

Claims

1. A method for updating data to ensure the correct version of the data is available for a user of a second data system (300), wherein the data is capable of being stored in a first data entity (220) and in a component (330) of the second data system (300) and wherein the method comprises in the second data system (300) the steps of:
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- receiving via a computer an update request from the first data entity to update the data in the second component (330), wherein the update request comprises an updated version of the data for updating the data;

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 - comparing via a computer the updated version of the data with a currently stored version of the data in the second component (330) to determine a change therein;

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 - producing via a computer an operating function representative of the change in the data;

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 - applying via a computer the operating function to the currently stored version of the standard data to produce a resulting data;
- storing via a computer the operating function having the change therein which represents the difference between the currently stored version of the data and the updated version of the data to ensure the correct version of the data is capable of being output if requested.
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2. A method as claimed in claim 1, wherein the step of receiving via a computer an update request from the first data entity comprises receiving via a computer an update request from a first data system (200) or from another source.
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3. A method as claimed in claim 1 or in claim 2, further comprising storing the resulting data so that the resulting data can be output when requested.

4. The method as claimed in any preceding claims, further comprising sending the resulting data to a pricing component (400) for providing prices to the user.

5. The method as claimed in any preceding claims, further comprising carrying out a search in the component (330) for retrieving any previously stored version of the data.

6. The method as claimed in any preceding claims, further comprising carrying out a search in an operating function database (350) to retrieve any stored operating function associated with the data.

7. The method as claimed in any preceding claims, further comprising applying the operating function to the retrieved stored version of the data to produce the resulting data.

8. A system for updating data to ensure the correct version of the data is available for a user of a data system (300), wherein the data is capable of being stored in a component (330) of the data system (300) and wherein the system comprises:

- a request handling component (310) for receiving an update request from a data entity (220) and updating the data in the component (330) wherein the update request comprises an updated version of the data for updating the data;

- an operating function handling component (340) for comparing the updated version of the data with a currently stored version of the data in the component (330) to determine a change therein;

- an operating function determination component (360) for producing an operating function representative of the change in the data;

- a memory component (380) for storing the operating function having the change therein to ensure the correct version of the data is capable of being output if requested.

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9. A system as claimed in claim 8, further comprising an operating function application component (370) for applying the operating function on the data to produce a resulting data.

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10. A system as claimed in claim 8 or in claim 9, further comprising a standard data handling component (320) for receiving a request from the request handling component (310) to carry out a search in the component (330).

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11. A system as claimed in any of claims 8 to 10, further comprising an operating function component (350) to store the operating function representative of the change in the data.

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12. A system as claimed in any of claims 8 to 11, further comprising a pricing component (400) for receiving the resulting data from the memory component (380) for providing fares to the user.

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13. A system as claimed in any of claims 8 to 12, further comprising a user device (100) for sending an update request to the request handling component (310) to send standard data to the data system (300).

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14. A system as claimed in any of claims 8 to 13, further comprising a transmission component (230) to transmit standard data to the data system (300).

15. A computer program comprising instructions for carrying out the method of any of claims 1 to 7 when said computer program is executed on a programmable apparatus.

Claims

1. A method for maintaining data in a second data system, the method comprising:
 - storing a first version of standard data in a standard data database for the second
 - 5 data system, wherein the first version of the standard data is additionally maintained in a first data system, wherein the first data system is an institutional filing system related to a plurality of travel fare providers, wherein the second data system is a proprietary filing system related to a travel provider, and wherein the first version of the standard data comprises a key and a first sequence associated with the key;
 - 10 after an update of the standard data to a second version in the first data system, receiving in the second system a first request from the first data system to update the standard data stored in the standard database to the second version, and in response to receiving the first request, updating the standard data stored in the standard data database to the second version by associating a second sequence with the key in the standard data database;
 - 15 after updating the standard data stored in the standard data database to the second version, receiving a second request from a user to modify the standard data stored in the standard data database in the second data system, and in response to receiving the second request:
 - comparing updated data associated with the second request with the second sequence
 - 20 associated with the second version of the standard data stored in the standard data database to determine a change therein;
 - producing an operating function representative of the change and associated with the key; and
 - storing the operating function in an operating function database;
 - 25 after storing the operating function in the operating function database:
 - searching the standard data database based on the key to retrieve the second version of the standard data associated with the key;

