



Cloud Computing and SOA Convergence in Your Enterprise

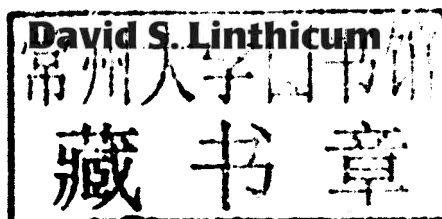
A Step-by-Step Guide

David S. Linthicum



Cloud Computing and SOA Convergence in Your Enterprise

A Step-by-Step Guide



◆ Addison-Wesley

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Praise for *Cloud Computing and SOA Convergence in Your Enterprise*

"Cloud computing is a hot topic today in business circles for its potential to transform IT service delivery and galvanize service-oriented architecture. David Linthicum is one of the foremost authorities in the strategic application of technology to business, and this book is required reading for those looking to reap the rewards of cloud computing in the enterprise."

Dion Hinchcliffe
Enterprise Web 2.0 Expert and ZDNet blogger,
President/CTO of Hinchcliffe & Company

"In this book, David Linthicum does that rarest of things: He manages to combine showing *why* SOA and cloud computing complement one another with a lucid game plan of *how* a business can take advantage of the synergies between them in concrete ways that will contribute to the bottom line."

Jeremy Geelan
Conference Chair, Cloud Computing Conference and Expo Series,
Senior Vice President, SYS-CON Media & Events

"This book cuts through all of the hype and confusion of cloud computing and brings us back to the basics of architecture. Finally, someone wrote a book that is not just about semantics but instead guides us through a methodical approach for delivering solutions in the cloud. I highly recommend this book!"

Mike Kavis
Chief Technology Officer of MDot,
Vice President and Director of Social Technologies for CAEAP

"David Linthicum has a talent for explaining how technology issues impact business decisions and strategy. Linthicum never gives you just another technical discussion about the latest tech fad. Instead, he explains the technology *and* the relevant business issues that both business and IT audiences need to understand before investing in cloud computing."

Loraine Lawson
Award-winning journalist and
blogger for *IT Business Edge*

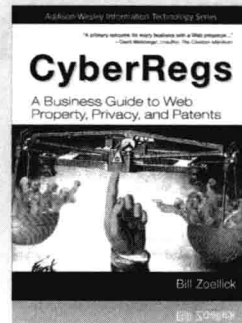
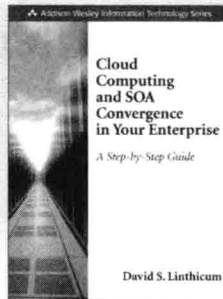
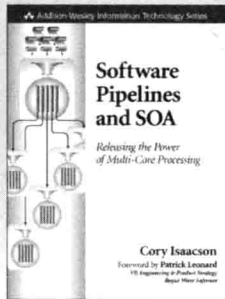
"As cloud computing stokes the embers of the SOA hype, practitioners can count on pragmatic and opportunistic advice from Dave Linthicum. Cloud computing brings time-to-value to SOA by leveraging other people's work. In this excellent guide book, Dave shares a step-by-step plan for organizations to determine which of their services, information, and processes are good candidates to reside in, and come from, the clouds."

Brenda M. Michelson
Principal, Elemental Links

Cloud Computing and SOA Convergence in Your Enterprise

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*In memory of Spanky,
the world's greatest dog.
We all miss you.*



Preface

The movement to cloud computing is the disruptive change that IT departments will soon face as service-oriented architecture (SOA) and cloud computing begin to have an effect on the modern enterprise. IT managers must learn how to give as well as take information in this new, shareable environment, while still protecting their company's interests. Innovative companies will take advantage of these new resources, such as cloud computing, and reinvent themselves as unstoppable forces in their markets. Those who do not take advantage of this revolution will become quickly outdated, perhaps going out of business. This book is your first step toward understanding the issues you will face as cloud computing and SOA converge, and toward opening the company gates to nurture this IT Renaissance while still keeping the barbarians at bay.

The movement and direction are clear. Take, for instance, the rapid rise of cloud computing. Based on current trends, Interactive Data Corporation (IDC) reports, "Over the next five years, IDC expects spending on IT cloud services to grow almost threefold, reaching \$42 billion by 2012 and accounting for 9% of revenues in five key market segments. More importantly, spending on cloud computing will accelerate throughout the forecast period, capturing 25% of IT spending growth in 2012

and nearly a third of growth the following year.”¹ This leaves IDC with no doubt that there is a fundamental shift toward cloud computing as a delivery mechanism and toward its use within the notion of SOA as an approach to marry cloud computing with the enterprise.

Moreover, a recent Gartner report shows global revenue from cloud computing will top \$150 billion by 2013.² This projection includes revenue generated by the shift from on-premise to cloud-based providers as well as by the planning and architecture behind the shift.

