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Build System Analysis for Kernel Development and Customization

When building a custom Linux OS, a pivotal decision involves selecting an appropriate build system from the available options within the ecosystem. The suitability of a particular build system may vary based on product requirements, constraints and development preferences, with kernel development and customization capabilities representing a key aspect for this decision.

This presentation will analyze the kernel development flow and customization functionalities offered by various build systems, and its usefulness when creating a tailored Linux OS. The build and customization process to be analyzed will be specific to the kernel, encompassing building a customized kernel vs vanilla, kernel config management and configuration, compilation of in-tree/out-of-tree kernel modules as well as kernel testing functionality integrated within the builds system.

Examining such flows, will bring up discussions on what these build systems are doing well, showcasing their strengths and weaknesses, and what they can learn from one another to improve the development cycle.

Primary author: Mr HERNANDEZ SAMANIEGO, Alejandro (Microsoft)

Presenter: Mr HERNANDEZ SAMANIEGO, Alejandro (Microsoft)

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