



Babel Mesh



a cloud-native, scalable VPN system



Cloud Computing



Group 3

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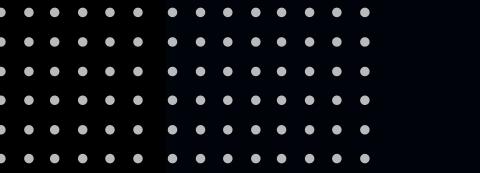
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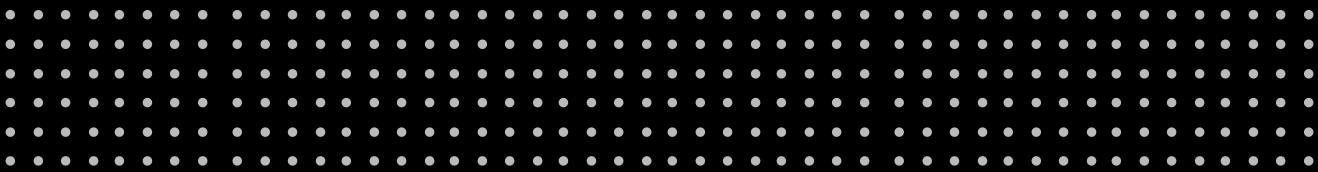




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From Babel to BabelMesh

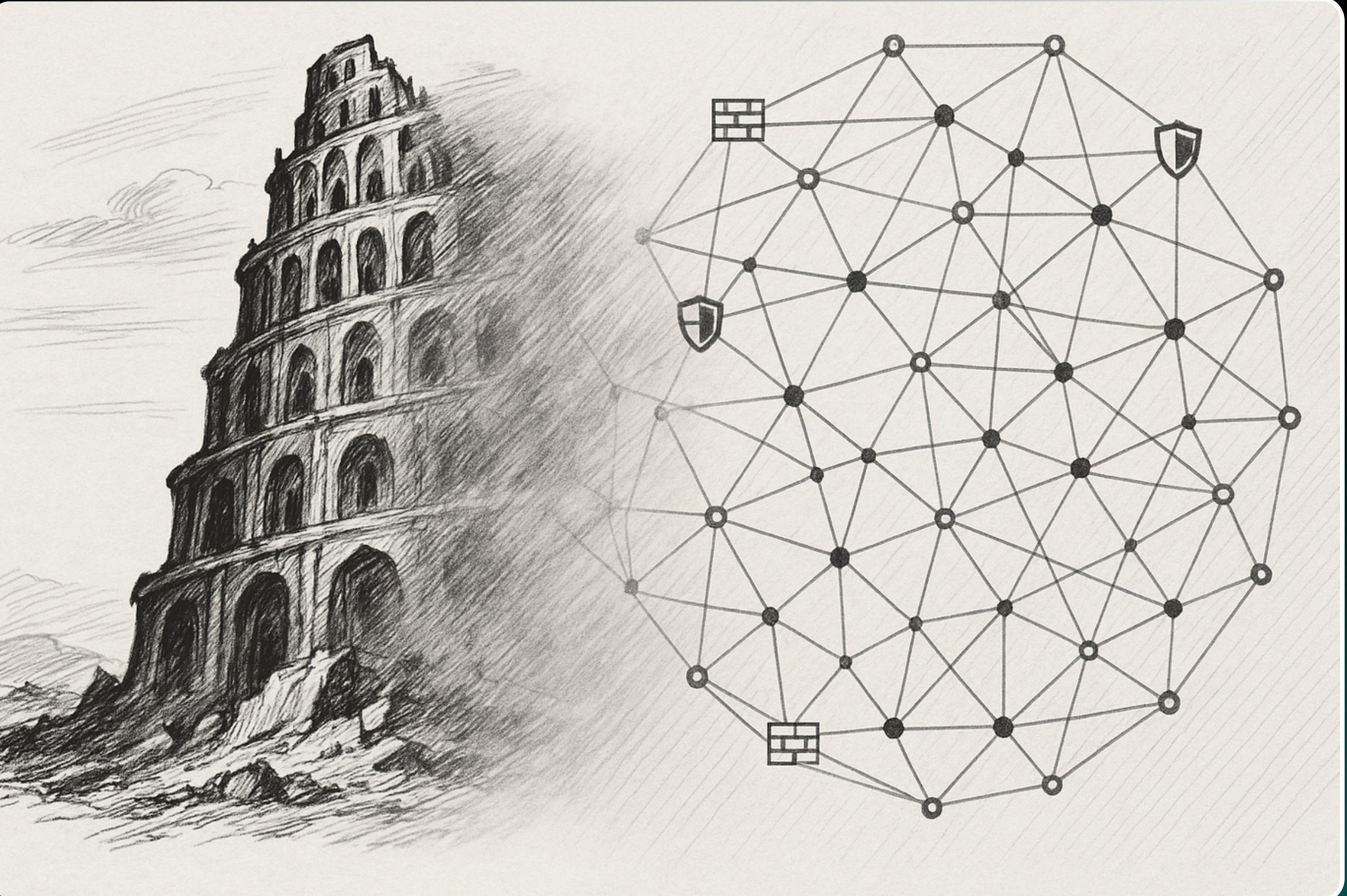
AN OVERVIEW OF THE BACKGROUND AND OBJECTIVES OF THE PROJECT



