CASE STUDY

Zenzium

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How AI in the cloud is being used by researchers and clinicians to support the recovery of COVID 19 patients

Based in the heart of Cheshire, Zenzium has gained a reputation for applying their ground breaking Artificial Intelligence (AI) technology within healthcare for the management of acute and chronic diseases. Since 2020 they have been working with The Christie NHS Foundation Trust and the Manchester University NHS Foundation Trust (MFT) on the COSMIC-19 (COntinious Signs Monitoring In Covid-19 patients) pilot study which aims to apply AI technology to look for predictive patterns in patients' vital signs that could alert the medical team if the patient is deteriorating.

The COSMIC-19 pilot study will see patient vital signs monitored wirelessly for up to 20 days until they are either placed on a ventilator or discharged from hospital. Information gathered is then combined with clinical data and observations so it can be used to predict and identify issues so the clinical team can intervene before patient problems become acute.

The **Challenge**

During Zenzium's initial trials, data from COVID 19 patients had been stored in an Azure cloud that had been set up and configured in-house with compute and storage resources being managed manually.

As the COSMIC-19 pilot project has now moved to clinical trials, the company recognise that their existing cloud infrastructure needs to be more robust and secure. The increase in the amount of data from real patients and clinicians means that they face a number of challenges which could affect the performance of the AI as well as the results of the pilot project including:

- **Resource Management** - Up until now, Zenzium have managed their cloud resources manually adding compute power and capacity as and when required to maintain the performance of their AI. In the early stages of the project this worked well but they recognised that as the COSMIC-19 project expanded this would become impractical taking staff away from developing their applications to ensure cloud performance.
- **Security** - As the pilot project expands to include real World patient information there is a need to make data more secure to ensure confidentiality but still allow access from anywhere and on multiple device types.
- **Performance and availability** - Because clinicians are going to be using the information from Zenzium's AI applications to treat patients, Zenzium know that their cloud infrastructure needs to be more resilient and perform at the highest possible level.

The **Approach**

Due to the ongoing COVID crisis, **igroup** had to work with Zenzium virtually to ensure that the right cloud infrastructure management solution was implemented.

This meant that initial planning workshops were held online before a specification was developed which met the requirements for the initial project and also gave Zenzium the ability to scale up as and when more patients are added to the trial.

The **igroup** team identified the architecture and infrastructure needs of Zenzium as well as outlining the ongoing support and management requirements to support the existing Azure infrastructure.

Following the initial audit of the existing Azure cloud, **igroup** proposed implementing their **CloudOps Active Management Solution (CAMS)** which will ensure cloud performance, allow for increases in data and users, as well as maintain data integrity and improve security. By implementing **CAMS** on their Azure infrastructure Zenzium will benefit from:

- Always on support, fault find and fix
- Management and reporting dashboards
- Ongoing infrastructure optimisation to ensure performance
- Automated backup and security
- On call Azure experts to support the inhouse team as required

The **Results**

By outsourcing support and management of their cloud to igroup and implementation of the **CloudOps Active Management Solution (CAMS)**, Zenzium have already seen a number of immediate benefits including:

- Freeing up of in house resources traditionally used to manage and support their cloud infrastructure
- Significant improvements in cloud performance and resource availability as the amount of data gathered and user numbers increase
- A more secure and robust cloud infrastructure which can scale as more patient data is gathered during the COSMIC-19 project

By using **CAMS** from **igroup**, Zenzium have also seen a reduction of their Azure costs as it has helped identify under used resources. In addition, the **igroup** consultants have made a number of recommendations and changes to the infrastructure using the monitoring tools built into **CAMS** which have improved overall efficiency and performance.

The **Future**

Zenzium are now looking to move all their Azure infrastructure to **igroup** to benefit from the guaranteed cost savings available because of their relationships with Microsoft.

In addition they have a number of virtual machines that are used for other projects which need managing and maintaining to improve performance which **igroup** is now looking to integrate into **CAMS**. This will also enable Zenzium to share resources across multiple projects which will greatly reduce costs.

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At a glance...

The **Challenge**

- Manual resource management was time consuming and caused delays
- Need for greater data security due to patient confidentiality
- Poor performance and outages could impact patient healthcare

The **Solution**

- Implementing igroup's proactive **CloudOps Active Management Solution** to improve security and performance

The **Results**

- Freeing up in-house resources
- Greater visibility of cloud infrastructure performance
- Improved data security and resilience
- Expert support as and when required

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