CLAIMS

What is claimed is:

1. ~~-~~ A ~~service call information processing~~computer-implemented method, ~~wherein the method comprises~~comprising:

~~a. acquiring~~identifying one or more service call chains in a distributed service system, ~~wherein~~ each service call chain ~~comprises~~including one or more service nodes that are sequentially called by clients of the distributed service system;

~~b. constructing a corresponding~~ generating a service call model ~~according~~ corresponding to a particular service call chain~~; and~~

~~c. processing~~ from the one or more service call chains;

identifying calls to the particular service call chain ~~according to~~by the clients of the distributed service system;

updating performance statistics in the service call model~~.~~ for the particular service call chain, wherein the performance statistics is updated based on the identified calls to the particular service call chain;

identifying a performance problem associated with the particular service call chain based on the updated performance statistics; and

in response to identifying the performance problem associated with the particular service call chain, initiating corrective action for the identified performance problem.

2. ~~-~~ The computer-implemented method ~~according to~~of claim 1, wherein ~~step a~~identifying the one or more service call chains comprises:

acquiring service call log information from ~~a~~the distributed service system; and

extracting the one or more service call chains from the service call log information, wherein each service call chain comprises the one or more service nodes that are sequentially called.

3. The computer-implemented method ~~according to~~of claim 1~~ or 2~~, wherein ~~step b~~generating the service call model comprises~~:~~

~~constructing~~ generating the~~ corresponding~~ service call model by performing aggregation processing on the service call chain, wherein the service call model comprises one or more service

call topologies, ~~and~~wherein each service call topology is acquired by performing aggregation processing on one or more additional service call chains~~; wherein~~ different than the particular service call chain; and

~~step c comprises:~~

wherein processing the ~~corresponding~~ service call chain comprises processing the service call chain according to a service call topology.

4. The computer-implemented method ~~according to~~of claim 3, ~~wherein the method~~ further ~~comprises~~comprising:

performing a data cleaning operation on the service call topology~~;~~, wherein

~~step c comprises:~~

~~processing the corresponding~~ updating performance statistics in the service call model for the particular service call chain comprises updating performance statistics in the service call model for the particular service call chain according to a cleaned service call topology.

5. The computer-implemented method ~~according to~~of claim 4, wherein the data cleaning operation comprises at least one of ~~the following~~:

deleting a predetermined service node in the service call topology;

deleting a service node that is in the service call topology and that does not return call result information;

deleting an occasionally-~~-~~used service node in the service call topology, wherein a number of accumulated appearance times of the occasionally-used service node in the service call chain corresponding to the service call topology is less than or equal to a predetermined occasionally-used threshold; or

deleting the occasionally-used service node in the service call topology, wherein the number of accumulated appearance times of the occasionally-~~-~~used service node in the service call chain corresponding to the service call topology is less than or equal to ~~a~~the predetermined occasionally-~~-~~used threshold~~;~~, and wherein a number of accumulated appearance times of another service node different from the occasionally-used service node is greater than or equal to a predetermined frequently used threshold.

~~deleting an occasionally used service node in the service call topology, wherein the number~~

~~of accumulated appearance times of the occasionally used service node in the service call chain corresponding to the service call topology is less than or equal to a predetermined occasionally used threshold, and the number of accumulated appearance times of another service node, other than the occasionally used service node, in the service call chain corresponding to the service call topology is greater than or equal to a predetermined frequently used threshold.~~

~~6. The method according to any one of claims 3 to 5, wherein step b comprises:~~

6. The computer-implemented method of claim 3, wherein generating the service call model comprises:

performing aggregation processing on the service call chain with reference to call feedback information of the service node in the service call chain~~, so as to construct a corresponding~~; and

generating the service call model, wherein the service call model comprises one or more service call topologies, and wherein each service call topology is acquired by performing aggregation processing on one or more service call chains.

