



COVID EXPOSURE NOTIFICATION OUT IN THE OPEN

An Open Implementation of the
Google/Apple Exposure Notification
Protocol

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FOSDEM
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GAEN

Contact Tracing

Bluetooth Specification

Preliminary - Subject to Modification and Extension

April 2020

v1.1

Contact Tracing

Cryptography Specification

Preliminary - Subject to Modification and Extension

April 2020

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Contact Tracing

Framework Documentation

(API)

Preliminary - Subject to Modification and Extension

April 2020

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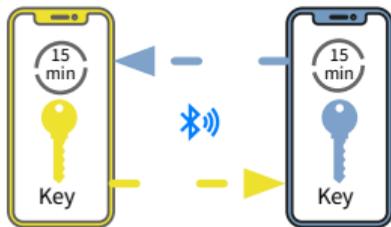
jolla


SAILFISH OS

GAEN

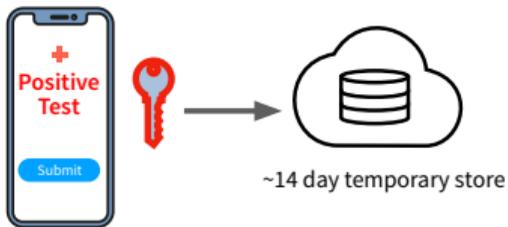
1. Alice and Bob meet

Their phones exchange frequently changing anonymous identifier beacons



2. Bob is positively diagnosed

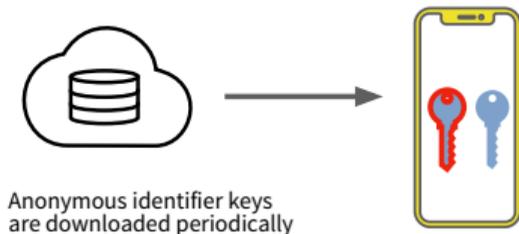
With Bob's consent, his phone uploads the last 14 days of keys for his broadcast beacons to the cloud



Apps can only get more information via user consent

3. Alice receives a warning

Alice's phone periodically downloads beacon keys of everyone who tested positive in her region; a match is found with Bob's anonymous beacons



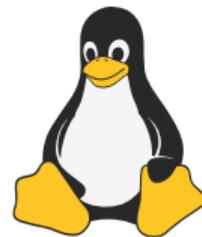
Anonymous identifier keys are downloaded periodically

