**UMAC Modelling**

1. Maintain an array which contains the number of packets sent to LMAC queue for the particular app.

2. We have the app start time, app stop time, packets/sample rate (by converting from mbps), and total packets already sent to LMAC at any particular sample.

3. Using the above info we can get the number of packets available for us to send to lmac at any particular sample.

Example: rate = 2 packets /5 samples, start = 161, stop = 176

**After every 5 samples we will have 2 packets available**

Suppose we are at sample 173

Number of packets available = 2 (generated at sample 166) + 2 (generated at sample 171) = 4

Out of these if packets already sent are 1(stored in the array) then we can send 3 to LMAC.

Run time reduced to 2 hours for 1/3 of dataset after this + a few more optimizations

**Simulation Scenario**

Average load = 23.33mbps

10 STA- 6 MLO, 4 SLO

STA associated from 3-6 minutes

4 stas (2 mlo , 1 slo -2.4ghz, 1 slo-5ghz) stay associated for whole simulation duration and each has a long lasting flow of 40mbps.

Rest flows are between 10-25 (but mostly on the higher end)

**Throughput calculations for STAs**

**->**STA remains associated till all packets are transmitted even if apps corresponding to it stop generating traffic.

Throughput = total bits transmitted / time duration

Time duration = time at which sta **received the last packet** – time it associated first packet.

Mcaa 120 4

M 150 6

Or should it be **total simulation time (if sta is still associated) – time it associated.**

**Results**

**->**Our algo performs like SLCI at high occupancies.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **SLO STA TH** | **SLO INTERFACE ONE** | **SLO INTERFACE TWO** |
| Our Algo | **45.09** | **8.8** | **36.29** |
| MLSA Dynamic | **68.39** | **5.16** | **63.23** |
| SLCI | **45.02** | **8.8** | **36.22** |
| MLSA | **79.21** | **3.35** | **75.863** |
| MCAA | **57.4** | **9.4** | **48.56** |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **MLO TH** | **MLO INTERFACE ONE TH** | **MLO INTERFACE TWO TH** |
| Our Algo | **94.78** | **0.0013** | **94.78** |
| MLSA Dynamic | **94.14** | **2.95** | **91.18** |
| SLCI | **94.78** | **0** | **94.78** |
| MLSA | **74.91** | **4.07** | **70.83** |
| MCAA | **95.19** | **0.97** | **94.16** |

MLO load assigned by MLSA is more on interface one as compared to our algo hence more space for SLO operating on interface two. SLO throughput increases because of increase in SLO throughput interface two.

6000000

2918221.09387804

124790.540026463

389860.334787783

29074.8462956806

350524.986283125

23384.4933962634

0

95932.6638032587

29248.8802750724

32300.2430402884

**20-140**

**CLASSROOM SCENARIO**

Requirements

Send req for 20 objects, Request size 300-700bytes, Response size 500-900 bytes. Bulk 5MB file.

Done till now:

1. For two TCP streams installed to http clients(Utkrisht had installed one http server/client and had also written the code for collection of http stats)

2. mean request size of first app = 328, mean request size of second app 328\*2 = 656

3. Response size = 700 bytes for both embedded and main objects.

4. Bulk 5mb

Not sure how to limit background download **to 100 objects?**

When to stop simulation- when **5mb file is downloaded or** when simulation time gets over? Timing of apps?

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