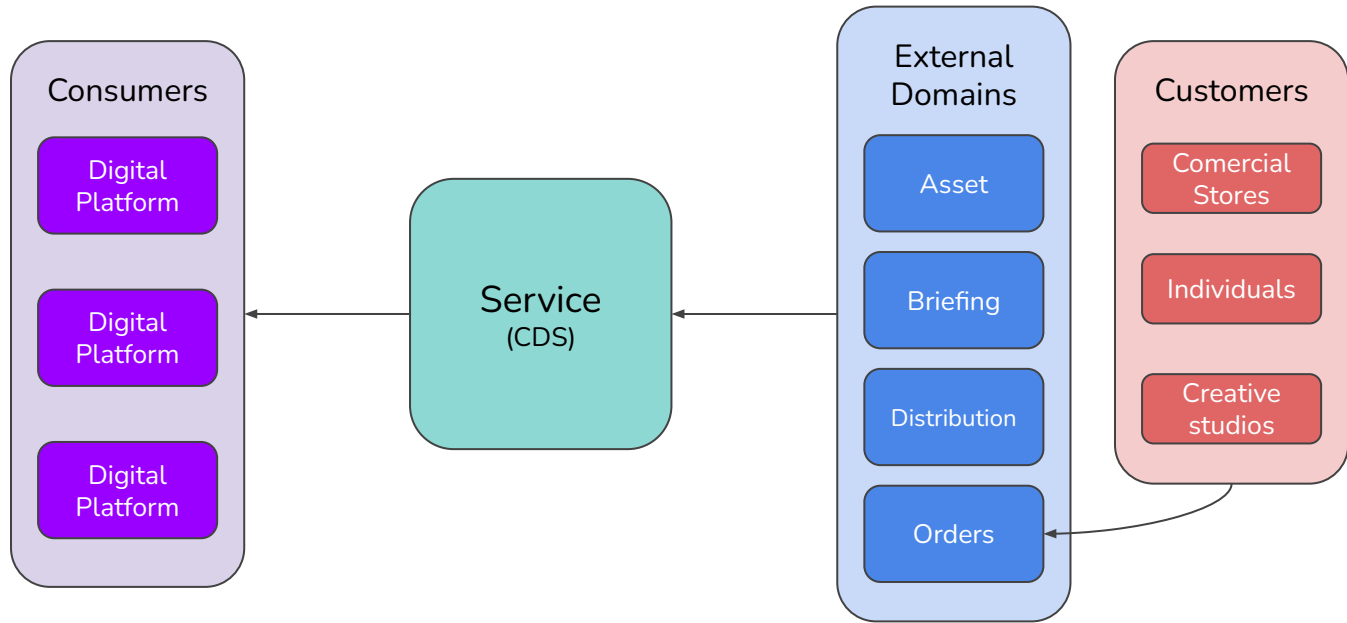


Content
Distribution
Service



Project definition

Build a **service** that **aggregates data** about assets from 4 external services and exposes an **API** interface to consumers in order to **provide** them with the **asset content and metadata**.

