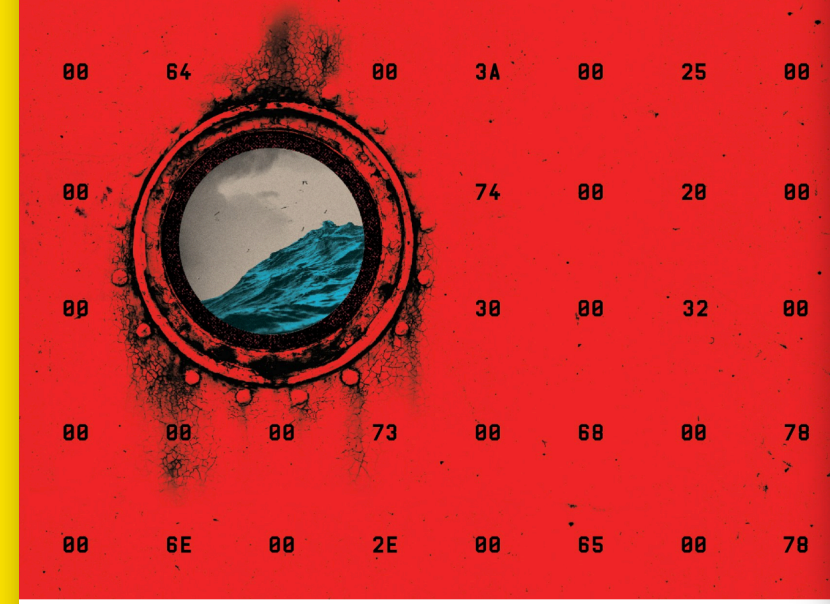
Securing Software Supply Chains with in-toto

Tobias Furuholm • Combient

NotPetya

WIRED BUSINESS CULTURE GEAR IDEAS SCIENCE SECURITY TRANSPORTATION



MIKE MCQUADE

ANDY GREENBERG SECURITY 08.22.2018 05:00 AM

The Untold Story of NotPetya, the Most Devastating Cyberattack in History

Crippled ports. Paralyzed corporations. Frozen government agencies. How a single piece of code crashed the world.

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EternalBlue and NotPetya through the eyes of influence.

By Roel Schouwenberg

Aug 26 2019, 2:00pm Share Tweet

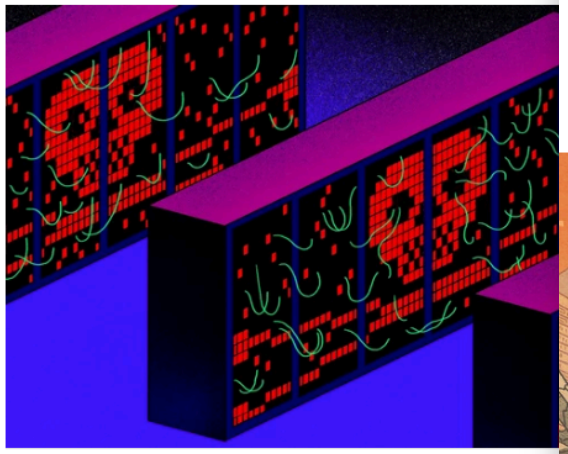
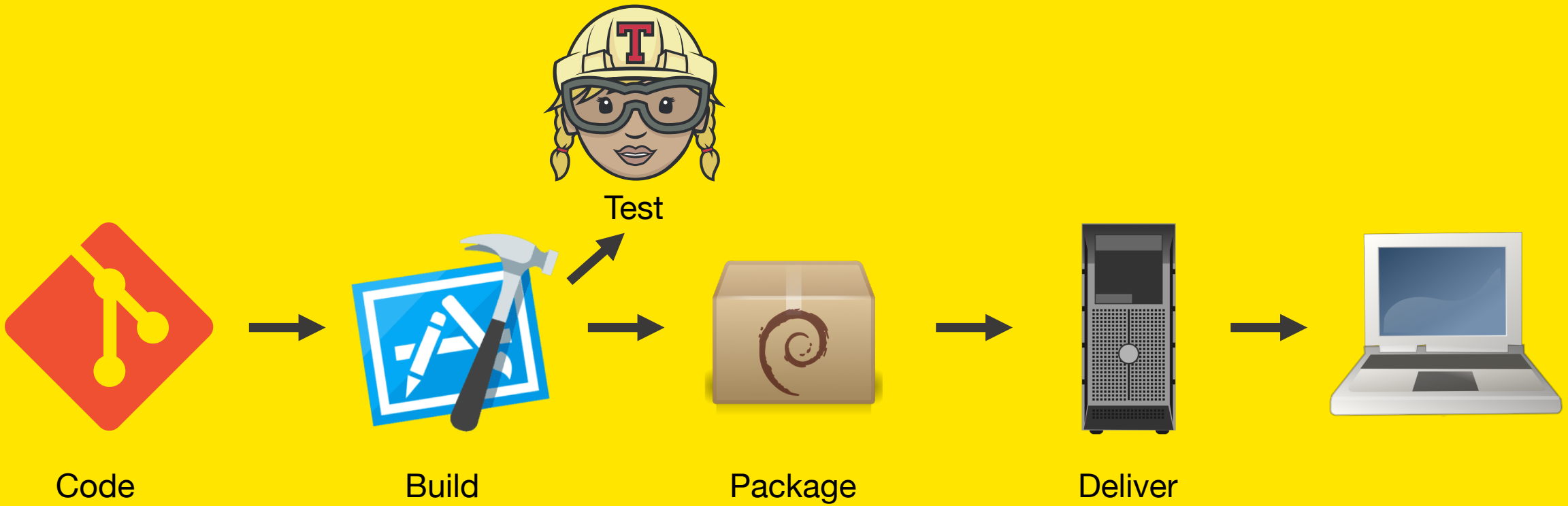


