



## FACULTAD DE INFORMÁTICA

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To Whom It May Concern:

I am writing to express my enthusiastic support for the proposal entitled UBIVERTEX submitted by Dr. Frédéric Desprez to the "Grand Emprunt" National Loan of the French Government.

The recommendation that follows is based on my qualifications and research experience in the area of advanced distributed computing and virtualization technologies. I have 20 years of experience in research and development of advanced distributed computing and virtualization technologies, architecture of large-scale distributed infrastructures and resource provisioning platforms, and management of international projects and initiatives on Grid and Cloud Computing; having led the research group in tens of sponsored projects and contracts, published more than 150 scientific papers in the leading journals and proceedings books, and participated in the program committee of several yearly-celebrated workshops and conferences.

One of the technology projects under development by my research group is OpenNebula, which is being funded by several Spanish grants and European projects (RESERVOIR, BonFIRE, StratusLab and 4CaaSt). OpenNebula is an open source engine for data center virtualization and cloud solutions that enables the dynamic allocation of virtual machines on a pool of physical resources. The UBIVERTEX platform will enable leading research on private cloud computing and help validate technologies on large-scale systems. Its capacity to control physical machines, storage devices and network facilities will enable us to perform experiments to address the main open challenges in private cloud computing.

In summary, I believe that the proposal UBIVERTEX could make significant contributions to the field of innovative platforms to study tomorrow IT system. I look forward to collaborating, where appropriate, on its execution and application. For this reason, I strongly endorse his project. Please do not hesitate to contact me if I can provide additional information.

Sincerely yours

Ignacio M. Llorente

Full Professor, Head of Research Group, Universidad Complutense de Madrid