On the impact of warning interfaces for enabling the detection of Potentially Unwanted Applications

Vlasta Stavova, Vashek Matyas & Mike Just
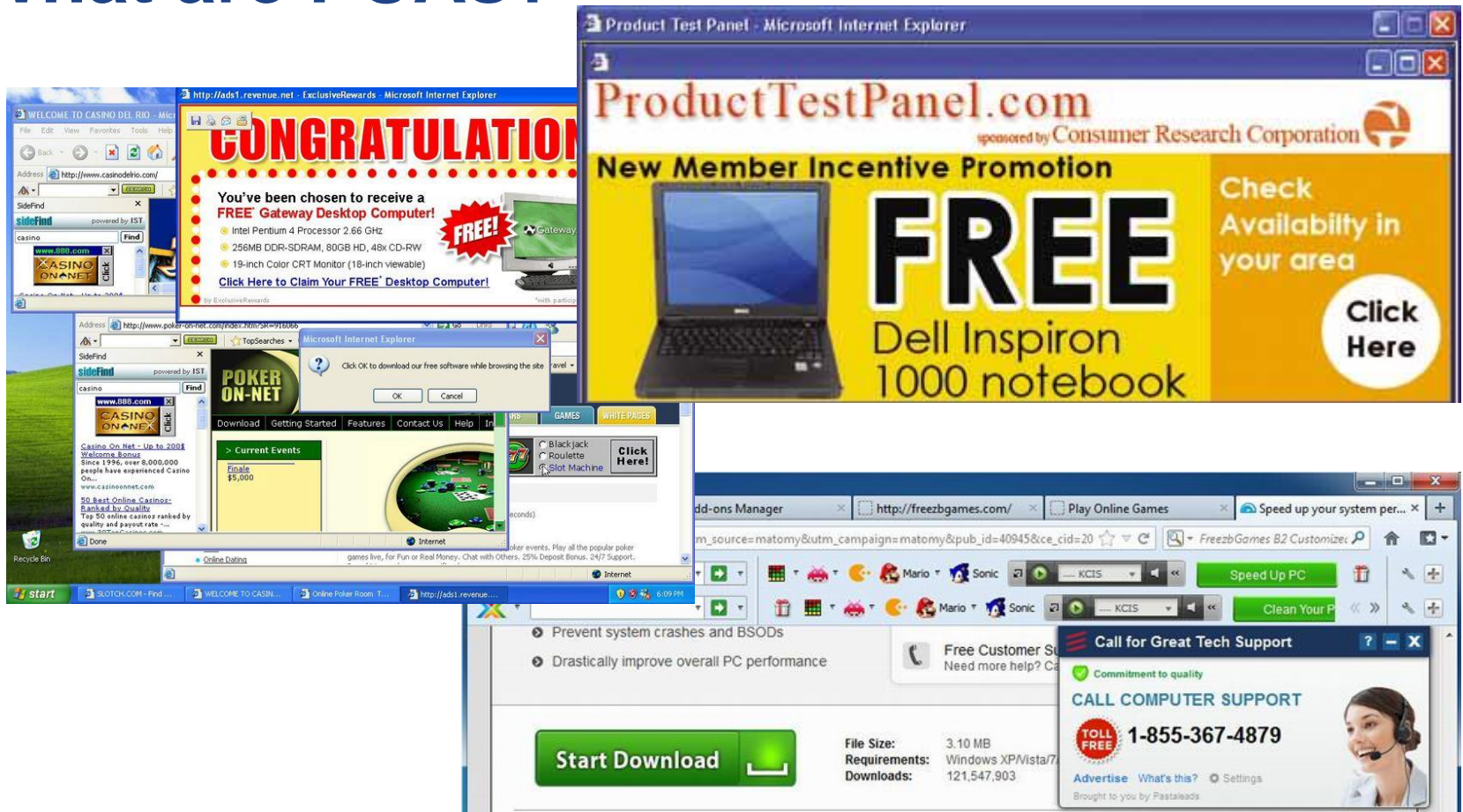EuroUSEC 2016

