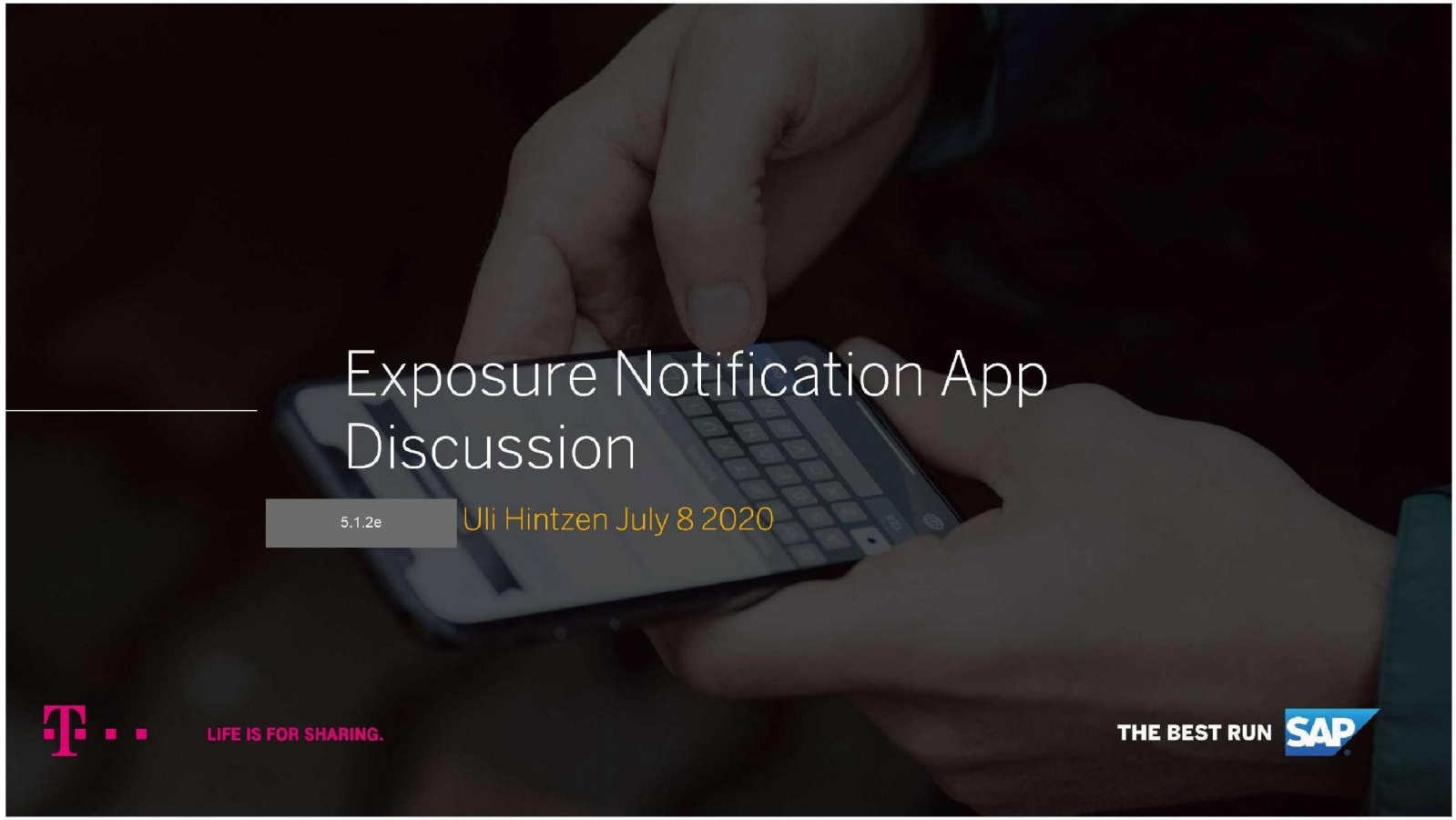
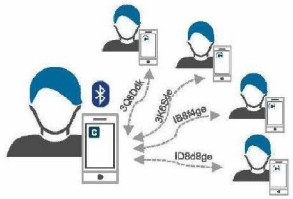

Exposure Notification App Discussion
5.1.2e
Uli Hintzen July 8 2020
LIFE IS FOR SHARING.
THE BEST RUN
SAP

Four central processes are covered by the app

1 Registration

User downloads app from the App Store and agrees to the tracing - **no entry of personal data** required

2 Contact Tracking (Tracing)

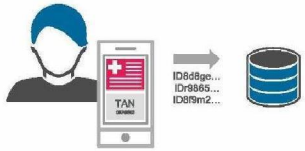


App monitors environment and collects pseudonymous Bluetooth beacons from nearby devices

3 Contact Notification

User will be notified if a contact person has tested positive within the last 14 days (without identification of the contact person)

4 Test Procedure and Verified Notification



User can be tested, gets a digital feedback and can securely **notify other users** with whose mobile phones there was a Bluetooth contact

Note: A Bluetooth beacon is a series of random numbers that are not tied to a user's identity and change every 10-20 minutes for security reasons. They are generated from a key on each user's device, which is also randomly generated and changes daily.

