



(12) **United States Patent**
Michaelis

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(54) **METHOD AND APPARATUS TO CREATE MULTICAST GROUPS BASED ON PROXIMITY**

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(73) Assignee: **QUALCOMM Incorporated**, San Diego, CA (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 848 days.

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(21) Appl. No.: **12/035,358**

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(65) **Prior Publication Data**

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Related U.S. Application Data

(60) Provisional application No. 60/891,231, filed on Feb. 23, 2007.

(51) **Int. Cl.**
H04H 20/71 (2008.01)
H04L 12/28 (2006.01)

(57) **ABSTRACT**

(52) **U.S. Cl.**
USPC 370/312; 370/390; 370/432

Devices and methods use close range communication links, such as near field communication (NFC) protocol links, to enable users to authenticate mobile devices to one another to create or expand secure multicast groups. Once the two or more devices establish a close range communication peer-to-peer link the devices exchange multicast group communication data sufficient to permit the devices to receive or send multicast messages. Long range wireless or wired network communication links are then used for multicast message communications. Proximity limits of the close range communication P2P link enables mutual trust to be presumed among devices, reducing the need for security and authentication signaling. The limited range of close range communication P2P links renders multicast groups established in this manner less vulnerable to eavesdropping and intrusion. Embodiments enable users to initiate secure multicast group participation merely by bringing two or more devices into close proximity.

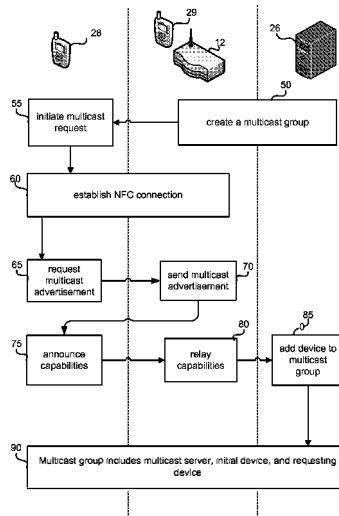
(58) **Field of Classification Search**
None
See application file for complete search history.

