What is claimed is:

1. A computer-implemented method of taking a vehicle out-of-service, comprising:

obtaining, by one or more computing devices on-board an autonomous vehicle, data indicative of one or more parameters associated with the autonomous vehicle, wherein the autonomous vehicle is configured to provide a vehicle service to one or more users of the vehicle service;

determining, by the one or more computing devices, an existence of a fault associated with the autonomous vehicle based at least in pan on the one or more parameters associated with the autonomous vehicle;

determining, by the one or more computing devices, one or more actions to be performed by the autonomous vehicle based at least in part on the existence of the fault; and

performing, by the one or more computing devices, one or more of the actions to take the autonomous vehicle out-of-service based at least in pan on the fault, wherein at least one of the actions comprises adjusting a status associated with the autonomous vehicle based at least in part on the fault such that the autonomous vehicle is unavailable to provide the vehicle service.

2. The computer-implemented method of claim 1, wherein the status indicates whether the autonomous vehicle is available or unavailable to provide the vehicle service, and wherein performing, by the one or more computing devices, one or more of the actions to take the vehicle out-of-service comprises:

adjusting, by the one or more computing devices, the status associated with the autonomous vehicle to indicate that the autonomous vehicle is unavailable to provide the vehicle service.

3. The computer-implemented method of claim 2, wherein adjusting, by the one or more computing devices, the status associated with the autonomous vehicle to indicate that the autonomous vehicle is not available to provide the vehicle service comprises:

providing, by the one or more computing devices to one or more remote computing devices that are remote from the autonomous vehicle, data indicating that the autonomous vehicle is unavailable to provide the vehicle service.

4. The computer-implemented method of claim 3, wherein performing, by the one or more computing devices, one or more of the actions to take the autonomous vehicle out-of-service based at least in part on the fault comprises removing, by the one or more computing devices, the autonomous vehicle from a service queue associated with the vehicle.

5. The computer-implemented method of claim 2, wherein the autonomous vehicle does not accept requests for the vehicle service when the status associated with the vehicle indicates that the autonomous vehicle is unavailable to provide the vehicle service.

6. The computer-implemented method of claim 1, wherein determining, by the one or more computing devices, the one or more actions comprises:

determining, by the one or more computing devices, a level of severity of the fault based at least in part on one or more characteristics of the fault;

determining, by the one or more computing devices, an operational state of the autonomous vehicle based at least in part on the level of severity of the fault, wherein the operational state, is indicative of whether the autonomous vehicle is in condition to provide the vehicle service; and

determining, by the one or more computing devices, the one or more actions based at least in part on the operational state of the autonomous vehicle.

7. The computer-implemented method of claim 6, wherein the operational state indicates that the autonomous vehicle is in condition to provide the vehicle service to one or more current users of the autonomous vehicle, and wherein the autonomous vehicle is configured to complete the vehicle service provided to the one or more current users before the autonomous vehicle is out-of-service.

8. The computer-implemented method of claim 6, wherein the operational state indicates that the autonomous vehicle is not in condition to provide the vehicle service.

9. The computer-implemented method of claim 8, wherein the autonomous vehicle is configured to cease providing the vehicle service to one or more current users.

10. The computer-implemented method of claim 1, wherein at least one of the actions

comprises travelling to and arriving at a maintenance location, and wherein the method further comprises:

providing, by the one or more computing devices, one or more control command signals to one or more systems on-board the autonomous vehicle to cause the autonomous vehicle to travel to and arrive at the maintenance location.

11. The computer-implemented method of claim 10, wherein determining, by the one or more computing devices, the existence of the fault associated with the autonomous vehicle based at least in pan on the one or more parameters associated with the autonomous vehicle comprises:

comparing, by the one or more computing devices, at least one of the parameters associated with the autonomous vehicle to a threshold.

