Experiment design

Goal:

Answer the question: When two adaptive streaming players competing for a single bottleneck, what will the traffic pattern and requested bitrate be like?

System:

TCP/IP network with two client hosts each hosting an adaptive streaming player connected to the same server host through a router, with bandwidth of the bottleneck link from server to router being 1.6Mbps.

Metric:

1. The instability metric, denoted by θ, is the fraction of successive chunk requests by a player in which the requested bitrate does not remain constant.
2. The unfairness metric (for two players) is the average of the absolute bitrate differences between the corresponding chunks requested by each player.

3. The utilization metric is defined as the aggregate throughput during an experiment divided by the avail-bw in that experiment.

Parameter:

Algorithm used by the adaptive streaming players be the same, steady state buffer threshold set to 10 seconds, running average parameter set to 0.8 on itself.

Factors and factor levels:

None

Workload:  
Closed loop, each player will send video packets whose resolution is determined by the algorithm used in the player, all players always have packets to send.