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Smart Logistics

Data Intelligence @ Alibaba Cloud International

Alibaba Group Smart Logistics Solution Overview

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Logistics Solutions

Automation

- Automated Warehouse
- Automated Distribution Centre

Intelligent Solutions

- Supply Chain Planning
- OWTB Fulfillment Systems
- AI Dispatching with VRP
- Address Application

Common Solutions

- Cloud Native
- Cloud Migration
- Backup & Restore
- Security & Compliance ★
- Data Analytics & AI ★
- SMS & Chat App ★

Platform Products

- Database ★
- Big Data & AI
- Media Services
- Middleware
- Security
- IT Governance
- IoT
- Enterprise Applications & Cloud Communication

Infrastructure Products

- Elastic Computing
- Storage
- Networking & CDN ★
- Private Cloud

★ Highlight logistics solutions

Unique Value Proposition – Why Alibaba Cloud

Cainiao & Lazada Ecosystem

- Cainiao Logistics experience
- Lazada E-commerce fulfillment experience

World Class Cloud Hosting

Logistics solution with experience and confidence on the most secure, robust and resilient cloud in Southeast Asia

Analytics & Visualization

- Big data & IOT platform to revolutionize logistics and supply chain management.
- Real-time visualization for management & operation insights

Leverage AI

- World-leading NLP algorithm for addressing parsing powered by DAMO academy
- Dispatching and vehicle routing with machine learning

Digital Transformation

Industry-proven automation and all-in-one digitization systems for logistics

Network Connection

Leveraging on Alibaba Cloud backbone network:

- high performance efficiency,
- low latency
- ZERO packet loss

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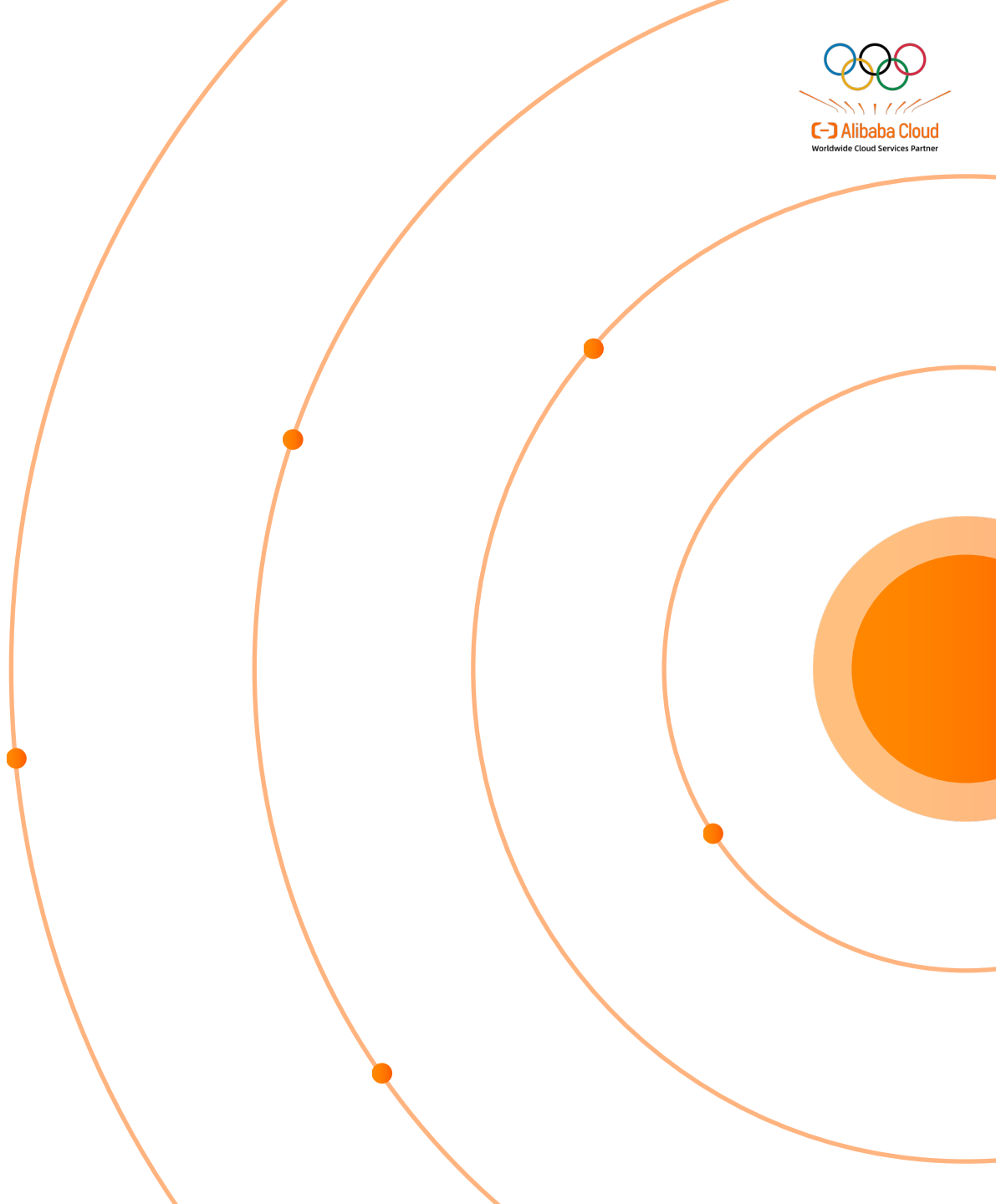

