

Alternative to Push Notifications Working Session

Faurecia Aptoide, BMW, GM

11th October 2023



COVESA

Accelerating the future of connected vehicles



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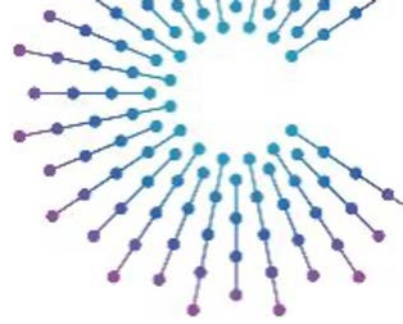
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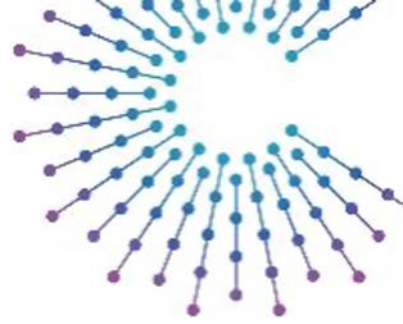
Alternative to Push Notifications Working Session

Agenda

1. **Summary of previous discussions**
2. Topics for the working session

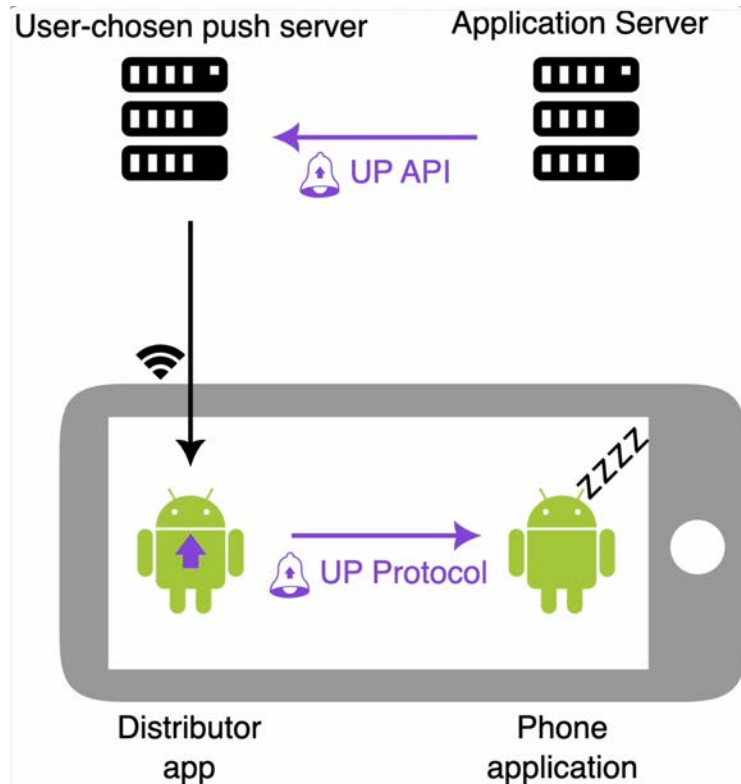


Context



- Push notifications are needed to support use cases in which an app that is not currently running needs to be “waken up” to receive data such as:
 - VoIP calls
 - Messages
- From previous analysis performed independently by different parties – Faurecia Aptoide, BMW, FORVIA - **UnifiedPush** seems the most promising solution:
 - Provides a specification
 - OEMs have freedom to select their solution (implement their own or use an existing one compatible with the spec)
 - Apache 2.0 licensed, same as AOSP
 - Compatible with webpush (transition for 3PAs simpler since some of them already support it)