How does the App work?

01.Collect nearby identifiers

- Exposure Notification framework (by Apple/Google) on a mobile device is broadcasting a **Rolling Proximity Identifier**
- Mobile is also **regularly scanning for identifiers** of other phones using the app
- Storing of the identifiers happening **locally**
- Identifiers are **only valid for 10-20 minutes** and are derived from **temporary keys changing every 24h**
- Framework is based on Bluetooth **Low Energy technology**

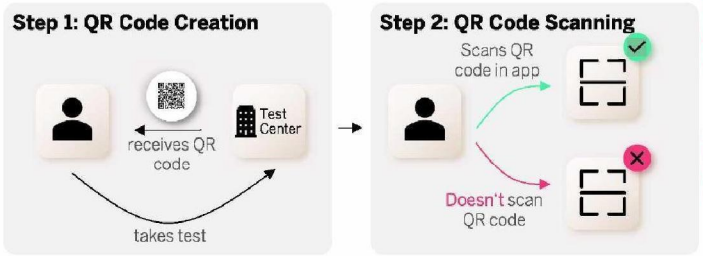
02.Distribute list of keys of SARS-CoV-2 confirmed users

- In case of a positive test result, users are asked to **voluntarily upload their temporary keys** (last 14 days) to the server
- To **prevent misuse**, the Corona-Warn-App backend **first verifies** the positive test result
- If confirmed, the server adds the user's keys to the SARS-CoV-2 **confirmed list**, which is **regularly broadcasted to all apps**

03.Check for exposure to SARS-CoV-2 confirmed users

- After a mobile device has downloaded the **list of all available keys of users that have tested positive**, the Exposure Notification framework derives **the corresponding identifiers and checks locally** if any of these **match the locally collected Rolling Proximity Identifiers**
- In case of exposure, the risk is assessed and the user receives corresponding instructions

QR Process from User Point of View



Step 3a: Test Result

- User will receive test notification in app (positive or negative)
- User can agree to upload the test result to the CWA Server via app; If positive other exposed users will be warned
- In addition, user will be informed by doctor and health ministry (if positive) about test result

Step 3b: Test Result

- User can call doctor, health ministry, or hotline to receive result and a teleTAN via Web Interface of Portal Server
- User can enter teleTAN into app to upload positive test result; Other exposed users will be warned

Introduction – Pan European Rollout

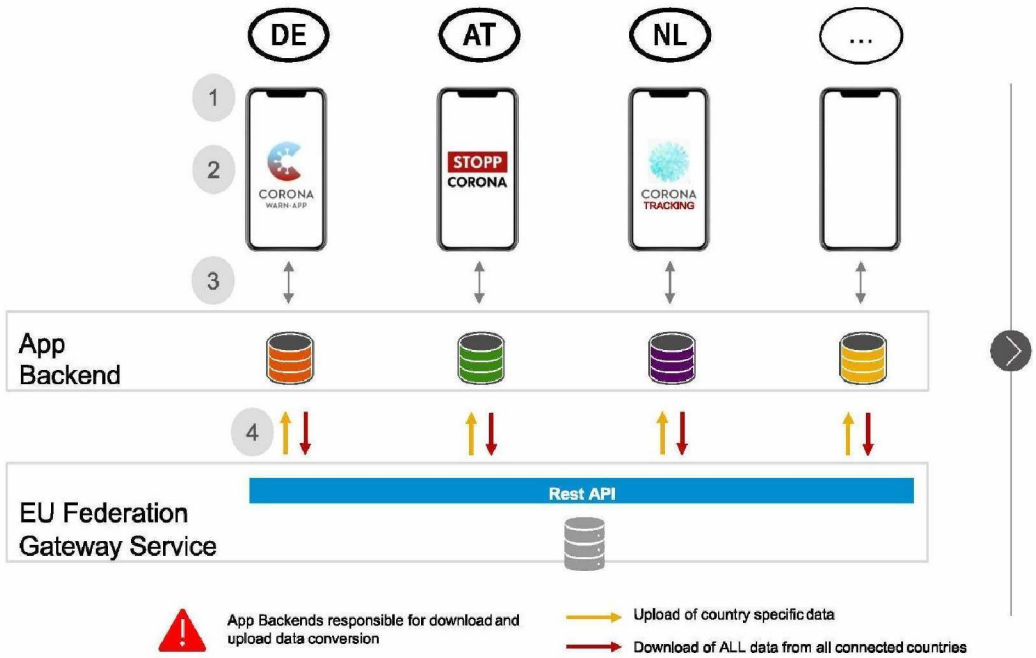
- Enable European wide Interoperability for business travelers, as well as cross border commuters
- Therefore, those groups need to be informed about their infection risk, also when entering other EU member states
- Ensure a secure exchange of information between national contact tracing apps based on a decentralised architecture
- EU Interoperability approach is open for integration of other Tracing Applications outside Europe

User Experience (Frontend)

"Your phone connects to a Netherlands network. If you stay here longer, you can activate the risk radar."

