Testbed Evaluation of an Attestation-Capable, Programmable Software Switch

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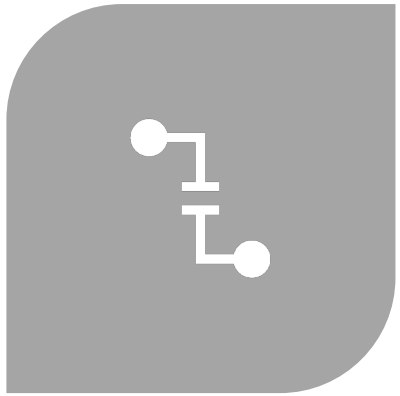
Programmability in Switches

- A shift from Fixed function ASICs to Programmable ASICs.
- Flexibility in packet protocols, quick prototyping, and fast time to deploy.
- **Programmable nature of switch introduces security concerns.**
- Corruption of packets, dropping packets or modifying the dataplane.

Identifying a compromised network

FRAMEWORK AS MENTIONED IN 'A CASE FOR REMOTE ATTESTATION IN PROGRAMMABLE DATAPLANES'
(FOLLOW THE QR CODE)



END HOSTS CREATE A CHALLENGE, AND THE PROGRAMMABLE NETWORK DYNAMICALLY RESPONDS

ATTESTER CREATES THE EVIDENCE, VERIFIER CONFIRMS THE EVIDENCE IS CORRECT, THE END HOSTS ARE INFORMED OF THE VERIFICATION RESULT

Mechanics of Remote Attestation

- Identifying the state that is used to generate the evidence
- The final representation of the evidence
- How is the evidence shared with other participating nodes in the remote attestation framework
- In-band / Out-of-band
- See our prior papers for further details:

Working, Open-Sourced Implementation!

Open-source fork of the BMv2 **software switch**:
https://github.com/awolosewicz/bmv2-remote-attestation

Uses IPv6 extension headers (Hop by Hop) to encode the required evidence in the packet.

Prevents a malicious P4 program from modifying the generated evidence.

Come to our Demo on Tuesday (11/14) at 4:40pm at the Showfloor of SCInet Theater (Booth 1275).
Or contact us for more information.