

# SEVENTH FRAMEWORK PROGRAMME

Information & Communication Technologies  
Trustworthy ICT

## NETWORK OF EXCELLENCE



A European Network of Excellence in Managing Threats and  
Vulnerabilities in the Future Internet: *Europe for the World*

## 2<sup>nd</sup> Periodic Dissemination Report <sup>†</sup> September 2011–August 2012

**Abstract:** This is the dissemination report for SysSec for the period September 2011–August 2012.

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The SysSec consortium consists of:

FORTH-ICS	Coordinator	Greece
Politecnico Di Milano	Principal Contractor	Italy
Vrije Universiteit Amsterdam	Principal Contractor	The Netherlands
Institut Eurécom	Principal Contractor	France
IICT-BAS	Principal Contractor	Bulgaria
Technical University of Vienna	Principal Contractor	Austria
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## 1 Executive Summary

This report summarizes the dissemination activities carried out by the SysSec project in the September 2011–August 2012 period. Specifically, in the following pages we will list the papers presented by the consortium in conferences as well as the presentations related to the project made at various events and forums. Any additional coverage of the project by the press and online media is also presented in this document.

During this second year of SysSec the consortium published a total of 34 peer-reviewed papers, plus 29 presentations, talks and seminars.

Moreover, we are well on our way to organize an international school, we interacted with the international press, and with other EU funded projects.

The overall dissemination output of SysSec is an indication of the global excellence and recognition of the project partners.

## 2 Conference and journal papers

Following is the list of peer-reviewed papers that were presented or published in the period September 2011–August 2012.

- [1] Eleni Gessiou, Quang Hieu Vu, and Sotiris Ioannidis. **IRILD: an Information Retrieval based method for Information Leak Detection**. In *Proceedings of the 7th European Conference on Computer Network Defense (EC2ND)*, Göteborg, Sweden, September 2011.

Local copy: [papers/gessiou-ec2nd11.pdf](#)

Online: <http://syssec-project.eu/nNa#gessiou-ec2nd11.pdf>

- [2] Georgios Kontaxis, Iasonas Polakis, Michalis Polychronakis, and Evangelos P. Markatos. **dead.drop: URL-based Stealthy Messaging**. In *Proceedings of the 7th European Conference on Computer Network Defense (EC2ND)*, Göteborg, Sweden, September 2011.

Local copy: [papers/kontaxis-ec2nd11.pdf](#)

Online: <http://syssec-project.eu/nNa#kontaxis-ec2nd11.pdf>

- [3] Mihai Costache, Valentin Tudor, Magnus Almgren, Marina Papatriantafilou, and Christopher Saunders. **Remote control of smart meters: friend or foe?**. In *Proceedings of the 7th European Conference on Computer Network Defense (EC2ND)*, Göteborg, Sweden, September 2011.

Local copy: [papers/costache-ec2nd11.pdf](#)

Online: <http://syssec-project.eu/nNa#costache-ec2nd11.pdf>

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- [4] Christian J. Dietrich, Christian Rossow, Felix C. Freiling, Herbert Bos, Maarten van Steen, and Norbert Pohlmann. **On Botnets that use DNS for Command and Control**. In *Proceedings of the 7th European Conference on Computer Network Defense (EC2ND)*, Göteborg, Sweden, September 2011.

Local copy: [papers/dietrich-ec2nd11.pdf](#)

Online: <http://syssec-project.eu/nNa#dietrich-ec2nd11.pdf>

- [5] Erik Bosman, Asia Slowinska, and Herbert Bos. **Minemu: The World's Fastest Taint Tracker**. In *Proceedings of the 14th International Symposium On Recent Advances In Intrusion Detection (RAID)*, Menlo Park, CA, USA, September 2011.

Local copy: [papers/minemu-raid11.pdf](#)

Online: <http://syssec-project.eu/nNa#minemu-raid11.pdf>

- [6] Martina Lindorfer, Clemens Kolbitsch, and Paolo Milani Comparetti. **Detecting Environment-Sensitive Malware**. In *Proceedings of the 14th International Symposium On Recent Advances In Intrusion Detection (RAID)*, Menlo Park, CA, USA, September 2011.

Local copy: [papers/disarm-raid11.pdf](#)

Online: <http://syssec-project.eu/nNa#disarm-raid11.pdf>

- [7] Vladimir Dimitrov, Zlatogor Minchev, Dimitar Todorov, and Hristo Turlakov. **An Approach to Security Analysis of Distributed Computing GRID Environment**. In *Proceedings of the International Conference "Automatics & Informatics '11"*, Sofia, Bulgaria, October 2011.

Local copy: [papers/vdzm-autoinf11.pdf](#)

Online: <http://syssec-project.eu/nNa#vdzm-autoinf11.pdf>

- [8] Georgios Kontaxis, Michalis Polychronakis, and Evangelos P. Markatos. **SudoWeb: Minimizing Information Disclosure to Third Parties in Single Sign-On Platforms**. In *Proceedings of the 14th Information Security Conference (ISC)*, Xi'an, China, October 2011.

Local copy: [papers/sudoweb-isc11.pdf](#)

Online: <http://syssec-project.eu/nNa#sudoweb-isc11.pdf>

- [9] Giorgos Vasiliadis, Michalis Polychronakis, and Sotiris Ioannidis. **MIDeA: A Multi-Parallel Intrusion Detection Architecture**. In *Proceedings of the 18th ACM/SIGSAC Conference on Computer and Communications Security (CCS)*, Chicago, IL, USA, October 2011.

Local copy: [papers/midea-ccs11.pdf](#)

Online: <http://syssec-project.eu/nNa#midea-ccs11.pdf>

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- [10] Clemens Kolbitsch, Engin Kirda, and Christopher Kruegel. **The Power of Procrastination: Detection and Mitigation of Execution-Stalling Malicious Code**. In *Proceedings of the 18th ACM/SIGSAC Conference on Computer and Communications Security (CCS)*, Chicago, IL, USA, October 2011.

Local copy: [papers/hasten-ccs11.pdf](#)

Online: <http://syssec-project.eu/nNa#hasten-ccs11.pdf>

- [11] Giorgos Vasiliadis, Michalis Polychronakis, and Sotiris Ioannidis. **Parallelization and Characterization of Pattern Matching using GPUs**. In *Proceedings of the 2011 IEEE International Symposium on Workload Characterization (IISWC)*, Austin, TX, USA, November 2011.

Local copy: [papers/gpupattern-iiswc11.pdf](#)

Online: <http://syssec-project.eu/nNa#gpupattern-iiswc11.pdf>

- [12] Christian Platzer. **Sequence-Based Bot Detection in Massive Multiplayer Online Games**. In *Proceedings of the 13th International Conference on Information and Communications Security (ICICS)*, Beijing, China, November 2011.

Local copy: [papers/platzer-icics11.pdf](#)

Online: <http://syssec-project.eu/nNa#platzer-icics11.pdf>

- [13] Matthias Neugschwandtner, Paolo Milani Comparetti, Gregoire Jacob, and Christopher Kruegel. **FORECAST – Skimming off the Malware Cream**. In *Proceedings of the 2011 Annual Computer Security Applications Conference (ACSAC)*, Orlando, FL, USA, December 2011.

Local copy: [papers/forecast-acsac11.pdf](#)

Online: <http://syssec-project.eu/nNa#forecast-acsac11.pdf>

- [14] Matthias Neugschwandtner, Paolo Milani Comparetti, and Christian Platzer. **Detecting Malware’s Failover C&C Strategies with SQUEEZE**. In *Proceedings of the 2011 Annual Computer Security Applications Conference (ACSAC)*, Orlando, FL, USA, December 2011.

Local copy: [papers/squeeze-acsac11.pdf](#)

Online: <http://syssec-project.eu/nNa#squeeze-acsac11.pdf>

- [15] Federico Maggi, Alberto Volpatto, Simone Gasparini, Giacomo Boracchi, and Stefano Zanero. **A Fast Eavesdropping Attack Against Touchscreens**. In *Proceedings of the 7th International Conference on Information Assurance and Security (IAS)*, Malacca, Malaysia, December 2011.

