

Search and Navigation

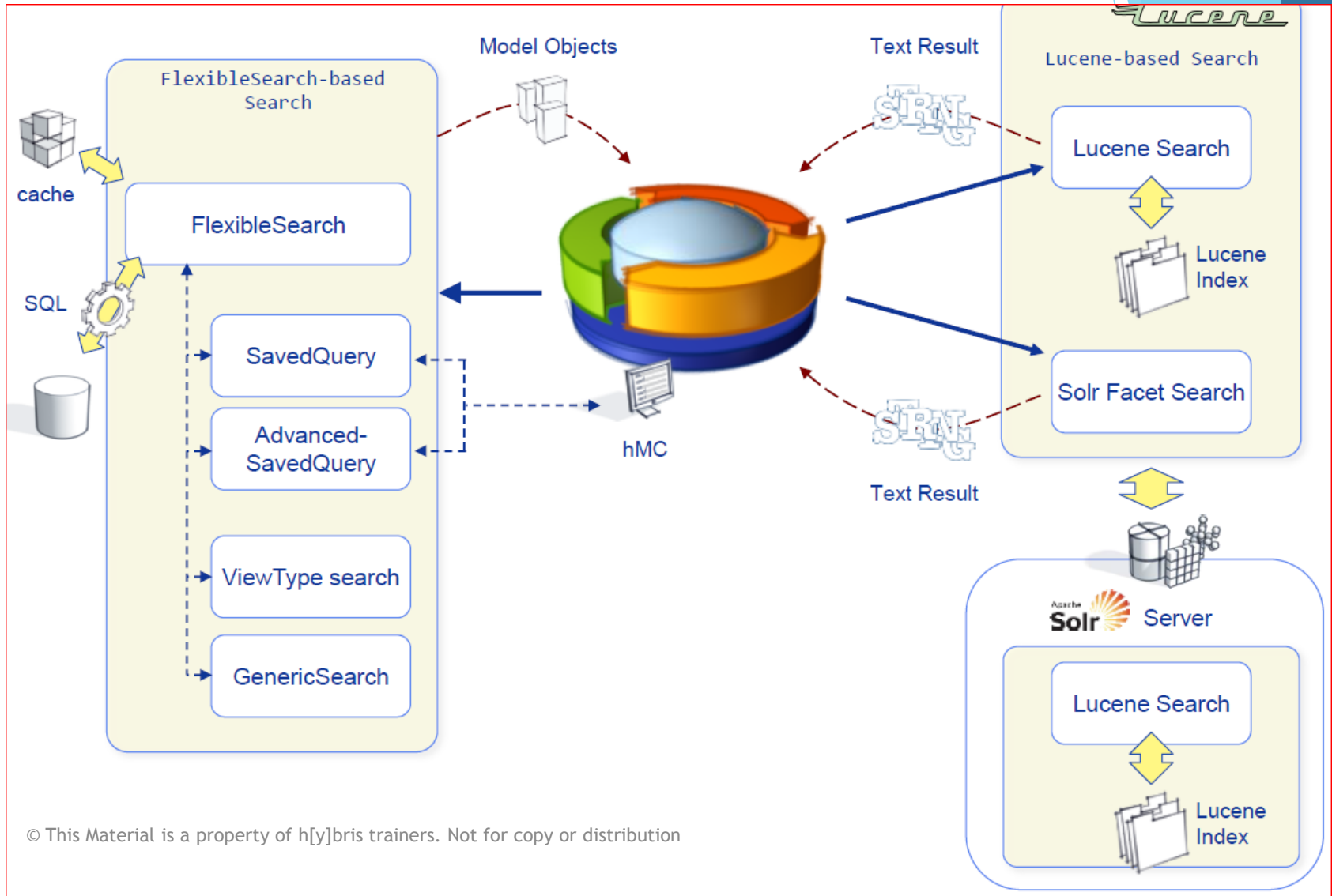
MODULE - 04

Contents

► Overview

- Indexing
- Searching
- Commerce Search
- Server setup

hybris Search mechanisms



What is Facet Search?