From Babel to BabelMesh

Once, at Babel, our voices soared together—then fell into dissonance.

Today's networks echo that fracture: firewalls, NATs, and rigid VPNs keep us apart.



The Babel Myth: Division by Tongues



One Language, One Ambition



Divine Disruption



A Legacy of Misunderstanding



Today's Digital Babel

NAT & FIREWALLS

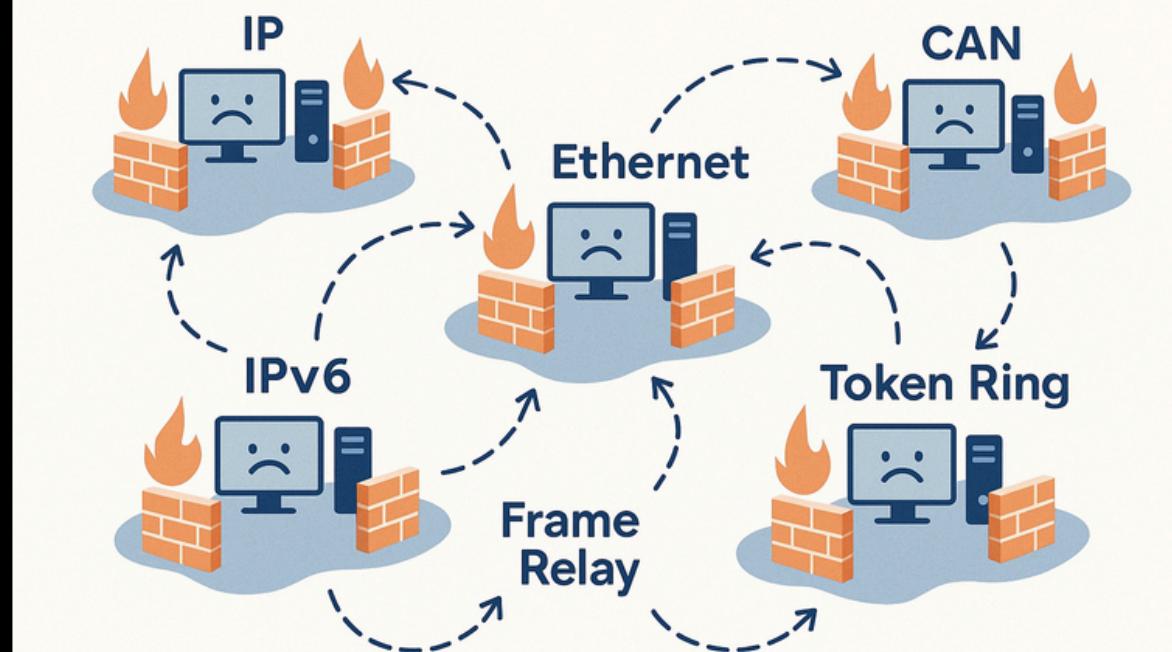
Each network speaks its own "language," blocking outside traffic.