- Logistics Solutions
  - Automation
  - Digitalization

Cainiao Smart Warehouse
A fully-integrated smart warehousing solution

One-stop Automation Solution

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Solution Design

- Reduce Operating Cost
- Efficient and suitable hardware equipment selection
- Advanced AI simulation calculation proof

Integration & Implementation

- Integrated standardization
- Integration flexibility
- Systematic maintenance and upgrading

Intelligent Operation

- Automated Operation SOP
- Automatic intelligent digital Management

Automated few people and unmanned operations
Save labor cost

Equipment utilization improvement
Optimal allocation of resources

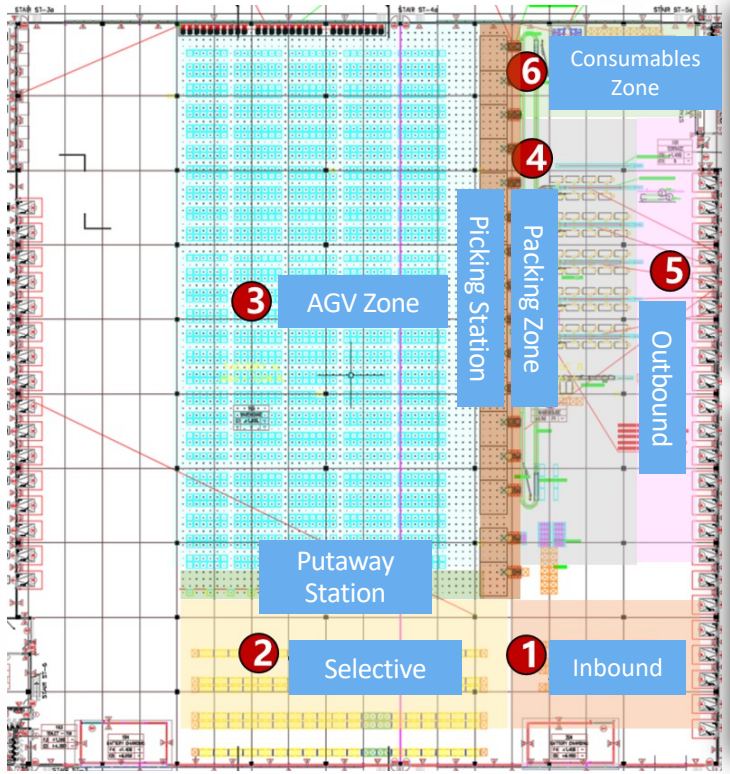
Flexible operation process, flexible response to business peaks and valleys

