



International Council on Systems Engineering
Delaware Valley Chapter Meeting
(Non-members welcome to attend)

Dealing with Complexity

Speaker 1: Stanley P. Stanilka, The Boeing Company, Integrated Defense Systems, Philadelphia, PA: **Object-Oriented Development for C4ISR System of Systems**

Speaker 2: Robert J. Cloutier, Lockheed Martin, Maritime Systems & Sensors, Moorestown, NJ: **Using Patterns in Architecting Complex Systems**

Speaker 3: Walt Sobkiw, L-3 Communications, Communication Systems-East, Camden, NJ: **The Specification Analysis Tool**

For abstracts and authors' biographical summaries, see next page.

Date: Tuesday December 6th, 2005

Time: 6:00 p.m. \$10 for the buffet meal (students \$5)
6:30 p.m. Meeting begins

Place: L-3 Communications auditorium,
A&E Building,
1 Federal Street, Camden, NJ
For directions to L-3 please visit the web site
http://www.l-3com.com/cs-east/ie_locmap.shtml

Please contact Peter.Scott@L-3Com.com if you plan to attend this event.

For further information about the International Council on Systems Engineering please visit the INCOSE website at <http://www.incose.org/> and the Delaware Valley Chapter website at <http://www.incose.org/delvalley/>

ABSTRACT 1: Object-Oriented Development for C4ISR System of Systems

The C4ISR Framework provides architectural artifact examples for modeling complex system of systems within the information-centric and hardware-centric global battlespace theater. This framework is utilized by all U.S. government agencies and military branches that procure military hardware and plan for tomorrow's strategic evolution in the armed forces. This framework must be adopted by those business organizations who wish to market their products to the U.S. military. The models mandated by the C4ISR Framework do not always align with the development methods and production processes utilized in the commercial enterprises who position their products for acquisition into the network centric military markets. This is especially true for software industries where object-oriented analysis and design methods have become entrenched as an industry standard. This paper analyzes object-oriented development of complex systems and compares the artifacts produced through this method with artifacts produced through the C4ISR Framework. The comparison provides an evaluation of the commonality and gaps between both ideologies.

Stanley P. Stanilka is Senior Manager, Systems Engineering, at the Boeing Company, Integrated Defense Systems, Philadelphia. He has worked professionally in technical and managerial positions in industry for over 21 years, the last 19 years at the Boeing Company. He received a B.S. Industrial Engineering degree from Penn State University, a Master of Business Administration degree from Villanova University and a M.S. Systems Engineering degree with emphasis on Software Systems Engineering from the University of Missouri – Rolla where he studied under Dr. Dagli and Dr. Miller. He is an active member of the INCOSE organization and has participated in symposia proceedings through prior publications on object oriented systems architecture.

ABSTRACT 2: Using Patterns in Architecting Complex Systems

A pattern is a model or facsimile of an actual thing or action, which provides some degree of representation (an abstraction) to enable the recreation of that entity over and over again. The existence of patterns is almost universal. Patterns are evident everywhere. The human mind seems to perceive patterns without conscious thought - we notice an individual's personal habits because they form patterns. Patterns are also used in a number of engineering disciplines – software engineering, requirements engineering and mechanical engineering to name a few. The purpose of this presentation is to discuss motivations for using patterns in architecting complex systems.

Rob Cloutier is a Systems Engineering Doctoral Candidate at Stevens Institute of Technology. He is also a Principal Engineer at Lockheed Martin Corporation in Moorestown, NJ where he is currently in a System of Systems Architecture group. He has 20 years experience in systems engineering, software engineering, and project management in both the commercial and the DoD industries. Rob holds a B.S. from the United States Naval Academy and an M.B.A. from Eastern University, where he is also an adjunct professor.

ABSTRACT 3: The Specification Analysis Tool (SAT)

The story of SAT goes back over two decades. Back then young engineers, mathematicians, and scientists found themselves in large organizations with massive capability. Part of this capability included senior staff to mentor the new technologists. In that environment, the senior staff would slowly introduce the concepts of technology development and management, which included the fundamentals of specifications and requirements. They would use checklists, papers, examples, classroom training, and on the job training. Today, the environment for the young technologist and senior staff is very different. Unlimited computing capacity has allowed the introduction of tools to reduce complexity and support many of the manual tasks of the past.

The presentation will include some thoughts on specification analysis and a demonstration of a new tool, the Specification Analysis Tool (SAT). Its greatest strength is its ability for the user to define rules using patterns to support specification analysis. Feel free to bring your own sample specification on floppy or CD. It can be a DOORS export into Excel or MS Word. It can also be a traditional specification document in MS Word or TXT format.

Mr. Sobkiw received a BSEE from Drexel University in 1979. He has held various government, defense, and commercial positions while working on Air Defense, Air Traffic Control, Simulation Training, and Communications systems. When asked what he does for a living, Mr. Sobkiw says he is a Systems Engineer.