PROFESSIONAL SERVICES SOLUTION ASSESSMENT

One of the keys to a successful project is detailed planning in the initial phase. This planning should include determining project scope, defining requirements and system architecture, identifying risks, performing risk assessment, and creating a detailed project plan. In a Solution Assessment, Wind River® Professional Services systems architects work collaboratively with your design and program teams to interpret system requirements, architect platform system options, and provide recommendations for meeting business, technical, and program goals. Our past system design experience in several vertical markets allows shorter ramp-up time for assessment efforts while delivering high quality. With each engagement, Wind River tailors activities and deliverables to fit the program's unique needs.

The following are examples of activities that can be performed in a Solution Assessment:

Requirements

- Review functional requirements, security requirements, features, and specifications for candidate hardware and software architectures
- Review certification requirements (e.g., DO-178B/C, IEC 61508, EN 50128) and define appropriate processes for achieving safety certification or compliance
- Review the existing security and safety requirements for the system and recommend improvements
- Review business and technical drivers, opportunities, and constraints
- Assist with defining the initial system requirements

Design

- Evaluate system architectures and data flow control, and provide a system recommendation (version-based if applicable) with all supporting documentation, rationale, and analysis
- Perform architectural trade-off analysis to identify cost, benefit, and risk for system solutions that meet requirements
- Prepare partitioned system-level block diagram(s) with high-level data and control flows of the system
- Perform a feasibility study on customer-selected technology and product use cases
- Identify and incorporate third-party or partner software modules and ecosystems, and document in an integration plan
- Examine tradeoffs for swapping hardware components and software packages

- Develop scalability plans to define how the platform would scale up or scale across multiple product lines
- Evaluate the consolidation of multiprocessor systems into a single multi-core processor board
- Develop a strategy for migration to multi-core, including analysis of different multi-core implementations (AMP, sAMP, SMP, virtualization, or combinations of these)
- Develop a strategy for migration from one operating system to another, or from an older version of an operating system to a newer version
- Develop a strategy for migration from an older hardware platform or processor to newer hardware
- Develop a power management scheme or look for ways to improve the existing design
- Analyze and implement secure boot
- Analyze the applicability of virtualization of the whole system or parts of the system to accommodate partitioning, security, and reliability needs
- Examine virtualization, virtualization use cases (e.g., consolidation, isolation, performance, private cloud), and migration from a non-virtualized environment to a virtualized one
- Examine options for distribution and software updates, including over-the-air (OTA) updates
- Review the existing security and/or safety design for the system and recommend improvements
- Analyze the risks and benefits of adding new functionality to existing systems

Performance and Reliability

- Analyze compile time and run-time memory usage
- Examine ways to optimize boot performance
- Conduct performance analysis and real-time operating system (RTOS) timing analysis, and identify problem and risk areas
- Evaluate system reliability and failure modes and effects, and provide redundancy or backup recommendations

General

- Make recommendations on infrastructure needs (e.g., tools, processes, training) to support application development, performance analysis, simulation, debugging, and test activities
- Perform detailed software licensing analysis
- Assist with open source development planning, including submitting changes to upstream mainlines and distribution requirements
- Perform critical path analysis for planning purposes

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SOLUTION ASSESSMENT DELIVERABLES

At the conclusion of the engagement, the systems architects present the results of the study. They work through questions and clarifications as needed to transfer knowledge and help your team prepare for proposal development or project execution.

The following are possible deliverables, depending on the type of Architecture Study performed:

- **Solution Assessment Document:** This document contains recommendations with supporting documentation, rationale, and analysis. It clearly describes architectures, benefits, and supporting evidence to allow program-level and business decisions to be made with confidence.
- **Requirements Specification:** This document details the requirements defined in the Architecture Study.
- **Detailed Compliance Matrix Document:** This document traces requirements to standards and specifications and to an implementation plan.
- **Risk Matrix:** This document contains an assessment of the maturity of the intended technologies and development approach. It identifies major risks and mitigation plans so that proactive activities can be undertaken to reduce program costs and schedule impact.
- **Detailed Design Phase Planning Document:** This document contains design phase task definition, work breakdown structure, and a Gantt chart. It clearly defines the design phase activities needed to produce a lower risk program. The document can address both customer and Wind River efforts, depending on how the customer decides to allocate the work.

WIND RIVER PROFESSIONAL SERVICES

Wind River Professional Services has a strong track record of guiding our customers through the complexities of embedded software design and implementation. Certified to CMMI Level 3 across all of our global development centers, our proven engagement methodology, timely delivery, and in-depth understanding of market and technology dynamics have made Professional Services a valuable implementation partner to our customers.

Wind River Professional Services welcomes the opportunity to discuss the Solution Assessment approach as it applies to your specific needs. For further information, contact your local Wind River sales representative by visiting www.windriver.com/company/contact/index.html, calling 800-545-WIND (9463), or sending an email to inquiries@windriver.com.