

# Development and deployment of SaaS solution for logistics automation in e-commerce

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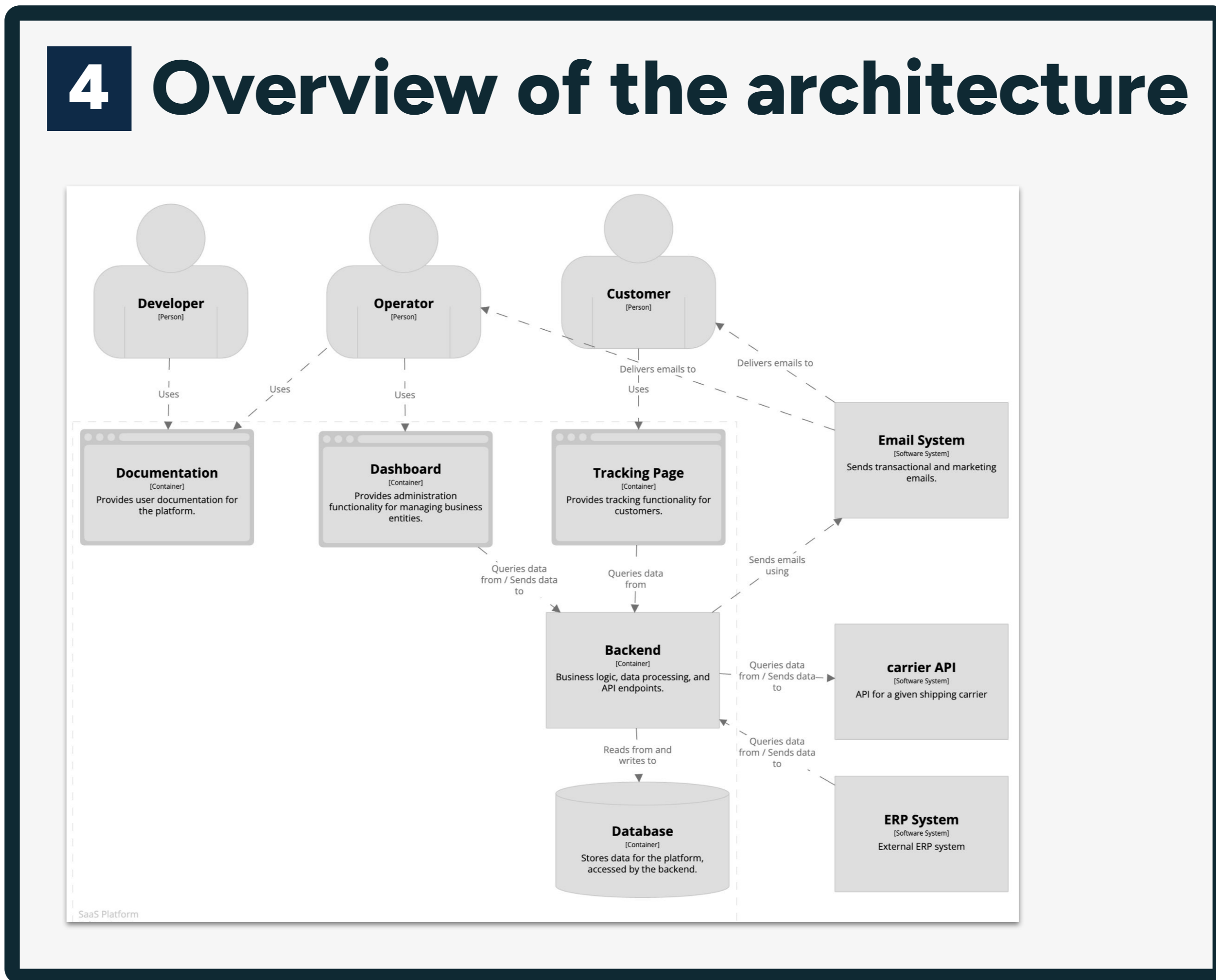


## 2 Motivation

- Inefficiencies in e-commerce logistics**
  - causing delays and increased operational cost
  - affecting overall customer satisfaction
- Need for Enhanced Customer Engagement**
  - existing solutions lack capabilities to build brand loyalty
  - using collected data for customer engagement

