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1. REPORT DATE (DD-MM-YYYY) 14-04-2016	2. REPORT TYPE Final Report	3. DATES COVERED (From - To) 1-Aug-2014 - 31-Jul-2015
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4. TITLE AND SUBTITLE Final Report: Scientific Workshop on Continuously Upgradeable Software Security and Protection - Research Area 5 (Computer Science)	5a. CONTRACT NUMBER W911NF-14-1-0424
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER 611102

6. AUTHORS Jack W. Davidson	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAMES AND ADDRESSES University of Virginia 1001 North Emmet Street P. O. Box 400195 Charlottesville, VA 22904 -4195	8. PERFORMING ORGANIZATION REPORT NUMBER
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9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS (ES) U.S. Army Research Office P.O. Box 12211 Research Triangle Park, NC 27709-2211	10. SPONSOR/MONITOR'S ACRONYM(S) ARO
	11. SPONSOR/MONITOR'S REPORT NUMBER(S) 66238-CS-CF.2

12. DISTRIBUTION AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited
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13. SUPPLEMENTARY NOTES The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other documentation.

14. ABSTRACT Software security and protection is a discipline that lies at the crossroads of security, cryptography, networks, software engineering, computer architecture, operating system, and compiler design. The goal of the workshop is the exchange of ideas for continuously upgradable security in a networked setting with vulnerable end-points—the so-called 'remote man-at-the-end attack scenario'. <i>The workshop will bring together researchers from theoretical, applied, software, and hardware backgrounds.</i>

15. SUBJECT TERMS Software Protection, Software Security, obfuscation, reverse engineering

16. SECURITY CLASSIFICATION OF:	17. LIMITATION OF ABSTRACT	15. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Jack Davidson
a. REPORT UU	b. ABSTRACT UU	c. THIS PAGE UU	19b. TELEPHONE NUMBER 434-982-2209

Report Title

Final Report: Scientific Workshop on Continuously Upgradeable Software Security and Protection - Research Area 5 (Computer Science)

ABSTRACT

Software security and protection is a discipline that lies at the crossroads of security, cryptography, networks, software engineering, computer architecture, operating system, and compiler design. The goal of the workshop is the exchange of ideas for continuously upgradable security in a networked setting with vulnerable end-points—the so-called 'remote man-at-the-end attack scenario'.

The workshop will bring together researchers from theoretical, applied, software, and hardware backgrounds together, with the goal of developing ideas that will lead to effective protection against persistent adversaries who are attempting to compromise or steal digital assets.

Enter List of papers submitted or published that acknowledge ARO support from the start of the project to the date of this printing. List the papers, including journal references, in the following categories:

(a) Papers published in peer-reviewed journals (N/A for none)

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Number of Papers published in non peer-reviewed journals:

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Number of Presentations: 0.00

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Paper

04/08/2016 1.00 Jack W. Davidson. Continuously Upgradeable Software Security and Protection,
Workshop on Continuously Upgradeable Software Security and Protection. , . : ,

TOTAL: 1

Number of Non Peer-Reviewed Conference Proceeding publications (other than abstracts):

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Paper

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TOTAL:

Number of Manuscripts:

Books

Received Book

TOTAL:

Received Book Chapter

TOTAL:

Patents Submitted

Patents Awarded

Awards

Graduate Students

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Total Number:	

Names of Post Doctorates

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Total Number:	

Names of Faculty Supported

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Total Number:	

Names of Under Graduate students supported

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FTE Equivalent:	
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Names of Personnel receiving masters degrees

<u>NAME</u>
Total Number:

Names of personnel receiving PHDs

<u>NAME</u>
Total Number:

Names of other research staff

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Sub Contractors (DD882)

Inventions (DD882)

Scientific Progress

The workshop helped focus the community and the result was a new, ongoing workshop that is being co-located with the Annual Computer Security Applications Conference (ACSAC).

Technology Transfer

Final Report

**ARO Workshop on Continuously Upgradeable
Software Security and Protection**

Sponsored by

**The Department of the Army
U. S. Army Research Development and Engineering
Command
Army Research Office
Research Triangle Park, NC 27709-2211**

**Co-located with
ACM Conference on Computer and Communication
Security**

**November 7, 2014
Scottsdale, Arizona**

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Problem Statement

Currently there is not an established home to present new results in the area of software protection. The goal of the workshop was to bring together the research community (both theory and practice) and clearly define the scope of software protection research and foster closer interaction and collaboration between the theoretical community and systems community.

Summary of Key Results

The ARO Workshop on Continuously Upgradeable Software Security and Protection was held on November 7, 2014 and co-located with the ACM Conference on Computer and Communication Security in Scottsdale, Arizona. There were 30 attendees from academia, industry, and government. A substantial number of participants (12) were from outside the United States.

There were several major outcomes of the workshop. First, despite theoretical advances in the theory of obfuscation, it is clear that these advances are far from having a practical impact on the state of practice. Nonetheless, it was felt that a closer interaction between the theoretical community and the systems community would be beneficial to both communities and could result in advances in both areas.

Second, there is a clear and obvious need for metrics to judge the strength of software protections. The current state of the art is woefully inadequate.

Third, the research community is fragmented. Several groups are holding small events each targeting a particular niche area. A consolidation of the efforts in the software protection space would result in higher visibility and more impact.

Finally, the participants believe that the research area needs a better name. The term "software security and protection" is confusing and does not uniquely identify the research area. The participants reached no consensus on a new name. Some felt "Software Protection" was appropriate (i.e., drop security). Others felt that that term did not adequately describe the area.

Based on the outcome of the meeting, there were several groups that held discussions about how to bring the fragmented research community together. Towards that goal, there was a trial merger of two related workshops. PPREW: Program Protection and Reverse Engineering and SSP: Software Security and Protection were held together at the 2015 Annual Computer Security Applications Conference (ACSAC) held in Los Angeles, California on December 8, 2015.

The consensus was the joint meeting at ACSAC was a success. The joint workshop was well attended and many of the attendees stayed for the main ACSAC conference. Based on this outcome, the two communities decide to formally merge and continue to be co-located with ACSAC.

In 2016, the Software Security, Protection and Reverse Engineering Workshop (SSPREW) will be co-located with ACSAC 2016, which will again be held in Los Angeles, California.

Bibliography

Not applicable

Appendices

Conference Proceedings were uploaded as a report.