WHAT IS CLAIMED IS:

1. A computer-implemented method, comprising:

determining, by a first node included in a plurality of nodes and before all other nodes included in the plurality of nodes, that a first anti-entropy repair procedure has ended;

determining, by the first node, that a second anti-entropy repair procedure is ready to begin;

generating a first schedule for executing one or more operations associated with the second anti-entropy repair procedure, wherein the first schedule comprises a sequence in which one or more node repairs are performed by multiple nodes included in the plurality of nodes during the second anti-entropy repair procedure; and

writing the first schedule to a shared repair schedule data structure to initiate the second anti-entropy repair procedure across the multiple nodes included in the plurality of nodes.

2. The computer-implemented method of claim 1, wherein determining that the second anti-entropy repair procedure is ready to begin comprises determining that a current time is within a specified range of time designated for repair operations.

3. The computer-implemented method of claim 1, further comprising:

determining, by a second node included in the plurality of nodes, that a third anti-entropy repair procedure is ready to begin;

generating a second schedule for executing one or more operations associated with the third anti-entropy repair procedure; and

writing the second schedule to a second shared repair schedule data structure to initiate the third anti-entropy repair procedure across multiple nodes included in the plurality of nodes.

4. The computer-implemented method of claim 3, wherein:

the second anti-entropy repair procedure comprises a full anti-entropy repair procedure,

the third anti-entropy repair procedure comprises an incremental anti-entropy repair procedure, and

determining that the third anti-entropy repair procedure is ready to begin comprises determining that a fourth anti-entropy repair procedure that comprises an incremental repair has ended.

5. The computer-implemented method of claim 1, further comprising:

determining, by a second node included in the plurality of nodes, that the second anti-entropy repair procedure is in progress;

determining that the second node is next in the sequence to be repaired; and

repairing at least one inconsistent data partition that resides on the second node.

6. The computer-implemented method of claim 1, further comprising:

determining, by a second node included in the plurality of nodes, that the second anti-entropy repair procedure is in progress;

determining that the second node is independent from all other nodes included in the plurality of nodes that are currently performing a node repair associated with the second anti-entropy repair procedure; and

repairing at least one inconsistent data partition that resides on the second node.

7. The computer-implemented method of claim 1, further comprising:

determining, by a second node included in the plurality of nodes, that the second anti-entropy repair procedure is in progress;

determining that the second node has performed a node repair associated with the second anti-entropy repair procedure;

determining that all other nodes included in the plurality of nodes that are interdependent with the second node have performed one or more additional node repairs associated with the second anti-entropy repair procedure; and

performing, by the second node, a post-repair procedure associated with the second anti-entropy repair procedure.

8. The computer-implemented method of claim 7, wherein performing the post-repair procedure comprises deleting a partition that is no longer needed after the second anti-entropy repair procedure is complete.

9. The computer-implemented method of claim 7, wherein performing the post-repair procedure comprises performing a compaction operation on one or more partitions associated with the second node to reduce latency when accessing the one or more partitions.

10. The computer-implemented method of claim 7, wherein performing the post-repair procedure comprises transmitting a message to a monitoring application indicating that the second node has performed the node repair associated with the second anti-entropy repair procedure.

11. The computer-implemented method of claim 1, further comprising:

determining that a number of partitions associated with the second anti-entropy repair procedure exceeds a threshold level; and

dividing work associated with the second anti-entropy repair procedure into a plurality of subranges.

12. The computer-implemented method of claim 1, further comprising:

determining that a size of one or more partitions associated with the second anti-entropy repair procedure exceeds a threshold level; and

dividing work associated with the second anti-entropy repair procedure into a plurality of subranges.

13. The computer-implemented method of claim 1, further comprising:

determining that a completion time for the second anti-entropy repair procedure exceeds a threshold level; and

dividing work associated with the second anti-entropy repair procedure into a plurality of subranges based on the completion time.

14. One or more non-transitory computer-readable storage media including instructions that, when executed by one or more processors, cause the one or more processors to perform the steps of:

determining that a first anti-entropy repair procedure has ended;

determining, by a first node included in a plurality of nodes and before all other nodes included in the plurality of nodes, that a second anti-entropy repair procedure is ready to begin;

generating a schedule for executing operations associated with the second anti-entropy repair procedure, wherein the schedule comprises a sequence in which one or more node repairs are performed by multiple nodes included in the plurality of nodes during the second anti-entropy repair procedure; and

writing the schedule to a shared repair schedule data structure to initiate the second anti-entropy repair procedure across multiple nodes included in the plurality of nodes.

15. The one or more non-transitory computer-readable storage media of claim 14, wherein determining that the second anti-entropy repair procedure is ready to begin comprises determining that a current time is within a specified range of time designated for repair operations.

16. The one or more non-transitory computer-readable storage media of claim 14, wherein each node included in the plurality of nodes sequentially performs a node repair associated with the second anti-entropy repair procedure.

17. The one or more non-transitory computer-readable storage media of claim 14, wherein:

each node included a first subset of nodes included in the plurality of nodes performs a first node repair associated with the second anti-entropy repair procedure in parallel with each other;

each node included in a second subset of nodes included in the plurality of nodes performs a second node repair associated with the second anti-entropy repair procedure in parallel with each other; and

the nodes included in the first subset of nodes perform the first node repair associated with the second anti-entropy repair procedure sequentially to the second node repair performed by the nodes included in the second subset of nodes.

18. The one or more non-transitory computer-readable storage media of claim 14, wherein each node included in the plurality of nodes performs a node repair associated with the second anti-entropy repair procedure in parallel with each other.

19. A computing device, comprising:

a memory that includes instructions; and

a processor that is coupled to the memory and, when executing the instructions, is configured to:

determine that a first anti-entropy repair procedure has ended;

determine, by a first node included in a plurality of nodes and before all other nodes included in the plurality of nodes, that a second anti-entropy repair procedure is ready to begin;

generate a repair schedule associated with the second anti-entropy repair procedure, wherein the repair schedule comprises a sequence in which one or more node repairs are performed by multiple nodes included in the plurality of nodes during the second anti-entropy repair procedure; and

write the repair schedule to a data store to initiate the second anti-entropy repair procedure across multiple nodes included in the plurality of nodes.

20. The computing device of claim 19, wherein the processor, when executing the instructions, is further configured to assign, at a second node included in the plurality of nodes, a number of processing cores to perform a node repair associated with the second anti-entropy repair procedure, wherein the number of processing cores is a maximum of one-half a number of available processor cores within the second node.