



Location-based access control for P2P video sharing



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ABSTRACT

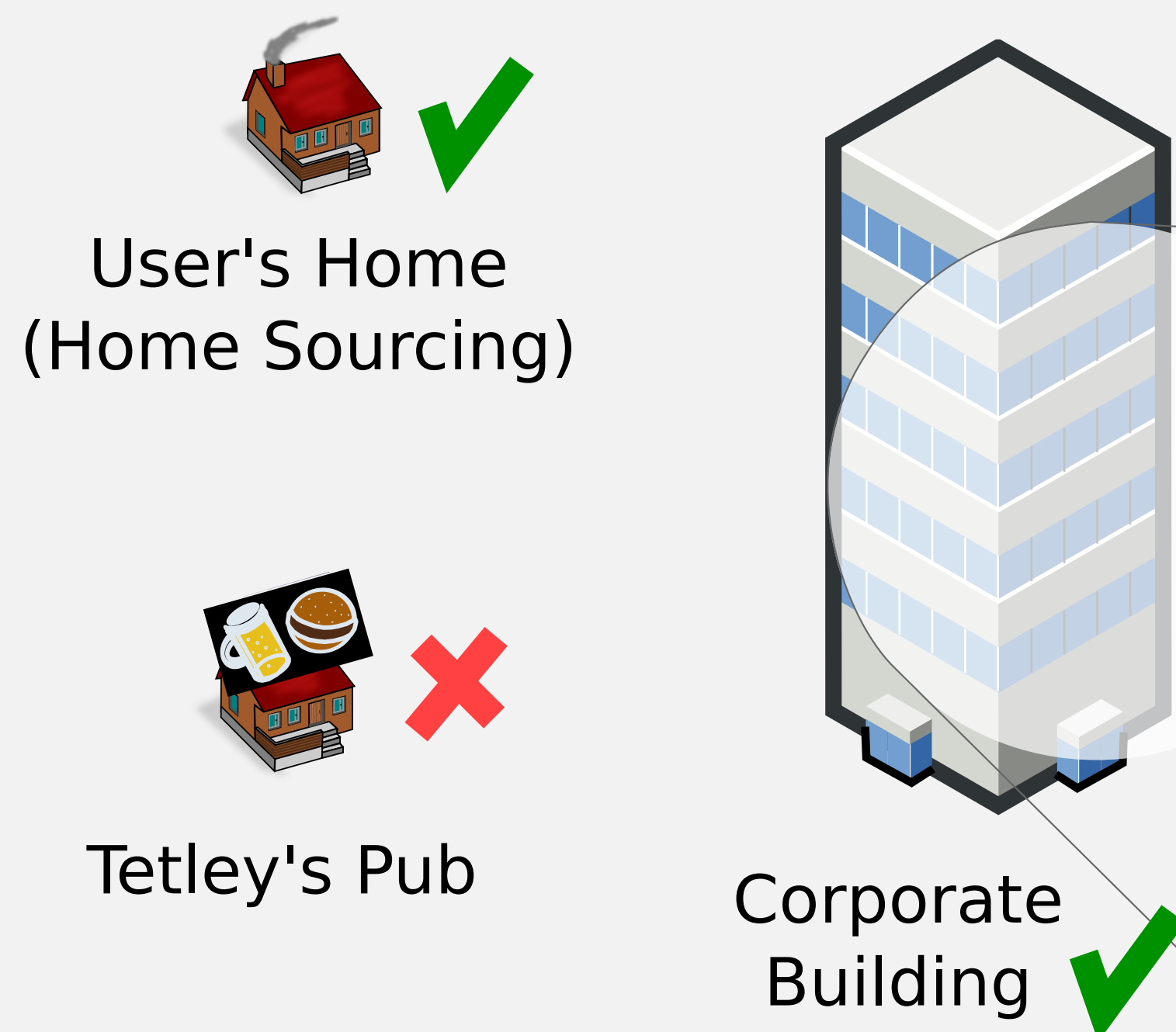
Portable technologies, like smartphones and tablets, enable agile work paradigms like Bring Your Own Device, but also introduce new challenges for defending confidentiality of content. It is easier for unauthorized individuals to access confidential information displayed by aware or unaware authorized users. Location Based Access Control mitigate this problem by allowing policies to be defined over the physical position of the devices. In this work we study the applicability of location based policies in the context of a Distributed Video on Demand platform. As use cases we consider confidentiality domains within the same corporate building and the Home Sourcing scenario.