→ facet represents a distinct feature

→ facet is a way in which a resource can be classified

→ Independent from catalog structure



hybris Search & Navigation



4.5.0 (in hybris 5.1.0)

Extensionname	Content
<code>solrfacetsearch</code>	Solr core functionality
<code>commercesearch</code>	Searchandizing functionality
<code>commercesearchbackoffice</code>	Backoffice perspective
<code>solrfacetsearchhmc</code>	hMC module
<code>commercesearchhmc</code>	hMC module
<code>commerceservices</code>	Additions to core <code>solrfacetsearch</code>
<code>commercefacades</code>	Search facades

Key Features

- Natural Language Search
- Configurable Faceting
- Searchandizing
 - Hero Products
 - Boost Rules
 - Keyword Redirects
- Sorting and Ranking
- Synonyms and Stop Words
- Autocomplete Suggestions and Spell Checking
- Extensible API

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- ▶ **Indexing**

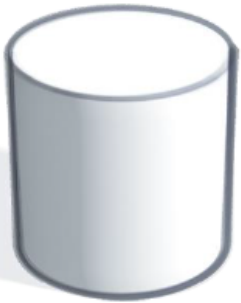
- ▶ Searching

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- ▶ Server setup

Indexing

hybris type system

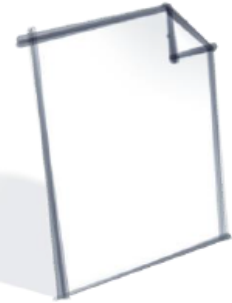


extract

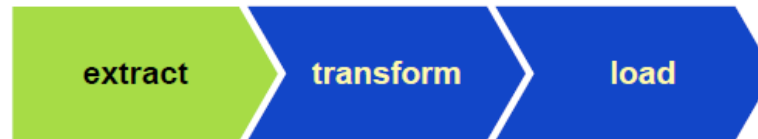
transform

load

Solr Index



Indexing: Extraction with Flexible Search



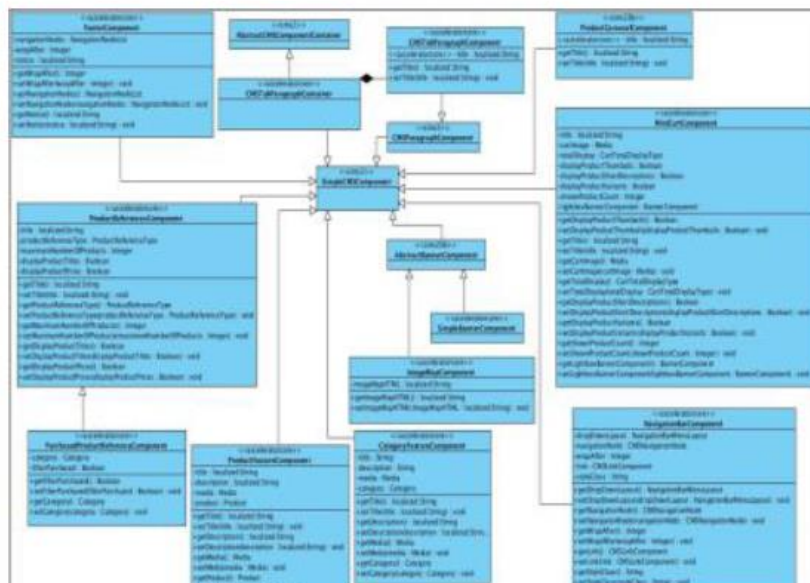
```
SELECT {p:PK}  
FROM {Product AS p} WHERE  
{p:modifiedtime} >= ?lastIndexTime
```

