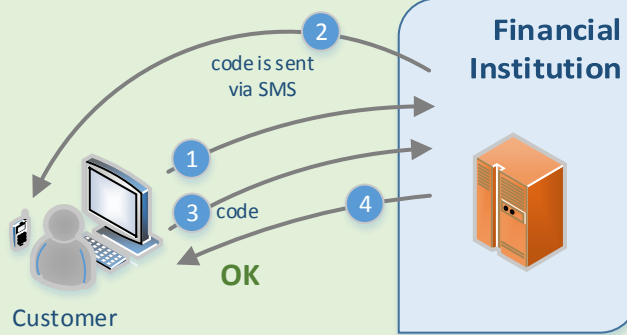


Preventing SMS Two Factor Authentication Financial Fraud

Normal Everyday Scenario

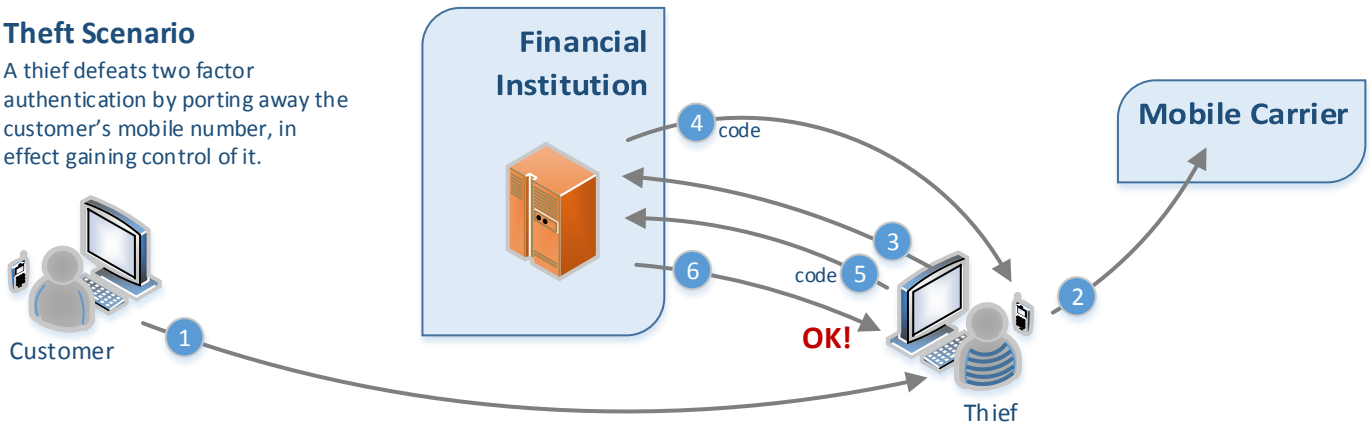
Financial Institution transactions are secured by two factor authentication using SMS.



- 1 Customer initiates an online financial transaction, e.g. transfer of funds or credit card payment
- 2 The financial institution sends a one-time security code via SMS to the customer's mobile number
- 3 The customer enters the security code to complete the transaction
- 4 The financial institution OK's the transaction

Theft Scenario

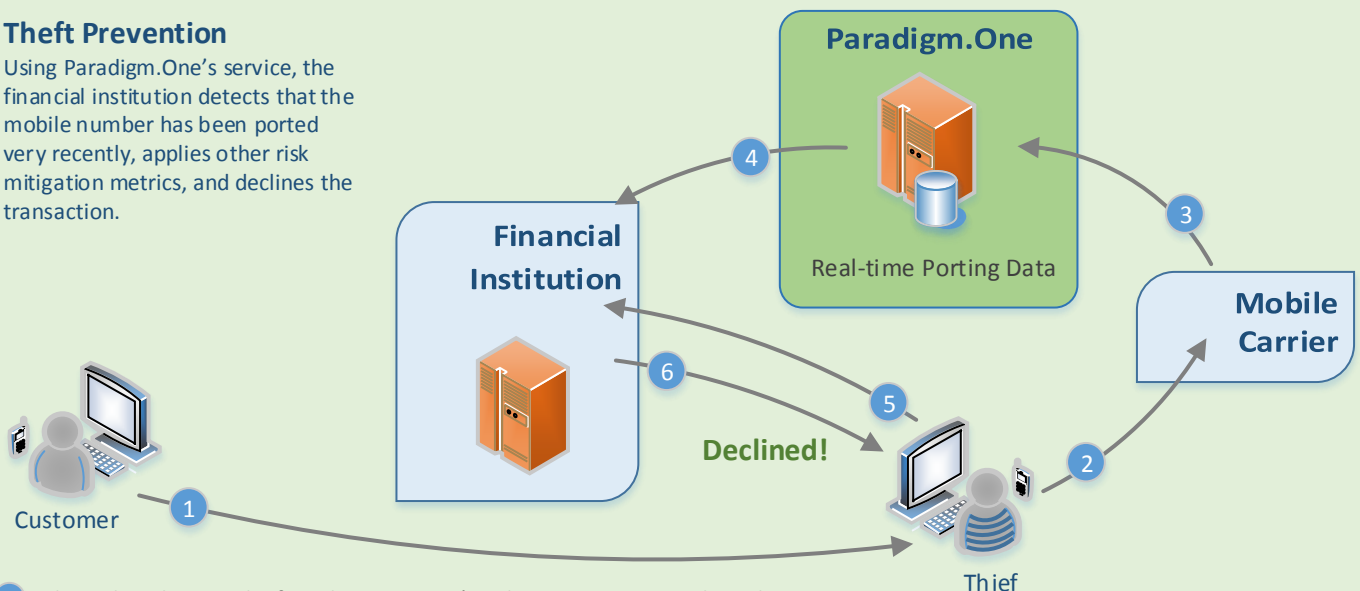
A thief defeats two factor authentication by porting away the customer's mobile number, in effect gaining control of it.



- 1 Through malware or other malicious means a thief steals a customer's online transaction credentials
- 2 Thief ports the customer's mobile number to a burner phone (using either account number with the carrier or date of birth!)
- 3 Having gained control of the customer's mobile number, the thief initiates an online financial transaction
- 4 The financial institution sends a security code via SMS to the customer's number, which is now delivered to the thief instead!
- 5 The thief enters the security code to complete the transaction
- 6 The financial institution OK's the thief's transaction

Theft Prevention

Using Paradigm.One's service, the financial institution detects that the mobile number has been ported very recently, applies other risk mitigation metrics, and declines the transaction.



- 1 Through malware a thief steals a customer's online transaction credentials
- 2 Thief ports the customer's mobile number to a burner phone (using either account number with the carrier or date of birth!)
- 3 Paradigm.One receives the porting event in real-time from the mobile carrier
- 4 Paradigm.One supplies the porting event to the financial institution in real-time
- 5 Thief initiates an online financial transaction
- 6 The financial institution's fraud detection process makes use of the recent porting event, and applies other risk mitigation metrics to either declines the thief's transaction, or requests additional authentication