LEGACY VPNS

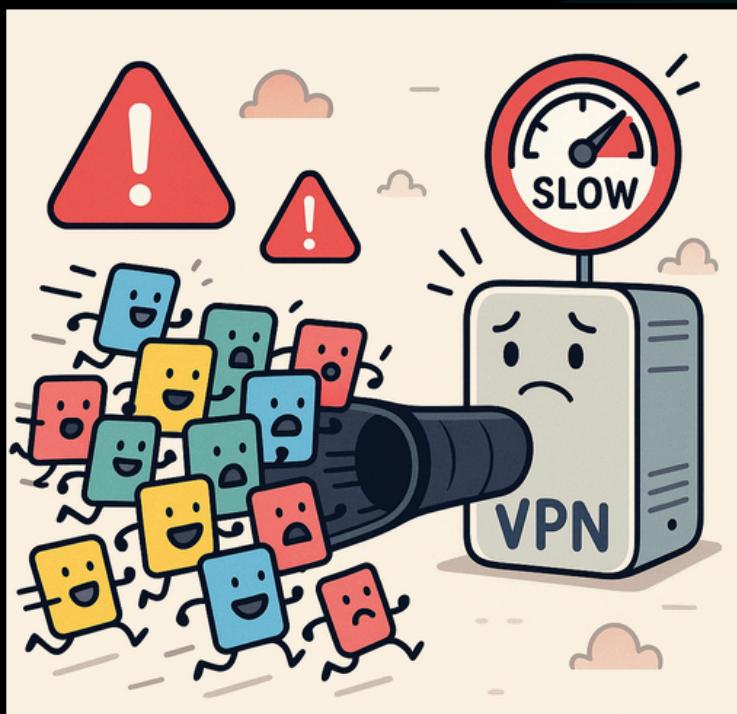
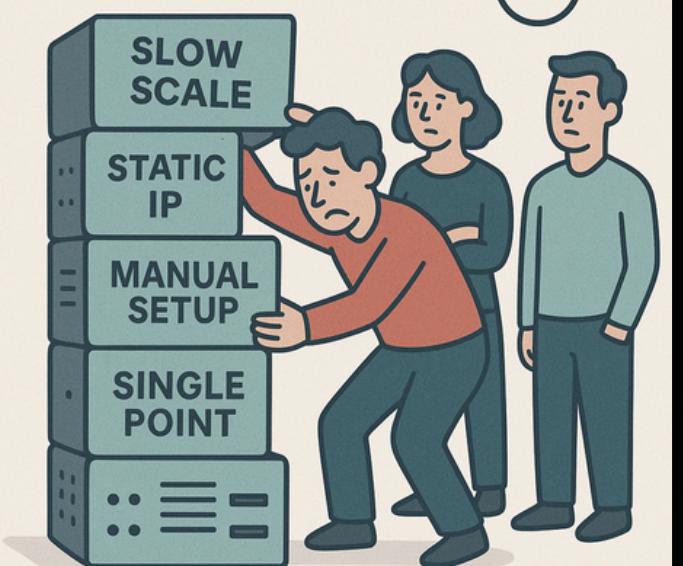
Static, manually configured, and expensive—like trying to rebuild Babel with bricks.

SCALING PAIN

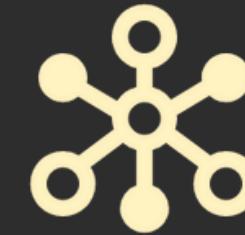
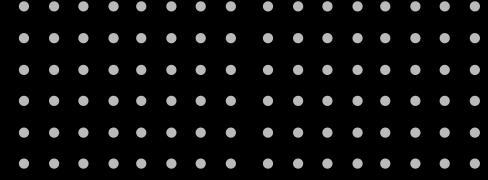
Adding new users means buying new servers or risking overload.



TRADITIONAL VPN SETUP



Reconnecting the World-Silently



BabelMesh flips the myth on its head: instead of confusion, it weaves a universal mesh.



Bridges NATs and firewalls; auto-scales on demand.



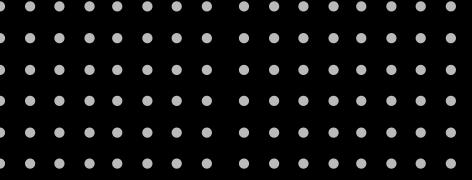
Secure, cloud-native VPN: one protocol, infinite connections.



What Is BabelMesh?

KEY TECHNOLOGY DEVELOPMENT AND APPLICATION

VPN ≈ Proxy + Secure



WHAT IS VPN?

A VPN (Virtual Private Network) creates a secure, encrypted tunnel for all of your internet activity, acting like a private highway for your data.

WHY WE NEED VPN?

To ensure your Privacy, strengthen your Security, and unlock online Freedom.



WHAT IS PROXY?