Indexing: De-Normalizing the Data

extract

transform

load



```
<doc>
  <arr name="allCategories_string_mv">...</arr>
  <arr name="brandName_text_de_mv">...</arr>
  <arr name="brandName_text_en_mv">
    <str>Toko</str>
    <str>Brands</str>
  </arr>
  <arr name="brand_string_mv">
    <str>Toko</str>
    <str>brands</str>
  </arr>
  <str name="catalogId">apparelProductCatalog</str>
  <str name="catalogVersion">Online</str>
  <arr name="categoryName_text_de_mv">...</arr>
  <arr name="categoryName_text_en_mv">...</arr>
  <arr name="categoryPath_string_mv">
    <str>/categories/others/skigear</str>
    <str>/categories</str>
    <str>/brands/Toko</str>
    <str>/categories/others</str>
    <str>/brands</str>
  </arr>
  <arr name="category_string_mv">
    <str>skigear</str>
    <str>categories</str>
    <str>others</str>
  </arr>
  <str name="code_string">45574</str>
  <str name="ean_string">815087779</str>
  <str name="id">apparelProductCatalog/Online/45574</str>
  <str name="img-300Wx300H_string">...</str>


```

Indexing: Solr indexed properties



Indexed types

Identifier:

Composed Type: 

Index name:

Properties:

	Name	Type	Facet	Multi-value	Use for spell check	Use for auto-compl
<input type="checkbox"/>	<input type="text" value="itemtype"/>	<input type="text" value="string"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="text" value="code"/>	<input type="text" value="string"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="text" value="name"/>	<input type="text" value="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="text" value="description"/>	<input type="text" value="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="text" value="summary"/>	<input type="text" value="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

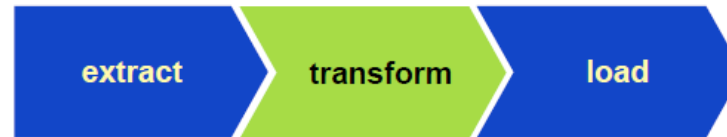
➔ Only configured properties are written into the index

Indexing: Data Transformation with Value Providers



```
/* 🐛 */  
public interface FieldValueProvider  
{  
  
    /* 🐛 */  
    Collection<FieldValue> getFieldValues(IndexConfig indexConfig,  
                                          IndexedProperty indexedProperty,  
                                          Object model)  
        throws FieldValueProviderException;  
}
```

Indexing: Multi Language



```
<arr name="brandName_text_en_mv">
```

data type language mutli-valued

Indexing: SOLR Analyzers & Filters



```
<fieldType name="text" class="solr.TextField"
  positionIncrementGap="100">
  <analyzer type="index">
    <tokenizer class="solr.WhitespaceTokenizerFactory" />
    <filter class="solr.StopFilterFactory" ignoreCase="true"
      words="solr/embedded/conf/stopwords.txt" enablePositionIncrements="true" />
    <filter class="de.hybris.platform.solrfacetsearch.ysolr.synonyms.HybrisSynonymFilterFactory"
      ignoreCase="true" coreName="${solr.core.name}" />
    <filter class="solr.WordDelimiterFilterFactory"
      generateWordParts="1" generateNumberParts="1" catenateWords="1"
      catenateNumbers="1" catenateAll="0" splitOnCaseChange="1" />
    <filter class="solr.LowerCaseFilterFactory" />
    <filter class="solr.SnowballPorterFilterFactory" language="English"
      protected="solr/embedded/conf/protwords.txt" />
  </analyzer>
```

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Searching

FASHIONSTORE
b2c COMMERCE ACCELERATOR

[Login/Register](#) | [Your Account](#) | Call us: +44 (0)20 / 7429 4175 | [Find a Store](#) | [your shopping bag](#) 0 **£0.00**

[Brands](#) | [Streetwear](#) | [Snow](#) | [Surf](#) | [Accessories](#) | [Youth](#) | [Special Offers](#)

HOME > **STRYBAL**

REFINEMENTS

SHOP BY STORES

[Change Location](#)

Results for: london

☐ London School (14)

☐ London Theater (14)

☐ London Hyde Park (14)

☐ London Greenwich Park (14)

☐ London Hospital (16)

▶ more stores...