UnifiedPush Protocol

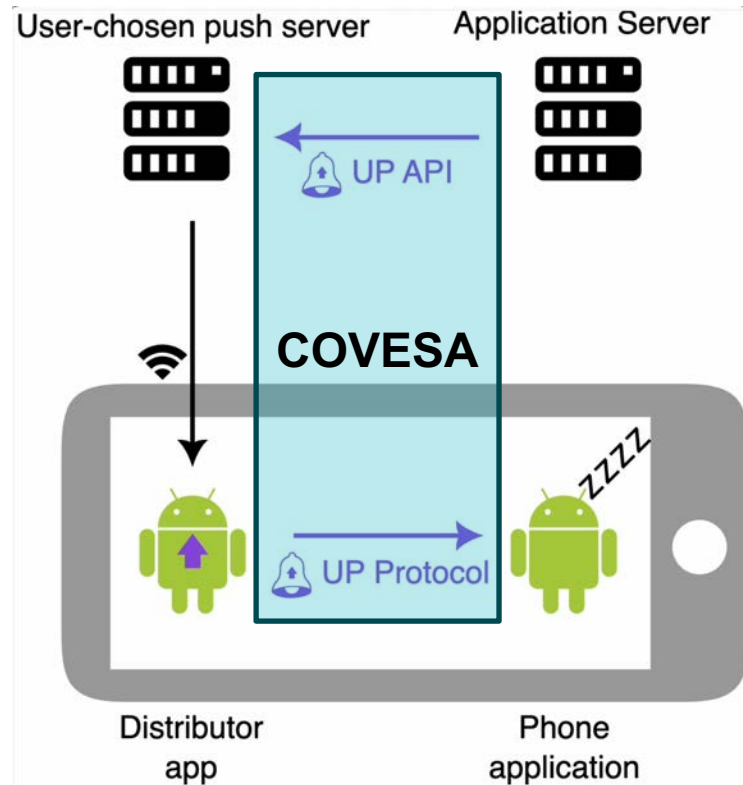


<https://unifiedpush.org/>

<https://f-droid.org/en/2022/12/18/unifiedpush.html>

- UnifiedPush is a specification, split in two:
 - Client side - App-Distributor API: API to allow any application (ex. a messaging app) to communicate with any distributor application (ntfy, NextPush, etc.)
 - Server side – App server-Push server API: on the server side, the API describes how the application server sends messages to the push server
 - → basic compatibility with RFC 8030 (web push)
- **All distributors are compatible with all apps**
- Client libraries and the reference proxies assist in implementing both sides of the specification, respectively.
- Multiple “ready to use” implementations already exist (see: <https://unifiedpush.org/users/distributors/>)