IMAGE: CATHRYN VIRGINIA

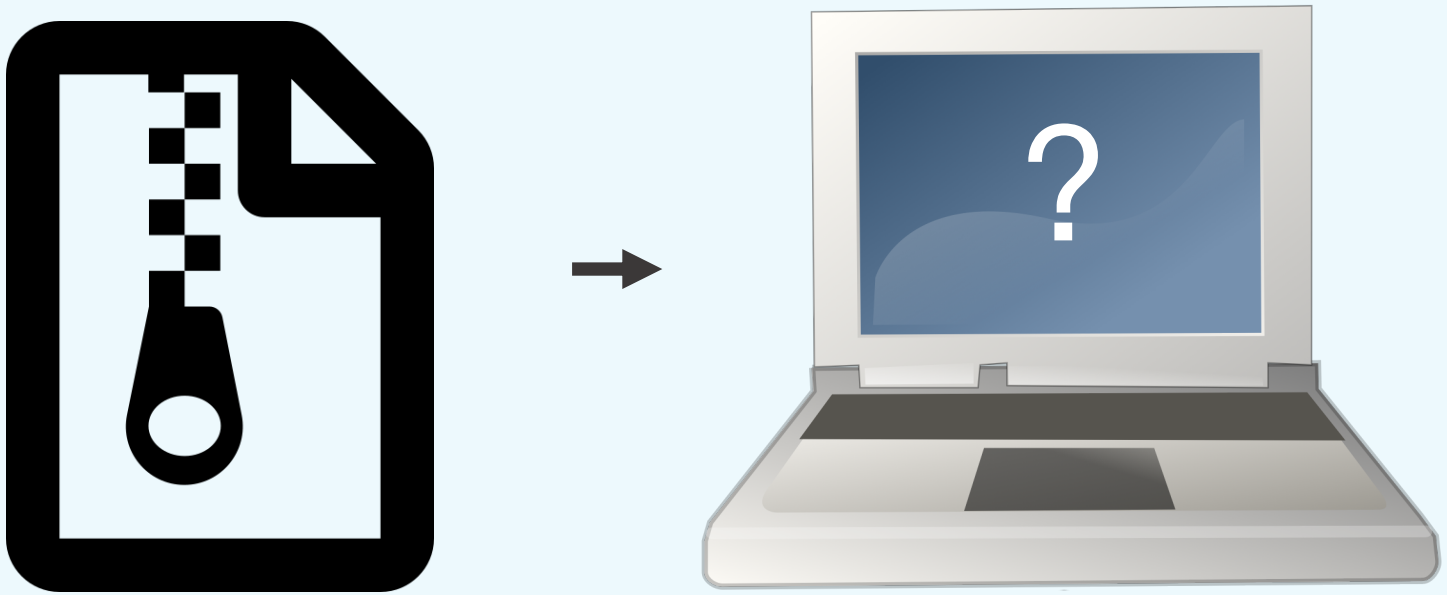
The New York Times

Big Companies Thought Insurance Covered a Cyberattack. They May Be Wrong.

