

UPS (United Parcel Services)

About Client:

United Parcel Service is an American multinational shipping & receiving and supply chain management company founded in 1907. Originally known as the American Messenger Company specializing in telegraphs, UPS has grown to become a Fortune 500 company and one of the world's largest shipping couriers.

Industry Challenge:

To stay ahead of the digital curve, UPS needed a way to provide faster and more reliable access to supply chain data for its customers. The company saw the potential of using digital systems to support its customers' operations and wanted to provide them with greater visibility into their packages sent on daily basis. This solution could help its customers make decisions at a faster pace.

Solution:

UPS uses **Amazon Elastic Kubernetes Services (Amazon EKS)**, a fully managed service that helps companies provide highly available and secure clusters to automate key tasks such as patching, node provisioning, and updates.

UPS relies on **Amazon Relational Database Service (Amazon RDS) for PostgreSQL**, which makes it simple to set up, operate, and scale deployments of open-source relational PostgreSQL databases in the cloud. To securely store its sensitive data, UPS company uses **Amazon Simple Storage Service (Amazon S3)**, which offers industry-leading Scalability, data availability, security, and performance

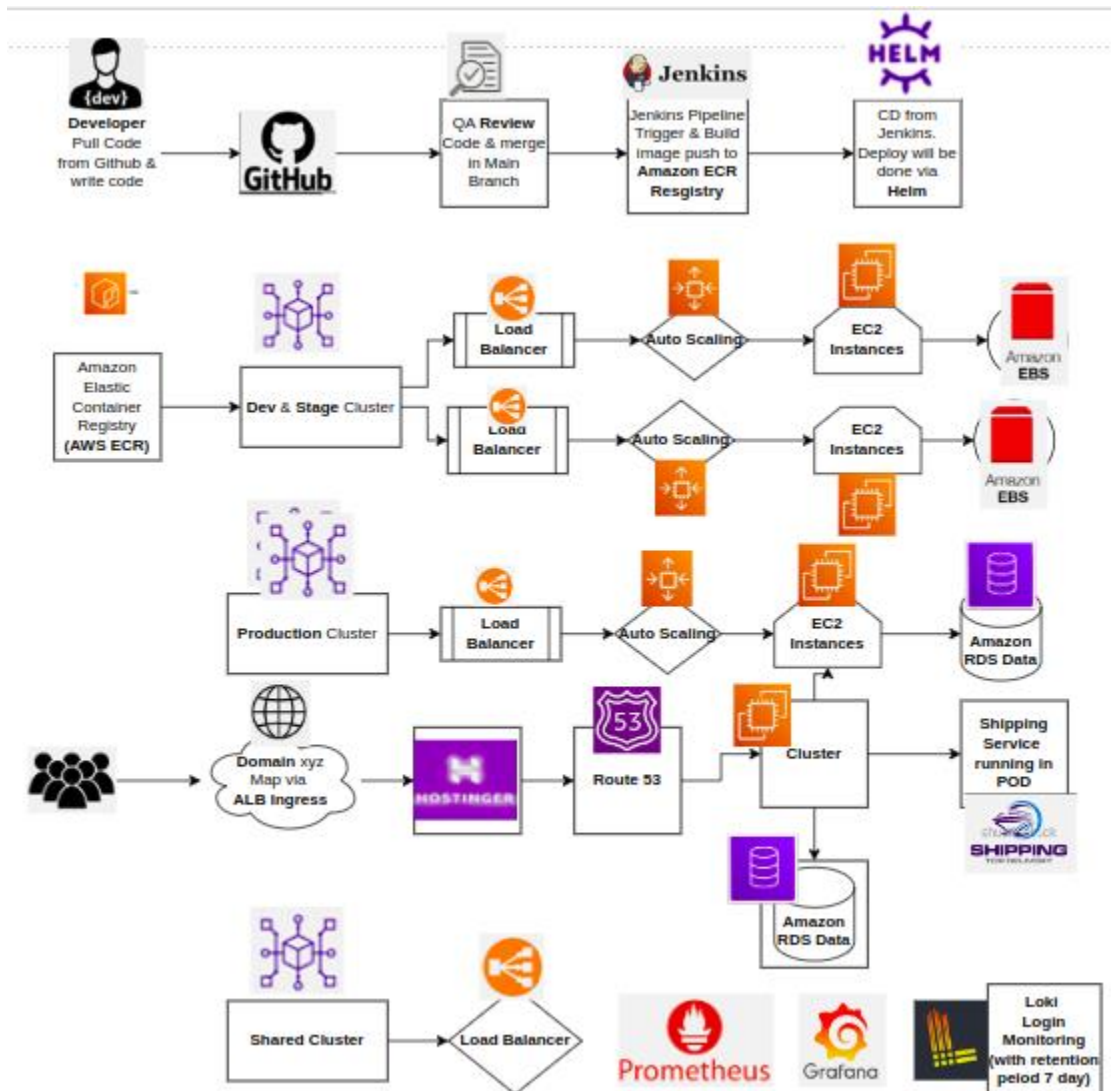
Benefits of Using AWS:

- Reduced wait time for data from 24 hours to less than 5 minutes
- Simplified project management
- Provides security for sensitive data
- Increased client engagement, with 60% of customers regularly logging in
- Scales quickly to support 2,100 users
- Provides 24/7 access to data

Impact:

Previously, the process to access information took 1 day, meaning that customers received data that could be up to 24 hours old. Now it takes less than 5 minutes. Companies can now rely on UPS portal for quick, 24/7 access to data, facilitating time-sensitive decision-making with the potential to save lives.

Over 60 percent of the company's customer base logs in to UPS portal daily. The solution has transformed the UPS business model to serve a more agile, digital-first mindset. This has simplified project management and saved time and resources for UPSs, laying the groundwork for more innovative thinking.



AWS EKS Kubernetes version 1.22

(Cluster capacity planning)

Dev and stage environment

In dev and stage environment we do some development and testing activity. So, we can't use expensive and large number of nodes for development and testing activity. Use large and expensive machine for dev and staging environment will cost more.

For cost-optimization purpose we use this this kind machine: -

t3.xlarge 58

- Node size – 15
- Pod – 30 per node

	Hour	day	month
Instance cost	$\$0.17 * 15 = \2.55	$\$3.99 * 15 = \59.85	$\$119.81 * 15 = \$1,797.15$
Cost per pod	$\$0.01 * 30 = \0.3	$\$0.11 * 30 = \3.3	$\$3.24 * 30 = \97.2
Kubelet cost	$\$0.01 * 15 = \0.15	$\$0.36 * 15 = \5.4	$\$10.74 * 15 = \161.1
Unused costs	\$0.05	\$1.23	\$36.75

Production environment

A production environment is where the latest versions of software, products, or updates are pushed live to the intended users. All the critical data and clients' related software or package pricing information will deploy in production. For Seasonal time like christmas, thanksgiving day or new year day come our pod and nodes need to be automatically scale out, when weekdays are come nodes and pod need to be automatically scale in.

M5.xlarge

- Node size – 30
- Weekdays pod – 40
- Weekend pod limit – 80 to 90

	Hour	day	month
Instance cost	$\$0.19 * 30 = \5.7	$\$4.61 * 30 = \138.3	$\$138.24 * 30 = \$4,147$
Cost per pod	$\$0.01 * 40 = \0.4	$\$0.13 * 40 = \5.2	$\$3.74 * 40 = \149
Kubelet cost	$\$0.02 * 30 = \0.6	$\$0.41 * 30 = \12.3	$\$12.39 * 30 = \371.7
Unused costs	\$0.06	\$1.41	\$42.40

Shared environment

Shared environment will have logging and monitoring related data. All the 3rd party tool will deploy in shared environment. Shared environment basically uses for logging and monitoring so we don't need any large and expensive machine.

The service which we using for the shared environment: -

- Prometheus
- Grafana
- Loki (For Logs Monitoring tools with retention period of 7 days)

t2.large

- Node – 5
- Pod – 16 per node

