Case study

Ciclo

Overcomes Backend Challenges to Scale Efficiently

Technologies & frameworks

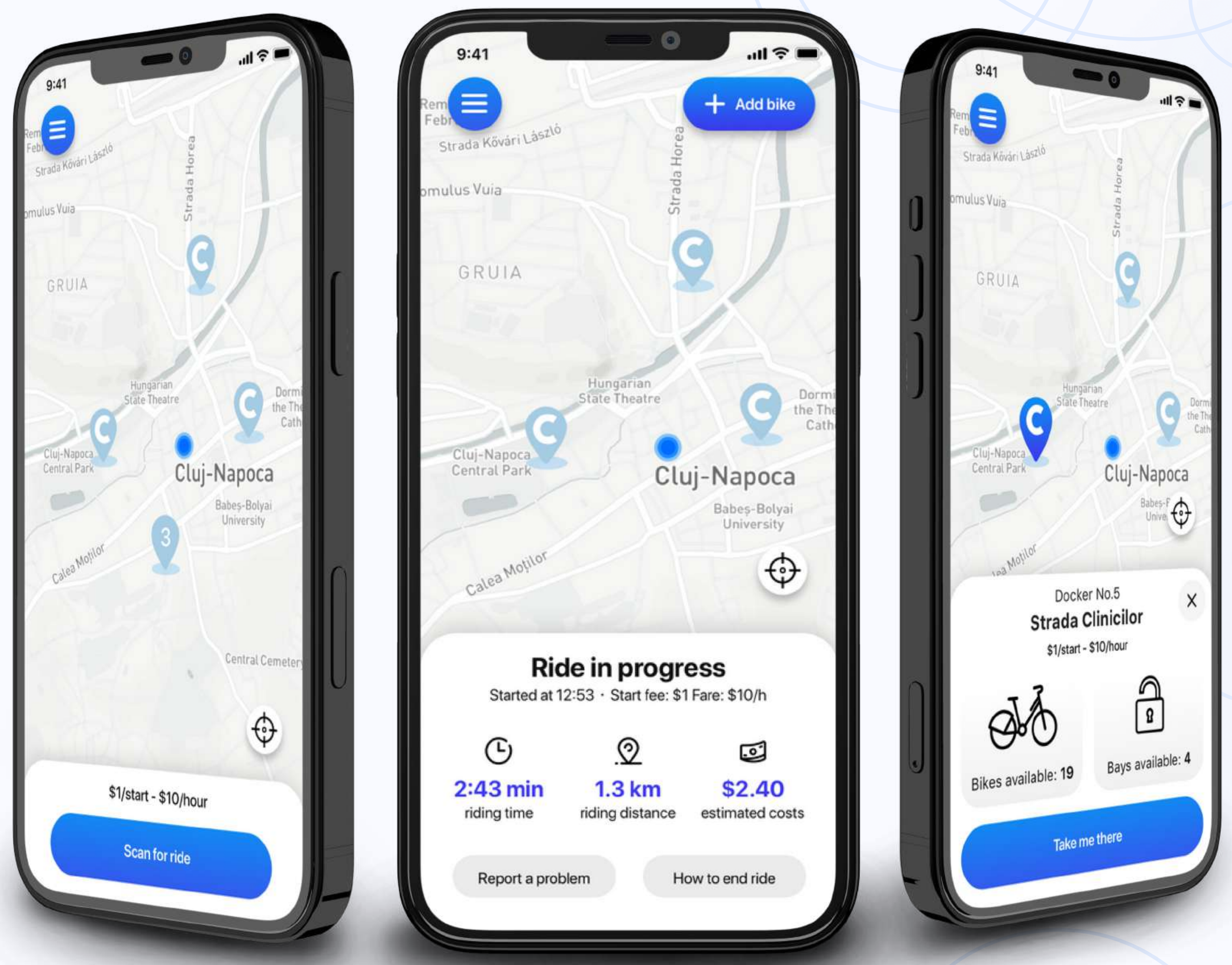
Firestore

NodeJS

GCP Pub/Sub

stripe

GCP Cloud functions



ciclo

Client since	Location
2020	Romania

Industry

Mobility

Clients stats

6 cities

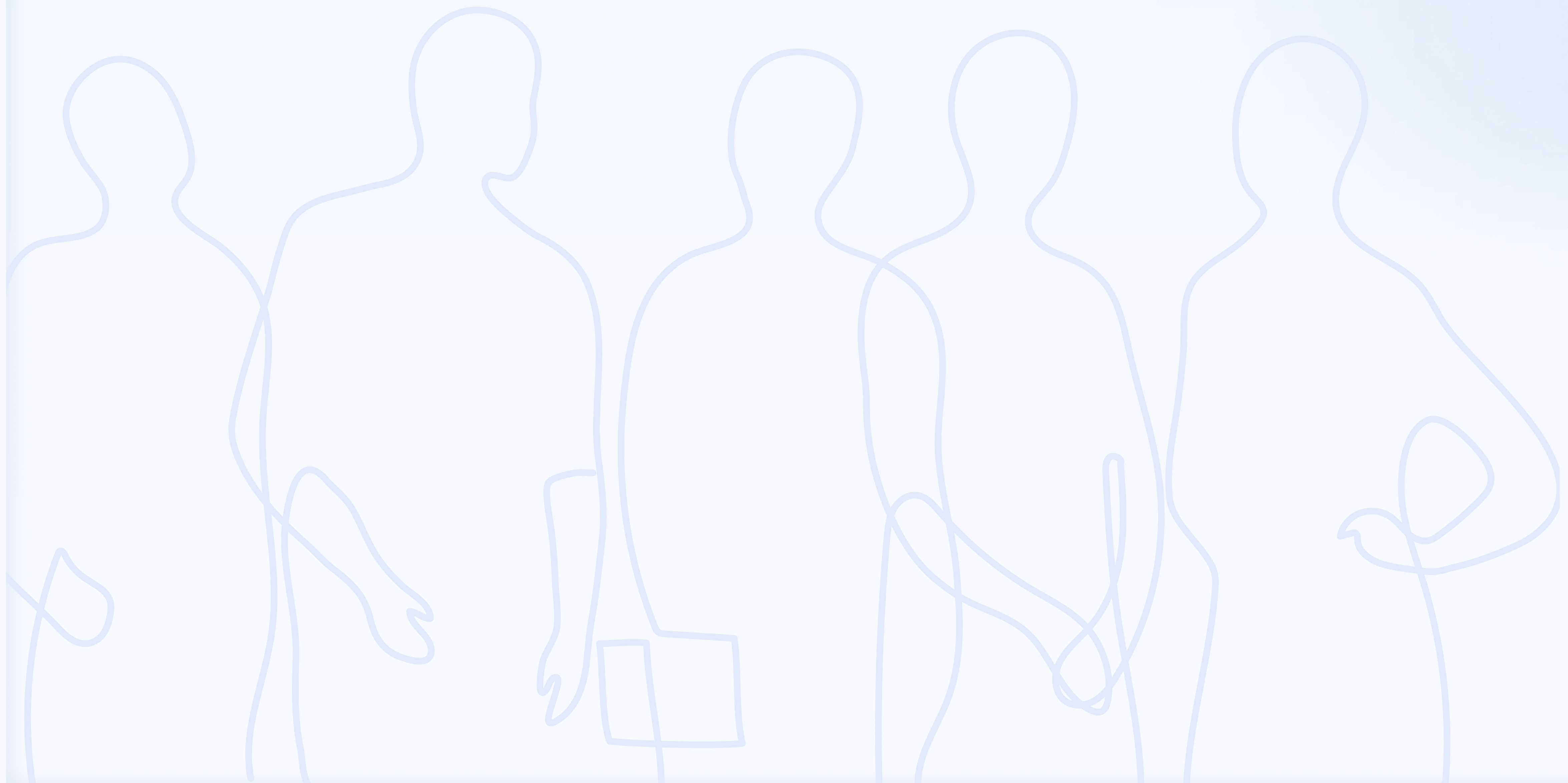
48 bike-stations

500+ bikes

About the client

Our client, CICLO, is a forward-thinking venture inaugurated to revolutionize urban commuting. Launched with a mission to connect commuters with sustainable transportation alternatives, CICLO flawlessly integrated eco-friendly bicycles.

By offering an intuitive platform for bike rentals, payment processing, and account management, CICLO ensures a seamless, top-tier experience for its extensive user community.



The Challenge

⚠ Ciclo faced the technical challenge of developing a robust and scalable backend infrastructure. This infrastructure needed to accommodate an exponential increase in user requests and data handling.

The system's complexity was further heightened by the need for efficient event processing, especially for user-reported incidents, which could trigger multiple actions, ranging from notifications to administrative personnel to the temporary suspension of certain rides.

In addition, a real-time communication mechanism was essential, ensuring users received live updates about rides and station statuses. As Ciclo aimed for international expansion, implementing seamless multilingual support became a priority.

Additionally, the backend had to be adept at integrating with a variety of external systems, from specific transportation hardware to multiple payment gateways, adding another layer to their technological challenges.

