FLOWBIRD
Urban Intelligence

CLOUDFARE

ORCHESTRATING MULTIMODAL TRANSPORT NETWORKS FOR SMART CITIES

MULTI-LAYERED CLOUD-BASED INFRASTRUCTURE

TICKETING ARCHITECTURE MONITORING AND DEVICE CONTROL

ACCOUNT BASED TICKETING AND MOBILITY-AS-A-SERVICE ENABLER

CloudFare

A scalable and future-proofed multimodal network management platform

Flowbird Transport Intelligence introduces CloudFare – the future-proofed back office architecture that redefines **multimodal network management.**

CloudFare is a modular, scalable and flexible platform **delivering remote management and control of network assets and systems,** including ticket retailing infrastructures of any size. It is built on **revolutionary design thinking** that delivers solutions tailored to the needs of our customers.

Its multi-layered approach enables operators to take **a system-wide view of performance in real time** – and to quickly identify and resolve issues at a device level. At the same time, its **intuitive, visual analytics** can drive operational improvements while creating scenario-based future modelling for **longer-term planning.**

With CloudFare, network owners and operators can:

- **Define multi-modal transport routes and fare options**
- **Monitor assets and resources** remotely via **customised dashboards**
- **Create automatic system alerts** and track resolution
- **Monitor and control** ticket retailing devices **remotely and directly**
- **Monitor route performance in real time**
- **Manage passenger accounts** linked to Account Based Ticketing and be part of a **Mobility-as-a-Service** solution
- Sharpen operational and marketing performance through sophisticated data analytics **Flowbird's latest generation of ticketing devices** are all **fully compatible with CloudFare.**

Scope

CloudFare is a feature **rich, fully scalable, cloud-hosted mobility management system**. It is responsible for orchestrating and monitoring a wide range of public transport related activities through **the application of a growing range of tools and modules.**

The platform offers extremely high performance, utilising micro-services and stateless RESTful interfaces which allow the framework to **scale, increasing and decreasing resource usage** in response to system demands.

CloudFare features intuitive map-based user interfaces, enabling **system administrators to interact** at a macro level or on **a geographic and device basis.**

Features:

- Web interface with **intuitive user experience**
- **Multimodal, multi-operator** – capable of supporting any form of public transport
- **Open interfaces** – CloudFare offers a variety of APIs to permit 3rd party systems to extract data
- Always online communication – offering interfaces for ticketing and mobility devices **to exchange data in real time**

MODULES

CloudFare has been designed to enable Software as a Service and Ticketing as a Service delivery models.
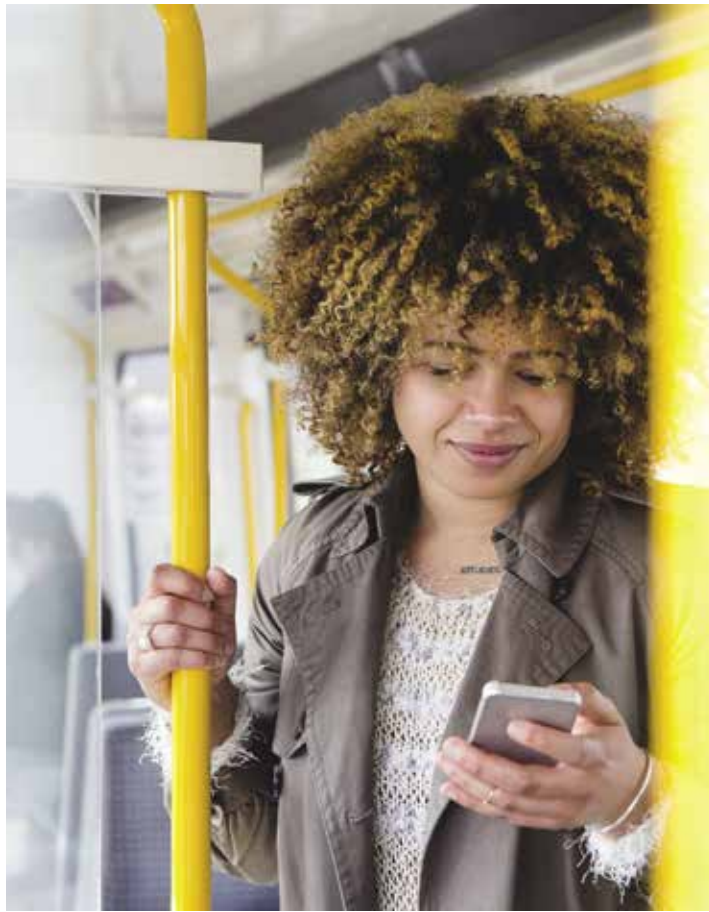
Fares & topology management

The Fares & Topology Management module can configure **complex and intricate public transport topology,** business rules and fares. It employs a graphical approach to configuration wherever appropriate.

The concept of inheritance is included throughout the solution; a stop attribute can be edited once, and automatically adopted by all routes. A zone boundary can be adjusted once, and all affected stops and routes automatically influenced.

A key driver is speeding up configuration activities for ticketing system staff.

Features:

- Automatic population via 3rd party stop and route data import
- Configuration of paper, smartcard, Account Based Ticketing and mobile product attributes and geographic parameters
- Map based editors
- Complex time rule management
- Distance based fare configuration
- Hierarchical user access – ensuring that users edit the fares and topology for which they are responsible
- Topology inheritance – scheme wide products, rules, logic and fares can be configured at the highest hierarchical level and automatically inherited by all regional areas. Regional areas can edit or add new additional products, rules, logic and fares appropriate for the local region
- Graphical ticket layout editor with drag and drop controls and preview options

Account based ticketing

The Account Based Ticketing (ABT) module provides operators with **access to secure Open Payments systems and smart media architectures,** while enabling passengers **to benefit from the convenience of 'best fare' guarantees, travel-token functionality and multiple payment options** to meet evolving travel requirements.

