Nicky Case

Chráníme zdraví i svobodu – jak mohou aplikace na dohledávání kontaktů zastavit COVID-19 i Velkého bratra

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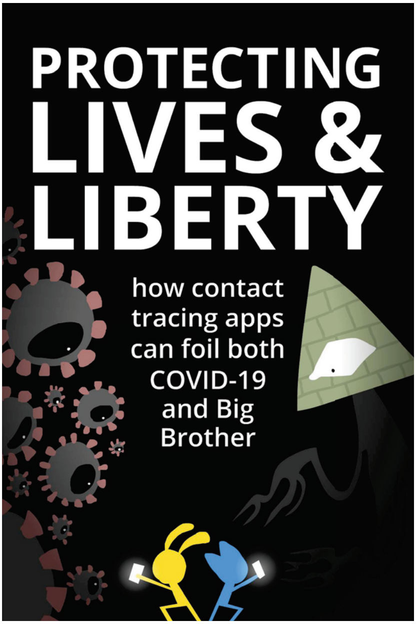
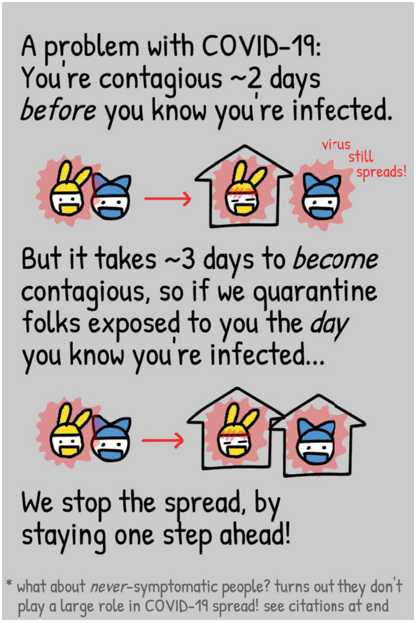
Chráníme zdraví i svobodu – jak mohou aplikace na dohledávání kontaktů zastavit COVID-19 i Velkého bratra

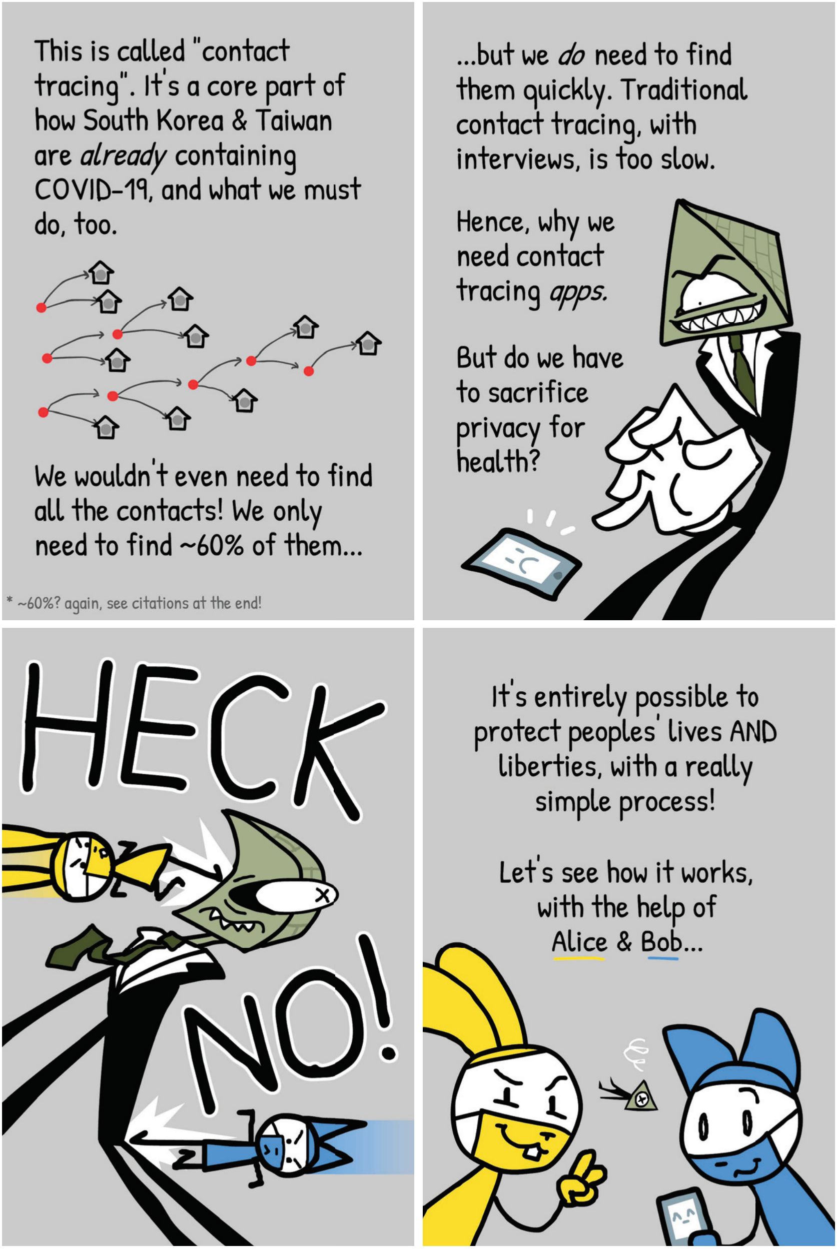
Nicky Case, M. Salanthé (epidemiologie), C. Troncoso (bezpečnost)

