University of BRISTOL

Computer Systems B

COMS20012

Introduction to Operating Systems and Security

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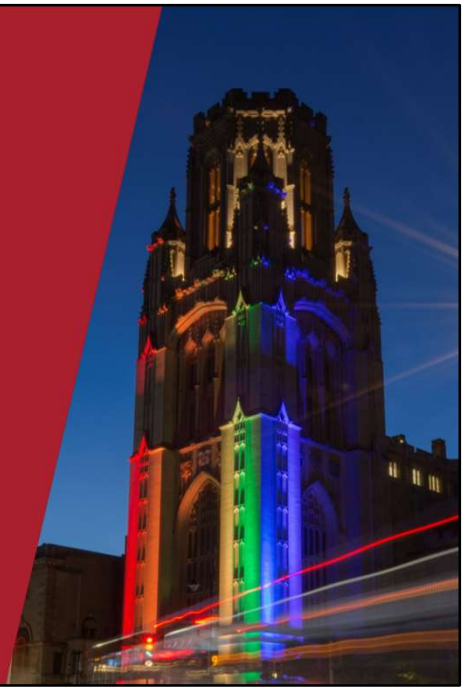
Threat 3

Man in the middle



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Transmit password

- In the clear?

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Transmit password

- In the clear?
  - Just need to listen on network packet…

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Transmit password

- In the clear?
- Over encrypted connection?

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Transmit password

- In the clear?
- Over encrypted connection?
  - Man in the middle attack
  - Need to authenticate the server (e.g. Am I really talking to google?)

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Transmit password

- In the clear?
- Over encrypted connection?
- Send the hash?

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Transmit password

- In the clear?
- Over encrypted connection?
- Send the hash?
  - Does not make a difference!

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Transmit password

- In the clear?
- Over encrypted connection?
- Send the hash?
- Challenge response protocol?

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Transmit password

- In the clear?
- Over encrypted connection?
- Send the hash?
- Challenge response protocol?
  - Bob can verify Alice know the secret
  - If someone pretend to be Bob he cannot know the password

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Transmit password

- In the clear?
- Over encrypted connection?
- Send the hash?
- Challenge response protocol?
  - Bob can verify Alice know the secret
  - If someone pretend to be Bob he cannot know the password
  - Naïve (more in a future video)

Discussed further in future video

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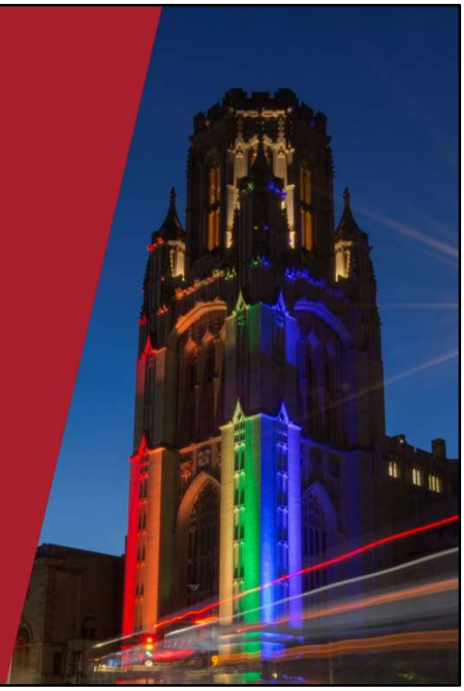
Threat 4

"Hammering" the login page



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Anti-hammering defences

- Rate-limit
  - Number of guess, then password revoked
- Time-outs
  - e.g. prevent to login within the next hours
- Why is it important?

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Anti-hammering defenses

- Rate-limit
  - Number of guess, then password revoked
- Time-outs
  - e.g. prevent to login within the next hours
- Why is it important?
  - Password have very low entropy!
  - Need to prevent brute forcing

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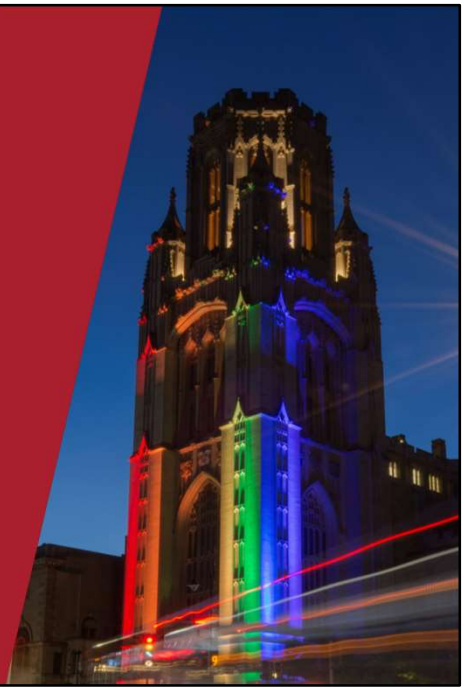
Thank you



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