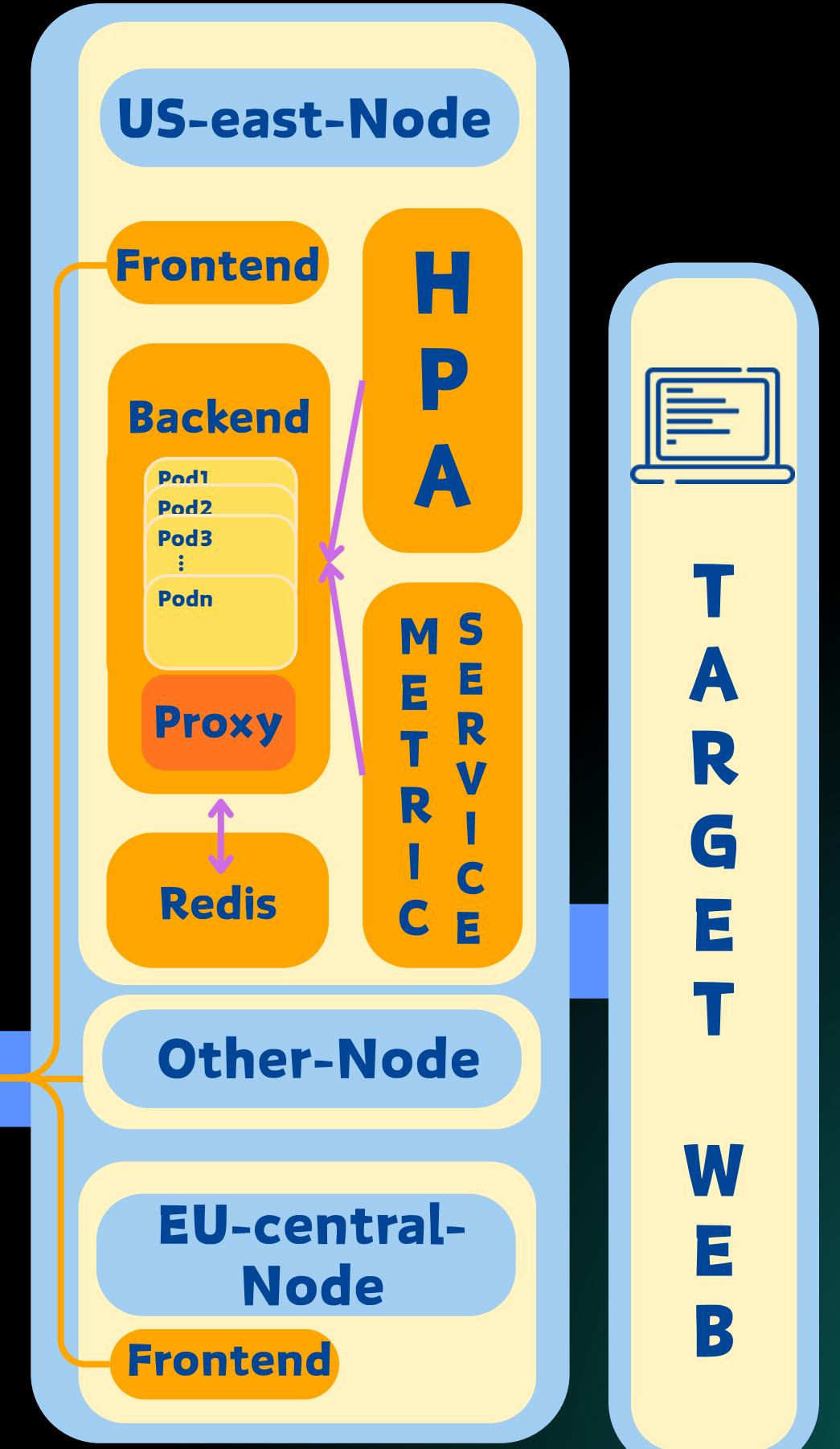
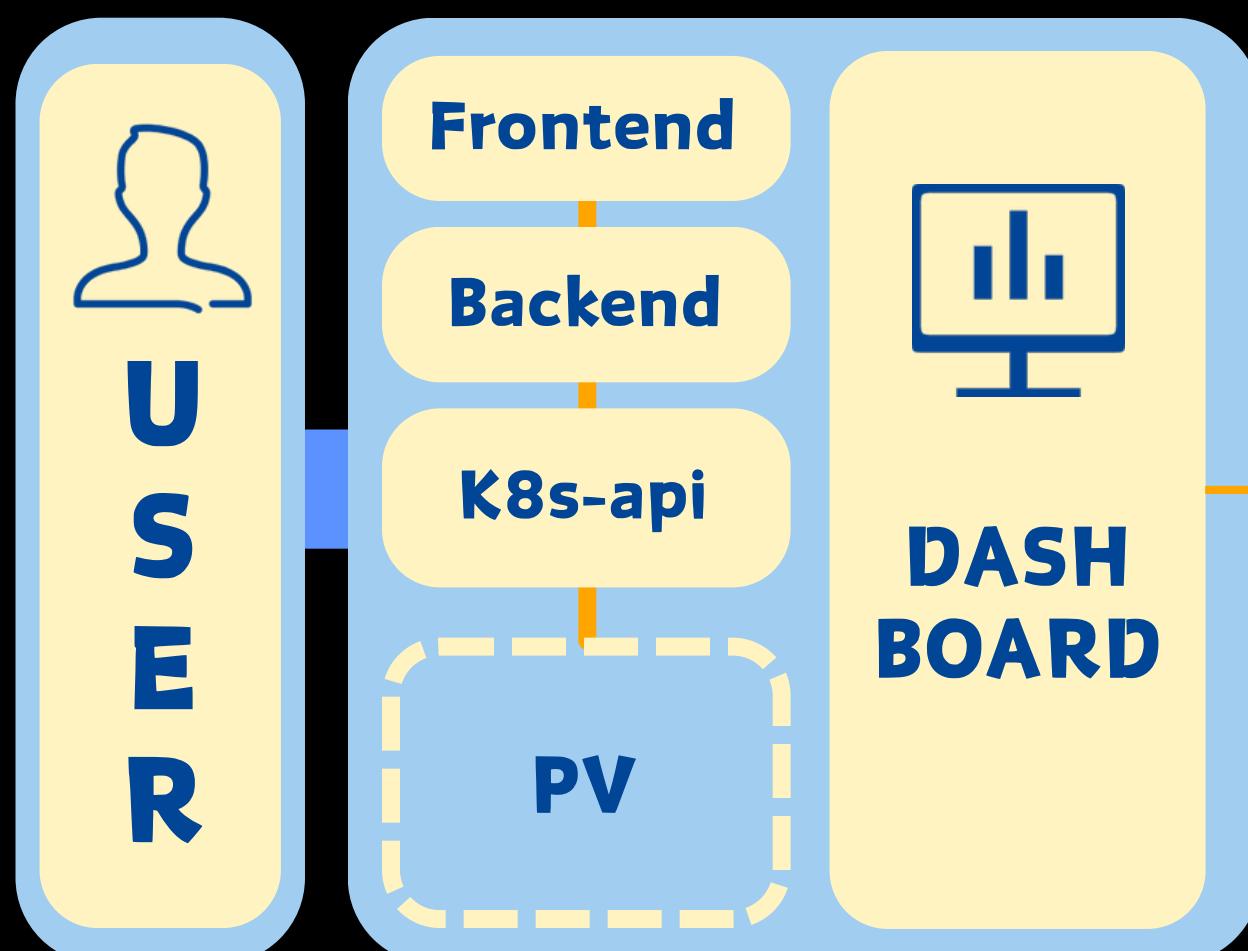
A Proxy acts as a middleman for your web traffic. It forwards your requests to websites, hiding your real IP address but often lack security