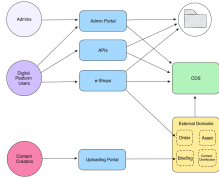




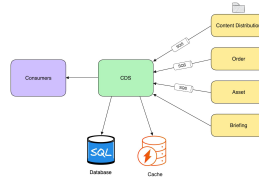
Topics

- Architecture
- Design Decisions
- Implementation
- Limitations
- Improvements

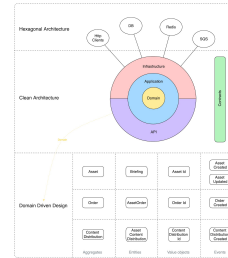
Context diagram Who



Container diagram How



Component diagram What

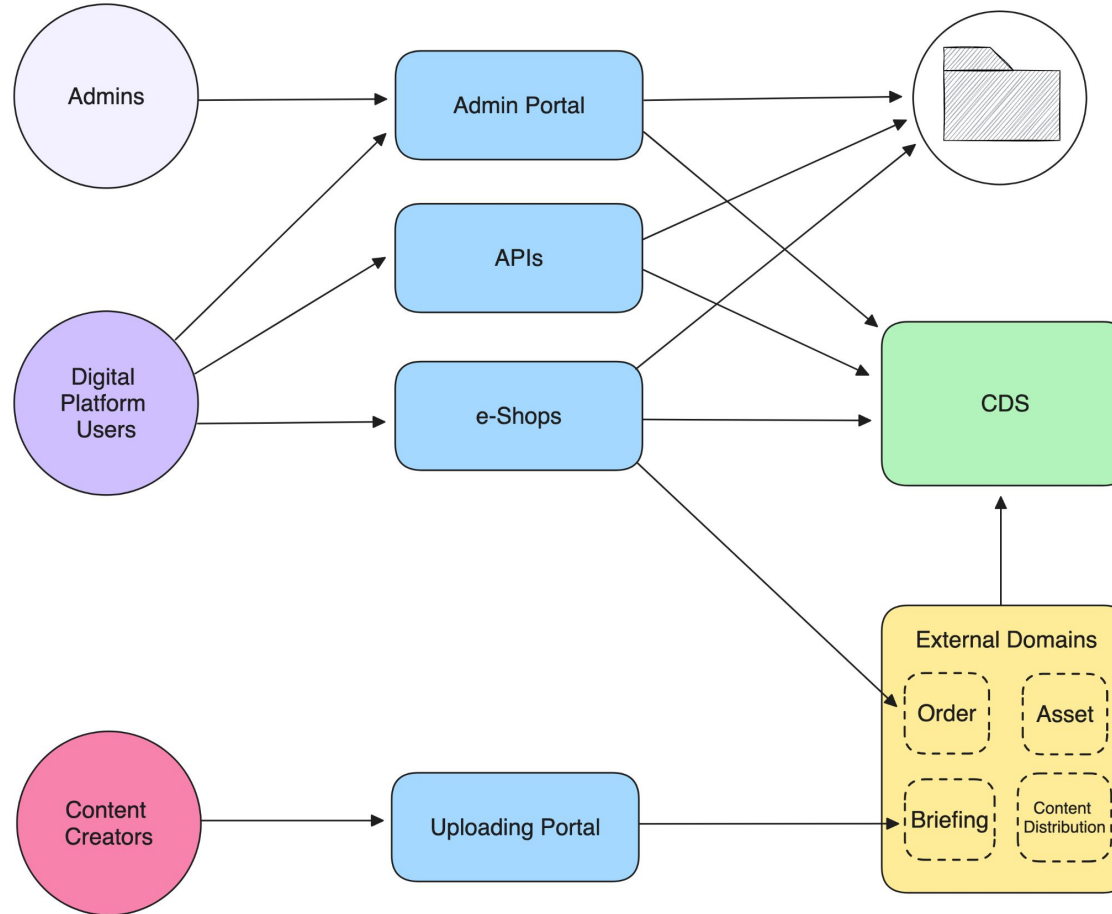


Database diagram Technical details



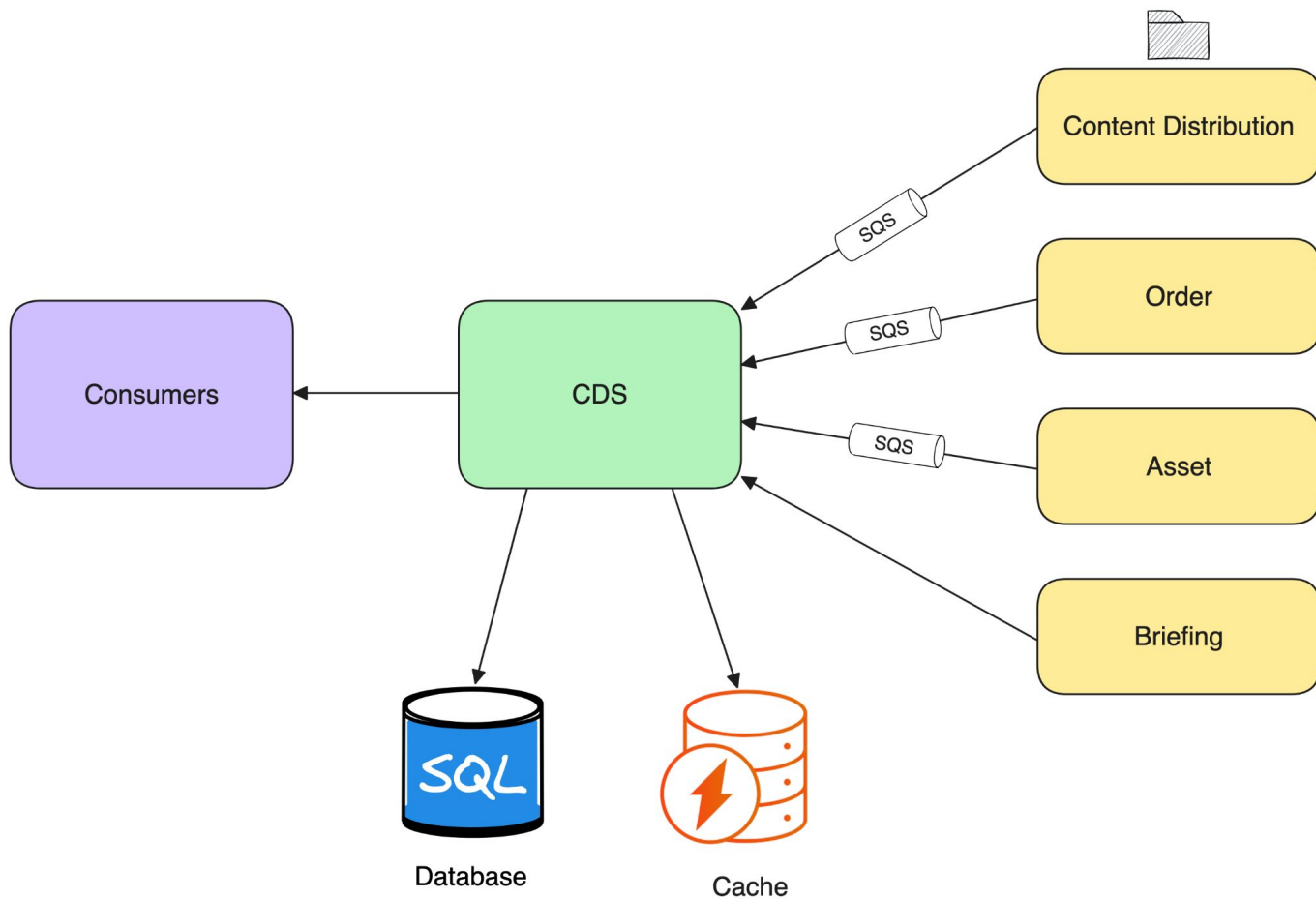
Architecture
Design Decisions
Implementation
Limitations
Improvements

