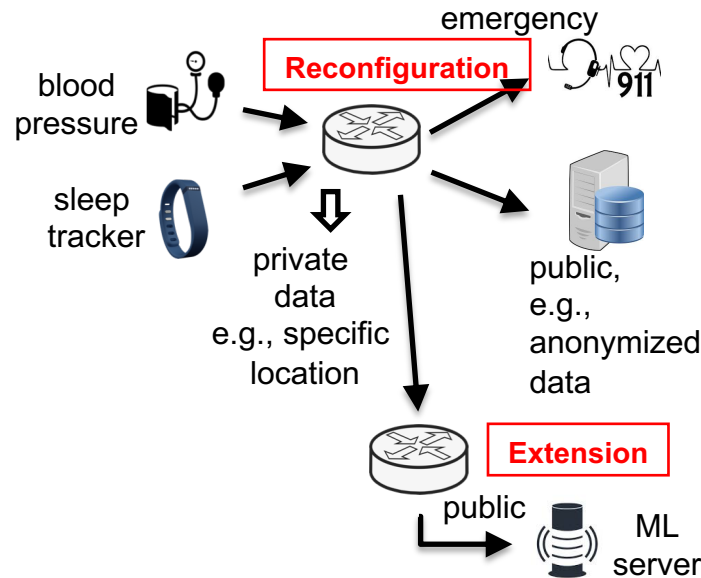


A New Approach to Federated Network Security

PCNC: Proof-Carrying Network Code



Challenge:

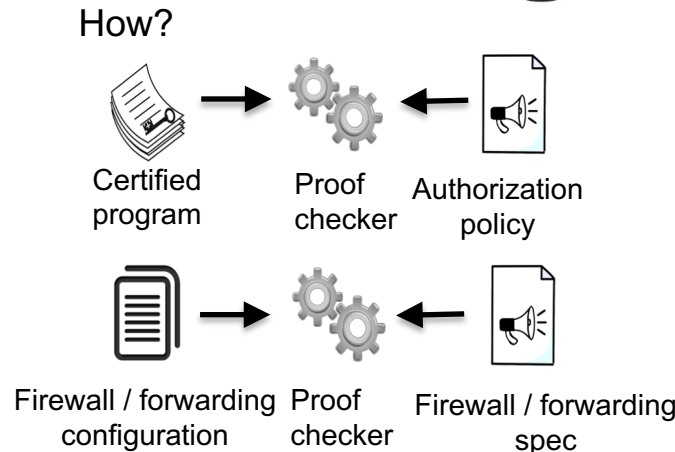
- How to *specify* and *verify* security behavior in federated networks?
- Interested in policy *reconfiguration* and *extending* networks.

Scientific Impact:

- Authorization and behavioral verification in a *single* policy *distributed* throughout the network.
- Multiple principals can collaborate to enforce security policy in federated network settings, e.g., IXP.

Solution:

- **PCNC**: Uniform language framework for *authorization* and *behavioral* policy compliance to support SDN.
- To this end, it uses well-founded theories *System F_{Says}* and *NetKAT* programming language in SDN.



Broader Impact:

- **Open-source software** for research communities and industry in network programming and security.
- **Applications**: IXP, federated networks, campus networks.
- Make networked systems across the nation's **IT infrastructure** reliable and secure.
- **Outreach** workshop for high school students with NYS 4-H and SLA on network security.

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