

# Access Control and Privacy Policies (II)

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Slides: KEATS (also homework is there)

- you can still send me your homework
- Unix AC question: use a terminal-based editor (vm, vim)
- exams: 2 out of 3 questions, 5 or so subquestions each, you can fill in your answers on the question sheet

# Interlock Protocol

The interlock protocol (“best bet” against MITM):

1.  $A \rightarrow B : K_A^{pub}$
2.  $B \rightarrow A : K_B^{pub}$
3.  $\{A, m\}_{K_B^{pub}} \mapsto H_1, H_2$   
 $\{B, m'\}_{K_A^{pub}} \mapsto M_1, M_2$
4.  $A \rightarrow B : H_1$
5.  $B \rightarrow A : \{H_1, M_1\}_{K_A^{pub}}$
6.  $A \rightarrow B : \{H_2, M_1\}_{K_B^{pub}}$
7.  $B \rightarrow A : M_2$

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7.  $B \rightarrow A : M_2$

$m$  = How is your grandmother?  $m'$  = How is the weather today in London?

$$A \rightarrow C : K_A^{pub}$$

$$C \rightarrow B : K_C^{pub}$$

$$B \rightarrow C : K_B^{pub}$$

$$C \rightarrow A : K_C^{pub}$$

$$\{A, m\}_{K_C^{pub}} \mapsto H_1, H_2$$

$$\{B, n\}_{K_C^{pub}} \mapsto M_1, M_2$$

$$\{C, a\}_{K_B^{pub}} \mapsto C_1, C_2$$

$$\{C, b\}_{K_A^{pub}} \mapsto D_1, D_2$$

$$A \rightarrow C : H_1$$

$$C \rightarrow B : C_1$$

$$B \rightarrow C : \{C_1, M_1\}_{K_C^{pub}}$$

$$C \rightarrow A : \{H_1, D_1\}_{K_A^{pub}}$$

$$A \rightarrow C : \{H_2, D_1\}_{K_C^{pub}}$$

$$C \rightarrow B : \{C_2, M_1\}_{K_B^{pub}}$$

$$B \rightarrow C : M_2$$

$$C \rightarrow A : D_2$$

- you have to ask something that cannot imitated (requires  $A$  and  $B$  know each other)
- what happens if  $m$  and  $n$  are voice messages?
- the moral: establishing a secure connection from “zero” is almost impossible—you need to rely on some established trust
- that is why we rely on certificates, which however are badly, badly realised (just today a POODLE attack against SSL)