Local copy: [papers/iclearshot-ias11.pdf](#)

Online: <http://syssec-project.eu/nNa#iclearshot-ias11.pdf>

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- [16] Federico Maggi, Andrea Bellini, Guido Salvaneschi, and Stefano Zanero. **Finding Non-trivial Malware Naming Inconsistencies**. In *Proceedings of the 7th International Conference on Information Systems Security (ICISS)*, Kolkata, India, December 2011.
- Local copy: [papers/avnaming-iciss11.pdf](#)  
Online: <http://syssec-project.eu/nNa#avnaming-iciss11.pdf>
- [17] Antonis Papadogiannakis, Giorgos Vasiliadis, Demetres Antoniadis, Michalis Polychronakis, and Evangelos P. Markatos. **Improving the performance of passive network monitoring applications with memory locality enhancements**. *Computer Communications*, 35:129–140, January 2012.
- Local copy: [papers/pcap-comcom.pdf](#)  
Online: <http://syssec-project.eu/nNa#pcap-comcom.pdf>
- [18] Luigi Sportiello and Stefano Zanero. **Context-Based File Block Classification**. In *Proceedings of the Eighth Annual IFIP WG 11.9 International Conference on Digital Forensics*, Pretoria, South Africa, January 2012.
- Local copy: [papers/sportiello-zanero-fileblock.pdf](#)  
Online: <http://syssec-project.eu/nNa#sportiello-zanero-fileblock.pdf>
- [19] Kaan Onarlioglu, Utku Ozan Yilmaz, Engin Kirda, and Davide Balzarotti. **Insights into User Behavior in Dealing with Internet Attacks**. In *Proceedings of the 19th Annual Network & Distributed System Security Symposium (NDSS)*, San Diego, CA, USA, February 2012.
- Local copy: [papers/onarlioglu-ndss12.pdf](#)  
Online: <http://syssec-project.eu/nNa#onarlioglu-ndss12.pdf>
- [20] Theodoor Scholte, Davide Balzarotti, William Robertson, and Engin Kirda. **An Empirical Analysis of Input Validation Mechanisms in Web Applications and Languages**. In *Proceedings of the 27th Symposium On Applied Computing (SAC)*, Riva del Garda, Italy, March 2012.
- Local copy: [papers/scholte-sac12.pdf](#)  
Online: <http://syssec-project.eu/nNa#scholte-sac12.pdf>
- [21] Marco Balduzzi, Jonas Zaddach, Davide Balzarotti, Engin Kirda, and Sergio Loureiro. **A Security Analysis of Amazon’s Elastic Compute Cloud Service**. In *Proceedings of the 27th Symposium On Applied Computing (SAC)*, Riva del Garda, Italy, March 2012.
- Local copy: [papers/balduzzi-sac12.pdf](#)  
Online: <http://syssec-project.eu/nNa#balduzzi-sac12.pdf>
- [22] Zlatogor Minchev and Plamen Gatev. **Psychophysiological Evaluation of Emotions due to the Communication in Social Networks**. *Scripta Scientifica Medica*, 44(1):Supplement 1, April 2012.

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Local copy: [papers/zm-pg-ssm-2012.pdf](#)

Online: <http://syssec-project.eu/nNa#zm-pg-ssm-2012.pdf>

- [23] Farnaz Moradi, Tomas Olovsson, and Philippos Tsigas. **Towards Modeling Legitimate and Unsolicited email Traffic Using Social Network Properties.** In *Proceedings of the 5th Workshop on Social Network Systems (SNS)*, Bern, Switzerland, April 2012. ACM.

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- [24] Luca Invernizzi, Paolo Milani Comparetti, Stefano Benvenuti, Christopher Kruegel, Marco Cova, and Giovanni Vigna. **EVILSEED: A Guided Approach to Finding Malicious Web Pages.** In *Proceedings of the 2012 IEEE Symposium on Security and Privacy (SP)*, San Francisco Bay Area, CA, USA, May 2012.

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- [25] Christian Rossow, Christian J. Dietrich, Chris Grier, Christian Kreibich, Vern Paxson, Norbert Pohlmann, Herbert Bos, and Maarten van Steen. **Prudent Practices for Designing Malware Experiments: Status Quo and Outlook.** In *Proceedings of the 2012 IEEE Symposium on Security and Privacy (SP)*, San Francisco Bay Area, CA, USA, May 2012.

Local copy: [papers/rossow-sp12.pdf](#)

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- [26] Zhang Fu, Marina Papatriantafilou, and Philippos Tsigas. **Mitigating distributed denial of service attacks in multiparty applications in the presence of clock drifts.** *IEEE Transactions on Dependable and Secure Computing (TSDC)*, 9(3):401–413, May 2012.

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- [27] Farnaz Moradi, Tomas Olovsson, and Philippos Tsigas. **An Evaluation of Community Detection Algorithms on Large-Scale Email Traffic.** In *Proceedings of the 11th International Symposium on Experimental Algorithms (SEA)*, Bordeaux, France, June 2012.

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Online: <http://syssec-project.eu/nNa#moradi-sea12.pdf>

- [28] Asia Slowinska, Traian Stancescu, and Herbert Bos. **Body armor for binaries: preventing buffer overflows without recompilation.** In *Proceedings of the 2012 USENIX Annual Technical Conference (ATC)*, Boston, MA, USA, June 2012.

Online: [USENIX website](#)

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- [29] Antonis Papadogiannakis, Michalis Polychronakis, and Evangelos P. Markatos. **Tolerating Overload Attacks Against Packet Capturing Systems**. In *Proceedings of the 2012 USENIX Annual Technical Conference (ATC)*, Boston, MA, USA, June 2012.

Online: [USENIX website](#)

- [30] Theodore Scholte, William Robertson, Davide Balzarotti, and Engin Kirda. **Preventing Input Validation Vulnerabilities in Web Applications through Automated Type Analysis**. In *Proceedings of the 36th Annual IEEE Computer Software and Applications Conference (COMPSAC)*, Izmir, Turkey, July 2012.

Local copy: [papers/scholte-compsac12.pdf](#)

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- [31] Christian Rossow, Christian Dietrich, , and Herbert Bos. **Large-Scale Analysis of Malware Downloaders**. In *Proceedings of the 9th Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA)*, Heraklion, Greece, July 2012.

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Online: <http://syssec-project.eu/nNa#largescale-dimva12.pdf>

- [32] Andrei Bacs, Remco Vermeulen, Asia Slowinska, and Herbert Bos. **System-level Support for Intrusion Recovery**. In *Proceedings of the 9th Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA)*, Heraklion, Greece, July 2012.

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Online: <http://syssec-project.eu/nNa#diskduster-dimva12.pdf>

- [33] Andreas Larsson and Philippas Tsigas. **Self-stabilizing (k,r)-Clustering in Clock Rate-Limited Systems**. In *Proceedings of the 19th International Colloquium on Structural Information and Communication Complexity (SIROCCO)*, Reykjavík, Iceland, July 2012.

Local copy: [papers/larsson-sirocco12.pdf](#)

Online: <http://syssec-project.eu/nNa#larsson-sirocco12.pdf>

- [34] Georgios Kontaxis, Michalis Polychronakis, Angelos D. Keromytis, and Evangelos P. Markatos. **Privacy-Preserving Social Plugins**. In *Proceedings of the 21st USENIX Security Symposium*, Bellevue, WA, USA, August 2012.

Local copy: [papers/safebutton-sec12.pdf](#)

Online: <http://syssec-project.eu/nNa#safebutton-sec12.pdf>

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### 3 Talks, seminars and presentations

- [1] Zlatogor Minchev. **Numerical Optimization in Support to Graph-based Scenario Modelling**. At *3rd International Workshop on Well-posedness of Optimization Problems and Related Topics*, Borovets, Bulgaria, September 2011.

Local copy: [talks/zm-wpopt-workshop-borovets-sep11.pdf](#)

Online: <http://syssec-project.eu/jNa#zm-wpopt-workshop-borovets-sep11.pdf>

- [2] Evangelos Markatos. **Future Research Needs and Trends in Trustworthy ICT**. At *Information Day on ICT FP7 Call on Trustworthy ICT*, Brussels, Belgium, September 2011.

Organised by *European Commission*.

Local copy: [talks/markatos-infoday-sep11.pdf](#)

Online: <http://syssec-project.eu/jNa#markatos-infoday-sep11.pdf>

- [3] Evangelos Markatos. **Privacy and Social Networks**. At “*Privacy Protection and ICT: Research Ideas*” workshop, Brussels, Belgium, September 2011.

Organised by *Trust and Security Unit, DG INFSO*.

Local copy: [talks/markatos-privacy-workshop-sep11.pdf](#)

Online: <http://syssec-project.eu/jNa#markatos-privacy-workshop-sep11.pdf>

- [4] Evangelos Markatos. **Detecting Polymorphic Cyberattacks**. At “*Network and Information Security: Research Ideas*” workshop, Brussels, Belgium, September 2011.

Organised by *Trust and Security Unit, DG INFSO*.

Local copy: [talks/markatos-nis-workshop-sep11.pdf](#)

Online: <http://syssec-project.eu/jNa#markatos-nis-workshop-sep11.pdf>

- [5] Vladimir Dimitrov, Zlatogor Minchev, Dimitar Todorov, and Hristo Turlakov. **An Approach to Security Analysis of Distributed Computing GRID Environment**. At *International Conference “Automatics & Informatics ‘11”*, Sofia, Bulgaria, October 2011.

