Tutorial on Modeling Security Risk with Graphs

EMFASE

Threat · Asset · Vulnerability · Risk

SESAR
JOINT UNDERTAKING

Thanks to **Poste**italiane **PT** for the provision of the Scenario

Overview

- In this tutorial you will learn about graphical notations for modeling security risks

- We will introduce you to
  - CORAS Graphical Risk Modeling Notation
  - Scales to quantify security risks

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CORAS

CORAS Elements

Human threat (deliberate)

Human threat (accidental)

Non-human threat

Vulnerability

Threat scenario

Unwanted incident [likelihood]

Asset

Treatment

+ CORAS terms

| Term	Definition	Icon
Threat	A potential cause of an unwanted incident	
Vulnerability	A weakness, flaw or deficiency that opens for, or may be exploited by a threat to cause harm to or reduce the value of an asset	
Threat scenario	A chain or series of events that is initiated by a threat and that may lead to an unwanted incident	
Unwanted incident	An event that harms or reduces the value of an asset	

+ CORAS terms

Term	Definition	Icon
Asset	Something to which a party assigns value and hence for which the party requires protection	💰
Likelihood	The frequency or probability for something to occur	
Consequence	The impact of an unwanted incident on an asset in terms of harm to or reduced asset value	
Treatment	An appropriate measure to reduce risk level	🔧

CORAS Example
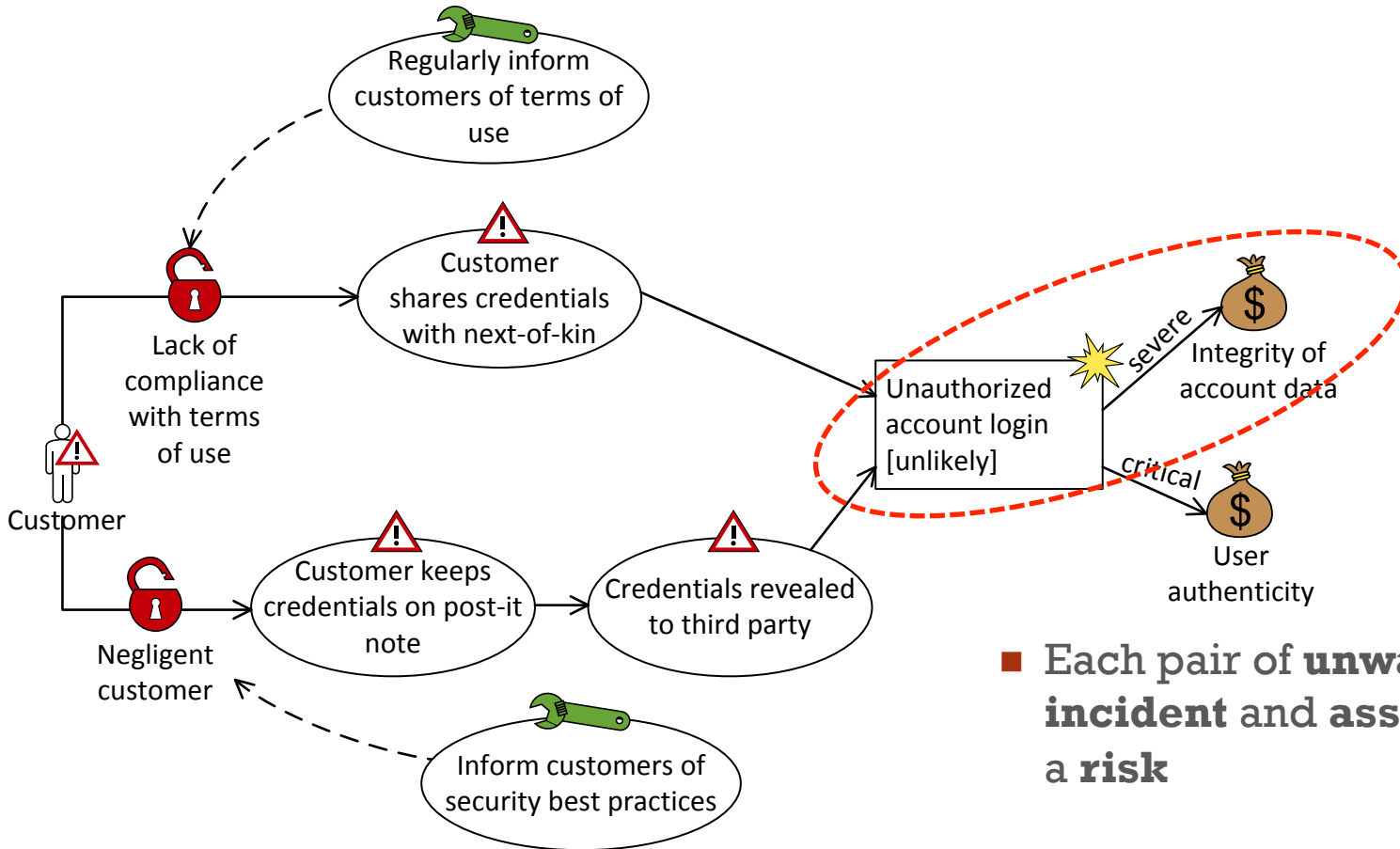
- Each pair of **unwanted incident** and **asset** represents a **risk**

- The **risk level** is derived from the combination of **likelihood** and **consequence**

Scales Risk and Criteria

Likelihood		Consequence/Impact				
		Insignificant	Minor	Severe	Critical	Catastrophic
	Certain	🟨	🟥	🟥	🟥	🟥
	Very likely	🟩	🟨	🟥	🟥	🟥
	Likely	🟩	🟩	🟨	🟥	🟥
	Unlikely	🟩	🟩	🟩	🟨	🟥
	Very unlikely	🟩	🟩	🟩	🟩	🟨

Thank you for your attention