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KDLP: Expanding the Linux Kernel Talent Pipeline

Abstract

The Kernel Development Learning Pipeline (KDLP) project has grown significantly since its inception, successfully addressing the critical shortage of qualified entry-level kernel engineers. This talk will provide a quick background on KDLP, showcase its substantial growth, and outline future plans, including the creation of an open, community-driven textbook and resources for teaching and contribution. We will issue a call to action, inviting the community to participate in shaping the future of Linux kernel education.

Quick Background on KDLP

KDLP originated from the recognition of a significant business risk: the aging of senior kernel engineers and the lack of a robust pipeline for new talent. KDLP was created and is primarily maintained by Joel Savitz and Charles Mirabile, who are responsible for the core course infrastructure, with significant contributions from the open source community. We aim to develop a comprehensive Linux kernel education, mentoring, and talent development pipeline. This initiative began as a pilot program offering an "Introduction to Linux Kernel Development" course at the University of Massachusetts Lowell, delivered by Red Hat associates and interns. The program has since expanded, aiming to democratize access to kernel engineering knowledge and provide hands-on experience to students.

Demonstrating Growth

Rado Vrbovsky's Iteration of the Course

The KDLP course has evolved with each iteration, continually improving curriculum and delivery methods. Rado's iteration of the course marked a significant step forward, incorporating updated materials and enhanced practical exercises. This iteration showcased the program's adaptability and commitment to providing the most relevant and effective training.

New University Partnerships

We have successfully established new university partnerships, extending the reach of the KDLP program. These partnerships allow us to engage with a broader range of students and introduce kernel development to more academic communities. Collaborations with universities in Brno, Israel, and the USA have demonstrated the global impact of KDLP.

Proof of Concept: Success Stories

KDLP has a proven track record of developing students into successful professionals. A total of seven individuals started as students in the program and have transitioned into internships and full-time employment. These success stories highlight the effectiveness of our program in preparing individuals for real-world kernel engineering roles, and demonstrate the value of this program to future engineers who want to contribute to the Linux Kernel community.

What the Future Holds

Continued Delivery in Partner Universities

We are committed to continuing the delivery of the KDLP course in our partner universities. We aim to deepen these relationships and establish long-term educational programs that foster ongoing development

and growth. Future plans also include expanding to other colleges and universities to increase the program's accessibility and scale.

Writing a Textbook for the Course

A significant future endeavor is the creation of a comprehensive textbook for the KDLP course. This textbook will serve as a central resource for instructors, students, and contributors, providing structured learning materials and a guide for understanding and working with the Linux kernel. The goal is to create a living document with the community that will grow with time.

Generating Contribution and Teaching Documents

We will generate documents on how to contribute to the program, via the textbook or course infrastructure, and how to teach the course. These resources will ensure the sustainability and scalability of the program by empowering community members to participate in content creation and knowledge dissemination. These guidelines will enable domain experts to become teachers and share their knowledge effectively, ensuring consistency and clarity in instructional materials.

Call to Action from the Community

We invite the community to participate in shaping the future of KDLP. We seek feedback on our educational materials, contributions to the textbook, and participation in developing teaching resources. Your support and involvement are crucial to the continued success of KDLP and the growth of the Linux kernel community. By working together, we can address the skills gap in kernel development and ensure the future of Linux.

Primary authors: ALEKSANDROV, Denis (Red Hat Associate); Mr VRBOVKSY, Rado (Red Hat Associate)

Presenters: ALEKSANDROV, Denis (Red Hat Associate); Mr VRBOVKSY, Rado (Red Hat Associate)

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