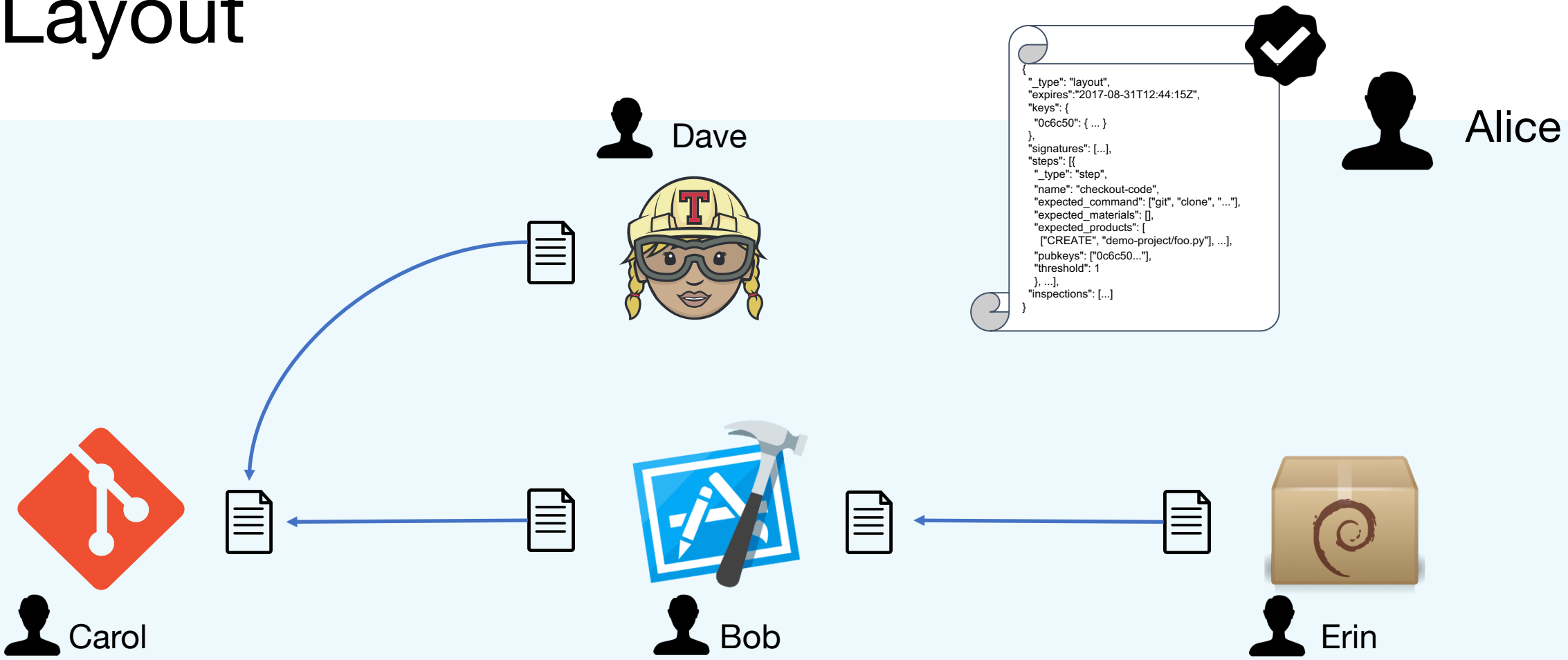
Software Supply Chain



Supply chain verification with in-toto



Layout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"0c6c50": { ... }
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"name": "checkout-code",
"expected_command": ["git", "clone", "..."],
"expected_materials": [],
"expected_products": [
["CREATE", "demo-project/foo.py"], ...],
"pubkeys": ["0c6c50..."],
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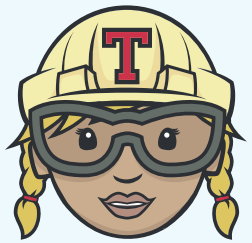
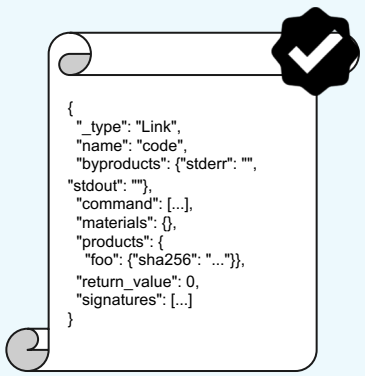
}, ...],
"inspections": [...]
}
Alice
Dave
Carol
Bob
Erin

