Computer Communication Based Software Development

FlowSensei

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The Problem

During periods of high network load, non-critical activities can **overwhelm crucial services**, leading to performance degradation and reduced productivity.

Our project seeks to address this by focusing on **traffic prioritization** during high-demand situations, thereby ensuring the efficient management of network resources and the uninterrupted operation of critical services.

The Solution

Our approach involves a microservices architecture and software defined routers, that can be versatility configured via an API.

Real-Time Monitoring

Continuous monitoring to **identify congestion** and severe request loads.

Critical Protection

Ensuring **uninterrupted operation** of prioritized services.

Policy Configuration

Users can define and modify **service priorities** to their specific requirements.

Mikrotik Hap Lite

The MikroTik hAP lite is a small router designed for homes or offices.
Each Mikrotik router operates on RouterOS, a powerful operating system with advanced features like:

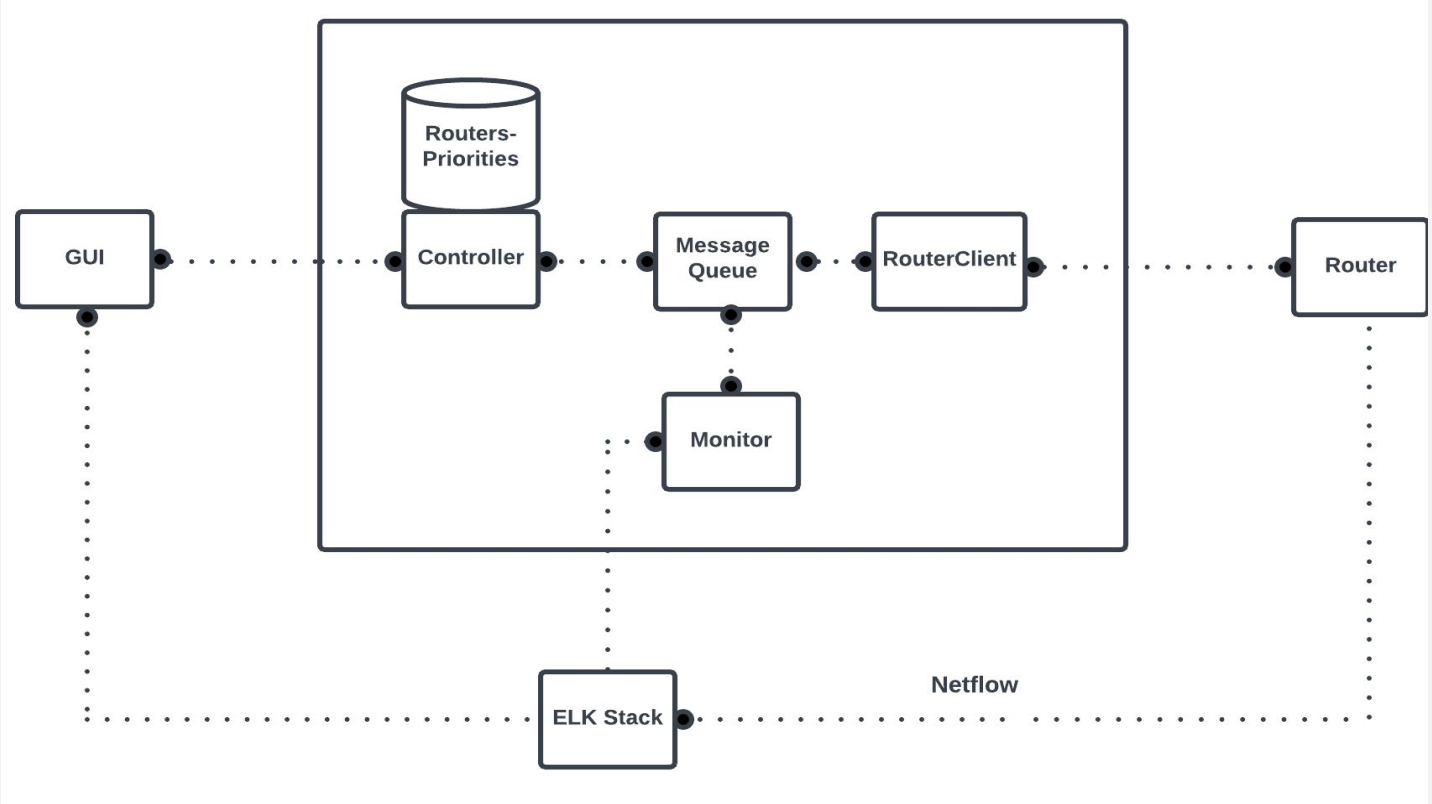
- Firewall Management
- Bandwidth Control
- User Access Control

RouterOS allows configuration and management through its API.

The Mechanism

- The system initializes a **priority queue with predefined services** for each new router.
- Users can **add or remove services,** specifying service name, protocol, and destination port, with optional fields for source/destination addresses and source port.
- The router optimizes performance during high-demand periods by prioritizing traffic based on **real-time monitoring**.

