**Platform Engineering Unit – written assessment task**

**1. General**

Answer **two** of the following questions. Assume your audience is at a similar engineering level to yourself and you are trying to briefly describe a tool, technology or approach so that they can understand the core concepts involved. **Choose a different tool or technology for each of these two questions**. Where possible try to choose a different tool from those addressed in later sections (ie. a specific cloud service, Docker or Kubernetes).

- Pick a tool or technology from your CV and describe how it was implemented at a technical level.
- Pick a tool or technology from your CV and describe any negative aspects it had, and how you overcame or worked around the issues these caused.
- Pick a tool or technology from your CV and at a technical level explain how it was security hardened.

**2. Cloud Services**

If you have experience working with cloud services, pick a cloud provider and describe how you would deploy a simple web application into the service. Assume that the application is a monolithic Tomcat application that requires some state to be kept (either locally or in an associated database or store). The application has minimal static assets, and generates responses on demand. The service should be designed to be secure and HA.

**3. Docker**

If you have Docker listed as a skill, explain how you would best minimise both the size and attack surface of a Docker image.

**4. Kubernetes**

If you have Kubernetes listed as a key skill you answer **one** of the following questions:

- Explain how you would install Kubernetes in a production environment, what topology you would use and how you would ensure HA. If you recommend using a managed service (such as EKS or AKS), provide some valid reasons as to why a customer may choose **not** to use that service.

- Explain how pods, services, deployments, and ingresses should be used to deliver an application into a cluster and manage its lifecycle, including how an application is updated alongside any supporting objects (such as ConfigMaps or Secrets)