REFERENCES

1. Claudio A Ardagna, Marco Cremonini, Ernesto Damiani, Sabrina De Capitani di Vimercati, and Pierangela Samarati. Supporting location-based conditions in access control policies;
2. Jung-Shian Li, Che-Jen Hsieh, and Yu-Kai Wang. Distributed key management scheme for peer-to-peer live streaming services;
3. Michael Decker. Requirements for a location-based access control model;



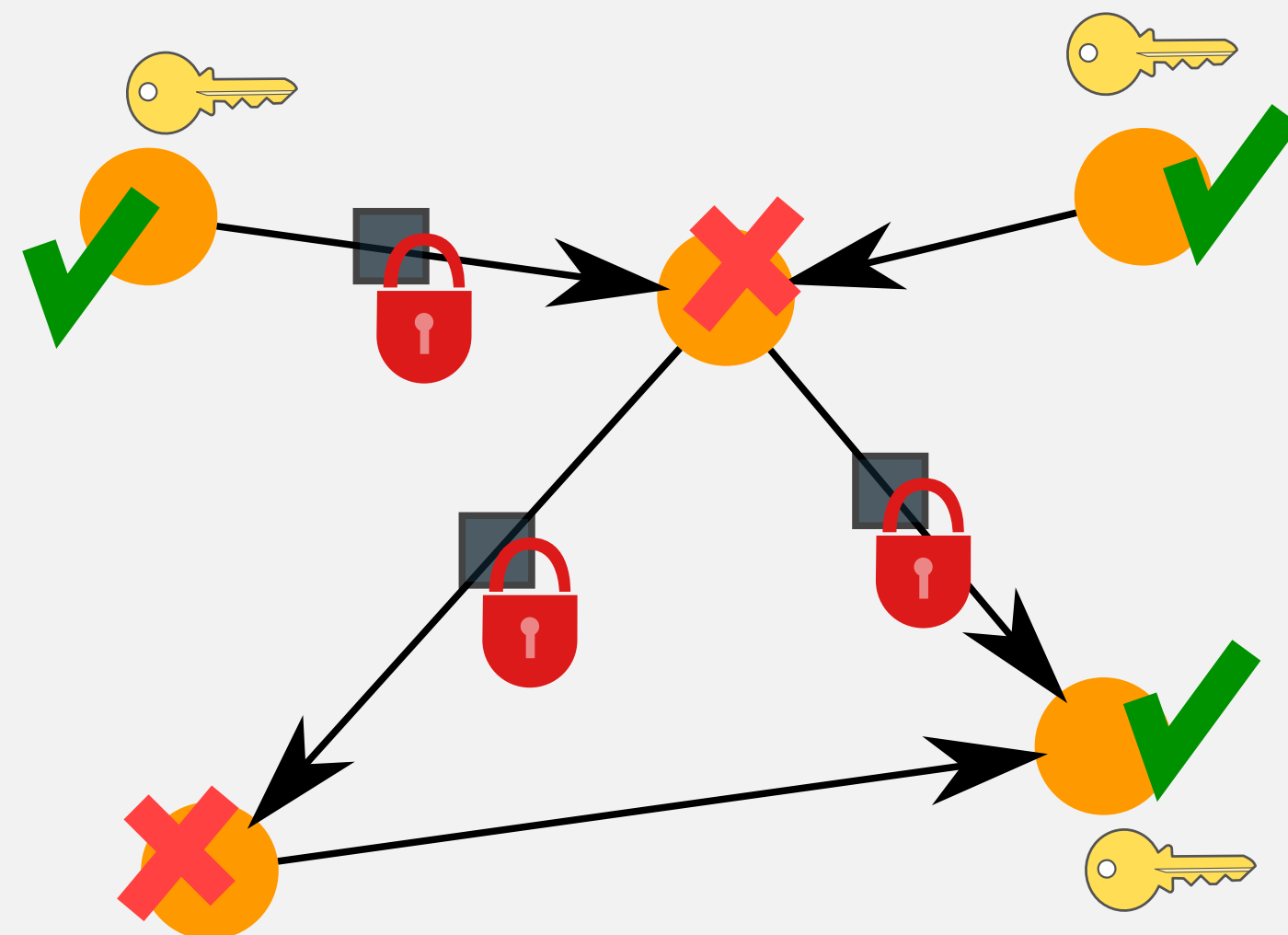
New privacy requirements introduces by portable technology



Confidential information should be consulted only in some safe physical locations.