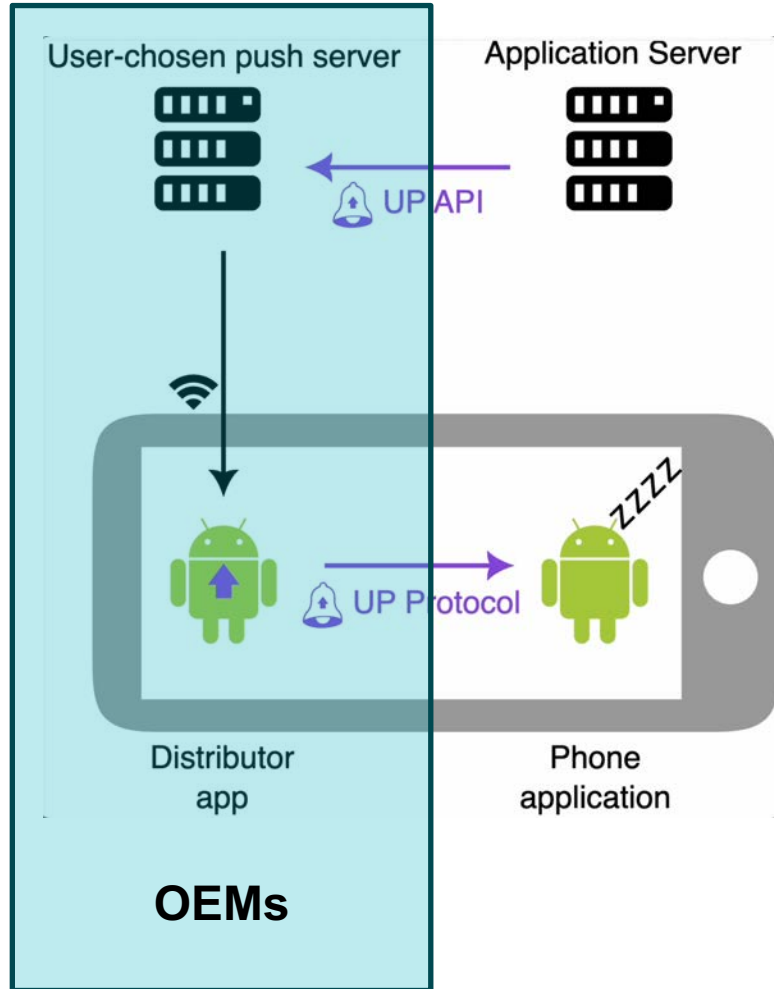
UnifiedPush – COVESA Scope



COVESA provides the specification:

- ideally reusing UnifiedPush Protocol "as is"
- Test Suite to ensure compatibility of:
 - UP API: Back-end to Back-end server API
 - UP Protocol: Head-unit distributor to 3PA client App
- Provide the tools, PoC, reference documentation to support 3PAs adoption

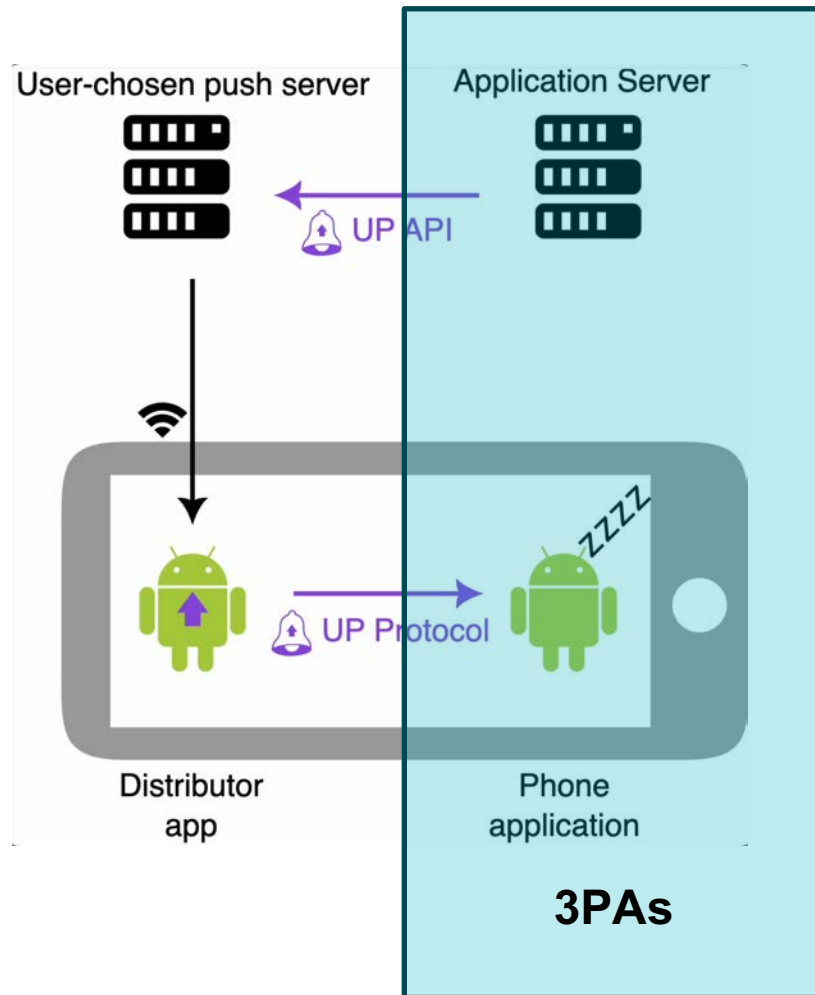
UnifiedPush – OEMs



OEMs:

- Integrate the distributor app on Head Unit (custom developed, COVESA, or other)
- Distributor app is usually linked to a Push server
- Ensure compatibility on their systems through test suites (supported by COVESA)

UnifiedPush – 3rd Party Apps (3PAs)

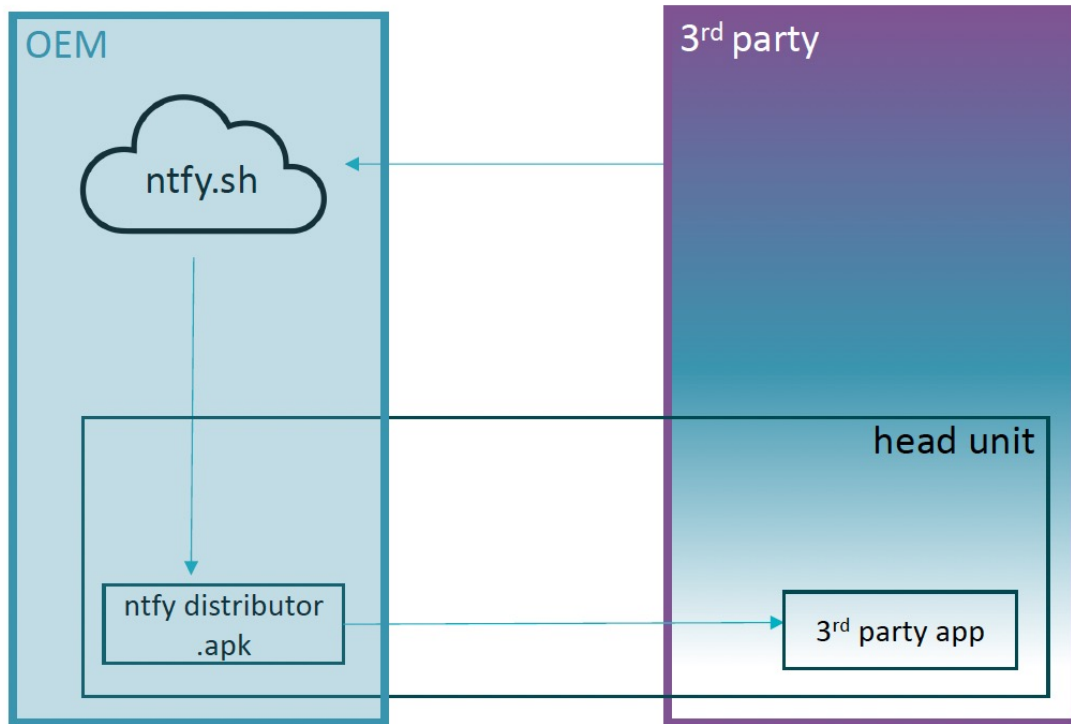


3PAs:

- Make sure their Apps and Application Server are compatible with Unified Push
- a
- a

UnifiedPush BMW PoC

Existing solution for OEM part / 3rd party application POC



1. Use ntfy.sh as the push server and distributor
 - Easily installable on the head unit as an .apk1
 - Provides a free push server we can use for the POC
 2. Install the 3rd party application POC that implements UnifiedPush
 - Evaluate the end-user experience
- Time requirements:** <1 hour once the 3rd party application POC is available

Sequence Diagram (I)



