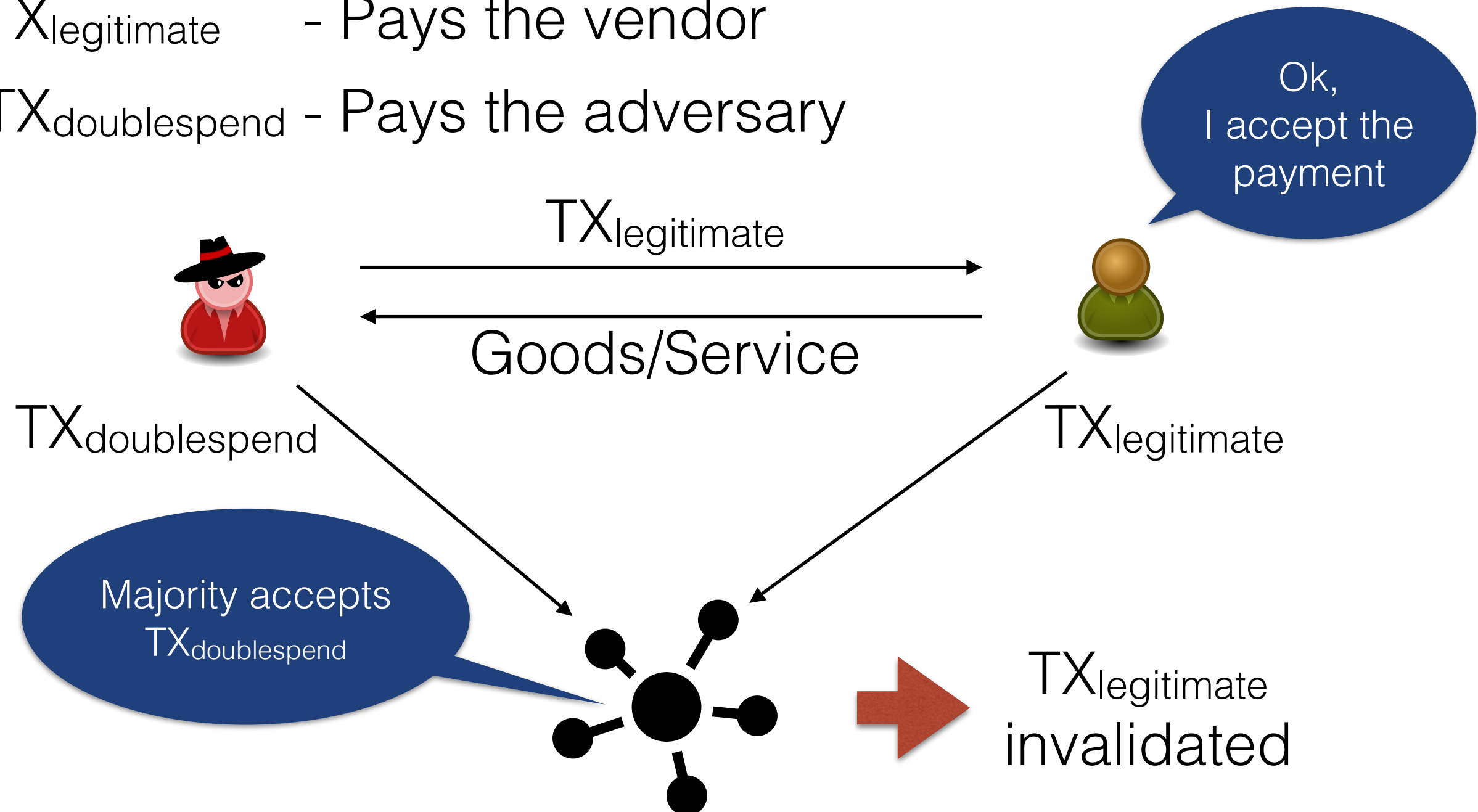# Eclipse Attacks - Double Spending

What is Double Spending?

