



Maintenance and Support for a Successful Airline Website

■ Client description

Our client is Conchango, a UK business consultancy and systems integrator with cutting-edge digital design capabilities, rated by Forrester as the best Web Design company in Europe. Conchango has been helping businesses maximise their potential for nearly 20 years. They serve high profile clients in core industries (retail, consumer packaged goods, financial services, energy, media and entertainment), and bring technology and industry innovations to new industries and clients.

Conchango has been commissioned by Virgin Atlantic with the development, maintenance and support of their new website.

Since it was founded in 1984, Virgin Atlantic has become Britain's second largest carrier serving the world's major cities. Now based at both London's Gatwick and Heathrow airports, it operates long haul services to 30 destinations world-wide as far apart as Las Vegas, Sydney and Shanghai.

■ Project description: supporting a great website

Virgin Atlantic recognises that having sustained maintenance and support to its website is key to remaining competitive.

For this reason, the airline commissioned Conchango, for a 3-year Maintenance and Support (M&S) programme for its website. As Conchango has been working with iQuest as a long-term nearshore development partner since 2004, they have selected iQuest to deliver the ongoing maintenance and support services.

The project provides maintenance and 24x7 Level 3 support services for the main website, and for some additional micro-sites used by the client's staff and various customer subsets. Conchango is responsible for on-site service delivery management, while iQuest is responsible for the website maintenance and support activities. The Conchango service delivery manager works closely with Virgin Atlantic, and is in constant touch with the iQuest development team.

The hardware infrastructure for providing 24x7 support features resilience and redundancy for all equipment, including external services such as ISP and phone services provider.

Incidents are logged into a problem management application through the client helpdesk by staff or customers. Based on the severity of the reported problem (critical, high, standard, or scheduled), iQuest has a corresponding SLA for fixing the issue.

The scope of maintenance is to develop small and medium-sized pieces of work, with frequent releases to the live environment. Larger pieces of work are usually developed as projects by a separate Conchango/iQuest team.

After going live, there is usually a warranty period. Subsequently, maintenance and support of the new functionalities are taken over entirely by the M&S team.

■ Project overview: dynamic content

End user requests reach a BigIP load balancer, which evenly distributes requests between several Apache web servers. By using an Apache Weblogic proxy plug-in, the Apache servers forward the requests to one of two clusters of Weblogic application servers. The web servers host static content like images, stylesheets (css), javascript, flash.

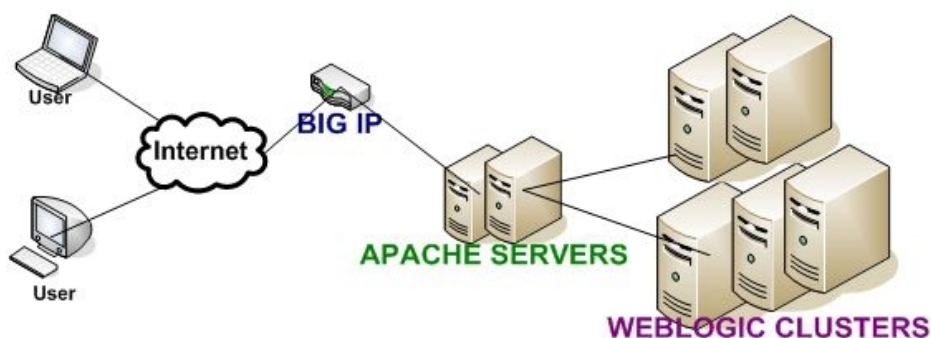
The website is implemented as a JEE application, formed by a backend module (ear) and a web module (war), deployed on the Weblogic application servers clusters.

As the content of the website is dynamic, and has to be updated frequently, the business editors team use the Tridion CMS (Content Management System) to publish up-to-date information.

The website application communicates with several external systems, providing a variety of different services like flight data caching, flight reservation, address validation, insurance, hotel and car hire, frequent flyer data, tracking, boarding pass printing, online payment and many others. This large variety of external system interactions adds great complexity to the website application, adding extremely interesting challenges in maintenance and support.

iQuest team is responsible for L3 support, i.e. application support. Nonetheless, we have also been involved in L2 support, helping the L2 team with numerous environment & architecture specific problems.

■ Architecture overview



■ Technologies:

JEE: EJB, JSP, Servlet, JMS, Web Services, Java Mail; HTML; XML; CSS

Open source tools: Apache web server, Spring, Lucene, Velocity, Maven, Ant, Jira, SVN, Axis, Castor

Commercial Tools: WebLogic 8.1, Oracle 10 RAC cluster.

■ Development process

The development process is built around a 3-week development cycle, with work items being up to 80-100 hours of effort. Larger pieces of work can be split over several maintenance builds.

We maintain a backlog of items which are prioritised by the client based on their business value and estimations provided by the technical team. The estimates are done twice a week, or on demand, if specifically requested.

The requirements gathering and analysis is done as the items are implemented, offering the client a very efficient and agile approach. There is no business analyst involved, both the client and the developers play this role. The flexibility of the team is very much appreciated by the client.

The work items are tested both after their implementation and in a regression testing phase that is performed every build, to ensure the quality is preserved across the entire product.

Every build runs through a user acceptance testing (UAT) phase on a staging environment which is very similar to the production one.

■ Challenges and Solutions

Challenge	Solution
Keep up with the ever-increasing number of website users.	Increased the number of web and application servers in the live environment, adjusting the architecture as well.
Track each user's interaction with the website, in order to be able to recreate problems.	Implemented a user actions tracking framework, extremely valuable for investigating incidents.
Minimise service disruptions / website outages in order to prevent revenue loss.	Improved configurability of the application. Several changes that previously required time-consuming application redeployments can now be activated by modifying reloadable files, database changes, or by individual server restarts. Continuously improved the code quality. Always proactive with regard to possible problems, risks, and optimisations.
Make the knowledge gained in maintenance available for 24x7 support.	Using the same team for both maintenance and support.

■ Results: a better experience for all

The Virgin Atlantic website is now very stable, allowing an increased number of users to book, amend bookings or check in online, plus a lot more adjacent services. The site now provides the vast majority of the services which were previously available only through call centres, such as searching for flights and holiday packages, booking flights, cars, hotels, insurance, checking flight schedules, updating bookings (changing dates, upgrading, amending different preferences, etc). The work we implemented over the time introduced numerous benefits including increased number of website bookings. In overall terms the customer experience has been enhanced through a more robust, stable and flexible application.

About iQuest

Headquartered in Germany and having two development centres in Romania, iQuest is an IT solution provider delivering customised solutions in financial services, telecommunications, life sciences, logistics, media and IT. With over 12 years of experience and more than 320 employees in its 7 European locations, iQuest delivers best-in-class services for long-term clients in Germany, the United Kingdom, Switzerland and Sweden.