- Mobile Phone registered in foreign network
- User will be informed (see above)
- User receives information regarding Data Policy etc.
- Risk radar can be activated
- Technical approach: NMCC for Google and configuration file for Apple (to be confirmed)

EU Federation Gateway Service (Backend-based)

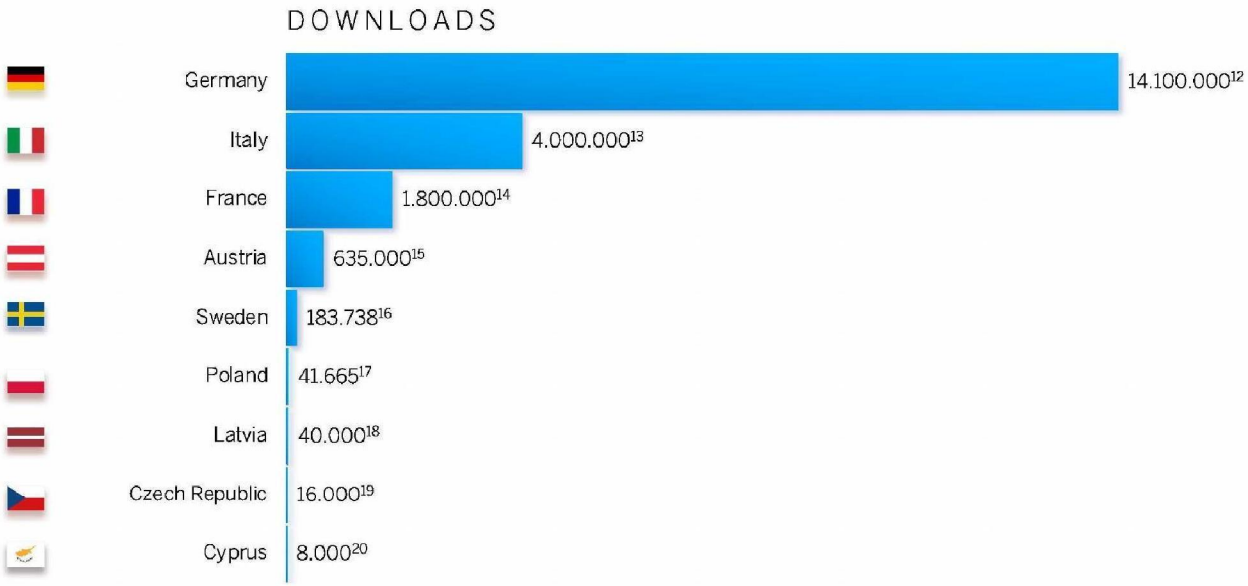


Architectural Design Principles

1. Decentralized location of risk exposure calculation.
2. "Country of interest" (= home country + visited countries) used to determine data transfer volume
3. App communicates just with the Home-Backend
4. Federation gateway for Inter-backend data exchange

Federation gateway is forwarding data – cache provides 14 day history for new onboarding countries

EU Member States: Published Corona App Metrics (1 / 2)



Sources: See backup.

EU Member States: Corona Tracing App Overview

Country	Status	Launch Date	Planned Launch Date	Tech	Approach	Note
Austria	Launched	26.06.2020 (w/ Google/Apple API)		GL	Decentral	
Belgium	N/A			GL	-	No decision made yet.[1]
Bulgaria	Launched	06.04.2020		GL	Central	
Croatia	In-development		No info.	GL	-	
Cyprus	Launched	02.05.2020		GL	-	
Czech Republic	Launched	15.04.2020		GL	-	Google/Apple API under evaluation.[2]
Denmark	Launched	18.06.2020		GL	Decentral	
Estonia	In-development		No info.	GL	-	
Finland	In-development		August 2020[3]	GL	Decentral	
France	Launched	02.06.2020		GL	Central	
Germany	Launched	16.06.2020		GL	Decentral	
Greece	N/A			GL	-	
Hungary	Launched	13.05.2020		GL	-	Google/Apple API under testing.[4]
Ireland	In-development		July 2020[5]	GL	Decentral	
Italy	Launched	01.06.2020		GL	Decentral	
Latvia	Launched	29.05.2020		GL	Decentral	
Lithuania	In-development		August 2020[6]	GL	-	
Luxembourg	N/A			GL	-	Focus on analogue contact tracing.[7]
Malta	N/A			GL	-	No info.
Netherlands	In-development		No info.	GL	Decentral	First tests to be conducted in July 2020.[8]
Poland	Launched	09.06.2020		GL	Decentral	
Portugal	In-development		No info.	GL	Decentral	
Romania	In-development		Summer 2021[9]	GL	-	
Slovakia	N/A			GL	-	
Slovenia	N/A			GL	-	
Spain	In-development		Autumn 2020[10]	GL	-	
Sweden	Launched	15.06.2020		GL	-	Data submitted through daily survey.[11]

Sources: See backup.

= Launched
= Not launched / Future update required
= Out of scope

GL = Google/Apple API

= Bluetooth

= Location