7. The computer-implemented method ~~according to~~of claim 6, wherein ~~step c~~identifying the performance problem comprises:

~~c1. collecting, according to call feedback information of a service node in each service call chain, statistics for the one or more service call chains corresponding to the service call topology; and~~

~~c2. monitoring, according to a corresponding statistical result, the service call chain corresponding to the service call topology.~~

~~8. The method according to claim 7, wherein step c2 comprises:~~

comparing, based on a predetermined duration comparison rule, ~~the~~a corresponding statistical result with call feedback information of each service node in the service call chain corresponding to the service call topology; and

when a difference exceeds predetermined fluctuation threshold, generating alert information about a service call chain corresponding to the difference, wherein the alert information ~~locates~~identifies a service node corresponding to the difference.

~~9. A service call information processing device, wherein the device comprises:~~

~~a service call chain acquisition apparatus, configured to acquire~~8. A non-transitory, computer-readable medium storing one or more instructions executable by a computer system to perform operations comprising:

identifying one or more service call chains in a distributed service system, ~~wherein~~ each service call chain ~~comprises~~including one or more service nodes that are sequentially called by clients of the distributed service system;

generating a service call model ~~construction apparatus, configured to construct a~~ corresponding to a particular service call ~~model according~~chain from the one or more service call chains;

identifying calls to ~~a~~the particular service call chain~~; and~~ by the clients of the distributed service system;

~~a processing apparatus, configured to process the service call chain according to~~ updating performance statistics in the service call model~~.~~

for the particular service call chain~~10. The device according to claim 9~~, wherein the performance statistics is updated based on the identified calls to the particular service call chain ~~acquisition apparatus comprises:~~;

~~a~~identifying a performance problem associated with the particular service call chain based on the updated performance statistics; and

in response to identifying the performance problem associated with the particular service call ~~information acquisition unit, configured to acquire~~chain, initiating corrective action for the identified performance problem.

9. The non-transitory, computer-readable medium of claim 8, wherein identifying the one or more service call chains comprises:

acquiring service call log information from ~~a~~the distributed service system; and

~~a service call chain generation unit, configured to extract~~extracting the one or more service call chains from the service call log information, wherein each service call chain comprises the one or more service nodes that are sequentially called.

10. ~~11. The device according to~~non-transitory, computer-readable medium of claim ~~9 or 10~~8, wherein generating the service call model ~~construction apparatus is configured to:~~

~~construct~~comprises generating the ~~corresponding~~ service call model by performing aggregation processing on the service call chain, wherein the service call model comprises one or more service call topologies, ~~and~~wherein each service call topology is acquired by performing aggregation processing on one or more additional service call chains~~; wherein~~ different than the particular service call chain; and

~~the~~wherein processing ~~apparatus is configured to:~~

~~process the corresponding~~the service call chain comprises processing the service call chain according to a service call topology.

11. ~~12.~~ The ~~device according to~~ non-transitory, computer-readable medium of claim ~~11, wherein~~10, the ~~device~~operations further ~~comprises~~comprising:

performing a ~~cleaning apparatus, configured to perform a~~data cleaning operation on the service call topology~~;~~, wherein

updating performance statistics in the ~~processing apparatus is configured to:~~

~~process~~service call model for the ~~corresponding~~particular service call chain comprises updating performance statistics in the service call model for the particular service call chain according to a cleaned service call topology.

~~13.~~ 12. The ~~device according to~~non-transitory, computer-readable medium of claim ~~12~~11, wherein the data cleaning operation comprises at least one of ~~the following~~:

deleting a predetermined service node in the service call topology;

deleting a service node that is in the service call topology and that does not return call result information;

deleting an occasionally~~-~~used service node in the service call topology, wherein ~~the~~a number of accumulated appearance times of the occasionally ~~used service node in the service call chain corresponding to the service call topology is less than or equal to a predetermined occasionally used threshold; or~~

~~deleting an occasionally used service node in the service call topology, wherein the number of accumulated appearance times of the occasionally~~ used service node in the service call chain corresponding to the service call topology is less than or equal to a predetermined occasionally ~~used threshold, and the number of accumulated appearance times of another service node, other~~

than the occasionally-used service node, in the service call chain corresponding to the service call topology is greater than or equal to a predetermined frequently used threshold.-used threshold; or

14. The device according to any one of claims 11 to 13, wherein the service call model construction apparatus is configured to:

performdeleting the occasionally-used service node in the service call topology, wherein the number of accumulated appearance times of the occasionally-used service node in the service call chain corresponding to the service call topology is less than or equal to the predetermined occasionally-used threshold, and wherein a number of accumulated appearance times of another service node different from the occasionally-used service node is greater than or equal to a predetermined frequently used threshold.

