How Risky Are Real Users’ IFTTT Applets?

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Smart-home devices can lead to risks

New IoT botnet offers DDoSes of once-unimaginable sizes for $20

Amazon’s Alexa Never Stops Listening to You. Should You Worry?
Smart-home devices can lead to risks
"trigger" + "applet" + "action"
if SmartThings sensor is closed then post a message to Slack

19,323 unique applets

[Surbatovich et al. 2017]
if SmartThings sensor is closed then post a message to Slack

50% Violating

50% Safe

[Surbatovich et al. 2017]
Moving from theory to practice

- What fraction of users’ IFTTT applets are violating, in practice?
- How much and what types of harm are IFTTT users actually exposed to?

If SmartThings sensor is closed, then post a message to Slack:
- Mailbox?
- Main entrance?
- Door to a safe?
- To coworkers?
- To my family?
- Just to me?
We collected 743 rules from 28 IFTTT users.

```
if SmartThings sensor is closed then post a message to Slack
```

Mailbox? Main entrance? Door to a safe?

To coworkers? To my family? Just to me?

“If front Door Sensor closed then post a message to a Slack service” [P28]
Evaluating participants’ rules: automated analysis finds similar results
Evaluating participants’ rules: considering context enables more accurate analysis.

- 743 unique rules
- 41% Safe
- 59% Violating

Are all of these harmful? No!

Are any of these potentially harmful?
Evaluating participants’ rules: considering context enables more accurate analysis

Are all of these harmful?

No!

SmartThings sensor is closed

if

then

add a row to Google spreadsheet

59% Violating

Are any of these potentially harmful?
Evaluating participants’ rules: considering context enables more accurate analysis.

Are all of these harmful? No!

Only ~14% harmful (not 59%).

Are any of these potentially harmful?
Evaluating participants’ rules: considering context enables more accurate analysis.

Are all of these harmful? No!

only ~14% harmful (not 59%)

Are any of these potentially harmful? Yes!

743 unique rules
41% Safe
41% Violating
13% Also safe
Evaluating participants’ rules: considering context enables more accurate analysis.

Are all of these harmful? **No!**

Only ~14% harmful (not 59%).

If Alice’s presence is detected, then create journal entry.

Are any of these potentially harmful? Yes!
Evaluating participants’ rules: considering context enables more accurate analysis.

Are all of these harmful? **No!**

Only ~14% harmful (not 59%).

Are any of these potentially harmful? **Yes!**

41% Safe

20% surveillance risks for incidental users

Also safe

Violating
How Risky Are Real Users’ IFTTT Applets?

- Real user data → New insights about risks & harms
  - Many “violating” rules are not harmful
  - “Non-violating” rules could be harmful
  - More in the paper!

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