WHEN SHOULD WE USE VPN?

Anytime you use Public Wi-Fi. Anytime you work from home. Anytime you want to bypassing the great fire wall. Anytime you just want to protect privacy

Implementation Architecture

- Micro Service Architecture: separate package of frontend and backend.
- Dashboard: Decoupled from proxy engine.
- HPA: Elastic scaling with user scale.
- Metric Service: Constant Monitoring.
- Redis: Data buffer.
- World-wide Node: Provide powerful agency services.



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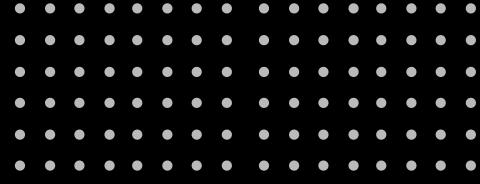
The background of the slide features a complex, abstract digital visualization. It consists of a grid of glowing green and blue nodes connected by thin white lines, forming a mesh-like structure. This structure is set against a dark, black-to-gray gradient background. In the upper left corner, there's a bright green silhouette of a person standing next to a large, glowing white square. The overall effect is futuristic and represents connectivity or a network.

03

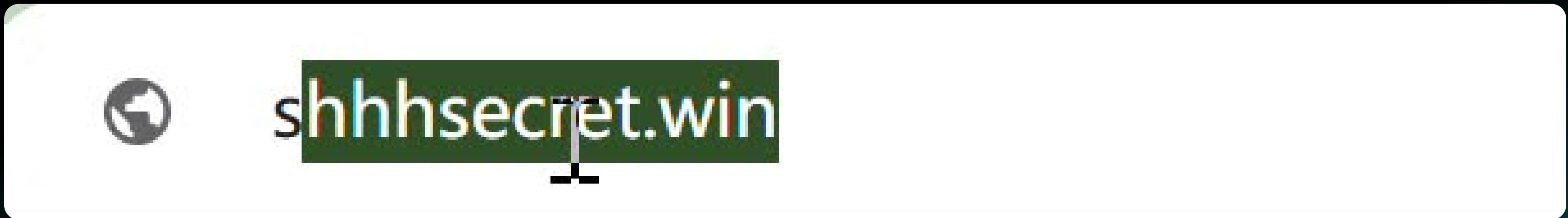
BabelMesh in Action

PROJECT ACHIEVEMENTS AND FUTURE PROSPECTS

DEMO: 1/3

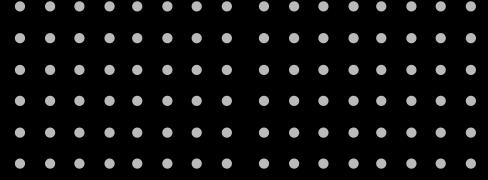


shhhsecret.win



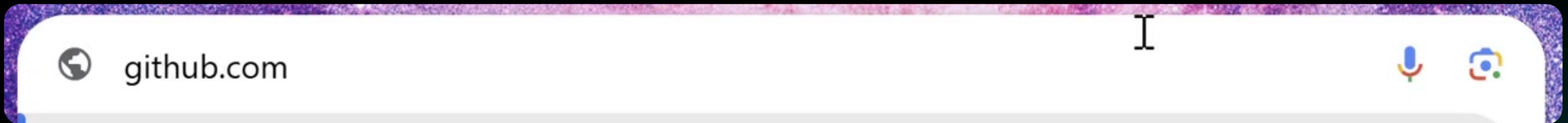
Browser: Edge, Chrome, Firefox

DEMO: 2/3



Google sheet:

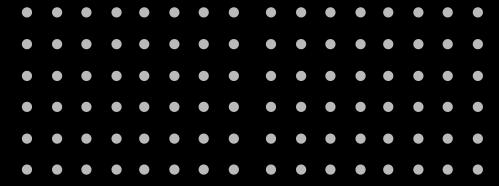
github.com/hsqsh/fc-pn/blob/main/instruction.md



