# Implementation of microservices

The problem

In the world of microservices, public and private clouds and orchestration applications like Mesos and Kubernetes have helped to legitimise the use of microservices in production. However, more time is spent on configuring and manually managing infrastructure than is spent on application development.

Mantl is built upon well-known orchestration systems (Kubernetes and Mesos) and adds infrastructure provisioning, application deployment and a full suite of monitoring applications; for example the ELK stack. Mantl provides an end-to-end stack of deployment tools to take bare metal infrastructure and turn it into an environment capable of hosting applications of any size.
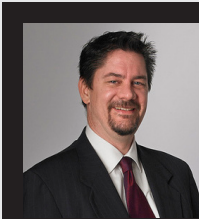
Ken Owens
CTO, Cisco Intercloud services

"Working with Container Solutions to brainstorm the innovations, prototype them and then execute on the strategy was an excellent experience and really accelerated our customers adopting Docker and Mesos."

ELK
Previously, there was no out of the box solution for logging messages for microservices. As part of Mantl, Container Solutions developed the Elastic-Logstash-Kibana framework which means that by default, microservices created with Mantl have logging built in.

Much more than this, the Elastic database provided by default, is fault tolerant and scalable. The ELK stack, although part of Mantl, is a standalone component and is considered a considerable addition to the ecosystem of tools.

The Drone
Part of the challenge of getting a new framework off the ground is introducing it to new users. Container Solutions helped Cisco by creating numerous applications that could be hosted on Mantl, include the 'Space Oddity' application. Space Oddity takes data from a fleet of drones working together in what is known as the 'Planetary Boundary Layer'.

The results

Mantl is one of the world's best known open source tools for creating microservices. More importantly, it has helped simplify and therefore legitimize the use of the microservices within enterprises. As well as being fault tolerant by default, microservices in Mantl come with the ELK framework pre-installed, thus saving an enormous amount of time and hassle.

The project

Cisco initiated the Mantl project to help its customers overcome the challenges to implementing a microservices architecture. Cisco asked Container Solutions to help create innovative solutions and components for Mantl. Specifically, they needed help with provisioning bare metal servers; creating the ELK framework for Apache and creating policy engine applications. In addition to this, Container Solutions created numerous applications for Mantl, including the weather predictor, which uses data from a fleet of drones to calculate localised fog.

Bare Metal
Container Solutions created a bare metal provisioning platform using HashiCorp's Terraform tool. This allows whole clusters to be defined as text files and therefore are subject to versioning and can be stored as part of the project in Git.

Container Solutions

Container Solutions specialise in helping companies to succeed with programmable infrastructure tools and techniques like containers, orchestration, security, monitoring and logging. As well as helping customers like HolidayCheck, PayU and ING to implement programmable infrastructure, Container Solutions also help companies like Cisco and Red Hat with cutting edge research.

Container Solutions has established itself as an influential player in the programmable infrastructure space. Through it's work with the Cloud Native Computing Foundation (CNCF) and the grassroots, Software Circus movement, Container Solutions is helping to popularise cloud-native applications and programmable infrastructure. It has forged partnerships with Docker, Mesosphere, Red Hat, Cisco and Cluster HQ, thus helping to place Trifork in the centre of the cloud-native universe.