



(19) **United States**

(12) **Patent Application Publication**

ITHAL et al.

(10) **Pub. No.: US 2023/0231868 A1**

(43) **Pub. Date: Jul. 20, 2023**

(54) **GRAPHICAL QUERY BUILDER FOR CLOUD DATA ATTACK DETECTION**

*G06F 9/451* (2018.01)

(71) Applicant: **Normalyze, Inc.**, Los Altos, CA (US)

(52) **U.S. Cl.**  
CPC ..... *H04L 63/1433* (2013.01); *G06F 9/451* (2018.02); *G06F 16/24569* (2019.01); *H04L 63/102* (2013.01); *H04L 63/104* (2013.01); *H04L 63/205* (2013.01); *H04L 63/1416* (2013.01)

(72) Inventors: **Ravishankar Ganesh ITHAL**, Los Altos, CA (US); **Mummoorthy MURUGESAN**, Fremont, CA (US)

(73) Assignee: **Normalyze, Inc.**, Los Altos, CA (US)

(21) Appl. No.: **18/122,101**

(57) **ABSTRACT**

(22) Filed: **Mar. 15, 2023**

**Related U.S. Application Data**

(63) Continuation of application No. 17/939,489, filed on Sep. 7, 2022, now Pat. No. 11,625,499.

(60) Provisional application No. 63/246,303, filed on Sep. 20, 2021, provisional application No. 63/246,310, filed on Sep. 21, 2021, provisional application No. 63/246,313, filed on Sep. 21, 2021, provisional application No. 63/246,315, filed on Sep. 21, 2021.

**Publication Classification**

(51) **Int. Cl.**  
*H04L 9/40* (2022.01)  
*G06F 16/245* (2019.01)

The technology disclosed relates to streamlined analysis of security posture of a cloud environment. In particular, the disclosed technology relates to a graphical query builder for generating a subject path signature, for example representing a vulnerability path in the cloud environment. A computer-implemented method includes generating a graphical user interface having configurable node elements and edge elements and, in response to user input on the graphical user interface, configuring the node elements to represent entities in a subject path signature in the cloud environment and the edge elements to represent relationships between the entities in the subject path signature. The method also includes generating a query representing the subject path signature, executing the query to qualify a set of network paths in the cloud environment as conforming to the subject path signature, and outputting query results identifying the qualified set of network paths.