Spending money more than once
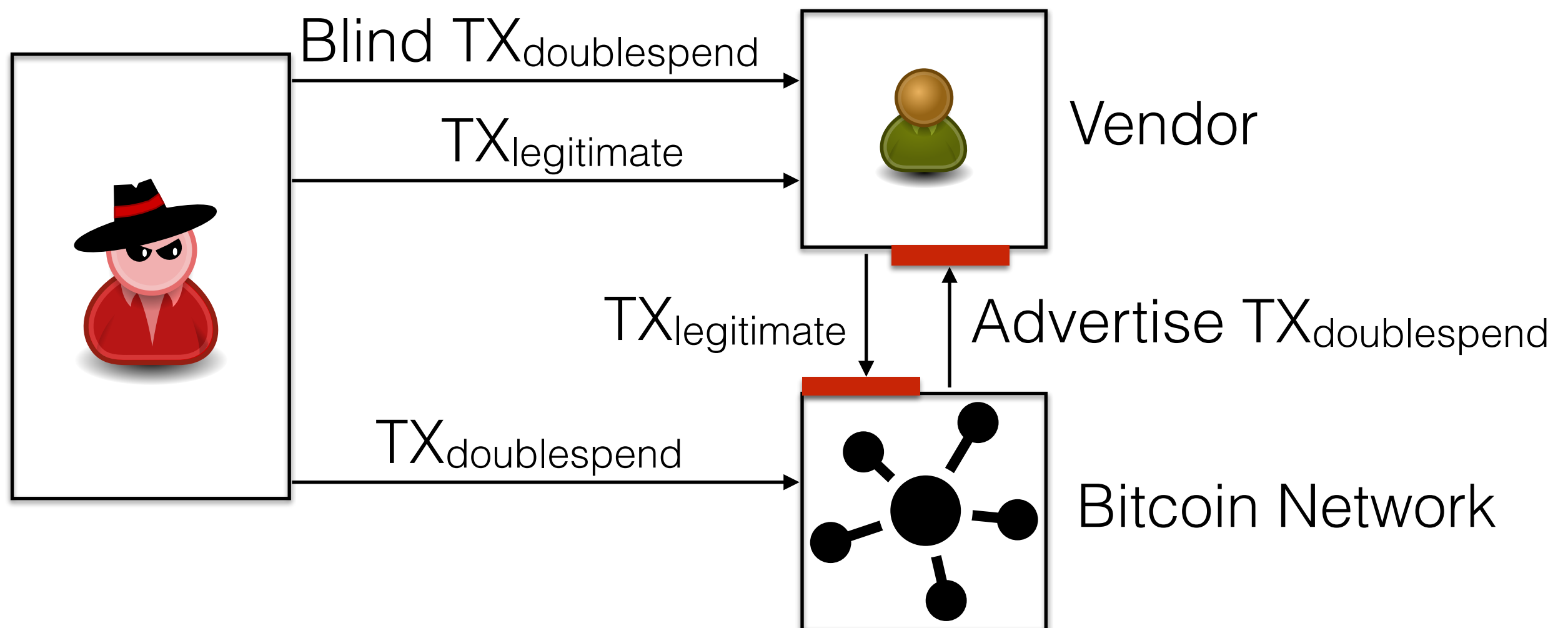
$TX_{legitimate}$ — Pays the vendor

$TX_{doublespend}$ — Pays the adversary

$TX_{legitimate}$

Goods/Service

Ok, I accept the payment

$TX_{doublespend}$

$TX_{legitimate}$

Majority accepts $TX_{doublespend}$

$TX_{legitimate}$ invalidated

Double Spending 0 Confirmation Transactions

- Very reliable attack

- Regardless of protection (double spend relay)

Blind $TX_{doublespend}$

$TX_{legitimate}$

Vendor

$TX_{legitimate}$

Advertise $TX_{doublespend}$

$TX_{doublespend}$

Bitcoin Network

3

Implications - Double Spending 1 Confirmation Transactions

Xl = legitimate
Xd = double spend attempt