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40 Claims, 8 Drawing Sheets



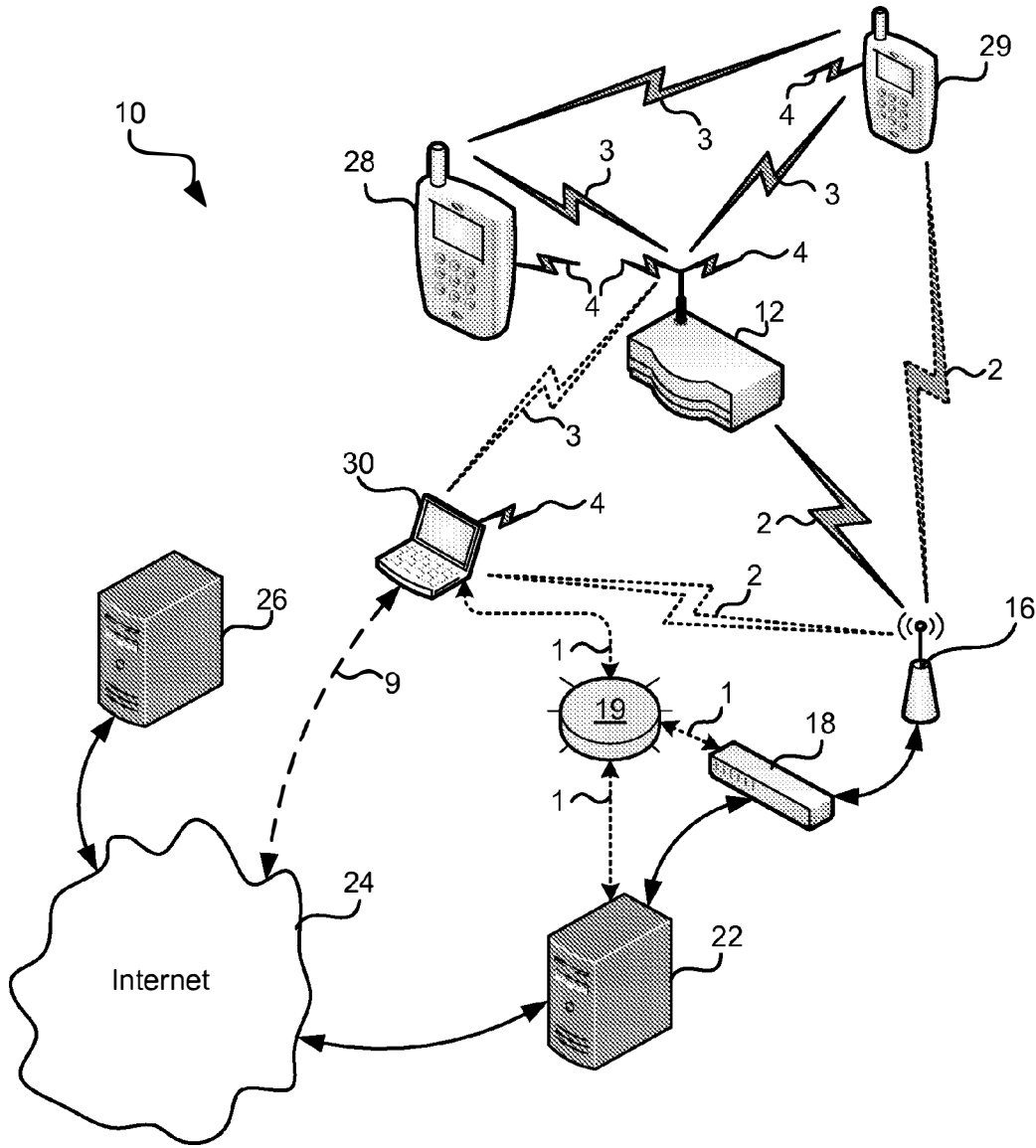