What is causing this shift? There are five primary drivers:

1. Purchasers believe that the current cost of traditional enterprise software is disproportionate to the value it creates.
2. In these budget-conscious times, there is intense pressure to reduce the cost of acquisition and maintenance of software solutions (the ongoing support and maintenance of solutions can often be four times the original capital cost).
3. Organizations are striving to reduce risk, and they want a far more tangible relationship between software’s benefit and cost.
4. The drive for reduced risk demands a much greater predictability of the running costs of the organization’s software solutions.
5. The value of solutions is no longer determined by the functionality available (in fact, most organizations use only a small subset of the functions available in their software products) but by the feelings and experiences of the users in the way that they use and interact with the solution.

At the same time, enterprises are turning to SOAs to provide a platform for the use of cloud-delivered services and links to the emerging Web, even through the ad hoc notion of *mash-ups*. The movement toward SOA is well documented, like cloud computing, and is being driven faster by the emerging service-oriented resources within the clouds.

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1. IDC Press Release. “IDC Finds Cloud Computing Entering Period of Accelerating Adoption and Poised to Capture IT Spending Growth over the Next Five Years.” October 20, 2008. <http://www.idc.com/getdoc.jsp?containerId=prUS21480708>.
 2. “Gartner: Cloud Computing Poised for Considerable Growth.” Posted March 27, 2009. IT Business Edge Web site. <http://www.itbusinessedge.com/cm/community/news/inf/blog/gartner-cloud-computing-poised-for-considerable-growth/?cs=31403>.

According to Evans Data Corp.'s latest Web Services Development Survey, this year the percentage of functioning Service-Oriented Architectures (SOAs) has almost doubled. Web Services are also experiencing more comprehensive implementation with 30% of respondents using more than 20 services in the next year, a 58% increase from today.

—*Evans Data Corp.*

Moreover, there is a movement to leverage these pervasive services within the enterprise through mash-ups, providing on-demand access to business processes and information, as needed, and at bargain rates.

Mash-ups portend big changes for software companies, Web sites, and everyone online. No longer just a collection of pages, the Web is morphing into a sort of global operating system. . . . People are seizing far more control of what they do online. In the process, those efforts are putting skin on the bones of Web services, the long-delayed promise of software and services that can be tapped on demand.

—*Business Week*

What is important to remember is that a huge resource is being created on the Web among cloud computing providers. You must take advantage of this resource, otherwise it will devastate your enterprise in much the same way as when, in the early 1990s, those who ignored the rise of the Web soon found themselves playing catch-up. This is a similar megatrend, and the time is now to prepare your business to fit into this new cloud computing paradigm, which is actually much more complex than the traditional Web but provides 10 times the return on investment. This book shows you how the convergence of SOA and cloud computing will occur, what it is, and the steps you can take to align your IT with this revolutionary technology.

About the Book

This book is the bible for those looking to take advantage of the convergence of SOA and cloud computing. It includes detailed technical information about the trend, supporting technology and methods, a step-by-step guide for doing a self-evaluation, and an approach to reinventing your enterprise

to become a connected, efficient, moneymaking machine. *Cloud Computing and SOA Convergence in Your Enterprise* is an idea-shifting book that will set the stage for the way IT is delivered for years to come. This is more than just a book that defines some technology; this book defines a class of technology as well as approaches and strategies to make things work within your enterprise.

As the author, I am the recognized authority in each of the disciplines that contribute to the convergence of SOA and cloud computing. My goal with this book is to properly communicate the notion of the convergence and lay down a course for this technology set and the change that needs to occur. I define things from the outside in, from the inside out, and at all points in between, building on groundbreaking concepts of the past, including EAI, B2B, Web Services, and SOA.

IT leaders, developers, and architects will find the information contained in *Cloud Computing and SOA Convergence in Your Enterprise* extremely useful. Many examples are used to make the information easier to understand, and ongoing support is available from the book's Web site. Prerequisites for this book are a basic understanding of Web Services, cloud computing, and related development tools and technologies at a high level. However, those of you who are not technical will find this book just as valuable as a means of understanding this revolution and how it will affect your enterprise.

Structure of the Book

My intent is to keep the chapters as short as possible and to the point. While I once defined my books by word count, this book is defined by NGIPC (number of good ideas per chapter). So, it is going to be a bit of a wild ride at times, but something you can read in a coast-to-coast plane ride. I use examples where I can and case studies when available. Moreover, I make sure to leverage outside resources where they make sense. You do not write a book like this within a vacuum of ideas.

Most of the information is delivered in the traditional chapter-to-chapter manner, but within these chapters are "Book Blogs" (sidebars) used to hammer home the points discussed in the regular text. I use the Book Blogs as quick brain dumps to enliven the topic.

This book is written for you, the poor person charged with doing a lot of IT with few resources. I want to make your work better. I want to make your company successful. This is different from other books I've written in the past, which were more about *what* something is. This book contains a bit of *what*, but more *how*, and that will make all the difference. You cannot do *what* if you do not know *how*.

Enjoy the ride.

—Dave



Acknowledgments

There are a bunch of people to thank for this book, including Bernard Goodwin and Michelle Housley at Pearson, Inc. This book would not exist but for their faith in me, and I offer them my heartfelt thanks.

