

RTOS Market Survey Preliminary Results

Here we have the first in a new series of articles summarising the latest results of our on-line RTOS market survey. In this executive summary we present the expected areas of maximum market growth as well as the potential winners and losers within the overall market place.

Real-Time Consult is well known throughout the world as **the** source of information and expertise on RTOS (Real Time Operating Systems), mostly through it's Real Time-Encyclopaedia website (www.realtime-info.com) where you can find the most extensive "RTOS Buyers Guide" on the internet (now with more than 120 entries). As regular readers of the magazine will already be aware, we recently launched an RTOS Evaluation Program, to provide some independent analysis and comparison between existing commercial RTOS. The resulting reports from phase 1 are available for sale on-line, in our Visitor's Center.

If you are already a registered visitor (with free access to the explanatory documents about the program) I would like to take this opportunity to thank you for filling in the 4 pages of information about who you are, in what field you are working, which RTOS you are using, what you are planning to use, and most important, which one(s) you would like us to evaluate. If you have not yet registered, and you would like to discover more about the program, you should go along immediately and complete the registration form.

The valuable information we have collected, permits us to see the exact tendencies within the RTOS market and we have decided to share the highlights of the full market report with you in this executive summary.

SAMPLE DISTRIBUTION

We started the "Visitors Center" at the beginning of November with an on-line questionnaire as part of the registration process. After only 4 months we have had more than 1300 registrations (the figures used in this article are based on the results of exactly 1365 registrations).

As we do not ask our visitors how much they have spent on an RTOS, but rather just what they use (and intend to use), the replies we get relate more to PROJECTS rather than sales figures!

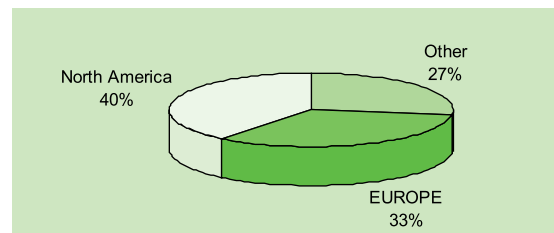


Figure 1. Geographical distribution of respondents

In Figure 1 we see that either North Americans have more interest than Europeans in RTOS as a whole, or that perhaps there are just more projects in NA than in Europe.

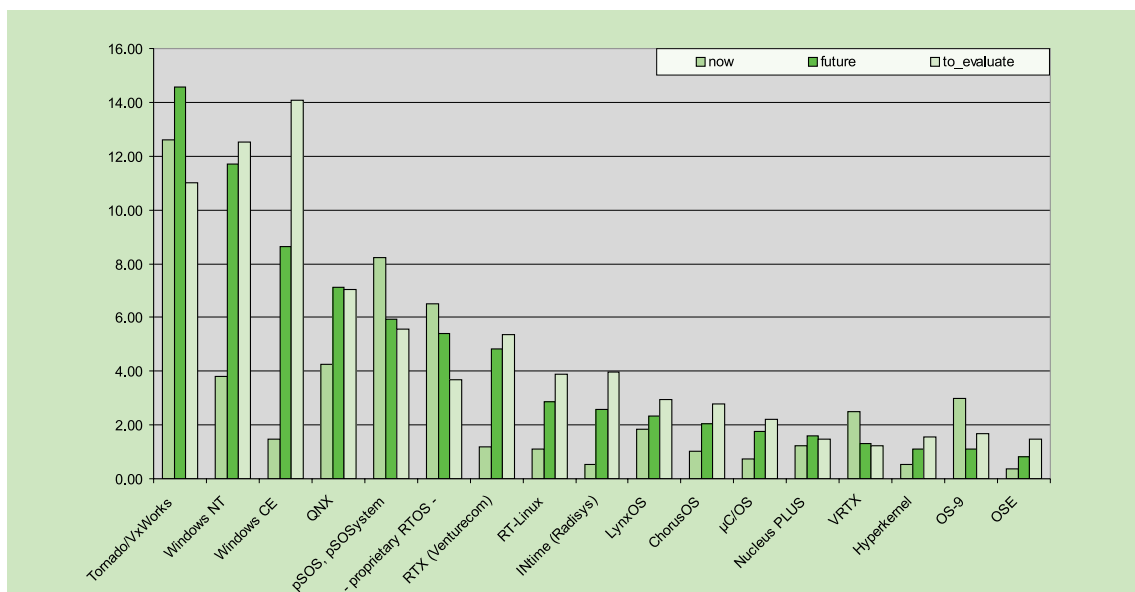


Figure 2. Expected RTOS market evolution

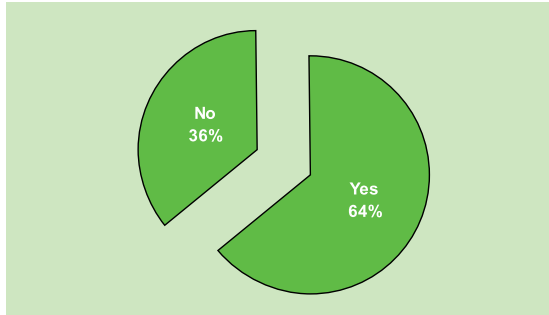


Figure 3. Am I using an RTOS today ?