A match is found

SAILFISH OS

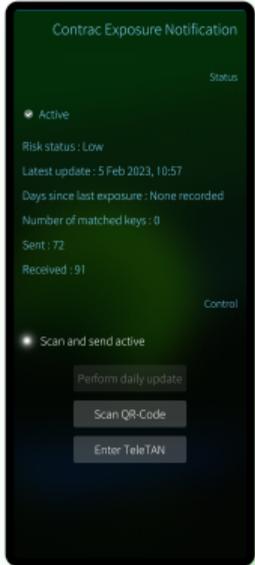


SAILFISH OS

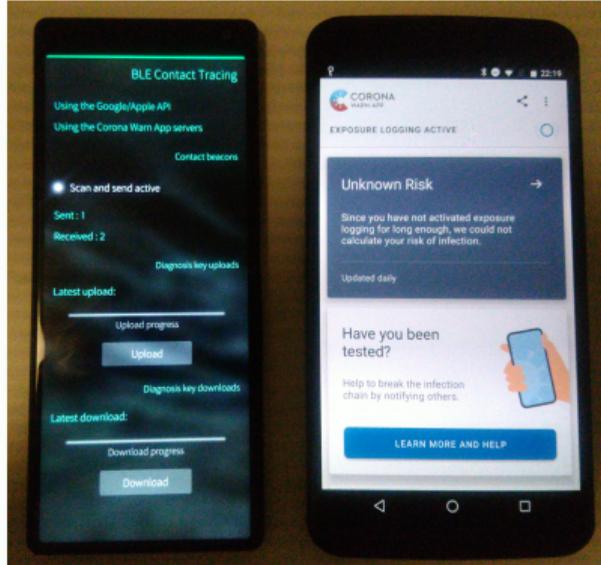


jolla

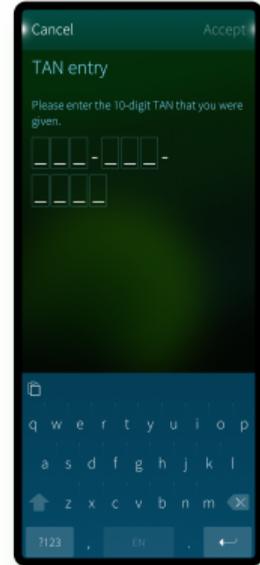
CONTRAC



Contrac app

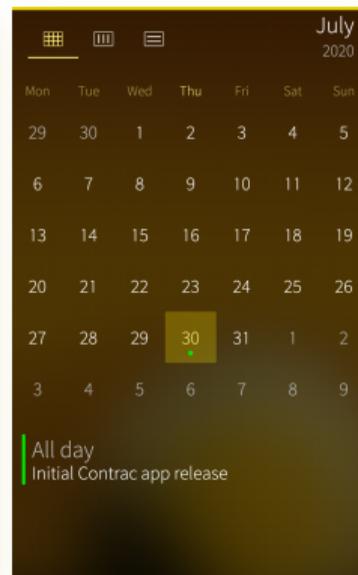
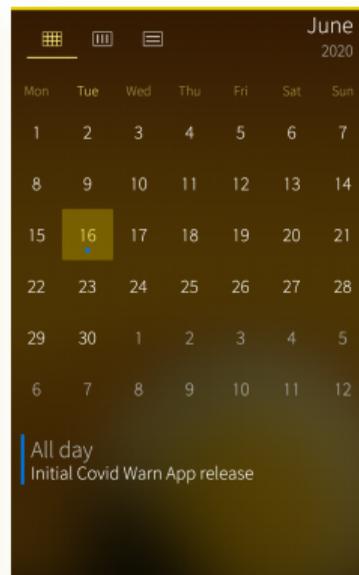
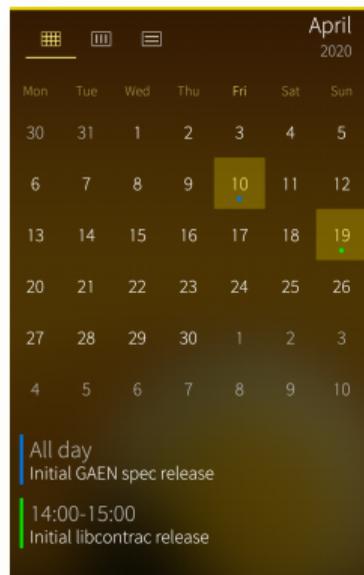


