

Case study: Delivering election results using the cloud



Technology |
Public Sector

Published: September 2017



1. Summary

In 2016, the Italian City of Cagliari implemented a new portal to provide citizens with real-time access to the local election results. The project was launched because the local officials were concerned that the existing infrastructure would not be able to cope with the sharp rise in traffic to the official website around election time. In previous years, the town experienced challenges supporting the web traffic after the polling stations closed, since citizens visit the website to track the results for the different parts of the commune. Given the importance of the elections to the local population, it was critical that the service be reliable and responsive.

With 20 days to go before the election, the city worked closely with a local technology firm, BeeToBit, to develop a new portal to publish the election results. BeeToBit specialises in the delivery of cloud-based solutions and has expertise in a number of different cloud vendors. For this project, the company chose to use AWS Lambda, a serverless compute service from Amazon Web Services, because it enabled them to deliver the solution in an agile way, while keeping infrastructure costs to a minimum.

BeeToBit's solution took advantage of the resilient services built into AWS, allowing BeeToBit to focus on implementing the functionality, rather than spending a lot of time building in support for scaling and failover. On the night of the election, the site successfully served over seven million requests, delivered a peak throughput of over 200 requests/second, and automatically scaled up and down as demand fluctuated, all without requiring expensive infrastructure to support the load.

1.1. Lessons learned

- Build your organisation's confidence in the cloud by demonstrating success
- Embracing cloud services requires you to think differently about design
- The project could not have been delivered in the time period without using cloud services
- AWS Lambda takes on the complexity associated with scaling, allowing you to focus on the business logic
- Using cloud technology, small public sector organisations can enjoy the same levels of performance and scalability as their larger counterparts

The City of Cagliari has already adopted cloud services in the form of Software as a Service (SaaS), and plans to continue to move towards cloud-based infrastructure and services as part of an overall shift from a "datacentre-oriented" view of the world, to one based on the idea of services. Piero Orofino from the city's technology and innovation group makes the point that this transition involves a degree of cultural change, but that both the IT staff within the city, as well as the people who work for the city, view it as a positive change.

1.2. Key Messages

Build your organisation's confidence in the cloud by demonstrating success

Piero Orofino mentioned that confidence in cloud technology needs to be nurtured within the organisation. Orofino states: "There is always some resistance to change and it can be hard to persuade people to embrace new things, but we started with one specific challenge and when we'd succeeded with that, it was easier to get people to agree to the next project." By taking a stepped approach, you allow the organisation to get used to the idea of the cloud, and can then take on more challenging projects as the organisation's experience and confidence grows.

Embracing cloud services allows you to think differently about design

Orofino is clear that simply shifting an application from your datacentre to the cloud won't necessarily result in innovation; his advice is to look at the opportunities that cloud technologies offer to enable you to do things in a different way. His key message is "think about the possibilities."

Federico Caboni from BeeToBit echoes this advice by stressing the need to think about design before deploying applications to the cloud. One of the reasons this application was so inexpensive to run was that it had been designed to make use of a feature offered by AWS called Lambda services. Lambda services are designed to run on-demand, so they only use resources when they are requested; this means that there is no need for a continuously running server. This had a significant impact on the total cost of running the solution. While it is possible to simply redeploy on-premises applications into cloud infrastructure, it can often be the case that the real economic benefits come when the application is rearchitected for the cloud.

The project could not have been delivered in the limited time period without using cloud services

Caboni describes the project as an interesting and challenging one, especially in terms of the time period. He said, "We were confident that we could deliver the solution in the time we had, but we still knew it would be a challenge." Caboni highlights the decision to use AWS Lambda as a key factor in the project's success, emphasising that the project could not have been delivered as quickly using traditional techniques and approaches. The City of Cagliari also recognised that timing was tight, but the city's experience of cloud technology and its relationship with BeeToBit created the level of confidence necessary to take on the challenge.

AWS Lambda takes on the complexity associated with scaling, allowing you to focus on the business logic

The two primary benefits of using AWS Lambda are scalability and cost. AWS Lambda scales up in direct proportion to the number of incoming requests, and as a result, applications only incur fees when those services are invoked. There are no other costs associated with running stand-by servers, load-balancing middleware, or in running servers in stand-by mode.

Another key feature of the infrastructure was that it was replicated across two AWS Regions, at no additional cost, so in the event of a failure in one region, the other would serve the requests. Once more, this service required no special development, as it is a feature of the service.

Using cloud technology, small public sector organisations can enjoy the same levels of performance and scalability as their larger counterparts

While some large public sector organisations have the internal skills to build distributed systems that are scalable and highly resilient, many smaller organisations do not have the resources. Using cloud infrastructure enables these smaller organisations to enjoy the same benefits of their larger neighbours,

without having to go to the expense of recruiting people with design and scalability skills. They can get the benefits of agility, scalability, and resilience from the infrastructure itself.

2. Thanks to...

We would like to thank Piero Orofino from the city of Cagliari, and Federico Caboni from BeeToBit for their participation in this case study.

rticular, for helping in the creation of this case study.

Public Sector

Contact Us

If you have any questions regarding our research or would like more information on our service offering, please contact us.

E: clientservices.technology@globaldata.com

T: +44 (0) 207 936 6679

Disclaimer

All Rights Reserved.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher, GlobalData.

The facts of this report are believed to be correct at the time of publication but cannot be guaranteed. Please note that the findings, conclusions and recommendations that GlobalData delivers will be based on information gathered in good faith from both primary and secondary sources, whose accuracy we are not always in a position to guarantee. Asormation that may subsequently prove to be incorrect.