searching the operating function database based on the key to retrieve the operating function associated with the key; and
applying the operating function to apply the change to the second sequence associated with the second version of the standard data retrieved from the standard data database
5 to produce a resulting data to store in a cache database as a most recent version of data related to the standard data; and
sending the resulting data to a pricing engine for use in generating a travel fare.

2. The method of claim 1, wherein the first request is initiated by the first data system in
10 connection with a regular replication process that replicates standard data from the first data system to the second data system.

3. The method of claim 2, wherein the standard data comprises a standard travel product including one or more of a fare, a rule or a branded fare.

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4. The method of claim 3, wherein the second request modifies the standard data to add specific data, wherein the specific data comprises one or more of a dynamic discounted fare, an add-on zone or baggage.

20 5. The method of claim 1, wherein searching the standard data database, searching the operating function database, and applying the operating function are performed in response to the second request, the method further comprising storing the resulting data in the cache database.

25 6. The method of claim 1, wherein searching the standard data database, searching the operating function database, and applying the operating function are performed in response to a third request, the method further comprising returning the resulting data as a response to the third request.

7. The method of claim 6, further comprising, after returning the resulting data, receiving a fourth request updating the resulting data, and in response to receiving the fourth request:
- accessing the standard data database to retrieve a current version of the standard data;
 - 5 comparing updated resulting data associated with the fourth request with the current version of the standard data stored in the standard data database to determine a change therein;
 - producing a second operating function representative of the change;
 - applying the second operating function to the current version of the standard data to produce second resulting data; and
 - 10 storing the second resulting data in the cache database.
8. A system, comprising:
- at least one processor; and
 - computer program instructions configured upon execution by the at least one processor
 - 15 to maintain data in a second data system by:
 - storing a first version of standard data in a standard data database for the second data system, wherein the first version of the standard data is additionally maintained in a first data system, wherein the first data system is an institutional filing system related to a plurality of travel fare providers, wherein the second data system is a proprietary filing system related to a
 - 20 travel provider, and wherein the first version of the standard data comprises a key and a first sequence associated with the key;
 - after an update of the standard data to a second version in the first data system,
 - receiving in the second system a first request from the first data system to update the standard data stored in the standard database to the second version, and in response to receiving the
 - 25 first request, updating the standard data stored in the standard data database to the second version by associating a second sequence with the key in the standard data database;
 - after updating the standard data stored in the standard data database to the second version, receiving a second request from a user to modify the standard data stored in the

standard data database in the second data system, and in response to receiving the second request:

- 5 comparing updated data associated with the second request with the second sequence associated with the second version of the standard data stored in the standard data database to determine a change therein;
- producing an operating function representative of the change and associated with the key; and
- storing the operating function in an operating function database;
- after storing the operating function in the operating function database:
- 10 searching the standard data database based on the key to retrieve the second version of the standard data associated with the key;
- searching the operating function database based on the key to retrieve the operating function associated with the key; and
- applying the operating function to apply the change to the second sequence associated with the
- 15 second version of the standard data retrieved from the standard data database to produce a resulting data to store in a cache database as a most recent version of data related to the standard data; and sending the resulting data to a pricing engine for use in generating a travel fare.

20 9. The system of claim 8, wherein the first request is initiated by the first data system in connection with a regular replication process that replicates standard data from the first data system to the second data system.

 10. The system of claim 9, wherein the standard data comprises a standard travel product
25 including one or more of a fare, a rule or a branded fare.

 11. The system of claim 10, wherein the second request modifies the standard data to add specific data, wherein the specific data comprises one or more of a dynamic discounted fare, an

add-on zone or baggage.