Local copy: [talks/dimitrov-gridsec-autoinf-oct11.pdf](#)

Online: <http://syssec-project.eu/jNa#dimitrov-gridsec-autoinf-oct11.pdf>

- [6] Evangelos Markatos and Michalis Polychronakis. **Real-world Polymorphic Attack Detection**. At *ASPLOS 2012 Program Committee mini-symposium*, Rochester, NY, USA, October 2011.

Local copy: [talks/markatos-asplos-mini-oct11.pdf](#)

Online: <http://syssec-project.eu/jNa#markatos-asplos-mini-oct11.pdf>



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- [7] Roman Kochanek. **Applied Automotive Security – Secure Integration of Mobile Devices for novel Automotive Services.** At *Concluding talk of SysSec Scholarship*, Milan, Italy, December 2011.  
Organised by *Politecnico di Milano*.  
Local copy: [talks/kochanek-automotive-security-dec11.pdf](#)  
Online: <http://syssec-project.eu/jNa#kochanek-automotive-security-dec11.pdf>
- [8] Zlatogor Minchev and Plamen Gatev. **Social Networks Threats Psychophysiological Validation: A Facebook Study.** At *International Conference on Informational Modelling*, Sofia, Bulgaria, December 2011.  
Local copy: [talks/zm-sn-psychophysio-dec11.pdf](#)  
Online: <http://syssec-project.eu/jNa#zm-sn-psychophysio-dec11.pdf>
- [9] Stefano Zanero. **A Fast Eavesdropping Attack Against Touchscreens.** At *Blackhat 2011*, Abu Dhabi, UAE, December 2011.  
Local copy: [talks/zanero-blackhat-iclearshot-dec11.pdf](#)  
Online: <http://syssec-project.eu/jNa#zanero-blackhat-iclearshot-dec11.pdf>
- [10] Zlatogor Minchev. **Dynamic Influence of the Information Technologies over the Human Factor and the Allied Cybersecurity.** At *National Scientific Conference “Allied and National Security and Defence in the Context of the Dynamic Changes in the Geopolitical Environment and the more Rational Usage of the Reduced Military Expenditures in NATO and EU Countries”*, Sofia, Bulgaria, January 2012.  
Local copy: [talks/zm-it-humanfactor-jan12.pdf](#)  
Online: <http://syssec-project.eu/jNa#zm-it-humanfactor-jan12.pdf>
- [11] Sotiris Ioannidis. **Challenges and Directions for Security in Networked Systems.** At *4th EU-Japan Symposium on Next Generation Networks and the Future Internet*, Tokyo, Japan, January 2012.  
Local copy: [talks/ioannidis-eujp-jan12.pdf](#)  
Online: <http://syssec-project.eu/jNa#ioannidis-eujp-jan12.pdf>
- [12] Evangelos Markatos. **Real-world Polymorphic attack Detection.** At *Imperial College (invited talk)*, London, United Kingdom, March 2012.  
Local copy: [talks/markatos-imperial-march12.pdf](#)  
Online: <http://syssec-project.eu/jNa#markatos-imperial-march12.pdf>
- [13] Evangelos Markatos. **SudoWeb: Minimizing Information Disclosure to Third Parties in Single Sign-On Platforms.** At *Cambridge Systems Workshop*, Cambridge, United Kingdom, March 2012.  
Local copy: [talks/markatos-cambridge-systems-march12.pdf](#)  
Online: <http://syssec-project.eu/jNa#markatos-cambridge-systems-march12.pdf>

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- [14] Zlatogor Minchev. **The Scenario Method Application. An Overview with Examples.** At *University of National and World Economy, Department of National and Regional Security (invited talk)*, Sofia, Bulgaria, March 2012.
- Local copy: [talks/zm-unwe-march12.pdf](#)  
Online: <http://syssec-project.eu/jNa#zm-unwe-march12.pdf>
- [15] Federico Maggi. **The Long Story of Short URLs.** At *Royal Holloway University of London (invited talk)*, London, United Kingdom, April 2012.
- Local copy: [talks/talks/maggi-rhul-april12.pdf](#)  
Online: <http://syssec-project.eu/jNa#talks/maggi-rhul-april12.pdf>
- [16] Herbert Bos. **Towards Better Protection in Reverse.** At *2012 European Workshop on System Security (keynote)*, Bern, Switzerland, April 2012.
- Local copy: [talks/bos-eurosec-april12.pdf](#)  
Online: <http://syssec-project.eu/jNa#bos-eurosec-april12.pdf>
- [17] Sotiris Ioannidis. **Systems Security Research at the Distributed Computing Systems Lab.** At *Chalmers University of Technology (invited talk)*, Göteborg, Sweden, April 2012.
- Local copy: [talks/si-goteborg-april12.pdf](#)  
Online: <http://syssec-project.eu/jNa#si-goteborg-april12.pdf>
- [18] Evangelos Markatos. **Real-world Polymorphic attack Detection.** At *T-Labs, TU-Berlin (invited talk)*, Berlin, Germany, April 2012.
- Local copy: [talks/markatos-t-labs-tu-berlin-april12.pdf](#)  
Online: <http://syssec-project.eu/jNa#markatos-t-labs-tu-berlin-april12.pdf>
- [19] Evangelos Markatos. **Managing Threats and Vulnerabilities in the Future Internet.** At *Cyber Security & Privacy EU Forum 2012*, Berlin, Germany, April 2012.
- Local copy: [talks/markatos-csp-eu-forum-2012.pdf](#)  
Online: <http://syssec-project.eu/jNa#markatos-csp-eu-forum-2012.pdf>
- [20] Tomas Olovsson. **Security research at CSE, Chalmers.** At *Cisco Academy Event (invited talk)*, Trollhättan, Sweden, April 2012.
- Local copy: [talks/olovsson-cisco-april12.pdf](#)  
Online: <http://syssec-project.eu/jNa#olovsson-cisco-april12.pdf>
- [21] Stefano Zanero. **A Fast Eavesdropping Attack Against Touchscreens.** At *Royal Holloway University of London (invited talk)*, London, United Kingdom, May 2012.

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- Local copy: [talks/zanero-rhul-may12.pdf](#)  
Online: <http://syssec-project.eu/jNa#zanero-rhul-may12.pdf>
- [22] Evangelos Markatos. **Privacy-Preserving Social Plugins**. At *University of Miami (invited talk)*, Miami, FL, USA, June 2012.  
Local copy: [talks/markatos-umiami-june12.pdf](#)  
Online: <http://syssec-project.eu/jNa#markatos-umiami-june12.pdf>
- [23] Evangelos Markatos. **Privacy-Preserving Social Plugins**. At *Boston University (invited talk)*, Boston, MA, USA, June 2012.  
Local copy: [talks/markatos-bu-june12.pdf](#)  
Online: <http://syssec-project.eu/jNa#markatos-bu-june12.pdf>
- [24] Evangelos Markatos. **Future Research on Systems Security**. At *FIA Roadmapping Workshop*, Brussels, Belgium, June 2012.  
Local copy: [talks/markatos-fia-roadmap-jun12.pdf](#)  
Online: <http://syssec-project.eu/jNa#markatos-fia-roadmap-jun12.pdf>
- [25] Sotiris Ioannidis. **Emerging Threats and Actors**. At *BIC Workshop on the cross domain coordination of International Cooperation and technical themes in Trustworthy ICT and INCO*, Brussels, Belgium, June 2012.  
Local copy: [talks/ioannidis-bic-june12.pdf](#)  
Online: <http://syssec-project.eu/jNa#ioannidis-bic-june12.pdf>
- [26] Zlatogor Minchev and Stiliyan Georgiev. **An Experimental Study on Social Networks Brands Cognitive Information Processing**. At *International Conference on Informational Modelling, ITHEA*, Varna, Bulgaria, June 2012.  
Local copy: [talks/zm-social-brands-june12.pdf](#)  
Online: <http://syssec-project.eu/jNa#zm-social-brands-june12.pdf>
- [27] Zlatogor Minchev and Plamen Gatev. **Obvious & Hidden Threats in the Facebook Social Network (A Practical Methodological Framework of the Study)**. At *International Conference on Informational Modelling, ITHEA*, Varna, Bulgaria, June 2012.  
Local copy: [talks/zm-facebook-threats-june12.pdf](#)  
Online: <http://syssec-project.eu/jNa#zm-facebook-threats-june12.pdf>
- [28] Zlatogor Minchev. **Social Networks**. At *XII Summer School on Mathematics and Informatics (LISH12) (training course)*, Varna, Bulgaria, August 2012.  
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- [29] Stefano Zanero. **Security of Cyber-Physical Systems**. At *New Technologies Industry Seminar*, co-hosted by Boeing and the IEEE, Washington D.C., USA, August 2012.

Local copy: [talks/sz-boeing-aug12.pdf](#)

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## 4 Other Dissemination Activities

### 4.1 Cooperation with other projects

SysSec made a conspicuous effort to integrate and cooperate with other projects funded by the EU and other entities. In particular:

- **Contact with Uppsala University:**

We are working with Dr. Pieter Verdegem of Uppsala University Department of Informatics and Media<sup>1</sup> and investigating a future collaboration with some SysSec consortium members to respond to a future FP7 call.

