

SCHOOL OF COMPUTING SEMINAR

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HP LABS SERVICES AND SOLUTIONS LAB

NSERC CREATE

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2:30 TO 3:30 PM
DUPUIS HALL 215

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SEMINAR

SELLING T-SHIRTS AND TIME SHARES IN THE CLOUD

Cloud computing has emerged as a new and alternative approach for providing computing services. Customers acquire and release resources by requesting and returning virtual machines to the cloud. Different service models and pricing schemes are offered by cloud service providers. This can make it difficult for customers to compare cloud services and select an appropriate solution. Cloud Infrastructure-as-a-Service vendors offer a t-shirt approach for Virtual Machines (VMs) on demand. Customers can select from a set of fixed sized VMs and vary the number of VMs as their demands change. Private clouds often offer another alternative, called time-sharing, where the capacity of each VM is permitted to change dynamically. With this approach each virtual machine is allocated a dynamic amount of CPU and memory resources over time to better utilize available resources. We present a tool that can help customers make informed decisions about which approach works most efficiently for their workloads in aggregate and for each workload separately. A case study using data from an enterprise customer with 312 workloads demonstrates the use of the tool. It shows that for the given set of workloads the t-shirt model

requires almost twice the number of physical servers as the time sharing model. The costs for such infrastructure must ultimately be passed on to the customer in terms of monetary costs or performance risks. We conclude that private and public clouds should consider offering both sharing models to meet the needs of customers.

JERRY ROLIA is a Principal Scientist in HP Labs Services and Solutions Lab. He has been with HP Labs since 1999. Jerry has contributed technologies to HP products including Utility Data Center, Capacity Advisor, Insight Dynamics, and Service Health Optimizer. Prior to joining HP Labs he was an Associate Professor in the department of Systems and Computer Engineering at Carleton University in Ottawa. He received his Ph.D. from the University of Toronto in 1992. Jerry was co-General Chair for the ACM/SPEC International Conference on Performance Engineering held in Boston in April 2012. His interests include cloud computing, performance engineering, and applications of information technology in healthcare.