GPC 2012 Final Program

Overview of the Program

	Friday, 11th May	Saturday, 12th May	Sunday, 13th May
08:00 - 08:30	Registration	Opening	Keynote 2
08:30 - 09:00	Registration	Keynote 1	Keynote 2
09:00 - 09:30	Registration	Keynote 1	Coffee break
09:30 - 10:00	Registration	Coffee break	Session 4 Mobile and Pervasive Computing
10:00 - 12:00	Registration	Session 1 Cloud Computing	Session 4 Mobile and Pervasive Computing
12:00 - 13:00	Lunch Staff Restaurant, 4/F., Communal Building	Lunch Staff Restaurant, 4/F., Communal Building	Lunch Color Crystal Restaurant
13:00 - 15:00	Mobi-Cloud Workshop	Session 2 Grid and Service Computing	Session 5 Trust and Security
15:00 - 15:30	Coffee break	Coffee break	Coffee break
15:30 - 17:00	Mobi-Cloud Workshop	Session 3 Green Computing	Session 6 Scheduling and Performance
18:00 - 20:00	Reception Staff Club 5/F., Communal Building 18:00 - 20:00	Banquet Hung Kee Seafood Restaurant, Sai Kung 18:00 - 22:00	

Conference Schedule

Saturday, 12th May	
08:00 - 08:30	**Conference Openning**
08:30 - 09:30	**Keynote 1: Tasklets – a Foundation for Best Effort Computation** Speaker: Christian Becker, University of Mannheim Chair: Jiannong Cao, Hong Kong Polytechnic University Room: M1603, Senate Room, Li Ka Shing Tower
09:30 - 10:00	**Coffee break**

10:00 - 12:00	**Session 1: Cloud Computing**
	Chair: Chao-Tung Yang, Tunghai University
	Room: M1603, Senate Room, Li Ka Shing Tower
	From Web Cache to Cloud Cache
	Thepparit Banditwattanawong
	pCloud: An Adaptive I/O Resource Allocation Algorithm with Revenue Consideration over Public Clouds
	Jianzong Wang, Yanjun Chen, Daniel Gmach, Changsheng Xie, Jiguang Wan, and Rui Hua
	A Gossip-based Mutual Exclusion Algorithm for Cloud Environments
	JongBeom Lim, Kwang-Sik Chung, Sung-Ho Chin, and Heon-Chang Yu
	Memory Virtualization for MIPS Processor based Cloud Server
	Li Ruan, Huixiang Wang, Limin Xiao, Mingfa Zhu, and Feibo Li
	Implementation of a Distributed Data Storage System with Resource Monitoring on Cloud Computing
	Chao-Tung Yang, Wen-Chung Shih, Chih-Lin Huang, and Wen-Hung Hsu
12:00 - 13:00	**Lunch**
	Staff Restaurant, 4/F., Communal Building
13:00 - 15:00	**Session 2: Grid and Service Computing**
	Chair: Heonchang Yu, Korea University
	Room: M1603, Senate Room, Li Ka Shing Tower
	Design, Verification and Prototyping the Next Generation of Desktop Grid Middleware
	Leila Abidi, Christophe Cérin, and Kais Klai
	A Request Multiplexing Method Based on Multiple Tenants in SaaS
	Pingli Gu, Yanlei Shang, Junliang Chen, Bo Cheng, and Yan Jiang
	An Adaptive Design Pattern for Genetic Algorithm Based Composition of Web Services in Autonomic Computing Systems using SOA
	Vishnuvardhan Mannava and T. Ramesh
	Service-Oriented Ontology and Its Evolution
	Weisen Pan, Shizhan Chen, and Zhiyong Feng
15:00 - 15:30	**Coffee break**
15:30 - 17:00	**Session 3: Green Computing**
	Chair: Kais Klai, Université Paris 13
	Room: M1603, Senate Room, Li Ka Shing Tower
	Energy Efficient Activity Recognition based on Low Resolution Accelerometer in Smart Phones
	Yunji Liang, Xingshe Zhou, Zhiwen Yu, Bin Guo, and Yue Yang
	Energy Efficient Allocation of Virtual Machines in Cloud Computing Environments Based on Demand Forecast
	Jian Cao, Yihua Wu, and Minglu Li
	Energy Conservative Mobile Cloud Infrastructure
	Ashok Chandrasekar, Karthik Chandrasekar, Harini Ramasatagopan, and Rafica Abdul Rahim
	Power-constrained Actuator Coordination for Agricultural Sensor Networks
	Junghoon Lee, Gyung-Leen Park, Ho-Young Kwak, and Jikwang Han
18:00 - 22:00	**Banquet**

