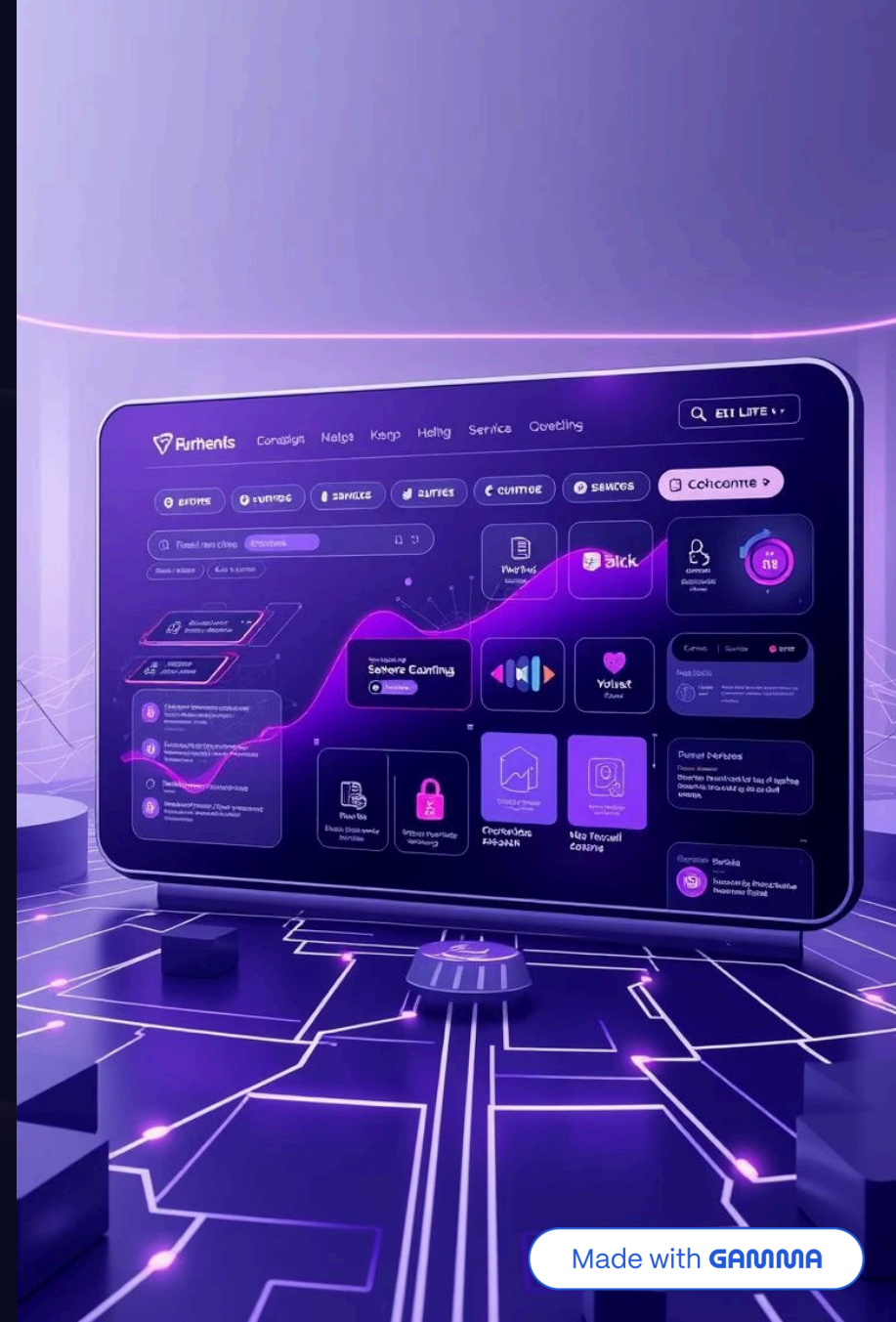


Building a Robust Bike Shop Platform

This presentation outlines the architecture and strategic advantages of our new e-commerce platform. We'll explore its modular design, key features, and how it ensures scalability and innovation.

by Abdurahman Shyntasov, Nurmukhammed Seitkhan, Akku Aldibaiyeva, Daniyar Kurmanbaiyev

GitHub - Abdurahmanit/GroupProject



E-commerce Platform Architecture



User Interface (React)

Engaging, responsive web application for seamless user experience.



