Critiquer#3: Naresh Sukumar
Paper: “Enforcing Performance Isolation Across Virtual Machines in Xen”
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In current computer systems, several operating systems can be run simultaneously on a single system using Virtual Machines like in Xen. Though Xen can allocate fixed shares of CPU among the competing VMs, it does not currently account for work done on behalf of individual VMs in device drivers. This paper proposes techniques to enforce performance isolation across the virtual machines so that all VMs can observe performance guarantees or Service Level Agreements.

**Strengths of the paper:**
1) To the author’s credit, they have completed a full implementation of their proposal and have run their tests on the actual system than just doing simulations.
2) The paper describes two good techniques for enforcing performance isolation between the VMs. The authors discuss the benefits of the two implementations and discuss the scenarios where one might be preferred over the other.
   a. Share Guard – controlled management of resource allocation between VMs.
   b. SEDF-DC - Improving CPU performance at the cost of maybe increased power consumption.
3) The authors have provided sufficient data and groundwork to go towards an implementation that is a balance of both SEDF-DC and Share Guard techniques.

**Weaknesses of the paper:**
1) The paper does not explain much about what happens when a VM does not have sufficient task to perform during a time slice. Maybe some insights into dynamic resizing of the time slices based on the activity of each VM, would have been helpful.
2) Again, for cases where the time slices are wasted with the VM having nothing to do, a “sleep/wake” policy might have improved cpu utilization and helped reduce power consumption.
3) Since the virtual machine is aimed at replacing dedicated servers, power consumption will be an issue. But the paper has not provided any details about power consumption improvement/degradation on using the proposed techniques.