

# THE NEED FOR NEW AUTHENTICATION METHODS FOR IOT

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# Next Generation Type of Communication

- much more heterogeneous environment in terms of network technologies and device
- simple and reliable authentication for (dumb) IoT devices used in this type of next generation communication era
- out-of-band communication for bootstrapping to enhance security (multi-factor authentication etc.)
- radio sensing as under investigation both at IEEE (802.11bf) and 3GPP (for 5G (Rel.19) /6G RAN) might be an example for such 2nd channel w/o requiring new interface technology

# Summary and Next Steps

- draft “The Need for New Authentication Methods for Internet of Things” discussing the problem statement and potential IETF work:
  - <https://www.ietf.org/archive/id/draft-hsothers-iotsens-ps-02.txt>
- has been reviewed and commented on the list
- recently submitted version 03 should address all issues raised so far (we believe)
- main goal is to stimulate discussion on need for such new approach and identify requirements to design solution space
- asking for more review and adoption as WG document

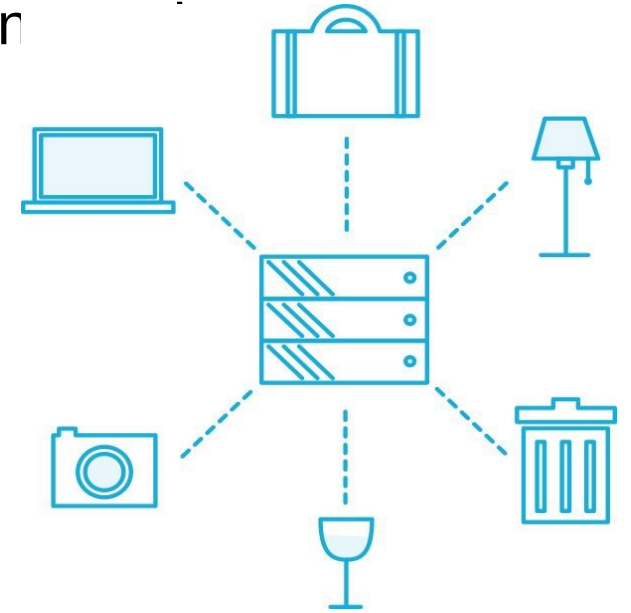
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# Backup

# Hardware based admission model

Massive IoT – e.g., for including new devices into a home/personal network

- o “Should I admit the Smart Teapot blinking red and blue?”
- o “Here’s a list of device manifests – add them to the network”
- o “Admit the device I just touched”
- o “Admit the blinking device I’m pointing the camera at”
- o “Admit the device playing a melody”



Source:

<https://www.ietf.org/topics/iot/>

based on IEEE Future Networks Webinar by Prof. Henning Schulzrinne on "Do We Still Need Wi-Fi in the Era of 5G (and 6G)?"

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# Key Technologies needed

- Sensing
  - Wi-Fi signals for gesture and motion detection
  - 5G/6G signal can also be used as the two are similar technologies
- AI or Neural Network Models
- make sensing resilient to spoofing and adverse channel conditions, i.e., presence of noise and interference from other technologies
- New work needed OOB channels other than LED light, geo spatial naming for IoT devices, mesh Bluetooth OOB etc.
- With these IoT will be potentially the driving force of 6G