- **Cooperation with BiC Project:**

The *BiC Project*<sup>2</sup> held several events in order to promote cooperation on Trustworthy ICT with Europe. Continuing our synergy with the project, we have promoted the call for participation to this events through the SysSec constituency and workshop mailing lists. More information on these events can be found on: <http://www.bic-trust.eu/events/>.

Sotiris Ioannidis participated to one of the workshops organized by the BIC project. He gave a talk on “*Emerging Threats and Actors*” (see [25]) in the second day of the event.

URL: <http://www.bic-trust.eu/events/bic-workshop...>

- **Invitation to the final VIKING project workshop:**

We attended the final dissemination workshop of the *VIKING Project*<sup>3</sup> which took place on November 30, 2011 in Rome, Italy. The VIKING project focuses on the investigation of the vulnerability of SCADA systems and the cost of cyber-attacks against such systems to the society. In the process they have developed models, methods, tools and mitigations for such attacks. The VIKING project coordinator is already member of our *Smart Environments Working Group*, and we established contacts with several other members of the project in this occasion.

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<sup>1</sup> <http://www.im.uu.se>

<sup>2</sup> <http://www.inco-trust.eu>

<sup>3</sup> <http://www.vikingproject.eu/>

URL: [http://www.vikingproject.eu/new2/index.php?option=com\\_content&view=article&id=194&Itemid=69](http://www.vikingproject.eu/new2/index.php?option=com_content&view=article&id=194&Itemid=69)

- **Bulgarian national project on Social Network threats:**

IICT-BAS has initiated a new two years project for young researchers titled “*Study of the Information Threats and Behavior Dynamics of Social Networks Users from the Internet*” funded by the Bulgarian National Science Fund grant. The new project is led by Dr. Zlatogor Minchev.

The main project goal is to study the informational and behavior threats dynamic of social networks’ users for a specific set of usage scenarios and hardware platforms. Even though the project focuses on the Bulgarian social networks users, we expect its output to influence and strengthen our work in SysSec.

- **SysSec cited in EU project FOCUS deliverable:**

The EU project FOCUS<sup>4</sup> (*Foresight Security Scenarios: Mapping Research to a Comprehensive Approach to Exogenous EU Roles*) makes mention to the first SysSec Research Roadmap document in their D5.1 deliverable. Specifically, their document (full title: “*Critical infrastructure and supply chain protection*”) includes our assessment on how dangerous is each of many identified threats to different personal, professional and societal assets<sup>5</sup>.

The FOCUS deliverable D5.1 was submitted in late January 2012.

- **IPv6 survey for FP7 projects:**

SysSec participated to an online survey on the use of Internet Protocol version 6 (IPv6) by research projects funded under the Framework Programme 7 (FP7). The results of the survey were published on the EC website on the 2012 IPv6 World Day on 6 June 2012.

URL: [http://ec.europa.eu/information\\_society/policy/ipv6](http://ec.europa.eu/information_society/policy/ipv6)

- **Participation to the 2<sup>nd</sup> FIA Research Roadmapping Workshop:**

Evangelos Markatos participated on behalf of the project to the 2<sup>nd</sup> FIA Research Roadmapping Workshop. His talk (see [24]) was well received and some of the attendees suggested we should also present our work to the Future Internet Assembly (FIA) meetings. We are investigating this possibility. The next FIA meeting will be held in February 2013 in Dublin.

URL: [http://fisa.future-internet.eu/index.php/Final\\_Workshop\\_Programme](http://fisa.future-internet.eu/index.php/Final_Workshop_Programme)

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<sup>4</sup><http://www.focusproject.eu/>

<sup>5</sup>This information is summarized in Table A.1 of SysSec D4.1 *First Report on Threats on the Future Internet and Research Roadmap*.

- On the **EU Future Internet portal**:

In this reporting period deliverable D4.1 (*First Report on Threats on the Future Internet and Research Roadmap*) was published. Besides announcing its release to the project mailing lists, we also forwarded it to the **EffectsPlus** Coordination Action project with the request to forward it to their contact and the **EU Future Internet portal**. Our request was granted and the following were published to the FI portal:

“The SysSec project has released its First Report on Threats on the Future Internet and Research Roadmap.

The report presents the current and emerging threats identified by the three SysSec Working Groups in the first year of the project. Moreover, it lays out a Systems Security Research Roadmap for the mitigation of the identified threats.”

URL: [http://www.future-internet.eu/news/view/article/syssec-1st-threats-report-research-roadmap-has-been-published.html](http://www.future-internet.eu/news/view/article/syssec-1st-threats-report-research-roadmap-has-been-published)

- Eurécom and Chalmers have started a new FP7 project, named CRISALIS. They applied for it during the first months of SysSec. The project is in collaboration with other leading entities outside the SysSec consortium, such as ENEL, Siemens, Symantec, and the University of Twente. These partners were also involved and connected with the SysSec Summer School (in Section 4.5).

### 4.2 Cooperation with other research groups and institutions

- Research visit to **Laboratoire PRiSM**:

Marina Papatriantafilou and Georgios Georgiadis from Chalmers did a research visit to the *Distributed Computing and Optimization group* at the *Laboratoire PRiSM*<sup>6</sup>, *Université de Versailles St-Quentin-en-Yvelines*. There, they collaborated with Prof. Alain Bui and his group on robust clustering and overlays in dynamic networks. These techniques are used in the context of SysSec WP6 (Smart Environments).

- Meetings with energy industry:

In the context of SysSec WP6, Chalmers held meetings with a number of companies to discuss issues relevant to smart environments security. The companies included *Göteborg Energi*<sup>7</sup>, *EoN*<sup>8</sup> and *ABB*<sup>9</sup>.

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<sup>6</sup><http://www.prism.uvsq.fr/>

<sup>7</sup><http://www.goteborgenergi.se/>

<sup>8</sup><http://www.eon.se/>

<sup>9</sup><http://www.abb.se/Default.aspx?siteLanguage=us>

- **Contributions to the Dutch National Cyber Security Research Agenda:**

Herbert Bos was one of the co-authors of the *National Cyber Security Research Agenda for the Netherlands*. While SysSec is not directly referenced in the document, it did have influence on it.

URL: <http://www.iipvv.nl/iipvv/downloads/10i-NROI-240%20ncsra-finaal.pdf>

- **In UNIDIR Cybersecurity report:**

The United Nations Institute for Disarmament Research<sup>10</sup> (UNIDIR) is a voluntarily funded autonomous institute within the United Nations. The goals of UNIDIR are to forward arms control and disarmament, contribute to conflict prevention and promote the development of a peaceful and prosperous world.

In recent years, UNIDIR has extended its activities to include cybersecurity and cyberwarfare. In their latest report titled **Cybersecurity and Cyberwarfare 2011** they make mention of SysSec as part of the Bulgarian effort to counter cyberthreats. UNIDIR reports are highly regarded in the policy making field and we hope that this mention will help to extend the reach of our work to it.

“Bulgaria has signed a memorandum of understanding with NATO on fostering international collaboration to counter cyberthreats through information- and capability-sharing, as well as joint participation in cyber exercises. The Institute for Parallel Processing of the Bulgarian Academy of Science is a member of the EU SysSec Project, an international research consortium that studies emerging cyber threats.”

URL: <http://www.unidir.org/pdf/ouvrages/pdf-1-92-9045-011-J-en.pdf> (pp24)

- Zhang Fu (from Chalmers) went to Universidad Politécnica de Madrid and visited the Distributed Systems Laboratory with Ricardo Jimenez and Marta Patio for ongoing collaboration on mitigation of DoS attacks and data streaming algorithms.

### 4.3 Presence in other events

During September 2011–August 2012 the SysSec consortium and its members participated in several events and conferences:

- **7<sup>th</sup> European Conference on Computer Network Defense:**

On September 6–7, 2011, the European Conference on Computer Network Defense (EC2ND) was organized in Göteborg, Sweden by Chalmers

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<sup>10</sup><http://unidir.org/>



University of Technology. Both SysSec and the conference focus in security research in Europe, therefore share many common goals. **SysSec was among the conference sponsors** because of our contribution to the promotion of the conference.

Besides contributing to organization and promoting EC2ND to our community, we also had a strong presence in the conference in terms of published research papers. The program committee received a **total of 25 submissions** from 15 countries and selected 8 of them to be presented in the conference. **Out of the 8 selected papers, 3 were sponsored by SysSec.**

EC2ND 2011 emphasized the protection against attacks in special environments, such as the smart grid. Two of the papers presented in the conference discussed attacks and protections in such environments. There was also a **panel discussion** on the subject and an **invited talk by Gunnar Björkman of the VIKING project** (see also Section 4.1) who discussed their findings in terms of security for SCADA systems.

