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## kernel: build system outputs and workflows (and how to balance them)

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While the kernel is a core output of a build system that targets a full platform or system, it also needs to balance many competing use cases and outputs.

Is it providing uapi headers? Is it testing tightly coupled user space packages? Is it tracking LTS or -stable releases, or is it also testing on the bleeding edge? Is it only used in loadbuild type environments or is interactive development and debugging part of the consideration? Is it unit tested and/or full system tested? What kernel versions are supported? Which (upstream) source? Other concerns such as the build overhead and developer/user/kernel build and target system workflow(s) are also significant.

These are only a few of the questions that surround the kernel as part of a build system. The answers to the questions impact how the kernel is configured, built, deployed and the outputs consumed.

If the answer is “all of the above” (which it often is) then build system flexibility is important. There are many different ways to integrate the kernel into a build. The OpenEmbedded and Yocto Project ecosystem have a flexible approach to these workflows and questions. This discussion will present the OE core kernel build system integration and discuss the associated pain points and challenges with the approach, while contrasting with other options and approaches where possible.

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