Techniques and Tools for Enforcing Proximity-based Policies in Wireless Systems

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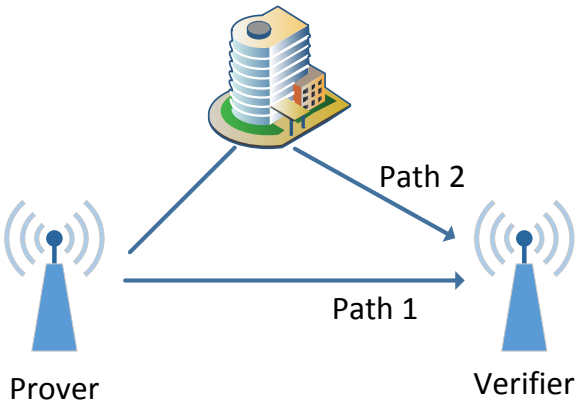
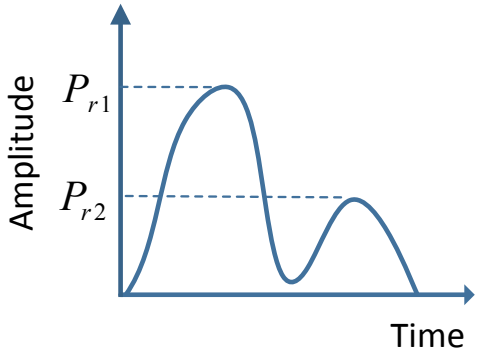
Challenge:

- As wireless technologies become more pervasive and adopted in critical applications, it is becoming increasingly important to authenticate the physical proximity of remote wireless Devices. However, robust techniques and tools do not yet exist for enforcing the authentication of proximity

Solution:

- We propose to create proximity authentication techniques that use physical features of received signals to allow a device to passively authenticate the location of remote device, without having to send messages to, or share secrets with, the remote device.
- We also propose to design practical tools that provide an expressive language for specifying location-based policies, as well as a graphical interface for specifying simple and common location-based policies.





Scientific Impact:

- The proposed proximity authentication techniques can further improve the security of typical wireless applications like contactless-payment systems, Internet-of-things devices, GPS navigation systems, and mobile phones
- The project can enable the general security research community to gain further understanding about how to advance security using wireless features.

Broader Impact:

- The proposed research provide practical techniques and tools for enforcing proximity-based policies in wireless systems. Such techniques and tools have the potential to substantially improve the security of wireless devices.
- New research trends on proximity authentication were added to the PIs' security course at USF.
- The PIs are currently working with students from minority and underrepresented groups

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