**COMPARISON BETWEEN APPS IN FOREGROUND AND BACKGROUND USING CDF GRAPH**

X axis denotes the interdelay of Uplink/Downlink in graph

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| Facebook audio call in foreground Torrent download in background on MI phone  (Downlink Graph) | Facebook audio call in background Torrent download in foreground on MI phone  (Downlink Graph) |
| Throughput: 4495 bytes/sec | Throughput: 2251 bytes/sec |
| Average delay: 0.036 sec  Std Dev: 0.024(This was derived from scattered plot not from cdf plot) | Average delay: 0.058 sec  Std Dev: 0.037(This was derived from scattered plot not from cdf plot) |
| **Observation:**   * The number of packets received when audio call went in background(160 packets) were much less than audio call in foreground(250 packets) | |

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| Facebook audio call in foreground Torrent download in background on MI phone  (Uplink Graph) | Facebook audio call in background Torrent download in foreground on MI phone  (Uplink Graph) |
| Throughput: 1192.5 bytes/sec | Throughput: 3856 bytes/sec |
| Average delay: 0.135 sec  Std Dev: 0.098(This was derived from scattered plot not from cdf plot) | Average delay: 0.055 sec  Std Dev: 0.026(This was derived from scattered plot not from cdf plot) |
| **Observation:** The number of packets sent when audio call went in background(165 packets) increased than audio call in foreground(65 packets) | |

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| Hangouts audio call in foreground Torrent download in background on MI phone  (Downlink Graph) | Hangouts audio call in background Torrent download in foreground on MI phone  (Downlink Graph) |
| Throughput: 1514 bytes/sec | Throughput: 2195 bytes/sec |
| Average delay: 0.087 sec  Std Dev: 0.122(This was derived from scattered plot not from cdf plot) | Average delay: 0.067 sec  Std Dev: 0.105(This was derived from scattered plot not from cdf plot) |
| **Observation:** The number of packets received when audio call went in background(135 packets) increased than audio call in foreground(100 packets) | |

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| Hangouts audio call in foreground Torrent download in background on MI phone  (Uplink Graph) | Hangouts audio call in background Torrent download in foreground on MI phone  (Uplink Graph) |
| Throughput: 7625 bytes/sec | Throughput: 9014 bytes/sec |
| Average delay: 0.019 sec  Std Dev: 0.006(This was derived from scattered plot not from cdf plot) | Average delay: 0.019 sec  Std dev: 0.047(This was derived from scattered plot not from cdf plot) |
| **Observation:** The number of packets sent when audio call went in background(490 packets) increased than audio call in foreground(400 packets) | |

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| Facebook audio call in foreground Torrent download in background on MotoG phone  (Downlink Graph) | Facebook audio call in background Torrent download in foreground on MotoG phone  (Downlink Graph) |
| Throughput: 6888 bytes/sec | Throughput: 6124 bytes/sec |
| Average delay: 0.028 sec  Std Dev: 0.011(This was derived from scattered plot not from cdf plot) | Average delay: 0.030 sec  Std Dev: 0.016(This was derived from scattered plot not from cdf plot) |
| **Observation:** The number of packets received when audio call went in background(300 packets) decreased than audio call in foreground(320 packets). | |

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| Facebook audio call in foreground Torrent download in background on MotoG phone  (Uplink Graph) | Facebook audio call in background Torrent download in foreground on MotoG phone  (Uplink Graph) |
| Throughput: 2017 bytes/sec | Throughput: 910 bytes/sec |
| Average delay: 0.081 sec  Std Dev: 0.068(This was derived from scattered plot not from cdf plot) | Average delay: 0.138 sec  Std Dev: 0.421(This was derived from scattered plot not from cdf plot) |
| **Observation:** The number of packets sent when audio call went in background (60 packets) decreased than audio call in foreground(115 packets). | |

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| Hangouts audio call in foreground; Torrent download in background on MotoG phone  (Downlink Graph) | Hangouts audio call in background; Torrent download in foreground on MotoG phone  (Downlink Graph) |
| Throughput: 9207bytes/sec | Throughput: 6374 bytes/sec |
| Average delay: 0.019 sec  Std Dev: 0.004(This was derived from scattered plot not from cdf plot) | Average delay: 0.027sec  Std Dev: 0.053(This was derived from scattered plot not from cdf plot) |
| **Observation:** The number of packets received when audio call went in background(350 packets) decreased than audio call in foreground(500 packets). | |

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| Hangouts audio call in foreground; Torrent download in background on MotoG phone  (Uplink Graph) | Hangouts audio call in background; Torrent download in foreground on MotoG phone  (Uplink Graph) |
| Throughput: 740 bytes/sec | Throughput: 763 bytes/sec |
| Average delay: 0.142 sec  Std Dev: 0.300(This was derived from scattered plot not from cdf plot) | Average delay: 0.130 sec  Std Dev: 0.139(This was derived from scattered plot not from cdf plot) |
| **Observation:** The number of packets sent when audio call went in background(66 packets) almost remained the same as in audio call in foreground(63 packets). | |

**OBSERVATION TABLE**

* All this stats is of the video call i.e downlink/uplink packets of video call and interdelay of downlink/uplink packets of video call

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| Phone | Foreground | Background | No of Downlink Packets  (Increase/  Decrease)  with respect to when audio call was in foreground | No of Uplink Packets  (Increase/  Decrease) with respect to when audio call was in foreground | Downlink Interdelay  (Increase/  Decrease) with respect to when audio call was in foreground | Uplink Interdelay  (Increase/  Decrease) with respect to when audio call was in foreground |
| MI | Torrent | FaceBook  Audio call | Decreased | Increased | Increased | Decreased |
| MI | Torrent | Hangouts  Audio call | Increased | Increased | Decreased | Almost same |
| Motorola | Torrent | FaceBook  Audio call | Decreased | Decreased | Increased | Decreased |
| Motorola | Torrent | Hangouts  Audio call | Decreased | Almost Same | Increased | Decreased |

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| Phone | Foreground | Background | No of Downlink Packets  (Increase/  Decrease)  with respect to when audio call was in foreground | No of Uplink Packets  (Increase/  Decrease) with respect to when audio call was in foreground | Downlink Interdelay  (Increase/  Decrease) with respect to when audio call was in foreground | Uplink Interdelay  (Increase/  Decrease) with respect to when audio call was in foreground |
| MI | Torrent | FaceBook  Audio call | ↓ | ↑ | ↑ | ↓ |
| MI | Torrent | Hangouts  Audio call | ↑ | ↑ | ↓ | Almost same |
| Motorola | Torrent | FaceBook  Audio call | ↓ | ↓ | ↑ | ↓ |
| Motorola | Torrent | Hangouts  Audio call | ↓ | Almost Same | ↑ | ↓ |