



Problem

Small businesses often lack affordable enterprise network management solutions that combine authentication, network management, security, monitoring and reporting into one platform; this makes administration more complex and costly.

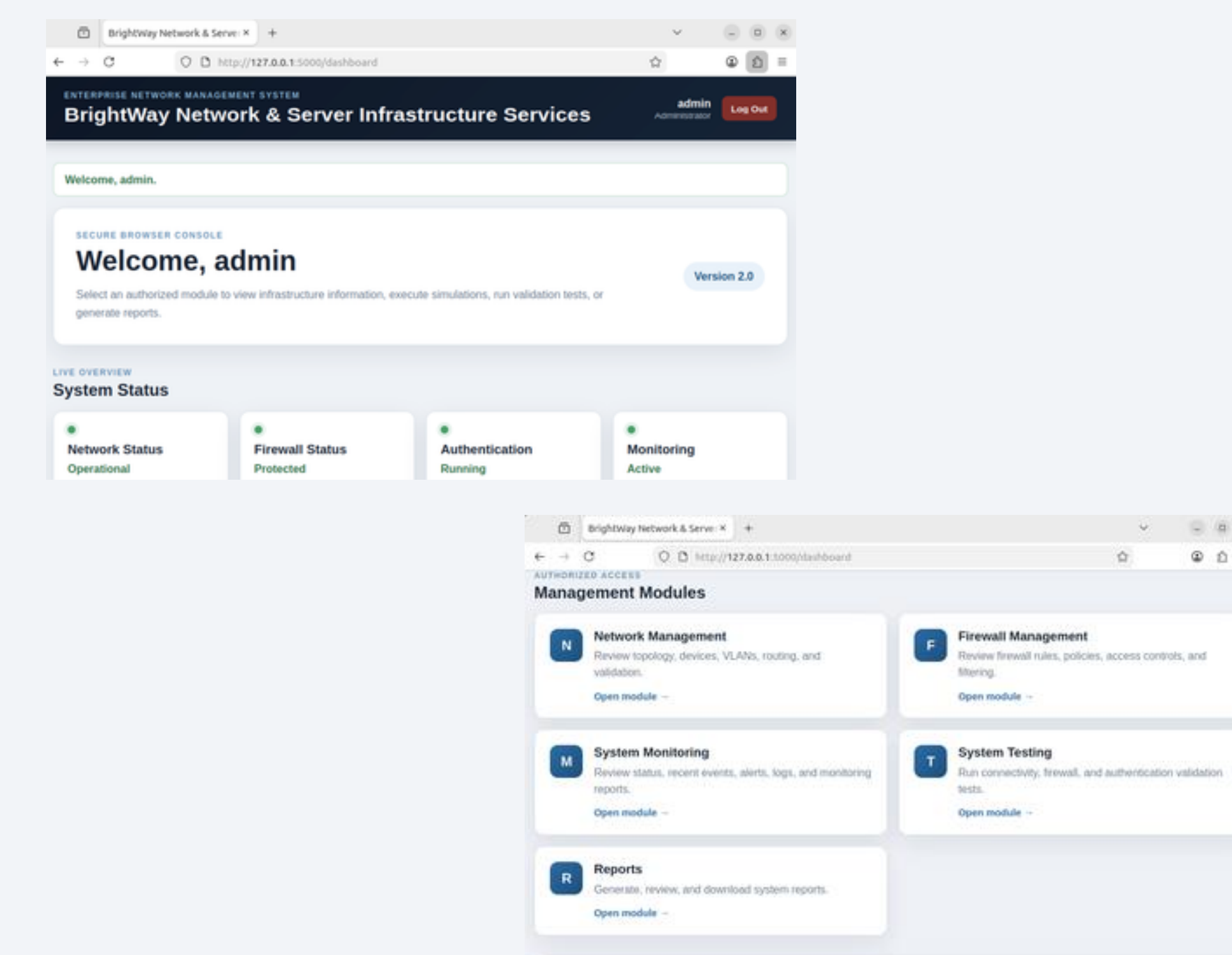
Key Challenges

- Disconnected network management tools
- Limited visibility of network health and security
- Complex administration across multiple systems

Our Solution

BrightWay is a Flask based web application simulated enterprise network management system by integrating secure user authentication, VLAN based network management, firewall security, monitoring reporting, and dashboard visualization into a single platform. This provides small businesses with a centralized and user-friendly network management solution.

Demo



Systems & Operations (SO6)

Deployment

- Flask web application
- Runs on Ubuntu Linux
- Hosted locally in a VirtualBox VM
- Accessed through a web browser

Application Components

- Authentication
- Network
- Firewall
- Monitoring
- Dashboard
- Reports

Documentation

- Installation Guide
- User Manual
- README
- Sprint Documentation

Maintenance

- Modular package structure
- JSON configuration files
- Easily extendable modules
- Simple configuration updates

Stakeholders & Requirements

Target Users: Small business administrators, network administrators, IT support personnel, and students learning enterprise networking.

