

Dynamic Allocation And Pricing: A Mechanism Design Approach (Arne Ryde Memorial Lectures)

Improve your programming through a solid understanding of C pointers and memory management. With this practical book, you'll learn how pointers provide the mechanism to dynamically manipulate memory, enhance support for data structures, and enable access to hardware. Author Richard Reese shows you how to use pointers with arrays, strings, structures, and functions, using memory models throughout the book. Difficult to master, pointers provide C with much flexibility and power—yet few resources are dedicated to this data type. This comprehensive book has the information you need, whether you're a beginner or an experienced C or C++ programmer or developer. Get an introduction to pointers, including the declaration of different pointer types Learn about dynamic memory allocation, de-allocation, and alternative memory management techniques Use techniques for passing or returning data to and from functions Understand the fundamental aspects of arrays as they relate to pointers Explore the basics of strings and how pointers are used to support them Examine why pointers can be the source of security problems, such as buffer overflow Learn several pointer techniques, such as the use of opaque pointers, bounded pointers and, the restrict keyword

Interconnecting Smart Objects with IP: The Next Internet explains why the Internet Protocol (IP) has become the protocol of choice for smart object networks. IP has successfully demonstrated the ability to interconnect billions of digital systems on the global Internet and in private IP networks. Once smart objects can be easily interconnected, a whole new class of smart object systems can begin to evolve. The book discusses how IP-based smart object networks are being designed and deployed. The book is organized into three parts. Part 1 demonstrates why the IP architecture is well suited to smart object networks, in contrast to non-IP based sensor network or other proprietary systems that interconnect to IP networks (e.g. the public Internet of private IP networks) via hard-to-manage and expensive multi-protocol translation gateways that scale poorly. Part 2 examines protocols and algorithms, including smart objects and the low power link layers technologies used in these networks. Part 3 describes the following smart object network applications: smart grid, industrial automation, smart cities and urban networks, home automation, building automation, structural health monitoring, and container tracking. Shows in detail how connecting smart objects impacts our lives with practical implementation examples and case studies Provides an in depth understanding of the technological and architectural aspects underlying smart objects technology Offers an in-depth examination of relevant IP protocols to build large scale smart object networks in support of a myriad of new services

Dynamic Bandwidth Pricing and Allocation Model

A Dynamic Allocation Index for the Sequential Design of Experiments

"Dynamic Allocation Without Money"

Dynamic Allocation in a Labor-managed Firm

Issues in Industrial Relations and Management: 2013 Edition

This dissertation is proposing an enhanced model for dynamic bandwidth allocation and pricing. It begins with an overview of the topic of pricing and quality of service over the network, focusing on the technical part of the network and the techniques used to offer a better quality of service. Then it starts with concentrating on the main topic of the dissertation, which is, the pricing models presented in the literatures. The latter part is proposing an enhanced model for pricing and at the same time offering a user centric bandwidth allocation model. The dissertation is divided into seven chapters, covering the pricing models and the use of pricing as a congestion prevention tool. Chapter one starts with exploring the origin of the pricing in the network quality of service, while studying the technical methods and techniques already implemented and used by the industry. Chapter two gives an overview of the pricing models already on the literatures, and argues their advantages and disadvantages regarding many parameters that affect their final outcome. Chapter three explores the basic model of dynamic pricing and allocation, by highlighting the basics of the model and the role it plays in allocating and reallocating bandwidth dynamically based on the network conditions. Chapter four introduces the enhanced model of the dynamic pricing and allocation, based on the actual users' profiles. While chapter four is more elaboration on the theory behind the enhanced model, it also introduces the main features of the simulation model that will follow in chapter five. In chapter five through, the main theme will be the simulation tool that has been built and used to advocate the ideas presented in the enhanced model. Chapter six basically covering is the simulation experiments and their analysis concentrating on the differences between the enhanced model and the other models in its category. Chapter seven concludes the work done by highlighting the main contribution of the dissertation.