Other topics ranged from covert channel detection to botnet communication. There were two additional invited talks, by Bo Norrhem<sup>11</sup> who emphasized the need to involve industry, academia, as well as governmental agencies to solve problems in critical infrastructures and by Anna Nilsson-Ehle<sup>12</sup> who talked about SAFER, a Vehicle and Traffic Safety Centre at Chalmers, where the Swedish automotive industry, academia and government collaborate within the field of vehicle and traffic safety.

URL: <http://2011.ec2nd.org/>

- **Participation to ICTurkey Event in Istanbul:**

On September 27, 2011 the 1<sup>st</sup> International Partnering and Collaboration Event in ICT took place in Istanbul, Turkey. TUBITAK-BILGEM helped to create the project banner shown in Figure 1 which was exhibited during the event. During the event, SysSec was introduced to attendees at Project Exhibition and Networking Time.

URL: <http://www.turkeyinf7.eu/events-1>

- **5<sup>th</sup> European Workshop on Systems Security:**

The fifth European Workshop on Systems Security (EuroSec) was held on April 10, 2012 in Bern, Switzerland. The workshop (which is associated with the Annual ACM SIGOPS EuroSys conference<sup>13</sup>) focuses on discussion of novel, practical, systems-oriented work.

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<sup>11</sup>Bo Norrhem is Programme Manager of Lindholmen Science Park.

<sup>12</sup>Anna Nilsson-Ehle is Director for the Vehicle and Traffic Safety Centre at Chalmers.

<sup>13</sup><http://eurosys2012.unibe.ch/>





Figure 1: The SysSec banner presented in the ICTurkey Event.

SysSec contributed to the organisation of the workshop by providing hosting and support for the workshop website and paper submission facility. Additionally, we utilized the communication channels of the project (mailing list and Twitter community) to promote the event.

This is the second major European security event (after EC2ND 2011) we provided support for. Not only does this contribution help to strengthen the European systems security community, but it also helps towards establishing SysSec as a *hub for the community*.

In addition to our contributions to the organisation and promotion of the workshop, Herbert Bos gave the keynote talk of the workshop (see [16] in Section 3).

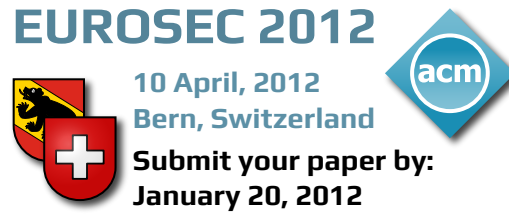


Figure 2: EuroSec 2012 promotional banner.

URL: <http://www.syssec-project.eu/eurosec-2012/>

- **9<sup>th</sup> Conference on Detection of Intrusions and Malware & Vulnerability Assessment:**

The annual Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA) serves as a premier forum for advancing the state of the art in intrusion detection, malware detection, and vulnerability assessment. It is organized by the special interest group Security and Intrusion Detection and Response<sup>14</sup> (SIDAR) of the German Informatics Society (GI). DIMVA 2012 took place in July 2012, in Heraklion, Crete, Greece.



Figure 3: DIMVA 2012 logo.

SysSec has a multifaceted involvement in the organization of the conference. Firstly, Evangelos Markatos, the SysSec project manager, is the *General Chair* of the conference. Secondly, we have provided help with the required local arrangements. Finally, SysSec provided hosting and support for the DIMVA 2012 website and paper submission facility and promoted the conference through the established SysSec community.

This is yet another major European security event in which members of SysSec have a strong involvement and contribution. This further underlines our commitment to bringing key players in the area together and strengthening the European systems security community.

In addition to our support for the conference, we also proposed to the DIMVA steering committee to create a *5-Year Most Influential Paper Award*. Our proposal was accepted. We believe that this award

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<sup>14</sup><http://www.gi-fg-sidar.de/>

will contribute towards our common goal with DIMVA of promoting excellence in European security research.

During the conference, SysSec organized an ad-hoc panel discussion.



Figure 4: William Robertson, Program Chair of DIMVA 2012, inspecting the responses to the discussed questions.

The following questions were handed to the participants who wrote down their responses in Post-It notes (see Figure 6).

1. Will malware be a problem in 5-10 years?
2. Will cybercrime remain economically feasible?
3. Is the current publishing system for security broken?

Following, the Program Chair coordinated the discussion of the questions based on the replies of the participants. After the conference, the responses were transcribed and we plan to use some of this input in the upcoming deliverables of the project.

URL: <http://www.syssec-project.eu/dimva-2012/>

- **Poster presentation at Chalmers Energy Conference:**  
Chalmers presented a poster at their 2012 Energy Conference. The poster was titled “*Cybersecurity for the Smart Grid: Issues and Possibilities*” and is shown in Figure 5.

URL: <http://syssec-project.eu/ma002>

## 4 OTHER DISSEMINATION ACTIVITIES

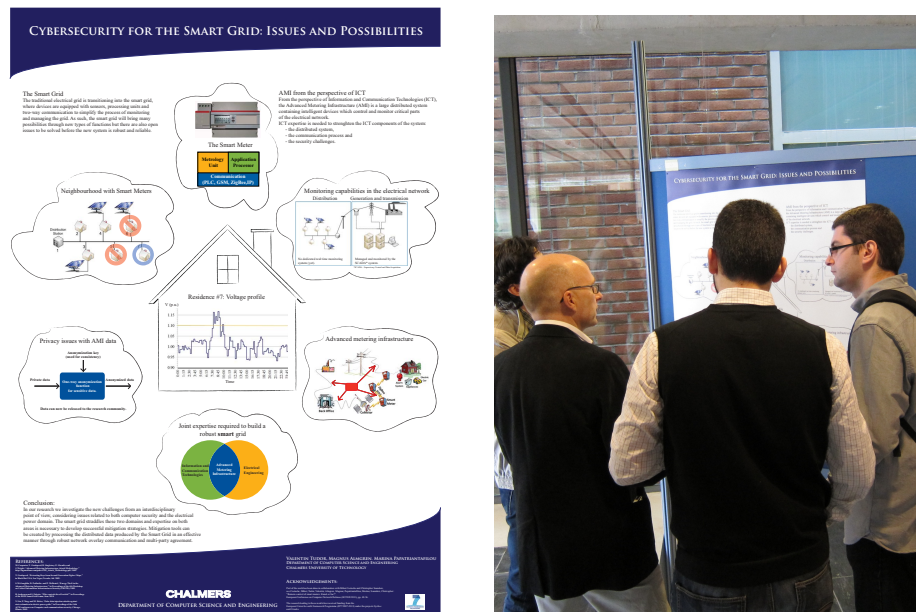
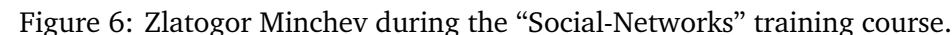


Figure 5: The poster presented at Chalmers Energy Conference 2012 and attendees discussing it.

- IVA workshop on electricity networks security:**  
 Magnus Almgren (Chalmers) attended a workshop hosted by *The Royal Swedish Academy of Engineering Sciences (IVA)*, about security for electricity networks in Sweden. The workshop is one in a series organized with aim to get input and feedback for an upcoming report.  
 URL: <http://syssec-project.eu/ma001>
- Swedish Civil Contingencies Agency workshop:**  
 Andreas Larsson gave input to a workshop organized by the *Swedish Civil Contingencies Agency (MSB)*<sup>15</sup>. They wanted to compile and map the strengths and weaknesses in research and industry in Sweden to create a sound research program in the future. The title of his talk was “Swedish knowledge and techniques for information security”.
- Training Course on Social Networks:**

In the period August 23-24, 2012, the *Joint Training Simulation and Analysis Center of ICT (JTSAC)* organized a short training course on “Social Networks”. The event took place in Varna, Bulgaria in the framework of the Research Summer School on Mathematics and In-

<sup>15</sup><http://www.msb.se/en/>



URL: <http://snfactor.com/snfactor/portfolio>

During September 2011–August 2012 we tracked the following references to *SysSec* by traditional and online media.

- URL: <http://sofiapost.net/cyber-defense-bg/> (in Bulgarian)

<sup>18</sup> [http://en.wikipedia.org/wiki/Anonymous\\_%28group%29](http://en.wikipedia.org/wiki/Anonymous_%28group%29)

nel 4<sup>19</sup>. The feature was titled “*Anonymous: ethical hackers or cyber-criminals?*”. Herbert expressed concerns on whether the power and public support acquired by hacktivist groups could be used for more nefarious purposes in the future.

URL: <http://www.channel4.com/news/anonymous-ethical-hackers-or-cyber-criminals>

- On 15 February 2012, the Dutch tech-news website **Automatisering Gids**<sup>20</sup> featured an interview with VU’s **Herbert Bos** titled “*We moeten hackers opleiden*” (“We must educate hackers”). The interview highlights the shortage of IT security experts in the Netherlands and Europe in general, which is one of the reasons why initiatives such as SysSec are important.