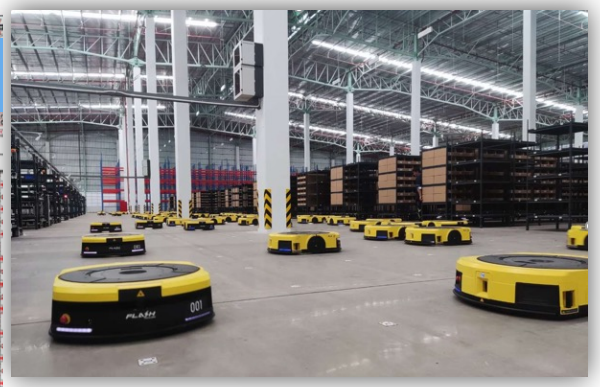
Data interconnection
Achieve intelligent decision-making

Penetration, mobility, and visualization of warehouse management

1. Automated Warehouse

Case : Flash Express Automated Warehouse





Project Overview

With the surge in the express business volume of Flash Express in Thailand, in order to effectively ensure the timely processing of users‘ express delivery and reduce personnel costs, an automated warehouse has been added. The project has a planned area of 10,000 m^2 and an AGV automation area of 5,500 m^2. The project has been completed in October 2021. Officially launched, it is currently in daily stable operation.

Project Value

Daily outbound picking efficiency reaches 20,000 order/day with 16 working hours.

Successful landing project in Southeast Asia

Full set of integrated services with relevant requirements in Thailand

Successful applications with multiple types of devices

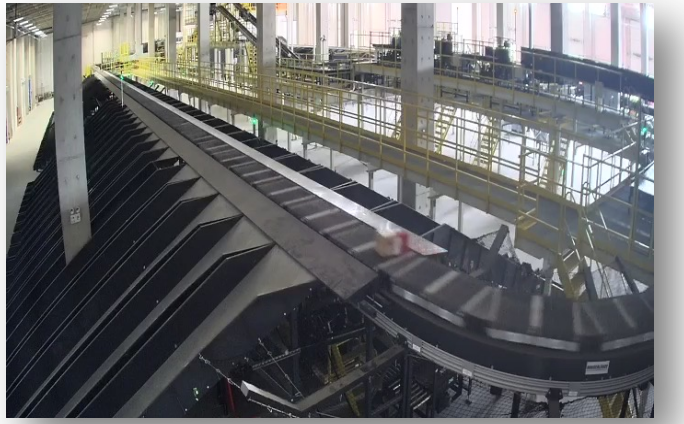
- Box Parcel Conveying System
- Automatic Unpacking & Sealing Machine Packaging Robot

Suitable for Southeast Asia warehouse customized services

- Customized solutions and process design for Southeast Asian characteristics
- System design for the operating habits of operators in Southeast Asia