FIG. 1

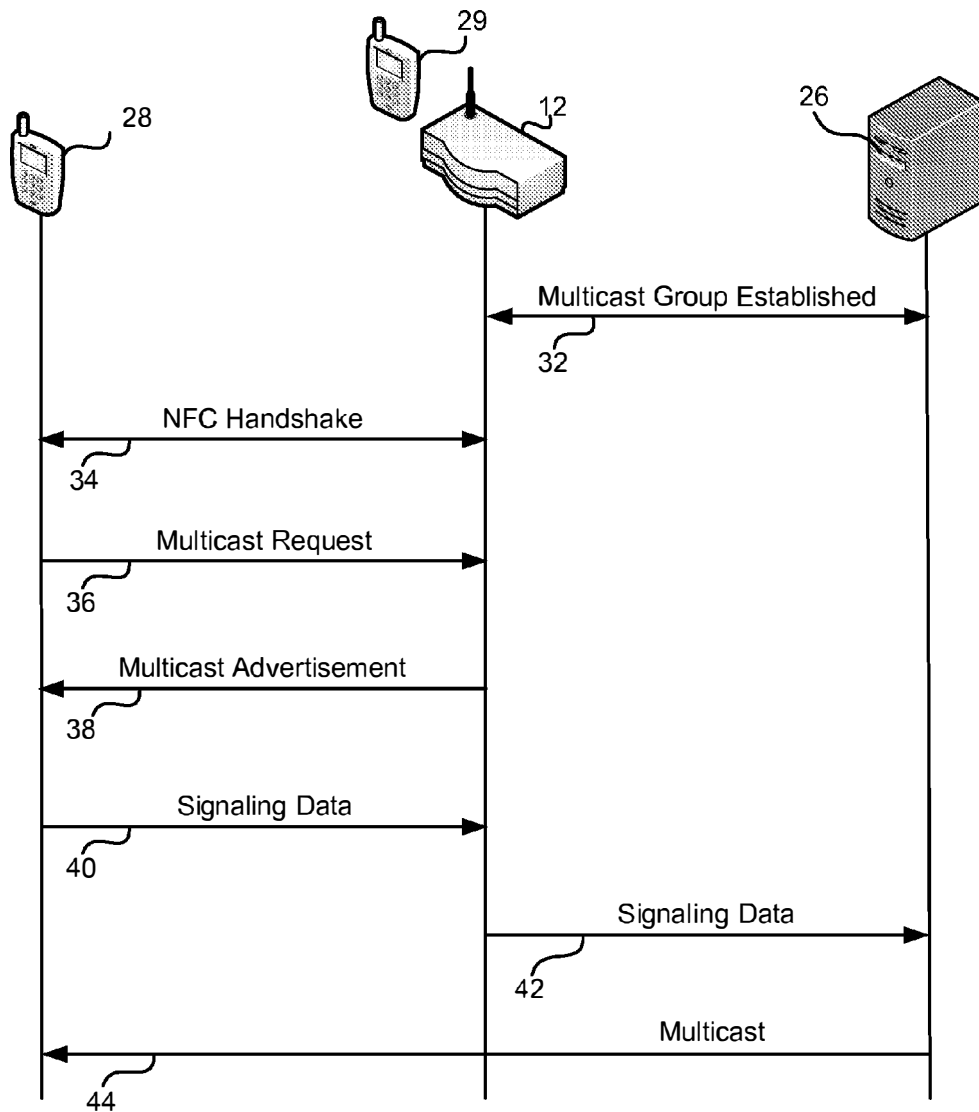


FIG. 2

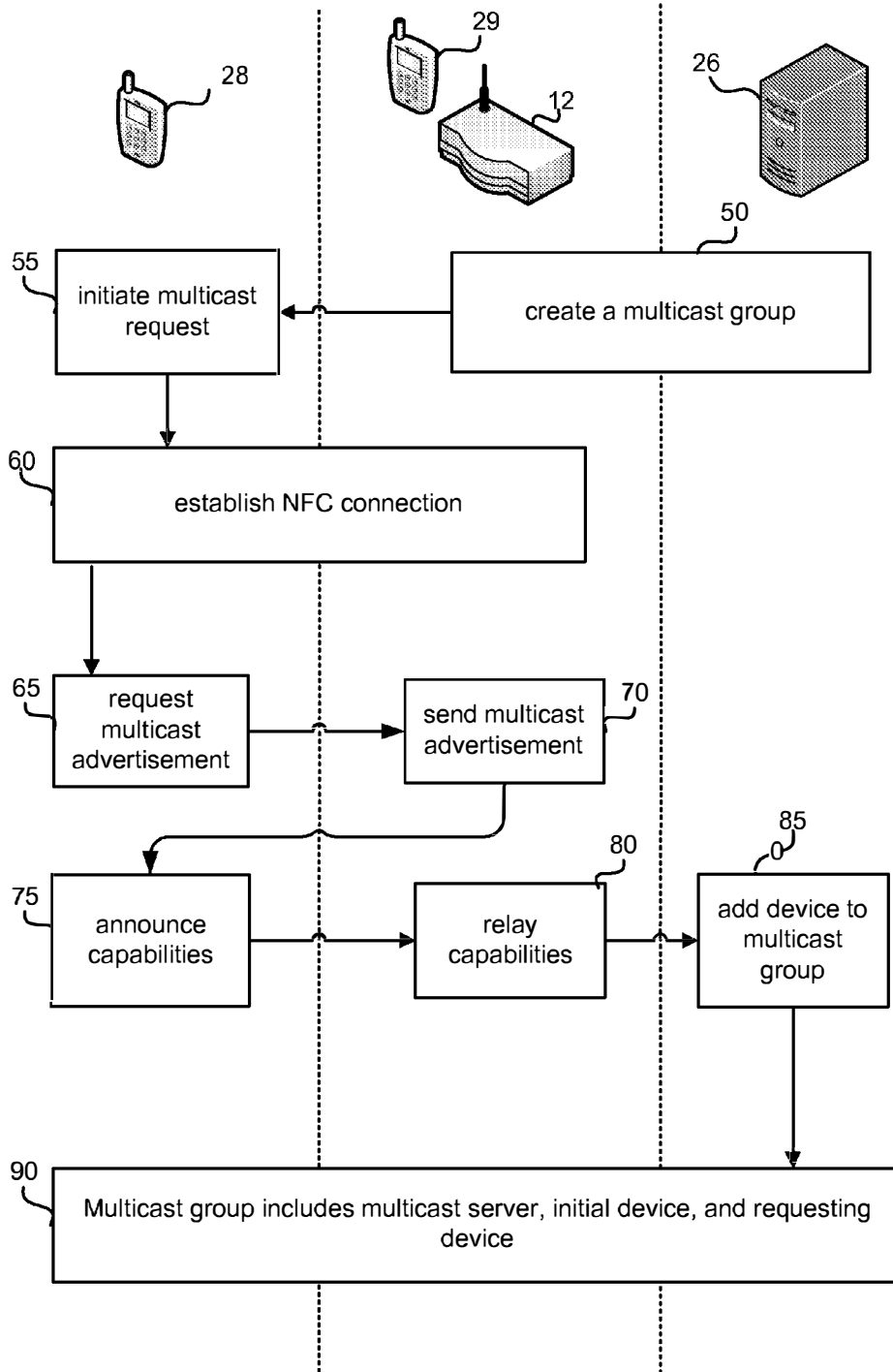


