CLAIMS

1. A network entity (9) for managing data traffic routed via the network entity (9) in a communications system, the network entity (9) comprising a circuitry (10) configured to:

monitor at least the data traffic transmitted over a communication link (7a, 7b, 18); and

manage the monitored data traffic based on an output of a machine learning algorithm (13), the machine learning algorithm (13) being trained to predict at least one of a data capacity requirement and a quality of service depending on at least one of a user behavior, a data traffic pattern, a cost and a time occurrence.

2. The network entity (9) according to claim 1, wherein the circuitry (10) manages a link capacity of the communication link (7a, 7b, 18).

3. The network entity (9) according to claim 2, wherein the link capacity includes a bandwidth for the communication link (7a, 7b, 18).

4. The network entity (9) according to claim 2 or 3, wherein the circuitry (10) manages the link capacity based on a capacity pool.

5. The network entity (9) according to anyone of the previous claims, wherein the circuitry (10) manages equipment license assignments.

6. The network entity (9) according to claim 5, wherein the circuitry (10) manages the equipment license assignments based on a license pool.

7. The network entity (9) according to anyone of the previous claims, wherein the circuitry (10) is further configured to channel all data which is to be transmitted over the communication link (7a, 7b, 18) to a computing device (5a, 5b).

8. The network entity (9) according to claim 7, wherein the circuity (10) is further configured to compress the channeled data before transmission over the communication link (7a, 7b, 18); and/or~~.~~

~~9. The network entity (9) according to claim 7 or 8,~~ wherein the circuitry (10) is further configured to encrypt the channeled data before transmission over the communication link (7a, 7b, 18).

9~~10~~. The network entity (9) according to anyone of the previous claims, wherein the circuitry (10) manages data caching of a computing device (5a, 5b) by transmitting a cache indicator to the computing device (5a, 5b) which indicates whether the computing device (5a, 5b) should cache data for a predetermined time period before transmitting the data over the communication link (7a, 7b, 18).

10~~11~~. The network entity (9) according to claim 9~~10~~, wherein the cache indicator is specific for an application managed by the computing device (5a, 5b) and/or specific for a customer; and/or~~.~~

~~12. The network entity (9) according to claim 10 or 11,~~ wherein the cache indicator includes a time schedule when data should be cached; and/or~~.~~

~~13. The network entity (9) according to anyone of the claims 10 to 12,~~ wherein the cache indicator includes a time schedule for data synchronization over the communication link (7a, 7b, 18).

11~~14~~. The network entity (9) according to anyone of the previous claims, wherein the circuitry (10) manages the monitored data traffic over a satellite communication link (7a, 7b) by using an available terrestrial communication link (18); and/or~~.~~

~~15. The network entity (9) according to anyone of the previous claims,~~ wherein the output of the machine learning algorithm (13) is based on the monitored data traffic; and/or~~.~~

~~16. The network entity (9) according to anyone of the previous claims,~~ wherein the machine learning algorithm (13) is further trained to predict, based on the monitored data traffic, at least one of a congestion and a free capacity; and/or~~.~~

~~17. The network entity (9) to anyone of the previous claims,~~ wherein the output of the machine learning algorithm (13) is further based on a capacity pool and/or a license pool; and/or~~.~~

~~18. The network entity (9) according to anyone of the previous claims,~~ wherein the output of the machine learning algorithm (13) is further based on a current time and/or a current day and/or a current month; and/or~~.~~

~~19. The network entity (9) according to anyone of the previous claims,~~ wherein the output of the machine learning algorithm (13) is further based on a quality of service requirement; and/or~~.~~

~~20. The network entity (9) according to anyone of the previous claims,~~ wherein the output of the machine learning algorithm (13) is further based on a capacity request from a computing device (5a, 5b) utilizing the communication link (7a, 7b, 18); and/or~~.~~

~~21. The network entity (9) according to anyone of the previous claims,~~ wherein the output of the machine learning algorithm (13) is further based on a priority indicator, in particular~~.~~

~~22. The network entity (9) according to claim 21~~, wherein the priority indicator is application specific and/or customer specific; and/or~~.~~

~~23. The network entity (9) according to anyone of the previous claims,~~ wherein the output of the machine learning algorithm (13) is further based on transmission costs; and/or~~.~~

~~24. The network entity (9) according to anyone of the previous claims,~~ wherein the machine learning algorithm (13) is trained offline and/or trained, based on the monitored data traffic, during operation; and/or~~.~~

~~25. The network entity (9) according to anyone of the previous claims,~~ wherein the circuitry (10) is further configured to establish the communication link (7a, 7b, 18).

