Federal University of Santa Catarina

Software/Hardware Integration Lab

Evolution of the PikeOS Microkernel

Robert Kaiser

Call for Participation

Date: Oct 10, 2024 Time: 13:30 Place: Room 105, INE, CTC, UFSC

The PikeOS microkernel is aimed at safety-critical embedded real-time systems. Its main goal is to provide a partitioned environment for multiple operating systems with different design goals that can coexist in a single machine without interfering with each other. Like the other L4 variants developed in parallel by mostly academic institutions, it was originally modeled after the L4 microkernel as defined by Jochen Liedtke in the late 1990s. Over the years, it has evolved incrementally, with some concepts being modified in ways different from the academic L4 variants. This talk describes the concepts that have been added or removed during this evolution and the reasons for these design decisions.

Robert Kaiser studied electrical engineering at RWTH Aachen University in Germany. After five years working in industrial computer systems, he co-founded Sysgo Real-Time Solutions in 1992, a then small start-up company that develops system-level software for industrial systems. After working on safety-critical systems in the field of avionics, he began developing a new microkernel based on Jochen Liedtke's research in 1997. The contact with a predominantly academic community led him to become more involved in academic research. In 2009, he received his doctorate in computer science from the University of Koblenz-Landau. He was then appointed Professor of Microprocessor Technology and Embedded Systems at Bingen University of Applied Sciences. From 2011 until his retirement in 2023, he worked as Professor of Computer Engineering at RheinMain University of Applied Sciences in Wiesbaden, Germany.

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