Původní komiks je ke stažení na: `https://ncase.me/contact-tracing/`
Český překlad: `https://eduardsubert.com/2020/05/21/chranime-zdravi-i-svobodu/`

Slovníček: to foil = zmařit, odvrátit; contagious = nakažlivý; spread = šíření; one step ahead = o krok napřed; tracing = sledování, trasování; to sacrifice = obětovat; gibberish = hatmatilka; suffer in vain = marně trpět; revealing = odhalující; exposure = vystavení


PROTECTING
LIVES &
LIBERTY
how contact tracing apps can foil both COVID-19 and Big Brother


A problem with COVID-19:
You're contagious ~2 days *before* you know you're infected.
virus still spreads!
But it takes ~3 days to *become* contagious, so if we quarantine folks exposed to you the *day* you know you're infected...
We stop the spread, by staying one step ahead!
* what about *never*-symptomatic people? turns out they don't play a large role in COVID-19 spread! see citations at end


This is called "contact tracing". It's a core part of how South Korea & Taiwan are *already* containing COVID-19, and what we must do, too.
We wouldn't even need to find all the contacts! We only need to find ~60% of them...
* ~60%? again, see citations at the end!
...but we *do* need to find them quickly. Traditional contact tracing, with interviews, is too slow.
Hence, why we need contact tracing *apps.*
But do we have to sacrifice privacy for health?
HECK NO!
It's entirely possible to protect peoples' lives AND liberties, with a really simple process!
Let's see how it works, with the help of Alice & Bob...

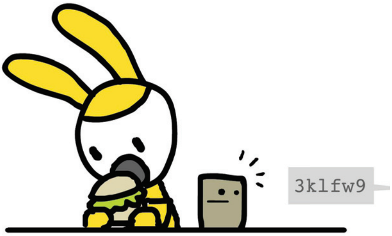
Alice gets a tracing app! (& its code is open to the public, so folks can verify it in fact does the following...)

51Pomk
8jUIL4
l1wda6

Every 5 minutes, her phone says uniquely random gibberish to all nearby devices, using Bluetooth.

* 5 minutes is just an example! and technically it's "pseudo-random," since it's not quantum... does NOT matter.

Because the messages are random & don't use GPS, they contain NO INFO about Alice's identity, location or anything.



Now – while her phone sends out random messages, it also *listens* for messages from nearby phones.

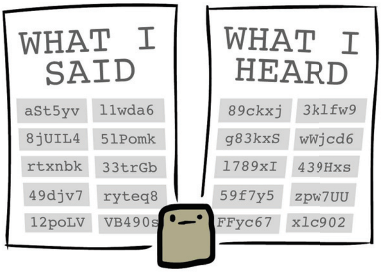
For example, Bob's.

Bob also has a privacy-first tracing app, that's compatible with (or the same as) Alice's.

cough
aSt 5yv
89c kxj

If Alice & Bob stay close to each other for 5+ minutes, their phones will exchange unique gibberish.

Both their phones remember all the messages they said & heard over the last 14 days.



WHAT I SAID

aSt5yv	l1wda6
8jUIL4	51Pomk
rtxnbk	33trGb
49djv7	ryteq8
12poLV	VB490s

WHAT I HEARD

89ckxj	3klfw9
g83kxS	wWjcd6
1789xI	439Hxs
59f7y5	zpw7UU
FFyc67	xlc902

Again: because the random messages contain NO INFO, Alice's privacy is protected from Bob, and vice versa!

* 14 days is also just an example! epidemiologists may learn that the "infectious period" is actually shorter or longer.