Context Diagram



Architecture
Design Decisions
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Limitations
Improvements

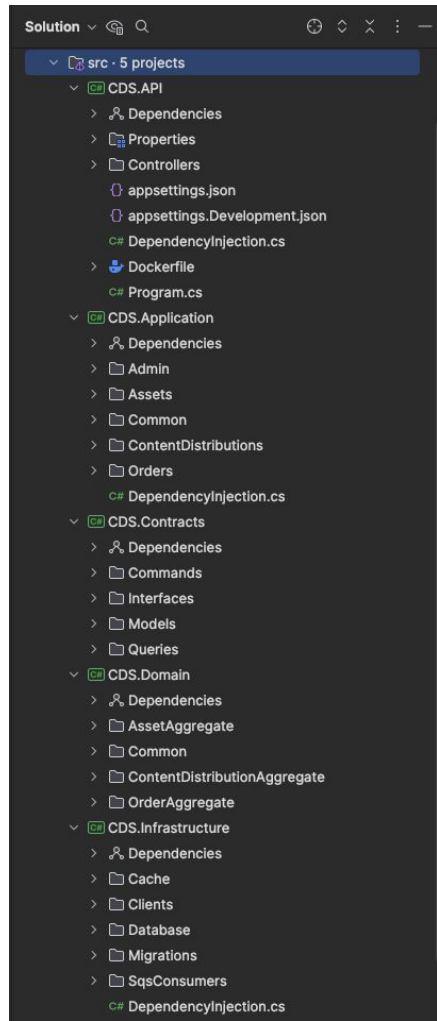
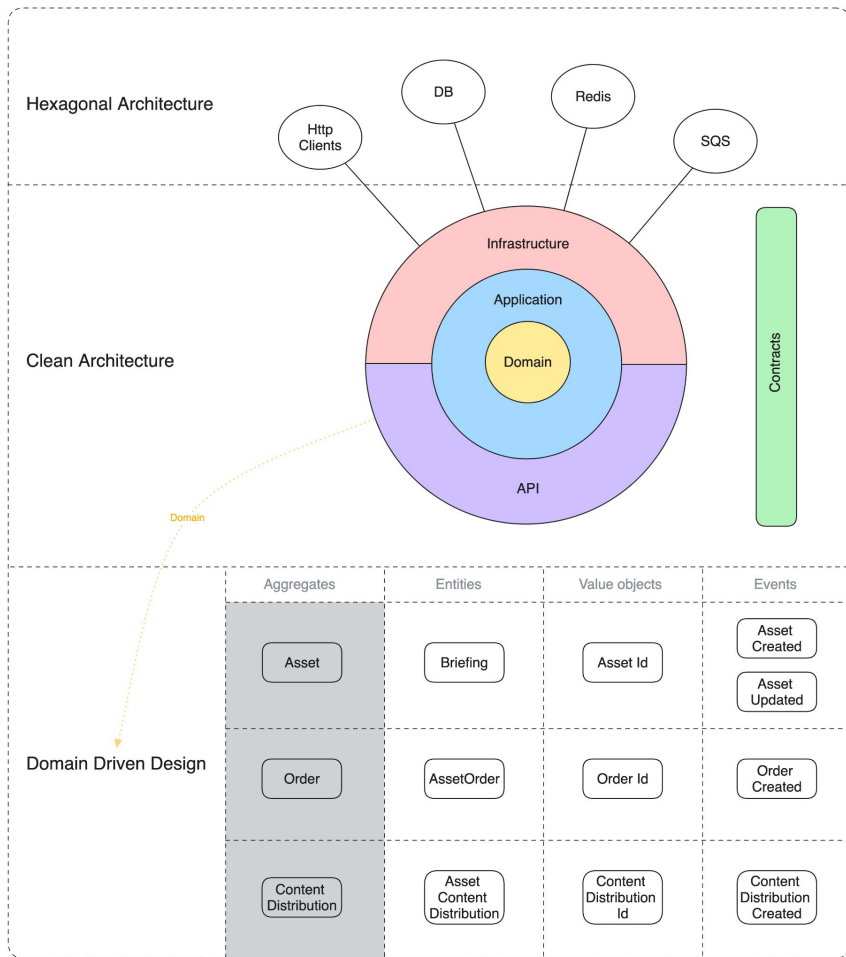
Container Diagram



