Making sure
crypto stays insecure

Daniel J. Bernstein

University of Illinois at Chicago &
Technische Universiteit Eindhoven

Terrorist in Hong Kong
prepares to throw deadly weapon
at Chinese government workers.

Image credit: Reuters.

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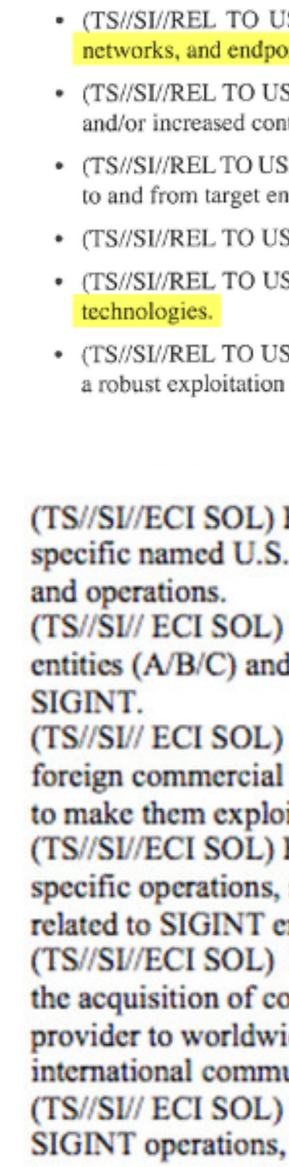
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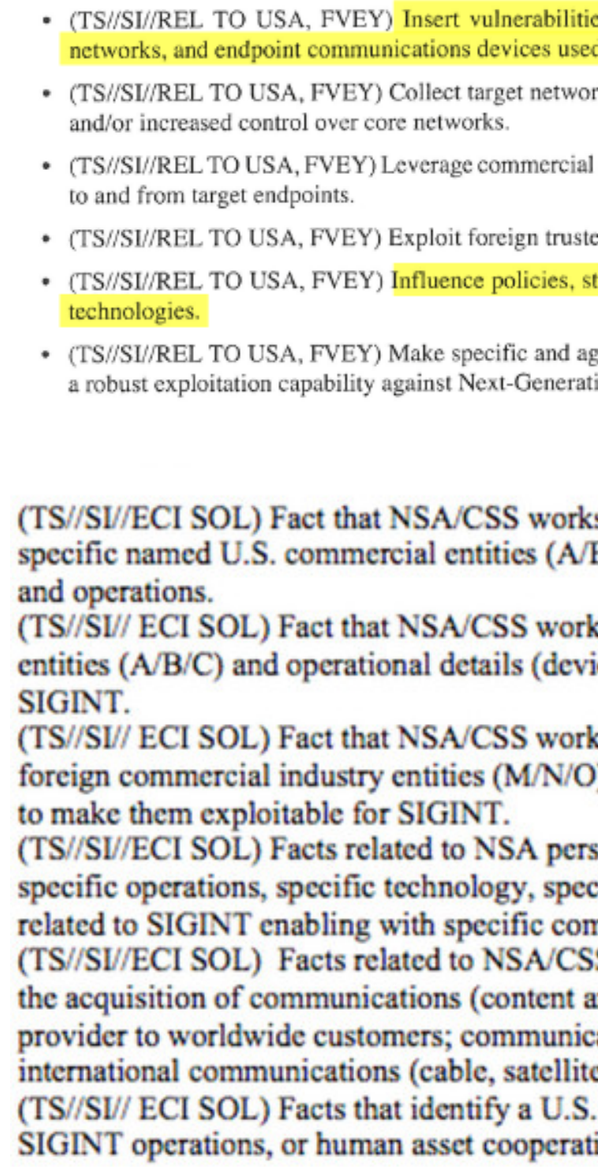

