How MMAPT is disrupting digital product photography with robotics and the power of AWS

MMAPT Case Study

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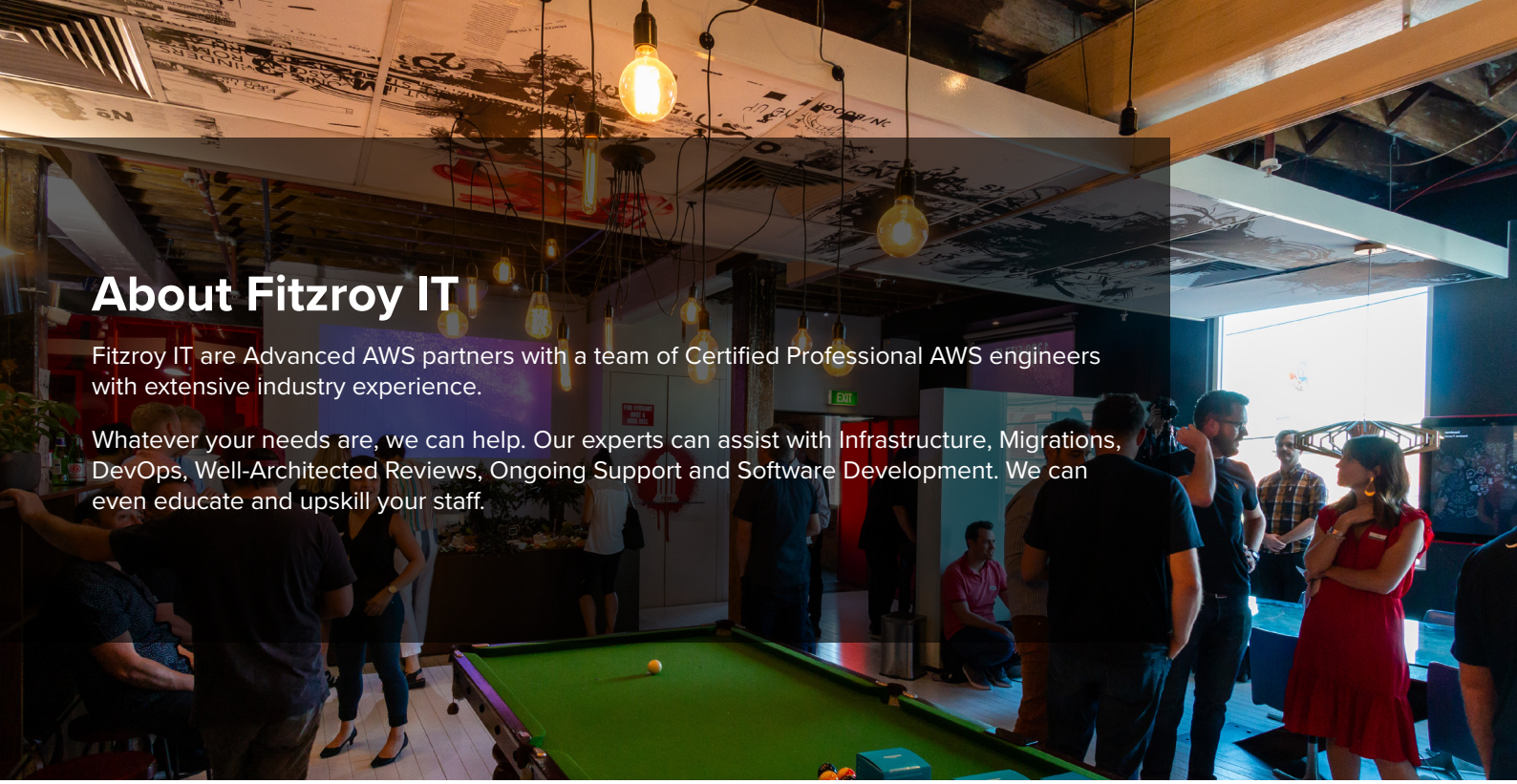


About Fitzroy IT

Fitzroy IT are Advanced AWS partners with a team of Certified Professional AWS engineers with extensive industry experience.

Whatever your needs are, we can help. Our experts can assist with Infrastructure, Migrations, DevOps, Well-Architected Reviews, Ongoing Support and Software Development. We can even educate and upskill your staff.

About MMAPT

MMAPT Robotics are an Australian-based startup that sits at the nexus of collaborative robotics, product photography, ecommerce, video processing, 3D Capture, media management and digital publishing. They have produced a patented automated robotic imagery and data capture system called STEVIE.01. STEVIE.01 captures & formats images, 360 videos, 3D scans as well as the dimensions & weight of eCommerce products - both boxed & unboxed. STEVIE.01 then catalogues & pushes the assets directly online to the cloud. All within 70 seconds & with no skilled labour required.

