



Navigating the COTS Sea



As I scratch my head for the thousandth time wondering who came up with the bright idea of the standard desktop computer, it occurs to me that this month's CROSSTALK theme is extremely pertinent. I am sure that the promoters of the standard desktop did not consider that a software maintenance group might need multiple versions of a single software package loaded onto the same desktop. Nor did they imagine that continually pushing out patches would create a configuration management nightmare in our software integration laboratories.

Commercial off-the-shelf (COTS) software solutions have long been touted as the best- or least-cost solution to many software design requirements. We save major development costs by using commercial products and, in theory, can significantly accelerate the delivery schedule. The Air Force is engaging in this venture on a massive scale with the implementation of Expeditionary Combat Support System (ECSS) – based on a commercially available Enterprise Resource Planning system. The projected life-cycle cost savings due to phasing out legacy information systems are staggering. However, the success of ECSS, and of all COTS software implementations, is dependent on a realistic assessment of all costs, benefits, and risks.

While I have never led a successful COTS implementation, I've witnessed quite a few failures and participated in many re-vectoring efforts. The following is some advice for anyone starting down that road:

1. Remember the Titanic. Don't just look at the tip of the iceberg, there's plenty hidden beneath the water to help sink the ship. Look at long-term license and maintenance fees. Check interfaces to see how many will have to be changed if you field a COTS solution. Expect interface control documents to have discrepancies. Ensure that you have sufficient data rights to maintain the product once it is fielded.

2. Caveat emptor: Buyer beware! Do your research, define your requirements, establish acceptance criteria, read the fine print and remember that the vendor is selling a product and is rewarded based on the number of sales. Ask for references from other customers who have successfully converted to the product.

3. Resist the temptation to modify COTS. If you start talking about GOTS (government off-the-shelf) and MOTS (modified off-the-shelf), then you've lost the bubble and should seek professional help. This isn't Burger King. If you go with COTS, you can't have it your way.

This month's articles illustrate both the drawbacks and the benefits of using COTS software in the development and sustainment of Department of Defense weapon systems. In *Added Sources of Costs in Maintaining COTS-Intensive Systems*, Dr. Betsy Clark and Dr. Brad Clark capture the many frustrations expressed by project managers and team leads in communicating to upper management the reasons why COTS-based systems are so expensive to maintain. Dr. David A. Cook addresses *Issues to Consider Before Acquiring COTS*, in particular the problems of trying to integrate multiple COTS applications. Essential to success is the need to apply basic software engineering principles and beware of marketing hype.

At the 402 Software Maintenance Group at Robins AFB, we continue to see benefits from using COTS software, particularly in our integration environments if used wisely. In *Lean AISF: Applying COTS to System Integration Facilities*, Harold Lowery emphasizes the importance of weighing all alternatives and clearly defining trade-offs when considering make-versus-buy decisions. Additionally, in *GL Studio Brings Realism to Aircraft Cockpit Simulator Displays*, Kim Stults demonstrates that with sufficient pre-planning, COTS products can be a viable means of upgrading systems saving both time and budget. We conclude the theme articles with a discussion of using JAVA with real-time systems in *Applying COTS Java Benefits to Mission-Critical Real-Time Software* by Dr. Kelvin Nilsen.

The debate on the benefits and challenges of COTS is not likely to be settled soon. Most things in life have their benefits and drawbacks; as with life, we must keep an open mind when considering COTS.

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