

# MSc thesis defense presentation

## Christos-Aleksandros Psomas defends his MSc thesis

<b>Date:</b>	Wednesday, 20 Aug 2014
<b>Thesis title:</b>	<a href="#">Strategyproof Allocation of Multidimensional Tasks on Clusters</a>
<b>Committee:</b>	<ul style="list-style-type: none"><li>• <a href="#">Evangelos Markakis</a></li><li>• <a href="#">Aristeidis T. Pagourtzis</a></li><li>• <a href="#">Efstathios Zachos</a></li></ul>

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### Thesis abstract

The present thesis focuses on the problem of fair resource allocation in a system containing multiple machines with multiple resources each. The users have heterogeneous demands and Leontief preferences, i.e. demand resources in fixed proportions. Resource allocation is a key issue in the design of cloud computing systems. Traditional solutions, like max-min fairness per resource don't work well in this multi resource setting. Furthermore, efficiency and fairness are not the only issues here; the designer must take into account the users' incentives. In the past couple of years this problem has received a lot of attention from the algorithmic game theory community. We review some of the most important results related to multi-resource allocation, starting from the work of Ghodsi et al ([7]) that studied the problem on a single machine setting with fractional tasks. We then move on to the indivisible tasks on a single machine case, studied by Parkes et al ([13]). Finally we discuss the work of Friedman et al ([4]) that studies the problem of executing indivisible, containerized tasks on a multiple machine setting.

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