

*Computer Communication Based
Software Development*



FlowSensei

Asaf Koenigsberg
Ofek Markus
Itamar Tennenbaum

Mentor: Dr. Hadar Binsky

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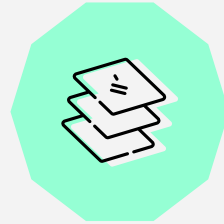
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The Problem



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.



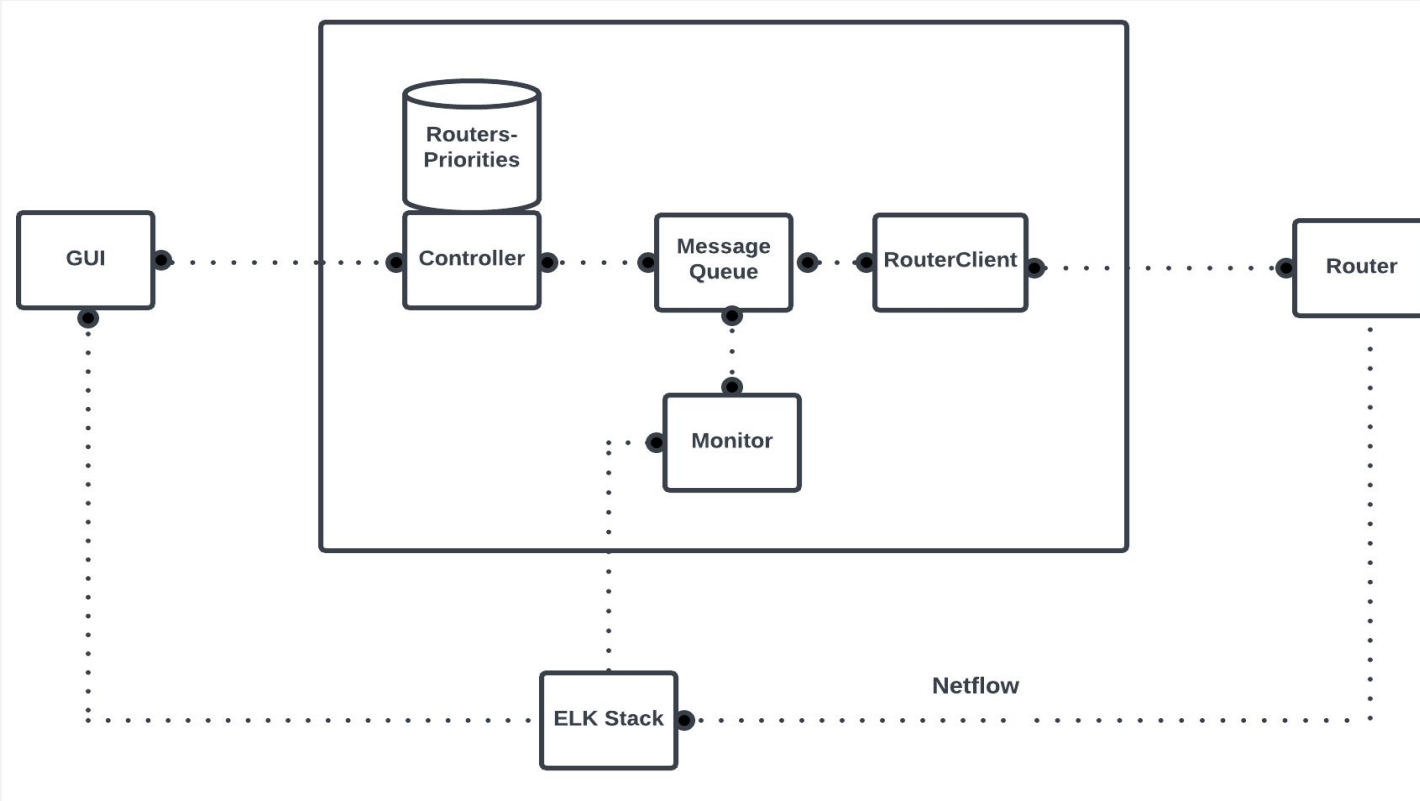
The Mechanism



- 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



Frontend Illustration



FlowSensei



Total Devices

50



Active Connections

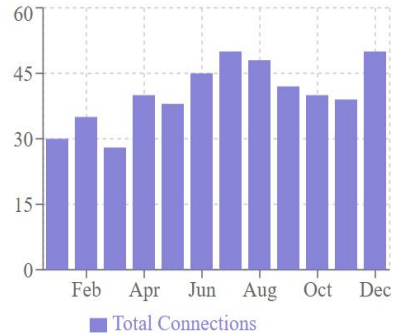
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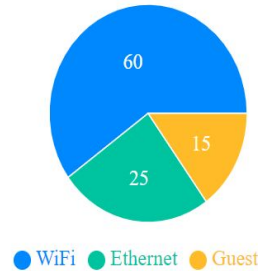
Data Usage (GB)

120

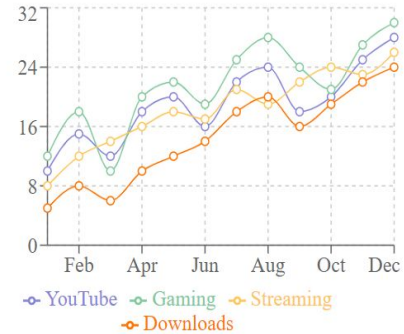
Monthly Active Connections



Connection Types Distribution



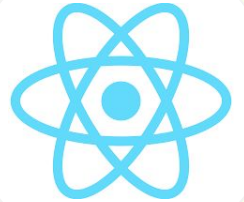
Monthly Data Usage By Service (GB)



Technology Stack



PostgreSQL



Express



Stack

Thank You For Listening!

Questions?