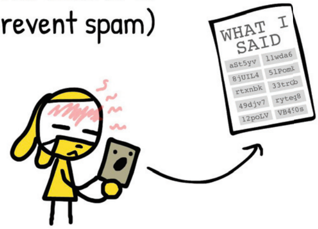
The next day, Alice develops a dry cough and fever.

Alice gets tested.

Alice has COVID-19.

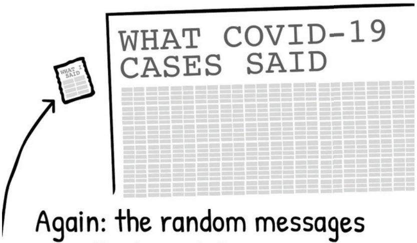
It is not a good day for Alice.

But she shan't suffer in vain! Alice uploads her "What I Said" messages to a hospital database, using a one-time passcode given by her doctor. (The code is to prevent spam)



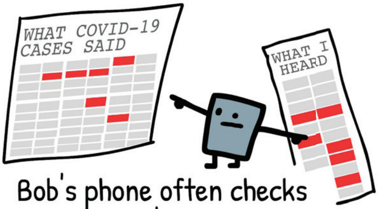
Alice can also *hide* messages from times she wants to keep private, like evenings at home!

The database stores Alice's gibberish:



Again: the random messages give the hospital NO INFO on where Alice was, who she was with, what they were doing, or even *how many* people Alice met! It's meaningless to the hospital...

...but not to Bob!

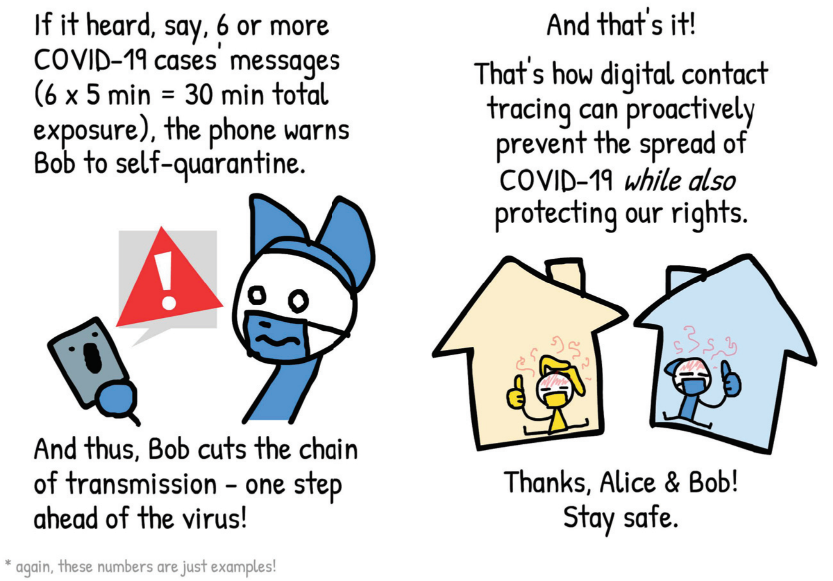


Bob's phone often checks the hospital's list of random messages from COVID-19 cases, and see if it "heard" any of them from nearby phones in the last 14 days.

(The gibberish gives Bob NO OTHER PERSONAL INFO.)

* different countries' hospitals could exchange messages, but because they contain no info, no privacy is lost.

* the real DP-3T protocol is even MORE secure! it uses a "cuckoo filter" so phones know ONLY the covid-19 messages they heard, without revealing ALL covid-19 messages.


If it heard, say, 6 or more COVID-19 cases' messages (6 x 5 min = 30 min total exposure), the phone warns Bob to self-quarantine.
And thus, Bob cuts the chain of transmission – one step ahead of the virus!
* again, these numbers are just examples!
And that's it!
That's how digital contact tracing can proactively prevent the spread of COVID-19 *while also* protecting our rights.
Thanks, Alice & Bob! Stay safe.

CITATIONS:

This comic is a rough summary of the **DP-3T** protocol, as of April 9th 2020. The real thing is more complex, and even *more* secure! See their paper:

github.com/DP-3T/documents

There's also another similar privacy-protecting system called **TCN Protocol.** Check that out here:

github.com/TCNCoalition/TCN

And finally, here's the University of Oxford study that showed contact tracing apps could contain COVID-19... *without* long-term lockdowns!

Ferretti & Wymant et al. "Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing." *Science* (2020).

This comic is

PUBLIC DOMAIN

That means you *already* have permission to re-post this on your news site. Heck, we'd love it if you included it in your own contact tracing app! (as long as it *actually* follows the described privacy-protecting protocol)

(You also already have permission to translate this! The fonts used are "Patrick Hand" and "Open Sans")

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