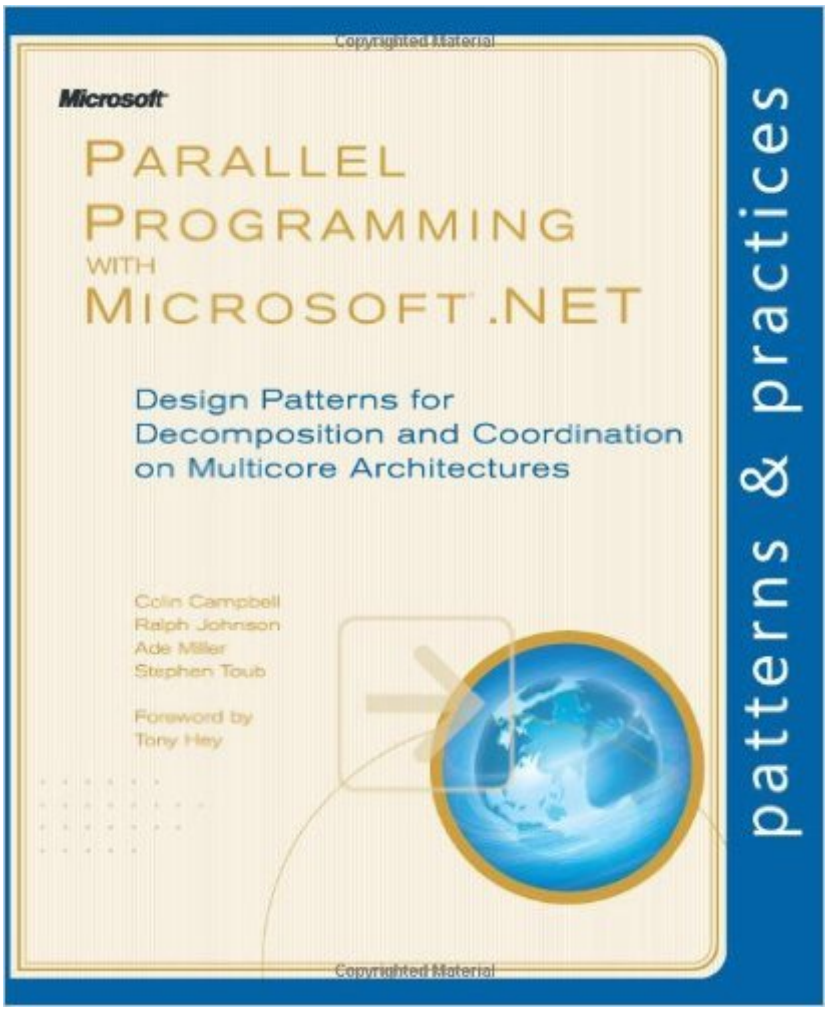
Parallel Programming With MicrosoftÂ® .NET: Design Patterns For Decomposition And Coordination On Multicore Architectures (Patterns & Practices)



Synopsis

The CPU meter shows the problem. One core is running at 100 percent, but all the other cores are idle. Your application is CPU-bound, but you are using only a fraction of the computing power of your multicore system. What next? The answer, in a nutshell, is parallel programming. Where you once would have written the kind of sequential code that is familiar to all programmers, you now find that this no longer meets your performance goals. To use your systemâ ™s CPU resources efficiently, you need to split your application into pieces that can run at the same time. This is easier said than done. Parallel programming has a reputation for being the domain of experts and a minefield of subtle, hard-to-reproduce software defects. Everyone seems to have a favorite story about a parallel program that did not behave as expected because of a mysterious bug. These stories should inspire a healthy respect for the difficulty of the problems you face in writing your own parallel programs. Fortunately, help has arrived. Microsoft Visual StudioÂ® 2010 introduces a new programming model for parallelism that significantly simplifies the job. Behind the scenes are supporting libraries with sophisticated algorithms that dynamically distribute computations on multicore architectures. Proven design patterns are another source of help. A Guide to Parallel Programming introduces you to the most important and frequently used patterns of parallel programming and gives executable code samples for them, using the Task Parallel Library (TPL) and Parallel LINQ (PLINQ).

Book Information

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Customer Reviews

This book seemed really promising from the title and mainly its author (Dino Esposito), who is one of the best .NET writers out there. It took me a while to buy it though, because for weeks I tried in vain to find its table of contents, to know exactly what I was buying. Having failed at finding one, I decided to just take a chance and buy it anyway, and I don’t regret, it is a good book.I would say the target audience is intermediate to senior developers who are getting into software architecture, or architects who work on a database-centric way and want to get an update to the current buzzwords, such as domain model pattern, repositories, services, AOP, POCO, OR/M, DDD etc. This book does not try to be a definitive source on any of those topics, but more like an introduction and a reference; the authors make a good job at pointing for resources for those who want to get more dense information.Books like Martin Fowler’s "Patterns of Enterprise Application Architecture", the GoF classic Design Patterns book and Eric Evan’s "Domain-Driven Design" are mentioned dozens of times, so people who have already read those books may not have lots of new stuff to see here, unless they are looking for a lighter reference or want to see how some of those ideas can be applied on .NET.So, for those like me who have spent a few days on Google trying to find out the book’s ToC, here is a summarized version, with some of the topics covered in parenthesis:Part 1 - Principles1 - Architects and Architecture Today (software life cycle, agile methodologies etc)2 - UML essentials (UML models and usage, use-case diagrams, class diagrams, sequence diagrams)3 - Design Principles and Practices (OOD, AOP)Part 2 - Design of the System4 - The business layer (transaction script pattern, table module pattern, active record pattern, domain model pattern, DDD)5 - The service layer (service layer pattern, remote faÃƒÂ§ade pattern, adapter pattern, SOA, AJAX service layer for rich web frontends)6 - The data access layer (plugin pattern, Inversion of Control, data context, query services, concurrency, lazy loading, OR/M, stored procedures, dynamic SQL)7 - The presentation layer (MVC, MVP, presentation model pattern, choosing a UI pattern, MVP in web presentations, MVP in Windows presentations)8 - Final thoughts