URL: <http://www.automatiseringgids.nl/achtergrond/2012/03/we-moeten-hackers-opleiden>

Mirror: <http://syssec-project.eu/hb001>

- On 21 February 2012, VU’s **Herbert Bos** was a member of an official delegation of four professors that accompanied Ivo Opstelten, the **Dutch Minister of Security and Justice**, on his US visit. During the visit they met with members of the **US Department of Homeland Security**<sup>21</sup> and committed on further collaboration in the area of cyber security.

Five areas of mutual interest were identified: Cyber Forensics, *malicious software in a mobile environment*, cross-border identity management, *critical infrastructure (SCADA)* and *Cloud Computing*. It is important to notice that three of the areas of this broad agreement are covered by the work we do in SysSec.

URL: <http://syssec-project.eu/hb002>

- **Interview on Sofia Post:**

On 11 June 2012, Sofia Post featured an interview with Dr. Zlatogor Minchev about “(A)Social Networks” and SysSec activities concerning ICT threats identification.

URL: <http://www.sofiapost.net/10630/><sup>22</sup>

### 4.5 1<sup>st</sup> SysSec school

Originally envisioned for summer 2012, the summer school will now take place on October 11th-12th in Amsterdam, the Netherlands. The topic of the school is System Security and malware reverse engineering with a special

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<sup>19</sup><http://www.channel4.com/>

<sup>20</sup><http://www.automatiseringgids.nl/>

<sup>21</sup><http://www.dhs.gov/>

<sup>22</sup>The interview is in Bulgarian.





Figure 7: Herbert Bos was member of the Dutch delegation that committed on further cooperation on cyber security with the US Department of Homeland Security. The delegation was headed by the Dutch Minister of Security and Justice, Ivo Opstelten.

focus on critical infrastructure protection. Specifically, we want to have a hands-on approach to teach reverse-engineering of malware, especially looking at the recent threats partly targeting critical infrastructure. We have been in contact with the ENCS<sup>23</sup> in the Netherlands, a collaboration focusing on securing Europe's infrastructure, and they will provide some lectures at the school. We have also been in contact with another EU/FP7 project, CRISALIS<sup>24</sup>, and they will also provide lectures and encourage their students to participate.

The following topics will be covered:

- Introduction to reverse engineering including a short tutorial on IDAPro.
- Practical Reverse Engineering of Malware with student hands-on exercises.
- Critical Systems and their special constraints.
- Description and detailed analysis of Stuxnet.
- Detailed hands-on analysis of Duqu and/or Flame and a general overview of the work at CrySys Lab.
- Industry-perspective: Security in a changing DSO infrastructure.

<sup>23</sup><https://www.cpni.nl/projecten/european-network-voor-cyber-security-encs>

<sup>24</sup><http://crisalis-project.eu/>

The following speakers have been confirmed for the workshop.

- Herbert Bos, VU University Amsterdam & SysSec
- Davide Balzarotti, Institut Eurécom & SysSec
- Heiko Patzlaff, Siemens CERT
- Damiano Bolzoni, University of Twente & CRISALIS
- Dina Hadziosmanovic, University of Twente
- Boldizsár Bencsáth, CrySys Lab
- Erwin Kooi, Alliander, Netherlands

The first announcement for the school was distributed during the summer and the registration will open in the first days of September.

URL: <http://www.syssec-project.eu/events/summer-school-2012/>

### 4.6 SysSec Constituency

During the second year, we kept expanding our dissemination base (which we call the SysSec “Constituency”). This is not just a mailing list, but a list of people with which we have direct connections, and who specifically wished to be informed of our activities. At the end of this reporting period, we had a total of **210 people subscribed**<sup>25</sup>.

This dissemination list was instrumental, for example, in getting submissions and participation to our first workshop, in circulating our calls for scholarships, and in kickstarting our associate members program. It is currently being used to disseminate the 1st SysSec school.

## 5 SysSec website and social media

### 5.1 New website sections

In deliverable D2.1<sup>26</sup> we have detailed the sections of the SysSec website at the time of its launch, and subsequently we detailed first year updates in deliverable D2.5<sup>27</sup>. During the course of the second project year, a few additional sections have been added. We will briefly outline their purpose and contents in this section.

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<sup>25</sup>This figure excludes the SysSec partners and Working Group members.

<sup>26</sup><http://syssec-project.eu/nNa#d2.1>

<sup>27</sup><http://syssec-project.eu/nNa#d2.5>



### 5.1.1 Hosted Conferences

During the second year of the project, we contributed to the organization of **EuroSec 2012** and **DIMVA 2012** conferences. These actions are detailed in Section 4.4.

One of our contributions to the two events was the design, hosting and support of their websites. The websites are hosted under the main SysSec websites, but use a different theme. Screenshots of the two websites can be seen in Figure 8.

### 5.1.2 1<sup>st</sup> SysSec Summer School Section

On October 11-12, 2012, the 1<sup>st</sup> SysSec Summer School will be held in Amsterdam. Details about the event are included in Section 4.5, above. In July 2012, we launched a new subsection under the *Events* top-section of the website to host information about the summer school. Currently, this includes the preliminary summer school programme, travel information (see Figure 9) and accommodation information. We plan to expand these sections by adding material from the event, as it becomes available.

### 5.1.3 Community Section

The *Community* section was the latest section of the SysSec website. It was added in August 2011, in order to host information about the SysSec Associate Members. Currently, it contains the form for applying to be a member and the list of accepted associate members (Figure 10).

In the following months, we plan to expand this section by allowing members to edit their profiles to include their specific interests. This will both give us a better picture of our community and pave the way for new collaborations between our members.

## 5.2 Visitors & Trends

A comparison of the visits per week to the SysSec website between the first two years of the project can be seen in Figure 11. We can see that a total of 11,500 visits were recorded during the second year of the project, an increase of 25% compared to the first year. This means that we had an approximate of more than 30 visits per day.

More important, there was a 58.69% increase in the unique visitors as well as a significant increase in the average time the visitors spent on the website.

One can also observe that the months for which we had more visits during the first project year than the second project year are May-July. This is justified because in the first project year, during these months we were promoting the 1<sup>st</sup> SysSec Workshop. On the other hand, no SysSec event was

## 5 SYSSEC WEBSITE AND SOCIAL MEDIA

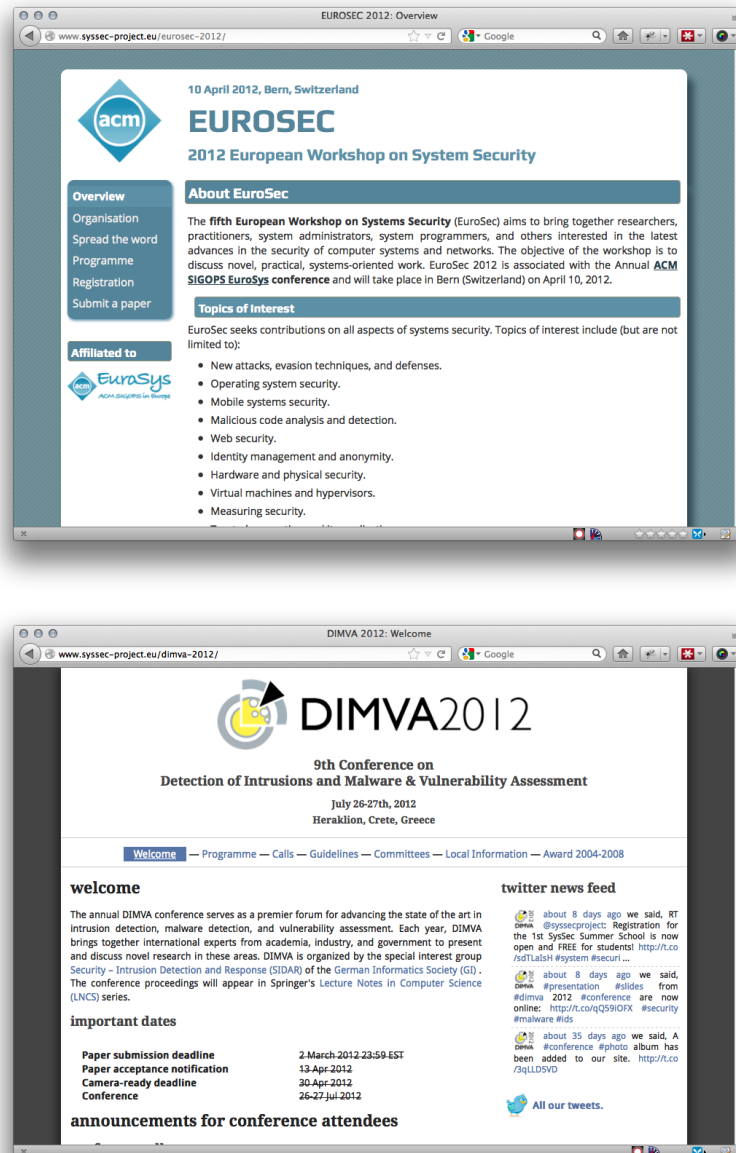


Figure 8: EuroSec 2012 and DIMVA 2012 websites were hosted under [www.syssec-project.eu](http://www.syssec-project.eu).



