

Christoph Fehling · Frank Leymann · Ralph Retter · Walter Schupeck · Peter Arbitter

Cloud Computing Patterns

Fundamentals to Design, Build, and Manage Cloud Applications

This book provides CIOs, software architects, project managers, developers, and cloud strategy initiatives with a set of architectural patterns that offer nuggets of advice on how to achieve common cloud computing-related goals. The *cloud computing patterns* capture knowledge and experience in an abstract format that is independent of concrete vendor products. Readers are provided with a toolbox to structure cloud computing strategies and design cloud application architectures. By using this book cloud-native applications can be implemented and best suited cloud vendors and tooling for individual usage scenarios can be selected. The *cloud computing patterns* offer a unique blend of academic knowledge and practical experience due to the mix of authors. Academic knowledge is brought in by Christoph Fehling and Professor Dr. Frank Leymann who work on cloud research at the University of Stuttgart. Practical experience in building cloud applications, selecting cloud vendors, and designing enterprise architecture as a cloud customer is brought in by Dr. Ralph Retter who works as an IT architect at T-Systems, Walter Schupeck, who works as a Technology Manager in the field of Enterprise Architecture at Daimler AG, and Peter Arbitter, the former head of T Systems' cloud architecture and IT portfolio team and now working for Microsoft.

Voices on Cloud Computing Patterns

Cloud computing is especially beneficial for large companies such as Daimler AG. Prerequisite is a thorough analysis of its impact on the existing applications and the IT architectures. During our collaborative research with the University of Stuttgart, we identified a vendor-neutral and structured approach to describe properties of cloud offerings and requirements on cloud environments. The resulting Cloud Computing Patterns have profoundly impacted our corporate IT strategy regarding the adoption of cloud computing. They help our architects, project managers and developers in the refinement of architectural guidelines and communicate requirements to our integration partners and software suppliers.

Dr. Michael Gorriz – CIO Daimler AG

Ever since 2005 T-Systems has provided a flexible and reliable cloud platform with its "Dynamic Services". Today these cloud services cover a huge variety of corporate applications, especially enterprise resource planning, business intelligence, video, voice communication, collaboration, messaging and mobility services. The book was written by senior cloud pioneers sharing their technology foresight combining essential information and practical experiences. This valuable compilation helps both practitioners and clients to really understand which new types of services are readily available, how they really work and importantly how to benefit from the cloud.

Dr. Marcus Hacke – Senior Vice President, T-Systems International GmbH

This book provides a conceptual framework and very timely guidance for people and organizations building applications for the cloud. Patterns are a proven approach to building robust and sustainable applications and systems. The authors adapt and extend it to cloud computing, drawing on their own experience and deep contributions to the field. Each pattern includes an extensive discussion of the state of the art, with implementation considerations and practical examples that the reader can apply to their own projects.

By capturing our collective knowledge about building good cloud applications and by providing a format to integrate new insights, this book provides an important tool not just for individual practitioners and teams, but for the cloud computing community at large.

Kristof Kloeckner – General Manager, Rational Software, IBM Software Group

Computer Science

ISBN 978-3-7091-1953-2



9 783709 119532

► springer.com



Fehling · Leymann
Retter · Schupeck · Arbitter



Cloud Computing Patterns

Christoph Fehling · Frank Leymann
Ralph Retter · Walter Schupeck
Peter Arbitter

Cloud Computing Patterns

Fundamentals to Design, Build,
and Manage Cloud Applications



 Springer