Writing UMT Pavilion configs for Crossroads Acceptance Testing

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Before a new high performance computing system is installed, the vendor provides a report for the new system. This report contains the specifications of the new system such as flops, performance, power consumption, cache storage, bandwidth etc. These specifications do not include performance metrics of real-world applications. The testing applications the vendors use are not a good measure of performance metrics as their applications are optimized for the new specific architecture. Usage of real-world applications allows us to compare the performance metrics of the new system with the current system. Ensuring that these applications perform efficiently and satisfies the requirements of the specifications is called acceptance testing. Several simulation and benchmark applications are developed for the upcoming crossroads acceptance testing that represent workloads of all the national labs. One of these simulations is the Unstructured Mesh Transport (UMT) application. UMT is an Advanced Simulation and Computing (ASC) proxy application developed by Lawrence Livermore National Laboratory that solves a thermal radiative transport equation using discrete ordinates. To perform this simulation on Crossroads, we need to build UMT using Pavilion. Pavilion is a framework to run and analyze tests targeted for HPC systems. Once the UMT is built using Pavilion, we can modify the number of nodes and tasks per node to run the simulation on; this will provide us with metrics that we can compare to our current system as well as defined testing specifications.