

Evaluation of cloud platforms for big data analysis

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Abstract

Collecting, processing and analyzing massive amounts of data embodies a steadily growing challenge for many companies. The ability to generate new knowledge from big data volumes nowadays represents a critical success factor. However, the capacity, capabilities and programming methods of currently existing IT-systems are unsuitable to handle big data processing and analysis tasks. An augmentation of traditional IT-systems with solutions that are sufficient for big-data storage and analysis is difficult and expensive. Furthermore existing IT-staff usually lacks the necessary expertise in installing and operating big data computing centers and applications. Therefore, it seems obvious to adopt a cloud approach. Several providers of cloud-based services meanwhile offer comprehensive big data solutions and appropriate analysis services.

A study conducted since 2014 examines the applicability of selected cloud platforms for data analysis tasks under special consideration of functionality, service models, costs, security, performance and scalability. The results deliver a catalogue of selection criteria and a comparison of analysis services for selected cloud platforms. The well-documented comparison is conducted on the basis of the use case “Analysis of failure data from wind energy plants”. It delivers templates for cloud-based big data analysis operation, but also depicts risks and limitations of cloud-based solutions.

Keywords

Cloud platforms, data analysis, Big Data, Hadoop

Biography

Alfred Wulff is a Professor, and Director of the Institute of Business Informatics in the Department of Management, Information and Technology at the University of Applied Sciences, Wilhelmshaven, Germany. He holds a German diploma in Mathematics. He worked for several years in large software development projects and was project manager of multinational R&D-IT projects subsidized by the European Commission. Within the scope of the European Spacecraft program COLUMBUS (European part of the ISS) he worked for the prime contractor and was responsible for the COLUMBUS Engineering Database and the Management and Technical Information System. He has published conference papers. His research interests include database management, business intelligence, Big Data, data mining, business process management and mobile solutions.

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Tobias Backhuß holds a Master of Engineering degree and is employed at ENERCON GmbH, the leading German manufacturer of wind turbines. His focus of work is process data management and analysis.