Architecture

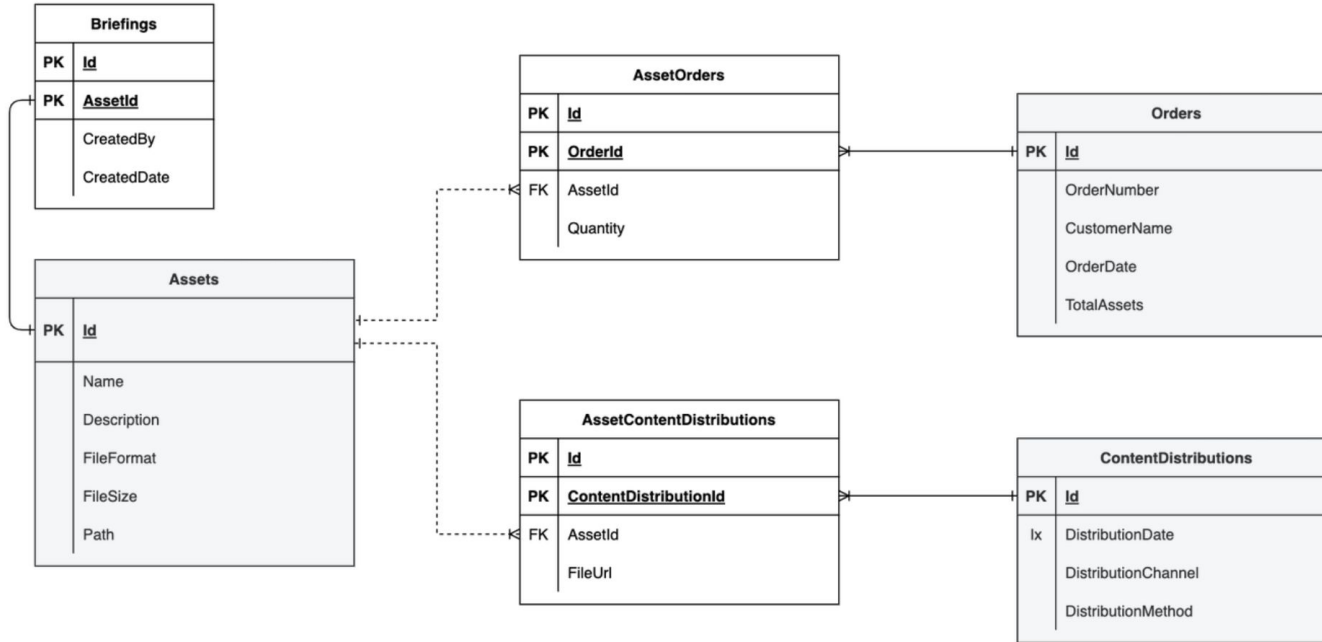
Design Decisions
Implementation
Limitations
Improvements

Component Diagram



Architecture
 Design Decisions
 Implementation
 Limitations
 Improvements

Database Diagram (ERD)