SHOP BY CATEGORY

[Clothes \(12\)](#)

[Skirts and Dresses women \(12\)](#)

[T-Shirts \(12\)](#)

▶ more categories...

SHOP BY COLLECTION

[Surf \(12\)](#)

[T-Shirts \(12\)](#)


[T-Shirts women \(12\)](#)

buy online and save

Look out for huge savings across our store


You searched for "strybal"

24 Products found Sort by: Relevance 1 2 > [Show all](#)




Strybal Dress Women black L **£44.51**

[Pick Up in Store](#) [Add to Bag](#)



Strybal Dress Women black S **£44.51**

[Pick Up in Store](#) [Add to Bag](#)



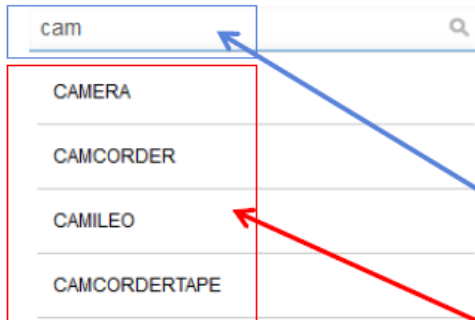
Strybal Dress Women black XS **£44.51**

[Pick Up in Store](#) [Add to Bag](#)

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Configurable Search Box Component

Website



cam

- CAMERA
- CAMCORDER
- CAMILEO
- CAMCORDERTAPE

	Mini T-Cam	\$34.53
	DC Car Battery Adapter	\$179.93
	Battery Charger 4xAA/AAA	\$7.61
	Battery Charger 2xAA/AAA	\$13.88