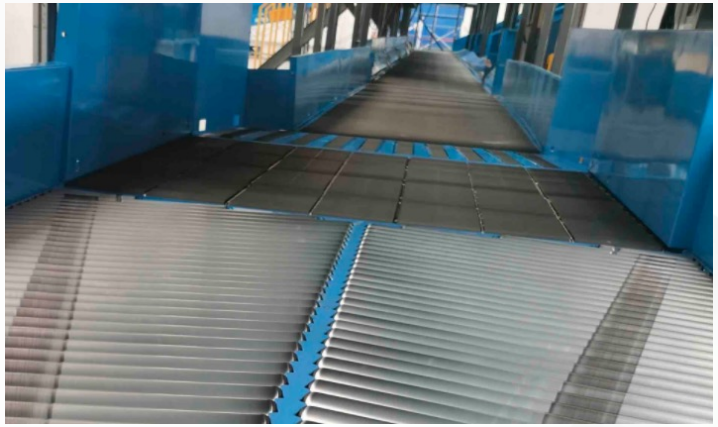
FLASH
FULFILLMENT
FLASH

Automation 2: Automated Distribution Center



Cross belt sorter

Modular belt sorter



Single piece separation

Tilt balance sorter

Linear narrowband sorter

Swing arm sorter

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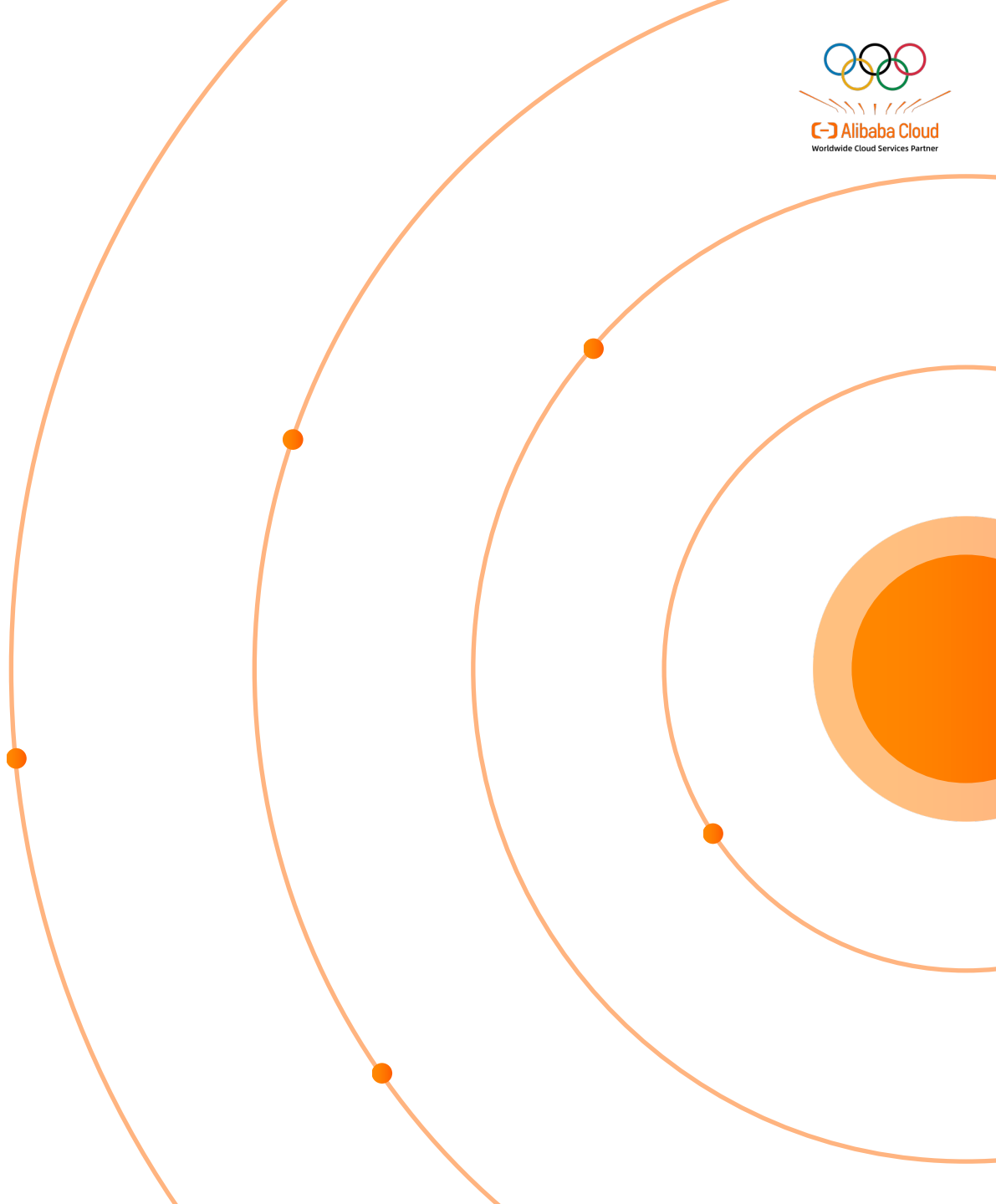