Executive Summary

MMAPT Robotics has revolutionised traditional product photography for eCommerce by building STEVIE.01 - a prototype system that combines collaborative robotics and cutting-edge digital photography to capture product photos, videos and 3D scans in far less time, and for far less cost than it would take a traditional human photographer. To cloud-enable their prototype and move into production, MMAPT sought the help of Fitzroy IT, whose unique blend of expertise in software development and cloud infrastructure made the project a success.

Customer Challenge

The initial prototype of STEVIE.01 was created as an entirely offline experience; authentication, capture, storage and post-processing were all handled using local resources. As the product moved out of prototyping and into production, MMAPT needed the assistance of a skilled partner to realise their vision of a network of cloud connected STEVIEs.

For MMAPT, being cloud-connected enables an enormous competitive advantage, allowing users to login and use their specific settings to shoot products, regardless of which robot they are using, as well as delivering finished assets to clients within seconds of shooting.

Fitzroy IT – The Perfect Partner

Fitzroy IT were heavily engaged in building the prototype solution for MMAPT, contributing an elegant client/server solution for users to control the running of shoots. Fitzroy IT also have a talented and experienced team of onshore developers who are experts at serverless development using a vast array of AWS services and programming frameworks.

MMAPT chose to engage with Fitzroy IT because they were uniquely qualified to take on the challenges presented by MMAPT's disruptive business model. The project required broad experience across AWS Infrastructure Management, Software Development, Media Management, Robotics and Digital Photography. Such diverse skills are rarely found in one place, but Fitzroy IT prides itself on the breadth and depth of its knowledge and expertise.

Why AWS

Choosing AWS was a straightforward business and technology decision; guided by Fitzroy IT, MMAPT could see that no other provider could meet their needs for global reach, functionality, bandwidth, performance and high-availability at an extremely competitive price.

Additionally, AWS' serverless technology was the perfect fit for developing the MMAPT Cloud platform.

AWS also identified the potential of this project for Amazon's retail arm and other retail clients. They have provided MMAPT with credits through their Startup Activate program, and assisted Fitzroy IT with Partner Opportunity Acceleration funding.

The Solution

Fitzroy IT worked with MMAPT to create a short, medium and long-term plan for the development of its cloud platform, which was named MMAPT Cloud.

MMAPT Cloud provides portals for Administrators and Customers. The initial deployment has provided the following functionality:

- Cognito-based Authentication
- Automatic Media Upload, that moves all captured assets to a MMAPT-controlled S3 bucket, accessible only by MMAPT and the client
- S3 buckets are client-specific and managed with a lifecycle policy. S3 Transfer Acceleration is also enabled so that images can be accessed by the client as fast as possible.
- Server and Client Updates to support the cloud integration
- An Administrative Portal built on top of Lambda and API Gateway

This initial stage has been incredibly successful and has laid a solid foundation for future development works.

