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**Warpenburg et al.**

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(54) **TWO-PHASE ROOT CAUSE ANALYSIS**

(75) Inventors: **Michael R. Warpenburg**, Austin, TX (US); **Michael J. Scholtes**, Austin, TX (US)

(73) Assignee: **BMC Software, Inc.**, Houston, TX (US)

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**G06F 11/00** (2006.01)

(52) **U.S. Cl.** ..... **714/43**; 714/27; 714/56

(58) **Field of Classification Search** ..... 714/26,  
714/27, 56

See application file for complete search history.

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*Primary Examiner*—Scott Baderman

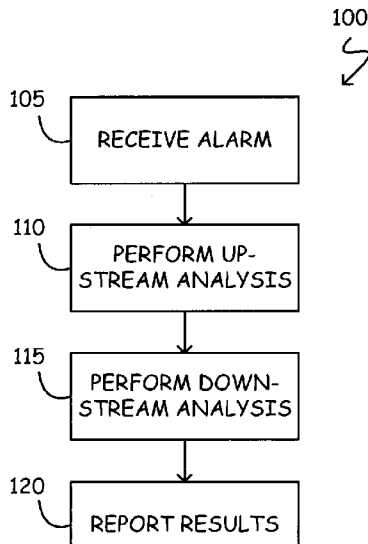
*Assistant Examiner*—Joshua Lohn

(74) *Attorney, Agent, or Firm*—Wong, Cabello, Lutsch, Rutherford & Brucculeri, LLP

(57) **ABSTRACT**

A two-phase method to perform root-cause analysis over an enterprise-specific fault model is described. In the first phase, an up-stream analysis is performed (beginning at a node generating an alarm event) to identify one or more nodes that may be in failure. In the second phase, a down-stream analysis is performed to identify those nodes in the enterprise whose operational condition are impacted by the prior determined failed nodes. Nodes identified as failed as a result of the up-stream analysis may be reported to a user as failed. Nodes identifies as impacted as a result of the down-stream analysis may be reported to a user as impacted and, beneficially, any failure alarms associated with those impacted nodes may be masked. Up-stream (phase 1) analysis is driven by inference policies associated with various nodes in the enterprise's fault model. An inference policy is a rule, or set of rules, for inferring the status or condition of a fault model node based on the status or condition of the node's immediately down-stream neighboring nodes. Similarly, down-stream (phase 2) analysis is driven by impact policies associated with various nodes in the enterprise's fault model. An impact policy is a rule, or set of rules, for assessing the impact on a fault model node based on the status or condition of the node's immediately up-stream neighboring nodes.

**90 Claims, 8 Drawing Sheets**



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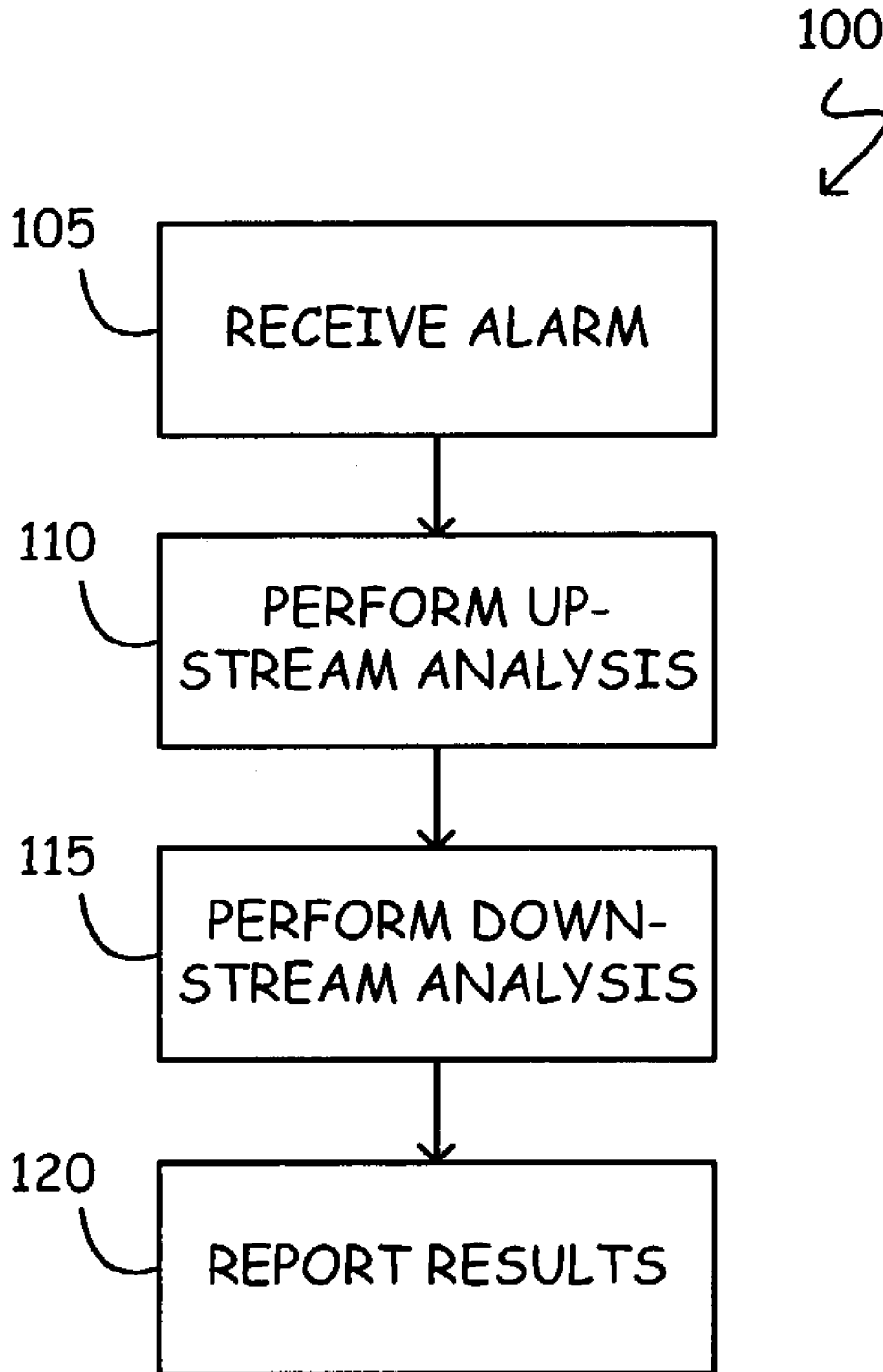