12. The system of claim 8, wherein the computer program instructions are configured to search the standard data database, search the operating function database, and apply the
5 operating function in response to the second request, and wherein the computer program instructions are further configured to store the resulting data in the cache database.

13. The system of claim 8, wherein the computer program instructions are configured to search the standard data database, search the operating function database, and apply the
10 operating function in response to a third request and wherein the computer program instructions are further configured to return the resulting data as a response to the third request.

14. The system of claim 13, wherein the computer program instructions are further configured to, after returning the resulting data, receive a fourth request updating the resulting
15 data, and in response to receiving the fourth request:

access the standard data database to retrieve a current version of the standard data;
compare updated resulting data associated with the fourth request with the current version of
the standard data stored in the standard data database to determine a change therein;

produce a second operating function representative of the change;

20 apply the second operating function to the current version of the standard data to
produce second resulting data; and
store the second resulting data in the cache database.

15. A non-transitory computer readable medium having stored thereon computer program
25 instructions configured upon execution by at least one processor to maintain data in a second
data system by:

storing a first version of standard data in a standard data database for the second data
system, wherein the first version of the standard data is additionally maintained in a first data

system, wherein the first data system is an institutional filing system related to a plurality of travel fare providers, wherein the second data system is a proprietary filing system related to a travel provider, and wherein the first version of the standard data comprises a key and a first sequence associated with the key;

5 after an update of the standard data to a second version in the first data system, receiving in the second system a first request from the first data system to update the standard data stored in the standard database to the second version, and in response to receiving the first request, updating the standard data stored in the standard data database to the second version by associating a second sequence with the key in the standard data database;

10 after updating the standard data stored in the standard data database to the second version, receiving a second request from a user to modify the standard data stored in the standard data database in the second data system, and in response to receiving the second request:

 comparing updated data associated with the second request with the second sequence
15 associated with the second version of the standard data stored in the standard data database to determine a change therein;
 producing an operating function representative of the change and associated with the key; and
 storing the operating function in an operating function database;

20 after storing the operating function in the operating function database:

 searching the standard data database based on the key to retrieve the second version of the standard data associated with the key;
 searching the operating function database based on the key to retrieve the operating function associated with the key; and

25 applying the operating function to apply the change to the second sequence associated with the second version of the standard data retrieved from the standard data database to produce a resulting data to store in a cache database as a most recent version of data related to the standard data; and sending the resulting data to a pricing engine for use in generating a travel

fare.

16. The non-transitory computer readable medium of claim 15, wherein the first request is initiated by the first data system in connection with a regular replication process that replicates
5 standard data from the first data system to the second data system.

17. The non-transitory computer readable medium of claim 16, wherein the standard data comprises a standard travel product including one or more of a fare, a rule or a branded fare.

10 18. The non-transitory computer readable medium of claim 17, wherein the second request modifies the standard data to add specific data, wherein the specific data comprises one or more of a dynamic discounted fare, an add-on zone or baggage.

19. The non-transitory computer readable medium of claim 15, wherein the computer
15 program instructions are configured to search the standard data database, search the operating function database, and apply the operating function in response to the second request, and wherein the computer program instructions are further configured to store the resulting data in the cache database.

20 20. The non-transitory computer readable medium of claim 15, wherein the computer program instructions are configured to search the standard data database, search the operating function database, and apply the operating function in response to a third request and wherein the computer program instructions are further configured to return the resulting data as a response to the third request.

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21. The non-transitory computer readable medium of claim 20, wherein the computer program instructions are further configured to, after returning the resulting data, receive a fourth request updating the resulting data, and in response to receiving the fourth request:

access the standard data database to retrieve a current version of the standard data;
compare updated resulting data associated with the fourth request with the current
version of the standard data stored in the standard data database to determine a
change therein;

- 5 produce a second operating function representative of the change;
apply the second operating function to the current version of the standard data to
produce second resulting data; and
store the second resulting data in the cache database.