

## Claims

1. Communications server apparatus for managing payloads for transport by a vehicle, comprising a processor and a memory, the communications server  
5 apparatus being configured, under control of the processor, to execute instructions in the memory to:
  - for a plurality of payloads of respective different payload categories, each payload category being associated with unique vehicle capability requirements,  
determine, for a first payload of a first payload category, a value of a first  
10 payload attribute parameter indicative of a first vehicle capability requirement;  
determine, for a second payload of a second payload category, a value of a second payload attribute parameter indicative of a second vehicle capability requirement;  
compare the values for the first and second payload attribute parameters  
15 with payload capability data associated with the vehicle, the comparison including comparing the value for the first payload attribute parameter with the value for the second payload attribute parameter; and  
use a comparison result to determine a capability of the vehicle to transport both the first and second payloads, including determining whether the first and  
20 second payloads are compatible with one another.
2. The communications server apparatus as claimed in Claim 1, wherein the apparatus is configured to: initially compare the value for the first payload attribute parameter with the payload capability data; and later compare the value for the  
25 second payload attribute parameter with the payload capability data.
3. The communications server apparatus as claimed in any preceding claim, wherein the first payload category comprises one of: passengers; cargo; and perishables.

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4. The communications server apparatus as claimed in Claim 3, wherein the first payload category comprises cargo, and wherein the first payload attribute parameter is one or more of: size; shape; weight; designated loading area; urgency; required temperature; and fragility.
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5. The communications server apparatus as claimed in Claim 3, wherein the first payload category comprises passengers, and wherein the first payload attribute parameter is one or more of: urgency; and required service level.
- 10 6. The communications server apparatus as claimed in Claim 3, wherein the first payload category comprises perishables, and wherein the first payload attribute parameter is one or more of: size; shape; weight; perishability; designated loading area; urgency; required temperature; and fragility.
- 15 7. The communications server apparatus as claimed in any preceding claim, wherein the payload capability data associated with the vehicle comprises one or more vehicle attribute parameter values corresponding to accommodation of respective payload attribute parameters.
- 20 8. The communications server apparatus as claimed in any preceding claim, wherein the apparatus is configured to use payload attribute parameter values and vehicle payload capability data to assign constraints to calculation of solutions for transporting the respective payloads.
- 25 9. The communications server apparatus as claimed in any preceding claim, wherein the apparatus is configured to compare the values for the first and second payload attribute parameters with payload capability data associated with the vehicle, during a trip of the vehicle.

10. The communications server apparatus as claimed in any preceding claim,  
wherein the apparatus is configured to obtain orders for transporting payloads,  
wherein a first order comprises at least the first payload and at least one first order  
location; and a second order comprises at least the second payload and at least one  
5 second order location.

11. The communications server apparatus as claimed in Claim 10, wherein at  
least the first order is obtained via a communications link to a communications  
device.

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12. The communications server apparatus as claimed in Claim 10 or Claim 11,  
wherein the apparatus is configured to compare the first and second order locations  
with location data associated with the vehicle.

13. The communications server apparatus as claimed in Claim 12, wherein the  
apparatus is configured to, during an order fulfilment trip of the vehicle: compare  
the values for the first and second payload attribute parameters with payload  
capability data associated with the vehicle; and compare the first and second order  
locations with location data associated with the vehicle.

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14. The communications server apparatus as claimed in any of the Claims 10 to  
13, wherein the apparatus is configured, at a preliminary stage preceding comparing  
the values for the first and second payload attribute parameters with payload  
capability data associated with the vehicle, to:

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preliminarily compare the first and second orders; and  
according to a result of the preliminary comparison, to proceed to compare  
the values for the first and second payload attribute parameters with payload  
capability data associated with the vehicle.

15. The communications server apparatus as claimed in Claim 14, wherein the apparatus is configured to, following preliminary comparison of the first and second orders, compare the first and second orders with an order assigned to the vehicle, during an order fulfilment trip of the vehicle.
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16. The communications server apparatus as claimed in Claim 15, wherein the apparatus is configured to:
- following comparison of the first and second orders with the order assigned to the vehicle, cluster a plurality of orders including the first and second orders; and
- 10        compare the first order with a third order determined to be at a minimum clustering distance from the first order.
17. The communications server apparatus as claimed in any preceding claim, wherein the apparatus is configured to: use the determined capability to generate a
- 15        fulfilment instruction for transmission to the vehicle.
18. A communications system for managing payloads for transport by a vehicle, comprising communications server apparatus, at least one user communications device and communications network equipment operable for the communications
- 20        server apparatus and the at least one user communications device to establish communication with each other therethrough, wherein the at least one communications device comprises a first processor and a first memory, the at least one communications device being configured, under control of the first processor, to execute first instructions in the first memory to:
- 25        generate an order for transporting at least a first payload,
- and wherein:
- the communications server apparatus comprises a second processor and a second memory, the communications server apparatus being configured, under control of the second processor, to execute second instructions in the second
- 30        memory to:

for a plurality of payloads of respective different payload categories, each  
 payload category being associated with unique vehicle capability requirements,  
 determine, for the first payload, being of a first payload category, a value of a  
 first payload attribute parameter indicative of a first vehicle capability requirement;  
 5        determine, for a second payload of a second payload category, a value of a  
 second payload attribute parameter indicative of a second vehicle capability  
 requirement;  
       compare the values for the first and second payload attribute parameters  
 with payload capability data associated with the vehicle, the comparison including  
 10        comparing the value for the first payload attribute parameter with the value for the  
 second payload attribute parameter; and  
       use a comparison result to determine a capability of the vehicle to transport  
 both the first and second payloads, including determining whether the first and  
 second payloads are compatible with one another.  
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19.     A method, performed in a communications server apparatus for managing  
 payloads for transport by a vehicle, the method comprising, under control of a  
 processor of the communications server apparatus:  
       for a plurality of payloads of respective different payload categories, each  
 20        payload category being associated with unique vehicle capability requirements,  
       determining, for a first payload of a first payload category, a value of a first  
 payload attribute parameter indicative of a first vehicle capability requirement;  
       determining, for a second payload of a second payload category, a value of a  
 second payload attribute parameter indicative of a second vehicle capability  
 25        requirement;  
       comparing the values for the first and second payload attribute parameters  
 with payload capability data associated with the vehicle, the comparison including  
 comparing the value for the first payload attribute parameter with the value for the  
 second payload attribute parameter; and

using a comparison result to determine a capability of the vehicle to transport both the first and second payloads, including determining whether the first and second payloads are compatible with one another.

5     20.     A method according to Claim 19, comprising:

comparing the values for the first and second payload attribute parameters with payload capability data associated with one or more further vehicles;

using comparison results to determine capabilities of the further vehicles to transport both the first and second payloads; and

10            using the determined capabilities to assign one of the vehicles for transport of both the first and second payloads.

21.     A computer program product comprising instructions for implementing the method of Claim 19.

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22.     A computer program comprising instructions for implementing the method of Claim 19.