



# IJYI's Darwin4Trains enhances customer experience for Britain's national rail network

Supplying information in under 300 milliseconds, the unique message pipeline is the first of its kind used by Rail Delivery Group and is set to revolutionise passenger information delivery across the UK rail network.

Using a cloud-based message system, IJYI's platform - uniquely created for Rail Delivery Group - consolidates multiple systems such as scheduling, station facilities, delays and tube statuses into a single data feed, delivering real-time accurate information to passengers aboard UK trains.

## Rail Delivery Group



*"IJYI's expert knowledge working in an Agile environment combined with their willingness to go the extra mile allowed us to deliver an excellent product."*

*This project is part of the industry's long-term plan to change and improve services, in which we commit to increasing satisfaction by improving information for customers."*

**Mat Lloyd,**  
Darwin4Trains Product Owner,  
Rail Delivery Group

### About Rail Delivery Group

*Preserving and enhancing Britain's national rail network*

Rail Delivery Group was formed in 2016 to combine the Association of Train Operating Companies (ATOC), set up after privatisation in 1993 and the then, Rail Delivery Group. With common goals of preserving and enhancing the passenger benefits of a national network and taking a responsibility for policy and communications on behalf of the whole industry, the two bodies merged.

### The Objective

*Efficient and accurate information for rail passengers throughout their journey*

As a core part of its Customer Information Strategy, Rail Delivery Group needed to deliver accurate

information to passengers aboard UK trains. It needed to make real-time information available from Darwin, the official train-running engine, and other information sources such as KnowledgeBase, Fabrik and TFL Underground.

### The Strategy

*Bespoke software development to deliver 5 million daily messages*

Working with IJYI - specialists in bespoke software development and DevOps Consultancy - Darwin4Trains was created, delivering real-time information in the form of push notifications on-board trains. Prior to this, train drivers would have been informed by telephone and would manually type the information for passenger display boards.



Gold Application Development  
Gold DevOps  
Silver Cloud Platform



The cloud-based message pipeline, created by IJYI, enables Darwin4Trains to handle up to 5 million messages per day, consisting of schedule updates, disruption information, third party travel service status and facilities information.

### Agile Delivery - Efficient and Flexible

The six-person team, comprising of a project manager, four developers and one Q&A tester worked closely with the product owner at Rail Delivery Group, creating a cohesive team approach. Daily update calls and an ongoing dialogue throughout enabled continuous progress tracking.

“Open and direct communication between the IJYI development team and Mat the Product owner from Rail Delivery Group was the key to the success of this project. RDG really understand what it takes to deliver in an Agile manner”

**Alan Jackson**  
IJYI Project Manager

This partnership approach gave the RDG team the reassurance that the three-month project was being delivered to specification, meant that it could be tested internally at RDG as it was being built and also, importantly, gave the developers the opportunity to react to any emerging requirements and even deliver functionality that wasn't part of the original brief.

### Flexibility within the Cloud

Flexibility is built into the infrastructure of Darwin4Trains, thanks to Amazon's AWS cloud. When sudden usage spikes occur, for example during bad weather, an auto-scaling facility enables more resource and scales back when it's no longer required. Providing significant cost-savings, the facility removes the need for bulky and expensive servers that are only required for limited use.

Using AWS also meant that the size of compute resource could be altered during the project delivery, rather than potentially over-allocating in the planning stages.

### DevOps adds efficiency

Automated build, test and release of the Darwin4Trains code, ensured it could be deployed repeatedly and reliably multiple times per day across four environments; Development, Test, User Acceptance Test and Live.

Code metrics were monitored daily to provide data to the developers about code-quality, potential issues and test-code coverage. This allowed the developers to deliver at speed whilst maintaining the highest quality code. Continuous monitoring enabled small changes to be regularly verified by testers and the customer enabling small corrections rather than large complicated fixes further down the line.

“The performance of IJYI's messaging pipeline allowed both the developers and the customers to focus on the business needs rather than how they support the volume of information to be transmitted,” said John Nicholson, Director at IJYI.

### Why IJYI?

IJYI was selected for the project following a third-party recommendation to Rail Delivery Group. Thanks to its expertise and dedicated team, IJYI was able to deliver an adaptable, agile working environment, with a dedicated project team to ensure flexible and fast delivery.

## Results

- Capacity to deliver 5 million messages a day to UK rail passengers
- Darwin4Trains was delivered on-time and on budget
- 100% pass rate on all penetration tests (including third-party tests)

## Technologies

- IJYI Message Pipeline
- .NET Framework
- .NET WebAPI
- Apache ActiveMQ
- Microsoft Azure Application Insights
- AWS DynamoDB
- AWS EC2
- AWS ElastiCache Redis
- AWS API Gateway

### About IJYI

Specialists in bespoke software development and DevOps Consultancy, IJYI prides itself on face-to-face communication and customer collaboration to deliver real customer value that is directly aligned to business goals.

The exceptional technical team includes Project Managers, Agile Coaches, Business Analysts, Architects and Developers, offering a range of services including bespoke development, DevOps Consultancy, Cloud Hosting & Support and IJYI Messaging Pipeline.



[www.ijyi.com](http://www.ijyi.com)

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