Interactive Dashboard Application for E-commerce Sales Analytics

Marcel Dietl, 27.01.2024

Task 1: Interactive Dashboard Application

Welcome Back to your Sales Analytics Dashboard!

Set custom filters to analyze your sales

2020-01-01 → 2023-12-31

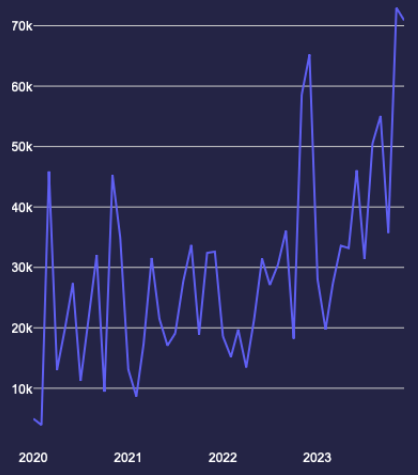
× United States × Germany × France

× Office Supplies × Technology

Total Sales

$1,402,916

Sales Volume



Net Profit

$222,592

Profit Margin

15.87%

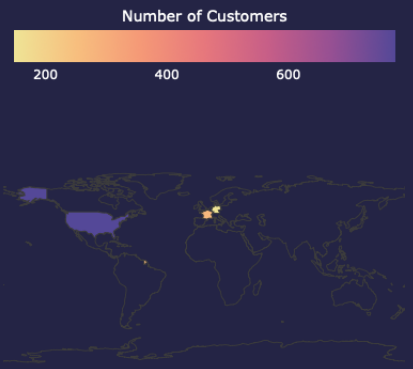
Total Shipping Cost

$125,671

Average Shipping Cost

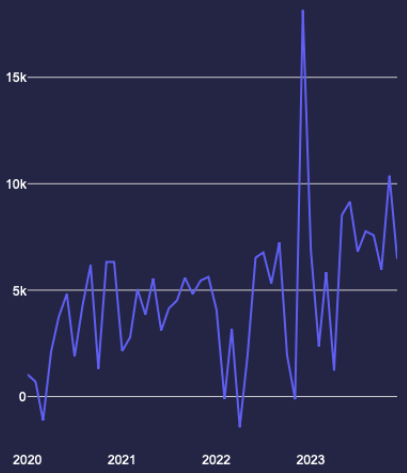
$24.73

Customer Insights

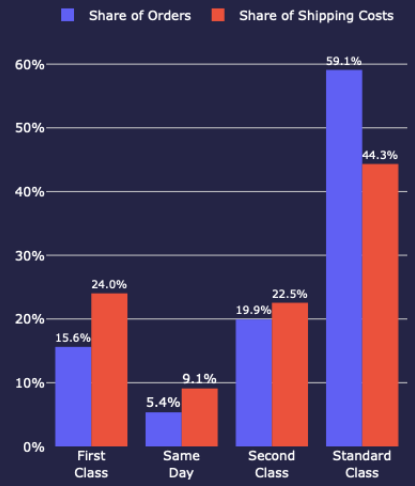


Sales Distribution Insights

Profit Over Time



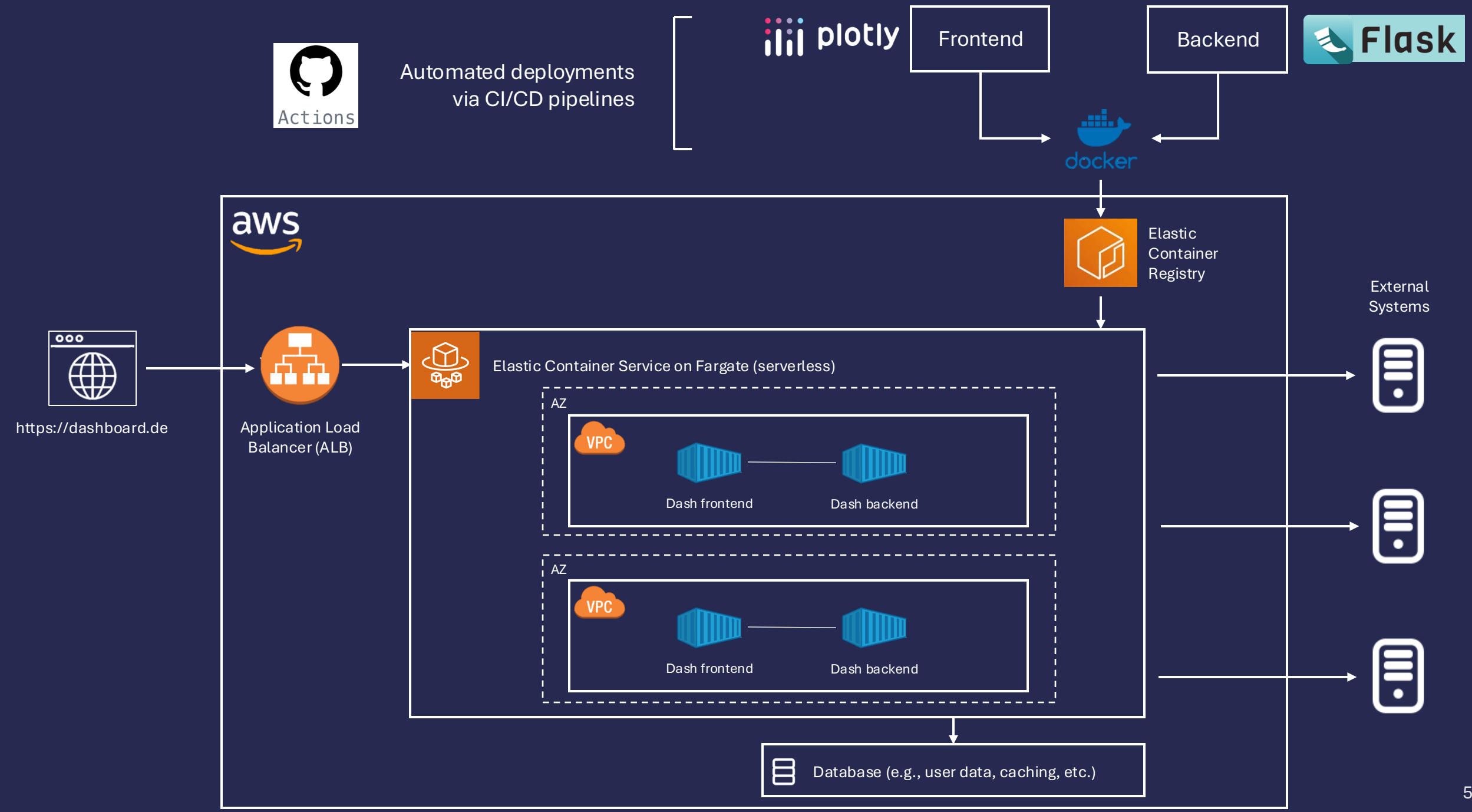
Shipping Mode Information



Customers Favorite Products

1. Cisco TelePresence …	$33,957
2. GBC Ibimaster 500 M…	$21,118
3. Canon imageCLASS …	$15,750
4. GBC DocuBind TL30…	$13,455
5. Honeywell Enviracair…	$12,627

Task 2: Cloud Deployment Architecture


Actions
Automated deployments
via CI/CD pipelines
plotly
Frontend
Backend
Flask
docker
aws
Elastic
Container
Registry
External
Systems
https://dashboard.de
