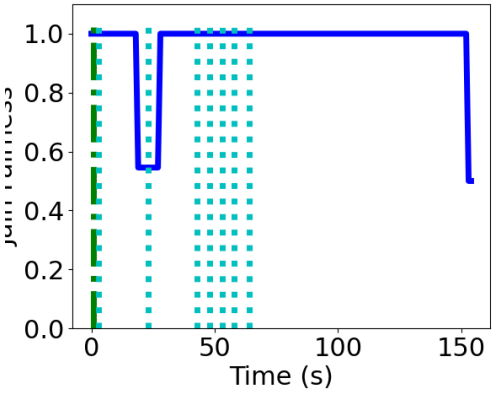
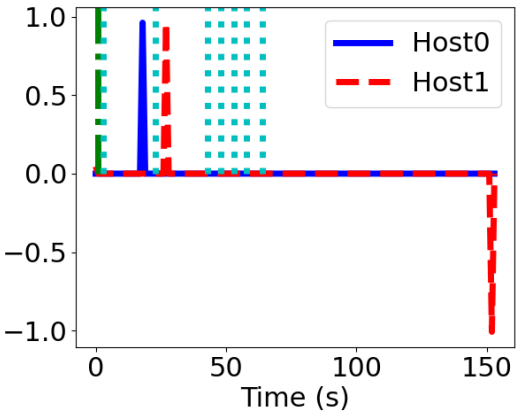
Alpha = 0.1

