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# (54) SIGNAL SHARING BETWEEN TRUSTED GROUPS OF DEVICES

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- (52) U.S. Cl.

(58) Field of Classification Search

CPC .......H04W 4/008; H04W 4/80 See application file for complete search history.

#### (56) References Cited

#### U.S. PATENT DOCUMENTS

8,355,711 B2 1/2013 Heins et al. 8,694,597 B1 4/2014 Raj et al. (Continued)

#### FOREIGN PATENT DOCUMENTS

EP 3035721 A1 6/2016

#### OTHER PUBLICATIONS

Santhi, et al., "A Framework for Energy Efficient Collaborative Video Download and Sharing in Cloud Environment", In International Journal of Computer Applications, vol. 116, No. 8, Apr. 2015, pp. 31-34.

(Continued)

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#### (57) ABSTRACT

Aspects of the technology described herein identify a trusted group of devices that collaborate to minimize device limitations (e.g., data use, bandwidth, battery life, and the like). Personal assistant services or cloud-based services utilize user data (e.g., web browsing, calendar entries, communication data, social networks, and the like) and device data (e.g., location data, Bluetooth beacons, Wi-Fi, and the like) provided by user devices to identify devices in the trusted group of devices. A handshake between the devices establishes a means of communication and a selected topology. A hub device is selected from the trusted group of devices to upload or download relevant data based on the selected topology. The hub device shares the relevant data with the member devices via the established means of communication.

### 20 Claims, 4 Drawing Sheets

