

OKL4™

advanced microkernel solution

WITH OKL4 EMBEDDED SYSTEMS DEVELOPERS CAN

Achieve increased system reliability and security through trustworthy and flexible partitioning of complex software

Reduce vulnerabilities by minimizing the amount of privileged code in the system, in accordance with the security principle of least authority (POLA)

Isolate subsystems to contain the effects of bugs and security exploits

Encapsulate untrusted code within secure compartments

Meet challenging security and performance requirements

Integrate rich operating systems using secure system virtualization

Efficiently share hardware resources between software subsystems

Segregate code subject to different licensing regimens (eg. GPL vs proprietary license)

Protect valuable data, including protected media content and private information

Gradually evolve a monolithic software architecture into a componentized design which is more reliable, secure, and maintainable

The Open Kernel Labs Approach

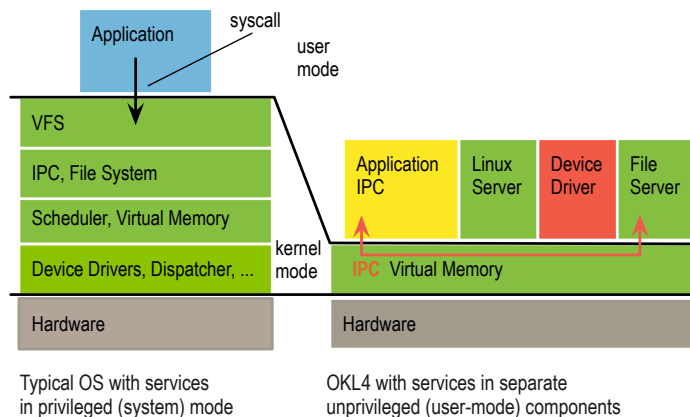
Open Kernel Labs (OK Labs) provides innovative solutions to the security, reliability and performance challenges that result from the complexity of modern embedded systems. OK Labs delivers these solutions through a combination of standard software products and professional services, which are guided by the following principles

- Minimizing the amount of software in an application's *trusted computing base* (TCB), including any software running in a privileged mode, is key to trustworthiness
- The challenges of software complexity are best addressed by partitioning the system into less complex components. The system must provide low-overhead, high-bandwidth communication between components, yet protect them from faults in other components
- All communication between components must be subject to a system-wide *security policy*
- The system must support running security-critical components with an especially small TCB
- Source code for security-critical system software should be freely available for inspection
- Microkernel architecture provides an optimal software foundation for trustworthy embedded systems

The OKL4 Advantage

OKL4 is a high-performance system-software platform for embedded systems, built upon cutting-edge microkernel technology. OKL4 supports secure system virtualization, components with a minimal trusted computing base, and fault isolation within complex systems using lightweight protected components. Used alone or as a complement to full-featured operating systems, OKL4 enables development teams to deliver systems that are more trustworthy in less time and at lower cost.

Figure 4.1



Open Kernel Labs™

Be open. Be safe.

OKL4 Microkernel Technology

OKL4's advanced microkernel technology enables:

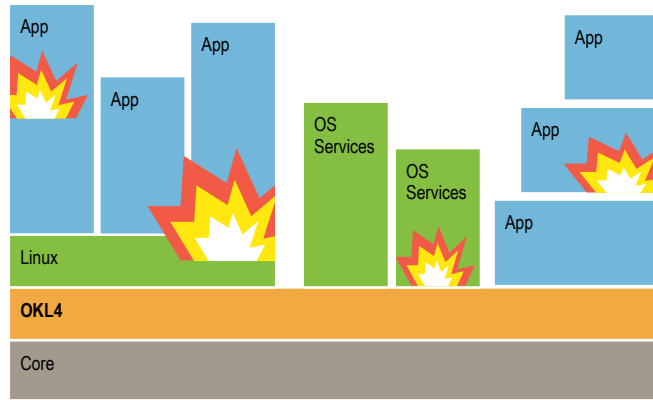
- Partitioning of software into multiple OKL4 components for fault isolation and robustness
- Choice of component granularity ranging from virtual machines running their own operating system to lightweight native components encapsulating individual services or device drivers
- The use of lightweight native components to encapsulate critical services used by applications and rich embedded operating systems for increased security
- Secure system virtualization
- Unrivaled cross-domain communication performance

The Products

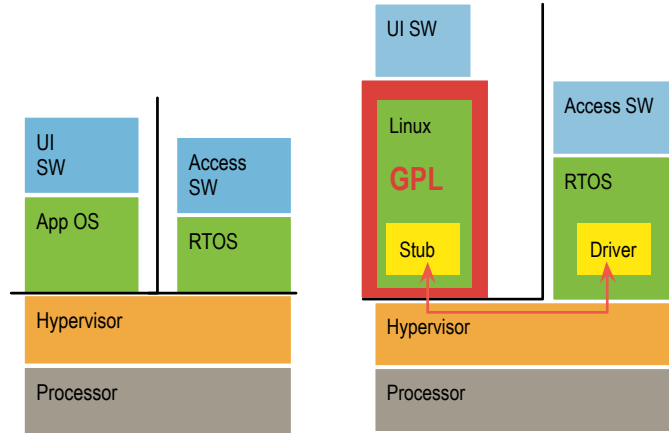
Our software download includes:

OKL4 – Microkernel and virtualization solution

OK Linux – A high-performance virtualized Linux kernel for use with OKL4

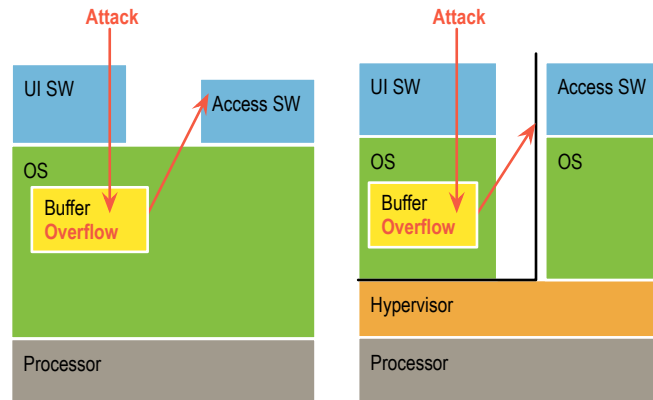


Secure Encapsulation



Multiple OSes securely partitioned

License separation



Confinement of security compromises

Currently Supported Processors

- ARM v5 (ARM9 and XScale cores)
- ARM v6 (ARM11 cores)
- x86-32 and x86-64
- MIPS32 and MIPS64
- Contact OK Labs for the latest information on supported processors

Currently support guest operating systems include Linux and a range of RTOSes.

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Open Kernel Labs is building a network of field offices, partners and distributors around the world. To go straight to the source, contact our headquarters in the U.S. and in Australia.



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