This paper optimizes dynamic pricing and real-time resource allocation policies for a platform facing non- transferable capacity, stochastic demand-capacity imbalances, and strategic customers with heterogeneous price- and time-sensitivities. We characterize the optimal mechanism, which specifies a dynamic menu of prices and allocations. Service timing and pricing are used strategically to: (i) dynamically manage demand- capacity imbalances, and (ii) provide discriminated service levels. The balance between these two objectives depends on customer heterogeneity and customers' time-sensitivities. The optimal policy may feature strategic idleness (deliberately rejecting incoming requests for discrimination), late service prioritization (clearing the queue of delayed customers) and deliberate late service rejection (focusing on incoming demand by rationing capacity for delayed customers). Surprisingly, the price charged to time-sensitive customers is not increasing with demand -- high demand may trigger lower prices.By dynamically adjusting a menu of prices and service levels, the optimal mechanism increases profits significantly, as compared to dynamic pricing and static screening benchmarks. We also suggest a less information-intensive mechanism that is history-independent but fine-tunes the menu with incoming demand; this easier-to-implement mechanism yields close-to-optimal outcomes.

Comparison of Static and Dynamic Allocation in a Paged System

Eleventh World Congress

Memory Allocation Problems in Embedded Systems

Optimization Methods

Dynamic Allocation of Responsibility Between Operators with Different Models of System Information Using Computer-mediated Communication

A new approach to dynamic allocation and pricing that blends dynamic paradigms from the operations research and management science literature with classical mechanism design methods. Dynamic allocation and pricing problems occur in numerous frameworks, including the pricing of seasonal goods in retail, the allocation of a fixed inventory in a given period of time, and the assignment of personnel to incoming tasks. Although most of these problems deal with issues treated in the mechanism design literature, the modern revenue management (RM) literature focuses instead on analyzing properties of restricted classes of allocation and pricing schemes. In this book, Alex Gershkov and Benny Moldovanu propose an approach to optimal allocations and prices based on the theory of mechanism design, adapted to dynamic settings. Drawing on their own recent work on the topic, the authors describe a modern theory of RM that blends the elegant dynamic models from the operations research (OR), management science, and computer science literatures with techniques from the classical mechanism design literature. Illustrating this blending of approaches, they start with well-known complete information, nonstrategic dynamic models that yield elegant explicit solutions. They then add strategic agents that are privately informed and then examine the consequences of these changes on the optimization problem of the designer. Their sequential modeling of both nonstrategic and strategic logic allows a clear picture of the delicate interplay between dynamic trade-offs and strategic incentives. Topics include the sequential assignment of heterogeneous objects, dynamic revenue optimization with heterogeneous objects, revenue maximization in the stochastic and dynamic knapsack model, the interaction between learning about demand and dynamic efficiency, and dynamic models with long-lived, strategic agents.

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Algorithms for Evaluating the Dynamic Allocation Index

Conference on Dynamic Allocation in Space - Distribution and Welfare, Stockholm, Documentation Based on the Proceedings

Engineering Scalable, Elastic, and Cost-Efficient Cloud Computing Applications

Core Techniques for Memory Management

Dynamic Allocation of Urban Space

Dynamic Allocation and PricingA Mechanism Design ApproachMIT Press

We analyze dynamic allocations in a model with uncertain demand and with unobservable arrivals. The planner learns along the way about future demand, but strategic agents, who anticipate this behavior, strategically choose the timing of their arrivals. We examine the conditions under which the complete information, dynamically efficient allocation is implementable, and characterize the necessary payments that control the ensuing allocative and informational externalities.

An Adaptive Approach to the Dynamic Allocation of Buffer Storage

Resource Management for On-Demand Mission-Critical Internet of Things Applications

Dynamic Allocation and Pricing

Risk-pooling Along a Fixed Delivery Route Using a Dynamic Inventory-allocation Policy

Dynamic Allocation of Parallel Congested Traffic Channels

This is the first of two volumes containing papers and commentaries presented at the Eleventh World Congress of the Econometric Society, held in Montreal, Canada in August 2015. These papers provide state-of-the-art guides to the most important recent research in economics. The book includes surveys and interpretations of key developments in economics and topics, covering both theory and application. These volumes provide a unique, accessible survey of progress on the discipline, written by leading specialists in their fields. The first volume includes theoretical and applied papers addressing topics such as dynamic mechanism design, agency problems, and networks.