12. The computer-implemented method of claim 11, further comprising:

obtaining, by the one or more computing devices, data indicative of the maintenance location, wherein the data indicative of the maintenance location is indicative of at least a geographic location of the maintenance location;

determining, by the one or more computing devices, a travel route to the maintenance location based at least in pan on the geographic location of the maintenance location;

obtaining, by the one or more computing devices, data indicative of one or more travel factors associated with the travel route; and

determining, by the one or more computing devices, the threshold based at least in pan on the travel route and the one or more navel factors, wherein the threshold is indicative of a requisite level of the at least one parameter required for the autonomous vehicle to traverse the travel route and to arrive at the geographic location of the maintenance location.

13. A computing system for taking a vehicle out-of-service, the system comprising:

one or more processors on-board an autonomous vehicle; and

one or more memory devices on-board the autonomous vehicle, the one or more memory devices storing instructions that when executed by the one or more processors cause the one or more processors to perform operations, the operations comprising:

obtaining data indicative of one or more parameters associated with the autonomous vehicle, wherein the autonomous vehicle is configured to provide a vehicle service to one or more users of the vehicle service, and wherein the

autonomous vehicle is associated with a status that indicates whether the autonomous vehicle is available or unavailable to provide the vehicle service;

determining an existence of a fault associated with the autonomous vehicle based at least in part on a comparison of the one or more parameters associated with the autonomous vehicle to one or more thresholds;

determining one or more actions to be performed by the autonomous vehicle based at least in part on the existence of the fault, wherein at, least one of the actions comprises adjusting the status associated with the autonomous vehicle; and

adjusting the status associated with the autonomous vehicle to indicate that the autonomous vehicle is unavailable to provide the vehicle service based at least in part on the fault.

14. The computing system of claim 13, wherein adjusting the status associated with the autonomous vehicle to indicate that the autonomous vehicle is unavailable to provide the vehicle service comprises:

providing to one or more remote computing devices that are remote from the autonomous vehicle, data indicating that the autonomous vehicle is to be removed from a service queue associated with the vehicle service.

15. The computing system of claim 13, wherein at least one of the actions comprises travelling to and arriving at a maintenance location, and wherein the operations further comprise:

providing one or more control command signals to one or more systems on-board the autonomous vehicle to cause the autonomous vehicle to travel to and arrive at the maintenance location.

16. The computing system of claim 15, wherein at least one of the parameters is indicative of an amount of available data storage on-board the autonomous vehicle.

17. The computing system of claim 16, wherein at least one threshold is indicative of a threshold amount of available data storage, and wherein the threshold amount of available data storage is based at least in part on an amount of data storage required for the autonomous vehicle to travel to and arrive at the maintenance location.

18. An autonomous vehicle comprising:

one or more systems on-board the autonomous vehicle;

one or more processors on-board the autonomous vehicle; and

one or more memory devices on-board the autonomous vehicle, the one or more memory devices storing instructions that when executed by the one or more processors cause the one or more processors to perform operations, the operations comprising:

obtaining data indicative of one or more parameters associated with the autonomous vehicle, wherein at least a portion of the data is provided by one or more of the systems on-board the autonomous vehicle, wherein the autonomous vehicle is included in a plurality of vehicles associated with a service provider, and wherein the autonomous vehicle is configured to pr vide a vehicle service of the service provider to one or more users;

determining an existence of a fault associated with the autonomous vehicle based at least in part on the one or more parameters associated with the autonomous vehicle; and

performing one or more actions to take the vehicle out-of-service based at least in part on the fault, wherein at least one of the actions comprises adjusting a status associated with the autonomous vehicle based at least in part on the fault such that the autonomous vehicle is unavailable to provide the vehicle service.

19. The autonomous vehicle of claim 18, wherein a computing device associated with the service provider does not provide the autonomous vehicle with one or more requests for the vehicle service when the autonomous vehicle is out-of-service.

20. The autonomous vehicle of claim 18, wherein one or more of the systems on-board the autonomous vehicle comprise one or more image capture devices configured to acquire image data to be used for operation of the autonomous vehicle in an autonomous mode, and wherein the fault is associated with storing the image data.