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Title of Paper - Proactive Fault Tolerance for HPC with Xen Virtualization

Paper is about –
The paper addresses one of the major problems faced by the high performance computing systems. The paper proposes preventive measures to improve the performance of the high performance computing systems along with the prevailing reactive techniques. Preventive fault tolerance is based on the health monitoring carried out in the HPC system using the virtualization methods available.

Strengths of the paper-
1. The PFT scheme introduced by the authors is complementary with the existing reactive FT scheme, hence the deployment or integration of new scheme is very easy.

2. The overhead of the PFT scheme is much smaller than the reactive scheme, hence the penalty introduced by the combination of the two schemes falls down dramatically.

Weaknesses of the paper-
1. Node failures are predicted based on the health stats and this prediction needs to consider other stats in the system so that it is more comprehensive.

2. Baseboard Management Controller increases the total cost of the system and if the system is not large enough then it won't be a cost-effective investment.

3. The experimental set-up used by authors is very narrow and is not generalized case. Instead of using only the AMD opteron nodes they should have used a mixture of nodes with varied health stats.

4. The technique introduced in the paper involves peculiar modifications in the operating system such as the modification in the OS to support migration based on health monitoring flags etc. which is a very tedious modification.

5. Overheads associated with the PFT are not explained clearly in light of different benchmarks. This may have led to aberrant or misleading results.