

We Claim:

1. A method of reducing latency in communication of data packets, the method comprising the steps of:

receiving a data packet from a first device;

determining whether the addition of the data packet results in the current number of data packets stored in all data queues exceeds a global threshold limit;

if the addition of the data packet results in the number of data packets stored not exceeding the global threshold limit then

allocating the data packet to a queueing group based on a predetermined factor;

determining whether the addition of the data packets results in the number of data packets stored in the data queues of the allocated queueing group exceeds a local threshold limit;

if the addition of the data packet results in the number of data packets stored not exceeding the local threshold limit then

allocating the data packet to a data queue in the allocated queueing group based on the predetermined factor;

processing the data packets stored in each data queue of a queueing group.

where, if the addition of the data packet results in either the global threshold limit or the local threshold limit being exceeded, the first data packet from the longest data queue in an identified queueing group is dropped, the identified queueing group being a queueing group pointed to by a pointer in the case of the global threshold limit being exceeded and the identified queueing group by the allocated queueing group in the case of the local threshold limit being exceeded.

2. A method of reducing latency in communication of data packets according to claim 1, further including the step of calculating a hash value for the data packet and where the predetermined factor is the calculated hash value.

3. A method of reducing latency in communication of data packets according to any preceding claim, where the data queues operate on a first-in, first-out basis.
4. A method of reducing latency in communication of data packets according to any preceding claim, further including the step of updating the pointer to point to the next queueing group in a predetermined sequence when the addition of the data packet results in the global threshold limit being exceeded.
5. A method of reducing latency in communication of data packets according to any preceding claim, further comprising the step of associating each data queue with a reference table, the reference table including details of the length of the data queue and where the length of each data queue, as included in its associated reference table, are compared to determine the longest data queue in a queueing group.
6. A method of reducing latency in communication of data packets according to claim 5, where the reference table further includes details of the size of each data packets stored in the associated data queue.
7. A method of reducing latency in communication of data packets according to claim 6, further comprising the step of setting a debt value to an initial value and thereafter, following sequential processing of a data packet from a data queue, decrementing the debt value by the size of the processed data packet as stored in the reference table associated with that data queue and the step of ceasing processing of the data queues when the size of the next data packet to be processed is greater than the current debt value.
8. A method of reducing latency in communication of data packets according to any preceding claim, where a comparison between a global counter value and a predetermined global limit value determines whether the addition of the data packet results in the current number of data packets stored in all data queues exceeds a global threshold limit.

9. A method of reducing latency in communication of data packets according to any preceding claim, where a comparison between a local counter value and a predetermined local limit value determines whether the addition of the data packet results in the current number of data packets stored in the data queues of the allocated queueing group exceeds a local threshold limit.
10. A method of reducing latency in communication of data packets according to any preceding claim, where all the data packets of a data queue are processed before processing the data packets of any other data queue and the data queues of each queueing group are processed in accordance with a predetermined sequence.
11. A method of reducing latency in communication of data packets according to claim 9, where the predetermined sequence is in accordance with the time of establishment of each data queue.
12. A method of reducing latency in communication of data packets according to any preceding claim, where the global threshold limited is six thousand.
13. A method of reducing latency in communication of data packets according to any preceding claim, where the local threshold limit is updated either in real-time or periodically.
14. A method of reducing latency in communication of data packets according to any preceding claim, where the global threshold limit is updated either in real-time or periodically.
15. A method of reducing latency in communication of data packets according to any preceding claim, where the predetermined factor is one or more of the following: the time the data packet was sent; the time the data packet was received; a random value.
16. A method of reducing latency in communication of data packets according to any preceding claim, where the data packets are communicated wirelessly.

17. A communications device having a processing unit, communications system and memory, the processing unit, communications system and memory operable in combination to perform the method of reducing latency in communication of data packets according to any one of claims 1 to 16.
18. A method of retrofitting a communications device to perform a method of reducing latency in communication of data packets comprising the steps of:
- deleting or disabling at least some existing code directed to reducing latency of data packets stored on the firmware of the communications device;
 - transmitting to the communications device, in data form, code for performing the method of reducing latency in communication of data packets according to any one of claims 1 to 16; and
 - writing the transmitted code to the firmware of the communications device.
19. A memory storage device for retrofitting a communications device to perform a method of reducing latency in communication of data packets, the memory storage device having executable code stored thereon that, when processed by a processing unit, operates to perform the method of claim 18.