Browser: Edge/Chrome/Firefox



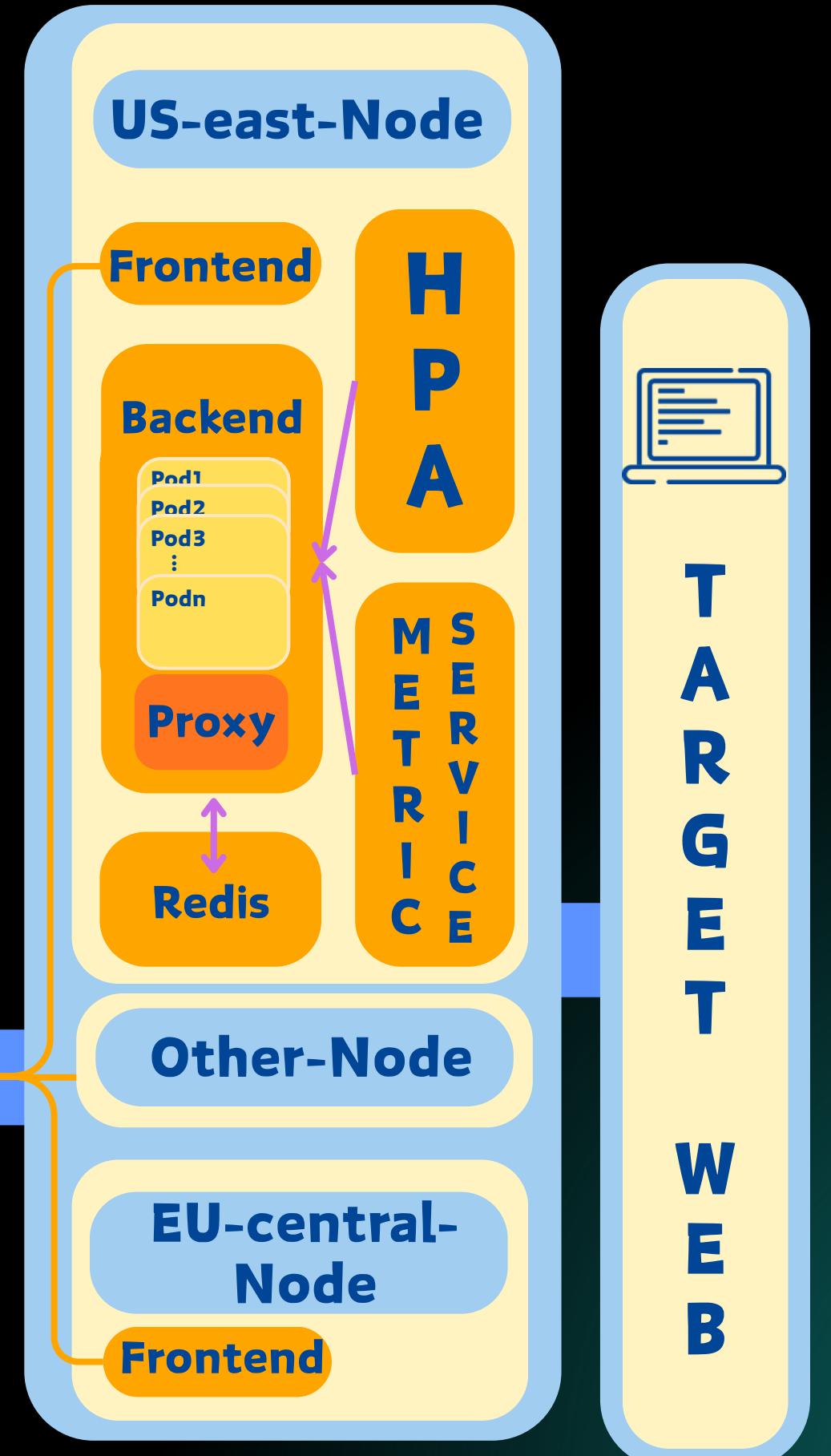
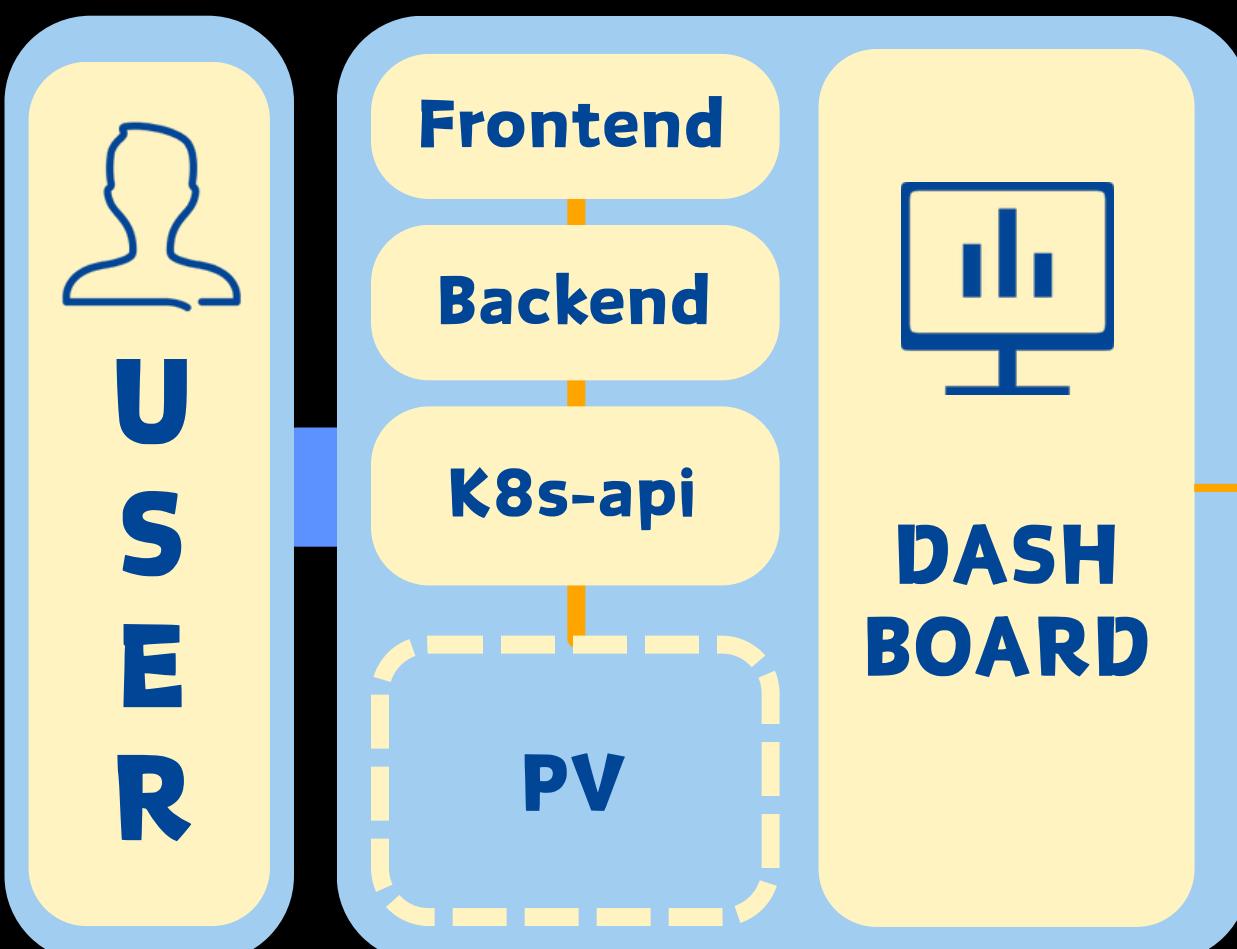
DEMO: 3/3