Implementation

+ Refactoring of the backend to a cloud-native solution.
+ Utilization of GCP Functions, leveraging the power and flexibility of Google Cloud Platform's serverless functions to rapidly create and test MVPs, enables startups and enterprises alike to iterate quickly with minimal infrastructure overhead.
+ Development of an event-driven architecture.

  Integration of a feedback system and a notification framework.

  Initiation of automated processes for data accuracy and routine data backups.
+ Creation of a user-friendly admin control panel.
+ Integration of Firestore for real-time communication.
+ Institution of diverse authentication pathways, including phone number and email checks.
+ Development of a dynamic language service.
+ Incorporation of a holistic payment system using StripeAPI.

The Results

- ✓ A more scalable and efficient backend infrastructure.
- ✓ Efficient management of intricate scenarios like user-reported issues and ensured decoupled services.

  Enhanced user engagement through feedback and improved communication via notifications.

  Improved data accuracy and reliability through automated processes and backups.
- ✓ Seamless real-time communication for users without the need for traditional web sockets.
- ✓ Enhanced user data security through diverse authentication methods.
- ✓ Personalized user experience by fetching language packs based on user settings, catering to a global audience.
- ✓ Flexible and dynamic payment options, allowing for franchising and user-specific tax adjustments.
- ✓ Comprehensive oversight and control over various tasks through the admin panel.