Application Load
Balancer (ALB)
Elastic Container Service on Fargate (serverless)
AZ
VPC
Dash frontend
Dash backend
AZ
VPC
Dash frontend
Dash backend
Database (e.g., user data, caching, etc.)

Potential Difficulties and Challenges

Scaling

Auto-scaling based on
custom CloudWatch Metrics

Latency & Performance

Optimized data retrieval with caching
Geographically distributed regions

Security

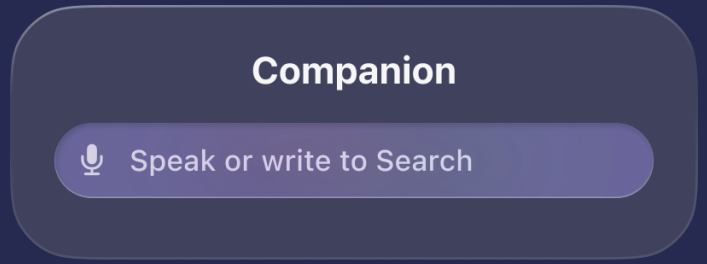
Set up IAM roles
Use SSL encyrption

Management Overhead

Avoid management of EC2
instances by using Fargate

Task 3: Natural Language Integration

„Show sales trends for technology products in the US last quarter“

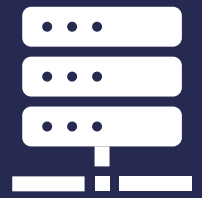


Update and display data

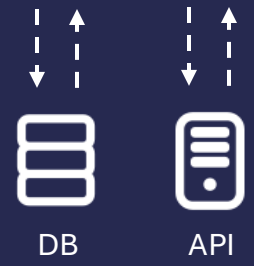
Natural language input

Filtered Data

Backend endpoint which connects to ChatGPT API & prompts it to extract filters



Parses JSON into filter model, Constructs database query or API request & executes it



Prompt

JSON with extracted filters

Executes prompt (always prioritize accuracy over guessing)

Sends back extracted filters in JSON format based on provided schmea