This sequence diagram describes the presence subscription and notification flow. The entities involved in the interactions are:

Presence Server: The network entity that manages presence information uploaded by PUAs and handles presence subscription requests.

Presentity Presence Proxy: The network entity that identifies the Presence Server assigned to a presentity.

Watcher Presence Proxy: The network entity that identifies the target network for a presentity and resolves its address.

Presence User Agent (PUA): The entity that assembles and provides presence information to Presence Server.

Watcher: The entity that requests presence information about a presentity.

Presence IMS Feature Successful Subscription (IMS Presence Subscription, Publication and Notification)

SUBSCRIBE
Event = presence, Request URI = Presentity URI, Expires = 7200, Route = <Watcher S-CSCF>, From = Watcher URI

SUBSCRIBE
Event = presence, Request URI = Presentity URI, Expires = 7200, Route = <Watcher S-CSCF>, From = Watcher URI

SUBSCRIBE
Event = presence, Request URI = Presentity URI, Expires = 7200, Route = <Watcher S-CSCF>, From = Watcher URI

NOTIFY
To = Watcher URI, From = Watcher URI, Route = <Watcher S-CSCF>, <Watcher P-CSCF>, Request URI = Presentity URI, Presence information

NOTIFY
To = Watcher URI, From = Watcher URI, Route = <Watcher S-CSCF>, <Watcher P-CSCF>, Event = presence, Presence information

PUBLISH
Event = presence, Request URI = Presentity URI, Presence information

To initiate a subscription, the Watcher UE generates a SUBSCRIBE request containing the "presence" event that it wishes to be notified of. The message also includes the subscription duration.

The P-CSCF looks up the serving network information for the Watcher’s public user identity that was stored during the registration procedure. The SUBSCRIBE request is forwarded to S-CSCF.

The Presentity I-CSCF sends a query to the HSS to find out the S-CSCF of the Presentity user. The HSS responds with the address of the current S-CSCF for the Presentity. The Presentity I-CSCF forwards the SUBSCRIBE request to the Presentity S-CSCF that will handle the termination.

The S-CSCF forwards the SUBSCRIBE request to the PS.

The PS performs the necessary authorization checks on the Watcher to ensure it is allowed to watch the presence.

If all privacy conditions are met, PS sends a 200 (OK) response to the S-CSCF. 200 (OK) is passed all the way to Watcher.

PS sends a NOTIFY request with the current state of the presentity’s presence information that the watcher has subscribed to and been authorized to.

The S-CSCF forwards NOTIFY to Watcher P-CSCF.

PS forwards NOTIFY to Watcher.

The P-CSCF forwards NOTIFY to Watcher.

The UE generates a 200 (OK) response to the NOTIFY request. The message is passed to PS as shown.

To initiate the publication, the PUA in UE generates a PUBLISH request containing the presence information that it wishes to publish.
Presence IMS Feature Successful Subscription (IMS Presence Subscription, Publication and Notification)

Watcher UE | Watcher IMS Network | Presence Server | Presentity IMS Network | Presentity Presence Proxy | Presentity UE | Presentity S-CSCF | Presentity P-CSCF | Presentity PUA
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PUBLISH
Event = presence,
Request URI = Presentity URI,
Presence information,
Route = <Presentity S-CSCF>

Presentity P-CSCF looks up the serving network information for the public user identity that was stored during the registration procedure. The PUBLISH request is forwarded to the Presentity S-CSCF. A Route header is inserted into PUBLISH request.

The PS performs the necessary authorization checks to ensure that it is allowed to publish the presentity's presence information. When all privacy conditions are met, PS generates 200 (OK) response towards Presentity PUA.

NOTIFY
To = Watcher URI,
From = Presentity URI,
Records Route = <Watcher S-CSCF>, <Watcher P-CSCF>,
Event = presence,
Presence information

The UE generates a 200 (OK) response to the NOTIFY request. The message is passed to PS as shown.