- Logistics Solutions
  - Automation
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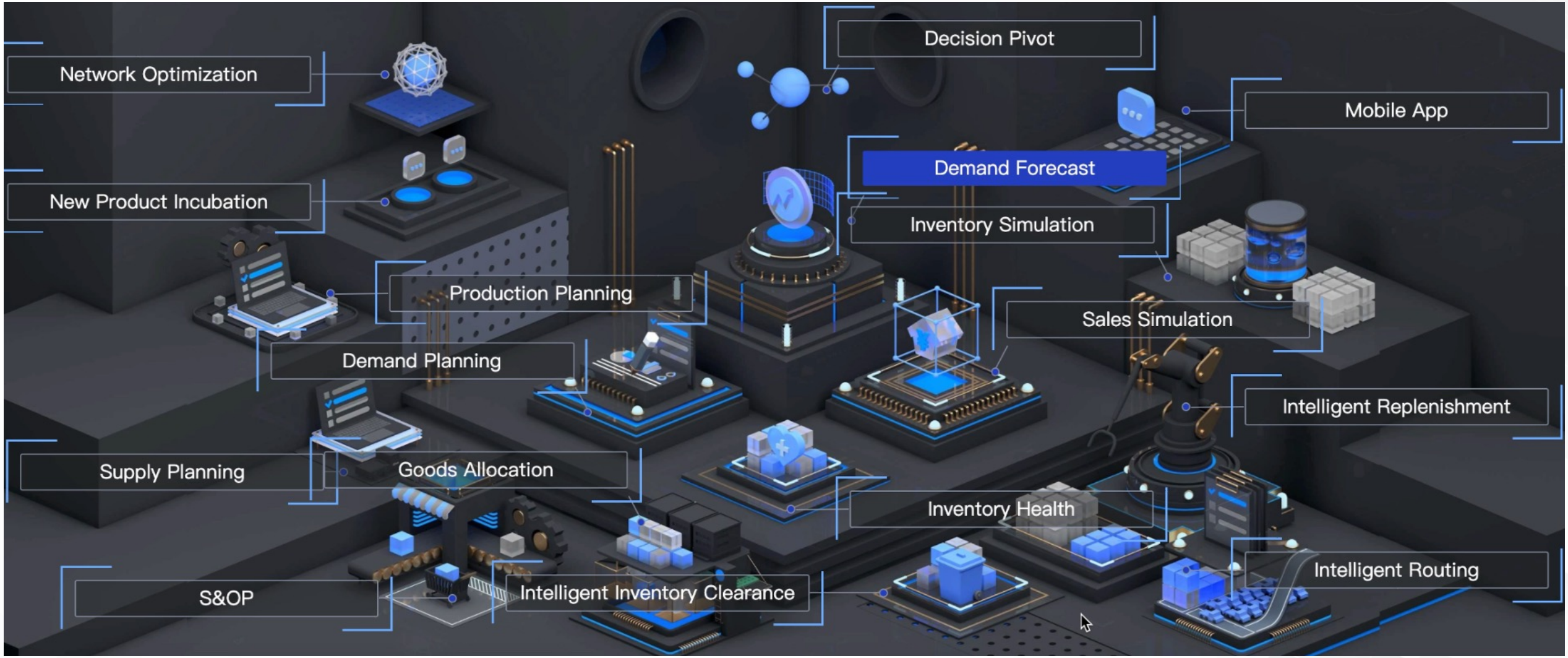
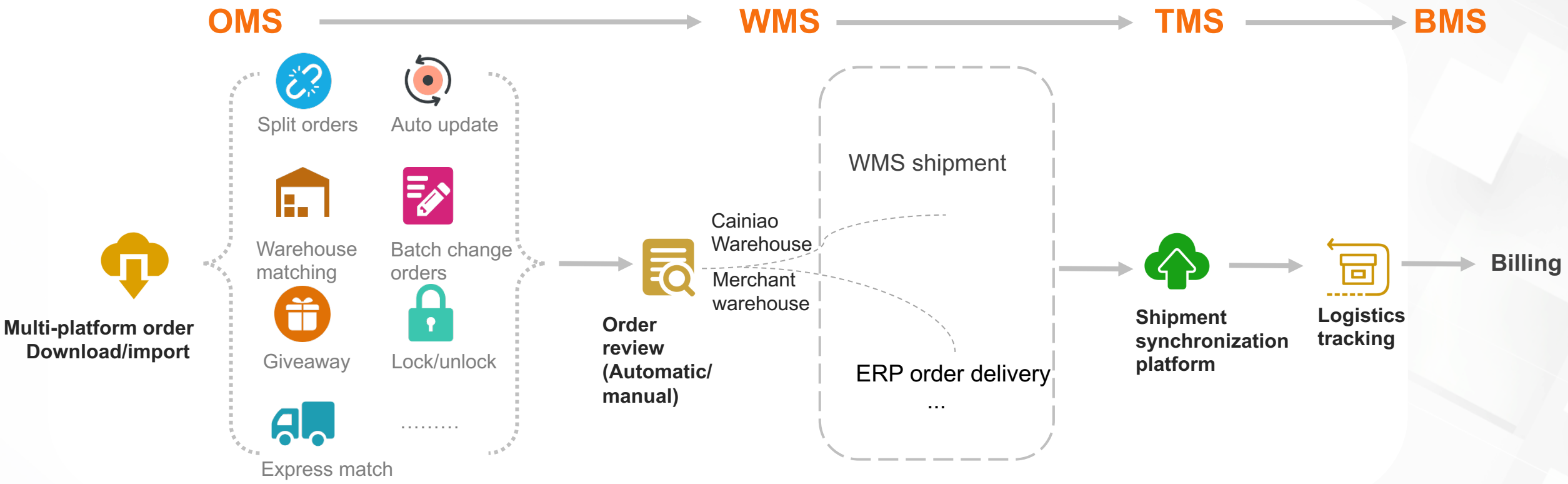
1. Supply Chain Planning