Figure 9: 1<sup>st</sup> SysSec Summer School: Travel Information.

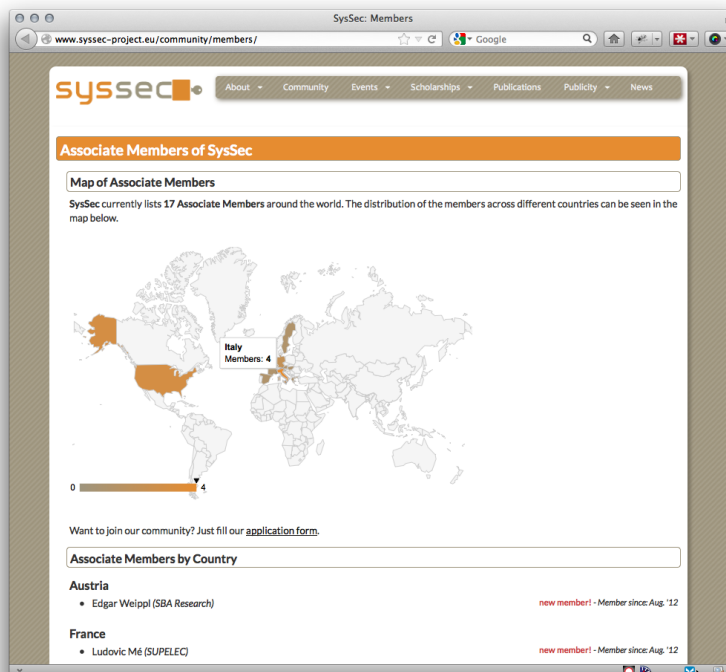


Figure 10: Community Section: List of SysSec Associate Members.

## 5 SYSSEC WEBSITE AND SOCIAL MEDIA

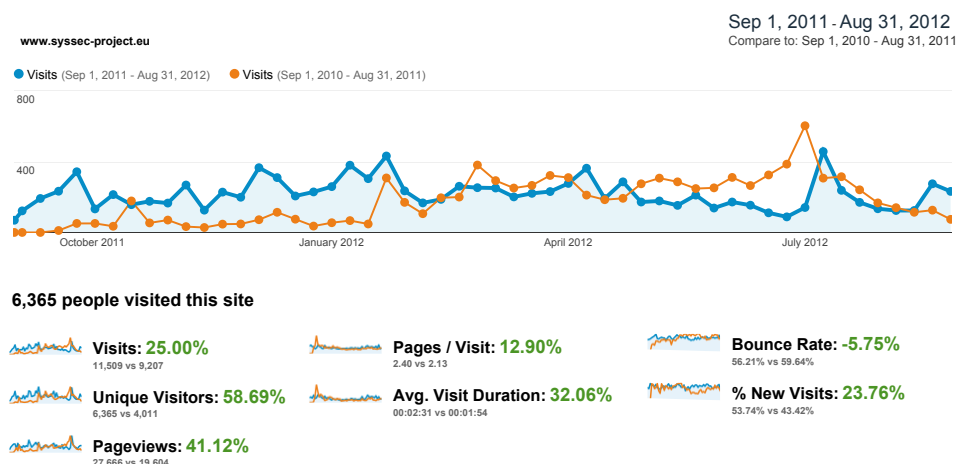


Figure 11: Visits to the SysSec website.

planned for the summer of the second year<sup>28</sup>, so the influx of visitors wasn't as much high.

A comparison of the unique website pagesviews during the first two years of SysSec appears in Figure 12.

In both years the front page of the website had the most views. Naturally enough, the *Publications* and *Presentations* sections followed. These pages are the most frequently updated, so it is expected to rank high in views.

There was also an increased interest for the SysSec scholarship scheme, which we had started promoting in the final quarter of this first year of SysSec. Finally, we can see that we already have managed to attract attention to the page of our upcoming summer school.

### 5.3 Documents downloads

The visits to the website is a good metric for how much “visible” the project is. But it is not a very good metric to measure the overall impact of the project. A more suitable metric for this purpose would be the number of documents downloaded from the website.

During the second year of the project a total of **18324 copies of documents were downloaded** from the SysSec website, out of a total of **200 published documents**. This means that **the number of downloads increased by 130%** compared to the first project year. Or, that each unique visitor downloaded approximately 3 documents.

## 5.3 Documents downloads

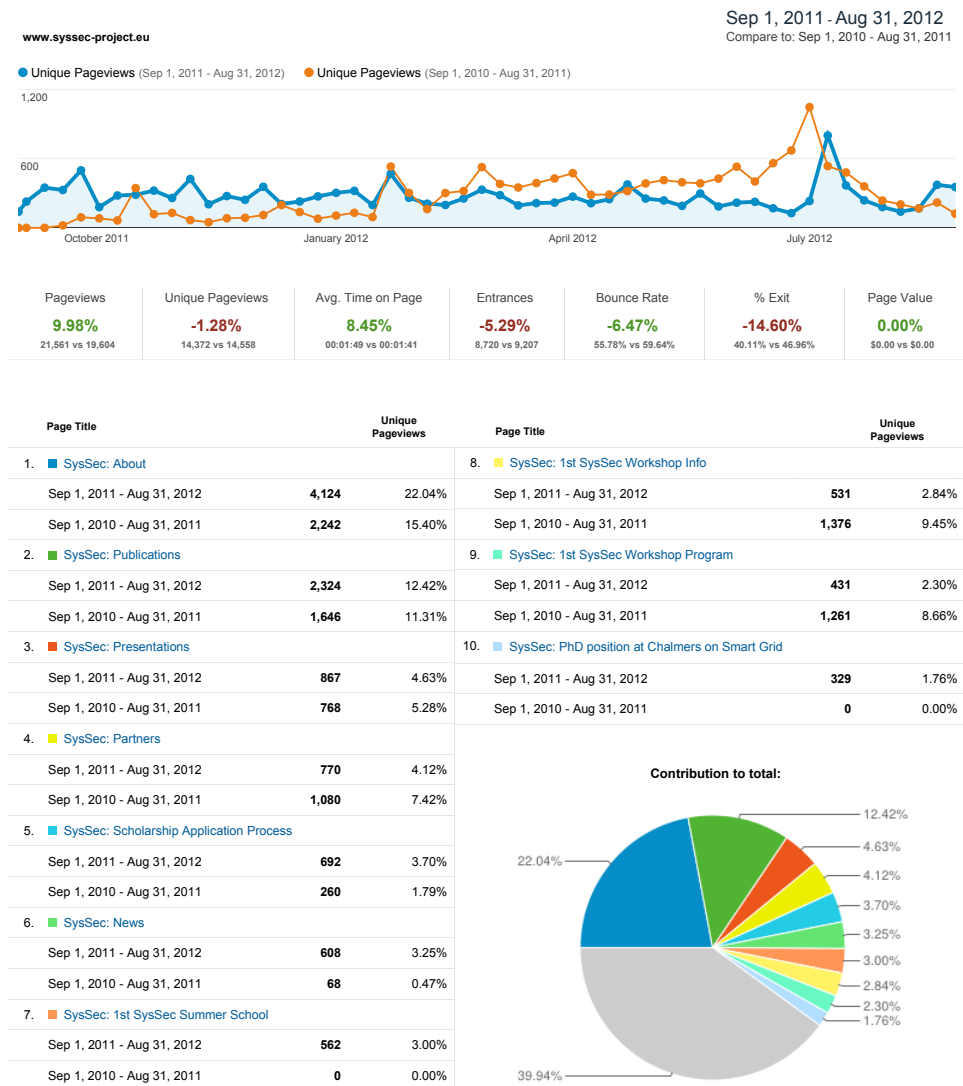


Figure 12: Unique pageviews of the website content. The pie chart corresponds to the unique pageviews for the second year.

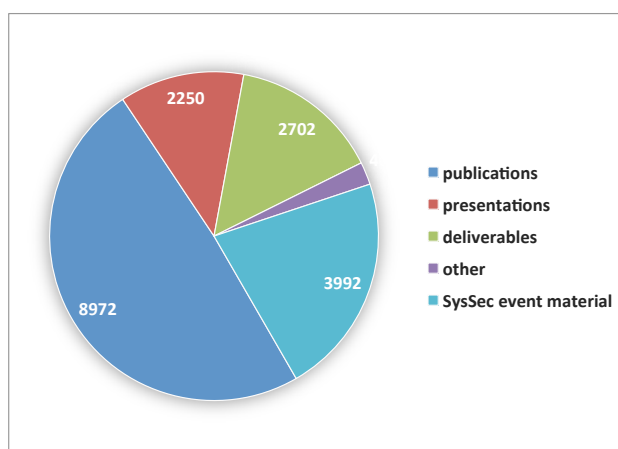


Figure 13: Downloads per document category.