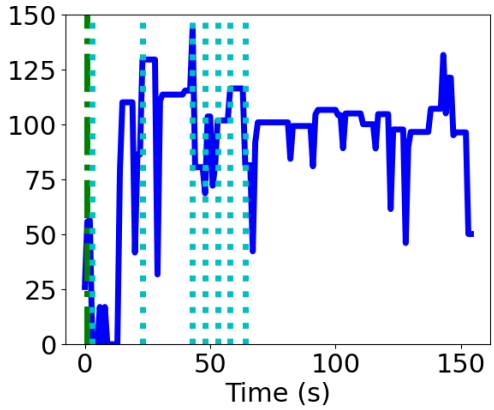
Fairness



Smoothness

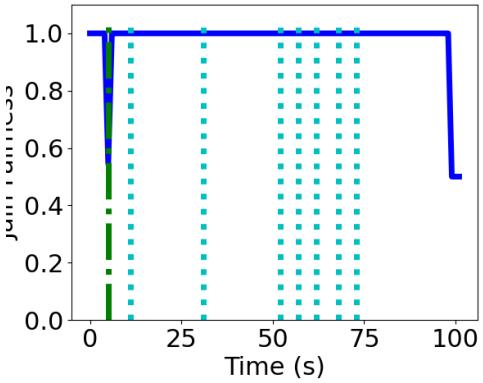


Utilization

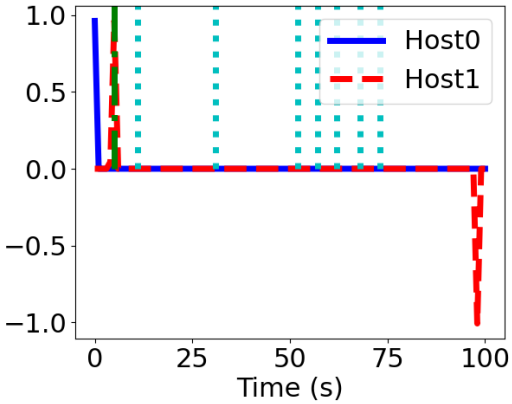


Alpha 0.5

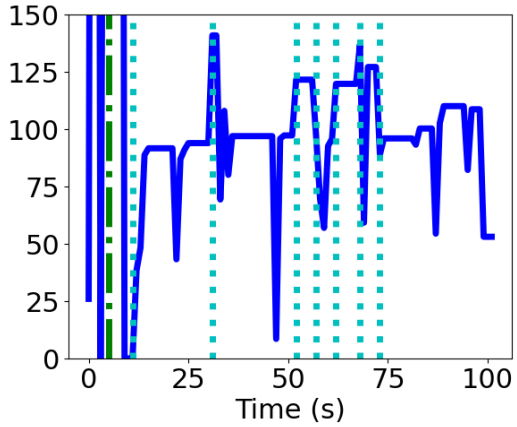
Fairness



Smoothness

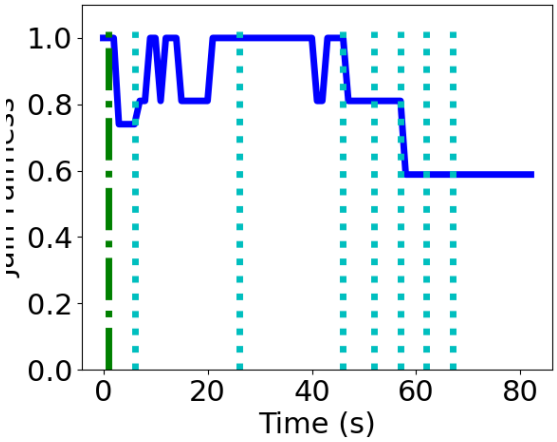


Utilization

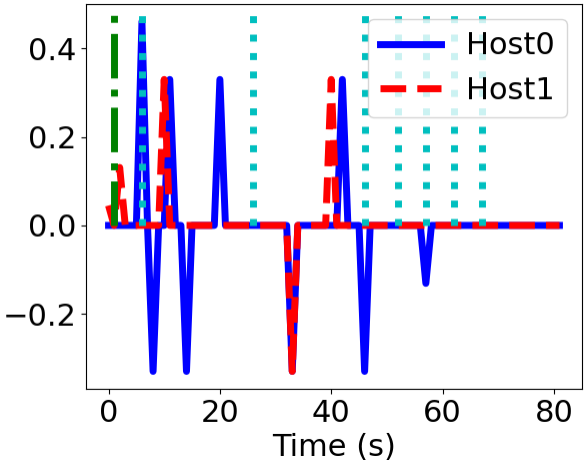


Alpha 0.9

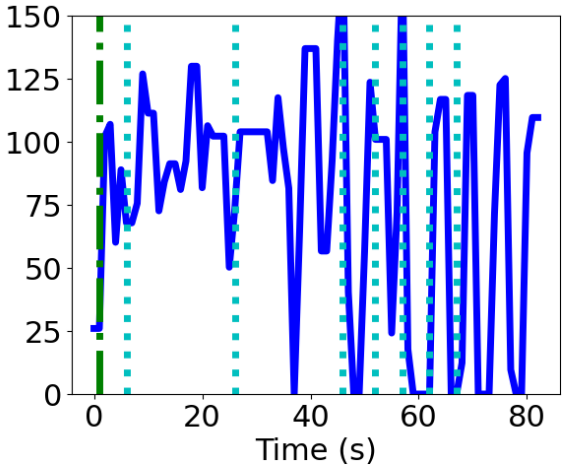
Fairness



Smoothness



Utilization



Discussion: According to EWMA, alpha represents the degree of weighting decrease and is a smoothing factor. When alpha is small, it is less sensitive to the changes in the throughput, so the jumps in the utilization is not really big. As alpha increases, it becomes more sensitive to the changes in throughput and thus the utilization has more jumps. For example, when alpha=0.9, in this case when throughput change from a high number to a low number, the throughput calculated by the EWMA formula is really big which causes the utilization goes above 100. But for small value alphas, this situation happens less frequent. For fairness, alpha0.5 has the best performance because it stays at 1 for most of times. For smoothness, alpha0.5 has the best performance because both hosts have smooth graph. For utilization, alpha0.5 is close to 100% and thus alpha0.5 has the highest average utilization. From those graphs, we can conclude that as alpha increases, the utilization, fairness and smoothness will also increase until alpha reaches to a threshold, in this case 0.5, then increasing alpha will lead decease the utilization, fairness and smoothness. This makes sense because the higher the smoothing factor is, the more sensitive the system will be.