If you were to ask ten people in computer science to define the term "distributed computing", you would likely receive ten different, yet correct answers. Clearly, there are no data or surveys to support this claim but it is probably true and indicative of the breadth of this area of computing.

So what is distributed computing? Is it internet computing? Is it parallel computing or cloud computing? Is it grid computing or web services or peer-to-peer computing? Well, it is all of the above and more.

The book “Distributed and Cloud Computing: From Parallel Processing to the Internet of Things” manages to provide a comprehensive overview of the state of distributed computing today.

The book is organized in three parts. The first part is Systems Modelling, Clustering and Virtualization. The second part is Computing Clouds, Service Oriented Architecture and Programming. The third part is Grids, Peer-to-Peer and the Future of the Internet.

In three chapters, the first part introduces various distributed computing platforms and environments. It covers the gamut from network-based systems, cloud and clustered computing to Virtual Machines (VMs), grids, GPUs and massively parallel processors. The second part focuses on the principles and enabling technologies for cloud computing and service-oriented architectures (SOA). It also contains a chapter dealing with the software development aspects in cloud environments, covering several programming paradigms (ex. MapReduce, Dryad, Sawall, Pig Latin) and contemporary cloud platforms such as Google’s App Engine, Amazon’s EC2 and Microsoft’s Azure. The third and last part of the book covers grid, peer-to-peer networks and showcases existing clouds developed by industry and government organizations (ex. IBM, SGI, NASA, CERN).

The book provides broad coverage of everything one needs to know about the field, striking a good balance between details that do not overwhelm and the basic principles. The authors provide many figures to support and illustrate the material. It is readable, coherent and well-structured and would be useful as a textbook for a primer in distributed systems for upper-level undergraduates or first-year graduate students.

The book is equally appropriate for practitioners involved in hot contemporary IT areas such as virtualization and cloud computing. Any professional in almost any capacity, from software developers to IT architects and CIOs could benefit from reading the book to understand how things work or by having it as a reference. Besides explaining and contextualizing how distributed systems work, the coverage of numerous commercial platforms and technologies would serve as a useful resource to professionals engaged in deploying or planning modern distributed systems.

For some, the strengths of the book may also be its weaknesses. By attempting to be comprehensive there are certainly topics that could have been covered in more depth. However, each chapter contains references to external sources (i.e. scholarly papers, books) that could be very useful to help guide anyone interested in getting more information on a specific subject. The inclusion of current technologies and platforms may be attractive to practitioners and certainly increases the timeliness of the material, but it may also render this edition of the text obsolete within a few years. Having said that, it is interesting to see just from the mere arrangement of the chapters how
distributed computing topics have evolved: the ruling platforms of the late 1990’s and early 2000, peer-to-peer networks and grid computing have now taken a back seat to virtualization and cloud computing.

Despite these minor quibbles, I find the book to be an excellent resource. It is well organized and it contains extensive bibliographic notes at the end of each chapter along with appropriate problems and exercises that reinforce the material.

Overall, this is perhaps the most comprehensive, timely and well-written book in distributed computing available today.