

Gaia Resources Promotes Safety and Well-Being of Bushfire Volunteers with App Built on AWS



Executive Summary

Australia relies heavily on volunteers to combat bushfires. The Association of Volunteer Bushfire Brigades of Western Australia worked with Gaia Resources, which provides technology consulting services to companies in the environmental sector, to create an app that helps emergency services volunteers register, track activities, and access merchant offers. The app uses Amazon S3 for storage, Amazon CloudFront for content delivery, and AWS Elastic Beanstalk for automated deployment and management.

Supporting Brave Volunteers

In late 2019 and early 2020, the world watched in shock as Australia lost 46 million acres to bushfires. These tragic events put the spotlight on the country's dedicated volunteer brigades, who demonstrated exceptional courage and determination in assisting with fire suppression efforts.

The organizations that support volunteer brigades, such as the [Association of Volunteer Bushfire Brigades of Western Australia](#) (Bushfire Volunteers), are always looking for more ways to help their members and build stronger connections with the local communities they serve. Over 75 percent of the 26,000 firefighters in Western Australia are bushfire volunteers. "Volunteers donate their time and energy and provide essential services to their communities," says Darren Brown, executive officer at the association. "We seek innovative ways of empowering and recognizing them."

In 2019, Bushfire Volunteers sought a partner to help develop a new mobile app for its members and planned to expand access to all volunteer emergency services throughout the country. An employee at [Gaia Resources](#), who was also a bushfire brigade volunteer, saw the request from the association and brought it to the company's attention. Gaia Resources rose to the challenge, offering pro bono services to get the project off the ground. Amazon Web Services (AWS) contributed platform credits, removing short-term budget concerns for the effort and enabling the association to continue focusing on promoting the safety and well-being of its volunteers.

"Working with Bushfire Volunteers was a natural fit for us," says Piers Higgs, founder and director of Gaia Resources. "We are focused on delivering sustainable technology solutions to companies to make the world a better place, and it's important to us to give back to our community." The company's services include software engineering, spatial data and mapping, support, training, and hosting. Additionally, Gaia is a [Select Technology Partner](#) in the [AWS Partner Network](#) (APN).

Software in Service to Safety

The project had several specific goals based on the needs of the bushfire volunteer community. First, it would provide a virtual ID card that proves the user is a currently registered and approved member of a legitimate volunteer essential service.

Then, it would allow users to log the duration, location (including GPS coordinates), and type of work they undertook. "Volunteers who are exposed to hazardous conditions can later petition to have their medical expenses covered, and they can make employment, reimbursement, and other claims," says Brown. "The app can provide reports of their activities, which could be useful in those situations." The app also needed to enable brigade captains and local government officials to get statistics about the volunteering efforts of their brigade. Finally, it would help businesses provide discounts and deals to volunteers.

About Bushfire Volunteers



The Association of Volunteer Bushfire Brigades of Western Australia is an independent agency that represents more than 20,000 bushfire volunteers by advocating for their optimum health, welfare, safety, and recognition.

“We were excited to dive in and help; we worked through Christmas to get the proof of concept ready,” says Higgs. “When additional funding became available in early 2020, the association and Gaia were able to develop a full-featured solution.” The app, called [Essential Service Volunteers](#) (ESV), is free to download, with full functionality available for users who volunteer for an essential service with an active subscription.

Cloud Services for Scalability and Cost-Efficiency

The team at Gaia Resources chose to build the app on the AWS Cloud. “Using AWS means Bushfire Volunteers doesn’t have to manage infrastructure or pay for more capacity than it needs,” notes Higgs. “Because bushfires are largely seasonal, it has a solution that can scale up as volunteer brigades need to use it, and then scale back down again when the needs are less urgent.”

The solution relies on [Amazon Simple Storage Service](#) (Amazon S3) to provide image and object storage, and it uses [Amazon CloudFront](#) to speed content delivery. In addition, [AWS Elastic Beanstalk](#) automatically handles web app deployment including capacity provisioning, load balancing, auto-scaling, and app health monitoring, further reducing management overhead for Gaia Resources and the association. The app also takes advantage of [Amazon Elastic Compute Cloud](#) (Amazon EC2) for foundational compute services and [Amazon Relational Database Service \(Amazon RDS\) for PostgreSQL](#) for fully managed database service.

Because many volunteers work in areas without mobile coverage, the app offers the ability to enter data and browse offers while offline and then synchronize when a connection is available.

Ready for the Future

The ESV app is being used and tested in the field to ensure it is fit for purpose. “Hundreds of bushfire volunteers are already registered and using the app, providing valuable feedback for further improvements ahead of the next fire season,” says Higgs.

Gaia Resources continues to assist with the project, supporting continued enhancements. A second phase of development is adding volunteer profile management and time, location, and work-type reports, along with brigade leader management features. “Our hope is that this app will make the lives of bushfire volunteers easier and be adopted broadly throughout various public service agencies across Australia,” says Higgs. “Using the power of the AWS Cloud enables us to do so with security, scalability, and cost-efficiency that would not be possible any other way.”

About Gaia Resources

Gaia Resources is a consultancy that responsibly delivers sustainable technology solutions to companies that work with the environment.

