GSoC PROPOSAL

Title

Building a Real-World E-commerce kpt Package

Personal Information

Name: Momen Elgedawy
GitHub: https://github.com/Mommmen007/kpt-ecommerce-demo

About Me

I am a Cloud and DevOps engineer with a strong background in Linux, Docker, and Kubernetes. I have hands-on experience in deploying and managing scalable applications and working with cloud-native technologies.

I am highly interested in open-source contribution and eager to work within the CNCF ecosystem, especially in tools that simplify Kubernetes workflows and improve developer experience.

Problem Statement

Many existing examples for kpt are either domain-specific or fragmented, making it difficult for beginners to understand how to use kpt in real-world applications.

There is a lack of a complete, easy-to-understand example that demonstrates how to package, deploy, and customize a real-world application using kpt.

Proposed Solution

This project aims to build a fully functional, real-world e-commerce application packaged using kpt. The project will also incorporate production-grade Kubernetes practices such as resource management, health checks, and CI/CD integration using GitHub Actions.

The goal is to provide a clear and practical example that demonstrates:

- How to package a Kubernetes-based application using kpt
- How to customize deployments across environments (dev, staging, production) for different use cases
- How to manage configurations declaratively

The project will be based on deploying a microservices-style e-commerce application on Kubernetes and converting it into a reusable kpt package.

Deliverables

- A complete kpt package for an e-commerce application
- Kubernetes manifests structured for reuse and customization
- Configuration examples (scaling, environment configs, localization)
- Step-by-step documentation for deployment and customization
- A GitHub repository demonstrating the implementation

Expected Impact

- This project will lower the entry barrier for new users and provide a practical, real-world example of how to package and customize Kubernetes applications using kpt.

- It will help developers better understand configuration management and improve adoption of kpt within the cloud-native ecosystem.

Timeline

Community Bonding Period

- Deep dive into kpt concepts and existing examples
- Study Kubernetes manifest structures and best practices
- Communicate with mentors and gather feedback

Phase 1 (Initial Development)

- Set up the base e-commerce application
- Prepare Kubernetes deployment manifests
- Begin structuring the project as a kpt package

Phase 2 (Core Development)

- Implement customization features (scaling, configs, environment variations)
- Improve package structure and reusability
- Validate deployments across different scenarios

Phase 3 (Finalization)

- Testing and validation
- Documentation writing
- Final improvements and cleanup

Why Me

I have already started implementing a Kubernetes-based deployment with Docker containerization and CI pipeline:

https://github.com/Mommmen007/kpt-ecommerce-demo

I am passionate about DevOps and cloud-native technologies, and I am committed to contributing to open-source projects long-term. I am highly motivated to learn, collaborate, and deliver a high-quality project during GSoC.