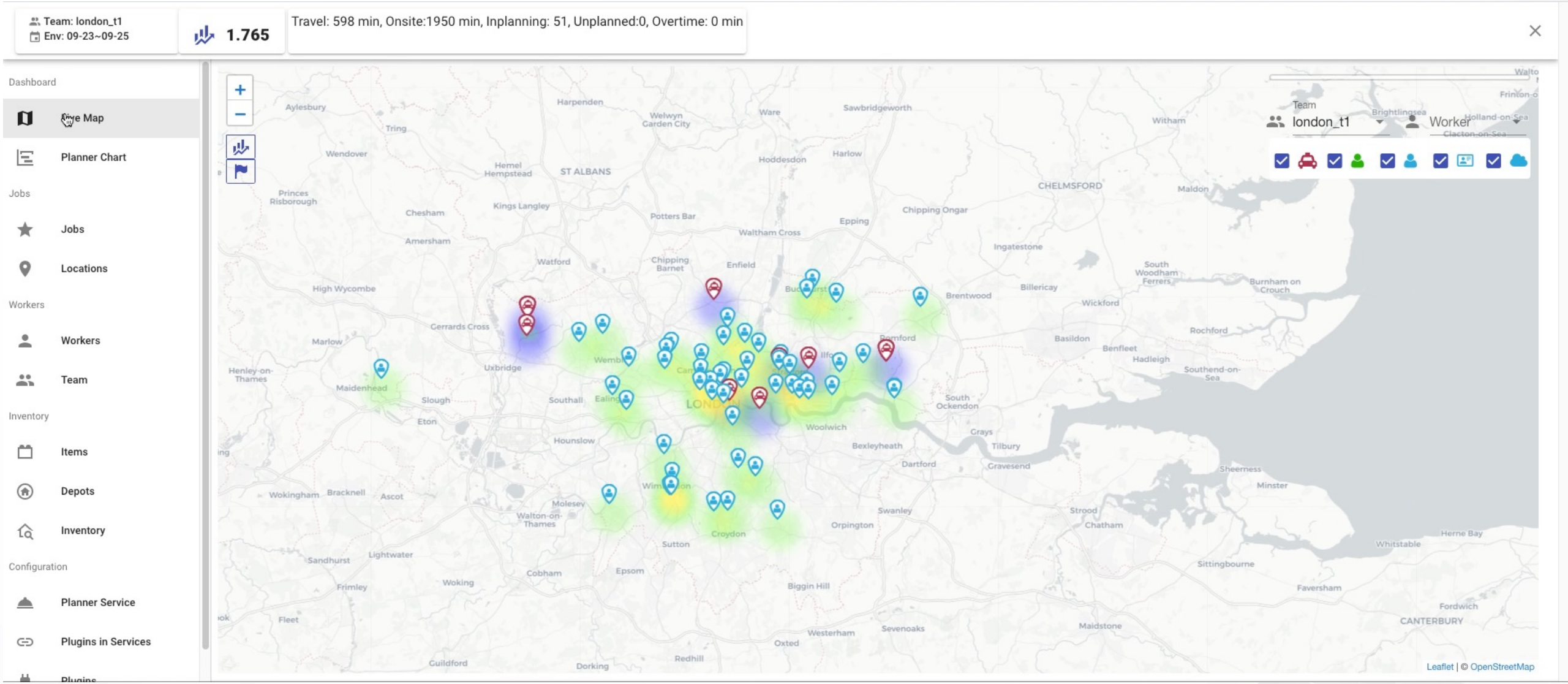
https://ai.dchain.alibaba.com/

2. OWTB Fulfillment Systems



- Real-time order synchronization/one-click import/manual new creation
- Order Split/Combine
- Abnormal order processing
- Warehouse node/logistics track view
- Smart matching express/warehouse/gift
- Batch modification/replacement of goods/void...
- Automatic refund processing of orders
- Abnormal task reminder
- Order delivery
- Synchronously update the order (address/product/remark modification)
- Shipment synchronization platform (traceability/partial shipment/exception handling...)
- ……

3. AI Dispatch with VRP



EasyDispatch Case in UK

The largest global pest control company with 90 years innovation and expertise history origin UK