FIG. 1

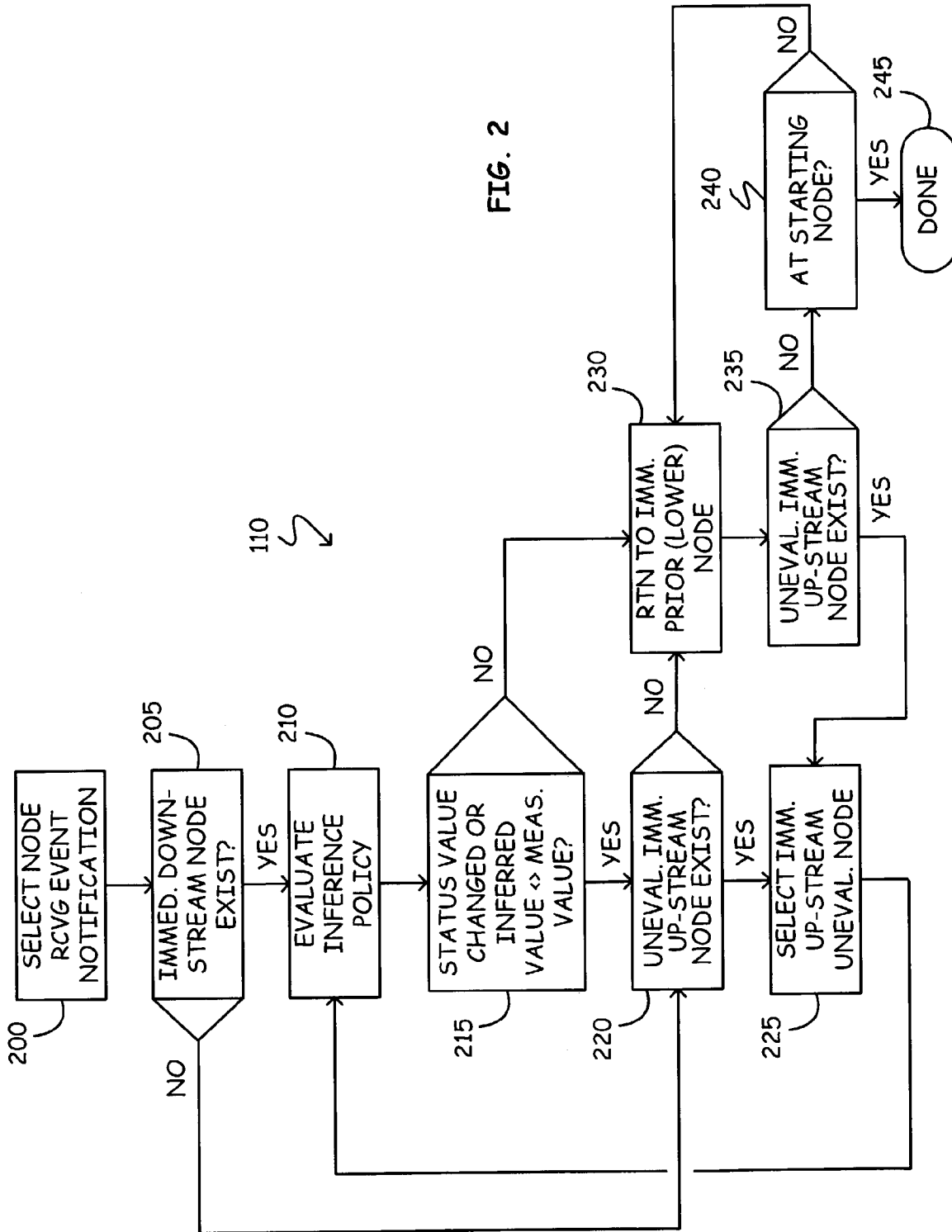


FIG. 2

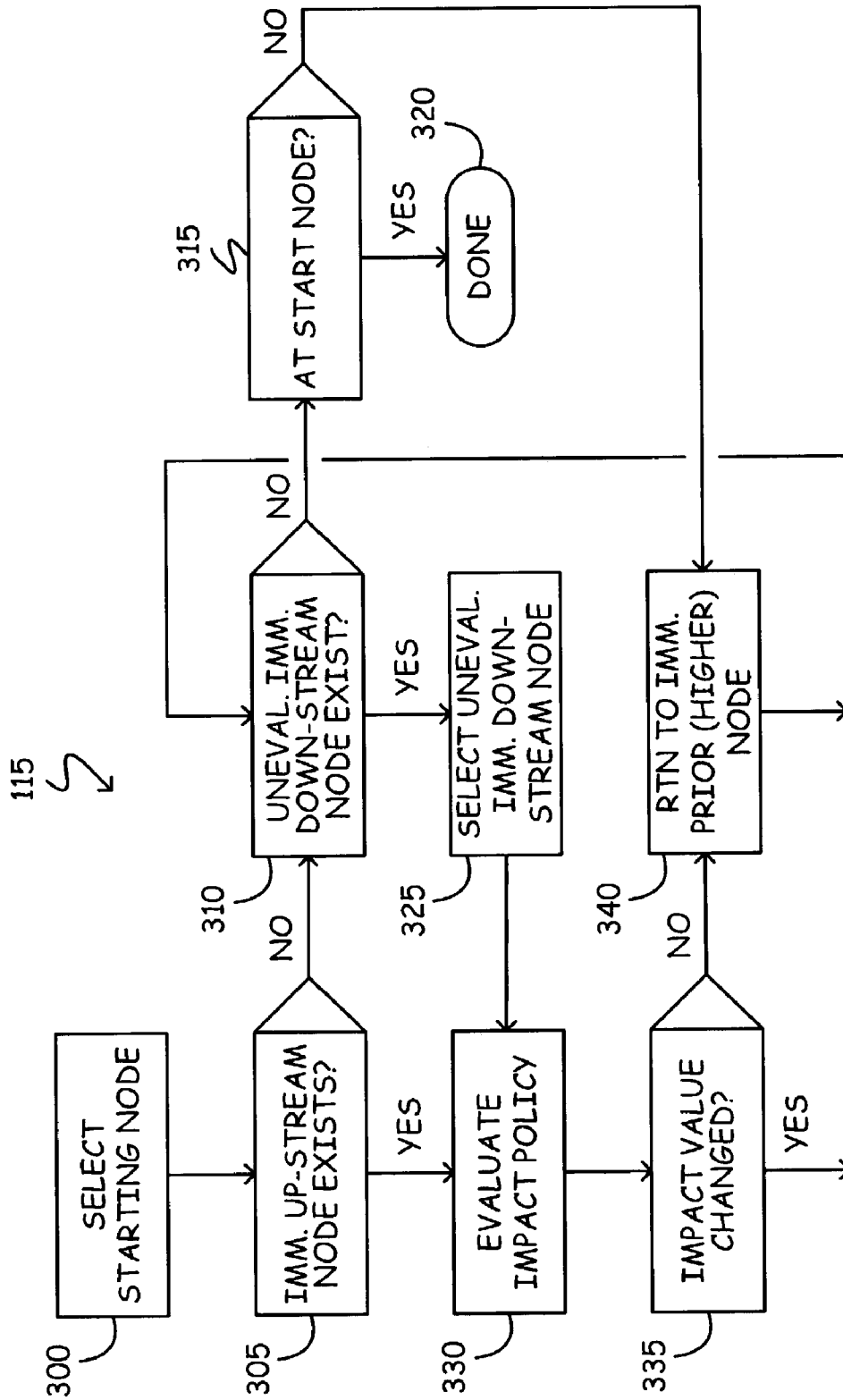


FIG. 3

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