CPS Framework Open Source Workshop Agenda
19Sept2017 - NCCoE

Description

This workshop aims to contribute to the creation of a community of experts in cyber-physical systems (CPS) and systems engineering. The workshop will be useful for CPS/IoT manufacturers, experts, and researchers focused on enhancing their systems engineering practices to include the distinct methods and tools associated with the logical and physical elements of CPS as well as critical concerns such as Trustworthiness, Human Interface, and Interoperability.

The purpose of this workshop is to orient the participants as to the "Framework for Cyber-Physical Systems, Volume 1 and Volume 2.", to release the results of early efforts to model the framework in UML/XML/XSLT and 'ontologies', to acquire feedback from stakeholders on how the CPS Framework concepts can complement existing systems engineering processes and tools, and to demonstrate the use of the CPS Framework models in system development.

Logistics

The workshop is free and will be held at the National Cybersecurity Center of Excellence (NCCOE), 9700 Great Seneca Highway, Rockville, Maryland. Registration details, to attend in person or remotely, are available online at https://www.nist.gov/news-events/events/2017/09/cps-framework-open-source-workshop. All participants should register and, if they will be joining remotely, use this Go-to-Meeting link: https://global.gotomeeting.com/join/752972149 phone: +1(312)757-3121;752972149#. Advance registration is required; on-site registration will not be available. Registration closes on September 15, 2017.

Agenda

1. **Registration**   (8:30am-9:00am)
2. **Welcome** (Chris Greer)   (9:00am-9:15am)
3. **Introduction and Workshop Goals** (Edward Griffor)   (9:15am-9:30am)
4. **Keynote Speaker**: Ron Ross – Challenges of Integrating Critical Concerns into Systems Engineering
                                                                                          (9:30am-10:00am)
5. **Review of the NIST CPS Framework** (Dave Wollman)   (10:00am-10:15am)
    5.1. Why a CPS Framework?
    5.2. Elements of the Framework
        5.2.1. Facets
        5.2.2. Concerns
        5.2.3. Functional Decomposition
6. **Applications of the CPS Framework**   (10:15am-11:30am)
    6.1. Mathematics of CPS and the CPS Framework (E. Griffor)
    6.2. Applications to Transportation (D. McShane, F. Brandao/Ricardo LLC)
    6.3. IES City Tables – CPS Framework as Benchmarking Tool (M. Burns)
    6.4. From Security to Trustworthiness (C. Vishik/Intel)
    6.5. Trustworthiness Ontology (M. Balduccini/St. Joseph's University)
Lunch Break   (11:30am-12:30pm)

7. **Panel Discussion – Why do we need holistic concern-driven engineering?** (C. Greer/Moderator, A. Rajhans/Mathworks, J. Sztipanovits/Vanderbilt University, S.-W. Lin/Thingswise , J. Weimer/UPenn-PRECISE, M. Huth/Imperial College)   (12:30-1:30pm)

8. **Systems Engineering and the CPS Framework** (T. Roth)   (1:30pm-2:00pm)
    8.1. A Systems Engineering Process Standard: ISO/IEC/IEEE 15288
    8.2. Sample Effort: Secure Systems Engineering (NIST SP 800-160)
    8.3. CPS Framework: A Holistic Concern-Driven Approach
    8.4. The Road to a Development Process Tool

9. **Break**   (2:00pm-2:15pm)

10. **Modeling for a 'CPS Framework Tool'** (M. Burns/E. Song)   (2:15pm-4:00pm)
    10.1.   Modeling Tools
    10.2.   UML/XML Models of the CPS Framework
    10.3.   Use Case: IEC 62559 applied to Smart Thermostat
    10.4.   CPS Framework Analysis Tool of the Use Case
        10.4.1. Functional Decomposition
        10.4.2. Conceptualization
        10.4.3. Realization
        10.4.4. Assurance

11. **Building Community around CPS Framework Open Source** (E. Griffor)   (4:15pm-5:00pm)
    11.1.   What are the hoped-for outcomes
    11.2.   Collaboration Tools – GitHub Environment
    11.3.   Embedding this technology in your CPS Engineering Tool
    11.4.   Open Discussion on Next Steps