Results and Benefits

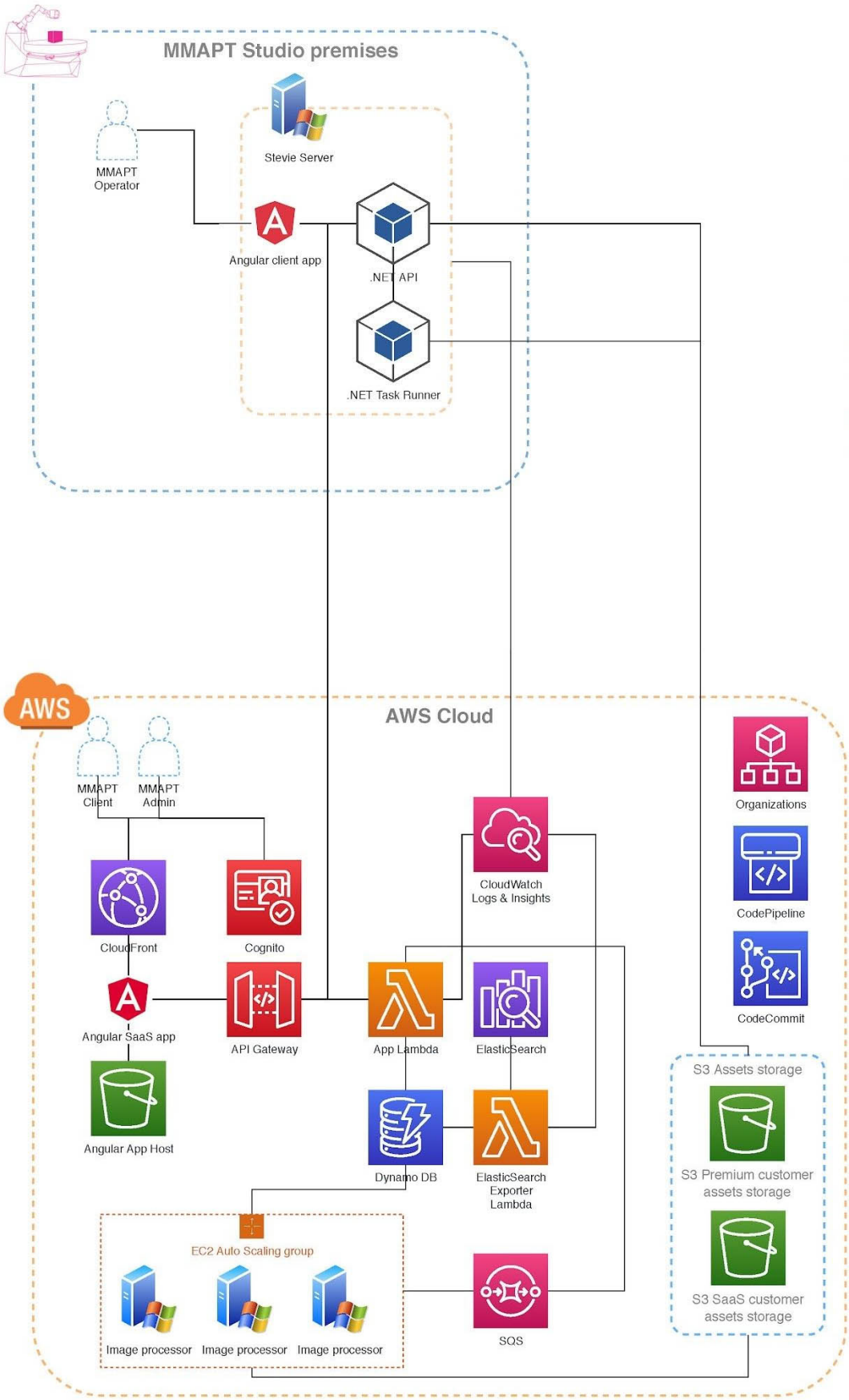
Every second matters to MMAPT, as they aim to create an end-to-end workflow that dramatically outpaces traditional, studio-based product photography. The introduction of MMAPT Cloud has reduced the amount of time it takes to get assets into the hands of the customers who need them. Previously assets were manually uploaded to different customer storage locations when MMAPT staff had the time. Now the process is automatic, and key assets are available less than one minute after being created. Staff can now focus solely on shooting, which has in turn increased the average number of products shot per hour, from eight to eighteen.

The Administration portal which manages users and organisations, allows for the creation of organisation-specific settings. At present this is just being used to set unique S3 buckets, but in the future all settings will be stored in the cloud. The foundations of something bigger and better have been laid with this first release.

Next Steps

Work on the next stages of MMAPT Cloud continues. Coming next:

- A cloud-based gallery for clients to view images as they are shot
- Expanding the MMAPT Cloud Admin to include Settings Storage
  - Move each client's settings for packages, shots, export formats, post-processing and storage from the local PC to their own cloud-based location, that will be read when they authenticate.
- Online post-processing of images



MMAPT Studio

MongoDB: - Replace - Migrate to DynamoDB

Storage: - Replace - Migrate from Local USB to S3

.NET API - Enhance - Integrate with API Gateway Serverless NodeJS API

Logging - Replace - Migrate from Seq to CloudWatch logs

.NET Task Runner - Enhance - Upload assets to S3. Remove asset processing.

Angular Config App - Replace - Move from on-site IIS hosted to AWS S3 static site behind CloudFront CDN

AWS Cloud

AWS Organization - Multi Account organization for access and policy management

Cognito - Identity & Access management

CloudFront - Static Site CDN, Asset serving from S3

API Gateway - REST API proxy

CloudWatch - Logging

DynamoDB - Data Storage, Client Configuration

DynamoDB Streams - Shoot info & statistics streaming to Lambda - Lambda to load to ElasticSearch cluster

Lambda - Serverless NodeJS REST API

S3 - Asset storage, Static site

SQS - Resilient asset post processing queue

EC2 ASG - Autoscaling group for asset post processing

CodePipeline - Replace Jenkins server with CodePipeline for CI/CD