

- **Regan Robertson** Mod • 15 days ago

Good Morning,

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Jason H Li • 15 days ago

Kyle - so what would be the main lessons learned using seL4 so far, for those newer to look at the technology from a more practical angle?

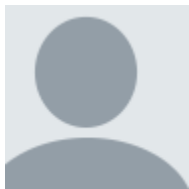
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Kyle Tillotson Jason H Li • 15 days ago

seL4 can be a tad daunting for developers as it requires to to be more explicit than usually needed. There can also be challenges rising from the need to transfer data network devices for which drivers do not exist.

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Jason H Li Kyle Tillotson • 15 days ago

Very true. All engineers reported a fairly steep learning curve.

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Douglas Schafer • 15 days ago

Kyle, from your point of view, what were the greatest demonstrated capabilities and also the largest community challenges to overcome?

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Kyle Tillotson Douglas Schafer • 15 days ago

The biggest challenge is usability. seL4 is a name that is recognized by many but the hurdles they face in adoption can lead them astray.

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Nathaniel Husted • 15 days ago • edited

Microservices, at least, seem to be rather equivalent (philosophically design wise) to a userland application in seL4, right? Albeit they'd still have to write the program specifically for seL4 so being able to spin up a Docker container would be nice.

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Jason H Li Nathaniel Husted • 15 days ago

Totally Nathaniel. Something we are strategizing from arch and dev point of view, COE wise.

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Kyle Tillotson Nathaniel Husted • 15 days ago

Getting as close to userland as possible is the goal. There is work being done by other groups that are looking into how userland microservice based applications would work in seL4.

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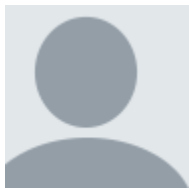
Ihor Kuz • 15 days ago

'containerisation' doesn't really make sense on seL4. Only (as you mention) as a software packaging/distribution technology.

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Jason H Li Ihor Kuz • 15 days ago

Ihor - yes from SW user packaging point of view, not a uKernel and up.

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Tracking.....then what they want to see is overhead, especially with more exquisite payloads. I could go on about the conversations I have had about this....

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Noah Evans Ihor Kuz • 15 days ago

Potentially uninformed comment, don't microkernels give you containers "for free"? The namespace server/resource manager isn't built into the kernel, so you can just run multiple instances with different capabilities/endpoints. Of course it would be resource intensive to implement (and even harder to track Linux's constant changes).

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Ihor Kuz Noah Evans • 15 days ago

Yes. If you develop an OS personality running on seL4, then it could be designed to support multiple isolated instances of environments. I guess that's what native 'sel4-based' containers would be.

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Kyle Tillotson Nathaniel Husted • 15 days ago

The timing constraint proofs are a good foundation, and the mixed criticality functionality will give some new avenues. But avionics people can be a tad risk averse so it will take effort to get them fully on board.

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Nathaniel Husted Kyle Tillotson • 15 days ago

Understood. Sounds like the challenge is perhaps more on the "social" side of having to walk the safety folks through the math & process?

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Kyle Tillotson Nathaniel Husted • 15 days ago

That and they are going to want those proofs as rigid as possible in such a way that can not be touched.

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Regan Robertson Mod • 15 days ago

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