API Gateway

Centralized hub for external communication and routing.



Microservices

Independent, scalable services for user, listing, review, order, and news.



Data Storage

Robust and flexible data persistence solutions.

Our platform utilizes a microservice architecture, separating concerns for enhanced resilience and maintainability.

Microservice Structure

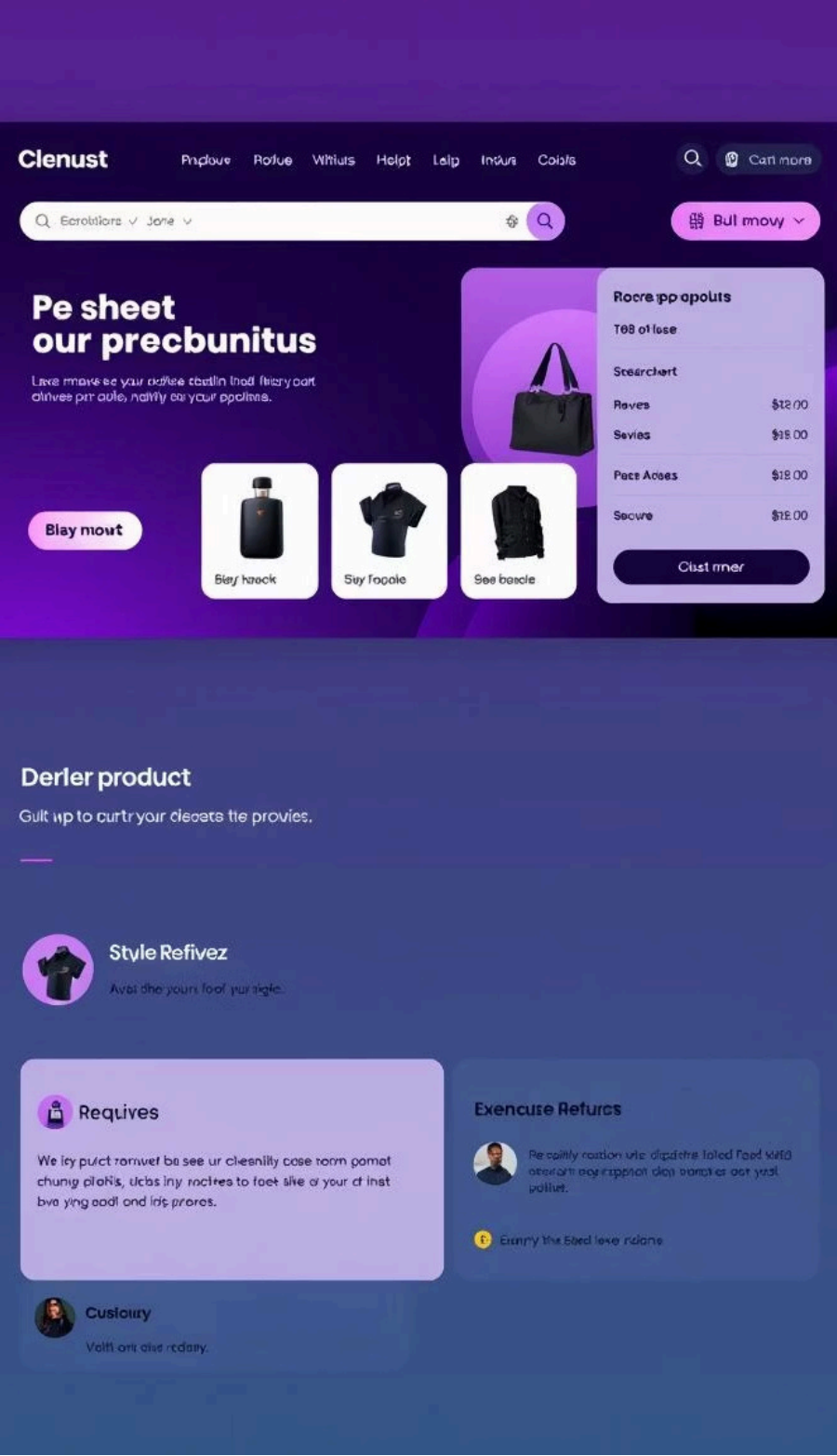
Clean Architecture Principles

- Separation of concerns
- Enhanced testability
- Improved maintainability

Standardized Structure

- Consistency across services
- Faster developer onboarding
- Reduced learning curve

Each microservice adheres to Clean Architecture, ensuring high quality and long-term maintainability.



