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(54) **METHODS, MEDIA AND SYSTEMS FOR DETECTING ANOMALOUS PROGRAM EXECUTIONS**

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G06F 11/00 (2006.01)

(52) **U.S. Cl.** **714/38.1**

(58) **Field of Classification Search** 714/2–10, 714/25–29, 32, 33, 37–39, 47

See application file for complete search history.

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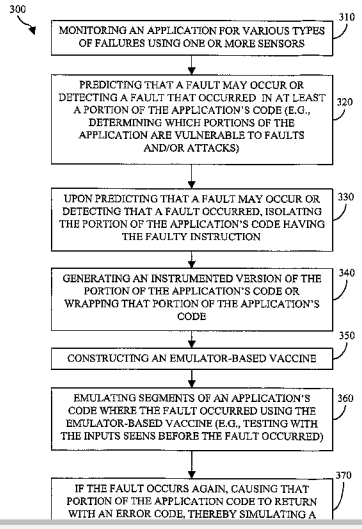
(57) **ABSTRACT**

Methods, media, and systems for detecting anomalous program executions are provided. In some embodiments, methods for detecting anomalous program executions are provided, comprising: executing at least a part of a program in an emulator; comparing a function call made in the emulator to a model of function calls for the at least a part of the program; and identifying the function call as anomalous based on the comparison. In some embodiments, methods for detecting anomalous program executions are provided, comprising: modifying a program to include indicators of program-level function calls being made during execution of the program; comparing at least one of the indicators of program-level function calls made in the emulator to a model of function calls for the at least a part of the program; and identifying a function call corresponding to the at least one of the indicators as anomalous based on the comparison.

42 Claims, 8 Drawing Sheets



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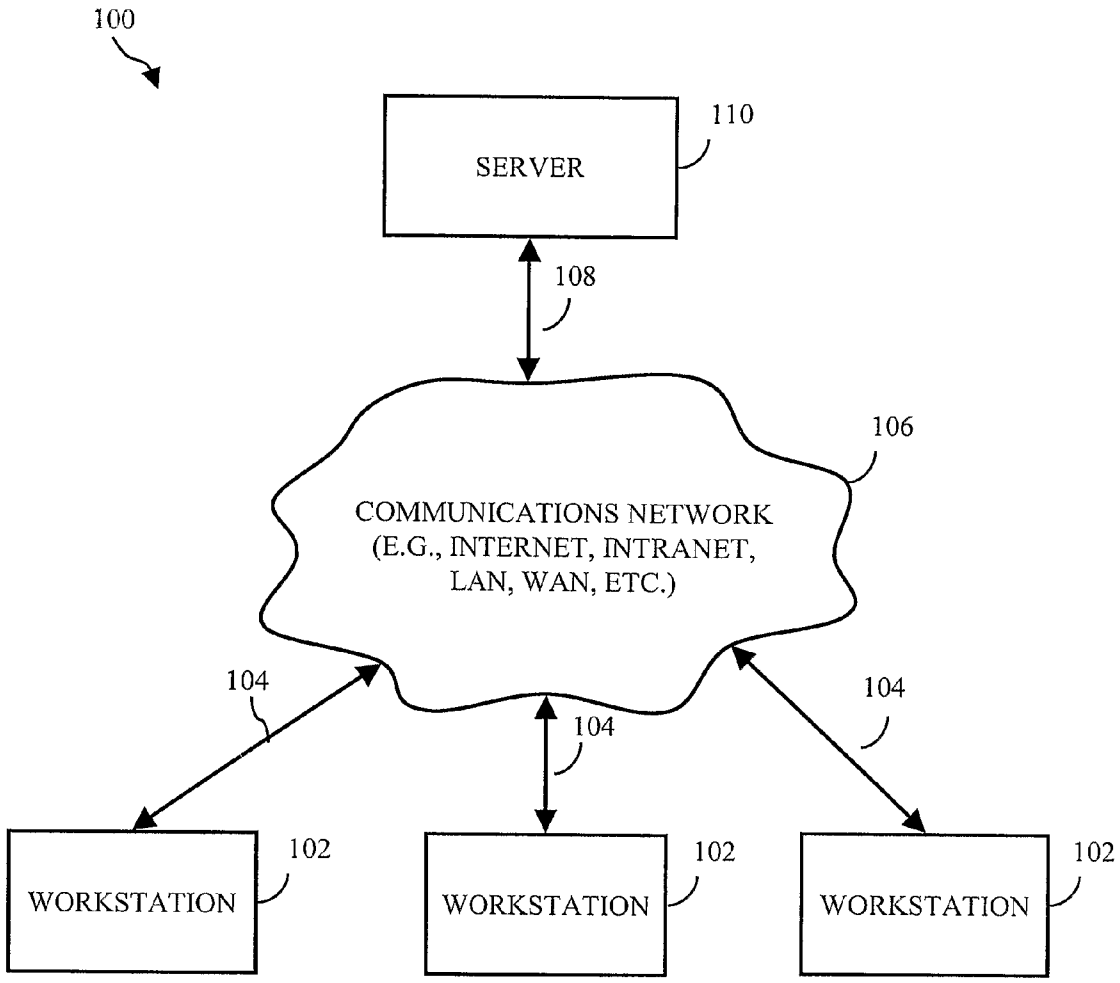

FIG. 1

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