This paradigm shift in ticket retailing supports **'frictionless' travel** for passengers thanks to a tap and ride model, which uses an intelligent engine to construct journeys based on recorded 'taps'.

A pre-configured business logic **guarantees "best fare"** capping across services, time ranges, geographic areas and account types.

Features:
• Mobile responsive customer portal

• Operator portal for management of accounts and payments

• Centrally-defined business rule engine with complex capping algorithms

• Automatic passenger journey construction

• Integration with Fares & Topology Management modules to derive latest tariffs

• Integration with global payment systems

• PCI-DSS certified reader/ validator solutions compliant with EMV transit rules

• High level of security using proven cloud-hosted data centre infrastructure

• GDPR and Web Content Accessibility Guidelines compliant

Estate management

The Estate Management module assists staff with **the monitoring and management of physical assets.**

CloudFare encourages the use of location information in all data received from assets. As a result, **graphical map-based asset tracking** is provided, **showing specific locations of device transactions,** events and other activity.

The module is **capable of issuing remote commands** to devices, including changes in operational modes, forced software downloads and reboot. Staff can be given different access levels on multiple devices, with users only able to view and manage the assets for which they are responsible.

Features:
• Monitoring the live status of real time communication between devices and CloudFare

• Management of physical assets

• Review the historical activity of devices

• Management of credentials and permissions of staff who operate the devices

• Build, schedule and deploy datasets to devices

DASHBOARD

The CloudFare Dashboard **offers a variety of graphical indicators** to help operational teams **monitor system status and receive visual notifications when exceptions occur.**

Features:
• Operational and technical asset status monitoring

• Hierarchical user access – the dashboard will show data appropriate for the user access level, whether that be data for the entire system, or a sub location

• Extensible library of dashboard tiles

• Drag and drop dashboard layout editor

• Personalised user dashboard, containing data appropriate to an individual's role

• Interaction via phone, tablet, desktop or control centre panel enabling team members to check in on the system status from any location

Events & alerts management

The Events & Alerts Management module offers tools that c**an configure when a particular event, or combination of events, requires human intervention.**

Specific alerts can be manually and automatically channelled to the Flowbird support desk to synchronise incident information and trigger a response.

Features:
• Creation of event combinations which trigger alerts

• Configuration of alert recipients and owners

• Viewing and filtering of active, closed and historic alerts in real time

• Acknowledgment of, commenting on and clearing alerts
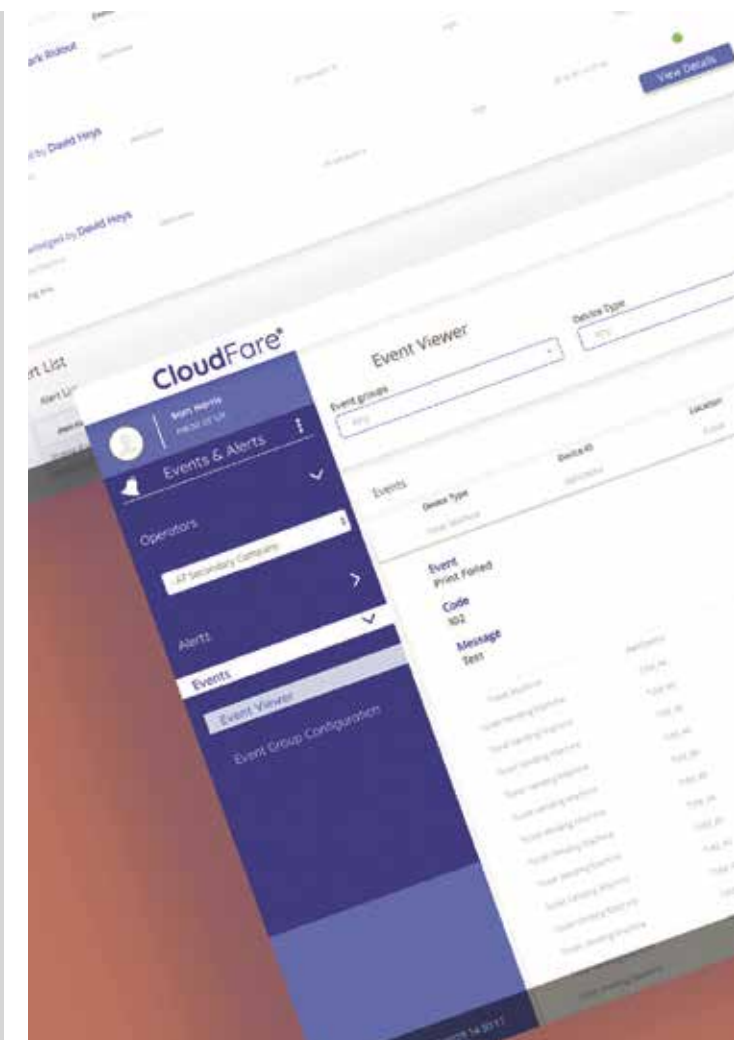
USE CASE

Flowbird delivers a new ticketing system for the UK's largest integrated multimodal transport system outside London

CloudFare is the hub for Translink's Future Ticketing System. Flowbird has installed 114 self-service retail units at halts along the network, supplied 230 platform validators and provided 45 handheld devices and each of these is integrated and managed within CloudFare.

The system also facilitates passengers buying tickets, topping-up their smartcards, collecting tickets purchased online and validating journeys before boarding, thereby improving the customer experience by speeding up the entire journey for all Glider bus rapid transit customers.

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