We thank all reviewers for their remarks.

First, we would like to emphasize that our paper is clearly a prospective vision of how the next generation of utility computing paradigm should be designed and hence cannot be considered as a regular paper.

Regarding the article structure, we divided in two parts. The first one aims at motivating why a new generation of UC is mandatory by highlighting the intrinsic limitations of the cloud-computing paradigm. The second one identifies scientific and technical challenges that should be addressed to deliver the Locality UC Operating System, a system in charge of operating widely distributed computing resources. We believe such a structure follows the indications mentioned in the big-idea CFP: motivation for the new idea and major questions that need to be addressed. We agree that some of the issues such as for instance guaranteeing the validity of overlays have been already addressed in other communities (cloud or P2P) while others are too shortly discussed. However we wanted to identify most of the mechanisms that will compose a LUC OS. It might be possible to highlight which issues are really scientific challenges from the ones that are more engineering concerns in a final version of the document.

Regarding the ultimate target, i.e. the DISCOVERY infrastructure, a global LUC platform leveraging major network companies/institutions, we agree that operating it will raise important questions. However, a first step can be to operate single administrative networks. This will prevent several issues such as the legal representative of a particular LUC platform or the validity of the resources composing the infrastructure. RENATER, the French national research and education network that is discussed in the article is such a candidate. Large network operators such as Orange might be the following ones.

The final step will consist in connecting these different LUC systems. For this purpose, we believe that specific agreements such as the peering ones between network operators might be envisioned (we believe such issues are similar to the ones that led to the federation of the internet through the adoption of the TCP/IP model).

Regarding more specific points, the LUC OS will provide dynamic VM scheduling strategies leveraging the DVMS proposal as indicated in the paper. Such strategies may be easily extended to ensure fairness or to favor a particular user according to specific criterions (gold vs. silver vs. normal users). Updating the code of each LUC agent to consider for instance new API extensions is indeed an issue that we did not discussed in the paper. However, we believe that the event model that is used to build the LUC OS can solve the issue: when the invocation of a call failed, the agent can contact a specific repository to update its code.

Finally, we agree that operating several mini-clouds may look less efficient than well-optimized data centers. However as mentioned in the paper, such large infrastructures does not easily enable to leverage renewable energy (like the Rutgers parasol datacenter does) while delivering themselves a source of heat for our society.

V2:

We thank all reviewers for their remarks.

Through this rebuttal, we would like to emphasize that our paper is clearly a prospective vision of how the next generation of utility computing paradigm should be designed and hence cannot be considered as a regular paper.

Regarding the article structure, we divided in two main parts. The first one aims at motivating why a new generation of UC is mandatory by highlighting the intrinsic limitations of the cloud-computing paradigm. The second one identifies scientific and technical challenges that should be addressed in order to deliver the Locality UC Operating System, a system in charge of operating widely distributed computing resources. We believe such a structure follows the indications mentioned in the CFP for the big-ideas papers track: (i) motivation and vision of the idea and (ii) major questions that need to be addressed.

We agree that some of the challenges are too shortly discussed while other issues such as for instance guaranteeing the validity of overlays may look obvious since they have been already addressed in other communities (cloud or P2P). However, our goal was to provide an overview of most of the issues that should be considered in order to identify the mechanisms that will form the targeted LUC OS and show that such an integrated system can be achieved nowadays. It might be possible to highlight which issues are really scientific challenges from the ones that are more engineering concerns in a final version of the document.