

Rehosting Real-Time Legacy Systems

The problem is a common one - when to replace older, legacy proprietary real-time systems with new open technology systems. Although the legacy systems may continue to perform their functions ably, experience tells us maintaining the older systems will move from challenging, to difficult, to impossible. Availability of replacement parts will change from not always available to unavailable; the pool of real-time software engineers with the requisite proprietary OS experience needed to maintain your system will continue to shrink; and eventually the vendors will inform you that they will no longer support the hardware or software.

Ideally, you would like to replace your real-time system before you have no other option. Of course replacing legacy systems before you have no choice usually forces the decision making criteria for replacement to the familiar: "How much will it cost – what is my return – and how soon will it be achieved?"

Fortunately, open systems have delivered on many of their promises and therefore can be very cost effective. The hardware is relatively inexpensive, there are multiple chip set, processor board and bus options, and there are a variety of RTOS's – including Win NT/CE. In fact, if one chooses to port or rehost the existing applications - rather than doing clean sheet of paper new development - it is possible to recoup the initial non-recurring costs such as engineering resources and equipment purchases within the first twelve to eighteen months from the savings realized through reduced cost of ownership. Although a "actual rehost mileage will vary depending on your application" disclaimer applies – clearly rehosting the software onto new technology can be most cost effective.

Not only can rehosting be the most cost effective, it will usually be the quickest route as well. With the proper approach and experience, migrating the software from old real-time host to new real-time host will be completed in much less time than a new "clean sheet of paper" development effort. Besides, even in the "clean sheet of paper" scenario, you still have to study the existing environment. Therefore, if you must redesign, completing the rehost to new technology and revisiting a new design as a next step may still be more cost effective. You will have

valuable application experience with the new technology and the advantage (and comfort) of having a stable, supportable application environment on new technology. As a result you will have more time to plan, design and complete the new development effort.

There are many benefits to rehosting real-time software from a legacy system to a new system. Yet it should not be considered a trivial effort. Just like any software engineering effort – the project must be evaluated, planned and executed with careful thinking and precision implementation techniques.