3PA

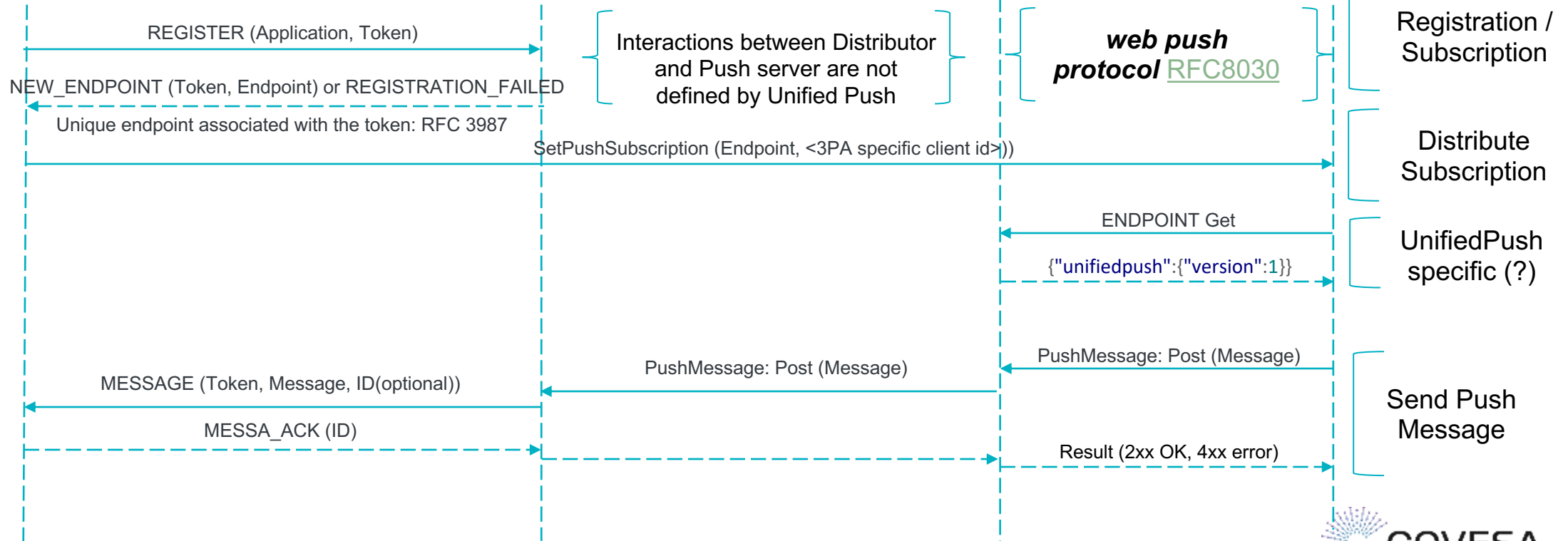
Distributor

Push Server

3PA App Server

org.unifiedpush.android.connector.NEW_ENDPOINT
 org.unifiedpush.android.connector.MESSAGE
 org.unifiedpush.android.connector.UNREGISTERED
 org.unifiedpush.android.connector.REGISTRATION_FAILED

org.unifiedpush.android.distributor.REGISTER
 org.unifiedpush.android.distributor.UNREGISTER
 org.unifiedpush.android.distributor.MESSAGE_ACK



Sequence Diagram (II)



3PA

org.unifiedpush.android.connector.NEW_ENDPOINT
 org.unifiedpush.android.connector.MESSAGE
 org.unifiedpush.android.connector.UNREGISTERED
 org.unifiedpush.android.connector.REGISTRATION_FAILED



