



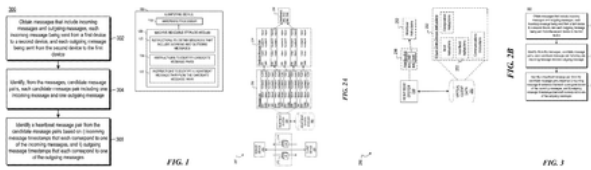
< Back to results Inventor: peng-ji Yin;

Identifying heartbeat messages

Abstract

Examples relate to identifying heartbeat messages. In one example, a computing device may: obtain a plurality of messages that includes incoming messages and outgoing messages, each incoming message being sent from a server device to a client device, and each outgoing message being sent from the client device to the server device; identify candidate message pairs, each candidate message pair including one incoming message and one outgoing message; and identify a heartbeat message pair from the candidate message pairs based on at least one of: plurality of timestamps that includes i) incoming message timestamps that each correspond to one of the incoming messages, and ii) outgoing message timestamps that each correspond to one of the outgoing messages; a number of occurrences of each candidate message pair included a message log; or characteristics of data included in the incoming message and outgoing message of each candidate message pair.

Images (5)



Classifications

H04L43/04 Processing captured monitoring data, e.g. for logfile generation

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Claims (19)

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We claim:

1. A computing device for identifying heartbeat messages, the computing device comprising:

a hardware processor; and

a data storage device storing instructions that, when executed by the hardware processor, cause the hardware processor to:

obtain a plurality of messages that include incoming messages and outgoing messages, each incoming message being sent from a server device to a client device, and each outgoing message being sent from the client device to the server device;

identify, from the plurality of messages, candidate message pairs, each candidate message pair including one incoming message and one outgoing message; and

identify, from the candidate message pairs, a heartbeat message pair, the heartbeat message pair including an incoming message and a corresponding outgoing message, the corresponding outgoing message being outputted by the client device in response to receipt of the incoming message from the server device by the client device, based on a number of occurrences of each candidate message pair included in a message log.

2. The computing device of claim 1, wherein the instructions further cause the hardware processor to:

generate, in response to the heartbeat message pair being identified, heartbeat instructions that cause a particular outgoing message to be produced in response to receipt of a particular incoming message, wherein the particular outgoing message is based on the outgoing message included in the heartbeat message pair, and the particular incoming message is based on the incoming message included in the heartbeat message pair; and

cause the heartbeat instructions to be combined with existing instructions to operate a virtual client device.

3. The computing device of claim 1, wherein to identify the candidate message pairs, the instructions further cause the hardware processor to:

for each incoming message that is followed by a following outgoing message, identify the incoming message and the following outgoing message as one of the candidate message pairs.

4. The computing device of claim 1, wherein to identify the heartbeat message pair, the instructions further cause the hardware processor to:

determine, for a particular candidate message pair, that a difference in time between the incoming message and the outgoing message of the particular candidate message pair is within a threshold period of time, the difference in time being determined based on i) an incoming message timestamp for the incoming message of

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Current Assignee: [Micro Focus LLC](#)

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Application US15/544,671 events

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