

CLAIMS

1. A computer-implemented method comprising:
 - receiving, by one or more processors, a plurality of candidate correlation groups of events in a set of fault events;
 - for each candidate correlation group of events, predicting, by one or more processors, a resource cost reduction in resolving the respective correlation group of events compared to resolving all events in the respective correlation group individually;
 - analyzing, by one or more processors, the predicted resource cost reductions for the plurality of candidate correlation groups of events; and
 - selecting, by one or more processors, a candidate correlation group based on the analysis of predicted resource cost reductions.
2. The method as claimed in claim 1, wherein predicting a resource cost reduction for resolving each candidate correlation of a group of events further comprises:
 - predicting, by one or more processors, a first resource cost of resolving the correlation group of events as a group;
 - predicting, by one or more processors, a second resource cost as a sum of costs of resolving the events in the group individually; and
 - calculating, by one or more processors, a difference in the first and second predicted resource costs to determine the predicted resource cost reduction.
3. The method as claimed in claim 1, wherein analyzing the predicted resource cost reductions further comprises:
 - ranking, by one or more processors, the candidate correlation groups of events by the predicted resource cost reduction.
4. The method as claimed in claim 1, wherein the candidate correlation groups are discrete groups of events or groups with overlapping events including sub-groups of events.
5. The method as claimed in claim 4, wherein analyzing the predicted resource cost reduction further comprises:
 - calculating, by one or more processors, combined predicted cost reductions of sub-group of events; and
 - comparing, by one or more processors, the result to a predicted cost reduction of a whole group of events.

6. The method as claimed in claim 2, wherein the resource costs are measured for an event or a group of events as one or more selected from the group consisting of: personnel time required to resolve, resource downtime to resolve, and loss of service cost to resolve.
7. The method as claimed in claim 2, wherein predicting a first resource cost further comprises:
applying, by one or more processors, a first machine learning model trained to predict resource costs for resolving correlation groups of events based on input vectors defining features of the correlations.
8. The method as claimed in claim 7, wherein the input vectors define features of the correlations in the form of one or more selected from the group consisting of: a severity of events in the group, a source of each event in the group, a number of events in the group, a number of resourced affected, patterns of when the group occurs, a duration of the group, a frequency of words in the group, and a degree of connectivity for events that match resources of a topology in the group.
9. The method as claimed in claim 7, further comprising:
providing, by one or more processors, feedback to the first machine learning model of resource costs of resolving a correlation group of events for continued training of the model.
10. The method as claimed in claim 2, wherein predicting a second resource cost further comprises:
applying, by one or more processors, a second machine learning model trained to predict resource costs for resolving individual events based on input vectors defining features of the individual events.
11. The method as claimed in claim 10, wherein the input vectors define features of the individual events in the form of one or more selected from the group consisting of: when the event occurred; a severity of the event; a location of the event; a description of the event.
12. The method as claimed in claim 10, further comprising:
providing, by one or more processors, feedback to the second machine learning model of resource costs of resolving individual events for continued training of the model.
13. The method as claimed in claim 1, wherein the plurality of candidate correlations of groups of events in a set of fault events are provided by a correlation system and are based on different discovered inferences between events.
14. 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 program instructions comprising:
program instructions to receive a plurality of candidate correlation groups of events in a set of fault events;
program instructions, for each candidate correlation group of events, to predict a resource cost reduction in resolving the respective correlation group of events compared to resolving all events in the respective correlation group individually;
program instructions to analyze the predicted resource cost reductions for the plurality of candidate correlation groups of events; and
program instructions to select a candidate correlation group based on the analysis of predicted resource cost reductions.

15. The computer system of claim 14, wherein the program instructions to predict a resource cost reduction for resolving each candidate correlation of a group of events further comprise program instructions to:
predict a first resource cost of resolving the correlation group of events as a group;
predict a second resource cost as a sum of costs of resolving the events in the group individually; and
calculate a difference in the first and second predicted resource costs to determine the predicted resource cost reduction.

16. The computer system of claim 15, wherein the program instructions to predict the first resource cost further comprise program instructions to:
apply a first machine learning model trained to predict resource costs for resolving correlation groups of events based on input vectors defining features of the correlations.

17. The computer system of claim 15, wherein the program instructions to predict the first resource cost further comprise program instructions to:
apply a second machine learning model trained to predict resource costs for resolving individual events based on input vectors defining features of the individual events.

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 program instructions comprising:
program instructions to receive a plurality of candidate correlation groups of events in a set of fault events;

program instructions, for each candidate correlation group of events, to predict a resource cost reduction in resolving the respective correlation group of events compared to resolving all events in the respective correlation group individually;

program instructions to analyze the predicted resource cost reductions for the plurality of candidate correlation groups of events; and

program instructions to select a candidate correlation group based on the analysis of predicted resource cost reductions.

19. A computer-implemented method comprising:

providing a first machine learning model trained to predict resource costs for resolving correlation groups of events based on input vectors defining features of the correlation groups;

providing a second machine learning model trained to predict resource costs for resolving individual events based on input vectors defining features of the individual events;

for a discovered correlation of a group of events:

applying, by one or more processors, the first machine learning model to predict a resource cost for resolving the group of events as a correlation group;

applying, by one or more processors, the second machine learning model to predict a resource cost for resolving the group of events as individual events; and

predicting, by one or more processors, a resource cost reduction in resolving a correlated of a group of events compared to a total resource cost of resolving all the events in the group individually.

20. The method as claimed in claim 19, wherein providing a first machine learning model trained to predict resource costs for resolving correlation groups of events based on input vectors defining features of the correlation groups further comprises:

training, by one or more processors, the first machine learning model based on resolved correlation group event analysis including resource cost feedback of correlation groups of events.

21. The method as claimed in claim 19, wherein providing a second machine learning model trained to predict resource costs for resolving individual events based on input vectors defining features of the individual events further comprises:

training, by one or more processors, the second machine learning model based on resolved event analysis including resource cost feedback of individual events.

22. A computer-implemented method comprising:

training, by one or more processors, a first machine learning model to predict resource costs for resolving correlation groups of events based on input vectors defining features of the correlation groups;

training, by one or more processors, a second machine learning model to predict resource costs for resolving individual events based on input vectors defining features of the individual events;

providing, by one or more processors, the first machine learning model for predicting a resource cost for resolving a group of events as an input correlation group;

providing, by one or more processors, the second machine learning model for predicting a resource cost for resolving the group of events in the input correlation group as individual events; and

predicting, by one or more processors, a resource cost reduction in resolving the correlation group of events as a correlation group compared to a total resource cost of resolving all the events in the group individually.

23. The method as claimed in claim 22, wherein training the first machine learning model to predict resource costs for resolving correlation groups of events is based on resolved correlation group event analysis including resource cost feedback of correlation groups of events.

24. The method as claimed in claim 22, wherein training the second machine learning model to predict resource costs for resolving individual events is based on resolved event analysis including resource cost feedback of individual events.

25. The method as claimed in claim 22, further comprising:

receiving, by one or more processors, feedback to the first machine learning model of resource costs of resolving a correlation group of events for continued training of the model; and

receiving, by one or more processors, feedback to the second machine learning model of resource costs of resolving individual events for continued training of the model.