Links

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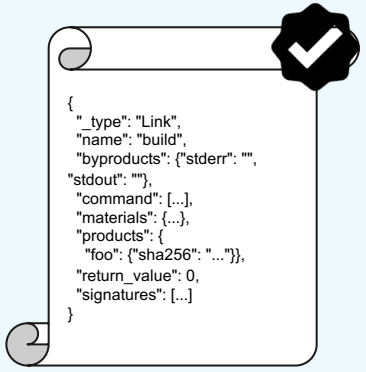
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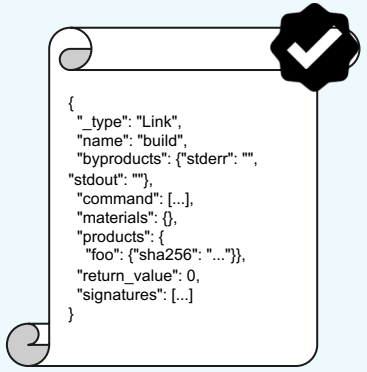
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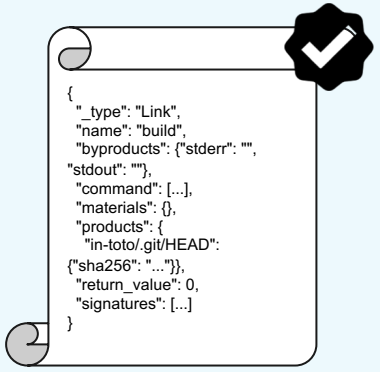
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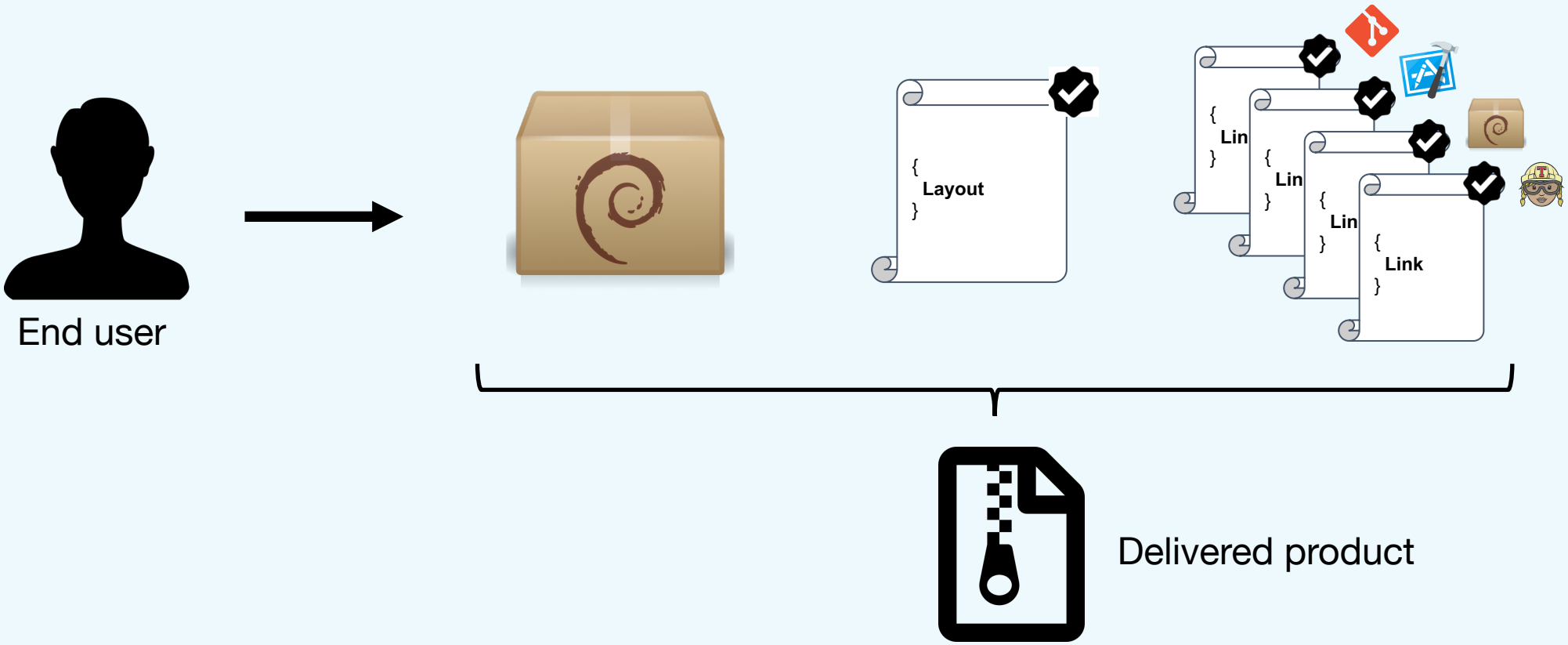
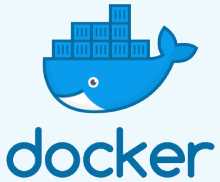
Verification



