

# DevOps Lab

**CENTRE OF EXCELLENCE ON MICROSERVICES**

**NATIONAL INFORMATICS CENTRE, KOCHI, KERALA**



## About the Centre of Excellence on Microservices

NIC – Centre of Excellence on Microservices (CEM), Kochi is a specialized center aimed at promoting the adoption of Microservices Architecture (MSA) and best practices in DevOps.

Our objective is to facilitate focused study, exploration, experimentation, and handholding to bring Microservices culture across NIC's application development teams.

- This will support the development of efficient e-Governance solutions with optimal resource utilization.
- The Centre acts as a hub for Consultancy and development of Microservices-based projects, Supporting migration of feasible monolithic applications to Microservices
- Hosting a state-of-the-art demonstration-cum-lab that showcases live demos to help participants understand the benefits and features of Microservices architecture.

## About the DevOps lab

At CEM Kochi, we are dedicated to fostering cutting-edge software development and deployment techniques for implementing microservices architecture. NIC-CEM, Kochi Kerala, has established a dedicated DevOps Lab to support the development, deployment, and lifecycle management of microservices based government applications. Our CI/CD Lab is designed to provide hands-on experience and training on industry-standard Continuous Integration and Continuous Delivery pipelines, using industry standard tools and technologies. This lab aims to empower NIC teams to adopt modern CI/CD practices by offering a reference setup for containerized and scalable services across various domains.

## Why CI/CD ?

- **Faster Software Delivery:** Automate builds, tests, and deployments to deliver software features rapidly.
- **Improved Quality:** Continuous testing ensures high-quality code.
- **Reduced Risks:** Automated rollback and monitoring - minimize downtime.
- **Collaborative Development:** Seamless integration among development, testing, and operations.

## DevOps Lab

- **End-to-end pipeline setup –** Experience the journey from code commit to auto-scaling.
- **Prototype and evaluate your devOps pipeline before moving to production**
- **Hands-on experience in integration of industry standard DevOps pipeline tools**
- **Host and evaluate your microservices, integration services (MailQ) and event-driven messaging.**
- **Testbed and training platform to promote best practices in DevOps and DevSecOps**



## Tools and Technologies



**Jenkins**  
CI/CD Automation



**Docker**  
Containerization

**sonarqube**  
Source code Analysis



**Kibana**  
Data visualization and dashboard



**Logstash**  
Log collection and processing tool



**Go (Golang)**  
Microservice Development



**PostgreSQL**  
Databases



**Redis**  
Databases



**MinIO**  
Distributed Object Storage



**Kafka**  
Message Broker and event sourcing



**Apache APISIX**  
API Gateway



**Git**  
Source Code Version Control



**Kubernetes**  
Orchestration



**Rancher**  
Kubernetes Management



**Elastic Search**  
Search and analytics engine



**Python**  
Microservice Development



**MySQL**  
Databases



**mongoDB**  
Databases



**K6**  
Kubernetes Load Testing



**RabbitMQ**  
Message Broker and event sourcing



**K3s**  
Light Weight Kubernetes

## Who should use the DevOps Lab?

- Developers seeking automation skills for agile mode of software development.
- DevOps teams mastering pipelines before moving MSA solution to production.
- IT teams driving the digital transformation.

### **Contact us**

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