Try with your own VPN!

Implementation Architecture

- Log in: Store information in PV of portal website
- Click Proxy Button: start a proxy pod serving you exclusively
- IP test: return IP of Node the pod currently running on
- Pod monitoring: Self-awareness of environment
- Data monitoring: all current sockets that passing through your proxy



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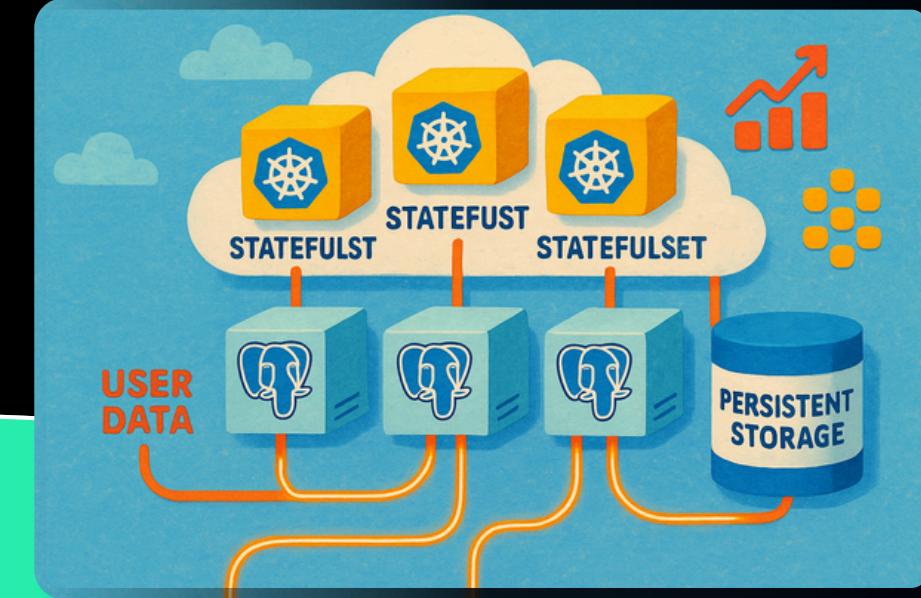


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What's Next?

FUTURE IMPROVEMENTS

Future improvements



SECURITY

Implement encrypted tunneling protocols to ensure secure end-to-end communication.



ViSUALiZATiON

Develop a centralized dashboard to enable cross-cluster monitoring



USER iNFORMATiON MANAGEMENT

Integrate a persistent backend (e.g., PostgreSQL) and adopt StatefulSet for managing stateful components.



Technology empowers the future of intelligence

Q&A

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