Scanning and sending



TeleTAN entry

TIMELINE



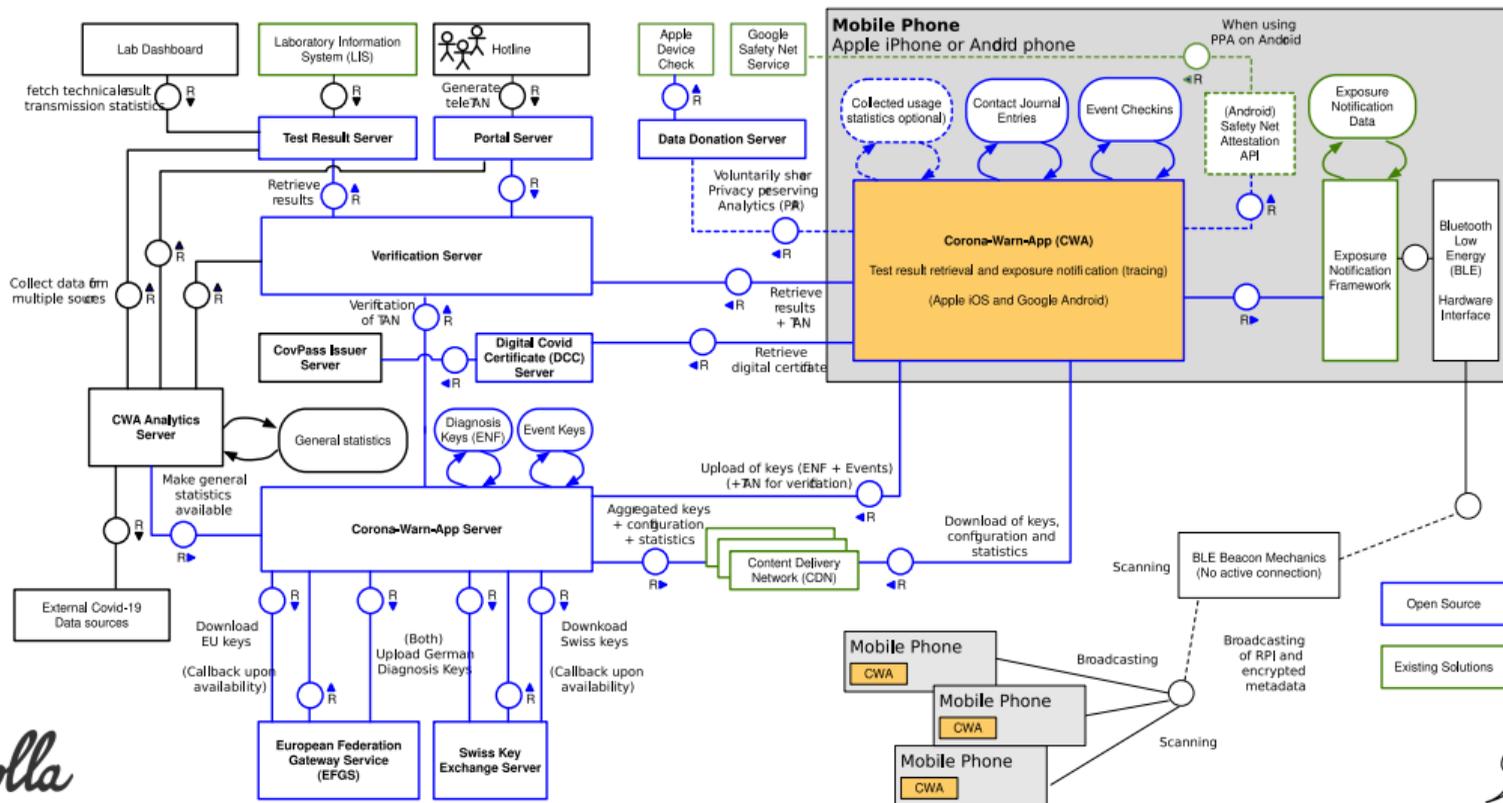
WORKING WITH GOOGLE AND APPLE

A great job with the design, specs, API but no collaboration

1. No direct interaction
2. Specs provided early
3. The promised test data never materialised
4. Relevant code not released until too late
5. Nevertheless, the specs were good enough to implement



WORKING WITH SAP



WORKING WITH SAP

Overall experience of working with SAP was mixed

1. GitHub issues were worked through, but slowly
2. Code was left broken, even with PRs available
3. Reference implementation often differed significantly from reality
4. The commitment to openness was genuine
5. The team were trying but overwhelmed

REFLECTIONS

1. A huge challenge for governments and organisations
2. Need for speed, effectiveness and openness
3. Google, Apple and the CWA team *got* this in theory
4. Scope for improvement in practice
5. Information flowed outwards, little flowed inwards
6. More generally, lack of appreciation of open source development model effort

FURTHER INFO

Sailfish OS <https://sailfishos.org>

Contract <https://github.com/llewelld/harbour-contract>

GAEN spec <https://www.google.com/covid19/exposurenotifications>

Covid Warn App <https://github.com/corona-warn-app>

Linux on Mobile Building K, upstairs