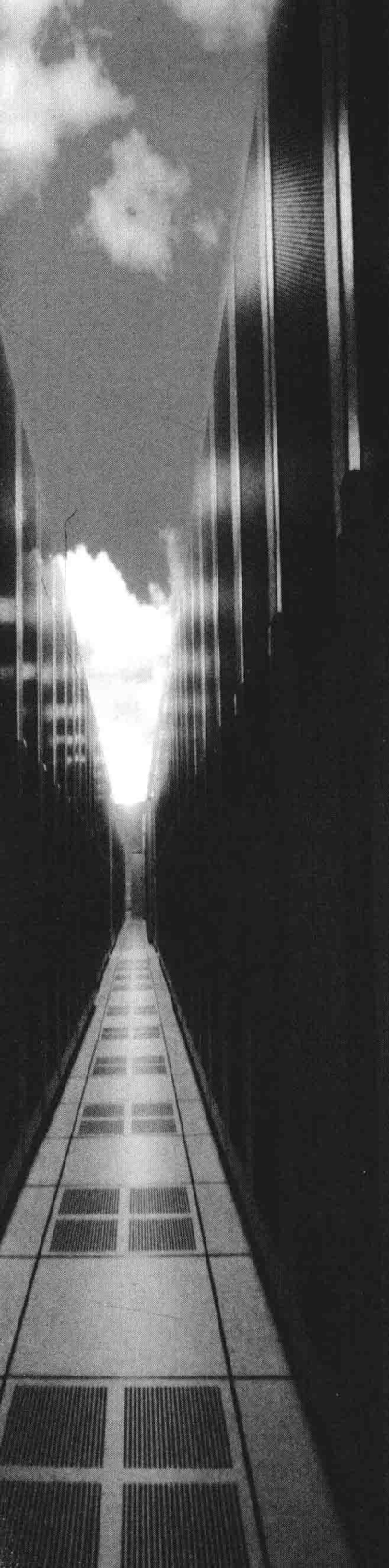
This book started its life with the working title *12 Steps to SOA*, which I proposed way back in 2005. Shortly after the proposal was accepted, I took a job as CEO of an overseas company. While I made my best efforts to get the book completed, the reality was that the book would surely be outdated by the time it hit the book stores. I had too many 80-hour work weeks and not enough time to focus on creating new concepts that would make that book truly valuable. Thus, I put the project aside after writing only a few chapters.

After four years of doing the entrepreneurial thing, including stints as a CTO once and a CEO twice, all with cloud computing companies, I decided to propose a new cloud computing-focused version of the book, and Bernard accepted it. This book would focus on extending SOA approaches to the world of cloud computing using a step-by-step approach with very clear guidance for those looking to leverage cloud computing in their enterprise. I felt this information was desperately needed in the market, and thus *Cloud Computing and SOA Convergence in Your Enterprise* was born. Or, I should say, reborn—in large part due to the patience of the wonderful folks at Pearson, who have been my publisher since 1997.

Of course, the book would not be as readable were it not for Linda Crippes, my copy editor and writing advisor, who has taken many paragraphs from near-gibberish to English. We have worked together for so long that, at this point, I am not sure when we started. I'm just glad to have somebody to assist in that department, since my brain works better in speaking mode than when I write.

I also want to thank the reviewers, including Mike, Joe, JP, and Ron, who provided some great feedback on this emerging topic. We are breaking new ground here, and it is always good to have a team of smart guys who make sure your ideas are not too crazy. I considered all of your comments and all of your suggestions and found them to be very, very useful.

Finally, I want to thank my wonderful clients who provided me with the experience required to write a book like this. I am in business to make them successful, and I feel privileged to say their successes reflect my own.



About the Author



David S. Linthicum (Dave) knows cloud computing and service-oriented architecture (SOA). He is an internationally recognized industry expert and thought leader and the author and coauthor of thirteen books on computing, including the best-selling *Enterprise Application Integration* (Addison-Wesley). Dave keynotes at many leading technology conferences on cloud computing, SOA, Web 2.0, and enterprise architecture, and he has appeared on a number of television and radio shows as a computing expert. He is a blogger for *InfoWorld*, *Intelligent Enterprise*, and *eBizq.net*, covering SOA and enterprise computing topics. Dave also has columns in *Government Computer News*, *Cloud Computing Journal*, *SOA Journal*, and *Align Journal*, and is the editor of *Virtualization Journal*.

In his career, Dave has formed or enhanced many of the ideas behind modern distributed computing, including enterprise application integration, B2B application integration, and SOA, all of which are approaches and technologies in wide use today. For the last ten years, Dave has focused on the technology and strategies around cloud computing and how to make cloud computing work for the modern enterprise. This includes work with several cloud computing startups.

Dave's industry experience includes tenure as CTO and CEO of several successful software companies and upper-level management positions in Fortune 100 companies. In addition, he was an associate professor of computer science for eight years and continues to lecture at major technical colleges and universities, including the University of Virginia, Arizona State University, and the University of Wisconsin.



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