



commercetools

commerce as a service

Intro to commercetools

Company & Technology Overview

TECHNICAL OVERVIEW

the platform



100 % cloud
headless API provider



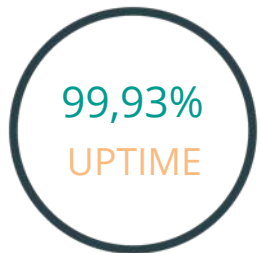
microservices
ready



auto scaling
auto redundancy



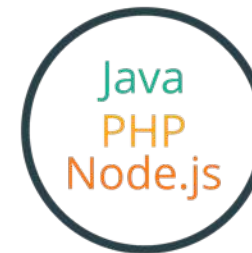
global
reach



highest
availability



unmatched
performance

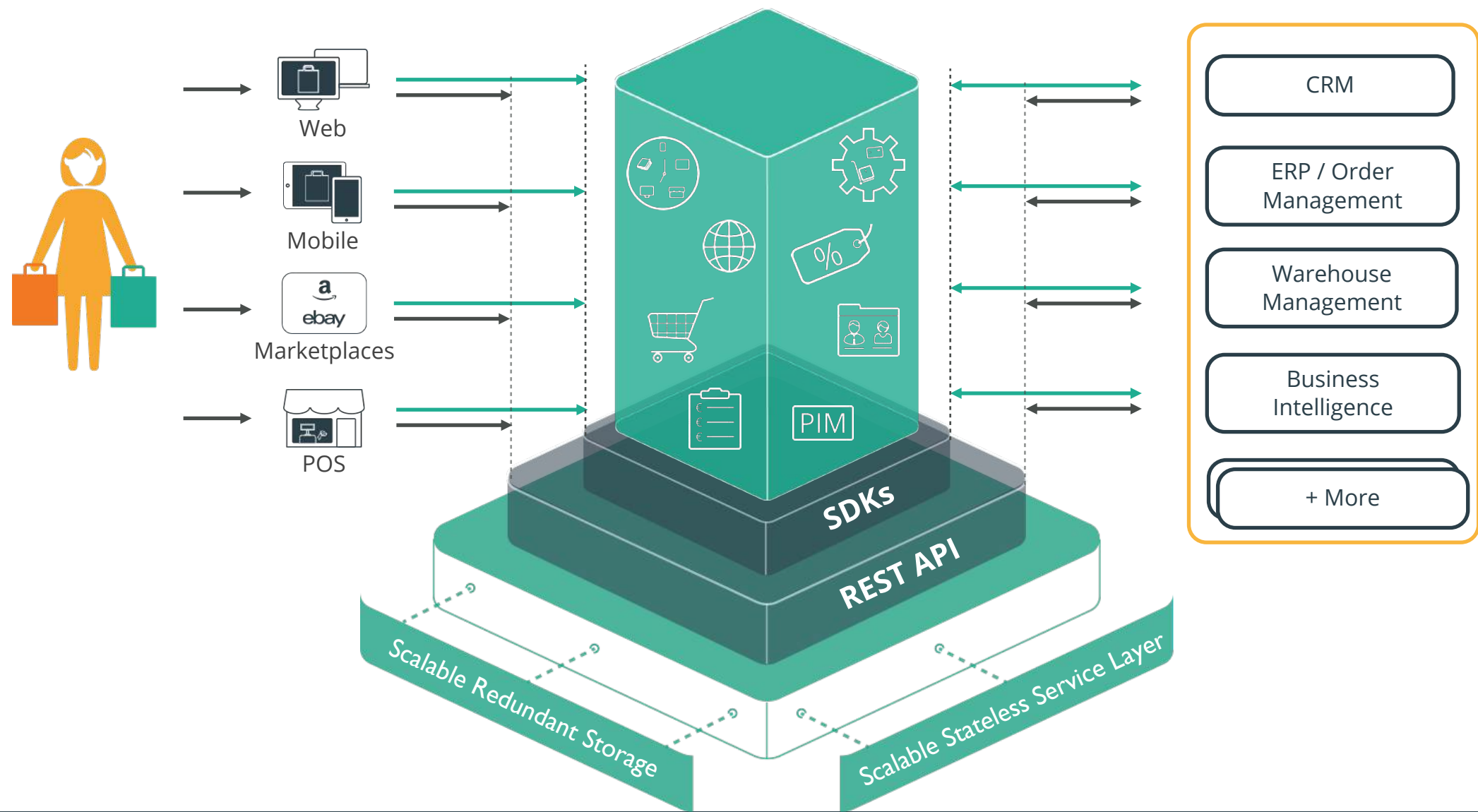


agnostic to
programming
languages

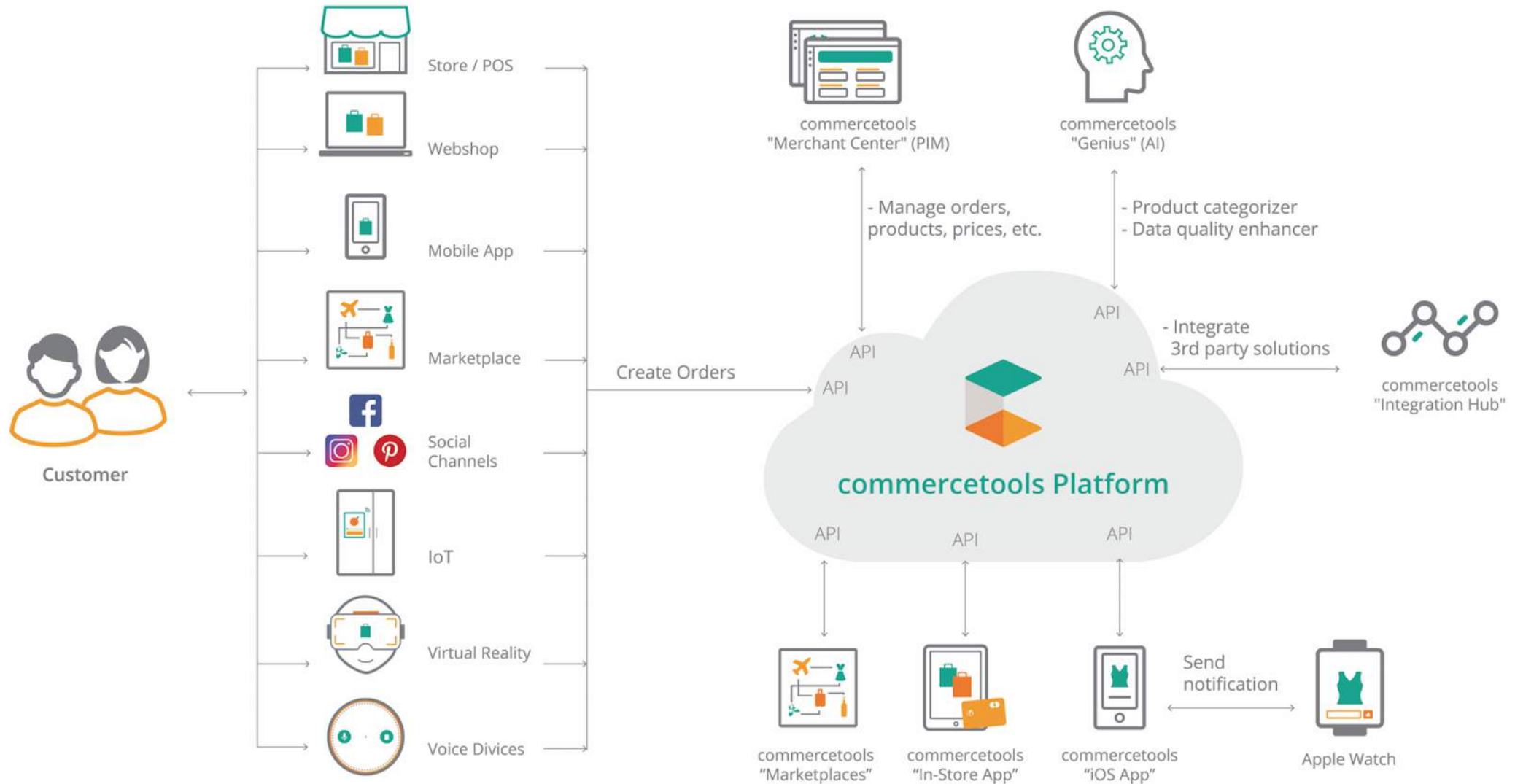


100+ features released
per year, zero downtime

everything is an API client

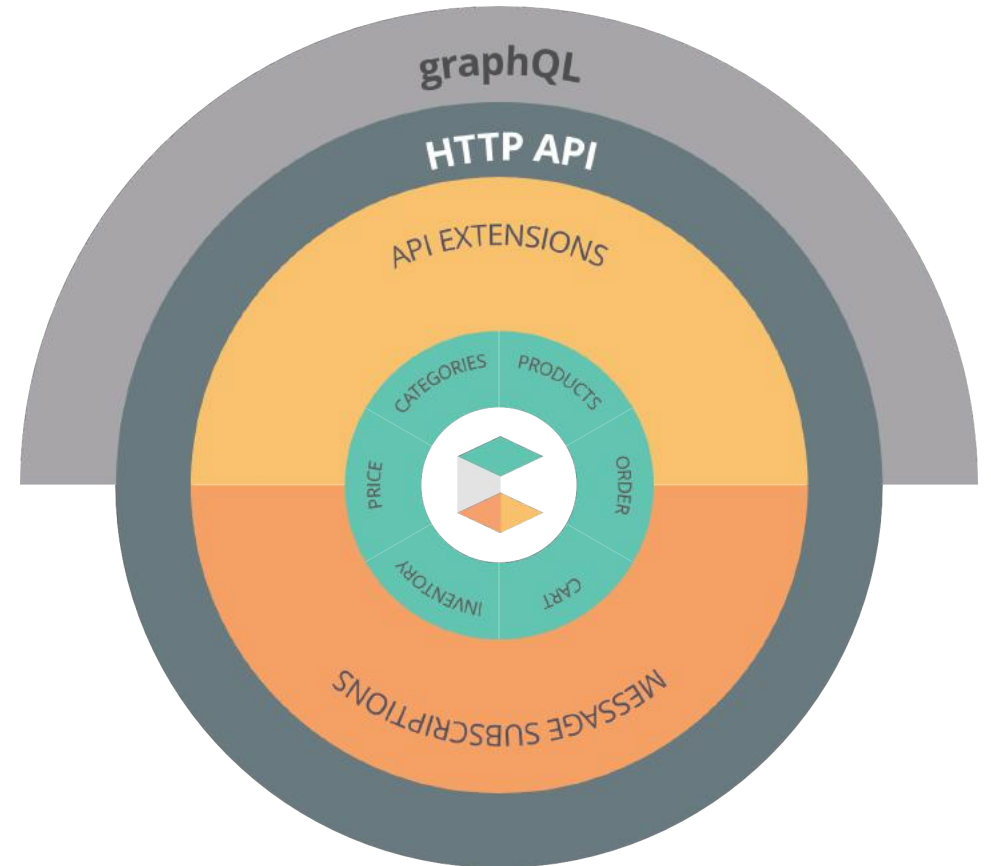


everything is an API client



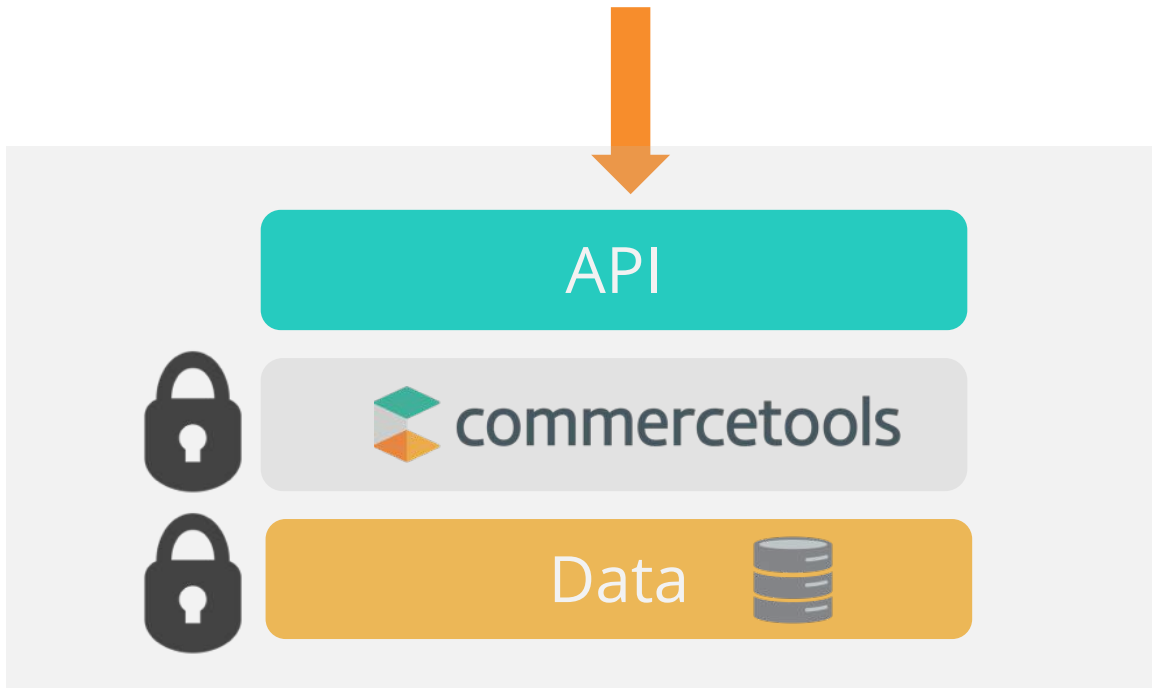
API consumption

- commercetools **APIs are REST based**
- Nearly all of our customers are using our SDKs for integration (iOS Swift, Java, JavaScript, PHP, .NET C#) and we are **focused on building smarter SDKs**.
- We also provide a **GraphQL endpoint**, which focuses on reducing the number of calls required by using a SQL-similar language (most of the entities offer queries and mutations support)

