Scalable Growth in the Sharing Economy

An automated system for e-bike rental with sigo, AWS and Klika Tech

> *E-cargo bikes are changing our cities and making them more sustainable and working with AWS gives us assurance that our system for sharing them is accessible to everyone, at any time.*"
>
> **- Tobias Lochen, Founder and CEO of sigo**

Connecting Users for Contactless Rentals

Environmental, personal, and economic interests in micro-mobility have created a demand for efficient e-bike rental systems. sigo, developer of a first e-cargo bike capable of transporting multiple people and larger items, is meeting the need. Collaborating with Klika Tech, sigo was able to expand access to its e-bikes with an innovative cloud-based system for contactless rental and simplified user access to a growing number of wireless recharging stations. sigo and Klika Tech collaborated to ensure the bike borrowing experience was as simple and reliable as the e-cargo bikes themselves. The system features a cloud-based backend system, built on Amazon Web Services, coupled with a mobile app for users to locate, unlock, and pay e-bike rental fees. The unique system is enabling sigo recharging stations to roll-out across European cities.

INDUSTRIES AND APPLICATIONS

The sigo platform is infinitely scalable and suited for several applications, supported by cloud-based connectivity, remote user access and authorization, and management of dispersed assets.

- Smarty City
- Smart Building
- Contactless commerce
- Sharing Economy

The platform was built on AWS services enabling sigo to efficiently manage the rapid expansion of its network and continue reliably providing on-demand customer access to fully-charged e-bikes.

- AWS CloudWatch
- Elastic IP
- Amazon Elastic Load Balancing
- Amazon Elastic Container Service
- Amazon Simple Queue Service
- Amazon Relational Database Service
- Amazon Route53

Challenge

e-bike rentals are rapidly growing as convenient, affordable and environmentally friendly choices for shareable transportation. Building a scalable network of rental and charging stations can be impeded by issues such as the need to manually replace drained batteries, the need to have attendants at stations, and assuring reliable, around-the-clock availability of ready-to-go e-bikes.

Solution

Sigo relies on AWS cloud services and a mobile app to provide fully- automated, contactless e-bike rentals at stations that feature inductive charging. A mobile app designed by Klika Tech enables users to access sigo's network and remotely locate and reserve a fully-charged e-bike. When the user arrives at a docking station, they can scan a QR code on a bike to unlock it from the docking station. The e-bike can be re-locked using the app at any point if the user needs to park it. When the user returns the e-bike, they simply roll it into a docking station where the system automatically locks the e-bike and begins charging the battery. Klika Tech developed SIGO Connector to manage back-end services, such as rental fees and locating bikes.

Features

The AWS Cloud-connected system leverages a user's smart device to locate and reserve an e-bike as well as authenticate the users' identity, accept the rental fee, ensure the battery life, and unlock the bike from its charging station.

- Expansion at scale of a station-based rental system
- Bridges the first and last mile of shareable mobility
- Mobile app support for contactless, 24-hour reservation, rental, and payment

Built on AWS for rapid growth, scalability and differentiation in the sharing economy

Sigo's automated, station-based approach for e-bike rentals provide the convenience of contactless sharing and inductive charging for around-the-clock availability and the assurance of fully charged batteries. An innovative backend built on AWS supports the expansion of the sigo network enabling users with a smart device to locate, reserve, unlock, and pay for e-bike rentals with full awareness of battery charge along their trip.

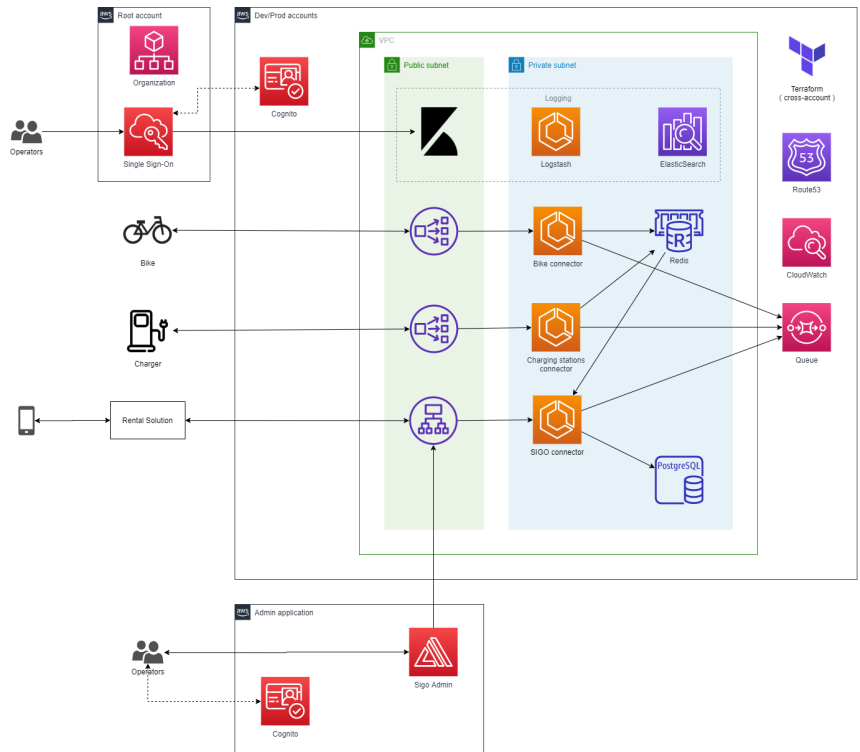The scalable system features AWS services including:

Elastic IP for public IP address with EC2 instance persistence even if stopped and restarted

Amazon Elastic Container Service for fully managed container orchestration of scalable, mission-critical security and reliability

Elastic Load Balancing for automated distribution of application traffic across single availability or multiple availability zone

Amazon Simple Queue Service for message queuing and scale of microservices, distributed systems, and serverless applications

Amazon Relational Database Service for simplified set up and scaled operation of a relational database in the cloud

> *Building on AWS enabled us to develop a simple but effective system capable of scaling the reliability, convenience, and amazing user experience that is fueling the rapid expansion of sigo's network of rental stations for e-cargo bike."*
>
> **- Gennadiy M. Borisov, Klika Tech President and Co-CEO**

sigo

Sigo e-cargo bikes are changing our cities and making them more sustainable, and sigo's sharing system makes them accessible to everyone. Tobias Lochen, the founder of sigo, produced the idea to make shopping and commuting without a car easier. Today, as one of the first providers of fully-automatic e-cargo bike rental systems, the stable and easy-to-use e-cargo bikes are available 24/7 through a growing network of inductive charging stations where borrowing is convenient and easy. For more information visit https://www.sigo.green

KLIKA·TECH
GLOBAL IOT SOLUTIONS

Klika Tech is an IoT & cloud product and solutions development company headquartered in the U.S. with development and management locations across North America, Europe and Asia. Founded in 2013 by business-oriented technologists, Klika Tech co-creates end-to-end hardware, embedded, and software solutions for wearables, smart home/building/city platforms, connected healthcare, smart retail, connected agriculture, asset tracking, automotive, smart mobility, and cloud IoT hub integrations. Klika Tech is an AWS IoT Competency and an Advanced Consulting Partner in the AWS Partner Network with Service Delivery Designations for AWS IoT Core, Amazon API Gateway, AWS CloudFormation, and AWS Lambda. For more information, email: contact@klika-tech.com