

## Abstract:

Components of a RTOS are task management, synchronization, interrupt handling, memory management, programmable clocks and timers, and inter-task communication. We surveyed the existing commercial RTOS for metrics and found interrupt latency, memory management, processor allocation, power management, distributed priority system and network performance. In the SoC environment, as system complexity increases, the resources are beginning to be distributed on an asynchronous communications backbone, rather than a shared synchronous bus system. The RTOS is locally synchronous, but globally asynchronous, bearing closer resemblance to an intra-network of collaborating resources than the former monolithic control structure. No single approach has become dominant in this environment yet, and the QoS metrics are to be used to compare the new RTOS generations to the older monolithic control structures. RTOS evolution provides QoS metrics for modeling and evaluation of alternatives. QoS metrics provide the connecting concept between prior systems and competing SoCs. These metrics are not specific to any single hardware architecture or RTOS. These metrics will support optimization and must be an extensible framework. Network on Chip (NoC) architectures also fall under the same set of metrics.