To accommodate the ever-increasing demand for Utility Computing (UC) resources, while taking into account both energy and economical issues, the current trend consists in building larger and larger data centers in a few strategic locations. Although such an approach enables to cope with the actual demand while continuing to operate UC resources through centralized software system, it is far from delivering sustainable and efficient UC infrastructures.

We claim that a disruptive change in UC infrastructures is required: UC resources should be managed differently, considering locality as a primary concern. We propose to leverage any facilities available through the Internet in order to deliver widely distributed UC platforms that can better match the geographical dispersal of users as well as the unending demand. Critical to the emergence of such locality-based UC (LUC) platforms is the availability of appropriate operating mechanisms. In this paper, we advocate the implementation of a unified system driving the use of resources at an unprecedented scale by turning a complex and diverse infrastructure into a collection of abstracted computing facilities that is both easy to operate and reliable. By deploying and using such a LUC Operating System on backbones, our ultimate vision is to make possible to host/operate a large part of the Internet by its internal structure itself: A scalable and nearly infinite set of resources delivered by any computing facilities forming the Internet, starting from the larger hubs operated by ISPs, government and academic institutions to any idle resources that may be provided by end-users.

Unlike previous researches on distributed operating systems, we propose to consider virtual machines (VMs) instead of processes as the basic element. System virtualization offers several capabilities that increase the flexibility of resources management, allowing to investigate novel decentralized schemes