(19) **United States**

(12) **Patent Application Publication** (10) Pub. No.: **US 2024/0214269 A1**

Basavaraja et al. (43) **Pub. Date:** **Jun. 27, 2024**

(54) **METHOD AND APPARATUS FOR DERIVING NETWORK CONFIGURATION AND STATE FOR PHYSICAL NETWORK FABRIC SIMULATION**

(71) Applicant: **NVIDIA Corporation**, Santa Clara, CA (US)

(72) Inventors: **Rohith Basavaraja**, Bangalore (IN); **Vinay Prasad V**, Bangalore (IN); **Sharath Ramamurthy**, Bangalore (IN)

(21) Appl. No.: **18/164,972**

(22) Filed: **Feb. 6, 2023**

(30) **Foreign Application Priority Data**

Dec. 24, 2022 (IN) 202211075176

Publication Classification

(51) **Int. Cl.**
  H04L 41/0853 (2006.01)
  H04L 41/0859 (2006.01)
  H04L 41/0869 (2006.01)

(52) **U.S. Cl.**
  CPC *H04L 41/0853* (2013.01); *H04L 41/0859* (2013.01); *H04L 41/0869* (2013.01)

(57) **ABSTRACT**

Systems and methods are described for collecting configuration data associated with one or more devices of a network, in association with a configuration of the network. The systems and methods include validating the configuration of the network. Validating the configuration includes determining a stability status associated with the network and the configuration. The systems and methods include generating a data record corresponding to the configuration of the network and storing the data record to a data repository. The data record includes the configuration data and results associated with validating the configuration of the network. The systems and methods include generating a second configuration and simulating the second network based on the second configuration. The second configuration includes the one or more devices, one or more second devices included in the data repository, or both.