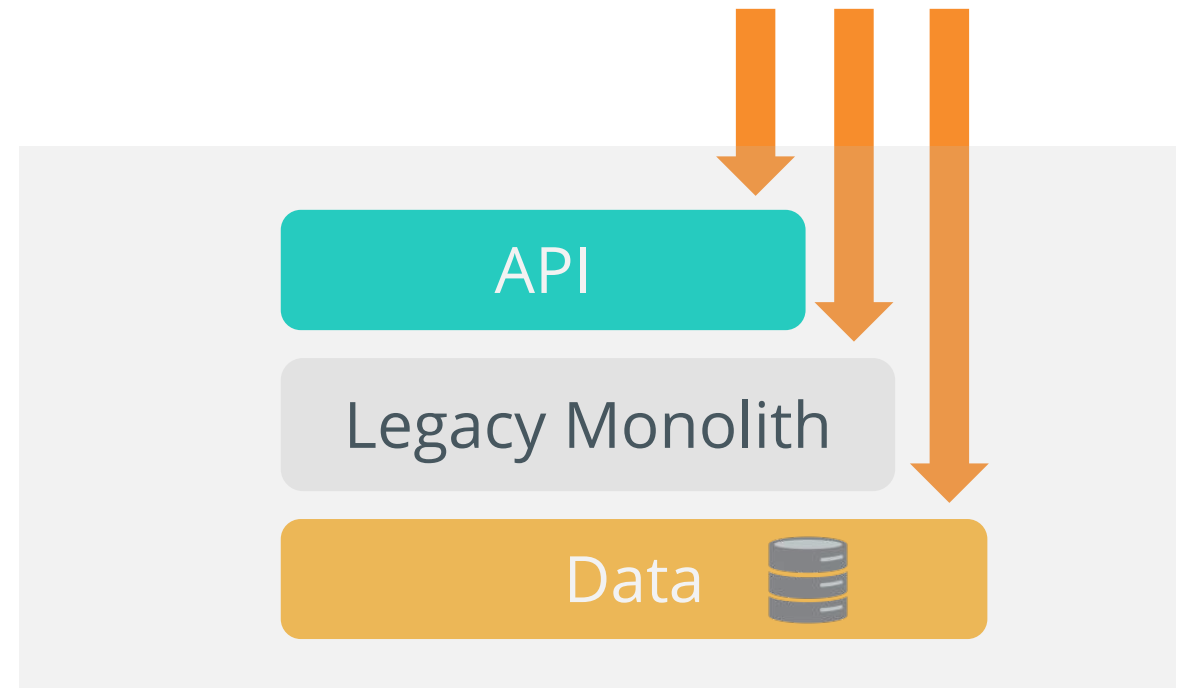


real headless API

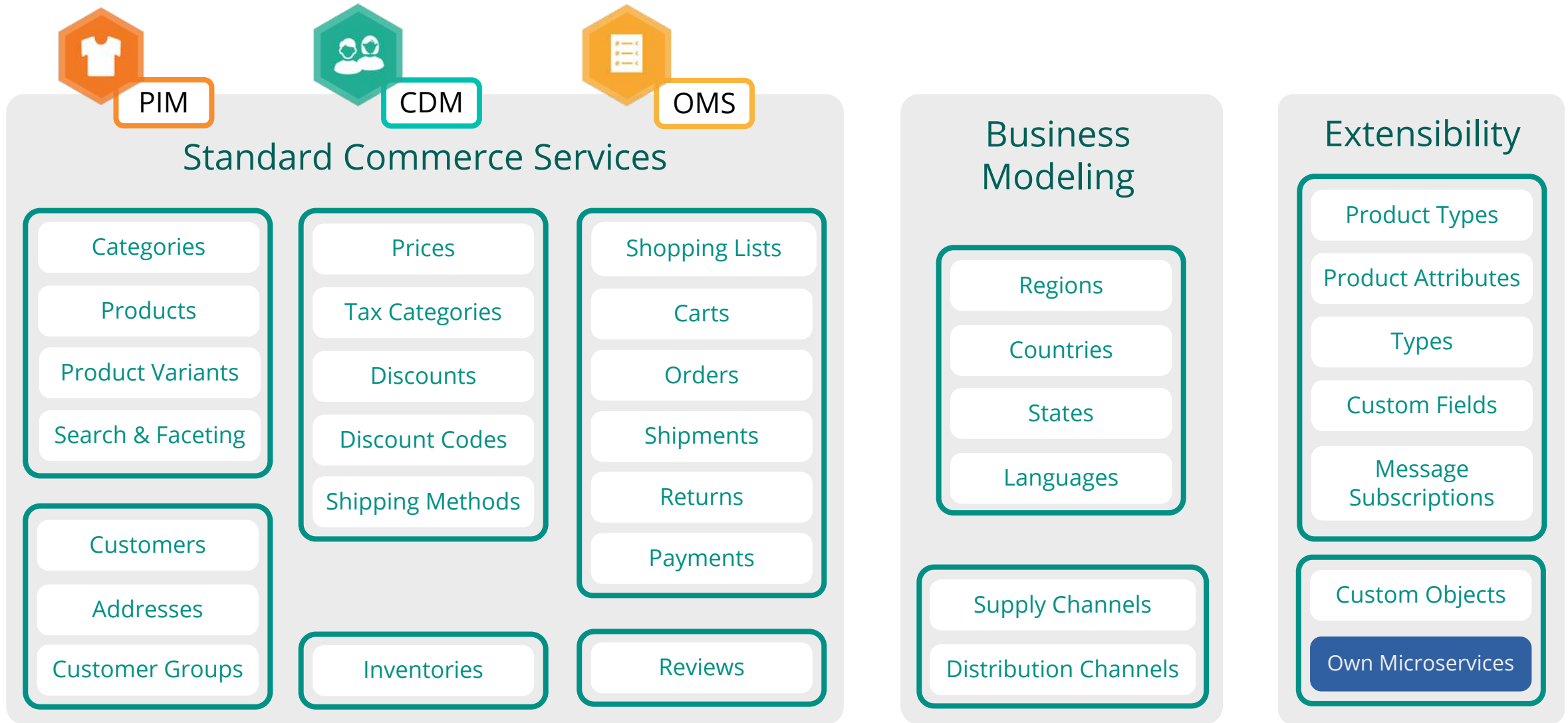
100% feature coverage through APIs - all functionality, import, export, integrations, etc.



APIs were added later, offering **limited coverage** - must often go to app or database directly



microservice functionality



continuous delivery

- Release **changes** as **quickly** as possible
- **No defined release cycles**
- Rather, **Continuous Integration**
- **New features** in **a few hours** and **fix problems** even **faster**.
- Releases include **only non-breaking changes** with the same API version.
 - No values or fields will be changed or deleted in the same API version
 - Every change within the same API version only includes additional information

The screenshot shows the 'Releases' page of the commercetools Platform Documentation. The page is titled 'Releases' and contains a list of release dates and descriptions. The top navigation bar includes links for 'Merchant Center', 'Developer Center', 'IMPEX', and 'Tech Blog'. A search icon is also present. The main content area lists releases starting from 21 February 2019, detailing new limits for products and categories, and lower limits for existing projects. A sidebar on the right lists all release dates from 28 September 2018 to 21 February 2019.

commercetools
Platform Documentation

Merchant Center Developer Center IMPEX Tech Blog

Releases

21 February 2019

Introduced new **limits** for new projects on the commercetools platform for products and categories.

The new limits and their defaults are:

- Product variants per product: 100
- Categories per project: 10000

The following existing limits have been lowered:

- Query maximum **offset**: lowered from 100000 to 10000
- Search maximum **offset**: lowered from 100000 to 10000
- Prices per product variant: lowered from 700 to 100

Projects created before 21/02/2019 are not subject to the new limits listed above.

For newer projects, all of the limits listed above can be increased if needed after we have reviewed the performance impact on your project. To request a limit increase, contact us via the [Support Portal](#), specifying your project region, project key and your use case.

- [API] Introduced new **API Limits**.

21 February 2019

The default value of the **limit** field in the **Similar Products API** search request is now **20**. The maximum allowed value is now **500** for consistency with the rest of the commercetools HTTP API.

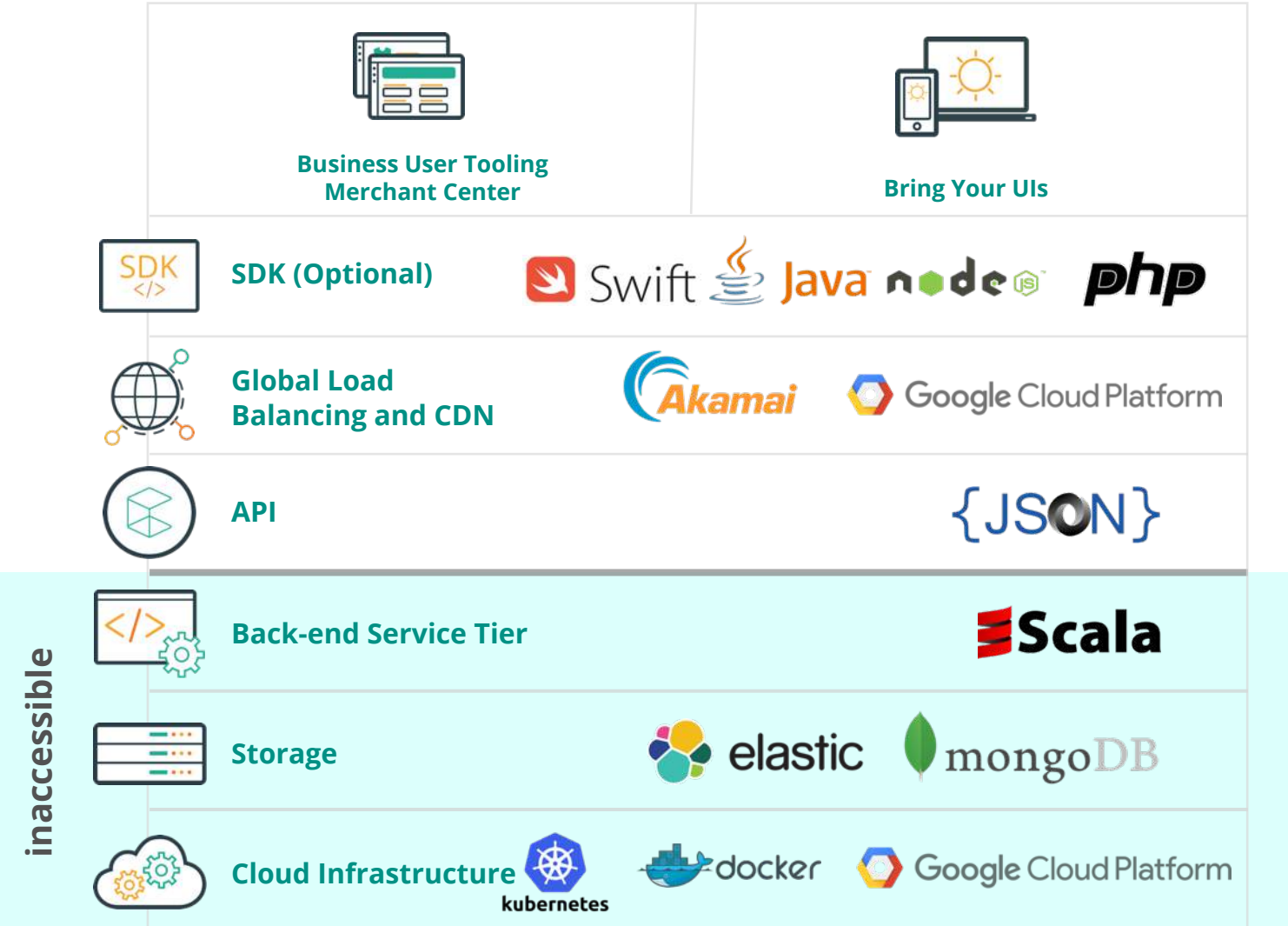
- [API] Changed the default value and value range of **limit** in the **Similar Products API** update action.

Our release process

Releases

- 21 February 2019
- 21 February 2019
- 31 January 2019
- 24 January 2019
- 21 January 2019
- 21 January 2019
- 21 January 2019
- 15 January 2019
- 8 January 2019
- 7 January 2019
- 4 January 2019
- 2 January 2019
- 19 December 2018
- 30 November 2018
- 27 November 2018
- 23 November 2018
- 19 November 2018
- 15 November 2018
- 6 November 2018
- 6 November 2018
- 2 November 2018
- 18 October 2018
- 16 October 2018
- 12 October 2018
- 11 October 2018
- 10 October 2018
- 8 October 2018
- 2 October 2018
- 1 October 2018
- 28 September 2018

tech stack



- Access via **REST APIs, GraphQL APIs or SDKs**
- Real **instance-less, multi-tenancy**
- Horizontally **scalable, distributed** architecture to scale into massive cases (e.g. 10M+ entries)
- Scala & the JVM provide an extremely **robust foundation**
- Huge shared resource pool plus **Google Container Engine** driven Autoscaling for “Black Friday” style peaks
- Best Practice internal Monitoring and Tracing

API DETAILS

REST API compatibility

- HTTP and JSON.
REST level 2
- Defined in **public API Contract**
- We have not yet needed to create a **v2** of an API in over five years – if we do, it's for individual APIs
- Fully typed SDKs (Java etc) released in sync with platform releases using ***semantic versioning***

```
1 GET https://api.sphere.io/v1/project/product-projections/search?text=audi
2
3 {
4   "offset": 0,
5   "count": 20,
6   "total": 100,
7   "results": [{
8     "name": "Audi A7 Sportback",
9     "slug": "audi-a7-sportback",
10    "description": "The A7 combines sleek lines with practical design, ...",
11    "id": "a8affa34-d356-4a5c-bf57-39cc57e4f732",
12    "version": 4,
13    "masterVariant": {
14      "id": 1,
15      "prices": [{
16        "value": {
17          "currencyCode": "EUR",
18          "centAmount": 2980000
19        }
20      }],
21      "images": [{
22        "url": "http://example.com/audi-a7.jpg",
23        "dimensions": { "w": 1400, "h": 1400 }
24      }],
25      "attributes": [{ "name": "fuel", "value": "Petrol" }]
26    },
27    "categories": [{ "typeId": "category", "id": "32864dde-43cf-48c9-8c90-dd9d1f2cb016"
28    },
29    "variants": [],
30    "hasStagedChanges": false,
31    "published": true
32  }], ...]
```

REST API tech details

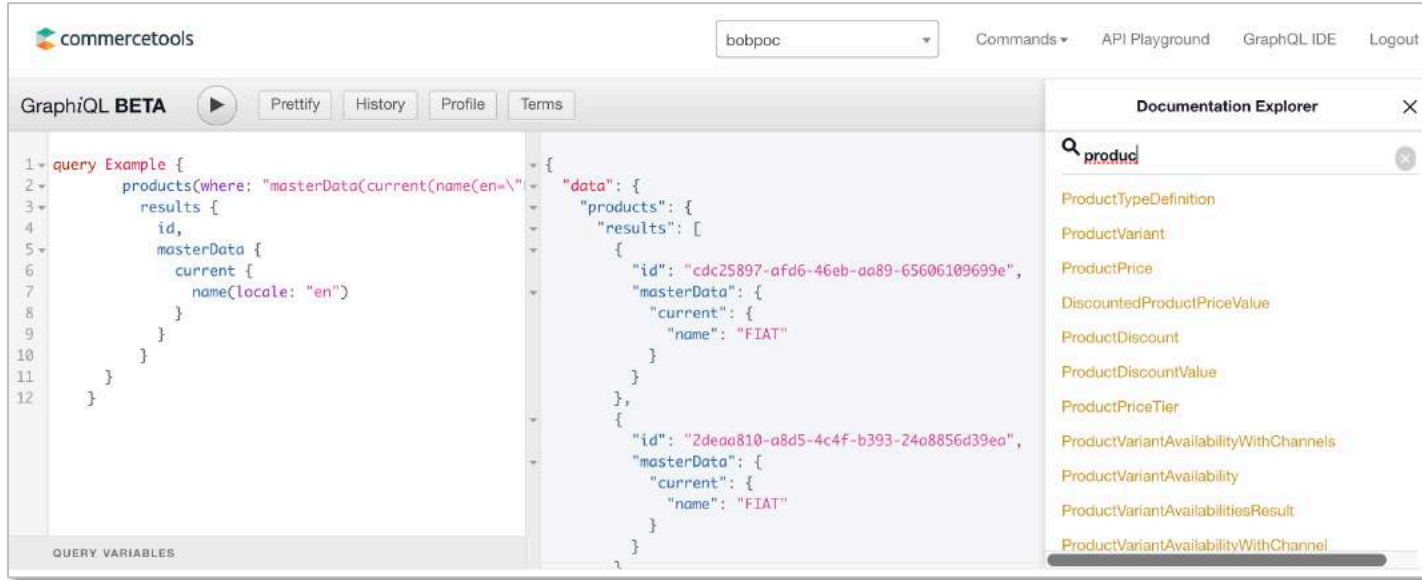
- Document-oriented JSON model
- **OAuth2** client credentials flow (server to API)
- **OAuth2** password flow (end customer to API)
- **Read-After-Write consistency** on same resource
- Eventually consistent on side effects
- Optimistic concurrency control
- Change data via update commands (CQRS)
- Common query DSL & predicates
- **Reference expansion** to minimize API calls
- GraphQL as an alternative for complex calls
- Error Tracing via Correlation Ids (yours and/or ours)

```
1 GET https://api.sphere.io/v1/project/product-projections/search?text=audi
2
3 {
4   "offset": 0,
5   "count": 20,
6   "total": 100,
7   "results": [{
8     "name": "Audi A7 Sportback",
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12    "version": 4,
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16        "value": {
17          "currencyCode": "EUR",
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19        }
20      }],
21      "images": [{
22        "url": "http://example.com/audi-a7.jpg",
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24      }],
25      "attributes": [{ "name": "fuel", "value": "Petrol" }]
26    },
27    "categories": [{ "typeId": "category", "id": "32864dde-43cf-48c9-8c90-dd9d1f2cb016"
28    },
29    "variants": [],
30    "hasStagedChanges": false,
31    "published": true
32  }], ...]
```

REST API security and compliance

- **EU GDPR compliant** contracts and implementation (4/2018)
- Periodic 3rd party penetration tests
- Encrypted storage
- Data segregation between projects
- Encrypted daily backups on physically separate storage
- Using the three physical Availability Zones of the underlying IaaS (cluster replication)

```
1 GET https://api.sphere.io/v1/project/product-projections/search?text=audi
2
3 {
4   "offset": 0,
5   "count": 20,
6   "total": 100,
7   "results": [{
8     "name": "Audi A7 Sportback",
9     "slug": "audi-a7-sportback",
10    "description": "The A7 combines sleek lines with practical design, ...",
11    "id": "a8affa34-d356-4a5c-bf57-39cc57e4f732",
12    "version": 4,
13    "masterVariant": {
14      "id": 1,
15      "prices": [{
16        "value": {
17          "currencyCode": "EUR",
18          "centAmount": 2960000
19        }
20      }],
21      "images": [{
22        "url": "http://example.com/audi-a7.jpg",
23        "dimensions": { "w": 1400, "h": 1400 }
24      }],
25      "attributes": [{ "name": "fuel", "value": "Petrol" }]
26    },
27    "categories": [{ "typeId": "category", "id": "32864dde-43cf-48c9-8c90-dd9d1f2cb016"
28    },
29    "variants": [],
30    "hasStagedChanges": false,
31    "published": true
32  }], ...]
```



- GraphQL is a **query language** for APIs and a runtime for fulfilling those queries
- Added to solve common issues from REST Level 2
 - Over-fetching
 - Under-fetching
 - API Changes

- **Queries and Mutations**

EXTENDING THE PLATFORM

extending the data model

- **Product Types**

- Define additional attributes of products and product variants

- **Custom types**

- Define additional attributes (“fields”) of any non-product resource

- **Custom Objects**

- Store arbitrary JSON data on the commercetools platform

2 attributes

New attribute ▾

Boolean
Text
Text [Localizable]
Enum
Enum [Localizable]
Number
Money
Date
Time
DateTime
Set
Reference Type

New Enum attribute Name (identifier)

ATTRIBUTE LABEL

en

ATTRIBUTE CONSTRAINTS

☒ None : No constraints are applied to this attribute

☐ Unique : This attribute must be unique across all variants

☐ Combination Unique : All attributes with this option (so a combination of them) must be unique across all variants

☐ Same for all : This attribute has the same value across all variants (set on the Master variant)

OTHER ATTRIBUTE OPTIONS

☐ Required : This attribute always needs to have a value.