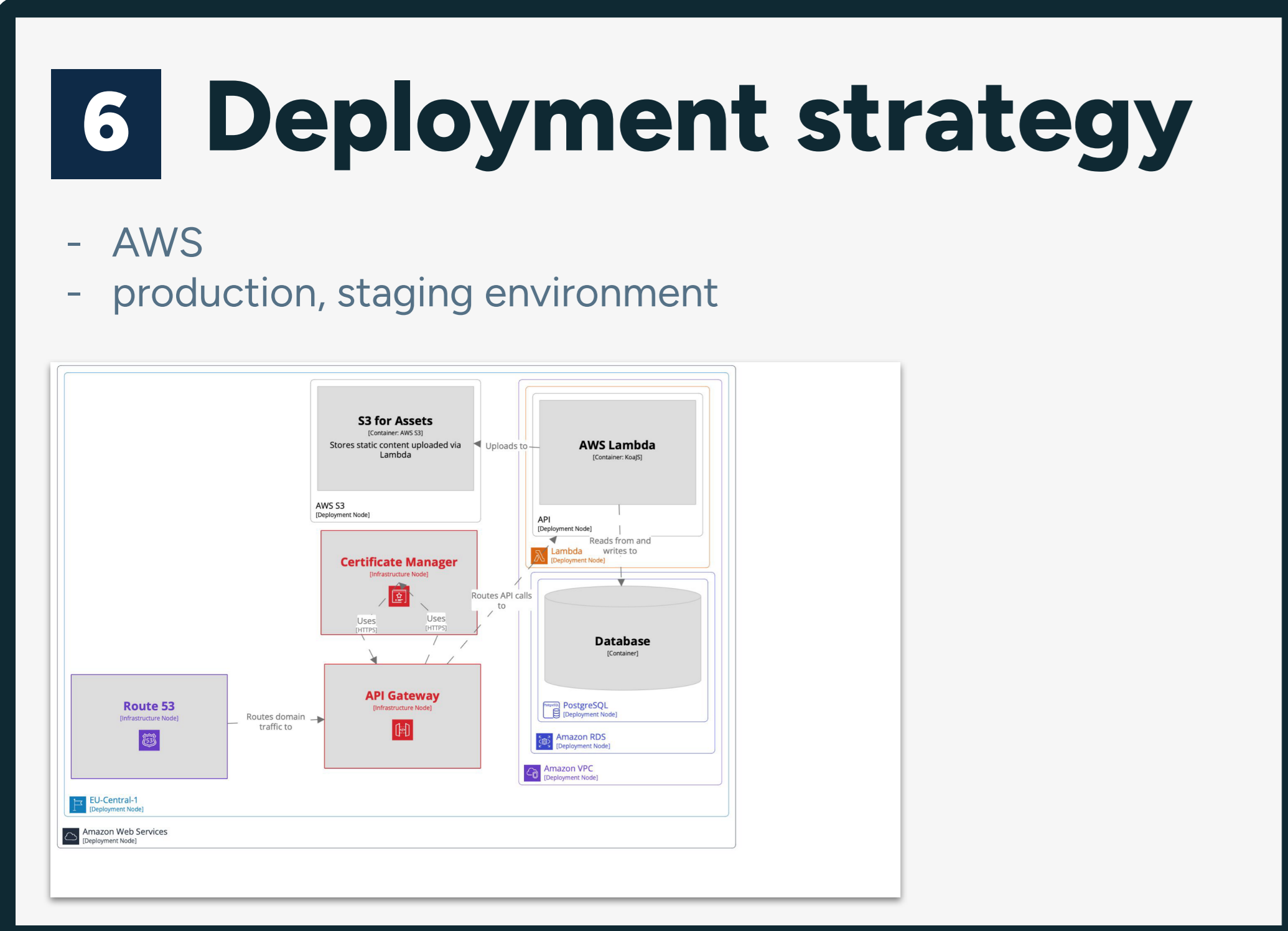
## 3 Proposed solution

- Streamlining operations**
  - Automating communication with shipping carriers.
- Real-world validation**
  - Evaluation in daily operations with SAP.
- Multi-tenancy**
  - Independent clients in a single instance.
- System integration**
  - Offer integration capability.
- Branded experience**
  - Customizable tracking page and notification emails.
- Automated AWS deployment**
  - Utilize modern cloud technologies and IaC.



## 5 Apps

- Backend**
  - Node.js + KoaJS
  - ORM for DB
  - Tenant management
  - Public API
  - Communication with shipping carriers
- Tracking page**
  - React
  - viewed by customers
  - marketing banners
  - e-mail notifications
- Dashboard**
  - React
  - GUI for tenants
    - add/modify shipments
    - print labels
    - print consignment lists
  - user management
  - shipping carrier setup
  - branding designer



## 7 SAP Integration

- requirements:
  - frequent data synchronization
  - importing new data
  - updating parcel statuses
- implemented services:
  - SAP API Proxy
  - data sending service

## 8 Evaluation

- Daily operations**
  - Used on daily basis in company with two distinct e-commerce stores.
  - Using Packeta, PPL and Česká Pošta.
- Customer engagement**
  - Post-implementation data shows that 85% of customer stay on the customized tracking page.

**> 14 000**  
Sent parcels since deployment in March 2024.

Diagrams (section 4 and 6) are C4 (Software system diagram and deployment diagram).