Symmetric and Asymmetric Cryptographic Primitives

Design and Verification of Security Protocols and Security Ceremonies

Programa de Pós-Graduacão em Ciências da Computacão
Dr. Jean Everson Martina

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UNIVERSIDADE FEDERAL
DE SANTA CATARINA

Cryptography Aims

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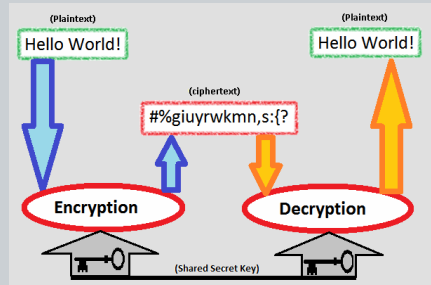
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- We will talk about key distribution protocols in the next lectures.

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- It can be made more efficient by using context of doubles and triples.

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- You find the period of the key and them use frequency analysis to crack all the mono alphabetic cipher independently.

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  - Susceptibility to insertions/ modifications: an active interceptor who breaks the algorithm might insert spurious text that looks authentic.

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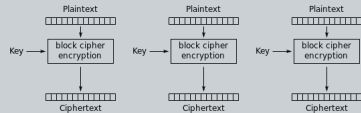
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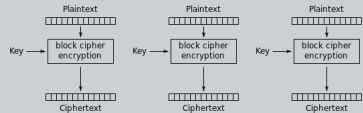
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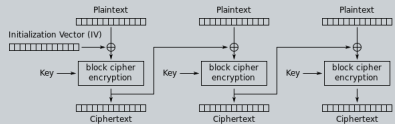- Errors in one cipher-text block propagate to other blocks;

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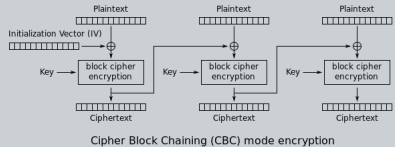
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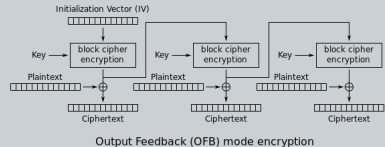- Errors in one cipher-text block propagate to other blocks;

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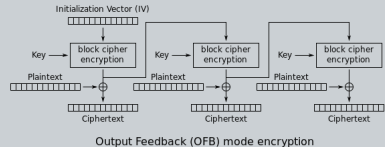
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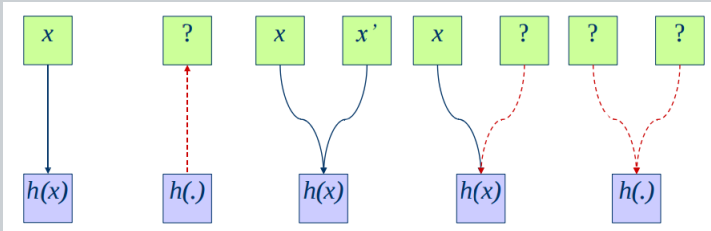
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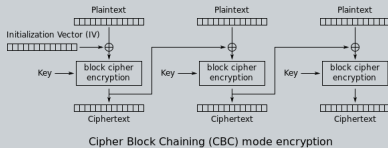 - Symmetric CBC-MAC;

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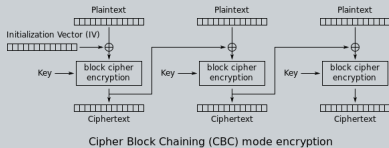 - CMAC;
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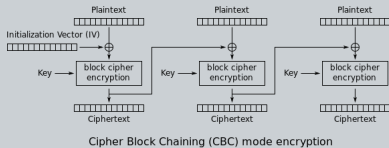

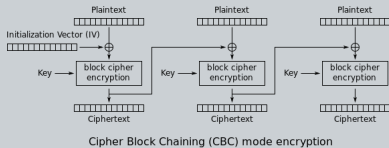Cipher Block Chaining (CBC) mode encryption

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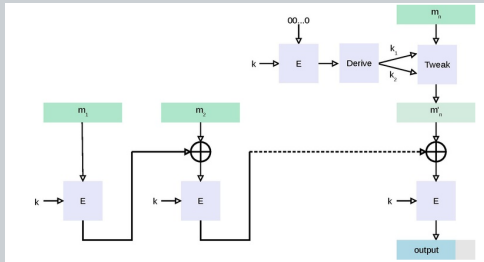
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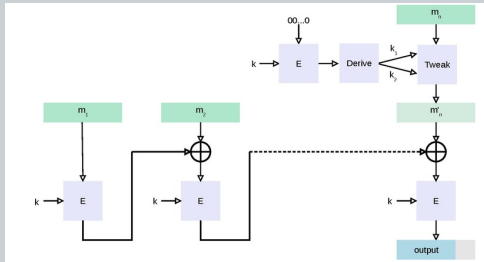
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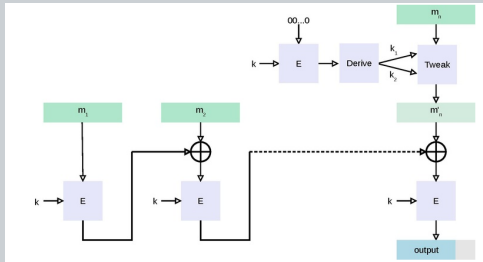
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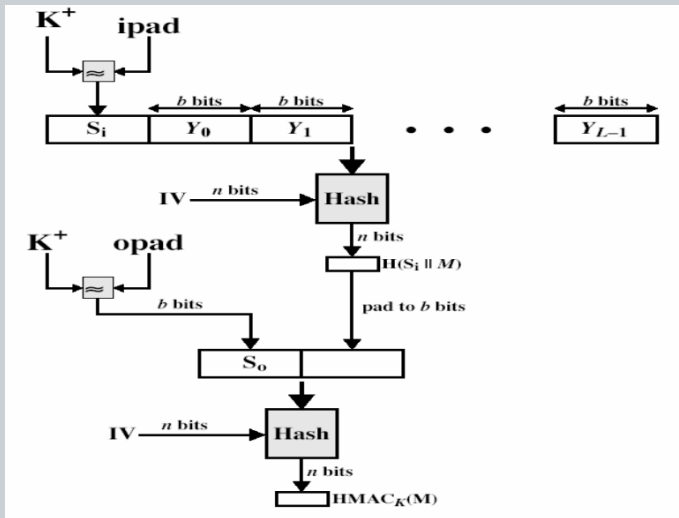- Allow easy replacement of the underlying hash function;

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- Have a well-understood analysis of the strength of the authentication mechanisms;

HMAC

Security of HMAC

- Security of HMAC relates to that of the underlying hash algorithm;
- If used with a secure hash functions and according to the specification (key size, and use correct output), no known practical attacks;

Properties of Symmetric Encryption

- Confidentiality of course!!!
- How to achieve authentication?
- And timeliness?
- And Integrity

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Questions????

UNIVERSIDADE FEDERAL
DE SANTA CATARINA