	Hung Kee Seafood Restaurant, Sai Kung

Sunday, 13th May

08:00 - 09:00	**Keynote 2: Autonomic Cloud Management (ACM): Challenges and Opportunities** Speaker: Cheng-Zhong Xu, Wayne State University Chair: Ruixuan Li, Huazhong University of Science and Technology Room: M1603, Senate Room, Li Ka Shing Tower
09:00 - 09:30	**Coffee break**
09:30 - 12:00	**Session 4: Mobile and Pervasive Computing** Chair: Zhuo Tang, Hunan University Room: M1603, Senate Room, Li Ka Shing Tower

	Design and Evaluation of Mobile Applications with Full and Partial Offloadings
	    Jennifer Kim
	A Cross-Layer Scheme to Improve TCP Performance in Wireless Multi-hop Networks
	    Fu-Quan Zhang and Inwhee Joe
	An Effective Partition Approach for Elastic Application Development on Mobile Cloud Computing
	    Zhuoran Qin, Jixian Zhang, and Xuejie Zhang
	A Fully Abstract View for Local Cause Semantics
	    Jianxin Xue and Xiaoju Dong
	Efficiency Considerations in Policy Based Management in Resource Constrained Devices
	    Jignesh Kakkad and Nandan Parameswaran
	Agent based Quality Management Middleware for Context-aware Pervasive Applications
	    Di Zheng, Jun Wang, and Ke-rong Ben

12:00 - 13:00	**Lunch** Color Crystal Restaurant
13:00 - 15:00	**Session 5: Trust and Security** Chair: Dongho Won, Sungkyunkwan University Room: M1603, Senate Room, Li Ka Shing Tower

	A New RBAC based Access Control Model for Cloud Computing
	    Zhuo Tang, Juan Wei, Ahmed Sallam, Kenli Li, and Ruixuan Li
	QoS Monitoring and Dynamic Trust Establishment in the Cloud
	    Ashok Chandrasekar, Karthik Chandrasekar, Malairaja Mahadevan, and P. Varalakshmi
	Multihop-based Key Management in Hierarchical Wireless Sensor Network
	    Yiying Zhang, Xiangzhen Li, Yan Zhen, and Lingkang Zeng
	A Bullet-Proof Verification using Distributed Watchdogs (BPV-DW) to Detect Black Hole Attack in Mobile Ad Hoc Networks
	    Firoz Ahmed, Seok Hoon Yoon, and Hoon Oh
	Performance Analysis for Workflow Management Systems under Role-based Authorization Control
	    Limin Liu, Ligang He, and Stephen A. Jarvis

15:00 - 15:30	**Coffee break**
15:30 - 17:00	**Session 6: Scheduling and Performance** Chair: Junghoon lee, Jeju National Unversity

	Room: M1603, Senate Room, Li Ka Shing Tower

	A Virtual File System for Streaming Loading of Virtual Software on Windows NT
	    Yabing Cui, Chunming Hu, Tianyu Wo, and Hanwen Wang
	TBF: A High-efficient Query Mechanism in De-duplication Backup System
	    Bin Zhou, Hai Jin, Xia Xie, and PingPeng Yuan
	Estimating Deadline-Miss Probabilities of Tasks in Large Distributed Systems
	    Dongping Wang, Bin Gong, and Guoling Zhao
	Global Pricing in Large Scale Computational Markets
	    Lilia Chourou, Ahmed Elleuch, and Mohamed Jemni

Workshop Schedule

	Friday, 11th May
08:00 - 12:00	**On-site Registration**
12:00 - 13:00	**Lunch** Staff Restaurant, 4/F., Communal Building
13:00 - 17:00	**Workshop: Mobi-Cloud 2012** **The 2012 International Workshop on Mobile Cloud and Ubiquitous Computing** Chair: Changhoon Lee Room: M1603, Senate Room, Li Ka Shing Tower

	A Medical Image File Accessing System with Virtualization Fault Tolerance on Cloud
	    Chao-Tung Yang, Cheng-Ta Kuo, Wen-Hung Hsu, and Wen-Chung Shih
	Enhanced Password-Based User Authentication Using Smart Phone
	    Inkyung Jeun, Mijin Kim, and Dongho Won
	Development of m-TMS for Trusted Computing in Mobile Cloud
	    Hyun-Woo Kim, Eun-Ha Song, Jun-Ho Kim, Sang Oh Park, and Young-Sik Jeong
	An Efficient Cloud Storage Model for Cloud Computing Environment
	    HwaYoung Jeong and JongHyuk Park

