TRUSTING TRUST REVISITED

Preventing Software Supply Chain Attacks
Using Modern Methods

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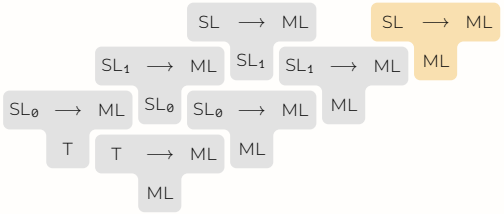
2

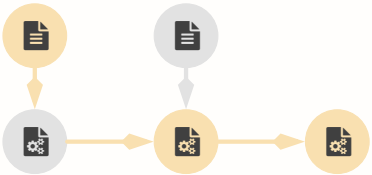
~ 18 000 customers[7]
SolarWinds 2020

> 500 million users[1]
XcodeGhost 2015

> 100 000 users[2]
Win32/Induc 2009

3 The Attack



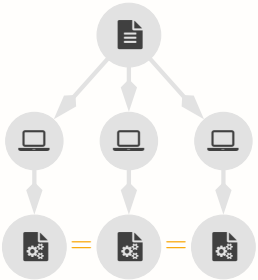


```
inject = 'inject = %c%s%c
if source contains "compile()":
  prepend("compile()", inject % 34, inject, 34)'

if source contains "compile()":
  prepend("compile()", inject % 34, inject, 34)

compile()
```

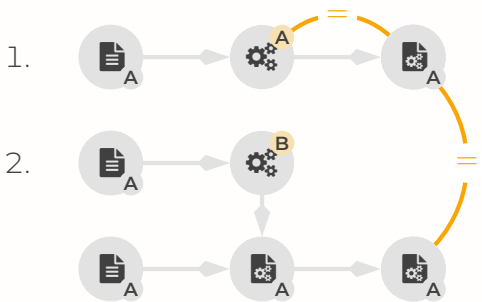
[3] McKeeman, Horning und Wortman: *A Compiler Generator* 1970

[6] Thompson: „Reflections on Trusting Trust" 1984

4 Diverse Double Compiling

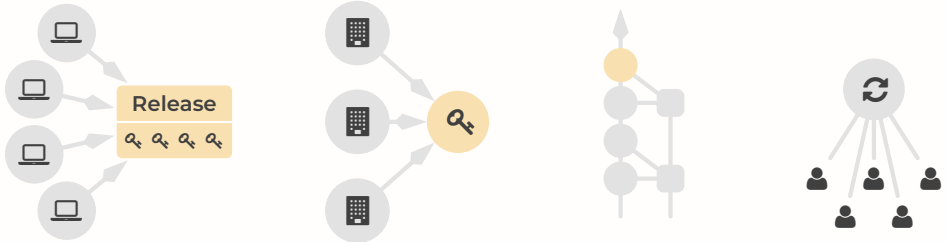


Reproducible



5 CHAINIAC

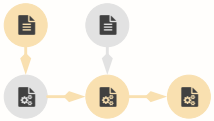
Developers | Cothority | Timeline | Mirror

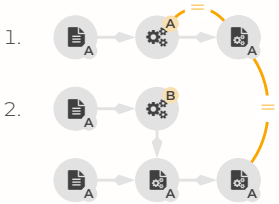


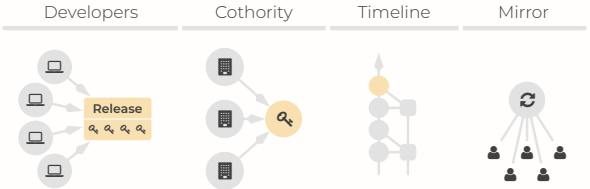
[4] Nikitin u.a.: „CHAINIAC: Proactive Software-Update Transparency via Collectively Signed Skipchains and Verified Builds" 2017

6 Conclusion

- Reproducible Builds
- Tool support
- **Trusting Trust**







[1] Dan Gooding. *Apple scrambles after 40 malicious XcodeGhost apps haunt App Store*. Sep. 2015.

[2] Robert Lipovský. „Win32/Induc.C: getting noisier in the library“. Dez. 2011.

[3] William Marshall McKeeman, James J. Horning und David B. Wortman. *A Compiler Generator*. Nov. 1970.

[4] Kirill Nikitin u. a. „CHAINIAC: Proactive Software-Update Transparency via Collectively Signed Skipchains and Verified Builds“. 2017.

[5] Software Freedom Conservancy. *Reproducible Builds*. Nov. 2020.

[6] Ken Thompson. „Reflections on Trusting Trust“. Aug. 1984.

[7] Olivia von Westernhagen. „Cyberangriffe via SolarWinds-Software – neue Entwicklungen im Überblick“. Dez. 2020.

[8] David A. Wheeler. „Countering trusting trust through diverse double-compiling“. Dez. 2005.

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