

Wireless Networks

Assignment-3

Submitted By

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Part A

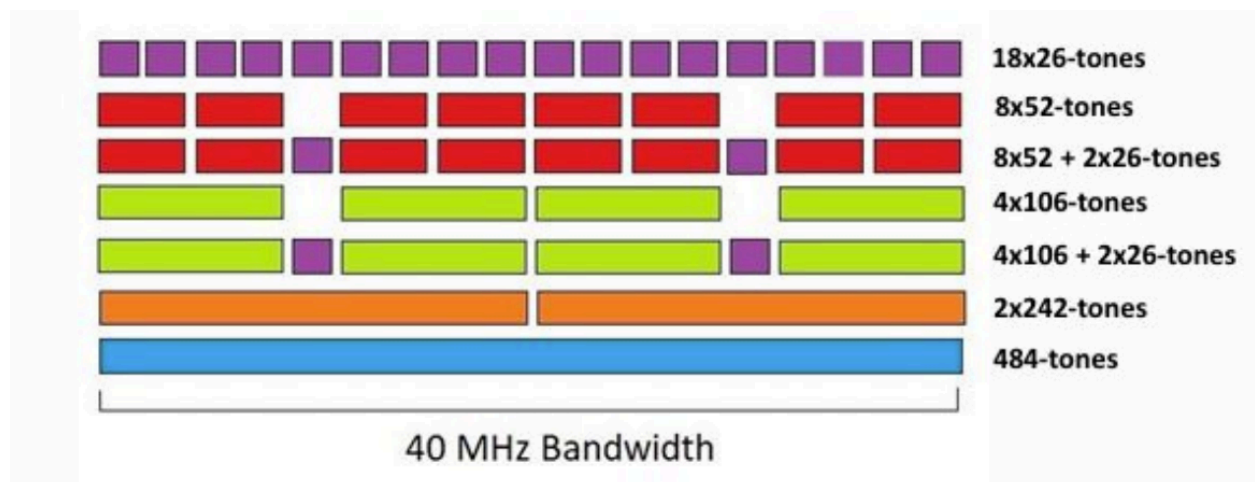
Calculated the collision percentage using callback functions. For the given setup, it averaged at around 5%

Part B

Added the avg response time again using callback functions, toggled on dl ofdma using spectrum phy, 802.11ax and the round robin multischeduler. Collision percentage fell near 1-2% and the response time was somewhere around 40 secs.

Part-C

Tried multiple RU configs mentioned in the tutorial



```
2x242 Tones
Collision Percentage: 1.41906%
Average Response Time: 38.693 microseconds
4x106 Tones
Collision Percentage: 1.48141%
Average Response Time: 39.1917 microseconds
4x106 + Central 26 Tones
Collision Percentage: 1.48597%
Average Response Time: 39.3577 microseconds
8x52 Tones
Collision Percentage: 1.46571%
Average Response Time: 39.4103 microseconds
18x26 Tones
Collision Percentage: 1.48264%
Average Response Time: 39.2909 microseconds
```

The best config was 2x242, took the least time and the least collision percentage.

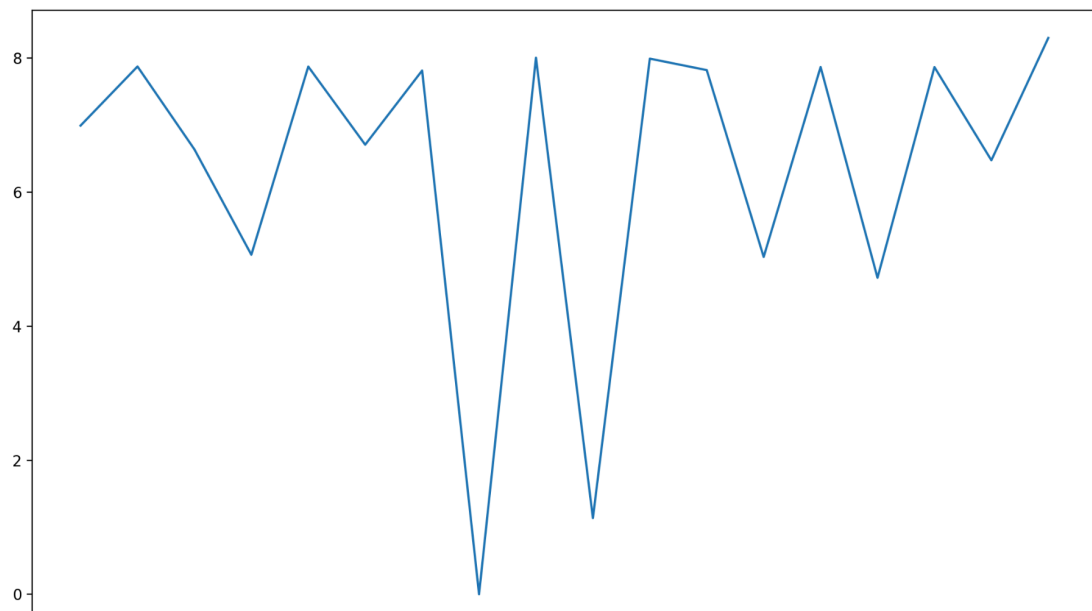
Part-D

Checked this out with UL OFDMA and BSRP turned on, which increased the response time but reduced the collision percentage.

```
2x242 Tones
Collision Percentage: 1.06397%
Average Response Time: 49.3203 microseconds
4x106 Tones
Collision Percentage: 1.1523%
Average Response Time: 48.7125 microseconds
4x106 + Central 26 Tones
Collision Percentage: 1.23557%
Average Response Time: 48.2747 microseconds
8x52 Tones
Collision Percentage: 1.30132%
Average Response Time: 48.0518 microseconds
18x26 Tones
Collision Percentage: 1.29769%
Average Response Time: 49.065 microseconds
```

Started a simultaneous upload from the nodes to the

server using an OnOffApplication, which slowed down the downloading process a fair bit, as is seen here.



Part D