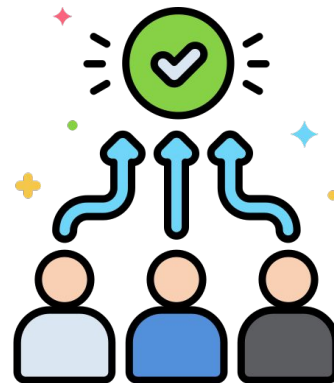


Architecture

- Design Decisions
- Implementation
- Limitations
- Improvements



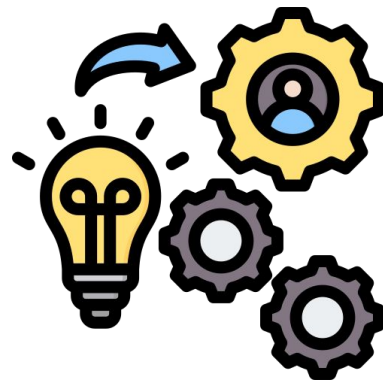
Design Decisions



- Redirect user to the file url
 - Simplification
 - Clear separation of domain roles
- Caching of the most recent content distribution file url
 - Optimization of response speed
 - Reduce load on the database
- Passive cache repopulation
 - Robustify solution
 - Flexibility
- Asset aggregate shouldn't own the connection entities of order and content distribution
 - Avoid information loss
 - Cleaner persistence of order and content distribution objects




Implementation



- SQS consumers (*event driven solution*)
- Caching (*speed optimization*)
- Mediators for layer communication (*layer abstraction*)
- DB Schema definition configuration files (*Migrations automation*)
- Full containerization (*CI/CD ready*)
- AWS ready (*localstack*)
- Paginated response (*scalability*)
- Unit tests (*resilience*)
- End-to-end tests (*Postman*)
- Logging (*auditability*)
- DB indexes (*scalability and speed*)

CDS API

 **Swagger.**
Powered by SMARTBEAR

Select a definition **CDS.API v1**

CDS.API

1.0 OAS3

<http://localhost:5271/swagger/v1/swagger.json>

Admin

DELETE /admin/reset

DELETE /admin/drop-db

DELETE /admin/purge-cache

Assets

GET /assets

GET /assets/{id}

GET /assets/{id}/metadata

Architecture
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CDS API

Assets

GET

/assets

GET

/assets/{id}

GET

/assets/{id}/metadata

```
1  [
2    {
3      "id": "ASSET009",
4      "name": "BB-8 Toy",
5      "description": "Images of a remote-controlled BB-8 toy, a popular Star Wars merchandise item.",
6      "fileFormat": "ToBeDefined",
7      "fileSize": "ToBeDefined",
8      "path": "/path/to/asset009.jpg",
9      "briefing": {
10       "createdBy": "Robert Wilson",
11       "createdDate": "2023-07-09"
12     }
13   },
14   {
15     "id": "ASSET003",
16     "name": "Darth Vader Costume",
17     "description": "Images showcasing a detailed Darth Vader costume with helmet, cape, and armor.",
18     "fileFormat": "ToBeDefined",
19     "fileSize": "ToBeDefined",
20     "path": "/path/to/asset003.jpg",
21     "briefing": {
22       "createdBy": "Mark Johnson",
23       "createdDate": "2023-07-03"
24     }
25   },
26   {
27     "id": "ASSET002",
28     "name": "Lightsaber Prop",
29     "description": "Photographs of a replica lightsaber prop used in Star Wars cosplay.",
30     "fileFormat": "ToBeDefined",
31     "fileSize": "ToBeDefined",
32     "path": "/path/to/asset002.png",
33     "briefing": {
34       "createdBy": "Jane Smith",
35       "createdDate": "2023-07-02"
```

Architecture
Design Decisions
Implementation
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CDS API

Assets

GET /assets

GET /assets/{id}

GET /assets/{id}/metadata

```
1  {
2    "id": "ASSET005",
3    "name": "Star Wars Movie Poster",
4    "description": "A high-resolution poster featuring the characters and scenes from the Star Wars saga.",
5    "fileFormat": "ToBeDefined",
6    "fileSize": "ToBeDefined",
7    "path": "/path/to/asset005.pdf",
8    "briefing": {
9      "createdBy": "David Brown",
10     "createdDate": "2023-07-05"
11   },
12   "orders": [
13     {
14       "orderId": "ORD123456789",
15       "quantity": 2,
16       "customerName": "John Doe",
17       "orderDate": "2023-07-13",
18       "orderTotalAssets": 10
19     },
20     {
21       "orderId": "a938cad4-1756-4d1d-88b7-136eac97cfa0",
22       "quantity": 76,
23       "customerName": "Han Solo",
24       "orderDate": "2022-11-19",
25       "orderTotalAssets": 8
26     }
27   ],
28   "contentDistributions": [
29     {
30       "fileUrl": "https://example.com/assets/ASSET005.pdf",
31       "distributionDate": "2023-07-15",
32       "distributionChannel": "Online Store",
33       "distributionMethod": "Digital Download"
34     }
35   ]
36 }
```

