

## BASIC INFORMATION ON SUB-PROJECT

NAME OF PROGRAMME/FUND	Scholarship Fund - Sciex NMS <sup>ch</sup>
RESEARCH FIELD AND OTHER RESEARCH FIELDS INVOLVED (if applicable)	Engineering Sciences
TITLE OF THE SUB-PROJECT	WORKLoad analysis and consolidation for Datacenters (WORLD)
REGION OF THE CZECH REPUBLIC (according to the location of the home institution)	Prague
GRANT AMOUNT SPENT	96 007,00 CHF
INTERMEDIATE BODY	Swissuniversities
HOME INSTITUTION	Charles University in Prague, Faculty of Mathematics and Physics
HOST INSTITUTION	Università della Svizzera italiana (USI), Faculty of Informatics
NAME OF THE FELLOW	Andrej Podzimek

	<p>Datacenters are becoming a standard IT solution due to their great potential in reducing operational costs and management overheads. Datacenters rely on virtualization technologies that enable resources to be multiplexed and shared among a large number of applications. Managing a large amount of resources under highly dynamic workloads efficiently is no mean feat, especially when aiming at achieving multiple performance objectives, such as system efficiency and short application response times. In the WORLD project we will develop novel workload management tools, which will dynamically consolidate applications in datacenters so that the best trade-off between systems' and applications' performance goals is achieved and sustained in a dynamic environment where hardware, applications, and load vary over time. To this end, we will first develop a novel workload synthesizer tool based on inproduction datacenter load traces. Next we will develop an autonomic performance predictor and optimizer, which will not only capture performance interference of colocated applications in shared systems, but also optimize the consolidation of applications at runtime for a given system. For an experimental evaluation, we will leverage the Datacenter Observatory, an environment to conduct distributed system experiments. The results of the WORLD project will improve overall datacenter efficiency by avoiding expensive over-provisioning, and application reliability and performance by providing an optimal execution environment.</p>
<p><b>DATE OF REALISATION OF THE FELLOWSHIP</b></p>	<p>1.5.2013 - 31.10.2014</p>
<p><b>MORE INFORMATION ON THE PROGRAMME</b></p>	<p><a href="http://www.sciex.ch">www.sciex.ch</a></p>