CLAIMS

What is claimed is:

1. A computer-implemented method comprising:

identifying data sources, the data sources configured to provide sensor data as a first set of one or more time series, the sensor data comprising values of a first group of measurands;

determining that values of a second group of one or more of the measurands of a subset of the sensor data indicate an anomaly, wherein the subset of the sensor data is provided by a given data source of the data sources, and wherein the given data source comprises a set of components;

determining a third group of one or more of the measurands as candidates for identifying a root cause of the anomaly;

assigning respective sets of coefficients to the measurands of the second group, wherein each coefficient of the respective sets of coefficients is indicative of a comparison result of a measurand of the second group with a measurand of the third group using a similarity technique of a set of similarity techniques;

determining that no specific subset of the set of components of the given data source can be identified as a root cause of the anomaly using the respective sets of coefficients;

updating the third group of measurands;

assigning respective sets of updated coefficients to the measurands of the second group, based, at least in part, on the updated third group; and

identifying a specific subset of the set of components of the given data source as the root cause of the anomaly using the respective sets of updated coefficients.

2. The computer-implemented method of claim 1, wherein the updating of the third group of measurands comprises:

removing one or more measurands from the third group; and

adding one or more measurands to the third group.

3. The computer-implemented method of claim 2, wherein the added one or more measurands are provided by a selected component of the set of components, and wherein the computer-implemented method further comprises:

excluding the selected component from the set of components for a next iteration.

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

ranking the set of components in accordance with a predefined property of the set of components and in a monotonic sorting order, wherein the selected component is a first ranked component.

5. The computer-implemented method of claim 4, wherein the property is an overload degree.

6. The computer-implemented method of claim 1, wherein the specific subset of the set of components is a single component of the set of components.

7. The computer-implemented method of claim 1, wherein the determining that no specific subset of the set of components of the given data source can be identified as the root cause of the anomaly further comprises:

for respective measurands of the second group, combining the respective sets of coefficients, resulting in a set of combined coefficients; and

determining that no specific subset of the set of components of the given data source can be identified as the root cause of the anomaly using the combined coefficients.

8. The computer-implemented method of claim 7, wherein combining the respective sets of coefficients includes summing the respective sets of coefficients.

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

normalizing values of measurands of the second group of measurands and the third group of measurands prior to comparing the values of the second group of measurands and the third group of measurands.

10. The computer-implemented method of claim 1, wherein the set of similarity techniques includes a Manhattan distance, a Euclidean distance, a Dynamic time warping (DTW) distance, a Spearman metric, and a Pearson metric.

11. The computer-implemented method of claim 1, wherein the identifying the specific subset of the set of components of the given data source as the root cause of the anomaly further comprises:

receiving an event ticket from the given data source, the event ticket indicative of the anomaly.

12. The computer-implemented method of claim 1, wherein the identifying the specific subset of the set of components of the given data source as the root cause of the anomaly initiates in response to receiving an event ticket.

13. The computer-implemented method of claim 1, wherein a measurand of the second group comprises a measurand selected from the group consisting of (i) a measurand of the first group and (ii) a combination of measurands of the first group.

14. The computer-implemented method of claim 1, wherein each time series of the first set of time series includes values of a respective measurand.

15. A computer system comprising:

one or more computer processors;

one or more computer readable storage media; and

program instructions stored on the computer readable storage media for execution by at least one of the one or more processors, the stored program instructions comprising:

program instructions to identify data sources, the data sources configured to provide sensor data as a first set of one or more time series, the sensor data comprising values of a first group of measurands;

program instructions to determine that values of a second group of one or more of the measurands of a subset of the sensor data indicate an anomaly, wherein the subset of the sensor data is provided by a given data source of the data sources, and wherein the given data source comprises a set of components;

program instructions to determine a third group of one or more of the measurands as candidates for identifying a root cause of the anomaly;

program instructions to assign respective sets of coefficients to the measurands of the second group, wherein each coefficient of the respective sets of coefficients is indicative of a comparison result of a measurand of the second group with a measurand of the third group using a similarity technique of a set of similarity techniques;

program instructions to combine the respective sets of coefficients for respective measurands of the second group, resulting in respective sets of combined coefficients; and

program instructions to identify a specific subset of the set of components of the given data source as the root cause of the anomaly using the respective sets of combined coefficients.

16. The computer system of claim 15, wherein the program instructions to identify the specific subset of the set of components of the given data source as the root cause of the anomaly using the respective sets of combined coefficients comprise:

program instructions to, in response to determining that no specific subset of the set of components of the given data source can be identified as the root cause of the anomaly, update the third group of measurands;

program instructions to assign respective sets of updated coefficients to the measurands of the second group based, at least in part, on the updated third group;

program instructions to combine the respective sets of updated coefficients for respective measurands of the second group, resulting in respective sets of updated combined coefficients; and

program instructions to identify the specific subset of the set of components of the given data source as the root cause of the anomaly using the respective sets of updated combined coefficients.

17. The computer system of claim 15, wherein the specific subset of the set of components is a single component of the set of components.

18. A computer program product comprising:

one or more computer readable storage media and program instructions stored on the one or more computer readable storage media, the stored program instructions comprising:

program instructions to identify data sources, the data sources configured to provide sensor data as a first set of one or more time series, the sensor data comprising values of a first group of measurands;

program instructions to determine that values of a second group of one or more of the measurands of a subset of the sensor data indicate an anomaly, wherein the subset of the sensor data is provided by a given data source of the data sources, and wherein the given data source comprises a set of components;

program instructions to determine a third group of one or more of the measurands as candidates for identifying a root cause of the anomaly;

program instructions to assign respective sets of coefficients to the measurands of the second group, wherein each coefficient of the respective sets of coefficients is indicative of a comparison result of a measurand of the second group with a measurand of the third group using a similarity technique of a set of similarity techniques;

program instructions to combine the respective sets of coefficients for respective measurands of the second group, resulting in respective sets of combined coefficients; and

program instructions to identify a specific subset of the set of components of the given data source as the root cause of the anomaly using the respective sets of combined coefficients.

19. The computer program product of claim 18, wherein the program instructions to identify the specific subset of the set of components of the given data source as the root cause of the anomaly using the respective sets of combined coefficients comprise:

program instructions to, in response to determining that no specific subset of the set of components of the given data source can be identified as the root cause of the anomaly, update the third group of measurands;

program instructions to assign respective sets of updated coefficients to the measurands of the second group based, at least in part, on the updated third group;

program instructions to combine the respective sets of updated coefficients for respective measurands of the second group, resulting in respective sets of updated combined coefficients; and

program instructions to identify the specific subset of the set of components of the given data source as the root cause of the anomaly using the respective sets of updated combined coefficients.

20. The computer program product of claim 18, wherein the specific subset of the set of components is a single component of the set of components.