12~~26~~. A method (40, 60, 80, 100) for managing data traffic routed via a network entity in a communications system, the method (40, 60, 80, 100) comprising:

monitoring at least the data traffic transmitted over a communication link; and

managing the monitored data traffic based on an output of a machine learning algorithm, the machine learning algorithm being trained to predict at least one of a data capacity requirement and a quality of service depending on at least one of a user behavior, a data traffic pattern, a cost and a time occurrence.

13~~27~~. A satellite communications system, comprising:

a ground station (2) configured to establish a satellite communication link (7a, 7b) with a remote station (3a, 3b) via a satellite (4);

the remote station (3a, 3b) configured to transmit and receive data over the satellite communication link (7a, 7b); and

a network entity (9) configured to:

monitor at least the data traffic transmitted over the satellite communication link (7a, 7b),

manage the monitored data traffic based on an output of a machine learning algorithm (13), the machine learning algorithm (13) being trained to predict at least one of a data capacity requirement and a quality of service depending on at least one of a user behavior, a data traffic pattern, a cost and a time occurrence.

14~~28~~. A multi-technology communications system (1), comprising:

a central and a local communications equipment configured to transmit and receive data over a wireless or wireline communication link configured via software capacity licenses; and

a network entity (9) configured to:

monitor at least the data traffic transmitted over the wireless or wireline communication link,

manage the monitored data traffic based on an output of a machine learning algorithm, the machine learning algorithm being trained to predict at least one of a data capacity requirement and a quality of service depending on at least one of a user behavior, a data traffic pattern, a cost and a time occurrence.

15~~29~~. The multi-technology communications system (1) according to claim 14~~28~~, wherein the cost includes a service type cost and a cost of re-allocating capacity licenses dynamically across different communication technologies.

1630. The network entity (9) according to anyone of claims 1 to 1125, wherein the communication link (7a, 7b, 18) is a satellite communication link (7a, 7b) via a satellite (4), and wherein the circuitry (10) manages a beamforming configuration of the satellite (4).

1731. The network entity (9) according to claim 1630, wherein the machine learning algorithm (13) is further trained to estimate an optimized beamforming configuration of the satellite (4) depending on at least one of a location of an endpoint of the satellite communication link (7a, 7b), meteorological data, the predicted data capacity requirement and the predicted quality of service.

1832. The network entity (9) according to claim 1630 or 1731, wherein the circuitry (10) manages the beamforming configuration of the satellite (4) automatically or semi-automatically.

1933. The network entity (9) according to claim 1832, wherein the circuitry (10) is configured to request operator acknowledgment of the beamforming configuration for the satellite (4) when the beamforming configuration is managed semi-automatically.

2034. The network entity (9) according to anyone of claims 1731 to 1933, wherein the circuitry (10) is configured to determine, in response to a change of the beamforming configuration of the satellite (4), a difference between the predicted quality of service and a determined quality of service of the monitored data traffic, and wherein the machine learning algorithm (13) is trained based on the determined difference for improving the estimation of the optimized beamforming configuration of the satellite (4); and/or.

~~35. The network entity (9) according to anyone of claims 31 to 34,~~ wherein the machine learning algorithm (13) is trained to estimate the optimized beamforming configuration of the satellite (4) further depending on satellite operator configuration rules; and/or.

~~36. The network entity (9) according to anyone of claims 31 to 35,~~ wherein the circuitry (10) further manages a configuration of a ground station (2) and a remote station (3a, 3b) between which the satellite communication link (7a, 7b) is established, and wherein the machine learning algorithm (13) is further trained to estimate an optimized configuration of the ground station (2) and the remote station (3a), respectively.