This book develops allocation mechanisms that aim to ensure an efficient resource allocation in modern IT-services. Recent methods of artificial intelligence, such as neural networks and reinforcement learning, and nature-oriented optimization methods, such as genetic algorithms and simulated annealing, are advanced and applied to allocation processes in distributed systems. Reinforcement Learning and Combinatorial Auctions

Dynamic Allocation of Parallel Congested Channels with a Crossover Link

Essays on Dynamic Allocation and Pricing

Dynamic Allocation and Pricing in Incomplete Markets

Embedded systems are everywhere in contemporary life and aresupposed to make our lives more comfortable. In industry, embeddedsystems are used to manage and control complex systems (e.g.nuclear power plants, telecommunications and flight control) andthey are also taking an important place in our daily activities(e.g. smartphones, security alarms and traffic lights). In the design of embedded systems, memory allocation and dataassignment are among the main challenges that electronic designershave to face. In fact, they impact heavily on the main cost metrics(power consumption, performance and area) in electronic devices.Thus designers of embedded systems have to pay careful attention inorder to minimize memory requirements, thus improving memorythroughput and limiting the power consumption by the system ' smemory. Electronic designers attempt to minimize memoryrequirements with the aim of lowering the overall systemcosts. A state of the art of optimization techniques for memory managementand data assignment is presented in this book.

This book provides an overview of the problems involved in engineering scalable, elastic, and cost-efficient cloud computing services and describes the CloudScale method — a description of rescuing tools and the required steps to exploit these tools. It allows readers to analyze the scalability problem in detail and identify scalability anti-patterns and bottlenecks within an application. With the CloudScale method, software architects can analyze both existing and planned IT services. The method allows readers to answer questions like: • With an increasing number of users, can my service still deliver acceptable quality of service? • What if each user uses the service more intensively? Can my service still handle it with acceptable quality of service? • What if the number of users suddenly increases? Will my service still be able to handle it? • Will my service be cost-efficient? First the book addresses the importance of scalability, elasticity, and cost-efficiency as vital quality-related attributes of modern cloud computing applications. Following a brief overview of CloudScale, cloud computing applications are then introduced in detail and the aspects that need to be captured in models of such applications are discussed. In CloudScale, these aspects are captured in instances of the ScaleDL modeling language. Subsequently, the book describes the forward engineering part of CloudScale, which is applicable when developing a new service. It also outlines the reverse and reengineering parts of CloudScale, which come into play when an existing (legacy) service is modified. Lastly, the book directly focuses on the needs of both business-oriented and technical managers by providing guidance on all steps of implementing CloudScale as well as making decisions during that implementation. The demonstrators and reference projects described serve as a valuable starting point for learning from experience. This book is meant for all stakeholders interested in delivering scalable, elastic, and cost-efficient cloud computing applications: managers, product owners, software architects and developers alike. With this book, they can both see the overall picture as well as dive into issues of particular interest.

Third Asia Pacific Conference, AP-BPM 2015, Busan, South Korea, June 24-26, 2015, Proceedings

The Dynamic Allocation of Attention During the Execution of Sequences of Saccades

The CloudScale Method

Asia Pacific Business Process Management

Dynamic Allocation for Clearing a Congested Multi-destination Transportation Network

