct.

How to Create Multi-dimensional Product Variants

Allowed Super and Sub categories

- Super categories of **VariantCategory** must be of type VariantCategory - or null.
  Sub categories of **VariantCategory** must be of type VariantCategory or VariantValueCategory
- Super categories of **VariantValueCategory** must be of type VariantCategory
- Super categories of **GenericVariantProduct** must be of type VariantValueCategory



3 essential steps

1 Creating Variant Categories

2 Creating Variant Value Categories

3 Creating multi-dimensional Products

Demo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R200 BIKe 4s
596.34
M500 BIKE
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References

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- Synchronization
  https://help.sap.com/docs/SAP_COMMERCE_CLOUD_PUBLIC_CLOUD/aa417173fe4a4ba5a473c93eb730a417/8c6a38118669101481bdf1303d70949e.html
- Product Modeling
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- Classification
  https://help.sap.com/docs/SAP_COMMERCE_CLOUD_PUBLIC_CLOUD/aa417173fe4a4ba5a473c93eb730a417/8b7aa49c86691014ae51c3b0d38cd87b.html
- Product Variants
  https://help.sap.com/docs/SAP_COMMERCE_CLOUD_PUBLIC_CLOUD/aa417173fe4a4ba5a473c93eb730a417/8c143a2d8669101485208999541c383b.html
- Multi-Dimensional Product Variants
  https://help.sap.com/docs/SAP_COMMERCE_CLOUD_PUBLIC_CLOUD/7e47d40a176d48ba914b50957d003804/8b6010418669101493e8e0f2ffcfbb89.html

Key Points

- Basic PCM elements: **Catalog, Catalog Version, Category and Products.**
- Different product modeling **OOTB**: type system-based, product variants, multi-dimensional product variants, classification, and configurable products.
- **Classification** uses a special catalog whose categories (called classifying categories) can contain attributes (also called features)
  - Classification is used in situations where the attributes themselves change frequently.
  - Classification is the most **flexible** way to model products, but at the expense of **performance**.
- **Variants** are products that **differ** in **some** aspects but are based on the same **base product**.
  - There are the **basic product variants** and the more flexible **multi-dimensional product variants**.
- **Configurable products** are covered in a live session "SAP Commerce Cloud – Additional Technical Essentials"

Product Modeling Exercise

Thank you.