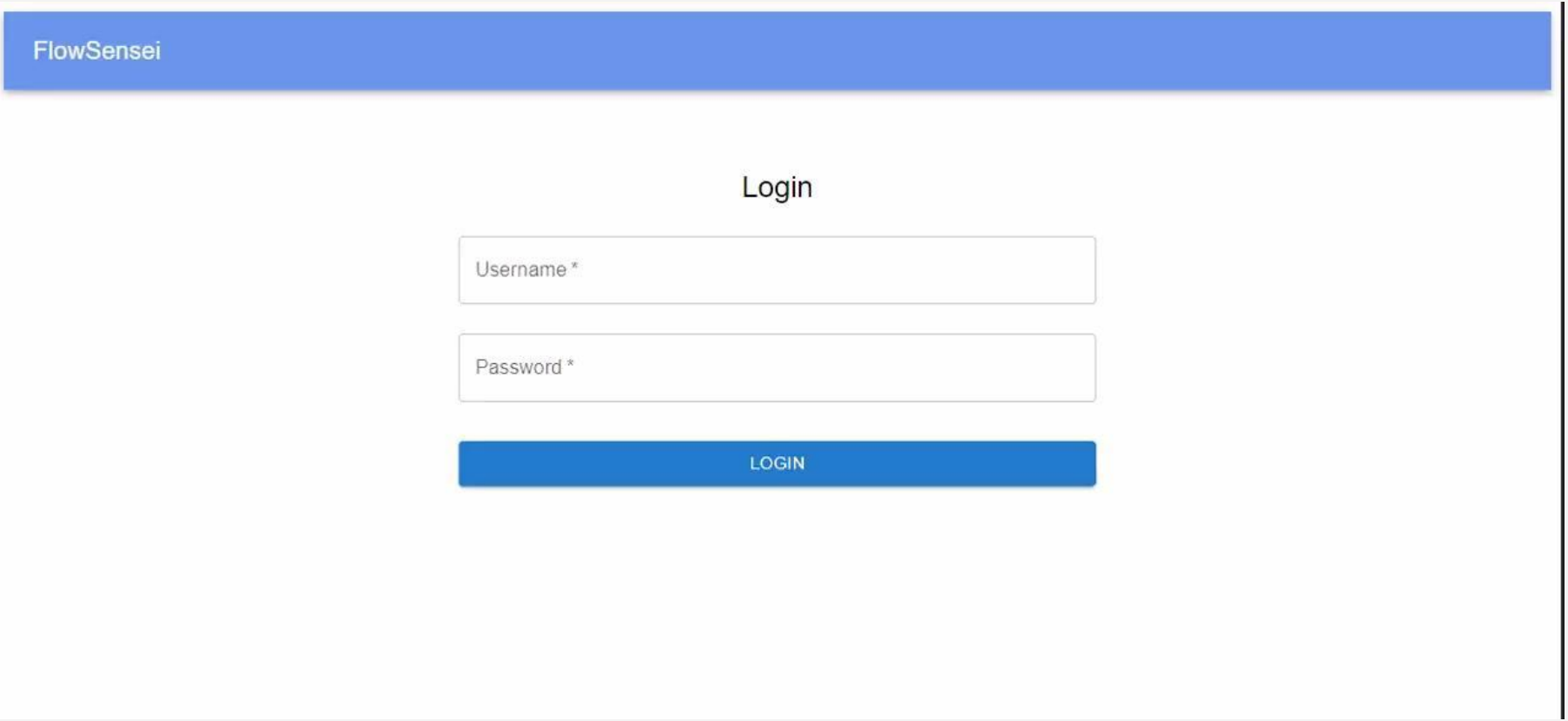
Project Architecture



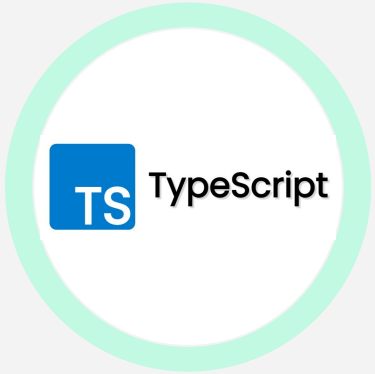
Other Approaches

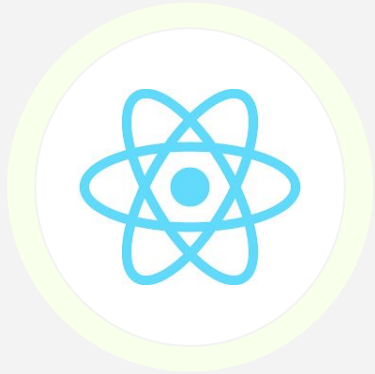
- Static QoS Configurations
- Manual Traffic Shaping
- Simple Priority Queuing
- Software-Defined Networking (SDN)

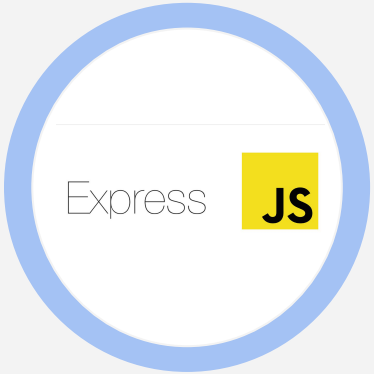
Frontend Illustration



Technology Stack







Thank You For Listening!

Questions?