☒ Searchable : It is possible for applications to search products by this attribute.

Possible values

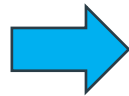
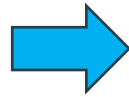
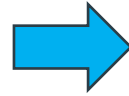
ENUMERATION KEY* ENUMERATION LABEL* Add

Type	Name	Constraint	Required	Searchable	
Boolean	sweetened	None	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Text	coating	None	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

extending the behavior

Use Case

- **Sending a notification**
e.g. sending an order confirmation email
- **Capturing additional properties to changed resources**
e.g. a customer's credit rating
- **Adjusting the behavior of the API**
e.g. changing how prices are calculated



Approach

- ASYNCHRONOUS
 - Message subscriptions
- SYNCHRONOUS
 - API Extensions
- BUSINESS LOGIC WORKFLOW
 - State Machines

extensibility

Extended Data Model

NAME*

Pants

DESCRIPTION*

Change

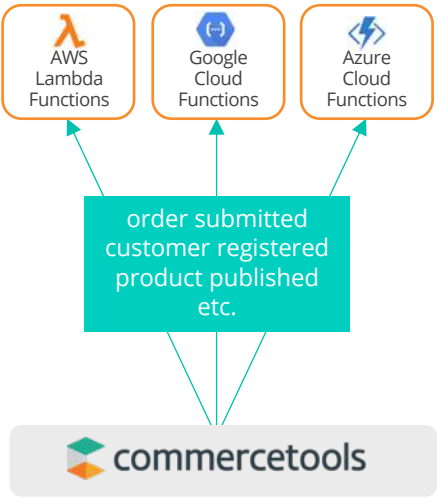
3 attributes

Type	Name	Required
# Number	inseam	<input checked="" type="checkbox"/>
# Number	waist	<input checked="" type="checkbox"/>
Text	color	<input type="checkbox"/>

New attribute ▾

- Boolean
- Text
- Text [Localizable]
- Enum
- Enum [Localizable]
- Number
- Money
- Date
- Time
- DateTime
- Set
- Reference Type

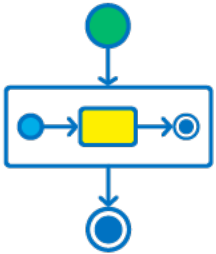
Messages Subscriptions



API Extensions



State Machines



data model extensions



extending the data model

- **Product Types**

- Define additional attributes of products and product variants

- **Custom types**

- Define additional attributes ("fields") of any non-product resource

- **Custom Objects**

- Store arbitrary JSON data on the commercetools platform

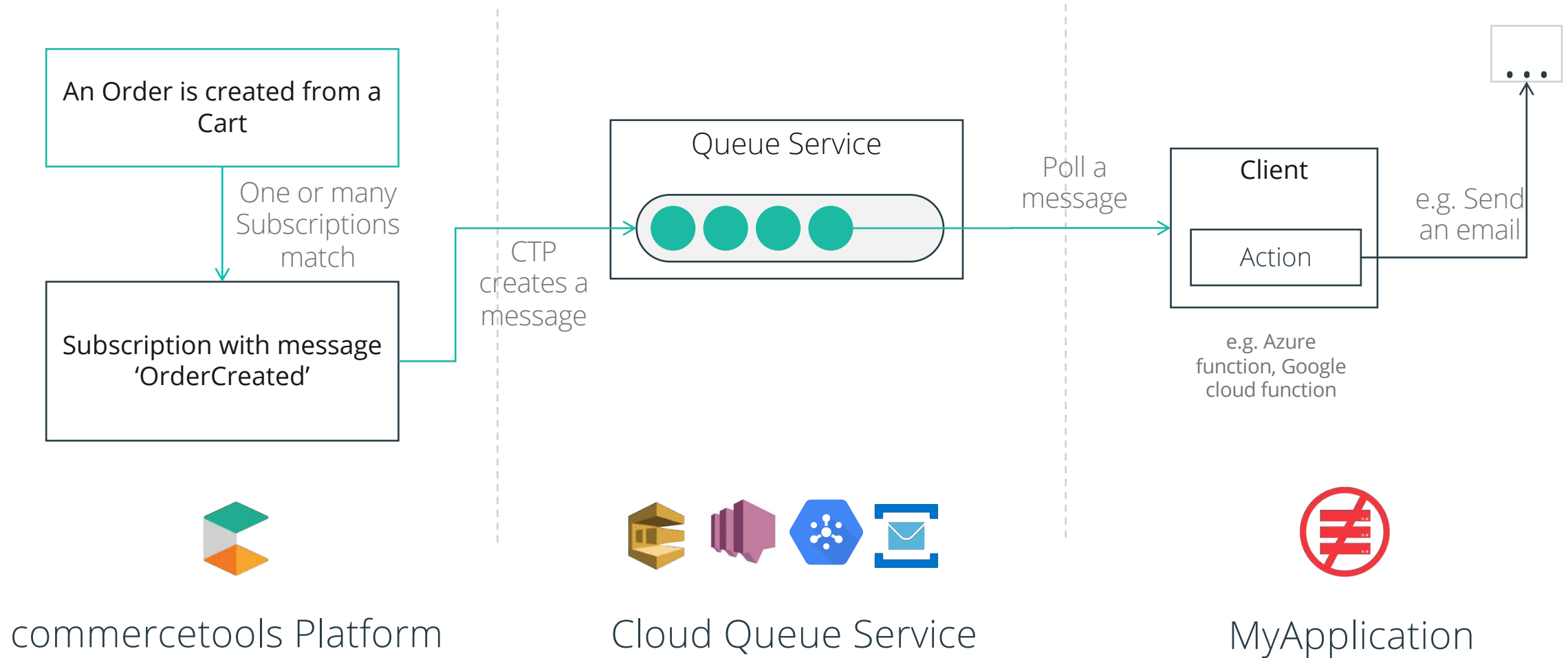


```
{  
  "name" : "abc"  
  "age" : 30  
  "shoe-size" : 40  
  "customer": {  
    "typeId": "customer"  
    "id": "xxx"  
  }  
}
```

message subscriptions



message subscriptions (asynchronous)



message subscriptions (asynchronous)

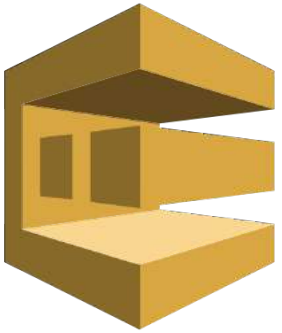
Draft to `/{"projectKey"}/subscriptions`

```
{
  "changes": [],
  "createdAt": "<timestamp>",
  "destination": {
    "accessKey": "<my-access-key>",
    "accessSecret": "<my-access-secret>",
    "queueUrl": "<my-queue-url>",
    "region": "<my-region>",
    "type": "SQS"
  },
  "id": "<subscription-id>",
  "lastMessageSequenceNumber": 0,
  "lastModifiedAt": "<timestamp>",
  "messages": [
    {
      "resourceTypeId": "product",
      "types": []
    },
    {
      "resourceTypeId": "cart",
      "types": []
    }
  ],
  "version": 1
}
```

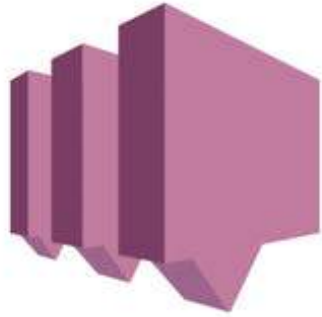
```
{
  "id": "44075f57-1ab0-48c5-ba5c-2f0d57faefdf",
  "version": 1,
  "sequenceNumber": 1,
  "resource": {
    "typeId": "product",
    "id": "614589f2-437a-426f-8697-d179db8de3b6"
  },
  "resourceVersion": 1,
  "type": "ProductCreated",
  "productProjection": {
    "id": "614589f2-437a-426f-8697-d179db8de3b6",
    "version": 1,
    "productType": {
      "typeId": "product-type",
      "id": "72368ad1-69af-4651-ae16-d7cb41a8db1b"
    },
    "name": {
      "en": "Bundle Feather Cartel"
    },
    "description": {
      "en": "bundle of board Feather 56 and binding Cartel R"
    },
    "categories": [],
    "categoryOrderHints": {},
    "slug": {
      "en": "feather_cartel"
    },
    "masterVariant": {
      "id": 1,
      "sku": "<sku_bundle_feather_cartel>",
      "prices": [],
      "images": [],
      "attributes": [
        {
          "name": "board",
          "value": {
            "id": "13597dc3-1f95-4481-aeb9-ecc9aaff8af4",
            "typeId": "product"
          }
        }
      ]
    }
  }
}
```


message subscriptions (asynchronous)

We currently support the following **Queue services**:



AWS SNS (Push)



AWS SQS (Poll)



Google Pub/Sub



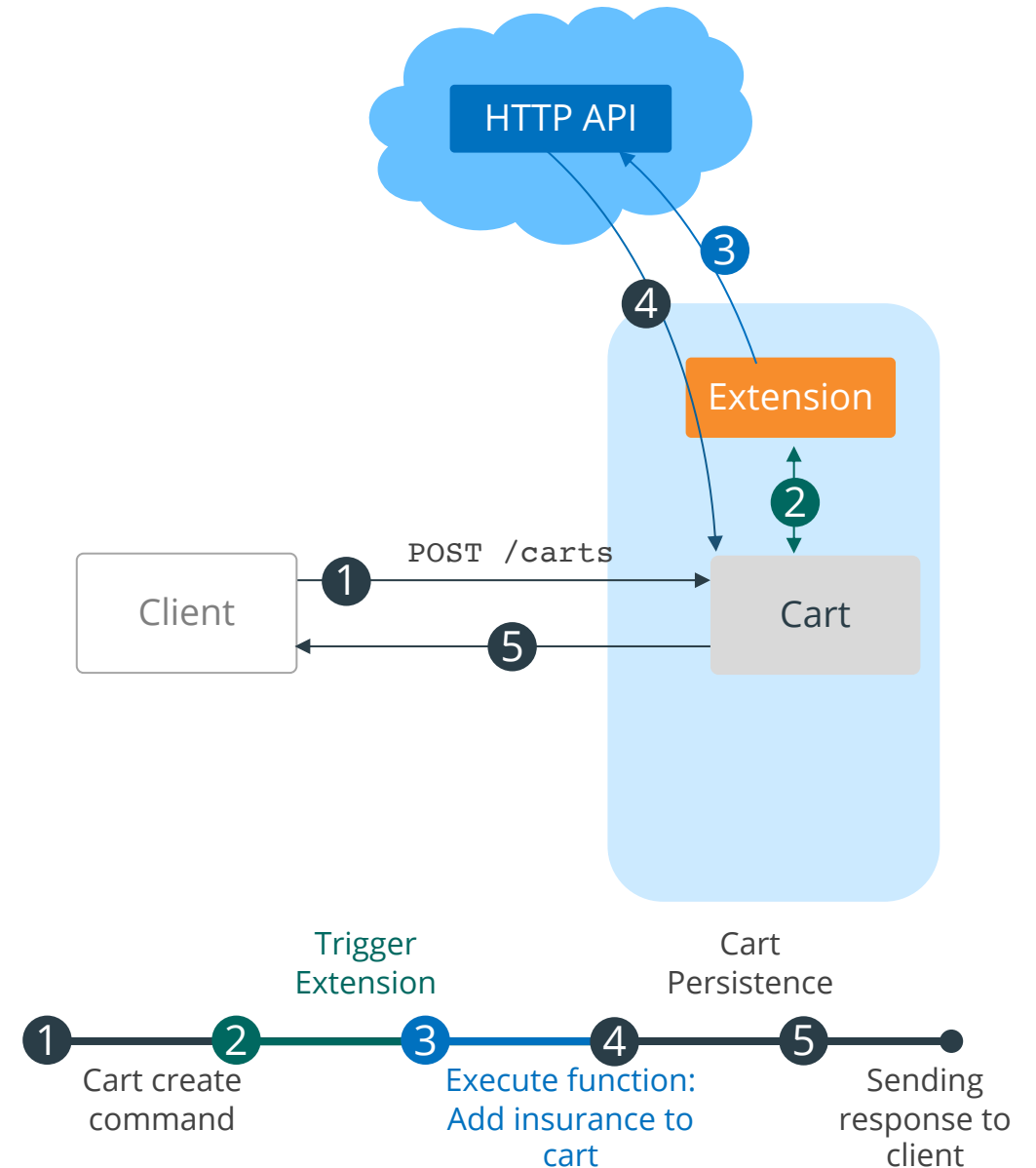
Azure Service Bus

API extensions

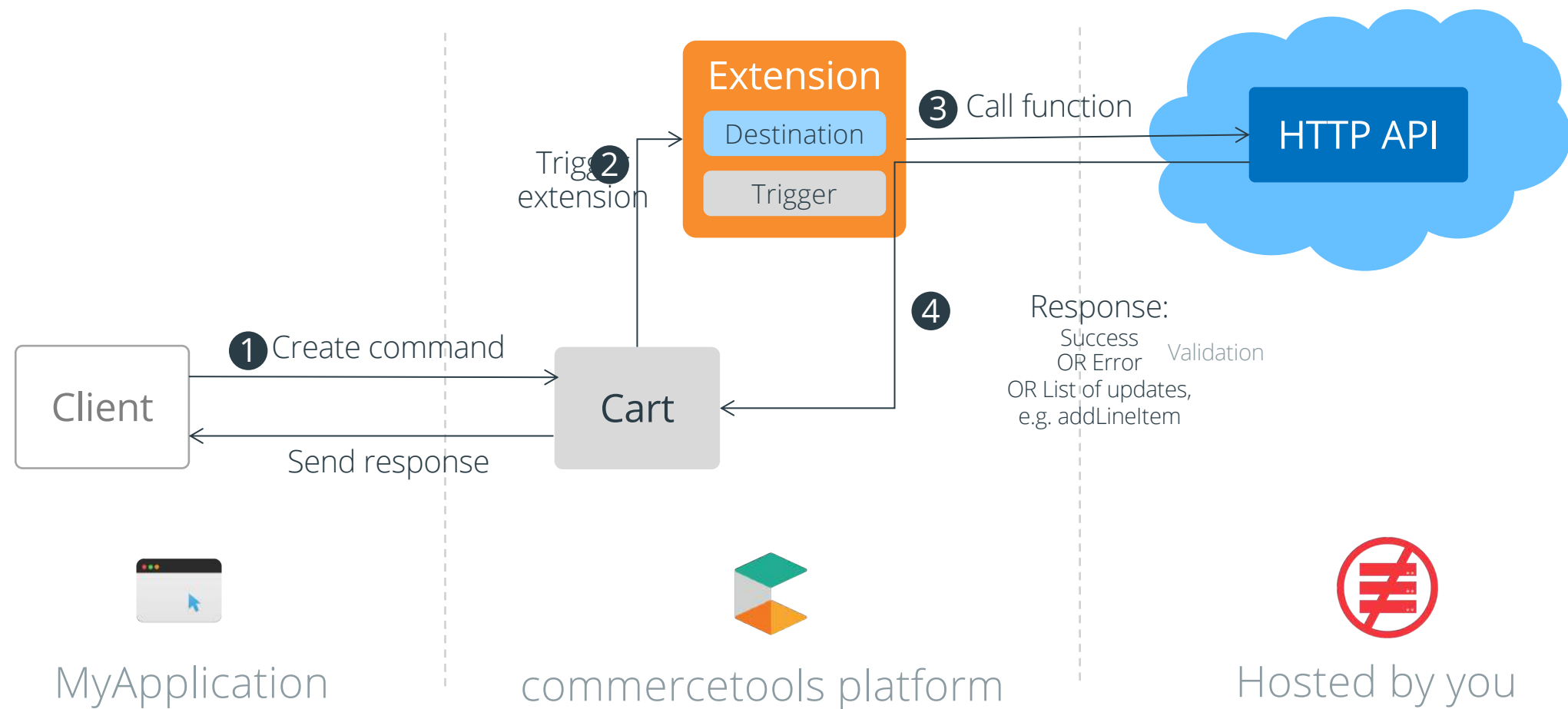


API extensions

- For behavior that needs to be executed **before the API call succeeds**
- The extension is applied **before persisting** the cart
- If the extension has a delay, the response will be delayed too
- If the extension fails, the API call fails too.



