

*1b. [ISTIO activation in relation to client's case and how does this differ from Azure features pros and cons?] basmala*

To understand whether the client should move to GKE engine on GCP via ISTIO activation, we need to understand what ISTIO is and how it is deployed. ISTIO is an open-source service mesh, unlike Azure, that layers clearly onto existing applications allowing for a more organized and efficient way to secure, connect, and monitor services. It's powerful control plane brings various features such as a secure service-service communication in a cluster with TLS encryption, strong identity-based authentication, and authorization as well as a pluggable policy layer and configuration API supporting access controls. Because Istio's control plane runs on Kubernetes, it allows for extensibility and can handle a diverse range of deployment needs.

To compare it to Azure Application Gateway, a popularity survey was found to determine the percentage of users that found different components of both types of software more useful. If the client was specifically concerned about using Monitoring Tools, API Tools, as well as Microservices, Istio was found to be more popular in use and much more effective than Azure. If the client is more concerned about Web Servers, Azure Application Gateway was found to be more popular and effective than Istio.

Since the client is considering moving to GKE engine on GCP and activating Istio from Azure functions for each API, the client should consider moving to GKE engine and activating Istio, given it's open service mesh and popularity specifically in API Tools in comparison to Azure.

Because Istio is an open-source software, users can download and install the software by using a running command to install a mesh on a Kubernetes cluster.

```
$ istioctl install
```

Since Istio has two types of APIs for platform owners and service owners, the client must consider which role they hold in the software project to determine which API is useful.

*References:*

<https://istio.io/latest/about/service-mesh/>

<https://istio.io/latest/about/deployment/>

<https://www.saashub.com/compare-istio-vs-azure-application-gateway>