Architecture
Design Decisions
Implementation
Limitations
Improvements

CDS API

Assets	
GET	/assets
GET	/assets/{id}
GET	/assets/{id}/metadata

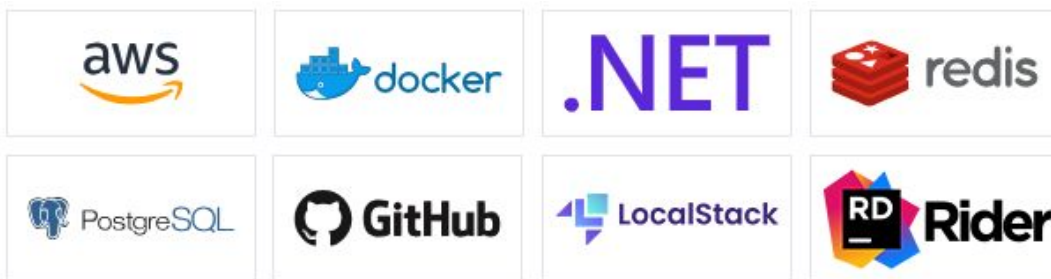
Body	Cookies	Headers (4)	Test Results (1/1)	Status: 302 Found	Time: 27 ms	Size: 146 B	Save as
Key		Value					
Content-Length		0					
Date		Thu, 09 May 2024 07:02:35 GMT					
Server		Kestrel					
Location		https://example.com/assets/ASSET005.pdf					

Architecture
Design Decisions
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Limitations
Improvements



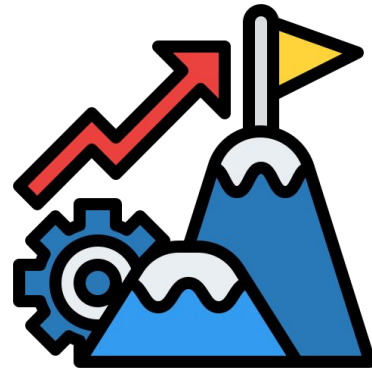
Implementation

Technologies & Tools





Challenges



- Containerization
 - ◆ Network setup
 - ◆ Initializing container
 - Initializing sqs queue automation (bootstrap)
 - Initializing database automation (EF.core migrations)
- Domain driven Tactical design
 - ◆ Split the entities among the aggregates
- Clean Architecture layer separation
 - ◆ Infrastructure and Application layer separation



Limitations



- Orphan entities cleanup
- Pagination inside the asset metadata response
- Possible loss of an asset's briefing metadata