Key Features & Business Impact



Secure User Experience

Robust JWT authentication; future personalization enabled.



Enhanced Product Discovery

Advanced search, filtering, photo uploads boost conversions.



Increased Trust

Transparent reviews and news foster community engagement.



Streamlined Operations

Efficient order processing from cart to PDF receipt.

Features are designed to directly impact business value, from security to operational efficiency.

Technology Stack: Foundation for Innovation



Go

Backend core: high performance, concurrency.



MongoDB

Flexible, scalable NoSQL data persistence.



Redis

In-memory caching for sessions and search.



NATS

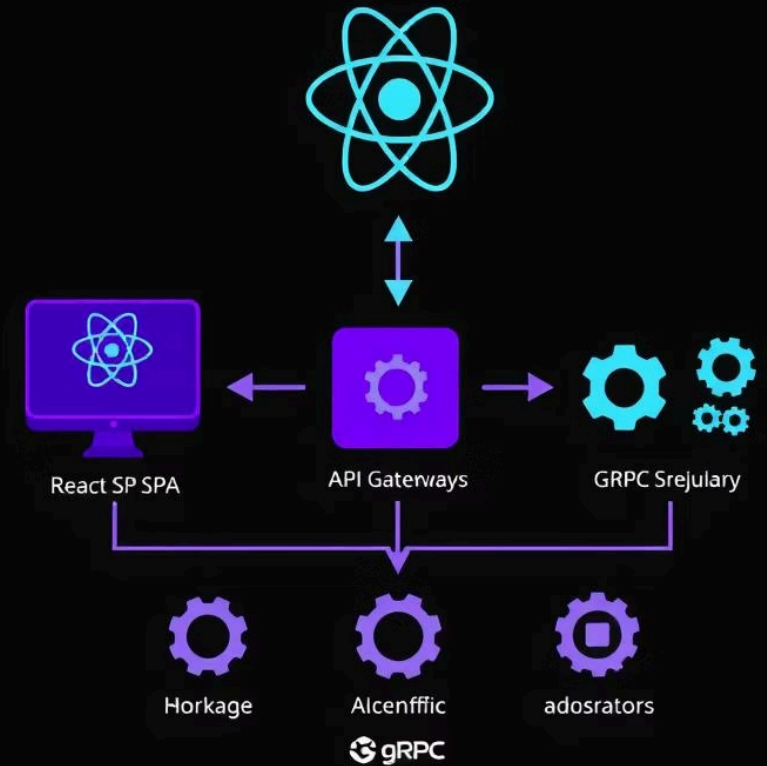
Lightweight messaging for async notifications.

Our tech stack is carefully chosen for performance, scalability, and modern development practices.

Frontend Integration & Access Ports

User Interface	React SPA (Port 3000)
API Gateway	REST communication (Port 8080)
Microservice gRPC Ports	User: 50051, Listing: 50052, Review: 50053, Order: 50054, News: 50055

The API Gateway simplifies frontend integration by routing requests to backend gRPC services.



Monitoring & Operational Excellence

Centralized Monitoring

Key metrics, request traces, system logs.

High Availability

Ensures reliable user experience.



Proactive Issue Resolution

Identify and resolve issues before impact.

Performance Optimization

Data-driven capacity planning.

Grafana monitoring empowers proactive system management, ensuring platform stability and performance.



Strategic Advantages & Future Potential

Scalability & Resilience

Microservice architecture supports business growth.

Improved Customer Journey

Feature-rich system boosts satisfaction and repeat business.

Operational Agility

Faster feature rollouts and market adaptation.

Foundation for Innovation

Ready for AI, analytics, and third-party integrations.

Our platform offers significant strategic advantages, positioning the business for long-term success and continuous innovation.

Thank you for attention!