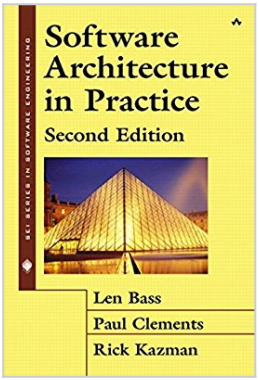

Software Architecture in Practice (2nd Edition)

By Len Bass, Paul Clements, Rick Kazman

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This award-winning book, substantially updated to reflect the latest developments in the field, introduces the concepts and best practices of software architecture--how a software system is structured and how that system's elements are meant to interact. Distinct from the details of implementation, algorithm, and data representation, an architecture holds the key to achieving system quality, is a reusable asset that can be applied to subsequent systems, and is crucial to a software organization's business strategy.

Drawing on their own extensive experience, the authors cover the essential technical topics for designing, specifying, and validating a system. They also emphasize the importance of the business context in which large systems are designed. Their aim is to present software architecture in a real-world setting, reflecting both the opportunities and constraints that companies encounter. To that end, case studies that describe successful architectures illustrate key points of both technical and organizational discussions.

Topics new to this edition include:

- Architecture design and analysis, including the Architecture Tradeoff Analysis Method (ATAM)
- Capturing quality requirements and achieving them through quality scenarios and tactics
- Using architecture reconstruction to recover undocumented architectures
- Documenting architectures using the Unified Modeling Language (UML)
- New case studies, including Web-based examples and a wireless Enterprise JavaBeans™ (EJB) system designed to support wearable computers
- The financial aspects of architectures, including use of the Cost Benefit Analysis Method (CBAM) to make decisions

If you design, develop, or manage the building of large software systems (or plan to do so), or if you are interested in acquiring such systems for your corporation or government agency, use ***Software Architecture in Practice, Second Edition,*** to get up to speed on the current state of software architecture.

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Editorial Review

From the Back Cover

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0321154959B03262003 About the Author
Len Bass is a senior member of the technical staff at the Software Engineering Institute (SEI). He has written or edited five books and numerous papers on software engineering and other topics. He has extensive experience in architecting real-world development projects. **Paul Clements** is a senior member of the technical staff at the SEI, where he works on software architecture and product line engineering. He is the author of five books and more than three dozen papers on these and other topics. **Rick Kazman** is a senior member of the technical staff at the SEI. He is also an Associate Professor at the University of Hawaii. He is the author of two books, editor of two more, and has written more than seventy papers on software engineering and related topics.

Our goals for the first edition were threefold. First, we wanted to show through authentic case studies actual examples of software architectures solving real-world problems. Second, we wanted to establish and show the strong connection between an architecture and an organization's business goals. And third, we wanted to explain the importance of software architecture in achieving the quality goals for a system. Our goals for this second edition are the same, but the passage of time since the writing of the first edition has brought new developments in the field and new understanding of the important underpinnings of software architecture. We reflect the new developments with new case studies and the new understanding both through new chapters and through additions to and elaboration of the existing chapters.Architecture analysis, design, reconstruction, and documentation have all had major developments since the first edition. Architecture analysis has developed into a mature field with industrial-strength methods. This is reflected by a new chapter about the architecture tradeoff analysis method (ATAM). The ATAM has been adopted by industrial organizations as a technique for evaluating their software architectures.Architecture design has also had

major developments since the first edition. The capturing of quality requirements, the achievement of those requirements through small-scale and large-scale architectural approaches (tactics and patterns, respectively), and a design method that reflects knowledge of how to achieve qualities are all captured in various chapters. Three new chapters treat understanding quality requirements, achieving qualities, and the attribute driven design (ADD) method, respectively.Architecture reconstruction or reverse engineering is an essential activity for capturing undocumented architectures. It can be used as a portion of a design project, an analysis project, or to provide input into a decision process to determine what to use as a basis for reconstructing an existing system. In the first edition, we briefly mentioned a tool set (Dali) and its uses in the re-engineering context; in in this edition the topic merits its own chapter.Documenting software architectures is another topic that has matured considerably in the recent past. When the first edition was published, the Unified Modeling Language (UML) was just arriving on the scene. Now it is firmly entrenched, a reality reflected by all-new diagrams. But more important, an understanding of what kind of information to capture about an architecture, beyond what notation to use, has emerged. A new chapter covers architecture documentation.The understanding of the application of software architecture to enable organizations to efficiently produce a variety of systems based on a single architecture is summarized in a totally rewritten chapter on software product lines. The chapter reinforces the link between architecture and an organization's business goals, as product lines, based around a software architecture, can enable order-of-magnitude improvements in cost, quality, and time to market. In addition to the architectural developments, the technology for constructing distributed and Web-based systems has become prominent in today's economy. We reflect this trend by updating the World Wide Web chapter, by using Web-based examples for the ATAM chapter and the chapter on building systems from components, by replacing the CORBA case study with one on Enterprise JavaBeans (EJB), and by introducing a case study on a wireless EJB system designed to support wearable computers for maintenance technicians.Finally, we have added a chapter that looks more closely at the financial aspects of architectures. There we introduce a method--the CBAM--for basing architectural decisions on economic criteria, in addition to the technical criteria that we had focused on previously.As in the first edition, we use the architecture business cycle as a unifying motif and all of the case studies are described in terms of the quality goals that motivated the system design and how the architecture for the system achieves those quality goals.In this edition, as in the first, we were very aware that our primary audience is practitioners, so we focus on presenting material that has been found useful in many industrial applications, as well as what we expect practice to be in the near future.We hope that you enjoy reading it at least as much as we enjoyed writing it.

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Users Review**From reader reviews:**

Margaret Burman:In this 21st millennium, people become competitive in most way. By being competitive currently, people have do something to make these people survives, being in the middle of often the crowded place and notice by surrounding. One thing that at times many people have underestimated it for a while is reading. That's why, by reading a e-book your ability to survive boost then having chance to stay than other is high. For yourself who want to start reading any book, we give you that Software Architecture in Practice (2nd Edition) book as beginner and daily reading guide. Why, because this book is more than just a book.

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