API extensions

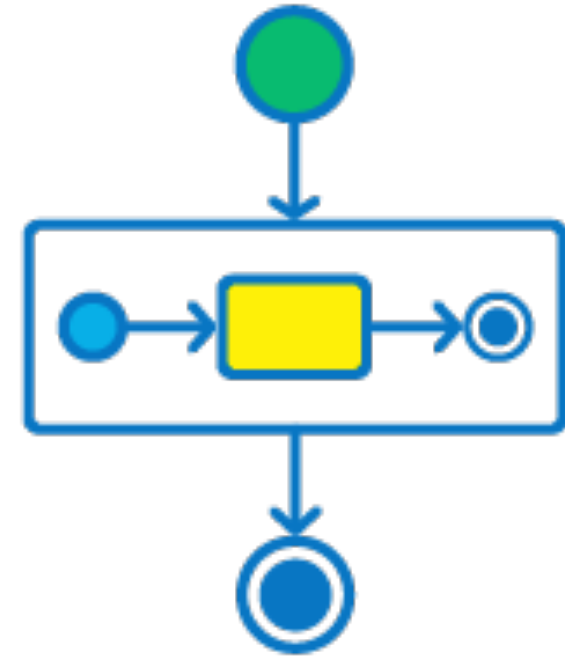


state machines



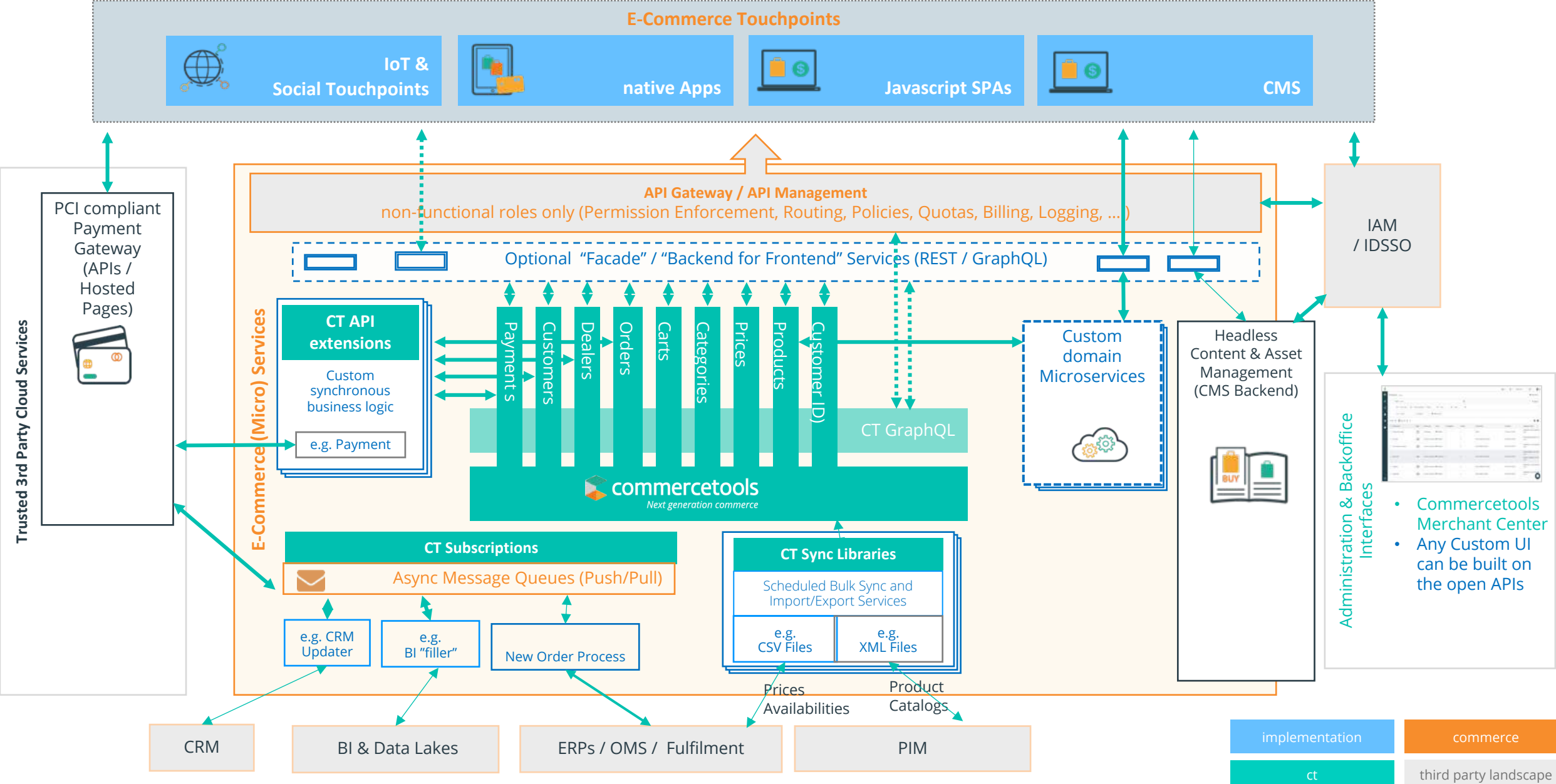
state machine

- Allows you to model states of certain objects, such as orders, line items, products, reviews, and payments in order to define finite state machines reflecting the business logic you'd like to implement
- States can be combined together by defining **transitions** between each state. **transitionState** update actions are validated to ensure the transition complies with the workflow definition.