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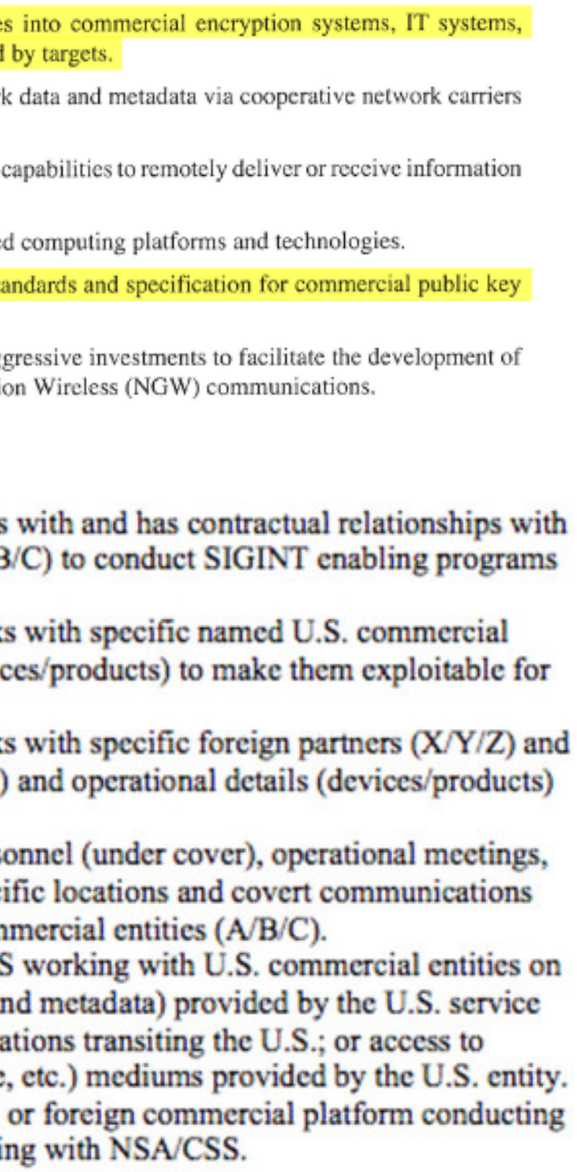

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Other useful strategies,
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Manipulate *software* ecosystem
so that software stays insecure.
Break into computers; access
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Add back doors to *hardware*.
e.g. 2012 U.S. government report
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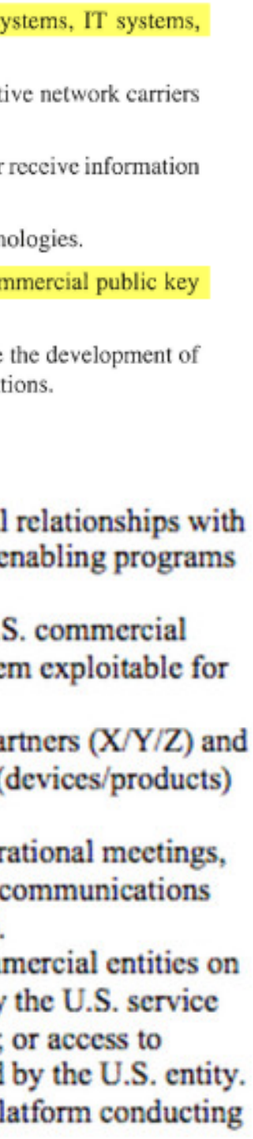
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Watch out for any subseque
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Discourage use of the cipher
Pretend that standardization
is a guarantee of security
while anything non-standard
has questionable security.

Fund variable-time software,
maybe with "countermeasures"
that make the timings difficult
for researchers to analyze
but that are still breakable
with our computer resources.

Continue expressing skepticism
that constant time is needed.
e.g. 2012 Mowery–Keelveedhi–
Shacham "Are AES x86 cache
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2012 Flame: new MD5 attack.

Fact: By 1996, a few years after the introduction of MD5, Preneel and Dobbertin were calling for MD5 to be scrapped.

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2014: DNSSEC uses RSA-1
to "secure" IP addresses.
e.g. `dnssec-deployment.o`
address is signed by RSA-10

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Advertise "cryptographic agility";
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Pretend that this "agility"
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Argue that it's too early
to look at "the hard problem"
when most data is still unsigned.

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Solve "the easy problem"
by precomputing signatures.
Insist that the protocol
allow precomputation "for speed".
e.g. DNSSEC.

The protocol has trouble handling
dynamically generated answers,
and unpredictable questions; also,
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Divert “crypto” funding
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