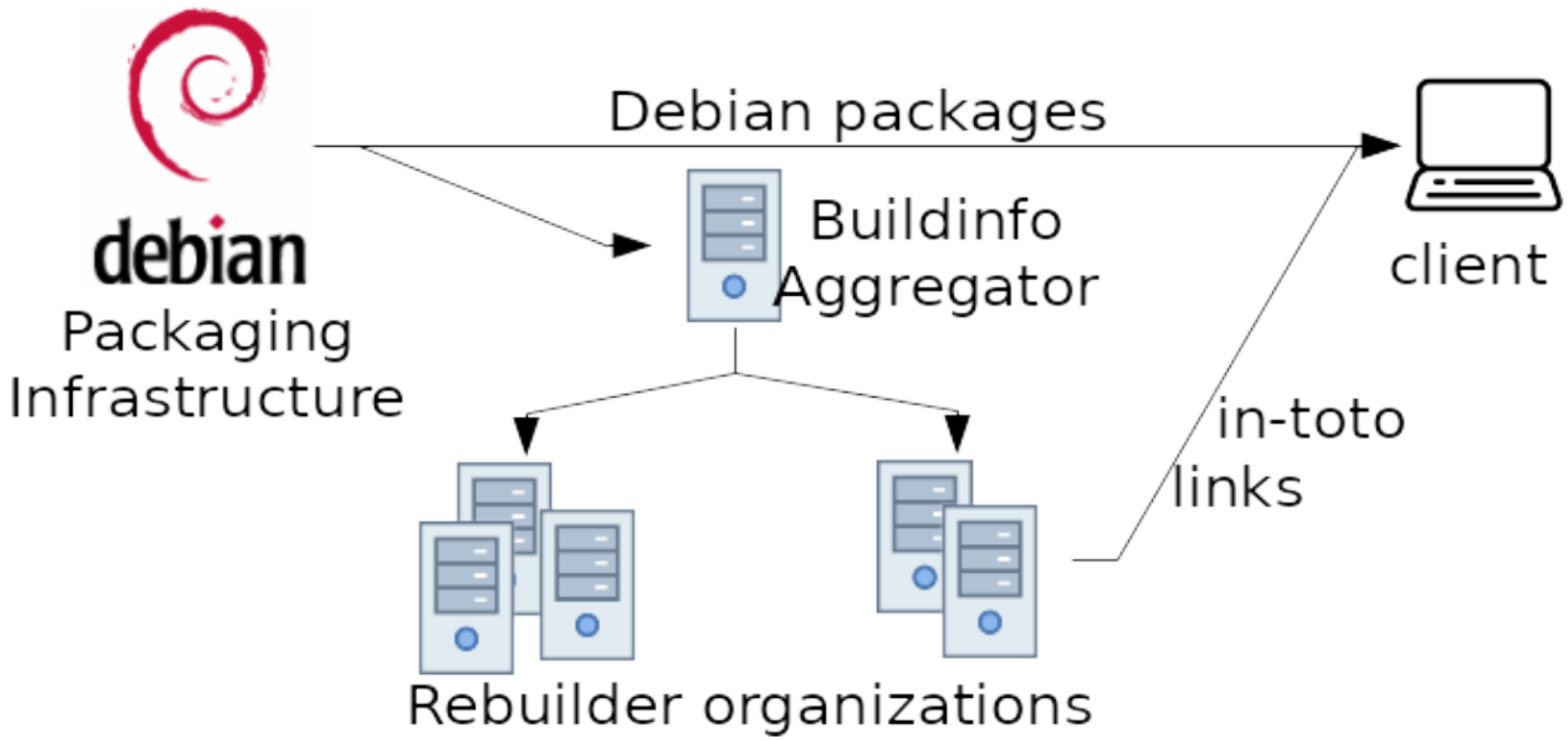
Noteworthy aspects

- Compromise resilience
- Tool agnostic
- Sub layouts

In-toto integrations



Debian in-toto integration



Let's be careful out there!

References and further reading

- in-toto: Providing farm-to-table guarantees for bits and bytes, Torres-Arias et al. - https://www.usenix.org/conference/usenixsecurity19/presentation/torres-arias
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- Big Companies Thought Insurance Covered a Cyberattack. They May Be Wrong, The New York Times, https://www.nytimes.com/2019/04/15/technology/cyberinsurance-notpetya-attack.html

Thanks to the in-toto team for
letting me use some of their slide material!