13. The non-transitory, computer-readable medium of claim 10, wherein generating the service call model comprises:

performing aggregation processing on the service call chain with reference to call feedback information of the service node in the service call chain, so as to construct a corresponding; and

generating the service call model, wherein the service call model comprises one or more service call topologies, and wherein each service call topology is acquired by performing aggregation processing on one or more service call chains.

14. 15. The device according to non-transitory, computer-readable medium of claim 1413, wherein identifying the processing apparatusperformance problem comprises:

an information analysis unit, configured to collect, according to call feedback information of a service node in each service call chain, statistics for the one or more service call chains corresponding to the service call topology; and

a monitoring unit, configured to monitor, according to a corresponding statistical result, the service call chain corresponding to the service call topology.

16. The device according to claim 15, wherein the monitoring unit comprises:

a comparison subunit, configured to compare comparing, based on a predetermined duration comparison rule, thea corresponding statistical result with call feedback information of each service node in the service call chain corresponding to the service call topology; and

~~an alerting subunit, configured to:~~ when a difference exceeds predetermined fluctuation threshold, ~~generate~~generating alert information about a service call chain corresponding to the difference, wherein the alert information ~~is used to locate~~identifies a service node corresponding to the difference.

15. A computer-implemented system, comprising:

one or more computers; and

one or more computer memory devices interoperably coupled with the one or more computers and having tangible, non-transitory, machine-readable media storing one or more instructions that, when executed by the one or more computers, perform one or more operations comprising:

identifying one or more service call chains in a distributed service system, each service call chain including one or more service nodes that are sequentially called by clients of the distributed service system;

generating a service call model corresponding to a particular service call chain from the one or more service call chains;

identifying calls to the particular service call chain by the clients of the distributed service system;

updating performance statistics in the service call model for the particular service call chain, wherein the performance statistics is updated based on the identified calls to the particular service call chain;

identifying a performance problem associated with the particular service call chain based on the updated performance statistics; and

in response to identifying the performance problem associated with the particular service call chain, initiating corrective action for the identified performance problem.

16. The computer-implemented system of claim 15, wherein identifying the one or more service call chains comprises:

acquiring service call log information from the distributed service system; and

extracting the one or more service call chains from the service call log information, wherein each service call chain comprises the one or more service nodes that are sequentially called.

17. The computer-implemented system of claim 15, wherein generating the service call model comprises generating the service call model by performing aggregation processing on the service call chain, wherein the service call model comprises one or more service call topologies, wherein

each service call topology is acquired by performing aggregation processing on one or more additional service call chains different than the particular service call chain; and

wherein processing the service call chain comprises processing the service call chain according to a service call topology.

18. The computer-implemented system of claim 17, the operations further comprising:

performing a data cleaning operation on the service call topology, wherein updating performance statistics in the service call model for the particular service call chain comprises updating performance statistics in the service call model for the particular service call chain according to a cleaned service call topology.

19. The computer-implemented system of claim 18, wherein the data cleaning operation comprises at least one of:

deleting a predetermined service node in the service call topology;

deleting a service node that is in the service call topology and that does not return call result information;

deleting an occasionally-used service node in the service call topology, wherein a number of accumulated appearance times of the occasionally-used service node in the service call chain corresponding to the service call topology is less than or equal to a predetermined occasionally-used threshold; or

deleting the occasionally-used service node in the service call topology, wherein the number of accumulated appearance times of the occasionally-used service node in the service call chain corresponding to the service call topology is less than or equal to the predetermined occasionally-used threshold, and wherein a number of accumulated appearance times of another service node different from the occasionally-used service node is greater than or equal to a predetermined frequently used threshold.

20. The computer-implemented system of claim 17, wherein generating the service call model comprises:

performing aggregation processing on the service call chain with reference to call feedback information of the service node in the service call chain; and

generating the service call model, wherein the service call model comprises one or more service call topologies, and wherein each service call topology is acquired by performing aggregation processing on one or more service call chains.