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Building for Safety in a Security and Feature Focused World

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We recognize Open Source Software as one of humanity's greatest tools for aggregating and disseminating reusable functionality. This supports a dualistic view where individual needs are met while the greater good is altruistically served.

As effective as Open Source Software is at serving its dualistic nature, there is still a tension between the needs of build integrators, who value stability and consistency, and those of projects that are motivated by the progression of features. Nowhere is this more apparent than in the discipline of Safety Engineering.

Using Open Source components in a safety-critical context requires a significant investment. In the vast majority of situations, this investment is so high that it precludes the ability to track upstream changes. Additionally, the safety-critical niches where Open Source software finds itself makes it virtually impossible to effectively communicate change back to the upstream community. Even as proprietary barriers fall away, upstream projects have little interest in patches developed against older versions.

What is missing is a systematic understanding of the value that Safety Engineering brings to the table in the form of design rigor and its approach to testing. Embracing this rigor will improve software quality as much as the embrace of Security Engineering has improved software quality over the last 30 years. At the same time, incorporating these techniques will enable integrators to more effectively use Open Source components in safety-critical contexts and transmit beneficial change back upstream.

In this talk, Chuck will succinctly describe the Open Source duality, the tension between build integrators and individual projects, the benefits of Safety Engineering's approach to testing and design rigor, and lay out a vision and a roadmap for gaining the Open Source community's confidence in the value of these techniques.

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