Distributor

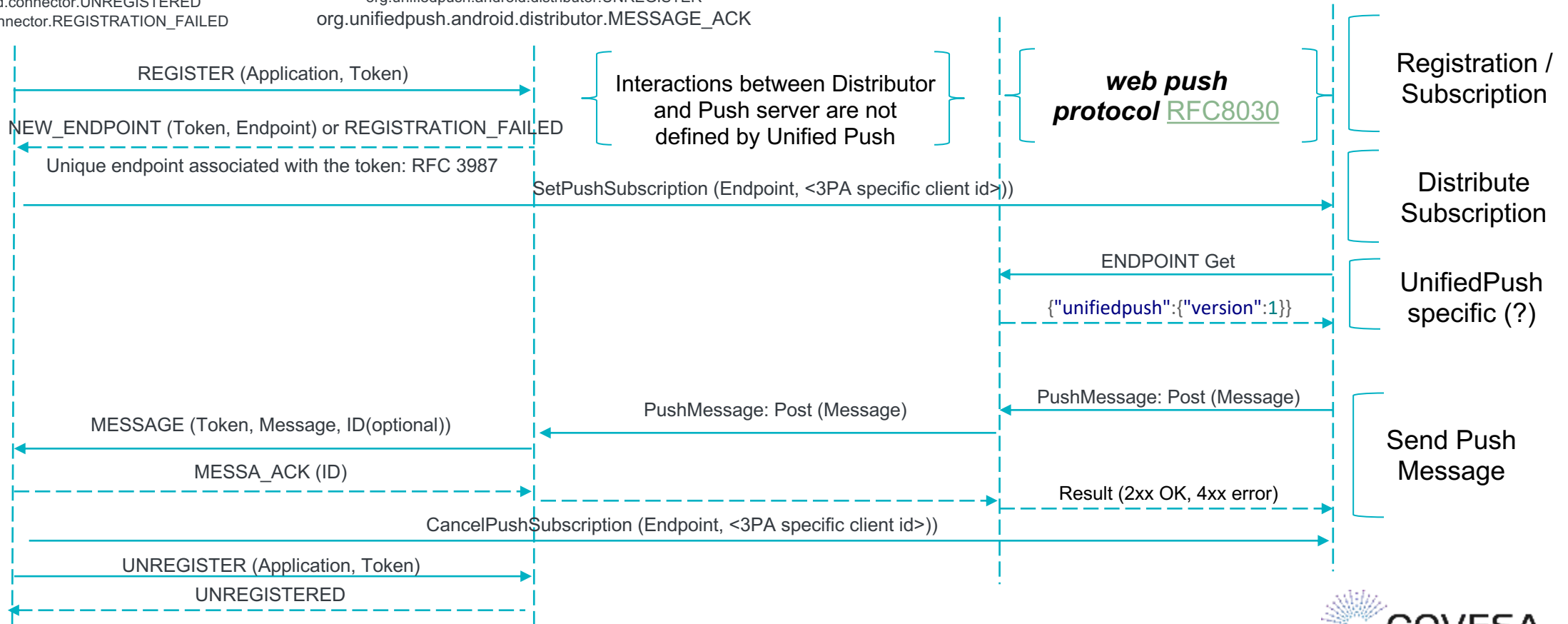
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Push Server



3PA App Server

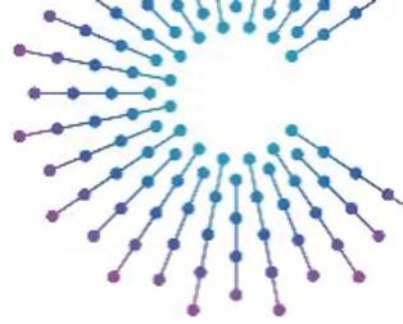


Differences wrt to Web Push

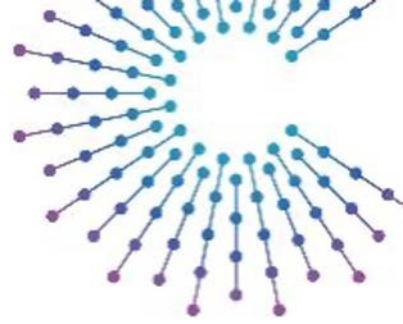
- Register vs Subscribe
 - UnifiedPush: register/unregister
 - WebPush:
 - Register/unregister +
Subscribe/unsubscribe
 - Subscription may have an expiration date
- Endpoint get returns “UnifiedPush”

Agenda

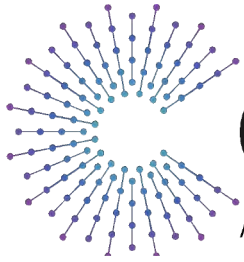
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2. **Topics for the working session**



Topics for the Working Session



- Gaps wrt FCM – if there are gaps (not sure yet) do they affect use cases that we need to support?
- Robustness of Push Messages: Configuration, Retry, Error handling
- Integration for 3PAs – what is needed on the Android side and on the Application Server side
- Integration and Hosting strategy for OEMs



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