RTOS MARKET EVOLUTION.

We asked registrants 3 questions:

- What RTOS are they using today?
- What do they plan to use in the near future?
- What would they like us to evaluate?

This last question may be interpreted as what they are thinking of using in the long term.

In Figure 2, which is sorted by what people are planning to use, we can already see that:

- Tomado has a very stable market share, but will lose some in the distant future
- Windows NT, QNX, RTX will achieve their maximum market share soon
- Windows CE, RT-Linux, INtime, LynxOS, ChorusOS, Hyperkernel and OSE are rising stars (and in that order)
- pSOS, Proprietary RTOS, VRTX and OS9 will significantly lose market share.

IS THE MARKET GOING TO GROW IN THE FUTURE?

The first sign of market growth comes from the number of registrants who are not currently using an RTOS but who are heading towards using one.

Figure 3 shows that 36% of respondents are not using an RTOS today. Figure 4 shows the intention of the majority of these people to use one in the future. The RTOS vendors should be happy because of the potential market increase already here. Nevertheless we still see that 1/3 of them do not want to use an RTOS. We

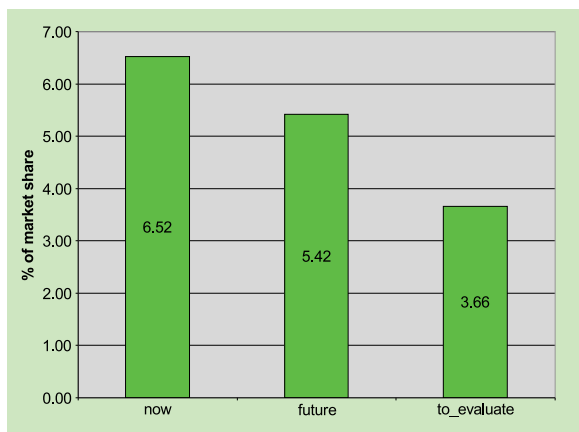


Figure 5. Evolution of proprietary RTOS

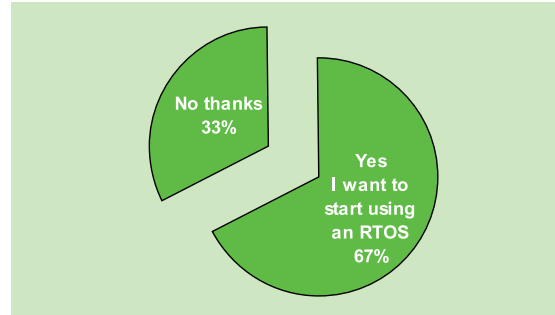


Figure 4. Do I want to start using an RTOS?

can only suppose that those people are happy working in assembler or C, but this will be clarified in future reviews.

Another growth in market share for commercial RTOS vendors will come from those people who are currently using a proprietary RTOS. This figure seems to drop from 6.5% of the market to half of this (Figure 5). The effect of this on the overall market is much less than with the previous figures. RTOS vendors should therefore concentrate on finding those people NOT YET using an RTOS and convince them to use their product.

MARKET DILUTION

Another important issue is the total number of commercial and freeware RTOS available today. As stated, there are more than 120 listed in the on-line "RTOS Buyers Guide", but are these products really used?

Of course they are only by a very limited number of users. That is the reason why you find an important OTHERS bar (13.7%) in Figure 7. This represents a lot of RTOS where the actual use is less than 1% of the market share. The reasons may be that the RTOS

- supports special processors (DSP, 8bit, etc...)
- is almost a proprietary one (but commercialised)
- is just another (as yet) unknown product

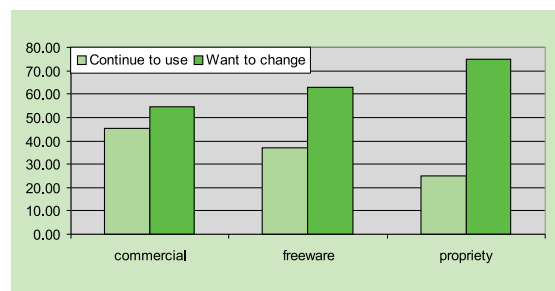


Figure 6. RTOS satisfaction

PRODUCT (NON-) SATISFACTION

When it comes to product satisfaction we see some remarkable results. First of all, on average there are more people who want to change, than whom want to keep their existing product. We believe some of the major reasons for this to be:

- Some people want to change because the new processor they are going to use in the future product is not supported.

RTOS EVALUATIONS

- People start using an RTOS without knowing too much what they are beginning due to lack of education in this field. We observe a great confusion about what people think the RTOS is going to do.
- The information available on existing products is limited. All vendors have convincing sales presentations, but they never explain anything in detail. It is only when you start using the product that you really see what it is all about.
- Poor support when something goes wrong with the product.
- Poor documentation.
- Missing or limited set of BSP. (This can vary with the processor used).

