SARDINA SYSTEMS

THE PRIVATE CLOUD CHALLENGE

The University of Edinburgh decided in early 2016 to implement OpenStack-based private cloud, to be able to provide the University's researchers with a more flexible self-served computing services. The University, would like to build the solution on an advanced, flexible and cost effective platform based on open source technologies. The OpenStack-based private cloud, conceptualized in April 2016, had to be operational before commencement of the academic year in September 2016.

THE OBJECTIVE

ENGINEERED FOR LARGE SCALE DATA CENTERS

LOWER TOTAL COST OF OWNERSHIP

IMPROVE SERVICE ASSURANCE

HIGHER APPLICATION AGILITY

INCREASED RESILIENCE & FLEXIBILITY

The objective of the OpenStack-based cloud, from a user's point of view, is to enable additional and enhanced computational and data services tailored to the needs of the University's high-value and fast-growing Data Science research workloads, including Spark and Hadoop computational workloads.

This computational cloud for research, now named Eleanor, provides a scalable computational cloud platform accessible directly by researchers, complementing the computational capacity of the University's Eddie 3 Service. The solution design was aimed at an initial size of 200+ hypervisors, to be horizontally scalable.

THE CUSTOMER

The University of Edinburgh is one of the leading universities in the UK, ranked 19th in the world, 6th in Europe and 4th in the UK. It is largest university in Scotland with an international reputation for innovative research — 83% of the University's research classed as world leading and internationally excellent. The University's Information Services Group, comprising some 700 staff, serves the University's 36,000 students and 13,000 staff. **edinburgh.ac.uk**

FISHOS SOLUTION

Sardina implemented a solution design, based on FishOS' operational architecture, allowing the University to flexibly and reliably operate the private cloud in a Service Operator role, while also taking into account integration with the University's broader organizational IT.

The OpenStack-based cloud includes a Ceph storage system designed to deliver high performance and reliability while balancing optimal cost and delivery timelines, with a balanced configuration of SSD and NL SATA drives set up for 3x replication. With distributed virtual routers (DVR), OpenStack networking was designed to achieve high performance with optimal cost, balancing off bottlenecks,.

All the management services operate in highly available (HA) mode, to the extent that entire racks of management servers can be turned off without impacting the private cloud service, thus ensuring service uptime. The solution design allowed the University of achieve service-assuring Zero-Downtime Upgrade with FishOS Upgrader.

The system commenced with FishOS Starter, allowing subsequent upgrade to FishOS White.

FISHOS FEATURES

DEPLOY, OPERATE, UPGRADE Full-lifecycle view on OpenStack cloud: confidently and predictably deploy OpenStack cloud, reliably operate and upgrade with zero-downtime.

OPTIMAL & FAST Driven by AI to optimize resource utilization, right-place VMs rapidly on the right host, first time and every time, and automatically rebalanced to guarantee application performance while eliminating occupied-but-idle servers.

OPTIMIZED OPEX AND CAPEX Right-sizes the number of servers to meet workload requirements ensures optimal energy OpEx, maximizes servers and facility CapEx utilization.

HIGHLY AVAILABLE Each part of FishOS has been architected to be operable in highly available mode, providing redundancy and ensuring service uptime.

AUTOMATED FAILURE HANDLING Advanced Machine Learning-based health diagnosis framework tracks the health of services and of the host servers, auto-migrating workload to another host server, ensuring integrity with ease and flexibility.

HIGHLY OPERABLE Scalably handle multitudes of operational automation that might otherwise require operator intervention, allowing a single operator to flexibly manage 1000s of servers.

ABOUT SARDINA SYSTEMS

Founded in 2014, Sardina Systems provides awards-winning, world class, intelligent and automated virtualized systems management technology enabling corporations to greatly increase service assurance, application agility and operational reliability, reduce operational complexity and carbon footprint, coupled with increased IT operations flexibility and unparalleled efficiency of scale. Sardina Systems has operations in Estonia, Romania, Russia and the UK.

PRODUCTS FishOS | FishDirector
SERVICES Consulting | Support | Development
I**NDUSTRIES** Financial | Telecoms | Automotive & Aerospace | Bioinformatics | Advertising & New Media | Government | Research

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