THE RIGHT OS FOR YOU

What You Should Consider When Selecting an Operating System for Your Next Project

Designing a critical infrastructure system today presents many complex challenges related to safety, security, and certification, in addition to your basic requirements from an embedded operating system. Your next critical infrastructure project can create competitive differentiation, optimize your operations, and transform your business. The operating system is the foundation of the software that will drive your project.

Here are 10 questions to consider before selecting an OS for designing your next project.

1. **Does the OS have a proven track record of successful deployments?**
   VxWorks® is the leading real-time operating system for embedded systems at the intelligent edge. For more than 30 years, VxWorks has served as the trusted foundation to power billions of intelligent devices, machines, and systems. From Mars to planet Earth, from medical infusion pumps and imaging systems to manufacturing robots and other devices at the intelligent edge, software development teams have repeatedly selected VxWorks as the RTOS for innovative solutions. Read our VxWorks customer success stories.

2. **Does the OS have support for the embedded hardware you will use today and tomorrow?**
   Working with our ecosystem partners, Wind River® has optimized VxWorks for the latest advanced processors and SoCs. It also includes the most extensive list of board support packages in the embedded software industry, providing early prototyping, cost savings, and flexibility of choice. See the full list of board support packages for VxWorks.

3. **Does the OS come with a complete development environment?**
   To help accelerate the development of safety-critical and mission-critical systems, Wind River provides important software development tools with VxWorks. Wind River Workbench development tools offer an integrated development and debugging environment along with cutting-edge system analysis tools for optimizing VxWorks applications. Workbench is a fully integrated, Eclipse-based open development suite, optimized to support the design, development, testing, and debugging of applications. Workbench includes a project facility to define application resources, LLVM compilers, and a built-in VxWorks simulator. VxWorks is also integrated into Wind River Studio, a cloud-native platform for the development, deployment, operations, and servicing of mission-critical intelligent edge systems.

4. **Does the OS support modern programming frameworks?**
   VxWorks leads the industry with support for the latest technologies used in the development of software for embedded systems. Developers can achieve greater efficiency using popular programming languages including C11/C++17, Boost C++ libraries, Python, and Rust. It also includes AI/ML frameworks such as pandas and TensorFlow Lite. Learn more about how VxWorks is modernizing the RTOS.

5. **Does the OS include source code for the flexibility to configure and extend as needed?**
   With VxWorks, you enjoy immense flexibility in customizing the operating systems to your needs. Tailor your design to your specific needs with access to full source code and use all the various configuration options to include or exclude predefined components and/or parameters. With access to the entire source code, engineers can selectively adapt, tune, optimize, and upgrade components only where needed to accelerate time-to-market, effectively maintain devices in the field, and innovate with new solutions that leverage already certified components.

6. **Has the OS been used in safety-certified projects?**

   VxWorks has been used as the RTOS in hundreds of safety-certified projects for aviation, industrial, medical, and automotive applications. Its robust safety features provide advanced time and space partitioning capabilities to enable reliable consolidation of multiple applications with different levels of criticality on a single core or multi-core platform. Additionally, conformance to standards such as POSIX® and FACE™ have been leveraged in the certification of VxWorks to DO-178C, IEC 61508, IEC 62304, and ISO 26262 safety standards. Learn more about VxWorks safety platforms.

7. **Does the OS support virtualization and OCI containers?**

   VxWorks is designed to support the demanding security, safety, reliability, and certification requirements of today's virtualized embedded systems. VxWorks virtualization enables the consolidation of multiple embedded computing operating systems onto a single device. What's more, it provides the ideal solution for reusing software from legacy systems. VxWorks virtualization can support any embedded operating system and the applications running on top of them. This enables device manufacturers to maximize their investments in existing IP while providing a bridge for those applications to new platforms. Learn about Wind River Helix™ Virtualization Platform.

8. **Does the OS support containers and cloud-native development?**

   VxWorks includes support for OCI containers. Now you can use traditional IT-like technologies to develop and deploy intelligent edge software better and faster, without compromising determinism or performance. Push your applications to standard container registries (such as Docker Hub, Amazon ECR, or Harbor) and pull them to your deployed VxWorks-based devices. Learn more about VxWorks containers.

9. **Does the OS support advanced security features and also monitor when new security vulnerabilities emerge?**

   VxWorks integrates an extensive and continuously evolving set of security capabilities that map to the CIA security triad of confidentiality, integrity, and availability. It provides advanced security features to help you build secure devices for today's threats, and its modularity enables you to be prepared for those that emerge tomorrow. From secure booting operations to data protection, these capabilities allow architects to develop a level of security appropriate for the attack surface and threats unique to their applications and environments. Additionally, you'll always be on top of the latest security patches with our searchable database linked to MITRE's list of Common Vulnerabilities and Exposures (CVEs), which the VxWorks security team monitors for the latest vulnerabilities, quickly providing updates to address them. Visit the Wind River Security Center.

10. **What technical support options are available?**

    VxWorks is backed by our award-winning global support organization. We offer live help in multiple time zones, the online Wind River Support Network with multifaceted self-help options, and optional premium services to provide developers the fastest possible time-to-resolution. For more information, visit the Wind River Support Network.

Making the right decision about which operating system to use in your next project is critical. VxWorks, the industry's leading real-time operating system, delivers all the scalability, reliability, safety, security, and virtualization capabilities you need to meet today's development challenges for building intelligent, connected critical infrastructure systems.

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