

CLAIMS

I/we claim:

1. A computer-implemented method comprising:

receiving a stream of [relational](#) data;

[receiving a plurality of event data structures, wherein each event data structure describes a complex event and cycle metrics associated the complex event;](#)

[identifying locations in the relational data associated with the plurality of event data structures;](#)

generating a series of event cycle metric data structures including a benchmark artifact and a first local peak value and a second range including the benchmark artifact and a peak artifact;

wherein the event cycle metric data structures includes one or more of:

a benchmark artifact indicating a first relational value comparable to a second relational value associated with a complex event; and

a peak artifact indicating a relative change of the complex event, wherein the peak artifact is associated with another critical point after the benchmark artifact,

wherein to calculate one or more metrics based on the set of artifacts, ~~the a~~ first range is compared to the second range to determine a growth percentage, to determine a drop percentage associated with the artifact, and to determine a recovery percentage;

generating a display of the [relational](#) data, wherein the display comprises identifying event information associated [with](#) one or more event data cycle metric structures based on the one or more metrics;

receiving another stream of another set of data;

generating [another](#) display of the data with the another set of data to visualize discrete differences in the stream and the another stream; and

zooming in on a region of the display and determining one or more new metrics associated with one or more cycles, for identifying event information to display a subset of the data stream at a resolution and level of detail based on the size and resolution of the output device,

wherein the display and the resolution of the output device comprising event information associated [with](#) one or more of the event cycle metric data structures is based on the one or more metrics meeting a threshold that is inversely associated with a number of the

one or more cycles in the complex event and directly associated with a resolution associated with displaying of the complex event on the output device,

wherein the data stream is compressed by a processor to generate a compressed data stream, by removing non-essential data from the data stream based on a desired resolution of display on the output device and one or more of (1) a speed and a current load of a cloud server associated with the processor, (2) a bandwidth of a network, and (3) a speed of the processor on a client based on a size and a resolution of the output device and a type of the client, and

wherein a peak point comprising a local maximum point or a local minimum point is defined based on the threshold including a higher threshold representing a lower resolution of a lossy compression system for display on the output device, and a lower threshold representing a higher resolution of the lossy compression system for display on the output device, to control the visualization overlay details associated with the size and resolution of the output device, so as to separate noisy data from essential data, wherein for a network architecture comprising the client coupled to the cloud server, the cloud server and the client each maintains a copy of a data compression module for balancing of a processing load between the client and the cloud server in a manner that optimizes performance of the network architecture, and an input for the data compression module comprises the threshold that controls the resolution associated with display of the compressed data stream on the output device, from plural data sources and an amount of data communicated between the client and the cloud server.

2. The method of claim 1, further comprising identifying locations in the data associated with the event cycle metric data structures is based on matching a relational value of the data with a key value of at least one of the plurality of event cycle metric data structures.

3. The method of claim 1, wherein that displayed event information is filtered based on the one or more metrics of the event cycle metric data structures to display a number of ranked events associated with a selected one or the one or more metrics.

4. The method of claim 1, further comprising:
receiving another stream of another set of [relational](#) data;
identifying locations in the another set of [relational](#) data associated with the event

cycle metric data structures, wherein identifying locations in the another set of [relational](#) data comprises normalizing the another set of [relational](#) data; and

generating a display of the normalized data including the [relational](#) data with the another set of [relational](#) data to display event information at a point of the normalized data.

5. The method of claim 1, wherein the display of event information based on one or more metrics includes one or more of: labels, keywords, or colors.

6. The method of claim 1, wherein the plurality of event cycle metric data structures is received from a different source than the data stream.

7. The method of claim 1, wherein the client comprises one or more of a mobile field device, a laptop, a mobile phone, and a tablet.

8. The method of claim 1, wherein for the cloud server having a faster processing speed than the client and the network, a compression algorithm is processed on the cloud server with the lower resolution and the higher threshold, in a manner that reduces the amount of data that is required to be received and processed by the client.

9. The method of claim 1, wherein for the client having a faster processing speed than the server, the processing load is shifted to the client.

10. The method of claim 1, wherein for the network and the cloud server having a faster processing speed than the client, the server pre-processes and compresses the data with the higher resolution in a manner that retains the one or more cycles and provides the compressed data to the client for processing in a dynamic manner based on input from the user in a manner that reduces network traffic.

11. The method of claim 1, wherein, in a low bandwidth environment, a high threshold provides for filtering out of non-essential data to [optimize-enhance](#) transmission through the network, and in a high bandwidth environment where the client has a greater processing capability than the cloud server, the cloud server pre-processes the cycle metrics with a lower threshold in a manner that provides greater detail to the client.

12. The method of claim 1, wherein the client is configured to dynamically change the resolution of the data stream for display on the output device based on a cached version of the compressed data stream.