<<软件体系结构>>

图书基本信息

书名：<<软件体系结构>>

13位ISBN编号：9783540743422

10位ISBN编号：3540743421

出版时间：2008-04-28

出版时间：Springer

作者：Zheng Qin,Jian-Kuan Xing,Xiang Zheng

页数：339

字数：719000

前言

Building software nowaday s is far more difficult than it Can be done several decadesago. At that time, software engineers focused on how to manipulate the computer towork and then solve problems correctly. The organization of data andimplementation of algorithm were the crucial process of software designing then?However . more and more tasks in low level, such as memory manag：ment andnetwork communication, have been antomatized or at least can be reused with littleeffort and cost. Programmers and designers, with the help of high level programminglanguages and wieldy development tools, can P ay more attention to problems, ratherthan bury themselves into the machine code manuals. However, the side effect ofthese utilities iS that more complicated problems are gwen according to therequirements from military, enterprise and SO on, in which the comp lexlty grows rap idly day by day. We believe that software architecture is a key to deal with it. Many people become aware of the existence of software architecture Justrecently. Nevertheless, it in fact has a long history , which may surprise you. Be~~rethe invention of C++or even C, some computer scientists had begun to notice the concept of software structure and its influence to software development. In the1990s, software architecture started its journey of bloom, when several communities, workshops and conferences were held with a great amount of published articles, books and tools. Today, software architect, the job of taking software designing,analy sis and dealing with different concerns and requirements from ditterent stakeholders. iS considered as the center of development team. But there is an ironical problem that most existing architects in fact do not take any study or training in this field, some of whom even do not realize that software architecture is a kind of realm requiring academic effort, just as artificial intelligence or data ml’ning The reason iS that software architecture has no widely—accepted definitions and standards of basic theories and practical methods, which leads tothat there is almost no universal course about this subject. M eanwhile, the rap id growth and division of SOftware architecture result in too many branches and sub—fields. most of which still keep non—dominant and unified.

<<软件体系结构>>

内容概要

Part of the new series, Advanced Topics in Science and Technology in China。
this book aims tO introduce the theoretical foundations, various sub-fields, current research, and practical methods of software architec-ture. Readers can acquire basic knowledge of sotiware architecture, including Why software architecture iS necessary, how we can describe system ' S architecture with formal language, what architecture styles are popular in practice, and how we can apply software architecture to the development of systems. Case studies, data, illustrations, and other-materials released within recent years will be used tO show the latest sta-tus in software architecture.

作者简介

Dr. Zheng Qin is doctoral mentor of the computer science and technol-ogy departments at Tsinghua and Xi ’ an Jiaotong University. He has been Associate Dean of the School of Software, Tsinghua University,and Chair of the Institute of E—commerce, Xi ’ an J

<<软件体系结构>>

书籍目录

章节摘录

components，hence，it supports the function modular level reuse. Exasted tilters inthe system can be easily applied to new systems which are to be designed. Second，the system composed by pipes and filters can be easily maintained and extended. The maintenance is mainly incarnated in a system’s evolution. The filter only needsto consider components’input，output and inner implementation，and not needs toconsider the filter’s maintenance and modification. If we want to replace a certainfilter。
we only need to design a filter that has the same input，output with theoriginal one. The extension mainly incarnate on the system functions’expanslon. For instance. if we want to add a new function to the original sy stern,add new dataoutput，we can finish it by adding new output port to the original filter. Third，inthe Pipes Filters style，the independence of filter component provides conveniencefor system’s performance analysis，such as data throughout，deadlock analysis andcomputing accuracy，etc. Fourth，it supports concurrency computing. Systems basedon Pipes-Filters style may have many Parallel filters；these filters can runconcurrently. so that the whole performance of the system is improved. M eanwhile，the Pipes-Filters sty le has some disadvantage：Filters may have some restrictions to the input and output data，so this style isnot proper for interactive systems. In fact，when the pipes filters style is broughtforward，the application does not have high interactive requirement. In the earlydays of computer design，this type of style met the requirement of processmgmultiple tasks. For some application design that needs sharing much data，it is notproper to use this type of style. The exchanging of data between filters needs largedata access space. and the transinl‘ssion of data will occupy much system runningtime. 2. 2. 2 Study CaseIn this part，we will give a typical example about digital communication system，andintroduce in detail how to organize each component using Pipes-Filters style. Fromthis，we can obviously know that software architecture is production producedwhen system analysis，creation and management technologies have got manyresearch results. Software architecture does not limit itself to computer software orother concrete subjects，it has strong general utility. The goal of communication is transferring information. Messages have a varietyof forms，such as symbols，text，voice，music，graph，image，etc.，according to thedifference of messages. We carl classify the communication operation into telegraph，telephone. fax,data transferring and visible telephone，etc. In fact，the basic peer topeer communication is always transferring data form one point to another point. ……

版权说明