rbperf: Understanding Ruby with BPF

eBPF Summit

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Why BPF?

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- Flexibility

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- No modifications of the tracee

rbperf

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- Profile Ruby programs

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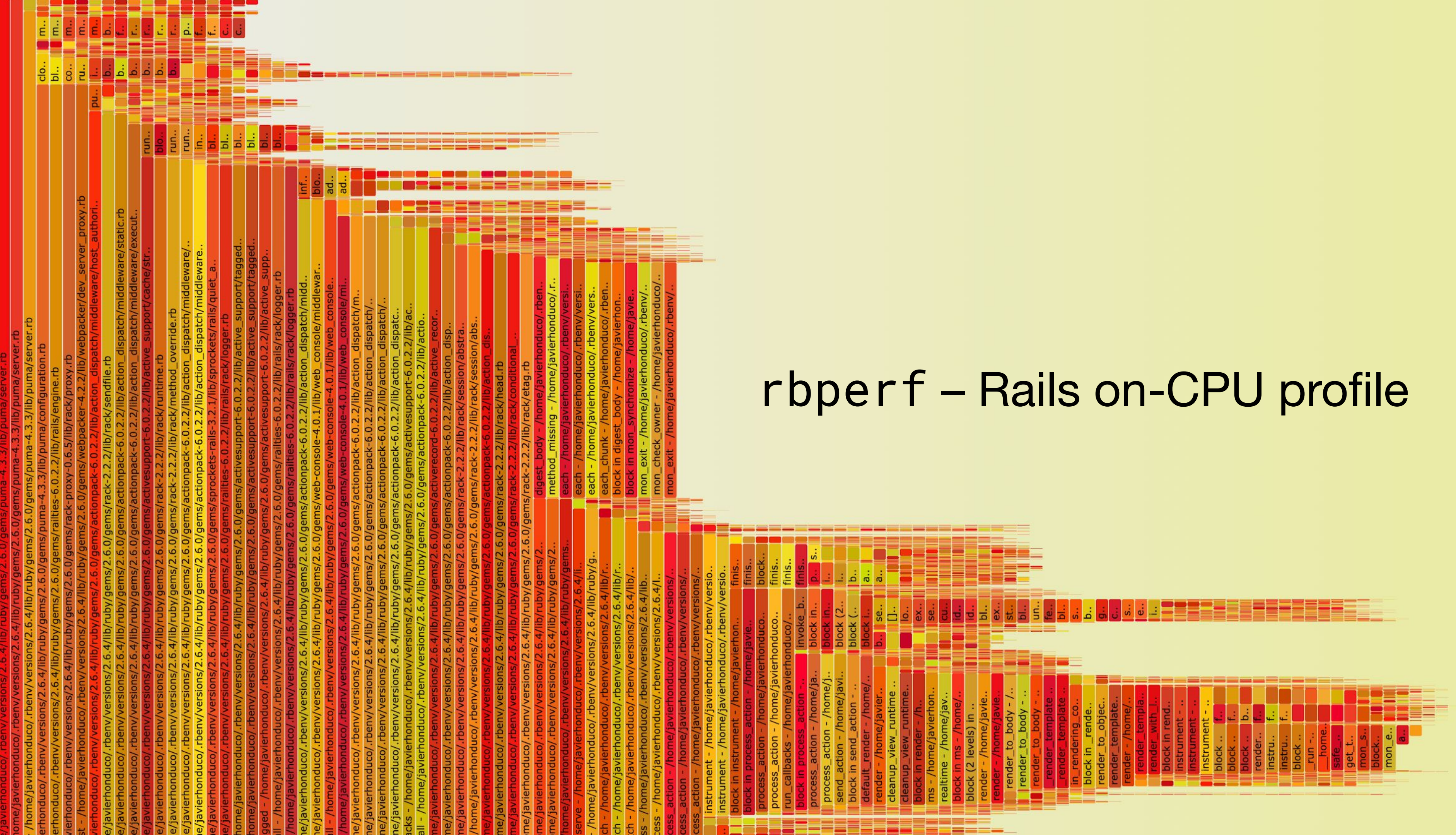
- Trace complex Ruby programs execution