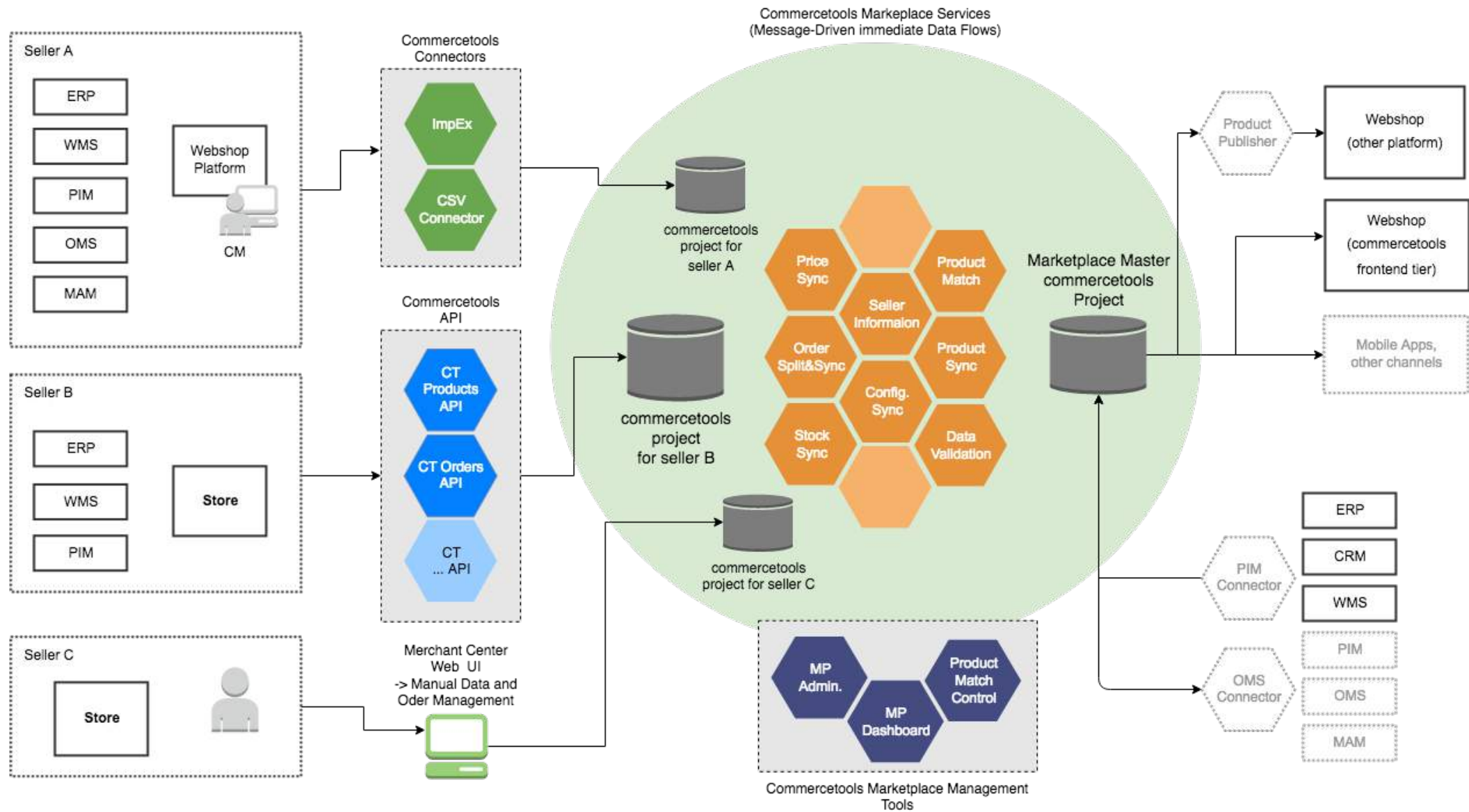


REFERENCE ARCHITECTURES

reference architecture



reference marketplace

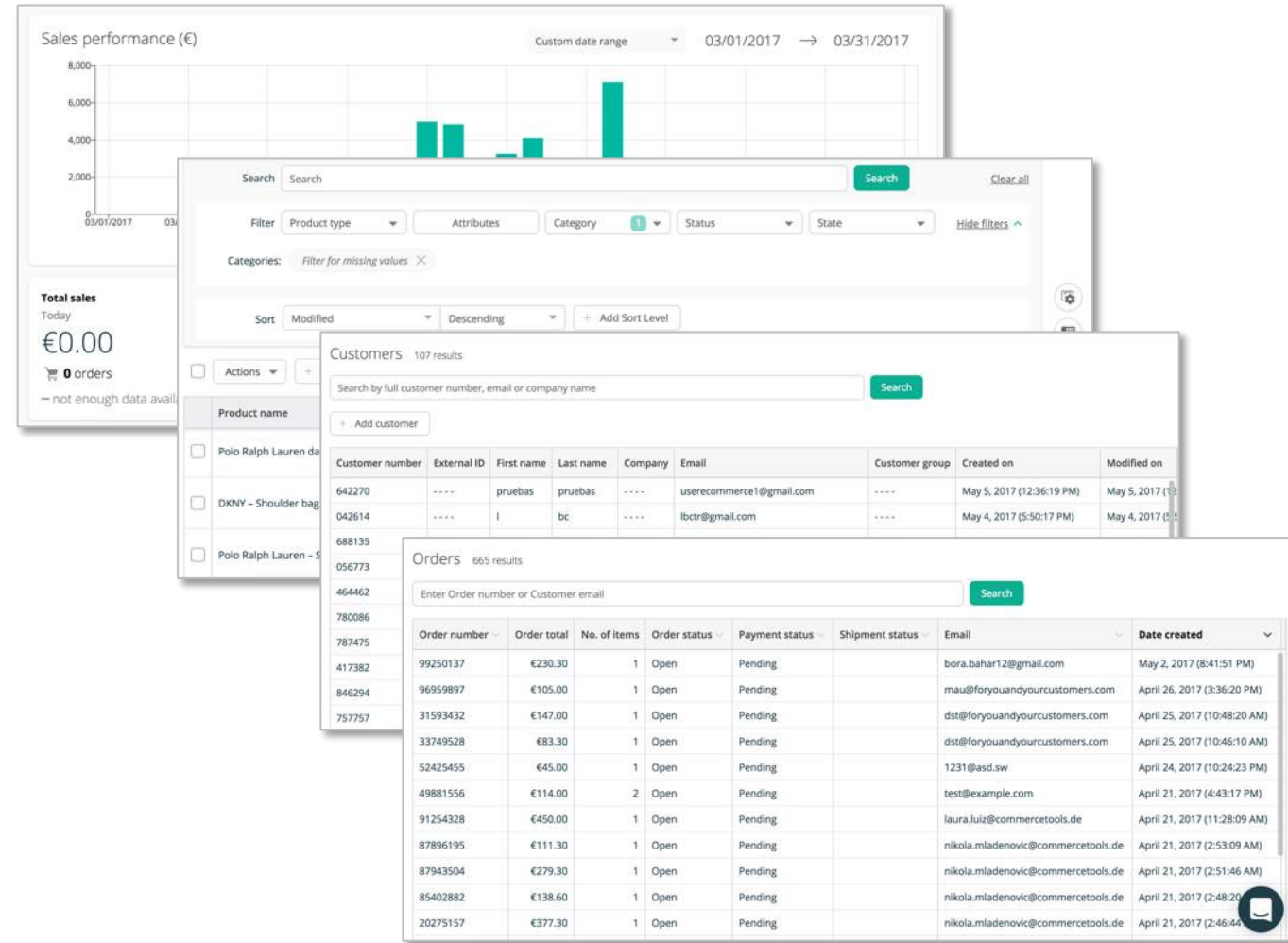


CHANNELS AND SUPPORTING TOOLS

merchant center

mc.commercetools.com

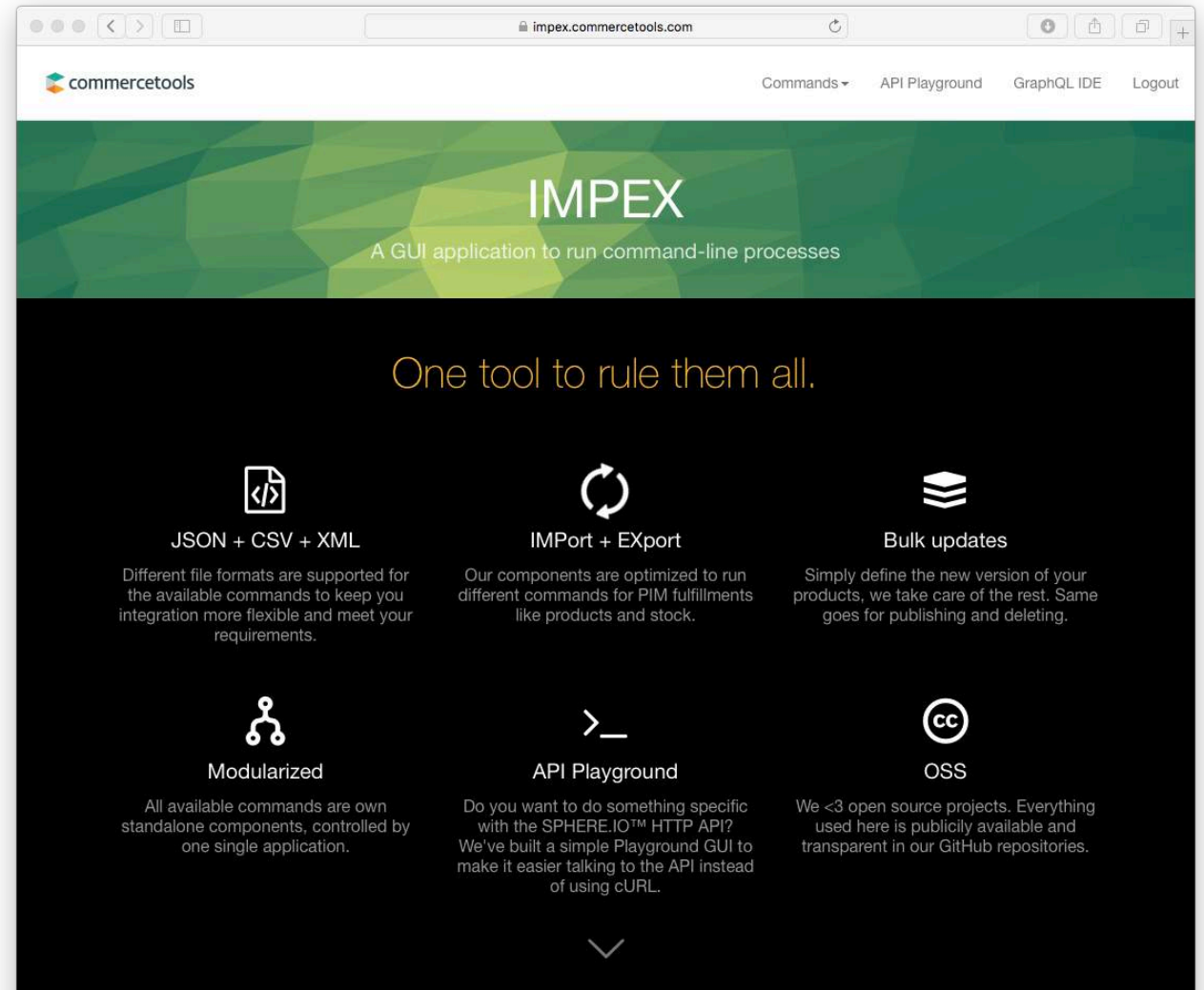
- Intuitive UI for **every day tasks and system configuration**
- **Persona-driven UX concept:**
 - Category/Content Manager
 - Marketing Manager
 - Etc.
- Access to all major entities
 - Products
 - Customers
 - Orders
 - Discounts



API playground & IMPEX

impex.commercetools.com

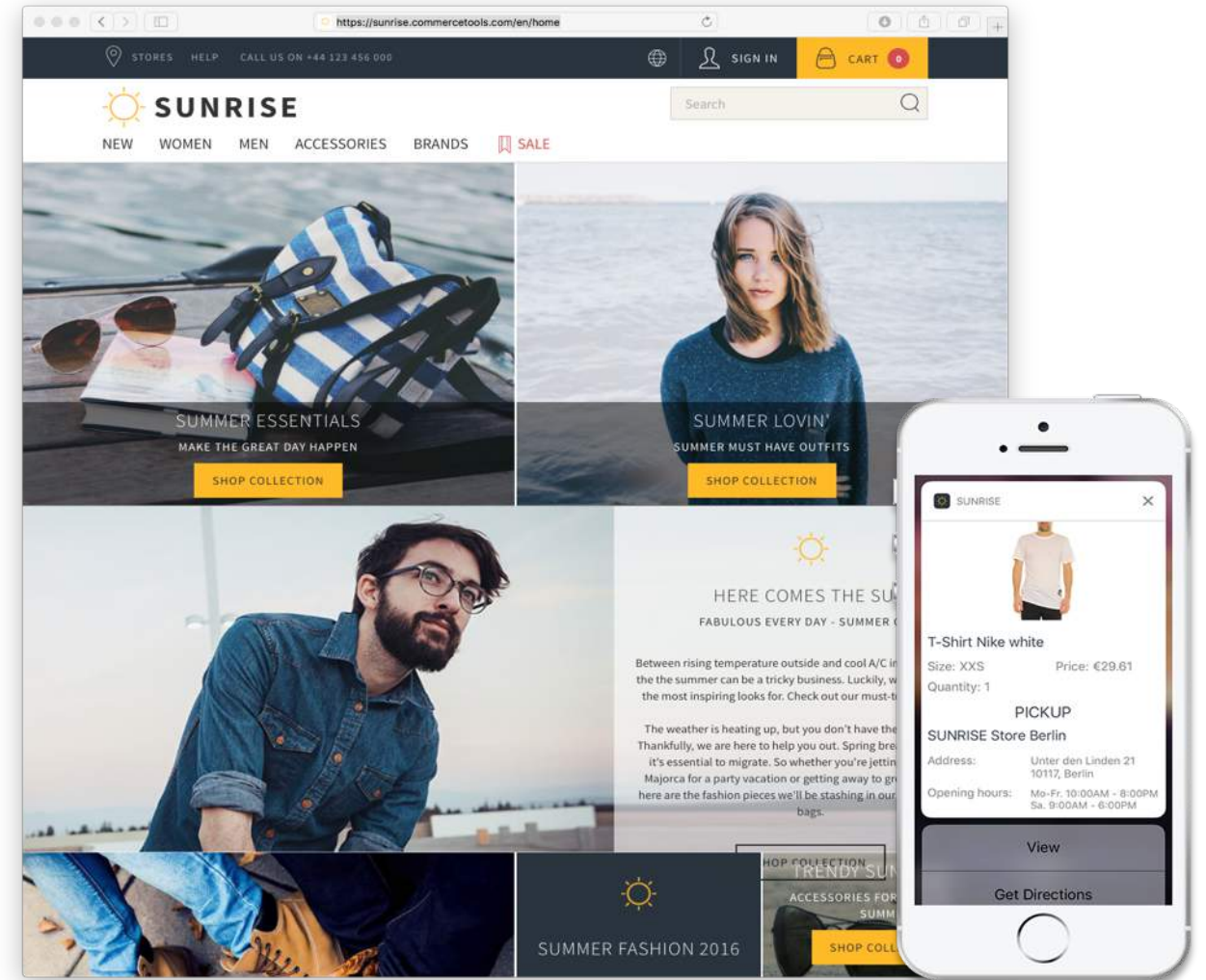
- Interactive, in-browser **API playground** for learning and debugging
- In-Browser Interface for all standard command line **Import and Export** tools (developer tool, not a user tool)



reference storefront

<https://sunrise.netlify.com/>

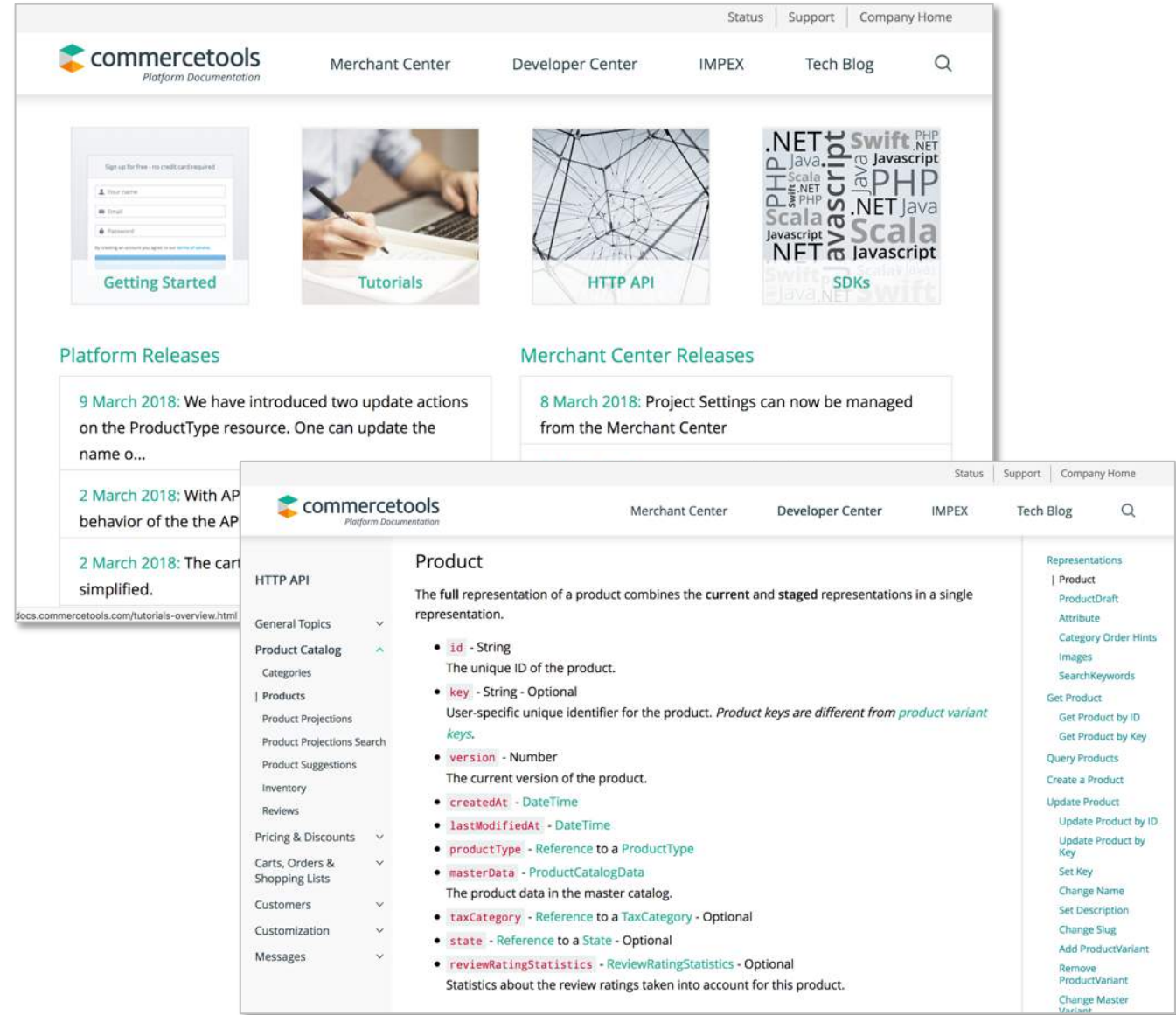
- A suite of reference frontend implementations
- Can serve as:
 - Reference for Code Samples and Implementation Patterns
 - Demo Storefront and Test UI
 - PoC Starter
- Available as:
 - Java 8 + Play Framework
 - Vue.js **SPA**
 - Native iOS App + Watch companion
 - PHP + Symfony 3
- All Open Source (MIT/Apache2)



web documentation

docs.commercetools.com

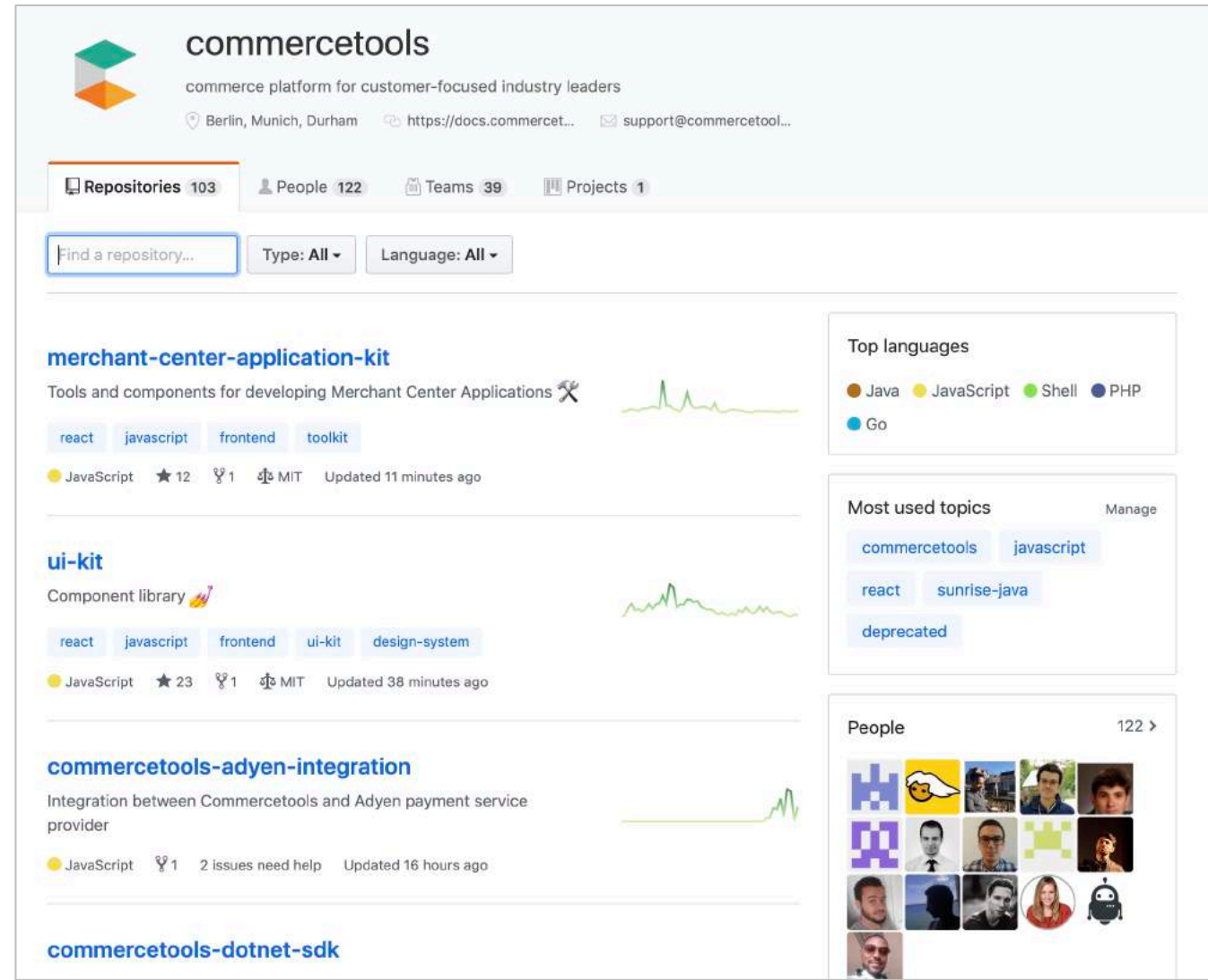
- All **public endpoints** are **completely documented**
 - Representations
 - Endpoint commands
 - Possible actions for creating, updating and deleting entities
- **API contract** with information to deprecation, limits, etc.
- **Release notes**
- Links to all interfaces and status page



github

github.com/commercetools

- Contains several **opensource projects** that allows you to:
 - Extend your commercetools platform
 - Facilitate the addition of new functionality
 - Sync data
- Contains all our in-house client SDKs' projects
- Actively maintained by our internal teams



The screenshot shows the GitHub page for the 'commercetools' organization. At the top, the organization's name 'commercetools' is displayed with its logo, a description 'commerce platform for customer-focused industry leaders', and location 'Berlin, Munich, Durham'. Below this, statistics show 103 Repositories, 122 People, 39 Teams, and 1 Project. A search bar and filters for 'Type: All' and 'Language: All' are present. The main content area lists several repositories:

- merchant-center-application-kit**: Tools and components for developing Merchant Center Applications. It includes tags for 'react', 'javascript', 'frontend', and 'toolkit'. It is a JavaScript project with 12 stars, 1 fork, and MIT license, updated 11 minutes ago.
- ui-kit**: Component library. It includes tags for 'react', 'javascript', 'frontend', 'ui-kit', and 'design-system'. It is a JavaScript project with 23 stars, 1 fork, and MIT license, updated 38 minutes ago.
- commercetools-adyen-integration**: Integration between Commercetools and Adyen payment service provider. It is a JavaScript project with 1 fork and 2 issues need help, updated 16 hours ago.
- commercetools-dotnet-sdk**

