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A practical introduction to XDP

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The eXpress Data Path (XDP) has been gradually integrated into the Linux kernel over several releases. XDP offers **fast and programmable packet processing in kernel context**. The operating system kernel itself provides a safe execution environment for custom packet processing applications, in form of eBPF programs, executed in device driver context. XDP provides a fully integrated solution working in concert with the kernel's networking stack. Applications are written in higher level languages such as C and compiled via LLVM into eBPF bytecode which the kernel statically analyses for safety, and JIT translates into native instructions. This is an alternative approach, compared to kernel bypass mechanisms (like DPDK and netmap).

This talk gives a **practical focused introduction to XDP**. Describing and giving code examples for the programming environment provided to the XDP developer. The programmer need to change their mindeset a bit, when coding for this XDP/eBPF execution environment. XDP programs are often split between eBPF-code running kernel side and userspace control plane. The control plane API not predefined, and is up to the programmer, through userspace manipulating shared eBPF maps.

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