



What role do broadband providers have in securing the residential IoT ecosystem?

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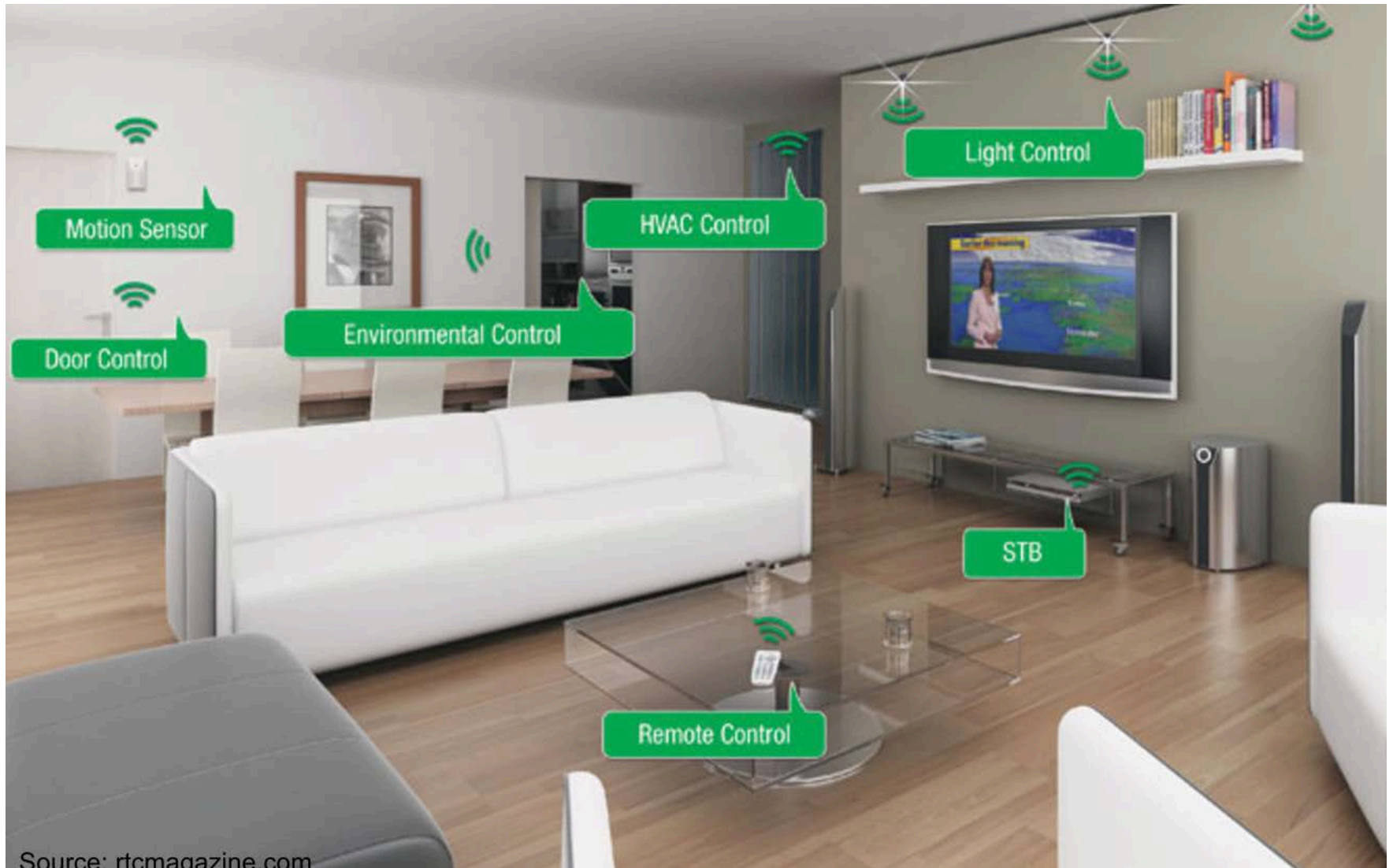
James Loving