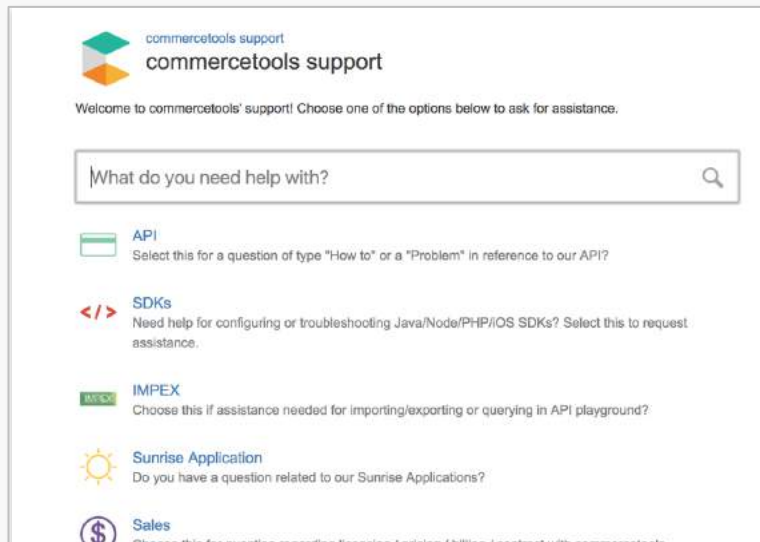
On the right side, there are two sidebars:

- Top languages**: A chart showing the distribution of languages used in the repositories. The languages listed are Java, JavaScript, Shell, PHP, and Go.
- Most used topics**: A list of topics associated with the repositories, including 'commercetools', 'javascript', 'react', 'sunrise-java', and 'deprecated'. There is a 'Manage' link next to the topics.
- People**: A grid of 122 profile pictures of the contributors to the organization's repositories.

platform support

support.commercetools.com

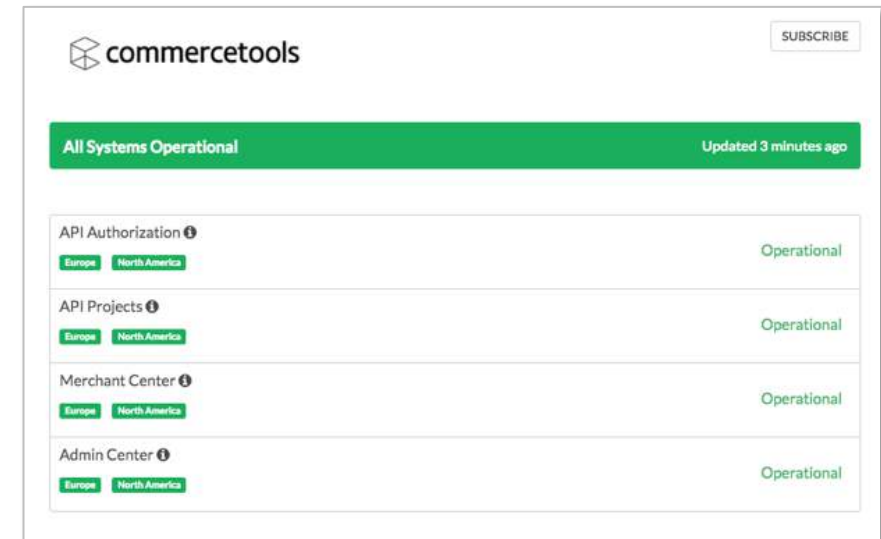
- Standard „as is“ product support as part of the platform package via **portal** and **e-mail**
- **Custom SLA base support packages** with contact person, project specific know-how etc. available through commercetools' services group



platform status

status.commercetools.com

- Current **live information regarding availability**
- **Uptimes** for API, Auth and Business User Tooling
- Option to subscribe to status updates via mail
- Check also our Twitter account:
<https://twitter.com/ctpstatus>



SOME IMPORTANT GITHUB REPOSITORIES

API References

github.com/commercetools/commercetools-api-reference

- **RAML**
RESTful API Modeling Language. It's a way of describing practically-RESTful APIs in a way that's highly readable by both humans and computers
- **Swagger**
Swagger is an open-source software **framework** backed by a large ecosystem of tools that helps developers design, build, document, and consume RESTful Web services
- **Postman**
Powerful **HTTP client for testing** web services.



SDK

- In-house built SDKs for
 - Java
 - PHP
 - .net
 - iOS
 - node.js
- Built by External partners
 - Python
 - Go

The screenshot shows the GitHub interface for the commercetools organization. At the top, the organization's name 'commercetools' is displayed with its logo and a description: 'commerce platform for customer-focused industry leaders'. Below this, there are statistics for the organization: 103 Repositories, 122 People, 39 Teams, and 1 Project. A search bar contains the text '-sdk', and filters for 'Type: All' and 'Language: All' are visible. The search results show 17 repositories matching the query. The first two results are highlighted:

- commercetools-jvm-sdk**: The e-commerce SDK from commercetools running on the Java virtual machine. It has 48 stars, 19 forks, and was updated 3 days ago. The language is Java.
- commercetools-php-sdk**: The e-commerce SDK from commercetools for PHP. It has 31 stars, 17 forks, and was updated 9 days ago. The language is PHP.
- commercetools-dotnet-sdk**: (Partially visible)

On the right side of the page, there are three sidebars:

- Top languages**: A list of languages used in the repositories, including Java, JavaScript, Shell, PHP, and Go.
- Most used topics**: A list of topics associated with the repositories, including commercetools, javascript, react, sunrise-java, and deprecated.
- People**: A grid of profile pictures of the contributors to the repositories, with a total of 122 people listed.

Sync Libraries

- Used to import and/or data into one or more commercetools projects from external sources such as CSV, XML, JSON, etc
- Part of the backend we use for our own IMPEX tool

The screenshot shows the commercetools website header with the logo and navigation links. Below the header, there are tabs for Repositories (103), People (122), Teams (39), and Projects (1). A search bar contains the text 'sync', and filters for Type and Language are set to 'All'. The search results show 3 repositories matching 'sync'. The first result is 'commercetools-sync-java', a Java library used to import and/or sync data into one or more commercetools projects from external sources such as CSV, XML, JSON, etc.. or even from an already existing commercetools project. It has 19 stars, 10 forks, and is updated 3 days ago. The second result is 'commercetools-project-sync', a Dockerized CLI application which allows to automatically sync different resources between commercetools projects. It has 2 stars and is updated on 7 Feb. The third result is 'commercetools-node-variant-reassignment', a Node.js utility which complements product sync/import process by automatic conflicts resolution and reassignment of variants from one product to another. It has 0 stars and is updated on 25 Feb. On the right side, there are sections for 'Top languages' (Java, JavaScript, Shell, PHP, Go), 'Most used topics' (commercetools, javascript, react, sunrise-java, deprecated), and 'People' (122).

commercetools
commerce platform for customer-focused industry leaders
Berlin, Munich, Durham | https://docs.commercetool... | support@commercetool...

Repositories 103 | People 122 | Teams 39 | Projects 1

sync | Type: All | Language: All

3 results for repositories matching sync | Clear filter

commercetools-sync-java
Java library used to import and/or sync (taking care of changes) data into one or more commercetools projects from external sources such as CSV, XML, JSON, etc.. or even from an already existing commercetools project.
java sync json csv importer xml batch
Java ★ 19 10 forks Apache-2.0 7 issues need help Updated 3 days ago

commercetools-project-sync
Dockerized CLI application which allows to automatically sync different resources between commercetools projects
Java ★ 2 Updated on 7 Feb

commercetools-node-variant-reassignment
Node.js utility which complements product sync/import process by automatic conflicts resolution and reassignment of variants from one product to another
JavaScript Updated on 25 Feb

Top languages
Java JavaScript Shell PHP Go

Most used topics
commercetools javascript react sunrise-java deprecated

People 122

Merchant Center

- Toolkit that provides extension support to Merchant Centre
- Add your own frontend/application to our Merchant Centre UI

The screenshot displays the commercetools Merchant Center interface. At the top, the header includes the commercetools logo, the text "commercetools", and a description "commerce platform for customer-focused industry leaders". Below this, there are location and contact details: "Berlin, Munich, Durham", "https://docs.commercetool...", and "support@commercetool...".

The main navigation bar shows "Repositories 103", "People 122", "Teams 39", and "Projects 1". A search bar contains the text "-kit", with filters for "Type: All" and "Language: All".

The search results list two repositories:

- ui-kit**: A component library. It has tags for "react", "javascript", "frontend", "ui-kit", and "design-system". It is a JavaScript repository with 23 stars, 1 fork, and MIT license, updated 15 hours ago.
- merchant-center-application-kit**: Tools and components for developing Merchant Center Applications. It has tags for "react", "javascript", "frontend", and "toolkit". It is a JavaScript repository with 12 stars, 1 fork, and MIT license, updated 3 minutes ago.

On the right side, there are three panels:

- Top languages**: A chart showing the distribution of languages used in the repositories, with JavaScript being the most prominent.
- Most used topics**: A list of topics including "commercetools", "javascript", "react", "sunrise-java", and "deprecated".
- People**: A grid of avatars representing the contributors to the repositories, with a count of 122.

COMMERCE PROJECTS ORGANISATION & DEPLOYMENT

Organization

Project

Resources

Products, Categories, Customers, Orders, etc.

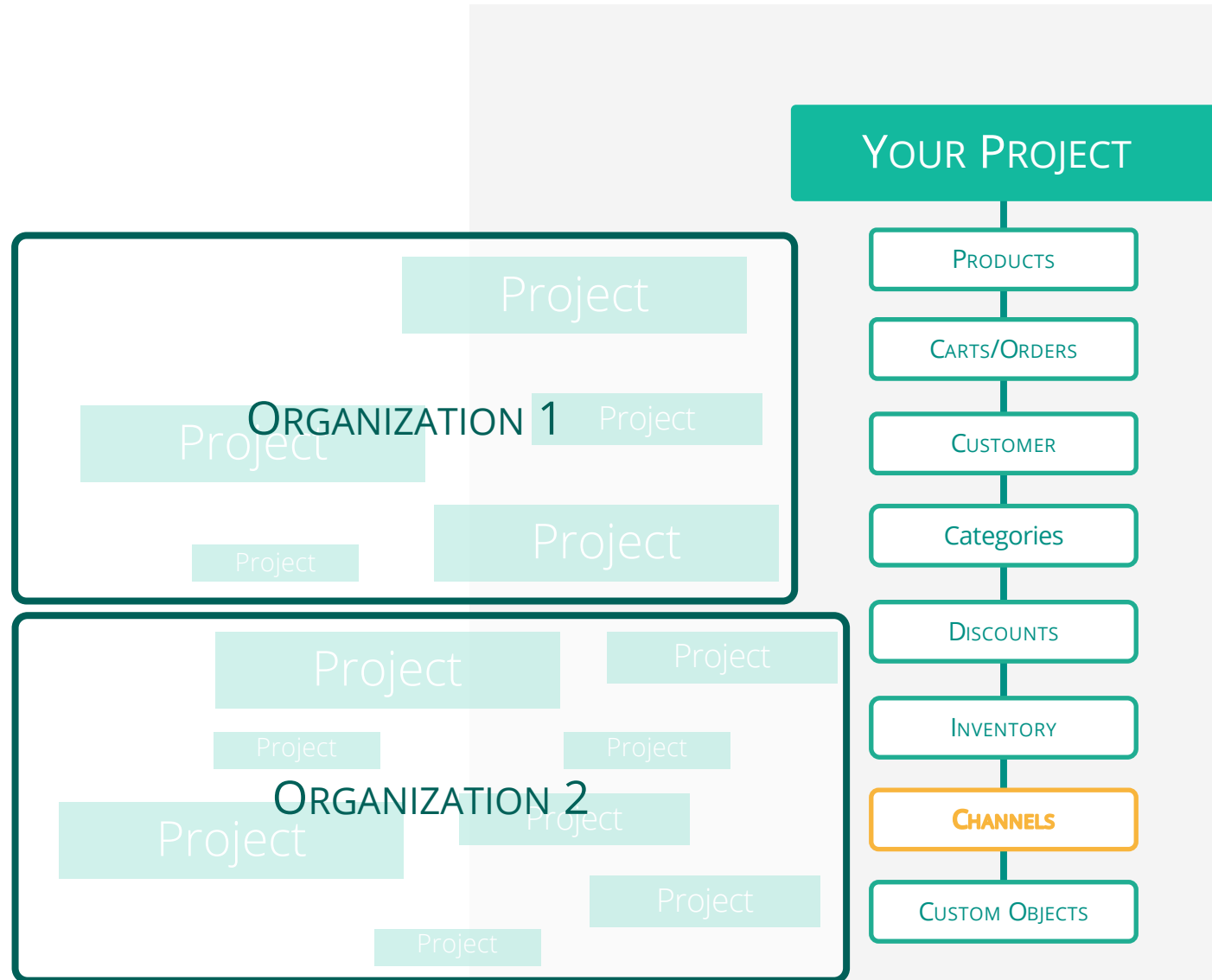
Developer

Product Types, API clients

Settings

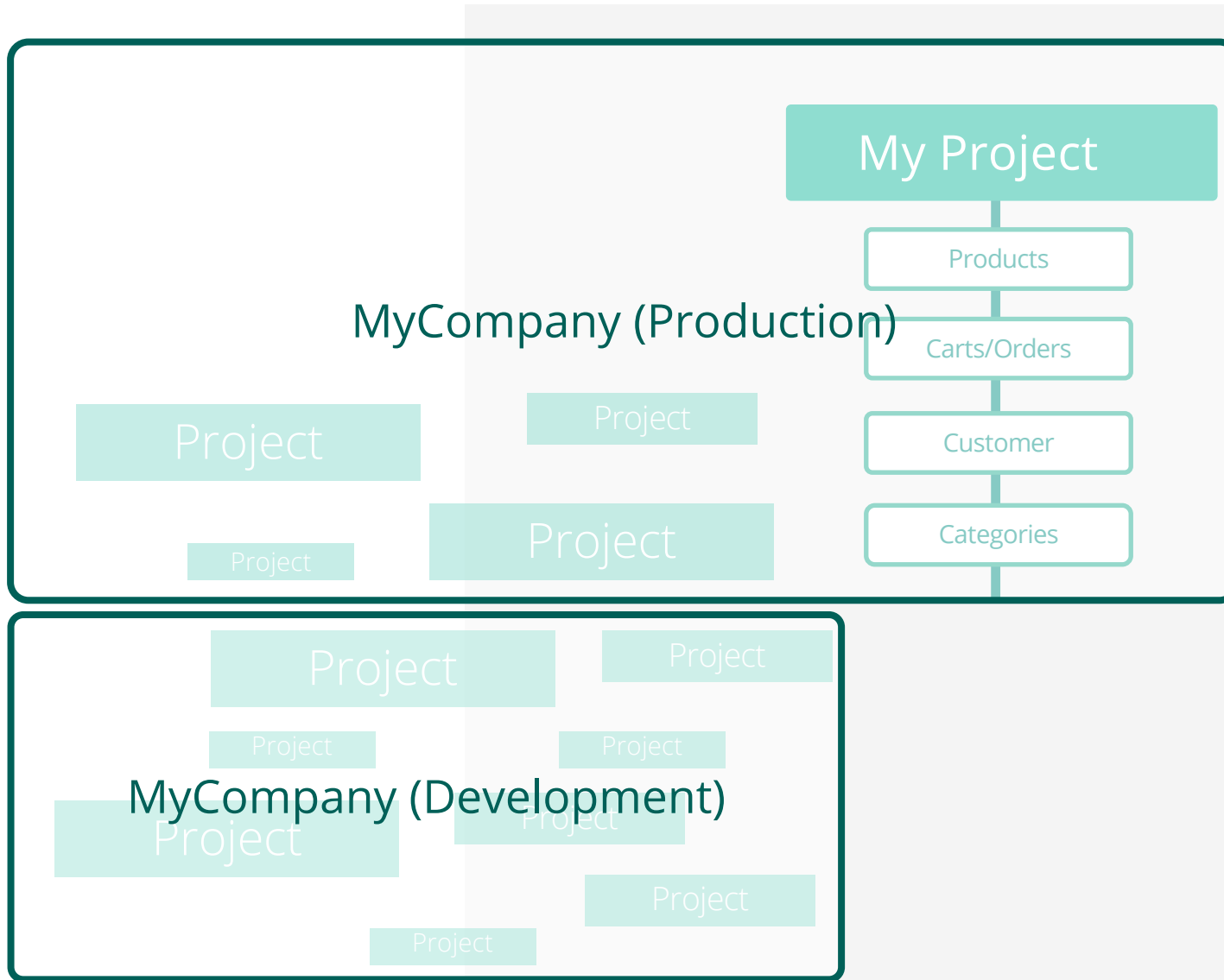
currencies, languages, countries, taxes,
shipping methods, etc.

