

# SELECTING AN EMBEDDED RTOS



## FEATURED INTERVIEW:

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## ECOSCENTRIC - RTOS PRODUCTS &amp; SERVICES, 2009

eCosCentric: RTOS Products & Services, 2009

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- Q. First of all, tell us a little bit about yourself and your responsibilities at eCosCentric.**
- A. My career spans over 20 years in the engineering and technical management of embedded operating systems and related software. I started at Perihelion Software, a company specializing in parallel and embedded operating systems. The ten-year stint at Perihelion culminated with my appointment as Technical Director (CTO) of the company. I subsequently worked for Virtuality Inc, a developer of virtual reality hardware and software, as manager of its Operating Systems group. In 1996 I joined Cygnus Solutions as Director of Engineering, tasked with building and heading up a team to create an open source operating system designed specifically for the deeply embedded space – the *eCos* RTOS. I continued in this role after the merger of Cygnus Solutions with Red Hat. I am a founder and the Chairman of *eCosCentric* – a company spun out of Red Hat to focus on the *eCos* RTOS and associated technologies.
- Q. If you would, please give us a very brief, bulleted outline of your products. What sorts of real-time operating systems (RTOSes), tools, and/or services does your company offer?**
- *eCosPro* Developer's Kits are available for a wide range of architectures and development boards. These kits comprise of host based development tools and *eCos* RTOS runtime packages. On the tools side it consists of the GNU compiler toolset, Eclipse-based IDE, and ancillary tools. The *eCos* runtime includes the *eCos* kernel, C and C++ language libraries, networking stacks, file systems, and various device drivers. The kits use and functionality are covered by advice-line and incident resolution support services with guaranteed response times.
  - *eCos* consulting and custom engineering services. *eCosCentric* provides fixed price and fixed delivery schedule engineering services. Projects range from device drivers, through *eCosPro* & *RedBoot* ports, to optimizations and new or customized *eCosPro* features.
  - Training services. *eCosCentric* provides engineering teams with a comprehensive introduction to *eCosPro* software development. These courses are generally delivered on-site, and consist of a combination of theory and hands-on workshops.
  - Semiconductor and board manufacturer support. *eCosCentric* develops shrink-wrapped RTOS, firmware and tools bundles for evaluation & development

boards. These provide a vendor's customers with a royalty and product license free development and deployment solution, specifically targeted at the vendor's hardware.

**Q. What is eCosCentric's "unique value proposition" for the embedded systems engineer or programmer who is considering an embedded RTOS? What do you and your products do to help him get his product to market faster, cheaper, better?**

A. When you consider the overall cost-effectiveness of competing RTOS solutions you will find it hard to beat *eCosPro's* combination of price, reliability, functionality, and support:

- The royalty & product license free nature of *eCosPro* provide great cost savings on single projects and even greater savings over the lifetime of multiple projects. The inclusion of IDE, compiler toolset, along with runtime packages such as TCP/IP stack and MS-DOS compatible file system help minimize middleware costs.
- *eCosPro* has a unique ability to scale and configure its functionality between simple and more complex target devices. This provides an ability to support a wide range of potential projects and reuse within your organization. Complete source code is provided enabling straightforward understanding, customization and debugging of the runtime.
- *eCosPro's* maturity and reliability coupled with *eCosCentric's* comprehensive support and engineering services provide peace of mind.

**Q. How are you different as a company from competitors? What sets your products apart from those of other RTOS companies?**

A. *eCosCentric* is a commercial provider of embedded open source software. There is no lock-in to our products. This drives a commercial imperative to provide high quality products and services, and a customer-centric approach to everything we do.

**Q. What embedded architectures do you support - e.g., Intel architecture, MIPS, ARM, PowerPC, etc.?**

A. All major 32bit architectures and many variants are supported: ARM, ColdFire, Cortex-M3, MIPS, Nios II, PowerPC, SuperH, XScale, and x86.

**Q. What additional software do you offer such as networking, file systems, TCP/IP, security, IDE, GUIs etc.? What about development tools? Are there particular partnerships with other software companies that are especially helpful?**

A. *eCosPro* Developer's Kits include a wide range of networking and file system packages. In addition to this rich baseline *eCosCentric* offers a range of middleware to further expand *eCosPro's* functionality:

- [\*eCosPro-C/PEG\*](#) - Graphics user interface middleware (C based API)
- [\*eCosPro-PEG+\*](#) - Graphics user interface middleware (C++ based API)

- [USBware](#) - USB Host, Device and OTG stacks
- [CEE-J](#) - Embedded Java virtual machine
- [eXtremeDB](#) - Embedded in-memory database
- [OS Changer](#) - Porting aid for migration of existing applications
- [eCosPro-CAN](#) - Controller Area Network device API and drivers
- [CANopen](#) - CiA standards based CAN protocol stack
- [eCosPro-SecureShell](#) - SSH-2 compatible Secure SHell daemon
- [eCosPro-MMFS](#) - High performance multimedia file system

**Q. How are your products sold? What is a typical fee arrangement? Is it royalty free? Per unit royalty?**

A. *eCosPro* Developer's Kits are completely royalty and product license fee free. You may develop any number of product lines and products, and ship any number of units with no additional payments, and no auditing requirements. Support services are available for six or twelve month renewable periods.

**Q. Finally, what sort of "try before buy" experiences does your company offer? Are there free demo downloads, webinars, seminars? What web URL's can you point us to for more information?**

A. *eCos* is an open source RTOS designed and developed by members of the *eCosCentric* team. It can be downloaded from <http://ecos.sourceware.org/>, along with documentation and host tools. This can be used to evaluate the core functionality of the RTOS for your project.

**Q. Thank you for this product interview.**