This book does a great job of putting architecture into a view that .NET developers and architects can relate to.The book covers design principles and patterns, and then relates them to each layer of a traditional layered system. It includes business, services, data access, and presentation layers. The authors include several different patterns for each layer and discuss the pros and cons of each.The book focuses on the technical aspects of .NET architecture. It does not cover the soft skills need to be an architect, or cover the customer facing skills need to communicate with the business stakeholders. You won’t find much on process either, just an overview. These missing

topics have not taken away from the book, they have made it a stronger book. There are plenty of resources on how to execute the soft skills and architecture process. This book concentrates on how to communicate with the development team through solid design and well known patterns and principles.This is a must read for all architects, no matter what your skill set is.A .NET developer looking to move into architecture should make this book their first stop on a long journey. This will definitely get you off to a very strong start.This book will not leave my side... until the 2nd edition...

The content of this book is quite good and very helpful. I want to warn anyone looking to buy this book that it is completely free on the Internet.(To find it, just do a Google search on "Parallel Aggregation". It’s the first site returned.)So if you want to save money and not feel fleeced (as I did), then I would suggest the Internet version.

It is a misconception that architecture is a fully understood field. Like the rest of us in the relatively young discipline of software development, architects are making their way along with rules of thumb, buzzwords and trends, too, and doing their best to tie them all together.Microsoft has always been a bit lacking when it comes to providing guidance for developing complex software. The alt.net crowd promised to fill in this lacuna, and even promoted itself in terms of filling in the blanks that Microsoft leaves in its technology offerings. However the results have been, I think, that the contemporary architect simply has more pieces to try to put together, and even more things to try to figure out.Dino Esposito, in "Architecting Applications for the Enterprise", tries to make sense of this technical jigsaw puzzle by building on top of the core architectural concepts of layering and decoupling applications. He then takes these principles forward by seeing how the newest technologies and techniques -- WPF, WCF, Windsor, NHibernate, Entity Framework, MVP, MVC, etc. -- can fit together to form a mature enterprise application.In many ways he cuts through much of the hype and provides insights into why you might want to use these technologies. He is comprehensive in treating each of the various Microsoft and non-Microsoft tools soberly, explaining the pros and cons of each.Best of all, he tries to consolidate in his appendix all of his insights into a core set of architectural principles, one of which he reiterates throughout the book: the job of the architect is to reduce complexity, not increase it. It sounds simple, but many architects tend to forget this.Mr. Esposito’s final product is a synoptic view of the current state of software architecture. If you want to know what is currently thought of as best practices in enterprise architecture, then you need to read this book. It will either give you an idea of where you need to be, if you are just starting out, or reassure you that you are on the right track, if you have been following the trends of the past two or

three years.The only weakness I found in the book is perhaps the problem that these various tools don’t always fit together nicely. For instance, I’m doubtful that ORMs really makes sense anymore if we decide to place them behind service layers. SOA and ORMs rose out of really different architectural problems, and provide somewhat incompatible solutions. Likewise, while the MVP pattern is very nice (we are curently using it on an enterprise project), it tends to break down when you attempt to apply it to anything complex, such as an object graph with more than two or three levels of dependent objects.The book also recommends using interfaces extensively in order to promote testability, but on looking a little closer, this appears to be tied to a specific tool, Rhino Mock, which requires interfaces to be useful, rather to any particular architectural principle -- for instance, TypeMock doesn’t require interfaces, but of course it also isn’t free. Should your architecture really be tied to a tool in this way, or would it be better to find tools that support your architecture?I tend to think, however, that this is a weakness in the current state of architecture rather than of Mr. Esposito’s work. The truth is we are all trying to work this out together, and we are currently only mid-stream in our journey toward mature application architectures."Architecting Applications for the Enterprise" fortunately brings us all to the same point, as software professionals, and allows us to see the horizon for our collective next step forward.

and MPI: A Seamless Approach to Parallel Algorithms and their Implementation Database Programming with Visual Basic .NET and ADO.NET: Tips, Tutorials, and Code Short Stories in Spanish: New Penguin Parallel Text (New Penguin Parallel Texts) (Spanish and English Edition) Learn German: Parallel Text - Easy, Funny Stories (German - English) - Bilingual (Learning German with Parallel Text Book 1) Learn German III: Parallel Text - Easy Stories (German - English) Bilingual - Dual Language (Learning German with Parallel Text 3) (German Edition)