Challenges

- **Inefficiency of task scheduling**

Current manual scheduling of tasks can not response to business dynamics.

- **Poor end customer experience**

Hope to timing and communication with end customer.

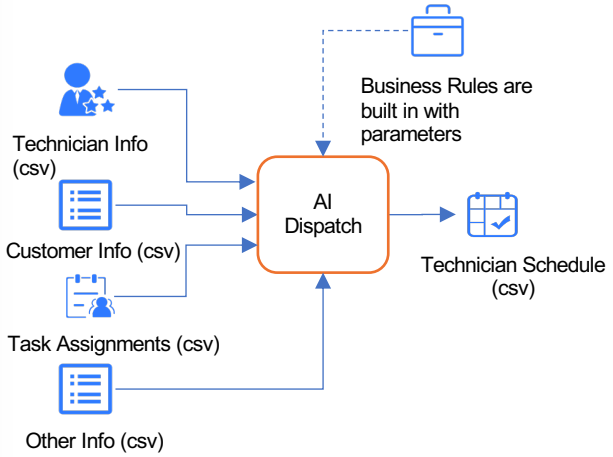
- **High cost cause by material waste**

Solutions

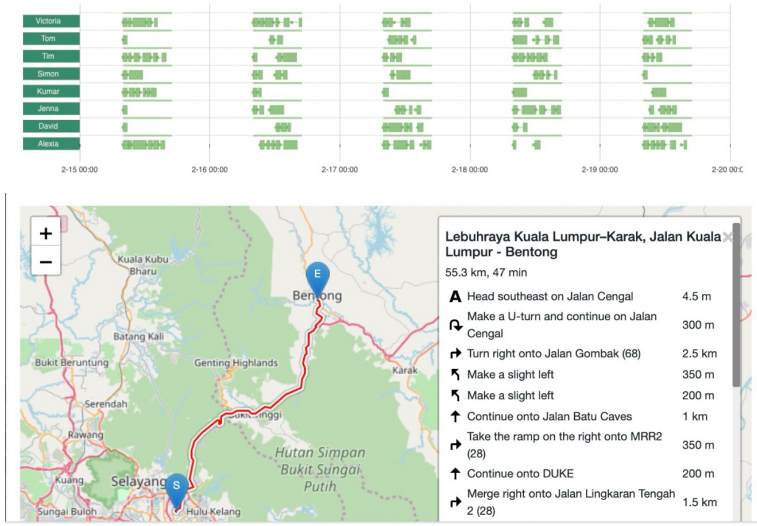
- **AI dispatching solution**

Instead of current manual task scheduling work, replaced hundreds of dedicated planners.

Manage and monitoring the business whole procedure.



Business Value



- Task dispatching efficiency improved by 90%
- Average travel time on site reduced by 30%.
- Service quality be improved since time on site.
- Reduced manpower and material cost.

