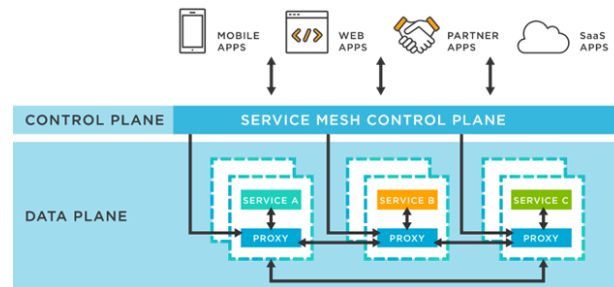




Task Description for Student/Diploma/Master Thesis

Topic: *Improving Performance of Service Mesh for Cloud Native Applications*



Description: Unlike traditional monolithic applications, [cloud-native applications](#) are the collection of small and independent services, which are so-called microservices. As cloud-native applications have gained tremendous interest in recent years, many cloud vendors such as Google Cloud and Amazon Web Service already provided cloud platforms for cloud-native applications. Service meshes have been considered as a de facto communication substrate for cloud-native applications. Specifically, each service in a cloud-native application communicates to each other via a software proxy, called sidecar. A sidecar intercepts cloud traffic reaching a service and thus provides various control functions such as security and traffic management. However, as each sidecar is co-located with each service, this design introduces overhead (e.g., increasing latency and lower throughput) for cloud-native applications, especially for applications that include a significant number of services. This work aims to improve the performance of service mesh for cloud-native applications.

Tasks:

- Literature review
- Find a research problem (optional)
- Propose a solution
- Evaluate the proposed solution
- Write up a report

Requirements:

- Basic knowledge of computer networks
- Basic knowledge of Linux
- Programming languages: C, Python, Go (preferably)

Language: English

Our offer that helps students focus on their work:

- Testbed
- Measurement tools and scripts

Keywords: cloud-native applications, microservices, containers

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