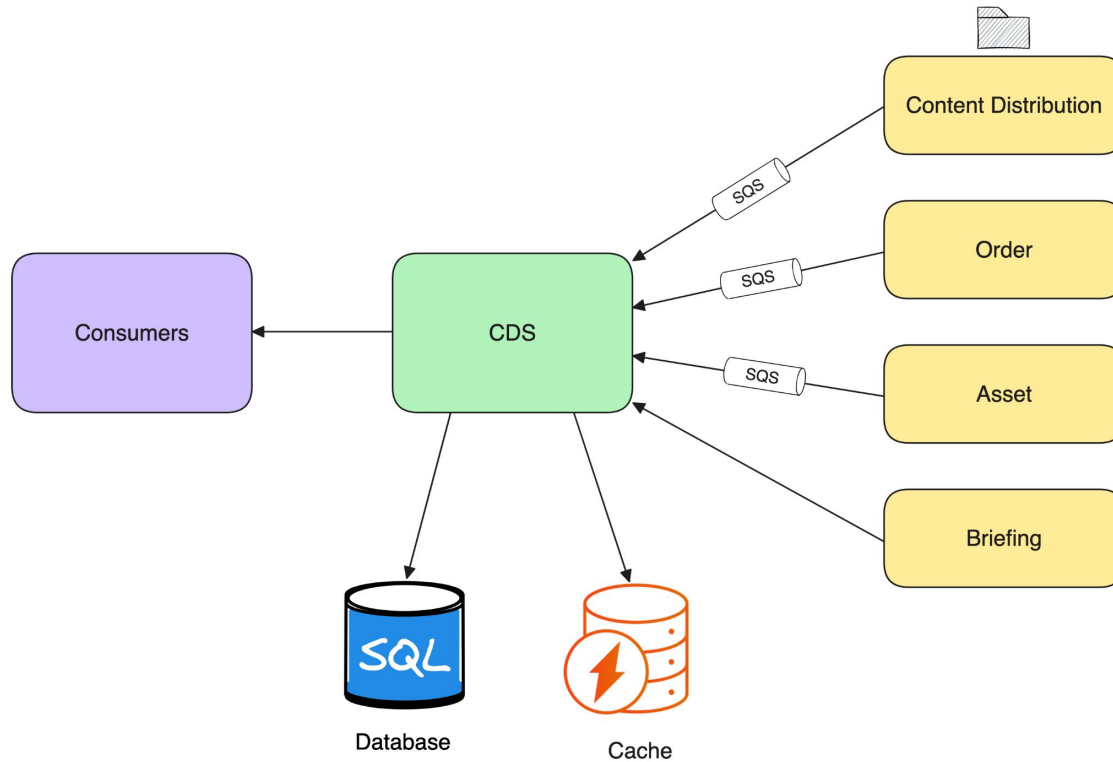


Improvements

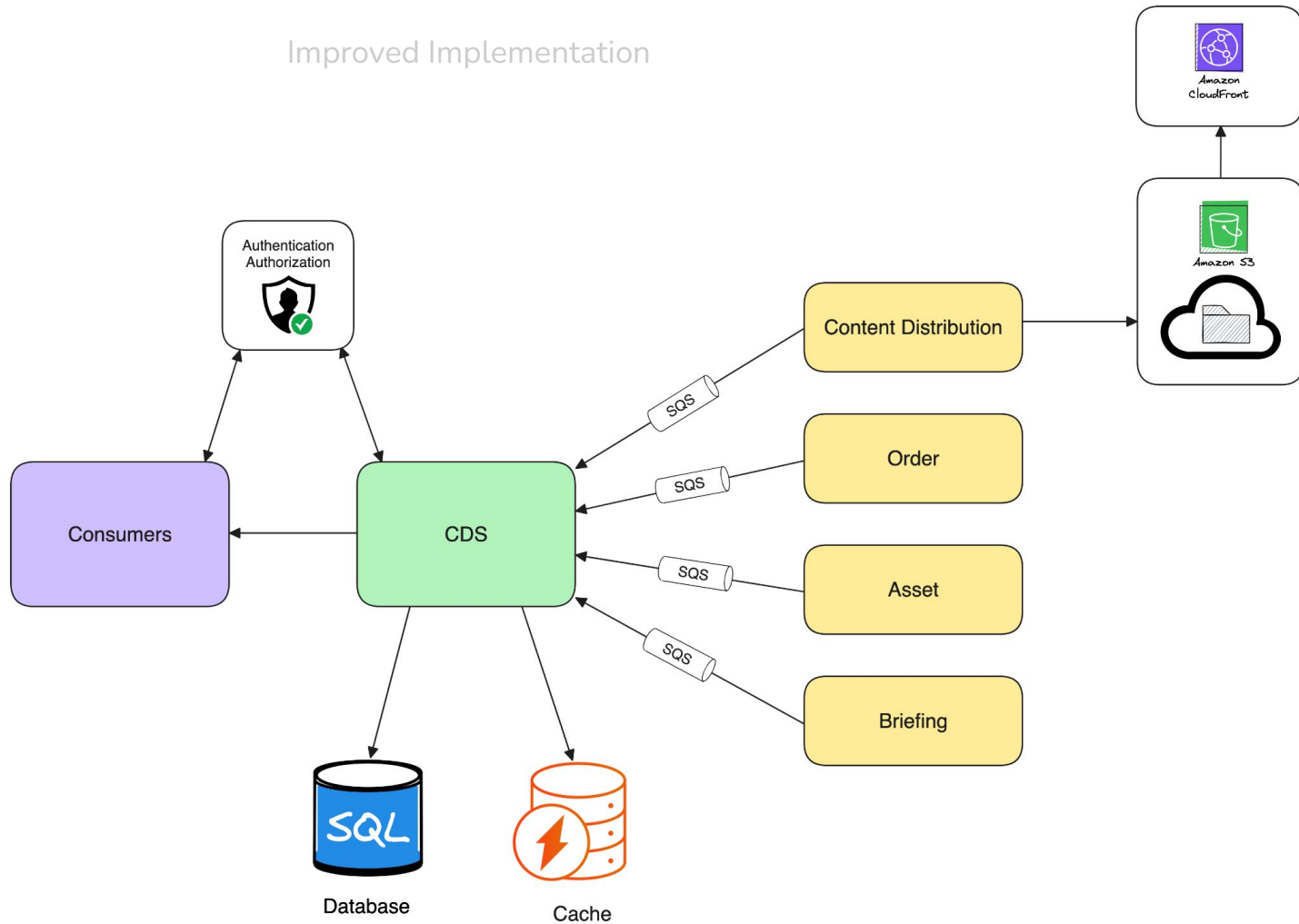


- CI/CD
- AWS S3 and Cloudfront CDN
- Authentication / Authorization
- Purely event driven