4. NLP for Address - Geocoding Service

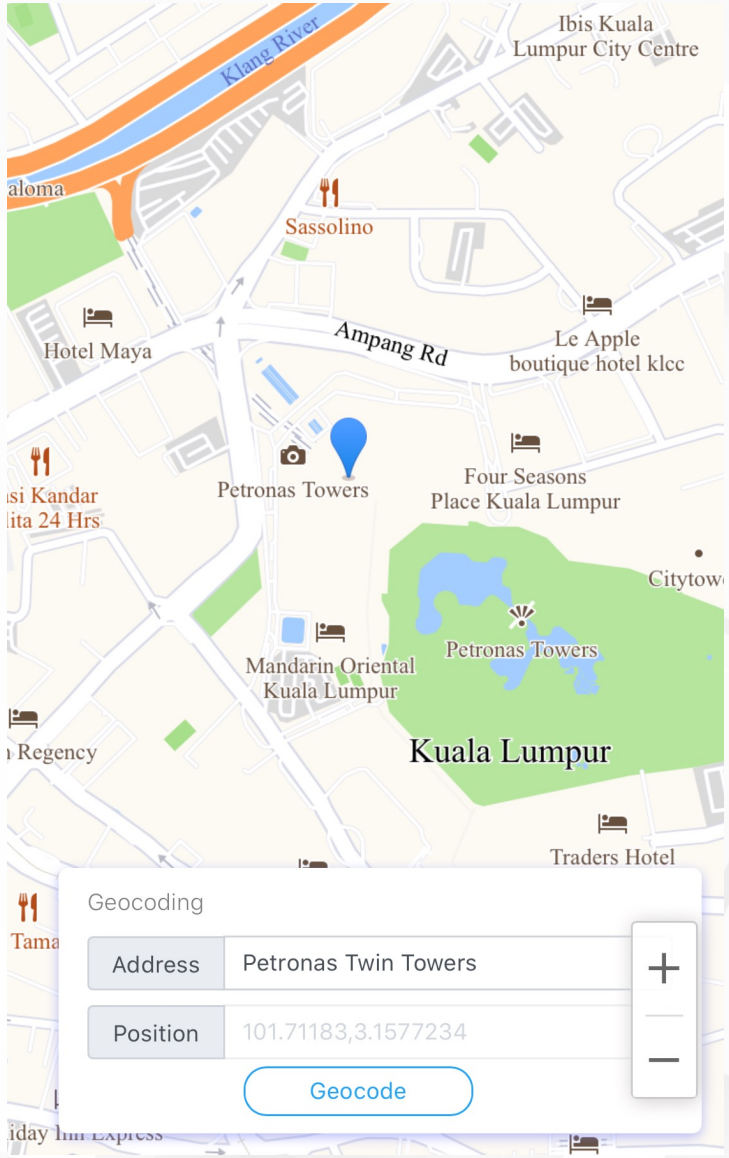
Geocoding

- Given an address (keywords), search and find corresponding geocode coordinates (confidence)
- Now support 6 countries: ID,PH, TH, VN, MY, SG
- Performance

Performance (MY, by customers)	Alibaba	***
Coverage	**99.37%**	**83.82%**
Accuracy	**82.94%**	**79.93%**

Reverse geocoding

- Given geocodes, return relevant and matching addresses (confidence)
- Support countries: ID,PH, TH, VN, MY, SG



4. NLP for Address - Address parsing

- Business requirements

  - Parcel sorting based on address parsing, e.g., recognize subhub levels: subdistrict, village, road, poi, etc.

  - Build POI address base and support POI search

- Task

  - Input: original unstructured shipping address (string)

  - Output: key-value pairs, key: 23+ elements (poi, road, district, city, etc.); value: entity recognized from address

Jl. Gatot Subroto No. 18 Kecamatan Setiabudi Kota Jakarta Selatan Jakarta

"road" "roadno" "district" "city" "province"

- Methodology

  - Sequential address NER problem

  - Use pretrained address embedding, build sequential BiLSTM-CRF model

- Languages and performance

  - Support countries/languages: ID, VN, MY, TH, PH, SG (En) , HK (Ch, En), UAE (Arabic)

  - Overall f1-score: 95%+

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Thank You