You would like to write your thesis in a company? No problem! Get to know Adastra and our ideas for possible thesis topics in our company.

/ About Adastra

Adastra is an international consulting company that creates synergy by consulting and supporting businesses through command of modern technologies, facilitating the transition to the digital era. We help our customers maximize the value of their data, drive innovations, and improve their operational excellence as well as customer experience. We deliver custom-tailored solutions and services in various areas, such as Data Engineering, RPA, AI, Data Governance and Cloud Services, because we know that data connects everything!

Topic: Container-based Applications

Containers can be set up as an environment between the OS and an application and can be tailored specifically to the application. Amongst others, containers offer the advantage of scalability and resource efficiency. The various containers can be orchestrated, planned and scaled via e.g. Kubernetes.

The task is to set up an optimized container environment for a given use case and implement the application on it (e.g. BI applications, ETL scheduler, stock market analysis tools, etc.) or to extend/optimize an existing environment. For example, on an AWS instance hosted by Adastra a Docker/Kubernetes environment exists to run Spark jobs. In addition to this task, performance comparisons are possible. For this purpose, the execution of Spark jobs on the Docker/Kubernetes environment can be compared with the execution on Mesos (as a native Hadoop ecosystem that is specifically designed for the execution of Spark jobs). Alternatively, different container engines (e.g. Docker vs. Rocket) can be compared and the performance or other advantages/disadvantages for different use cases with different data types or data sets can be analyzed.

Finally, the security architecture for communication (TLS communication) within and between containers could be examined in more detail. Amongst other, this raises the questions of how these are set up, how the encryption of different data (at rest vs. in use) is to be implemented, and where are potential vulnerabilities.

If you have other ideas for a thesis topic – be it in the field of Container-based Applications or any other Data Management-related direction – we are also looking forward to hearing from you!

/ Sounds interesting? Contact us!

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