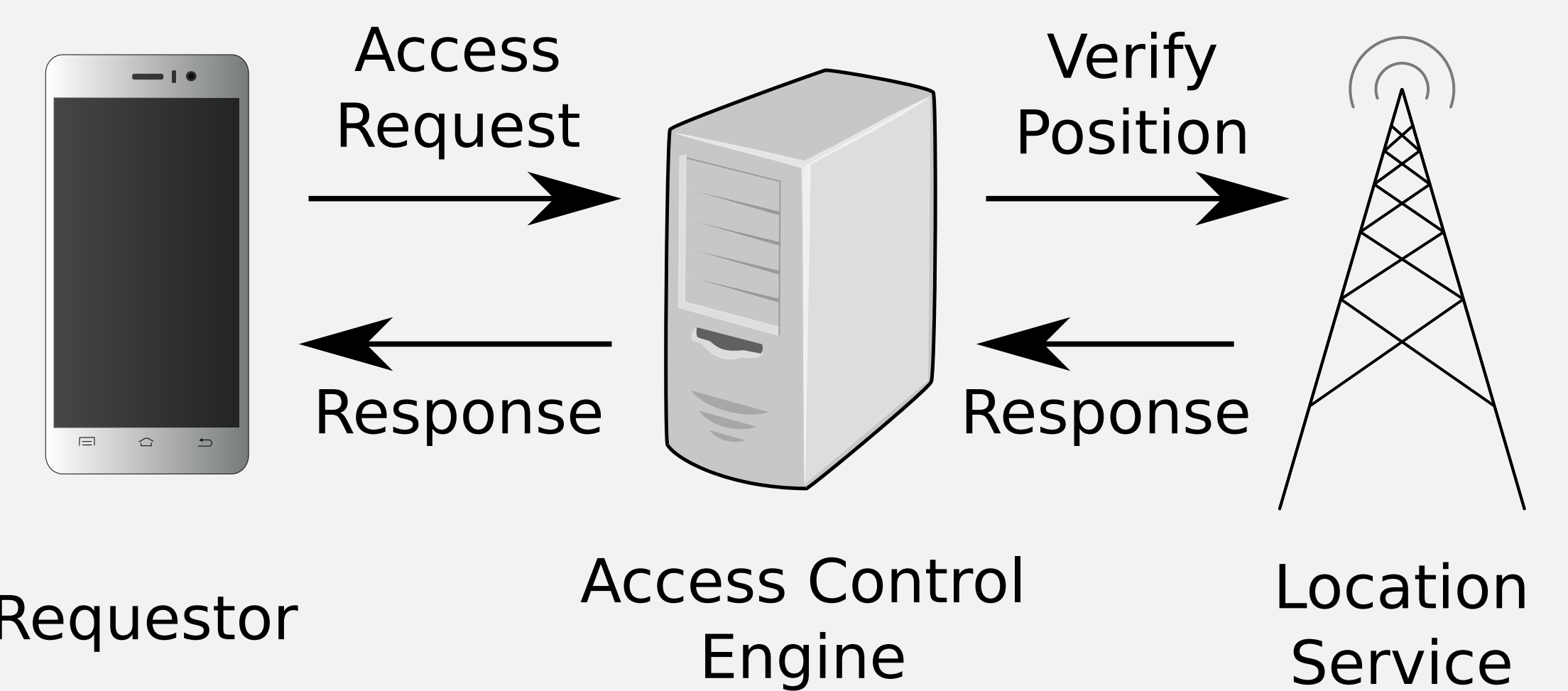
Video-on-Demand: Role Based Access Control



A Content Key encrypts the content stored by peers:

- Owned only by authorized users;
- Periodically replaced (ensuring forward and backward secrecy)
- Requiring Key distribution techniques

Centralized Location Based Access Control



Authorization is granted/denied according to position witnessed by a Location Service. The Access Control engine enforces the policy.

Main issues

- Agreements with service providers (e.g. telephony)
- User privacy violation

Target Architecture

A trusted software component in the device implements a location based enforcement based on locally computed position.

Advantages

- No modification of current connectivity technology
- Smaller latency in policy evaluation: everything is done locally
- Precision improvement (e.g. by using accelerometers)
- Better user's privacy, as the user position never leaves the device

Challenges

- Distribution of contextualized policies
- Trustworthiness of feeds from hardware components