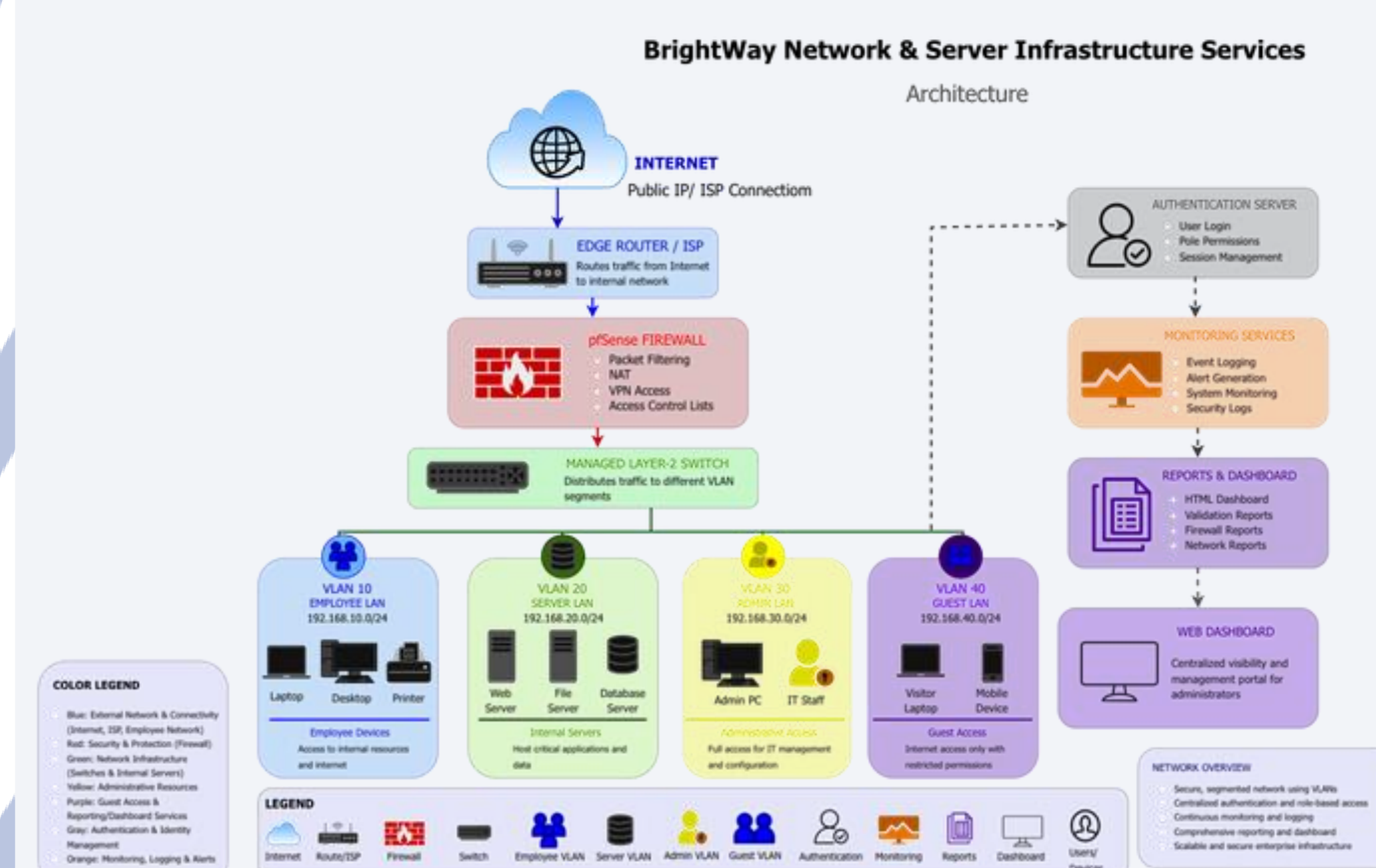
Functional Requirements

- User authentication
- VLAN simulation
- Firewall policy management
- Network monitoring
- Dashboard visualization
- Automated reporting

Non-Functional Requirements

- Modular design
- Scalable architecture
- Maintainable code
- User-friendly interface

Architecture



Results & Evaluation

The project successfully demonstrates a modular enterprise network management system by integrating networking, security, monitoring and reporting with any single web application. The final solution includes implementing authentication, network, firewall, monitoring, dashboard, automated reporting and successful testing and validation of all major components.

What's Next + Thanks

Future Work

- Database integration (MySQL or PostgreSQL)
- Real-time monitoring
- Live network device management
- Email and SMS alert notifications
- User activity analytics

Thank you!