18:00 - 20:00	**Reception** Staff Club 5/F., Communal Building

Keynote I

Tasklets – a Foundation for Best Effort Computation

Christian Becker, University of Mannheim

The computing landscape has changed drastically in the past years. There are a number of trends that influenced new computing paradigms such as Pervasive Computing, Grid Computing, Cloud Computing. In my talk I will highlight some of the fundamental differences in computing and will motivate the need for a novel abstraction that allows to hide the details of underlying platforms and thus decouples computing platforms from applications. Tasklets are a joint project with MIT that allows to model computation as a closure that can be executed at various platforms. I will sketch how Tasklets can be be used as a basic abstraction for computation and which further abstractions are needed to support applications.

About the Speaker:

Christian Becker is a full professor for Information Systems at the University of Mannheim since 2006. Prior to this he was a visiting professor for distributed systems at the University of Duisburg-Essen in Spring Term 2006. He studied Computer Science at the Universities of Karlsruhe and Kaiserslautern where he received the Diploma in 1996. From 1997 till 2001 he was a researcher at the distributed systems and operating systems group at the University of Frankfurt where he received his PhD in 2001 with a thesis about "Quality of Service Management in Distributed Object Systems". In 2001 he joined the distributed systems group at the University of Stuttgart as Post Doc. His research focussed on system support for Pervasive Computing and Peer to Peer Computing. He is specifically interested in architectures for adaptive systems. In 2004 he received the venia legendi (Habilitation) for Computer Science (Informatik). Christian's research interests are Distributed Systems, Self-Organizing Systems and Context-Aware Computing.

Keynote II

Autonomic Cloud Management (ACM):

Challenges and Opportunities

Cheng-Zhong Xu
Wayne State University, Detroit, USA
& Shenzhen Institute of Advanced Technology of CAS, China

Cloud computing, unlocked by virtualization, is emerging as an increasingly important service-oriented computing paradigm. Management is key to providing accurate service availability and performance data and to enabling on-demand real-time capacity planning to meet service demands dynamically. This is because virtualization does not reduce the complexity of a system. In fact, having multiple virtual machines (VMs) running on top of a shared physical computing infrastructure increases the overall system complexity and poses new challenges in systems management. Optimizing one component may compromise the others, leading to overall performance degradation. Frequent component failures here and there would even cause low system productivity.

This talk will start with a review of challenge issues in the management of cloud systems. I will then introduce an Autonomic Cloud Management project underway at Wayne State University and SIAT of CAS, which tackles the cloud service availability, energy efficiency, and reliability issues in feedback control and reinforcement learning approaches. Two case studies will be presented in detail. One is anomaly detection, bottleneck identification, and virtual machine auto-configuration. The other is proactive failure management that deals with failures before they occur in cloud systems. Empirical models built from statistical learning exhibit great potential to help overcome the challenges of scale and uncertainty of clouds.

About the Speaker:

Dr. Cheng-Zhong Xu is a professor of Wayne State University, the Director of the Laboratory for Cloud and Internet Computing, and the Director of Sun's Center of Excellence in Open Source Computing and Applications. Dr. Xu is also a Chief Scientist of Shenzhen Institutes of Advanced Technology (SIAT) of Chinese Academy of Sciences and the Director of the Research Center for Cloud Computing of SIAT. Dr. Xu's research interest is mainly in the areas of parallel and distributed systems, cloud and Internet computing, and wireless embedded systems. He has published 180 peer-reviewed papers on these topics, more than 20 in ACM/IEEE transactions. He is the author of "Scalable and Secure Internet Services and Architecture" (Chapman & Hall/CRC Press, 2005) and a co-author of "Load Balancing in Parallel Computers" (Kluwer Academic, 1995). Dr. Xu serves in the editorial boards of a number of leading journals in his areas, including IEEE Transactions on Parallel and Distributed Systems and Journal of Parallel and Distributed Computing. Dr. Xu's research was supported in part by the "Oversea Outstanding Young Chinese Scholar Program" of NSFC and the "National Thousand Talents Program" of China. He received his B.S. and M.S. degrees in Computer Science from Nanjing University and his Ph.D. from the University of Hong Kong in 1993.