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Centre for Research on
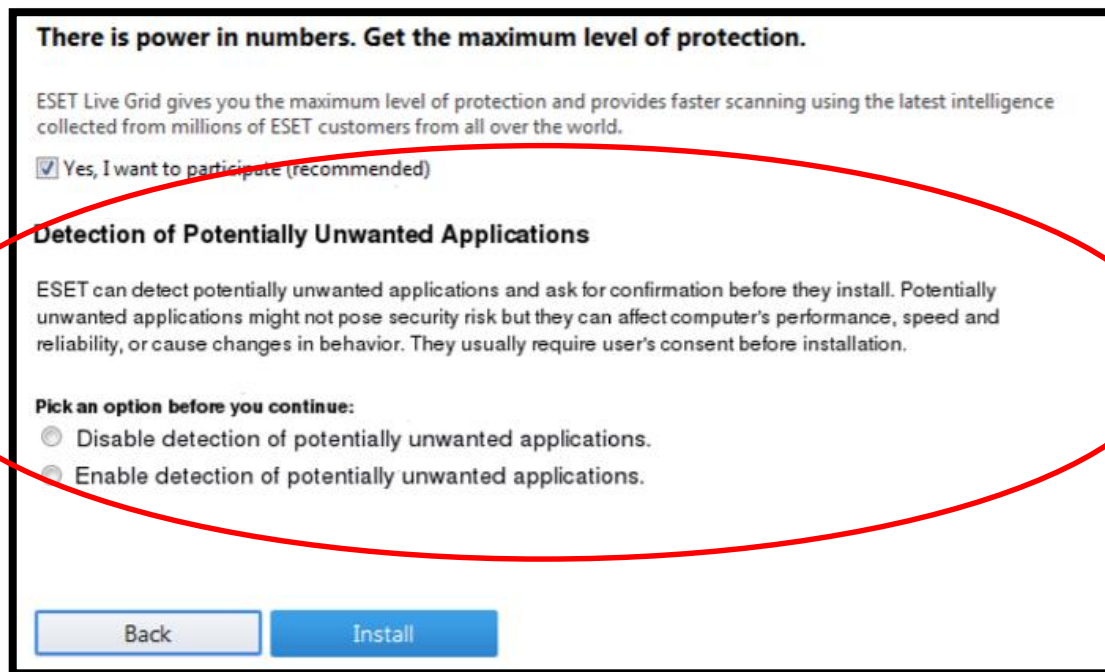Cryptography and Security

Outline

- Enabling PUAs detection problem
- Our experiment
- Results and discussion
- Future work

What are PUAs?

Legally safe solution?

- Let a user agree with enabling PUAs detection during antivirus installation.

Our aim

- Aim: Increase rate of enabling PUAs detection
- How:
  - Design variants of user dialog to enable PUAs detection
  - Evaluate variants
  - Discuss the variant with highest PUAs detection enabling rate
- Who:
  - Faculty of Informatics, Masaryk University
  - Faculty of Social Science, Masaryk University
  - IT security software provider ESET

Experiment

- June and July 2015
- ESET beta users
- Beta home edition antivirus
- Records about 26,000 installations

Proposed variants

- We designed 14 variants + control one

Detection of Potentially Unwanted Applications

ESET can detect potentially unwanted applications and ask for confirmation before they install. Potentially unwanted applications might not pose security risk but they **can affect your computer's**:
- performance,
- speed,
- reliability,
- behavior.

They usually require user's consent before installation.

Pick an option before you continue:

○ Disable detection of potentially unwanted applications.

○ Enable detection of potentially unwanted applications.

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Proposed variants

- We designed 14 variants + control one

Results – the best variant

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Pick an option before you continue:
- Enable detection of potentially unwanted applications.
- Disable detection of potentially unwanted applications.

89.8%

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74.5%

→ Significant improvement

Results – the worst variant

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71.1%

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74.5%

Results

Detection of Potentially Unwanted Applications

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71.6%

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74.5%

Results

Detection of Potentially Unwanted Applications

ESET can detect potentially unwanted applications and ask for confirmation before they install. Potentially unwanted applications might not pose security risk but they can affect computer's performance, speed and reliability, or cause changes in behavior. They usually require user's consent before installation.

For example, they may change your web browser's webpage and search settings.

Pick an option before you continue:

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○ Enable detection of potentially unwanted applications.

73.3%

Detection of Potentially Unwanted Applications

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Pick an option before you continue:

○ Disable detection of potentially unwanted applications.

○ Enable detection of potentially unwanted applications.

74.5%

Future work

- PUA experiment with standard users
  - Questionnaire about their security habits
- Who are beta users and how they differ from standard product users?

Conclusions

- Aim: Increase rate of enabling PUAs detection

- Cooperation with IT security software provider ESET

- 15 variants tested, 26,000 installations

- „Enable PUAs detection" as first option increased the rate by 15.3 percentage points

- Other variants did not lead to any improvement

Acknowlegment

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- Reviewers and our shepherd Paul Geber

Thank you for your attention!

Questions ?

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