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Cloud Computing

Vogel *et al*. have compared three distinct cloud-based implementations of infrastructure as a service (IaaS). Their objective is to contrast these implementations in terms of such putatively measurable, albeit arguably somewhat vague, criteria as flexibility and resiliency. One is troubled from the outset by the fact that the authors possess a weak understanding of the implementations of these three services (OpenNebula, OpenStack, and CloudStack). They first indicate that OpenNebula is "designed to work with driver concept" despite the fact that the only relevance of drivers is in their subjacency to the TCP and UDP socket layer, which is entirely independent of OpenNebula. They next address the "stacks of services" proffered by OpenStack while failing to note that a properly architected union of services would be packaged as one stack, not a series thereof. Finally, they assert that CloudStack is "built on stacks of services" but fail to precisely characterize what distinguishes a 'service' from a 'component'. Despite all their muddled talk of APIs, they overlook the essential criticism that seems to baffle anyone who wasn't alive in 1977: that NFS achieved all of this, far more cleanly if less powerfully, and the only API that one needed was *open()*.

The experiments that the authors conducted in order to comparatively assess the three solutions are similarly ill-conceived. Indeed, without a stronger understanding of their respective architectures, one cannot begin to surmise to what extent their performance on "intensive workloads" is a function of the underlying kernel or hypervisor, nor can one predict exactly where the processing that underlies the "scientific applications" actually transpires. The resultant assessments about 'flexibility' and 'resiliency' therefore bear little semantic significance.

The paper would have benefited significantly from having a team of authors that actually possessed hands-on experience building kernels, communication stacks, and APIs designed to interface thereto, and whose command of "cloud architectures" transcended the ability to draw the most elementary "layer cake" diagram. Without the benefit of palpable experience in that regard, the study is of diminished relevance.

Works Cited

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