cloud-native multitenancy



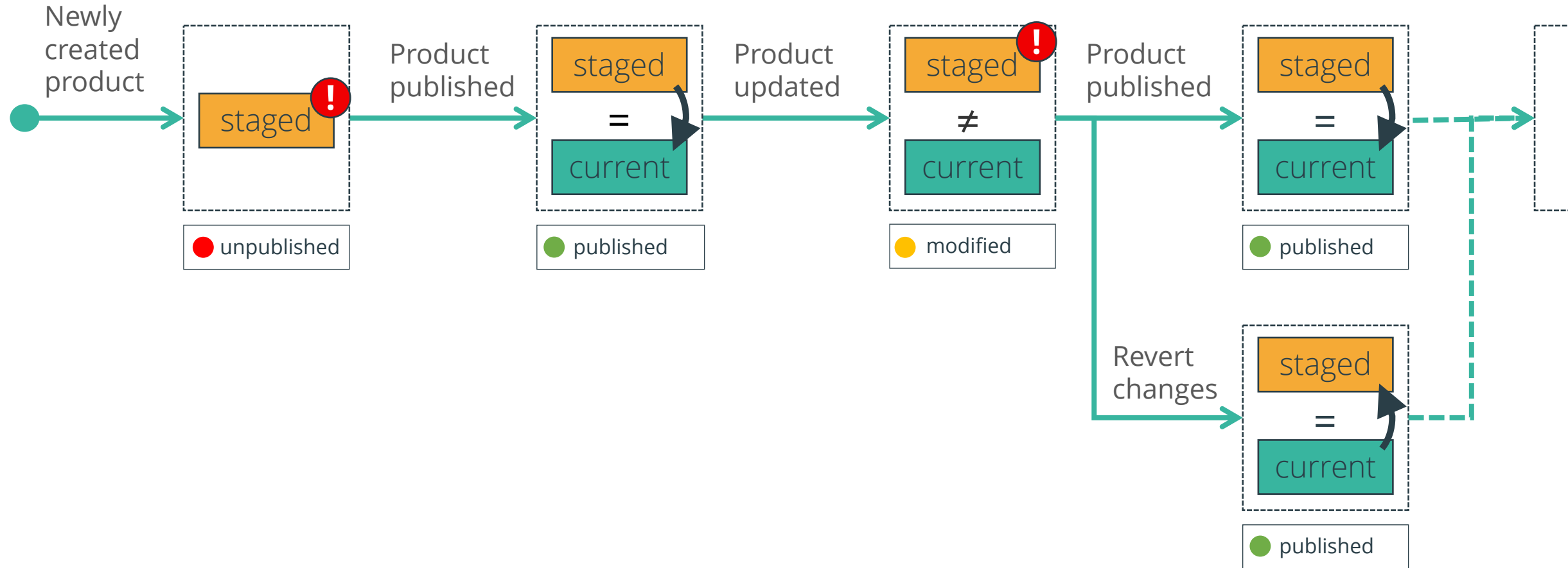
- Real multi-tenancy - no **instances**, just ultra-lightweight **Projects**
- Main container is a **Project**, which provides data segregation
- Projects are in **Organizations** to manage user roles and permissions
- User account can be in any number of **Organizations** and Projects
- Operated in fully isolated regions, currently USA and the EU

continuous deployment/integration

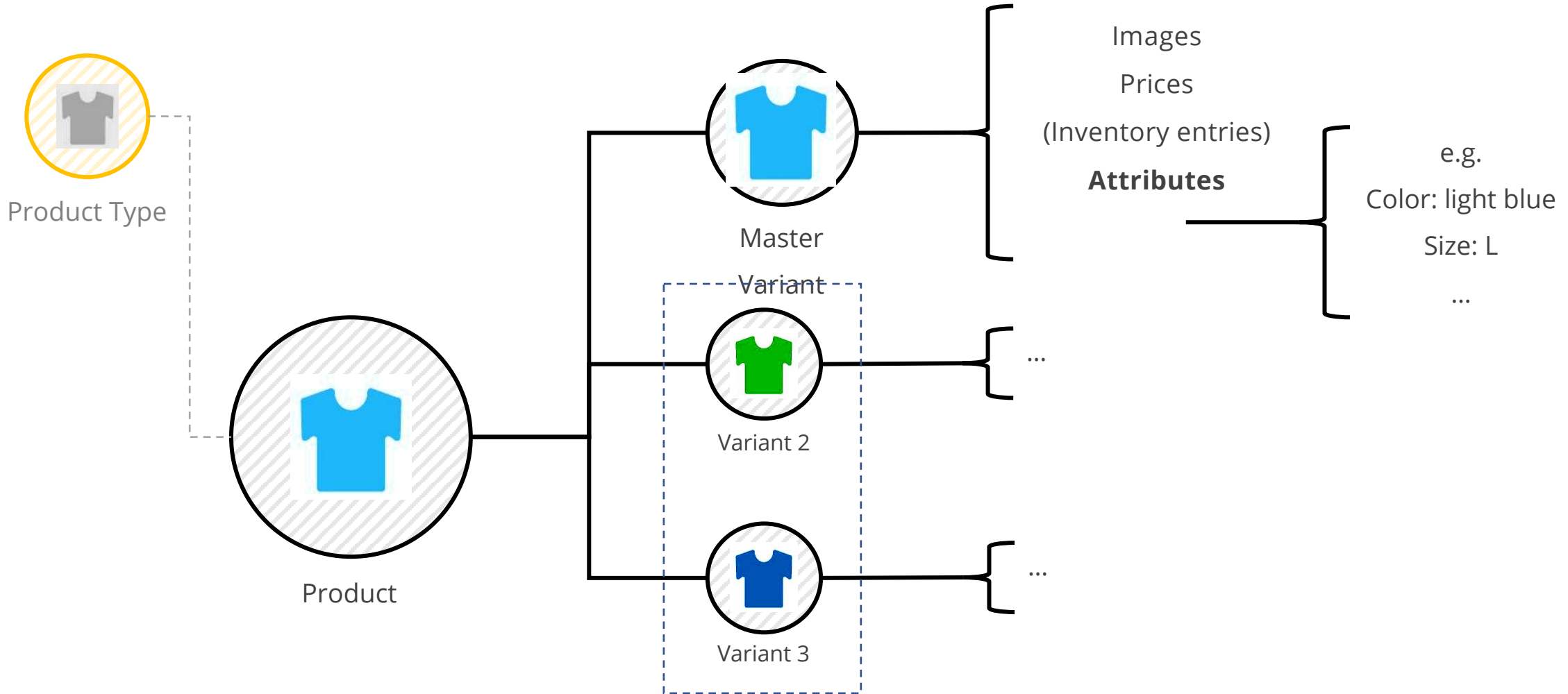


- Leverage the lightweight tenancy model for **development** and **staging**
- Included in pricing plan
- Projects can be **cloned** and transferred between Organizations
- Projects can be **reset** or **bootstrapped** in minutes because configuration is via API, too ("configuration as code" paradigm in the solution implementation)

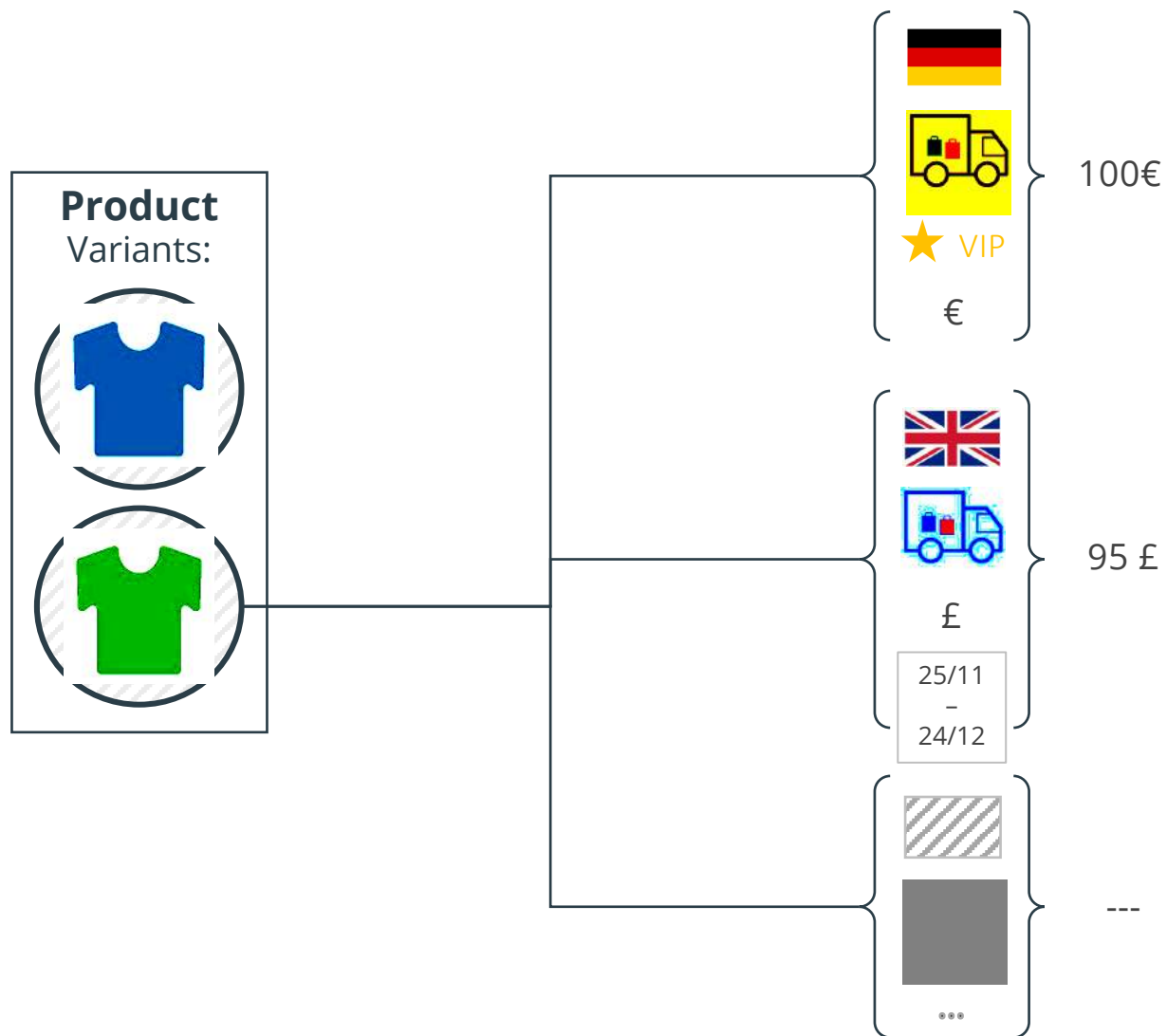
projection representations



variant dimensions



price dimensions

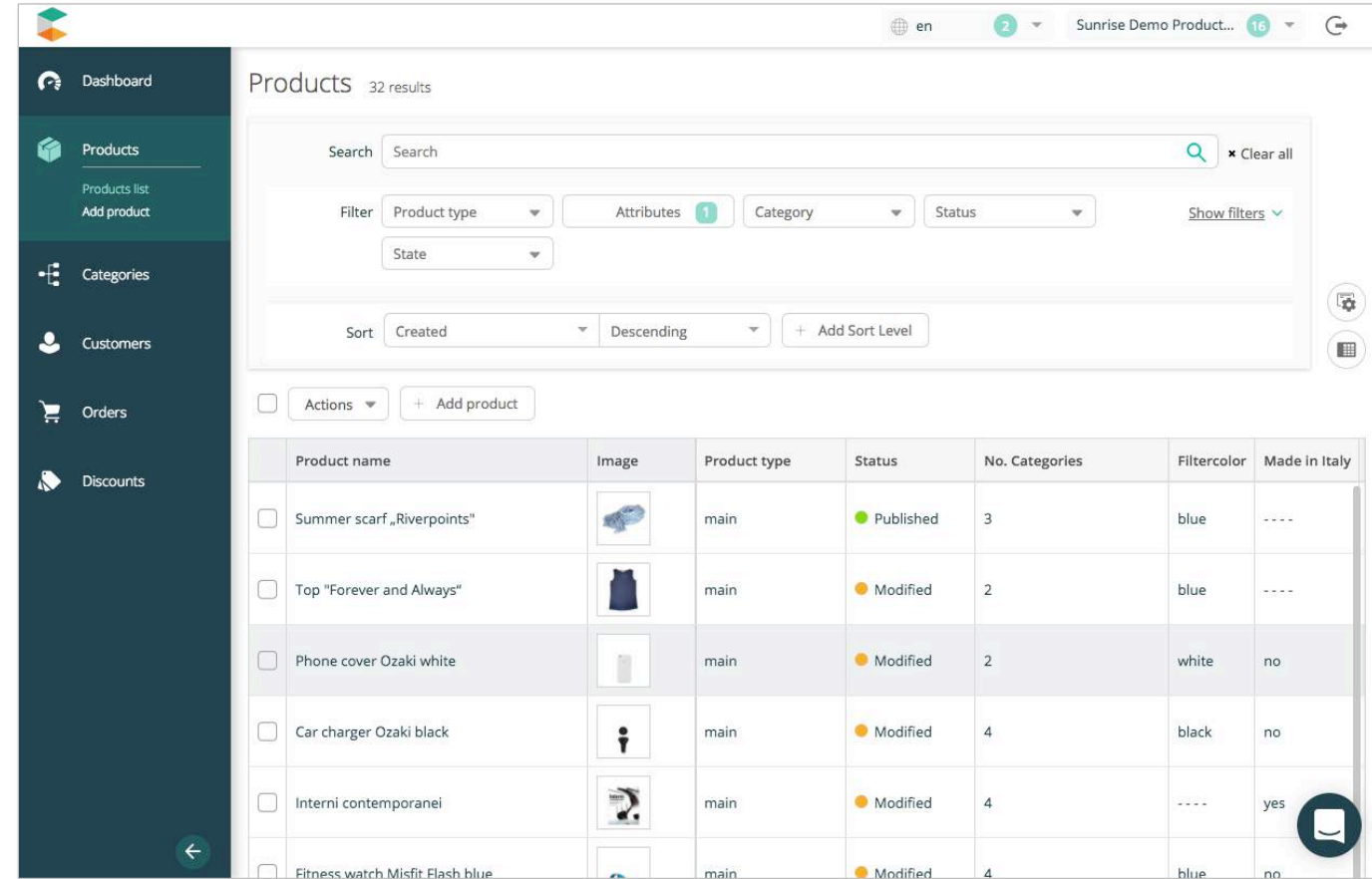


- Country
- Distribution Channel
- Customer Group
- Currency
- Validity Period
- Price Tiers

BUSINESS FUNCTIONALITIES

commerce PIM

- **Flexible product classifications** via categories
- **Content staging** functionality
- **Multi-language/locale**
- Image upload and organization
- Configurable **information model and variant dimensions**
- **Unlimited number of product types**
- Powerful full text search & filtering
- **Scales well** with very large catalogs and category trees



pricing & inventory

- Every article's **price can be differentiated in many dimensions** without duplicating product data:
 - Currency
 - Country
 - Distribution Channel
 - Time (from ... to)
 - Customer Group
 - Tiered Pricing (per quantity)
- Prices can be **externally overridden on article or cart level** (both unit and total price)
- **Multiple inventories per article** (supply channels)