CMS Cockpit



Header links

Search Box

Search Box

Free text search box

Suggestions

As you type results

Content Editor: Search Box - ELE-S

Display Suggestions: ☒ yes ☐ no

Max Suggestions: 6

Display Products: ☒ yes ☐ no

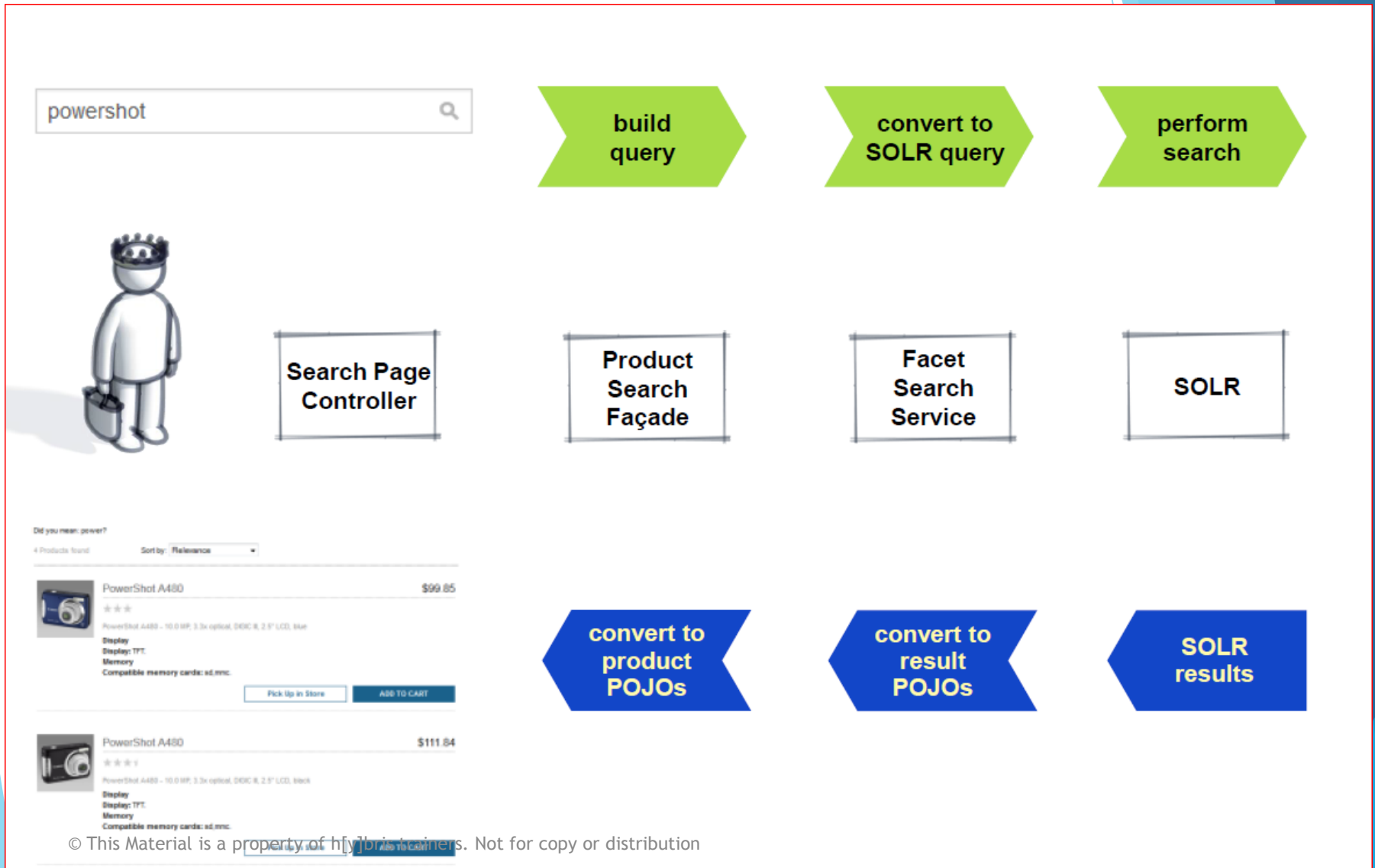
Max Products: 4

Display Product Images: ☒ yes ☐ no

Min Characters Before Request: 3

Wait Time Before Request: 100

The Search Lifecycle



The Search Lifecycle - Customizing Search

powershot 

build
query

convert to
SOLR query

perform
search

Spring-Customizable Query Builder
in `commerceservices`

The Search Lifecycle - Customizing Search

powershot

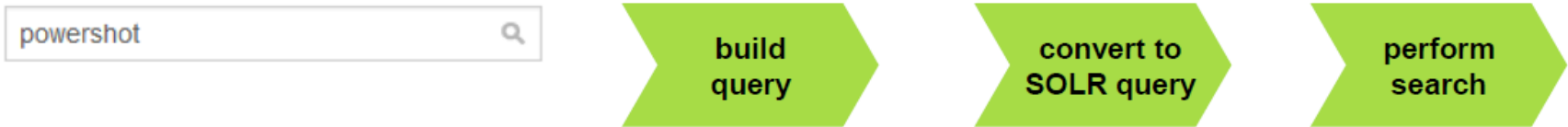
build
query

convert to
SOLR query

perform
search

Custom query post processors
Interchangeable query converter

The Search Lifecycle - Search




```
q=(ean_string:(shoe*^101.0 OR shoe^101.4)) OR (code_string:(shoe*^91.0  
OR shoe^91.4)) OR (name_text_en:(shoe*^51.2 OR shoe~^51.0  
OR shoe^51.4)) OR (manufacturerName_text:(shoe^41.4 OR shoe~^41.0  
OR shoe*^41.2)) OR (keywords_text_en:(shoe^21.4 OR shoe*^21.2 OR  
shoe~^21.0)) OR (categoryName_text_en_mv:(shoe^11.4 OR shoe~^11.0  
OR shoe*^11.2))&fq=(catalogId:"apparelContentCatalog")&fq=  
(catalogVersion:Online)&start=0&rows=20&facet=true  
&sort=name_sortable_en_sortabletext asc,score desc  
&facet.mincount=1&facet.limit=50&facet.sort=count
```

The Search Lifecycle - Search Result

Custom result post processors

Did you mean: power?