Over the course of our evaluations, we have consistently found bugs even in mature products. This means that the RTOS themselves are not all systematically tested and qualified before being sold. In most cases, it seems that the end-user is the qualifier.

CONCLUSION

Some major conclusions can be drawn from this executive summary report of our RTOS market research.

- Windows technology, real-time or not, is starting to play a major role with a larger expectation for Windows CE.
- The market is very diluted and will remain so for quite a while. The major market player in the future has only 14% of the market
- The market size will increase. The newcomers are mostly people NOT YET using an RTOS and to a lesser degree, those using proprietary RTOS.
- The general quality of available products is poor.

REMARK

Please note that this is only the executive summary of our market survey. We have more detailed information about the use of RTOS per geographic region, per vendor and per application field. This information will be made available in 2Q 99, in the full market report for sale via the shop in our on-line "Visitor's Center" at: <http://www.realtime-info.com>. ■

Dr. Martin Timmerman has a degree in Telecommunications Engineering from the Royal Military Academy (RMA) Brussels and received a Doctorate in Applied Science from the Gent State University (1982) in Belgium. In 1983 he transferred to Computer Engineering and set up the System Development Centre (SDC) at RMA. He gives general courses on Computer Platforms and more specific courses on System Development Methodologies. He is a consultant to the Joint Staff of the Belgian Armed Forces in areas concerning Information System Methodologies and CASE tools and he is the Belgian representative in some NATO technical commissions. Outside the RMA, Martin is known for his audits, reviews and seminars, and for his two companies Real-Time Consult and R.T.U.S.I., where he makes use of his considerable knowledge of the Real-Time world. Real-Time Consult is the publishing house responsible for Real-Time Magazine, an International magazine about Real-Time system development. Real-Time User's Support International (R.T.U.S.I.) provides hardware and software support services and is involved in project engineering for real-time systems. More recently, the business has concentrated on RTOS evaluations and feasibility studies with customers world-wide.

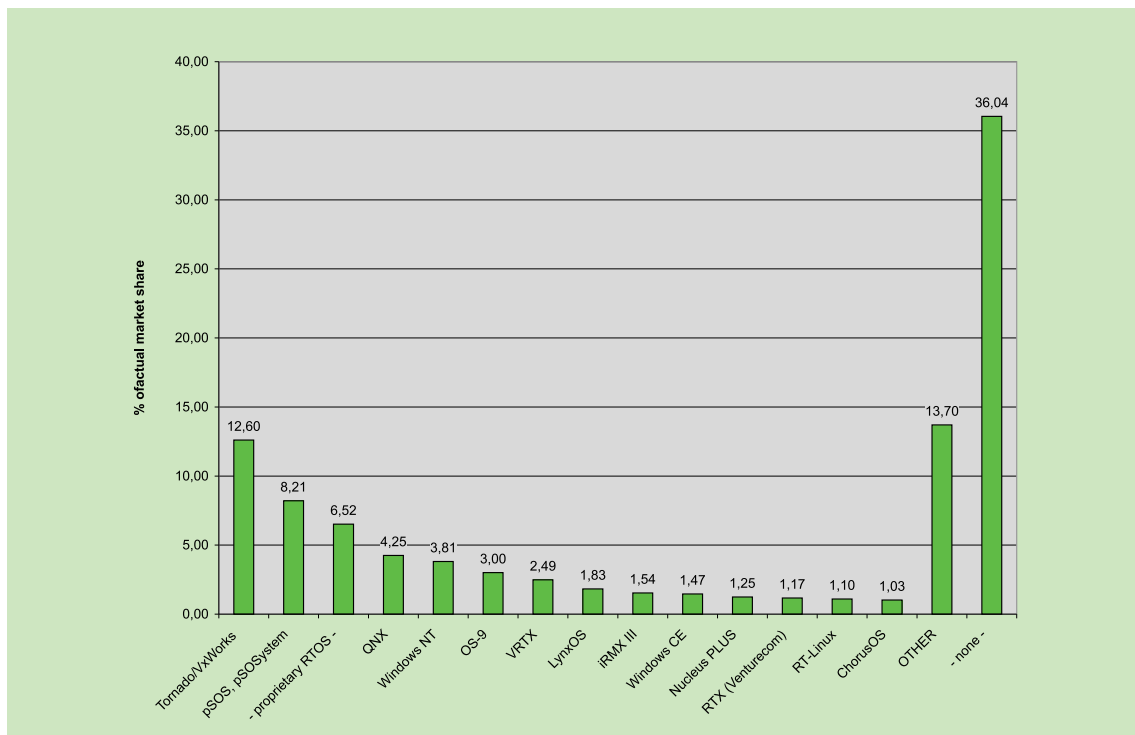


Figure 7. Actual RTOS use