Distributed Event-Based Systems

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With 158 Figures and 17 Tables

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For Regina.
— Gero

For Biggi,
Franzi, Flori, and Johanna.
— Ludger

For Bohdan Bańkowski.
— Peter

Preface

The field of event-based systems is surprisingly broad. In many scientific communities, technical talks, commercial products, and industrial projects people think about asynchronous computations and messaging, scalability and maintainability, stepwise evolution and loose coupling. Most likely, these people are discussing event-based systems, even if they use other terms.

When we began investigating event-based systems some years ago, we were surprised to see that *eventing* was scattered among many disciplines of computer science. There were no workshops or conferences dedicated to this topic, for example, although many aspects of event-based systems cannot be assessed from a database, network, or software engineering perspective alone. In the same sense, commercially available products that could help solving problems of event-based architectures are often bundled and marketed in solutions of a specific domain.

In order to channel some of the attention, the Distributed Event-Based Systems (DEBS) workshop series was created. It attracts people from distributed computing, database, and software engineering audiences, and it demonstrates the wide variety of facets event-based systems have. After having heard about and being engaged in interesting discussions about allegedly "academic" and "real-world" problems, in investigating many findings, and after creating many solutions in both academic and industrial environments, we decided to write this book to present both the current state-of-the-art and its base concepts.

The book takes a distributed system's point of view. This is, of course, partly due to our own background, but more importantly we believe a solid understanding of distributed event-based systems is a good starting point for building modern computing systems. It lets you integrate sophisticated filter and data processing capabilities as well as new network topologies and routing algorithms.

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