4 Products found Sort by: Relevance




PowerShot A480 \$99.85

★★★★

PowerShot A480 - 10.0 MP, 3.3x optical, DIGITAL, 2.5" LCD, blue

Display: TFT
Memory: Compatible memory cards: sd, mmc

[Pick Up in Store](#) [ADD TO CART](#)



PowerShot A480 \$111.84

★★★★

PowerShot A480 - 10.0 MP, 3.3x optical, DIGITAL, 2.5" LCD, black

Display: TFT
Memory: Compatible memory cards: sd, mmc

[Pick Up in Store](#) [ADD TO CART](#)

convert to
product
POJOs

convert to
result
POJOs

SOLR
results

The Search Lifecycle - Search Result

Customizable using
Converters and Populators

Did you mean: power?

4 Products found

Sort by: Relevance



PowerShot A480

\$99.85

☆☆☆

PowerShot A480 - 10.0 MP, 3.3x optical, DIGITAL, 2.5" LCD, blue

Display:

Display: TFT

Memory:

Compatible memory cards: sd,mmc

Pick Up in Store

ADD TO CART

convert to
product
POJOs

convert to
result
POJOs

SOLR
results



PowerShot A480

\$111.84

☆☆☆

PowerShot A480 - 10.0 MP, 3.3x optical, DIGITAL, 2.5" LCD, black

Display:

Display: TFT

Memory:

Compatible memory cards: sd,mmc

Pick Up in Store

ADD TO CART

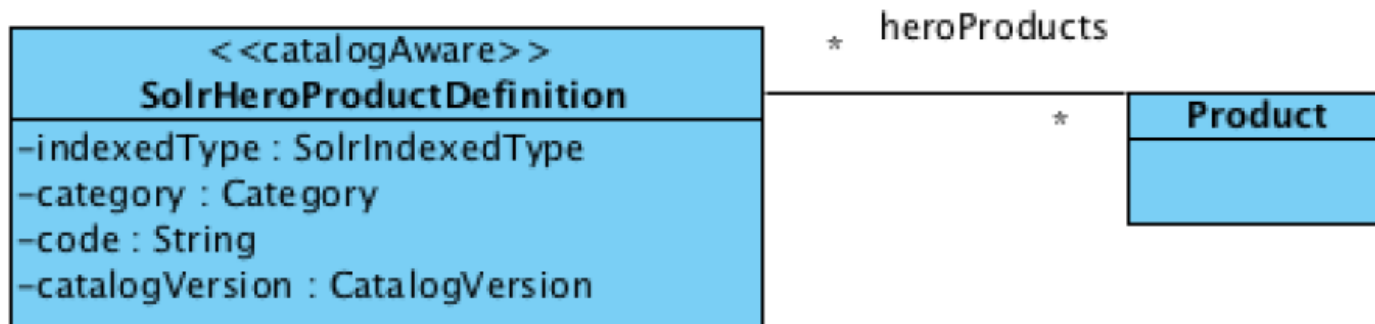
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Hero Products

- Manageable top result products on category level
- Backoffice
- Service layer
 - SolrHeroProductDefinitionDao
 - SolrHeroProductFacade



Commercesearchbackoffice

→ Hero Products for a selected category

The screenshot displays the Commerce Search Backoffice interface. On the left, there is a sidebar with 'CATEGORIES' and 'FACETS'. The 'CATEGORIES' section includes 'Global', 'Open Catalogue', 'Components', 'Data storage', 'Cameras' (highlighted), 'Binoculars', and 'Brands'. The 'FACETS' section includes 'Price', 'Stores', 'Category', 'Lens Type', and 'Megapixels'. The main area shows search results for 'Global / Open Catalogue / Cameras'. The results list includes:

- FUN Flash Single Use Camera, 27+12 pic**
An Easy Way to Capture Great Indoor and Outdoor Memories
\$3.45
- Cyber-shot W55**
Cyber-shot W55, 7.2 effective megapixels, 2.5-inch LCD, 3x optical zoom 6x digital zoom up to 14x smart zoom
\$202.00
- DIGITAL CAMERA EASYSHARE C875**
EASYSHARE C875 Zoom Digital Camera, 8 MP, 2.5" LCD
\$227.24
- Flagship tripod with remote control and pan handle**
Flagship tripod with remote control and pan handle – designed for professionals!
\$580.38
- Camcordertape DV 60min (2)**
MiniDV Premium Tape - 60 min. Blister of 2. Bringing you exceptional picture quality, great resistance and excellent value for money, MiniDV Premium is an ideal tape for everyday use.
\$8.00

Boost Rules

- ➔ Boosting products on the search results
 - ➔ In stock products should be shown first
 - ➔ Cameras in brand Nikon are favored
- ➔ Enabled or disabled on SolrSort
- ➔ Configured on IndexedProperty

Boost Settings

Operator:	<input type="text" value="EQUAL_TO"/>	Property Value:	<input type="text" value="brand_10"/>						
Boost Factor:	<input type="text" value="20"/>	Indexed Property:	<input type="text" value="brand - string - Yes - n/a"/>						
Search Profiles:	<table><thead><tr><th></th><th>Code</th><th>Indexed Type</th></tr></thead><tbody><tr><td><input checked="" type="checkbox"/></td><td><input type="text" value="digitalcameras-srch-profile"/></td><td>electronicsProductType - Product</td></tr></tbody></table>				Code	Indexed Type	<input checked="" type="checkbox"/>	<input type="text" value="digitalcameras-srch-profile"/>	electronicsProductType - Product
	Code	Indexed Type							
<input checked="" type="checkbox"/>	<input type="text" value="digitalcameras-srch-profile"/>	electronicsProductType - Product							

Boost Rules - Operators and SolrSearchProfile

Numeral properties

String (not working with Solr Text fields)

EQUAL_TO

LESS_THAN

GREATER_THAN

CONTAINS

Boost Settings

Operator:

EQUAL_TO

Boost Factor:

20

Search Profiles:

	Code	Indexed Type
<input checked="" type="checkbox"/>	digitalcameras-srch-profile	electronicsProductType - Product

Property Value:

brand_10

Indexed Property:

brand - string - Yes - n/a



- ➔ CategorySolrSearchProfile (applicable for a specific category)
- ➔ GlobalSolrSearchProfile (enforced if no category level profile)

Backoffice - Boost Rules

→ Category selection and profile

The screenshot displays a backoffice interface for managing product categories and boost rules. On the left, a 'CATEGORIES' sidebar shows a tree structure with 'Global' expanded, leading to 'Open Catalogue', then 'Cameras', and finally 'Digital Cameras' selected. Below this is a 'FACETS' section with 'Price', 'Stores', and 'Category' expandable options. The main content area shows search results for 'Digital Cameras', listing items like 'EOS 40D body' and 'PowerShot A480' with their specifications and prices. On the right, a 'NAVIGATION CONTEXT: STAGED' panel shows settings for 'Store' (Electronics Site), 'Catalog Version' (Staged), 'Language' (English), and 'Keywords' (none). Below this, a 'BOOST RULES' table is visible, showing rules for 'inStockFlag' and 'brand'.

