

CLAIMS

1. A method implemented by one or more computing devices, the method comprising:

receiving a query request for data stored in at least two different databases, the query request based at least in part on a business model, the business model comprising one or more business elements;

generating a uniform query that masks a difference among the at least two different databases by converting the query request into one or more execution modes that match with the at least two different databases to be queried based at least in part on a conversion rule between the business model and a storage model, the storage model comprising attribute information of the at least two different databases to be queried and the conversion rule comprising a corresponding relationship between the one or more business elements and one or more attributes in the at least two different databases to be queried;

accessing the at least two different databases according to the one or more execution modes; and

upon determining that an amount of concurrent accesses to one of the at least two different databases according to the one or more execution modes exceeds a predetermined amount,

delaying a subsequent access to the one of the at least two different databases, or

accessing a backup database, if available, of the one of the at least two different databases, the backup database having less concurrent accesses than the one of the at least two different databases.

2. The method of claim 1, wherein the business model describes one or more business scenarios in a metadata format.

3. The method of claim 2, wherein the one or more business elements comprise a plurality of business elements, and the business model further comprises at least one of: constraint information of the plurality of business elements, constraint information among the plurality of business elements, instance information of the plurality of business elements,

data flow information, or one or more mapping relationships with one or more other business models.

4. The method of claim 1, wherein the storage model describes a data storage of
5 the at least two different databases.

5. The method of claim 4, wherein the storage model further comprises at least one of: a stored data source name, a stored data source type, a storage sharding mode, or a stored data region name.

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6. The method of claim 1, wherein converting the query request into the execution mode that matches with the at least two different databases comprises converting the query request into an execution mode that matches with respective storage engine types of the at least two different databases.

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7. The method of claim 1, wherein the query request comprises a storage acquisition condition and a result filtering condition based at least in part on the business elements.

20 8. The method of claim 7, further comprising: screening an access result acquired from each database of the at least two different databases based at least in part on the result filtering condition, wherein converting the query request comprises: converting the query request into the execution mode by using the storage acquisition condition as a query condition.

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9. An apparatus comprising:
one or more processors;
memory;

30 a request receiving unit stored in the memory and executable by the one or more processors configured to receive a request for querying data stored in at least two databases based at least in part on a business model, the business model comprising one or more business elements;

a conversion unit stored in the memory and executable by the one or more processors configured to generate a uniform query that masks a difference among the at least two different databases by converting the query request into one or more execution modes that match with the at least two databases based at least in part on a conversion rule from the business model to a storage model, the storage model comprising attribute information of the at least two databases and the conversion rule comprising a corresponding relationship between the one or more business elements and one or more attributes in the at least two databases; and

a database access unit stored in the memory and executable by the one or more processors configured to access the at least two databases according to the one or more execution modes, the database access unit further configured to, upon determining that an amount of concurrent accesses to one of the at least two different databases according to the one or more execution modes exceeds a predetermined amount:

delay a subsequent access to the one of the at least two different databases, or

access a backup database, if available, of the one of the at least two different databases, the backup database having less concurrent accesses than the one of the at least two different databases.

10. The apparatus of claim 9, wherein the business model describes business scenarios through a metadata format.

11. The apparatus of claim 10, wherein the business model further comprises at least one of: constraint information of the business elements, constraint information between the business elements, instance information of the business elements, data flow information, or one or more mapping relationships with one or more other business models.

12. The apparatus of claim 9, wherein the storage model describes respective data storages of the at least two databases.

13. The apparatus of claim 12, wherein the storage model further comprises at least one of: a stored data source name, a stored data source type, a storage sharding mode, or a stored data region name.

5 14. The apparatus of claim 9, wherein the conversion unit is further configured to convert the query request into an execution mode that matches with respective storage engine types of the at least two databases.

10 15. The apparatus of claim 9, wherein the query request comprises a storage acquisition condition and a result filtering condition based at least in part on the one or more business elements.

15 16. The apparatus of claim 15, wherein the conversion unit is further configured to convert the query request by using the storage acquisition condition as a query condition, and wherein the apparatus further comprises a screening unit stored in the memory and executable by the one or more processors to screen an access result acquired from each database based at least in part on the result filtering condition.

20 17. One or more computer-readable media storing executable instructions that, when executed by one or more processors, cause the one or more processors to perform acts comprising:

 receiving a query request for data stored in at least two databases, the query request based at least in part on a business model, the business model comprising one or more business elements;

25 generating a uniform query that masks a difference among the at least two different databases by converting the query request into an execution mode that matches with the at least two different databases to be queried based at least in part on a conversion rule between the business model and a storage model, the storage model comprising attribute information of the at least two databases to be queried and the conversion rule comprising
30 a corresponding relationship between the one or more business elements and one or more attributes in the at least two databases to be queried; and

 accessing the at least two databases according to the execution mode; and

upon determining that an amount of concurrent accesses to one of the at least two different databases according to the one or more execution modes exceeds a predetermined amount,

5 delaying a subsequent access to the one of the at least two different databases, or

 accessing a backup database, if available, of the one of the at least two different databases, the backup database having less concurrent accesses than the one of the at least two different databases.

10 18. The one or more computer-readable media of claim 17, wherein the business model describes one or more business scenarios in a metadata format, and wherein the business model further comprises at least one of: constraint information of the plurality of business elements, constraint information among the plurality of business elements, instance information of the plurality of business elements, data flow information, or one or
15 more mapping relationships with one or more other business models.

 19. The one or more computer-readable media of claim 17, wherein the storage model describes a data storage of the at least two databases, and wherein the storage model further comprises at least one of: a stored data source name, a stored data source
20 type, a storage sharding mode, or a stored data region name.

 20. The one or more computer-readable media of claim 17, wherein converting the query request comprises one of:

 converting the query request into an execution mode that matches with respective
25 storage engine types of the at least two different databases; or

 converting the query request into the execution mode by using a storage acquisition condition as a query condition, and screening an access result acquired from each database of the at least two databases based at least in part on a result filtering condition, wherein the query request comprises a storage acquisition condition and a result filtering
30 condition based at least in part on the business elements.