Using Cloud Native Amazon Web Services for the implementation of the EUNADIC-AV data portal

Saskia Wagenaar (1), Wim Som de Cerff (1), Ian van der Neut (1), Hans Verhoef (1), Jonas Matser (1), Joris de Lathouder (1), John Segers (2), and Sidney Borrego y Diaz (3)

(1) KNMI, De Bilt, the Netherlands (saskia.wagenaar@knmi.nl), (2) Amazon, Amsterdam, the Netherlands, (3) Oblivion Cloud Control, Amsterdam, the Netherlands

Cloud native services are becoming widely available, allowing organizations to build and run applications which fully exploit the advantages of cloud computing. At KNMI, a Proof Of Concept (PoC) has been started to investigate if these services are a viable option to develop and operate a data ingestion and dissemination portal as an alternative to using our own custom developed components.

The PoC considered is building a Minimal Viable Product (MVP) implementation of the data portal for the European Natural Airborne Disaster Information and Coordination System for Aviation (EUNADICS-AV) project. The main objective of the H2020 EUNADICS-AV project is closing the significant gap in European-wide data and information availability during airborne hazards. It aims at delivering usable data products and tailored information originating from a wide range of data providers to a wide spectrum of stakeholders. Examples of data products ingested are satellite and ground based measurements and tailored outputs of dispersion model ensembles. The MVP implements the complete happy flow architecture for one specific satellite data product from ingestion to visualization to the end-user.

The implementation has been done using Amazon Web Services (AWS). An event based architecture has been developed which connects serverless computing, container orchestration platforms, object stores and NoSQL databases to harvest, process, archive, serve and cleanup the data.

In this presentation we will describe the cloud native architecture which has been developed in the PoC. Furthermore we will present our conclusions on the usability of cloud native services for the development of a data portal and share our lessons learned.