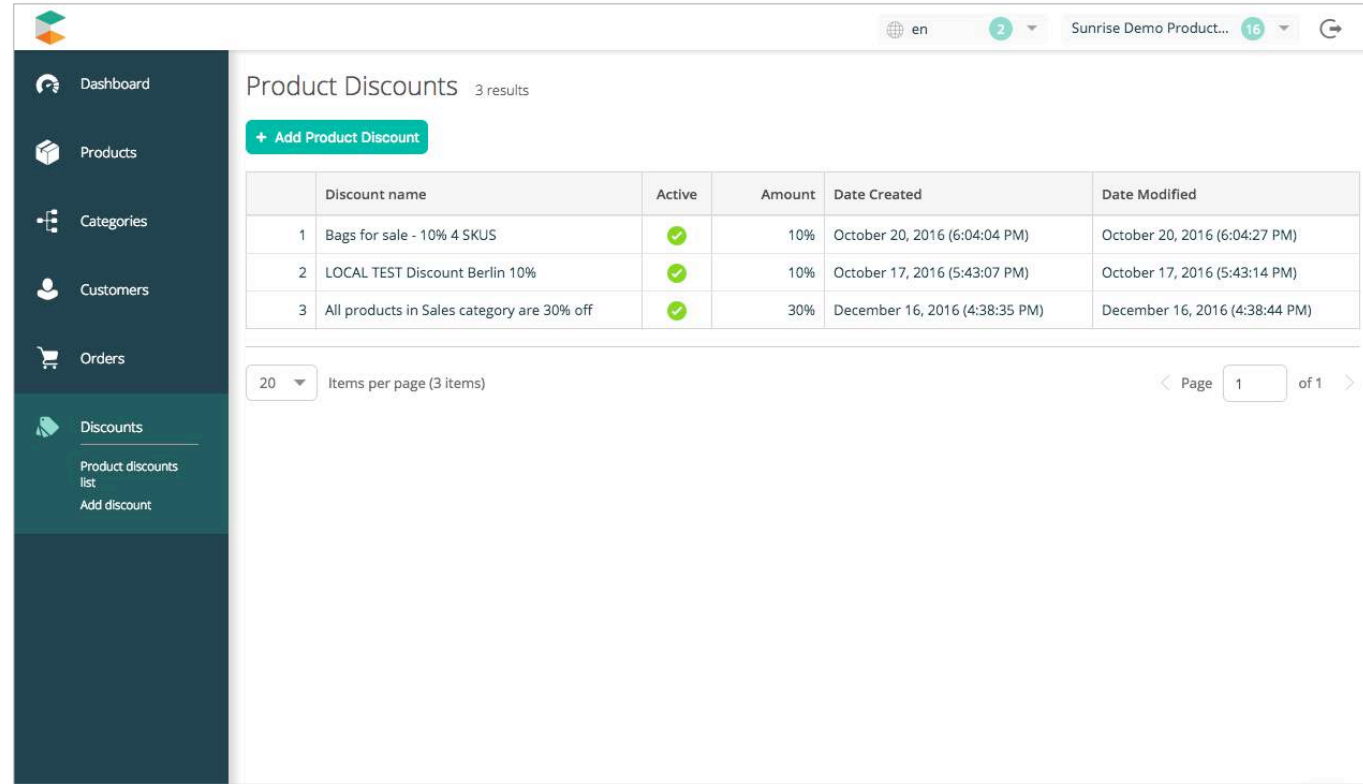
The screenshot shows the 'Prices' tab in the Commercetools interface for a product variant. The variant is 'Suit Tagliatore dark grey' with Variant ID 1 and SKU M0E2000000DVFF. The interface displays a table for managing prices across different dimensions.

No.	Currency	Price	Country	Customer group	Channel	Discount
1	EUR	937.5	All	All		€843.
2	EUR	614.75	All	b2b		€553.
3	EUR	750	DE	All		€675.
4	EUR	750	IT	All		€675.
5	EUR	750	GB	All		€675.

At the bottom of the table, there is a pagination control showing '50' items per page (5 items).

discounts & promotions

- Powerful Price Rule System
- Rules can be authored via a User Interface, but also by directly writing the expression language
- **“Product Discounts”**: Statically applied to product data, searchable & filterable prices
- **“Cart Discounts”**: Dynamically applied to carts depending on any cart property combination
- **“Discount Codes”**: Any number of them, can be restricted to max applications per customer and globally.



The screenshot shows the 'Product Discounts' management page in the Commercetools interface. The left sidebar contains navigation links for Dashboard, Products, Categories, Customers, Orders, and Discounts. The 'Discounts' section is expanded, showing 'Product discounts list' and 'Add discount'. The main content area displays a table of product discounts with 3 results. The table has columns for Discount name, Active status, Amount, Date Created, and Date Modified. Below the table, there is a pagination control showing '20' items per page (3 items total) and a page indicator 'Page 1 of 1'.

	Discount name	Active	Amount	Date Created	Date Modified
1	Bags for sale - 10% 4 SKUS	✓	10%	October 20, 2016 (6:04:04 PM)	October 20, 2016 (6:04:27 PM)
2	LOCAL TEST Discount Berlin 10%	✓	10%	October 17, 2016 (5:43:07 PM)	October 17, 2016 (5:43:14 PM)
3	All products in Sales category are 30% off	✓	30%	December 16, 2016 (4:38:35 PM)	December 16, 2016 (4:38:44 PM)

customer data management

- **Extensible customer object** that holds the account and password
- Password reset flow
- **Any number of addresses** per customer
- API supports customer-specific security tokens that make only the customer's carts and orders visible
- **Customer groups trigger special price lists**



The screenshot shows the 'Customer Details' form in the Commercetools admin interface. The left sidebar contains navigation links: Dashboard, Products, Categories, Customers (selected), Orders, and Discounts. The main content area is titled 'To Customers List' and shows the details for 'Test Matt' with ID 359835. The form has tabs for 'General', 'Addresses', and 'Orders'. The 'General' tab is active, displaying fields for First name (Test), Middle name, Last name (Matt), Title, Email (test@example.com, marked as 'Not verified'), Date of birth (Year, Month, Day dropdowns), Customer number (359835, with a warning that it can only be set once), External ID (10113049), and Customer group (a dropdown menu). The form also shows the date created (April 21, 2017) and date modified (April 21, 2017).

order management

- Scales into extreme numbers of orders
- Customizable workflows/state flows on order and line item level
- Orders can hold commercetools products or any custom line items
- Full transparency on the price calculation
- Customizable products supported via line items with order-specific fields.
- “Order Edits” API allows drafting and previewing structured order amendments with recalculation and arbitrary overrides

The screenshot displays the 'Order 49881556' page in the commercetools interface. The left sidebar contains navigation links: Dashboard, Products, Categories, Customers, Orders (highlighted), Orders list, and Discounts. The main content area is divided into several sections:

- General** (selected tab):
 - Order workflow state:** No workflows have been defined for this project.
 - Order status:** Open (dropdown menu)
 - Payment status:** Pending (dropdown menu)
 - Shipment status:** Select... (dropdown menu)
- Summary:**
 - Subtotal without discount: €95.80
 - 19% standard: + €18.20
 - Subtotal (gross): €114.00**
 - Shipping (incl. tax): DHL: + €0.00
 - Total (gross): €114.00**
- Customer:** (empty field)
- Order Items:** A table listing the items in the order.

Product	Original unit price €	Unit price €	Qty	Line Item State	Subtotal €	Tax	Ti
 Scarf Altea multi SKU: A0E200000002528	€65.00	€54.62	1	< 1 Initial	€54.62	19%	€
 Belt Guess black SKU: M0E20000000DNU3	€49.00	€41.18	1	< 1 Initial	€41.18	19%	€

SEARCH & QUERIES

search query vs simple query

Query Type	Characteristics
Product query	<ul style="list-style-type: none">• Both Staged and current representations in the response
Product projection query	<ul style="list-style-type: none">• Only staged OR current representation• Powerful nested query filter predicates.
Product projection search	<ul style="list-style-type: none">• <u>Natural Language Full Text Search</u>• <u>Faceting and Filtering</u>• The preferred way for fetching product data in a storefront.

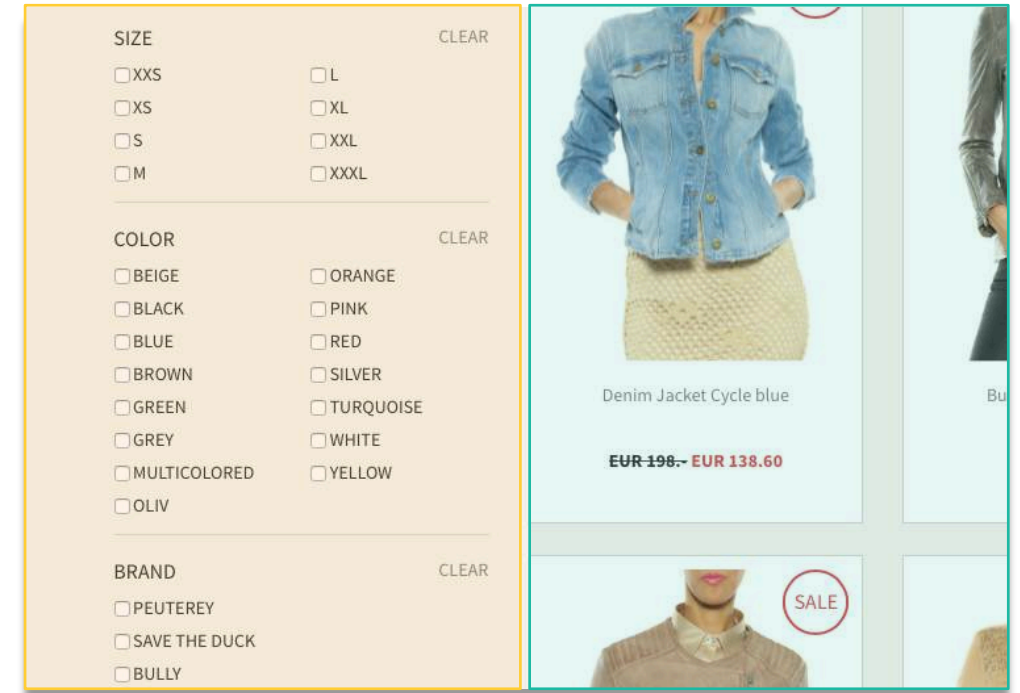
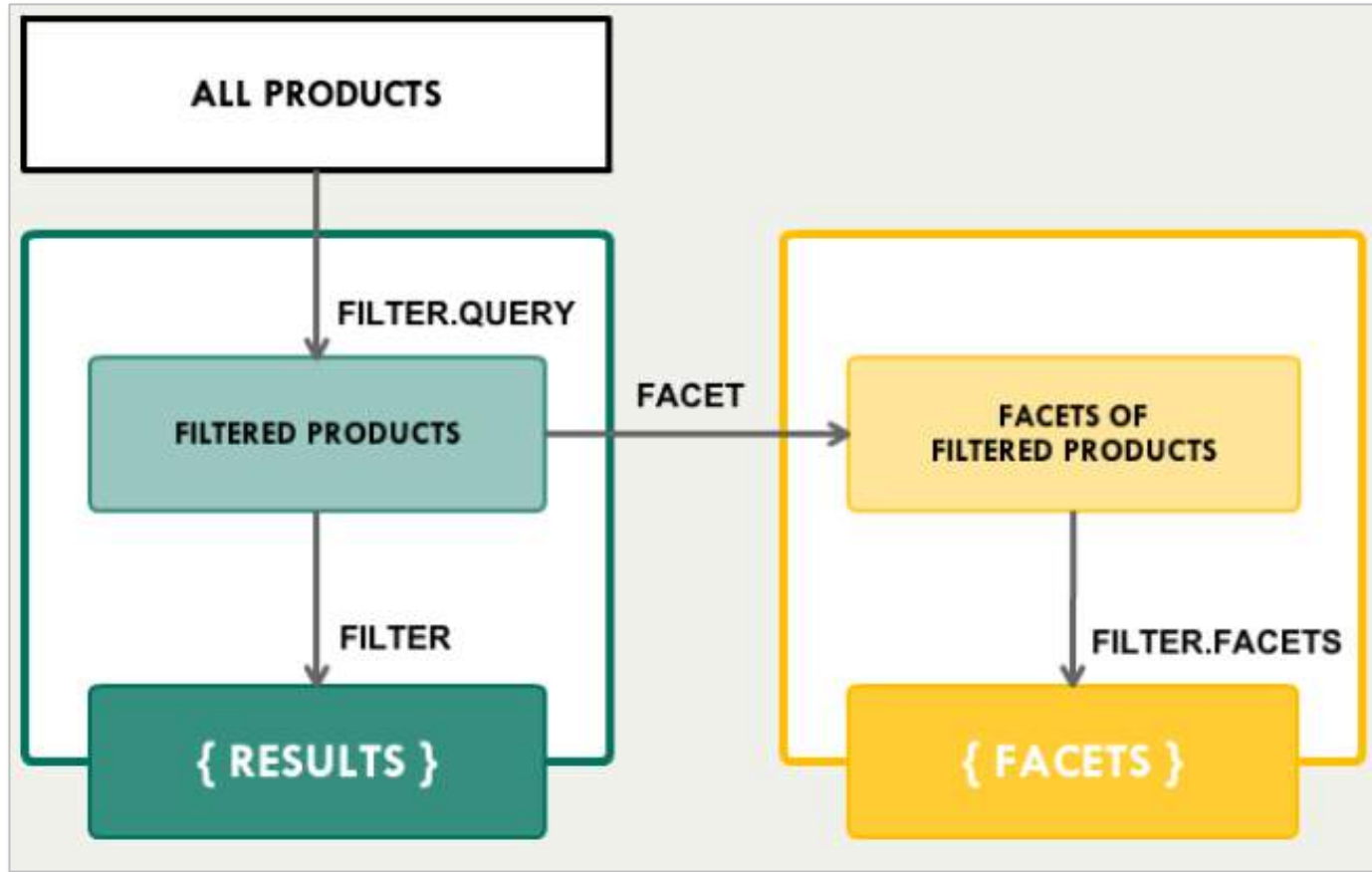
search query vs simple query

Query Type	Remarkable Parameters	Response
Product query	where	current and staged representations
Product projection query		current or staged representations
Product projection search	text.{language} facet filter filter.query filter.facets	current or staged representations

Example

GET /{projectKey}/product-projections/**search?facet=variants.attributes.colors&facet=variants.attributes.size:"m"**

search parameter



{Results} shows the search matches: the resulted products.

{Facets} calculates statistical counts based on values of an attribute.

SERVICE & PLATFORM SECURITY, PRIVACY CONTROLS

security overview

Data in Transit

- SSL only, with 2048 bit key length
- TLS 1.2 only

Data at Rest

- Encrypted Disks, Encrypted Chunks, Key Management System in place
- Passwords are hashed and salted
- Backups are encrypted via GPG (Gnu Privacy Guard) Keys

CD/CI

- Automated Dependency Check, Updates

Others

- Continuous Port Scanning
- Penetration Testing



application journey

Client to Load Balancers

- SSL only, with 2048 bit key length
- TLS 1.2 only
- SNI (Server Name Indication) based SSL offloading on the edge for fast connection round trip to client

Load Balancers to Application Servers

- Google distinguishes between Premium and Standard Network
- SSL proxy running on each node for the communication between LB and the node level

Application Servers to Application Servers

- API extensions and subscriptions calling external services via SSL only
- service to store images and other integration all use proper SSL connections

Application Servers to Persistence Layer (DB)

- SSL connection between our application layer and database resp. indexing service
- wrap SSL proxy around unencrypted services and restrict transfer only on localhost

privacy controls

- Out-of-the-box API support for **GDPR controls**
 - Retrieval of Collected Data
 - Request to Erase Collected Data
 - Request to Trace Collected Data (via support)



THANK YOU!



Munich, DE

Adams-Lehmann-Str. 44
80797 Munich
+49 89 99 82 996-0

Berlin, DE

Sonnenallee 223
12057 Berlin
+49 30 67 24 21-20

Durham Office, US

American Underground | Crowe
Building
406 Blackwell Street,
Suite B034
Durham, NC 27701
+1 212 220 3809

London, UK

LABS House
15-19 Bloomsbury Way
WC1A 2TH London

Amsterdam, NL

Prins Bernhardplein, 200
1097 JG Amsterdam