rbperf – on-CPU profiling

- `$ rbperf record --pid=124 cpu`

- `$ rbperf report [...]`



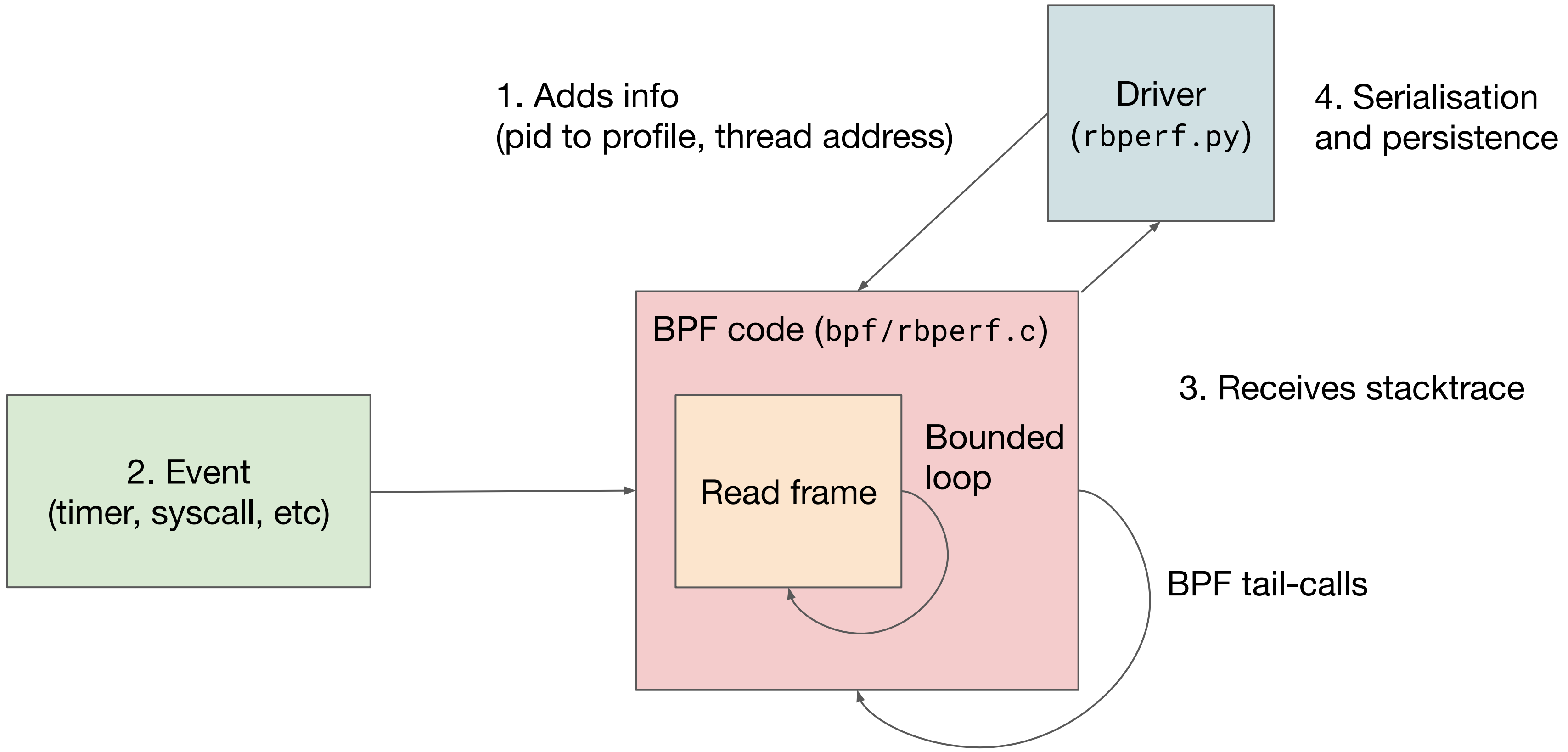
`rbperf` – Rails on-CPU profile

`rbperf` – tracing `write(2)` calls

```
-  $ rbperf record \
     --pid=124 event \
     --tracepoint=syscalls:sys_enter_write
```

```
-  $ rbperf report [...]
```

Architecture



Challenges

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- Implementing the stack walking for a dynamic language
- Supporting multiple Ruby versions
- Correctness testing
- BPF safety features

Future plans

- Integrate in Facebook’s profiling infra
- Rewrite OSS driver program
- Make the OSS version awesome
    - Better documentation (including how to measure overhead)
    - Add more output formats
    - Open source GDB / drgn helper
    - Other tools?
    - Containers support?
    - Support request-oriented workloads?

Thanks! :)

https://github.com/**facebookexperimental/rbperf**

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