### 5.3.1 Downloads per document category

To gain some insight on the preferences of our website visitors we categorized the documents we made available to the following categories:

- *Publications*: SysSec sponsored papers published by the consortium in peer reviewed conferences and journals.
- *Presentations*: Presentations made by the consortium in events related to the project.
- *Deliverables*: The deliverables produced by the project, as outlined in the description of work document.
- *SysSec events material*: Papers, presentations as well as organization information from events organized by SysSec. This includes the 1<sup>st</sup> SysSec workshop and the upcoming SysSec summer school.
- *Other*: Everything else.

Figure 13 shows how many documents were downloaded from each category. As it also happened in the first project years, the downloads of publications dominate. However, the most impressive increase was in the number of downloaded deliverables. Their number increased from a meek 456 downloads in the first year, to a very satisfactory 2702 downloads. This corresponds to an average of 300 per available deliverable versus 90 downloads we had in the first year.

In the following figures, we present the top-5 downloaded documents of each of the first four categories.

<sup>28</sup>It was decided to schedule the 1<sup>st</sup> SysSec Summer School for later, in order to have better co-location options.

### 5.3 Documents downloads

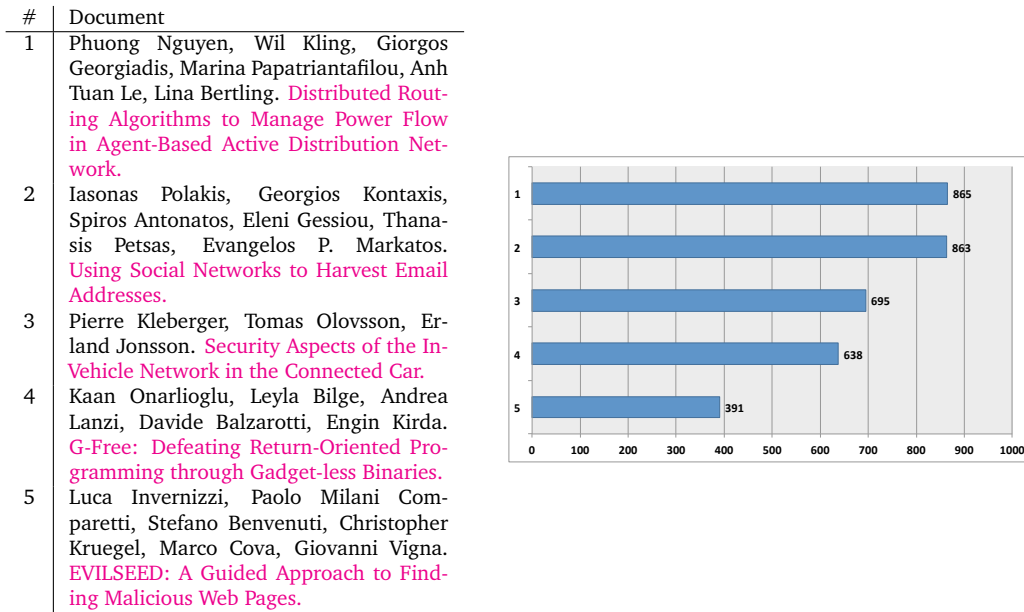


Figure 14: Top-5 downloaded SysSec publications.

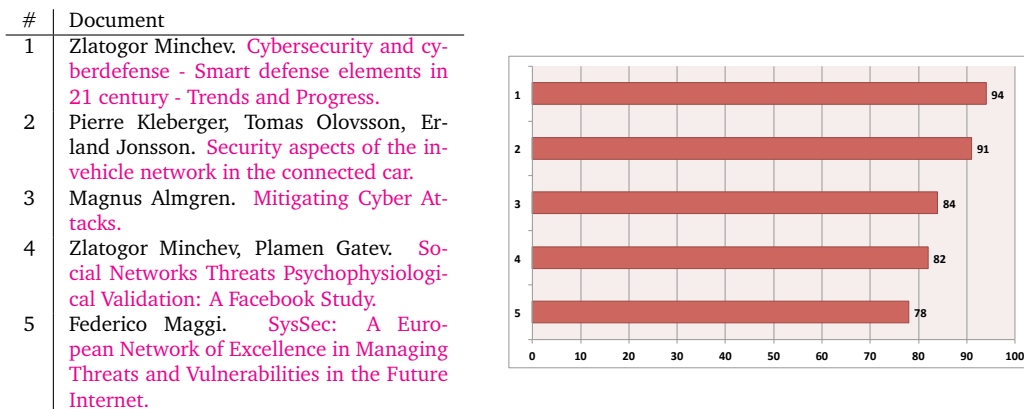


Figure 15: Top-5 downloaded SysSec presentations.

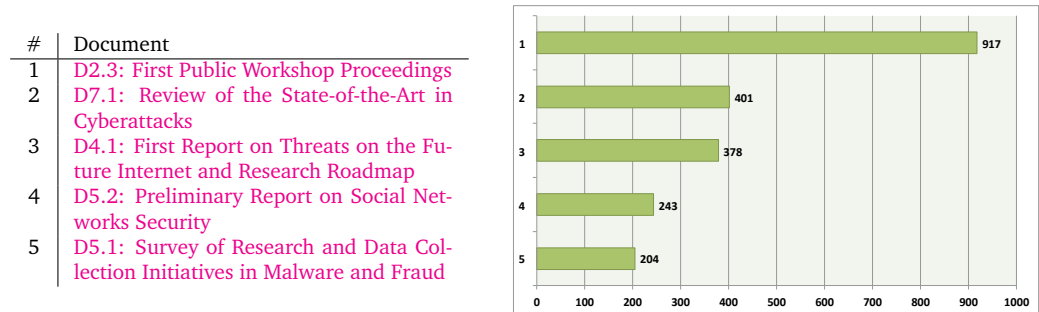


Figure 16: Top-5 downloaded SysSec deliverables.

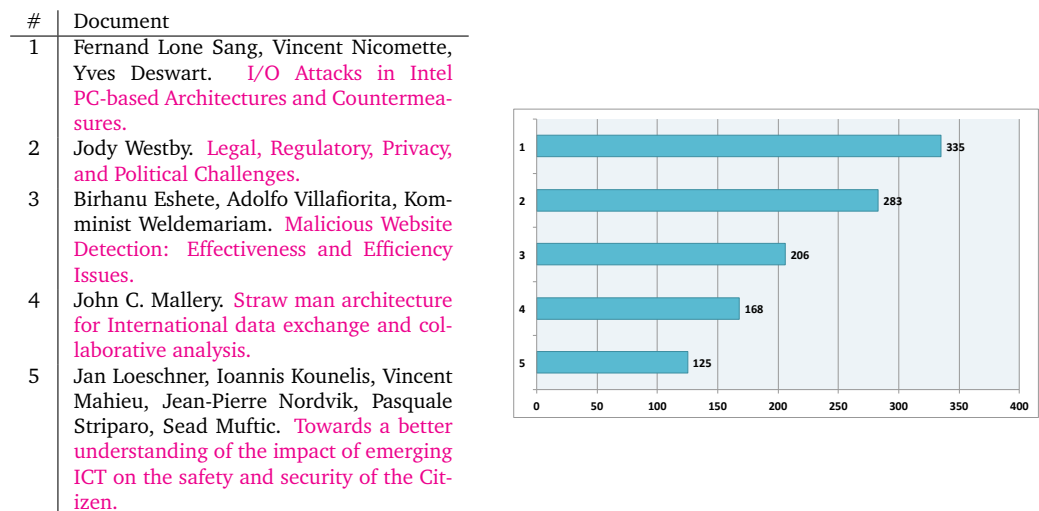


Figure 17: Top-5 downloaded documents from SysSec organized events.



## 5.4 Twitter and Facebook

From the beginning of the project, the consortium embraced social media as an important tool for disseminating the results of the project and building a community around the project.

During the second project year, we continued utilizing the SysSec Facebook page and a Twitter account<sup>29</sup> to disseminate event notifications, published papers and news related to the project.

The SysSec Facebook page has 153 “Likes”, whereas the Twitter feed is followed by 204 users. In the second year of the project, we pushed 77 *tweets* through these channels.

We should note that the increase in number of Twitter followers in the second project year was much bigger than the increase of “Likes”. This probably indicates a preference among the SysSec community towards the Twitter platform.

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<sup>29</sup> <http://twitter.com/#!/syssecproject>