CLAIMS

What is claimed is:

1. A storage method for graph data, wherein the graph data comprises a node and an edge, and the storage method comprises:

storing, in a point table of a data block, node information of several nodes in the graph data, wherein the node information comprises a node identifier;

storing, in an edge table of the data block, edge information of edges of the several nodes, wherein the edge information comprises node identifiers of target nodes connected to the edges;

storing, in a point attribute table of the data block, attribute information of the several nodes;

storing in an edge attribute table of the data block, attribute information of the edges of the several nodes; and

generating a table element of the data block, wherein the table element comprises storage address information of each table in the data block and a node identifier of the 1st node in the point table in the data block,

wherein the data block is a minimum read/write unit.

2. The method according to claim 1, wherein

a storage order of the edges of the several nodes in the edge table is consistent with a storage order of the several nodes in the point table;

a storage order of the attribute information of the several nodes in the point attribute table is consistent with the storage order of the several nodes in the point table; and

a storage order of the attribute information of the edges of the several nodes in the edge attribute table is consistent with the storage order of the edges of the several nodes in the edge table.

3. The method according to claim 1 or 2, wherein

the edge table comprises an edge table index area and an edge table data area;

the edge information of the edges of the several nodes is stored in the edge table data area;

the edge table index area stores index information of the edges of the several nodes, and the index information of the edges comprises storage address information of the edge information of the edges of a corresponding node in the edge table data area; and

a storage order of the index information of the edges of the several nodes in the edge table index area is consistent with the storage order of the several nodes in the point table.

4. The method according to claim 3, wherein the node information further comprises storage address information of the edges of the nodes, and the storage address information of a corresponding edge in the point table is storage address information of the index information of the corresponding edges in the edge table.

5. The method according to claim 3, wherein edge information of different edges of the same node is consecutively stored in the edge table data area, and a storage order of the edge information of the edges of the several nodes in the edge table data area is consistent with the storage order of the edges of the several nodes in the point table.

6. The method according to claim 5, wherein the index information of the edges further comprises edge types, the edge information further comprises node types of the target nodes, edge information of edges of the same node is sequentially stored in the edge table data area based on the edge types of the edges, index information of edges corresponding to the same node in the edge table index area comprises one or more edge types and one or more pieces of storage address information corresponding to the edges, the one or more edge types are consecutively stored, and the one or more pieces of storage address information are also consecutively stored.

7. The method according to claim 3, wherein

the edge attribute table comprises an edge attribute table index area and an edge attribute table data area;

the attribute information of the edges of the several nodes is stored in the edge attribute table data area;

the edge attribute table index area stores edge attribute index information of the edges of the several nodes, and the edge attribute index information comprises storage address information of the attribute information of the edges of the corresponding node in the edge attribute table data area; and

a storage order of the edge attribute index information of the edges of the several nodes in the edge attribute table index area is consistent with a storage order of the edge information of the edges of the several nodes in the edge table data area.

8. The method according to claim 1, wherein the node information further comprises node types, and the node information of the several nodes is stored in the point table based on an order of the node types.

9. The method according to claim 1, wherein

the point attribute table comprises a point attribute table index area and a point attribute table data area;

the attribute information of the several nodes is stored in the point attribute table data area;

the point attribute table index area stores node attribute index information of the several nodes, and the node attribute index information comprises storage address information of the attribute information of the nodes in the point attribute table data area; and

a storage order of the node attribute index information of the several nodes in the point attribute table index area is consistent with a storage order of the several nodes in the point table.

10. The method according to claim 1, wherein the data block comprises coded information; and the method further comprises:

generating a word table of a graph file that comprises a plurality of data blocks, wherein the word table comprises a mapping relationship between coded information in each data block in the graph file and original information.

11. The method according to claim 1, further comprising:

generating a data block index of a graph file that comprises a plurality of data blocks, wherein the data block index of the graph file comprises storage address information of each data block in the graph file and a node identifier of the 1st node in each data block.

12. The method according to claim 11, further comprising: generating a graph file element, wherein the graph file element comprises a graph file in which each data block is located in all graph files and a data block sequence number in the graph file, a node identifier of the 1st node in each graph file, and a node identifier of the last node in each graph file.

13. The method according to claim 1, wherein the edge of the graph data comprises an out-edge and an in-edge, the edge table comprises an out-edge table and an in-edge table, the edge attribute table comprises an out-edge attribute table and an in-edge attribute table, and the node information further comprises storage address information of out-edges of the nodes and storage address information of in-edges of the nodes.

14. A storage system for graph data, wherein the graph data comprises a node and an edge, and the storage system comprises:

a node information storage module, configured to store, in a point table of a data block, node information of several nodes in the graph data, wherein the node information comprises a node

identifier;

an edge information storage module, configured to store edge information of edges of the several nodes in an edge table of the data block, wherein the edge information comprises node identifiers of target nodes connected to the edges;

a node attribute information storage module, configured to store attribute information of the several nodes in a point attribute table of the data block;

an edge attribute information storage module, configured to store attribute information of the edges of the several nodes in an edge attribute table of the data block; and

a table element generation module, configured to generate a table element of the data block, wherein the table element comprises storage address information of each table in the data block and a node identifier of the 1st node in the point table in the data block,

wherein the data block is a minimum read/write unit.

15. A storage apparatus for graph data, comprising a storage medium and a processor, wherein the storage medium is configured to store computer instructions, and the processor is configured to execute the computer instructions to implement the storage method according to any of claims 1 to 13.

16. A storage device for graph data, wherein the graph data comprises a node and an edge, the storage device stores several data blocks, wherein each data block is a minimum read/write unit and comprises:

a point table, configured to store node information of at least a portion of nodes in the graph data, wherein the node information comprises a node identifier;

an edge table, configured to store edge information of edges of the nodes, wherein the edge information comprises node identifiers of target nodes connected to the edges;

a point attribute table, configured to store attribute information of the nodes;

an edge attribute table, configured to store attribute information of the edges of the nodes; and

a table element, wherein the table element comprises storage address information of each table in the data block and a node identifier of the 1st node in the point table in the data block.

17. A query method for graph data, comprising:

receiving a query request, wherein the query request comprises a node identifier of a target query node;

accessing a graph file element, and determining, based on a node identifier of the 1st node in each graph file stored in the graph file element and a node identifier of the last node in each graph

file, a target graph file in which the target query node is located;

accessing a data block index of the target graph file, and determining, based on a node identifier that is of the 1st node in each data block in the target graph file and that is stored in the data block index, a target data block in which the target query node is located;

reading the target data block based on storage address information that is of each data block in the target graph file and that is stored in the data block index, wherein the target data block is a minimum read/write unit;

obtaining storage address information of a point table in the target data block based on a table element of the target data block, wherein the table element comprises storage address information of each table in the target data block and a node identifier of the 1st node in the point table in the target data block, and finding node information of the target query node in the point table based on the node identifier of the target query node; and

obtaining one or more of edge information, point attribute information, and edge attribute information of the target query node from one or more tables of an edge table, a point attribute table, and an edge attribute table of the target data block based on a storage order of the node information of the target query node in the point table or storage address information of an edge.