Bill Lehr

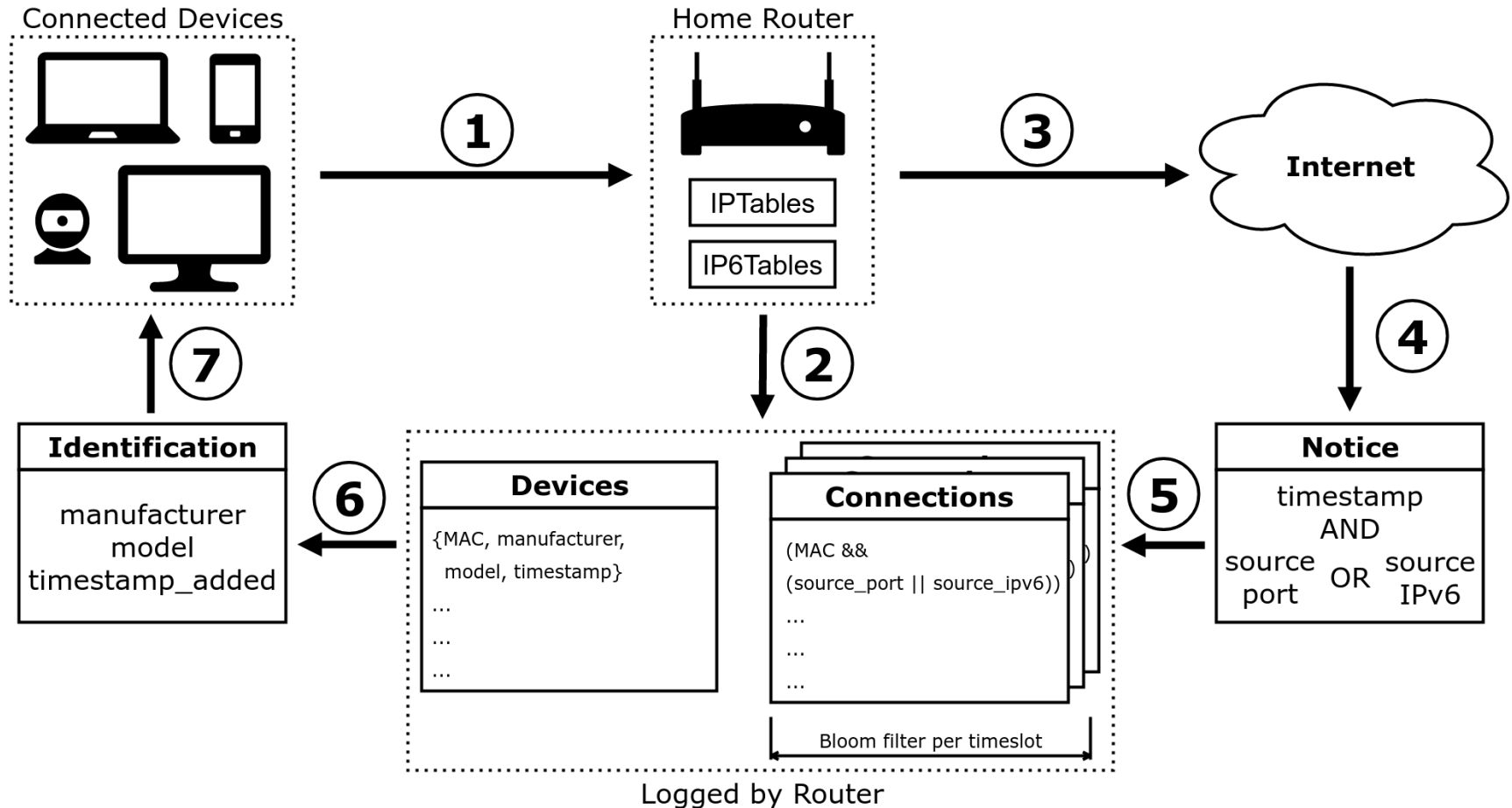
MIT

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Residential source identification problem: identify device(s) that are source of malicious traffic



EDICT architecture enables identification of compromised device(s) behind NATs while preserving user privacy given only source port and timestamp



Criticisms we have received have been economic and incentive based not technical

- “ISPs have no incentive to help users with IoT security challenges”
- “It would increase ISP costs to notify customers”
- “ISPs underinvest in security of their customers”

Previous academic work reaches differing conclusions

- Gideon, Carolyn, and Christiaan Hogendorn. "Safety in numbers? The effect of network competition on cybersecurity." *The Effect of Network Competition on Cybersecurity* (September 9, 2014). Ablon, Lillian, Libicki, Martin, Golay, Andrea (2014).
- Gideon, Carolyn, and Christiaan Hogendorn. "Broadband Industry Structure and Cybercrime: An Empirical Analysis." TPRC, 2015.
- Rowe, Brent, et al. "Economic analysis of ISP provided cyber security solutions." *Institute for Homeland Security Solutions* 36 (2011).
- Rowe, Brent, and Dallas Wood. "Are Home Internet Users Willing to Pay ISPs for Improvements in Cyber Security?." *Economics of Information Security and Privacy III*. Springer New York, 2013. 193-212.
- Rowe, Brent, et al. "Understanding Cyber Security Risk Preferences: A Case Study Analysis Inspired by Public Health Research." (2012).
- ISPs: No New Cybersecurity Regulations Needed, http://www.pcworld.com/article/251444/isps_no_new_cybersecurity_regulations_needed.html

For research, technical, and public policy reasons we need clearer understanding of ISP-customer security economics

- Danger that community will reject a class of technical solutions that are viable
- Suggests need for regulatory intervention when one might not be necessary

Junk: other note material

- Simple model where notification leads to increased cost from a customer service call
- Contagion model
- Private goods --- Common goods --- Public goods