FIG. 3

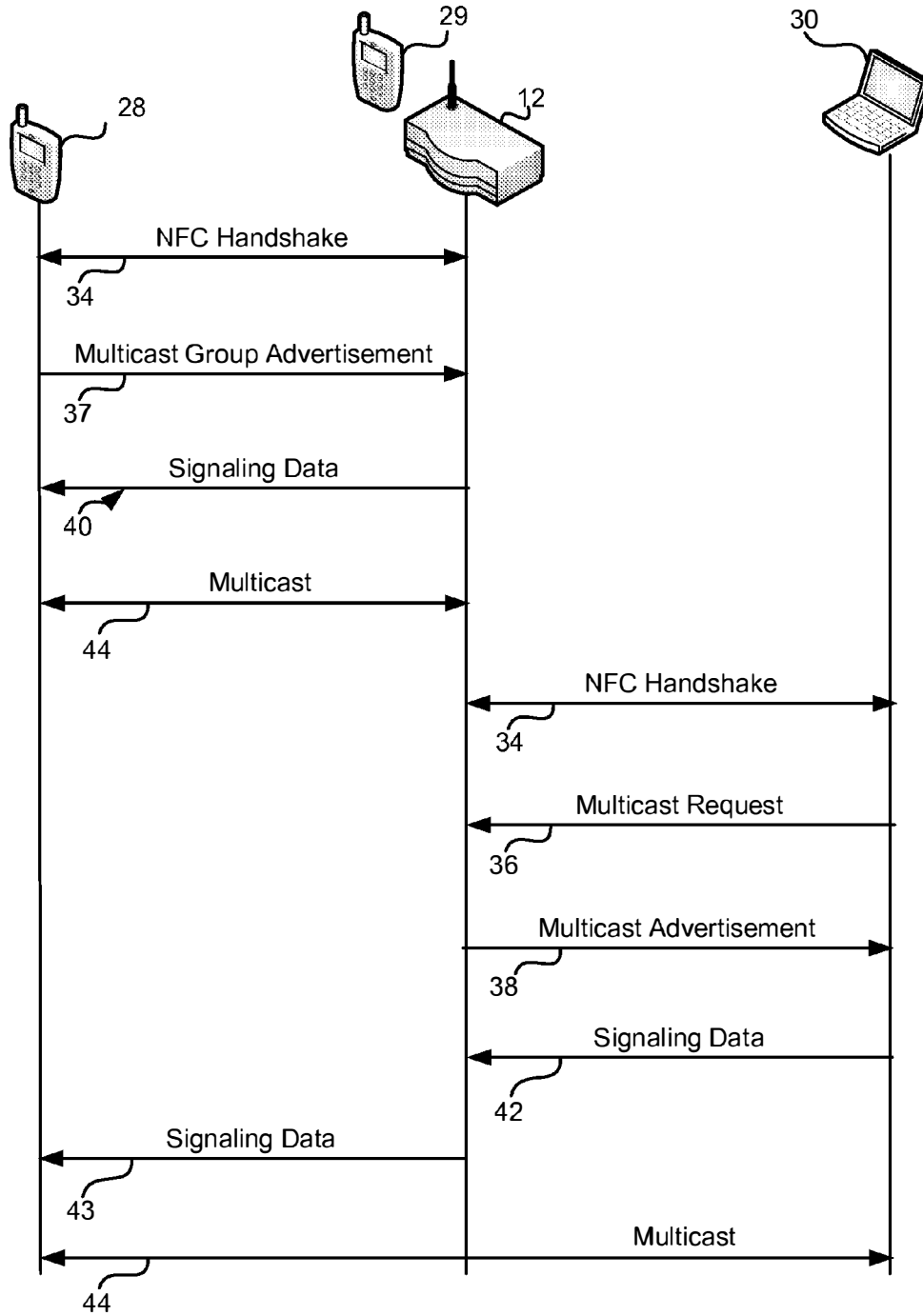


FIG. 4

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