Corona-Wan-App:
Tracing the Start of the Official COVID-19 Exposure Notification App for Germany

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Motivation

- Corona Pandemic remarks a very challenge for our society

- **App-based contact tracing has never been used** and isn’t understood
  - Main goal: Supress further spread (R<1)
  - **Success depends on isolation & app adoption** (Fraser et al., Nature’20)

- Our goal: we study the official Corona Warn App for Germany
  - How does the society react to it based on network traffic at the hosting DC
  - Currently 16.6M downloads → 20% population
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But downloads do not tell the whole story!
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We are measuring user behavior & app interest.
App & Measuring Usage Approach

Bluetooth Scanning

Corona-Warn-App
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Corona-Warn-App

Health Authorities

report infection: Upload diag. Keys + authorization

detect infection: download diagnosis keys

lab testing

CDN
App & Measuring Usage Approach

- **Corona-Warn-App**
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- Health Authorities
  - lab testing

- CDN
  - website visits
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Vantage Point

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Vantage Point

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Data Collection
- Sampled Netflows towards CDN
- IPv4 only
- HTTPS (port 443)
→ 3.3 M matching flows

report infection: Upload diag. Keys + authorization

Health Authorities

lab testing
Measured Traffic & App Downloads

![Graph showing measured traffic and app downloads over time with specific events marked.]

- **Official App Release**
- **Lockdown Gütersloh Announced**
- **Jun 23, first diagnosis keys available**
Measured Traffic & App Downloads

The graph shows the measured traffic and app downloads over time. The x-axis represents the days of the week, and the y-axis represents the ratio of downloads to total app downloads. Key events are marked on the graph:

- Official App Release
- Lockdown Gütersloh Announced
- (Jun 23, first diagnosis keys available)
Measured Traffic & App Downloads

Traffic & interest increases. But by whom?
Geographic App Interest
Good News:
Interest across the whole country
What’s really interesting: User behavior!

• Do outbreaks increase local usage? – As of today: No.
• Do outbreaks increase country-wide usage? – As of today: Possibly.
• Does news/media increase usage? – As of today: Possibly.

• Can we derive measures to increase usage for the good?
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Lots of work todo...