CATEGORIES

- Global
 - Open Catalogue
 - Components
 - Data storage
 - Cameras
 - Film cameras
 - Digital Cameras**
 - Webcams
 - Hand-held Camcorders
 - Camera Accessories & Supplies

FACETS

- Price
- Stores
- Category

Search

RESULTS: 71 Record(s) found for category Global / Open Catalogue / Cameras / Digital Cameras

20 / 4

	EOS 40D body EOS 40D - 10.1 Megapixels/6.5fps/3.0" LCD \$847.74	★
	PowerShot A480 PowerShot A480 - 10.0 MP, 3.3x optical, DIGIC III, 2.5" LCD, blue \$99.85	★
	PowerShot A480 PowerShot A480 - 10.0 MP, 3.3x optical, DIGIC III, 2.5" LCD, black \$111.84	★
	PowerShot A480 PowerShot A480 - 10.0 MP, 3.3x optical, DIGIC III, 2.5" LCD, silver \$110.88	★
	EOS 500D + 18-200mm IS EOS 500D + 18-200mm IS - 15.1 MP CMOS, Full HD (1080p), 3.4fps, 3.0" Clear View LCD, DIGIC 4, 9-point AF \$1,066.18	★

NAVIGATION CONTEXT: STAGED

Store: Electronics Site

Catalog Version: Staged

Language: English

Keywords: (none)

Category: Global / Open Catalogue / Cameras / Digital Cameras

BOOST RULES

Property Name	Operator	Property Value	Boost
inStockFlag	EQUAL_TO	true	100
brand	EQUAL_TO	brand_10	20

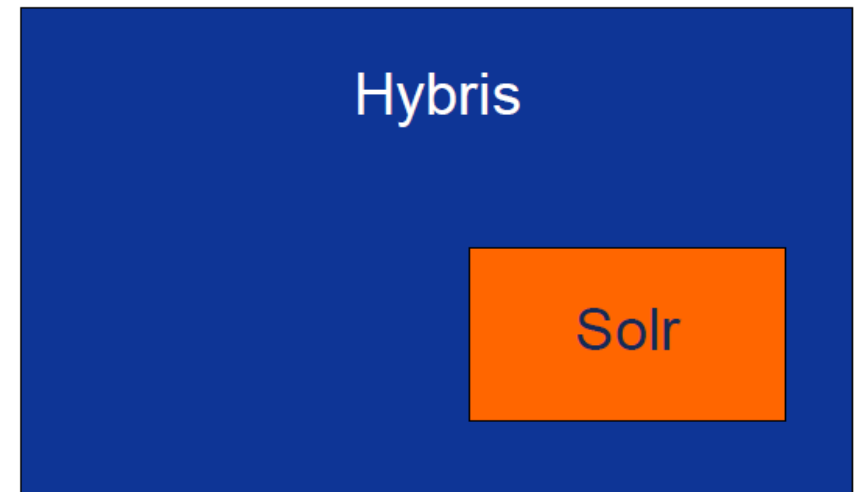
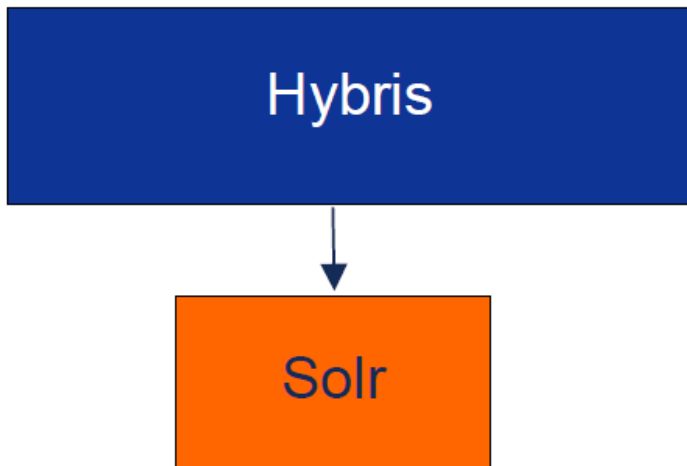
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Solr Operation modes

- Solr runs in own VM
- Might run on own server
- Calls through HTTP

- Solr runs within the hybris platform
- Same VM
- Direct calls to Solr engine



Solr Replication mechanism

- ➔ Multiple Solr instances
- ➔ One master (used for indexing)
- ➔ Many slaves
- ➔ Load balancing