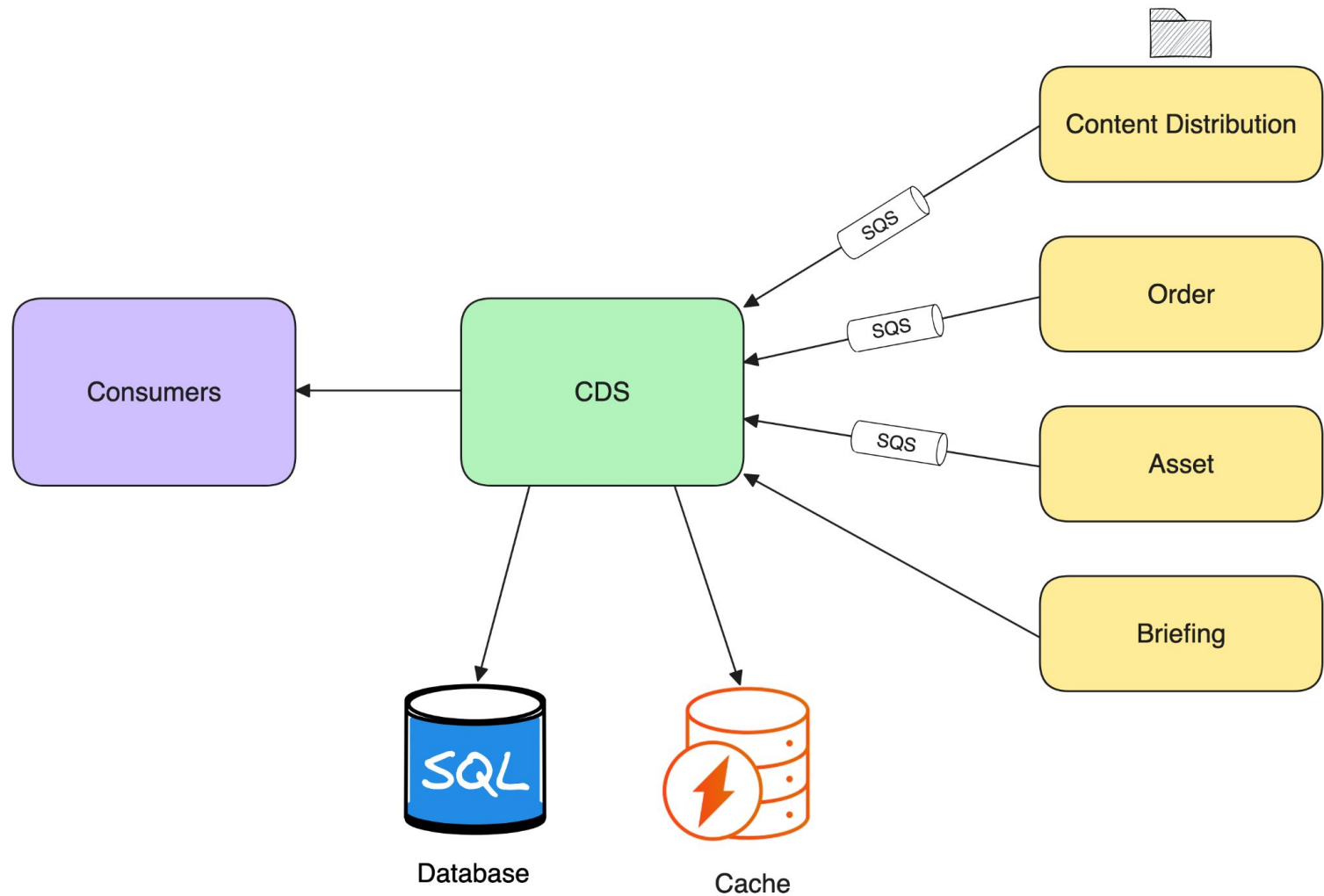
Current Implementation



Improved Implementation



DEMO



Q & A

Thank you