# User cases categories

1. The use cases in 15-20-0213-03-016t-ieee-802-16t-use-cases [1] and in the table added to the draft SRD [2] can be classified into 3 categories by end user throughput:
   1. Low throughput: end user throughput < 1 kb/s. 21 out of 44 use cases in [1] and 14 out of 15 in [2].
   2. Medium throughput: 1 kb/s < end user throughput < 10 kb/s. 12 out of 46 use cases in [1] and 1 out of 15 in [2].
   3. High throughput: end user throughput > 10 kb/s. 11 out of 46 use cases in [1].
2. Questions regarding some use cases in [1] with relatively high throughput requirements:
   1. Point-to-Point Analog Data Circuit replacement (use case #4). Does this really need a throughput of 1 Mb/s?
   2. AMI (use case #7 in [1]. Is the 250 kb/s required for a single endpoint? Is this peak or average throughput requirement?
   3. Distribution Sub Metering (use case #11 in [1]). Is the 250 kb/s required for a single endpoint? Is this peak or average throughput requirement?
   4. Substation communication (use case #17): This use case may not be the best fit for ieee802.16t.
   5. Point-to-Point IP Backhaul (use case #20 in [1]). This use case may not be the best fit for ieee802.16t.
   6. Pump Off Controller (use case # 21 in [1]). Is 150 kb/s peak or average throughput?
   7. Remote monitoring and systems mgmt with video for rail (use case #44).
   8. Bridge & infrastructure monitoring for rail (use case #47). Is 150 kb/s peak or average throughput.
3. With couple of exceptions, e.g., use cases #1 and #44, it seems most use cases describe the characteristics of existing applications.

1. Relatively good characterization is provided for the low and medium throughput categories while the high throughput category requirements are not as clear.

# Low- throughput use cases characteristics.

1. End user throughput < 1 kb/s. Given the periodicity characteristics, this seems to be a peak throughput, not average.
2. End to end latency: in most cases, not time sensitive. One use case requires end to end latency < 100 msec. Other use cases require end to end latency below 1 second or higher.
3. # of endpoints per base station: up to 150[[1]](#endnote-1)
4. Most use cases in this category are fixed but some are mobile.
5. Most use cases in this category are reverse asymmetrical but some are symmetrical, and some are asymmetrical. UL:DL ratio is in the range 90:10 to 10:90.

# Medium- throughput use cases characteristics.

1. 1 kb/s < end user throughput < 10 kb/s
2. End to end latency < 60 ms
3. End to end jitter < 20 ms
4. # of end points per sector < 60
5. Fixed and mobile use cases. Some of the use cases, require high speed support.
6. UL:DL ratio in the range 90:10 to 30:70

# High- throughput use cases characteristics.

TBD

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1. The number of endpoints per base station depends on the base station coverage which may be increased to reduce infrastructure cost. [↑](#endnote-ref-1)