Temporal resources are defined as human or capital resources with a per-unit-time capacity that can be allocated to different services or products in different periods of time. Examples of temporal resources include machinery, computing power, warehouses, venues, staff, and specialized technology such as a chemical reactor. In this dissertation, I study the problem of dynamically allocating temporal resources to maximize revenue or to minimize costs when the decision-maker is uncertain about the outcome of decisions. I consider two different problems that represent challenges encountered in various industries. In the first chapter, I provide an introduction to the two problems presented in Chapters 2 and 3, discuss the respective motivating industries, and provide examples of broader applications. The first problem, presented in Chapter 2, is the sales of cloud services to owners of interactive (user-based) applications such as websites and mobile apps. If an application owner purchases the service, the provider hosts the application on the cloud and provides the computing power required to support the application users. Here, the units of resource (hardware capacity) allocated to an application over time is directly determined by the traffic-pattern of the application's users. Considering the resource capacity, the provider dynamically prices services to maximize revenue. I model the provider's pricing problem as a large-scale stochastic dynamic program. I decompose this multi-dimensional stochastic dynamic program into single-dimensional sub-problems by proposing a tractable decomposition procedure. I then extend the proposed framework to define an individualized dynamic pricing mechanism for the cloud provider. To evaluate the performance of the proposed pricing mechanism, I present novel upper bounds on the optimal revenue. The computational results show that the proposed model of selling cloud services achieves significantly greater revenue than the prevalent alternative, and that the presented pricing scheme attains near-optimal revenue. In the third chapter of my dissertation I analyze a catalyst-activated batch-production process with uncertainty in production times, learning about catalyst-productivity characteristics, and decay of catalyst performance across batches. The challenge is to determine the quality level of batches and to decide when to replenish a catalyst so as to minimize average costs consisting of inventory holding, backlogging, and catalyst switching costs. The temporal resource in this problem is the common reactor shared across batches and multiple products. I formulate this problem as a Semi-Markov Decision Process (SMDP), and use structural properties of the SMDP to define an effective two-level heuristic which is easy to interpret and implement, and to establish a lower bound on the optimal average cost to evaluate the heuristic. Through application to data from a leading food processing company, I show that the proposed methodology, in addition to attaining near-optimal costs, outperforms current practice by an average of 22 % reduction in costs.

RESOURCE MANAGEMENT FOR ON-DEMAND MISSION-CRITICAL INTERNET OF THINGS APPLICATIONS Discover an insightful and up-to-date treatment of resource management in Internet of Things technology In Resource Management for On-Demand Mission-Critical Internet of Things Applications, an expert team of engineers delivers an insightful analytical perspective on modeling and decision support for mission-critical Internet of Things applications. The authors dissect the complex IoT ecosystem and provide a cross-layer perspective on the design and operation of IoT, especially in the context of smart and connected communities. The book offers an economic perspective on resource management in IoT systems with a particular emphasis on three main areas: spectrum management via reservation, allocation of cloud/fog resources to IoT applications, and resource provisioning to smart city service requests. It leverages theories from dynamic mechanism design, optimal control theory, and spatial point processes, providing an overview of integrated decision-making frameworks. Finally, the authors discuss future directions and relevant problems on the economics of resource management from new perspectives, like security and resilience. Readers will also enjoy the inclusion of: A thorough introduction and overview of IoT applications in smart cities, mission critical IoT services and requirements, and key metrics and research challenges A comprehensive exploration of the allocation of spectrum resources to mission critical IoT applications, including the massive surge of IoT and spectrum scarcity problem Practical discussions of the provisioning of cloud/fog computing resources to IoT applications, including allocation policy In-depth examinations of resource provisioning to spatio-temporal service requests in smart cities Perfect for engineers working on Internet of Things and cyber-physical systems, Resource Management for On-Demand Mission-Critical Internet of Things Applications is also an indispensable reference for graduate students, researchers, and professors with an interest in IoT resource management.

Efficient Dynamic Allocation with Strategic Arrivals

Dynamic Allocation of Computer Resources for Real Time System Tuning

Advances in Economics and Econometrics: Volume 1

Thebes: Dynamic Allocation of Amun Sensors

Strategic Timing and Dynamic Pricing for Online Resource Allocation

This book constitutes the proceedings of the Third Asia Pacific Conference on Business Process Management held in Busan, South Korea, in June 2015. Overall, 37 contributions from ten countries were submitted. After each submission was reviewed by at least three Program Committee members, 12 full and two short papers were accepted for publication in this volume. These papers cover various topics and are categorized under four main research Focuses in BPM: advancement in workflow technologies, resources allocation strategies, process mining, and emerging topics in BPM.

"This book highlights comprehensive research that will enable readers to understand, manage, use, and maintain business data communication networks more effectively"--Provided by publisher.

Dynamic Allocation of Machines to Product Families in the Presence of Setup Delays

Dynamic Allocation of Temporal Resources Under Uncertainty

Optimal Dynamic Allocation Between Taxable and Nontaxable Assets

Heuristic and Classical Approaches to a One-shot Dynamic Allocation Problem with Saturated Controller

Interconnecting Smart Objects with IP