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Sommario/riassunto	In recent years, the cloud hype has led to a multitude of different providers and offerings across the entire cloud market, from Infrastructure as a Service (IaaS) to Platform as a Service (PaaS) to Software as a Service (SaaS). Despite the high popularity, there are still a number of problems and deficiencies. In particular with PaaS, the advertised portability between different clouds is hampered by a heterogeneous, difficult to compare provider landscape, technological differences between providers, and the lack of common standards. Therefore, the selection of a suitable provider and a potential change between different providers may involve substantial (migration) costs. Thus, the thesis deals with the analysis and improvement of application portability in PaaS environments. In the course of this, obstacles over the typical life cycle of an application - from the selection of a suitable cloud provider, through the deployment of the application, to the operation of the application - are considered. As foundation for further investigations, an improved delimitation and conceptualization of PaaS through a categorization, the definition of a reference model, and the establishment of a knowledge database is presented. As it turns out, in particular the heterogeneous provider landscape in this area is an obstacle for the assessment and feasibility of application portability. To

solve this problem, the thesis presents a decision support system for the selection and comparison of suitable cloud platforms. Based on the PaaS model, a heuristic is proposed which can identify potential partners by matching the technological software ecosystem of the providers with the requirements of an application or a user. With the help of this system, it is possible for a user to identify offerings that enable application portability. To validate the approach, a case study with a real-world application is conducted that is migrated to different cloud platforms. In this context, we also develop a suitable assessment framework for measuring migration efforts, which allows making the differences between compatible providers quantifiable. The application management interface of the providers is identified as a central effort factor of the migration. Despite the semantically identical use cases, different interfaces are used by the providers for the management of the application's life cycle. Finally, to reduce the effort in this area, the thesis presents a unified interface for application deployment and management. In summary, the work provides evidence of application portability problems in PaaS environments and presents a framework for early detection and avoidance. In addition, the results of the work contribute to a reduction of lock-in effects by proposing a suitable standard for management interfaces.