Peer-to-Peer Systems and Applications

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*"Currently, **a new and highly interesting paradigm for communication on the Internet, known as Peer-to-Peer, is emerging**. Although originally designed exclusively for pragmatic (and legally controversial) file sharing applications, P2P mechanisms can be used to access any kind of distributed resources and may offer new possibilities for internet-based applications."*

*"According to several internet service providers, more than 50% of Internet traffic is due to P2P applications, sometimes even as much as 75%. The continuous growth of the internet in terms of users and bandwidth is accompanied by increasing requirements of a diversified wealth of applications. Today, the traditional client-server approaches require a tremendous amount of effort and resources to meet these challenges. Thus, three main requirements of future internet-based applications can be identified: **Scalability** (…), **Security and Reliability** (…), **Flexibility and Quality of Service**."*

"It is becoming increasingly obvious that client-server-based applications, which have become popular since the early 1980s, can no longer fully meet the evolving requirements of the internet. In particular, their centralized nature is prone to resource bottlenecks. Consequently, they can be easily attacked and are difficult and expensive to modify due to their strategic placement within the network infrastructure. The concepts of P2P networking and P2P computing promise to provide simpler solutions to the problems mentioned above through a fundamental shift of paradigms."

*"The P2P approach is by no means just a technology for file sharing. Rather, it forms a fundamental design principle for distributed systems. It clearly reflects the **paradigm shift** from **coordination to cooperation**, from **centralization to decentralization**, and from **control to incentives**."*

"With this book, we want to give a broad overview on the manifold range of application of the Peer-to-Peer paradigm." (…) "Many experts assembled their knowledge for this book, each of them in his own specific research area. Teachers can choose out of a wide range of thirty-two chapters on all aspects of P2P systems and applications, and therefore, can design the syllabus for their classes with individual accentuation."

Further information on the text book and teaching material will soon be available on:
http://www.peer-to-peer.info/

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State-of-the-Art Survey

LNCS 3485

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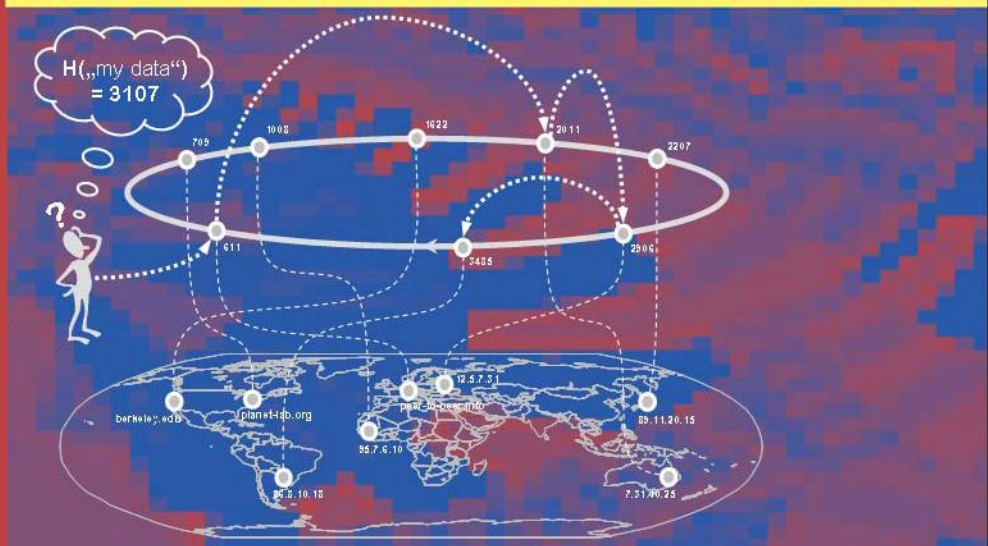
Including teaching material
Preface by Ion Stoica (UC Berkeley)

Peer-to-Peer-Systems and Applications



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Foundations & Technology of **Peer-to-Peer** Mechanisms