rbperf: Understanding Ruby with BPF

eBPF Summit

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Why BPF?

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- Flexibility

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rbperf

`rbperf`

- Profile Ruby programs

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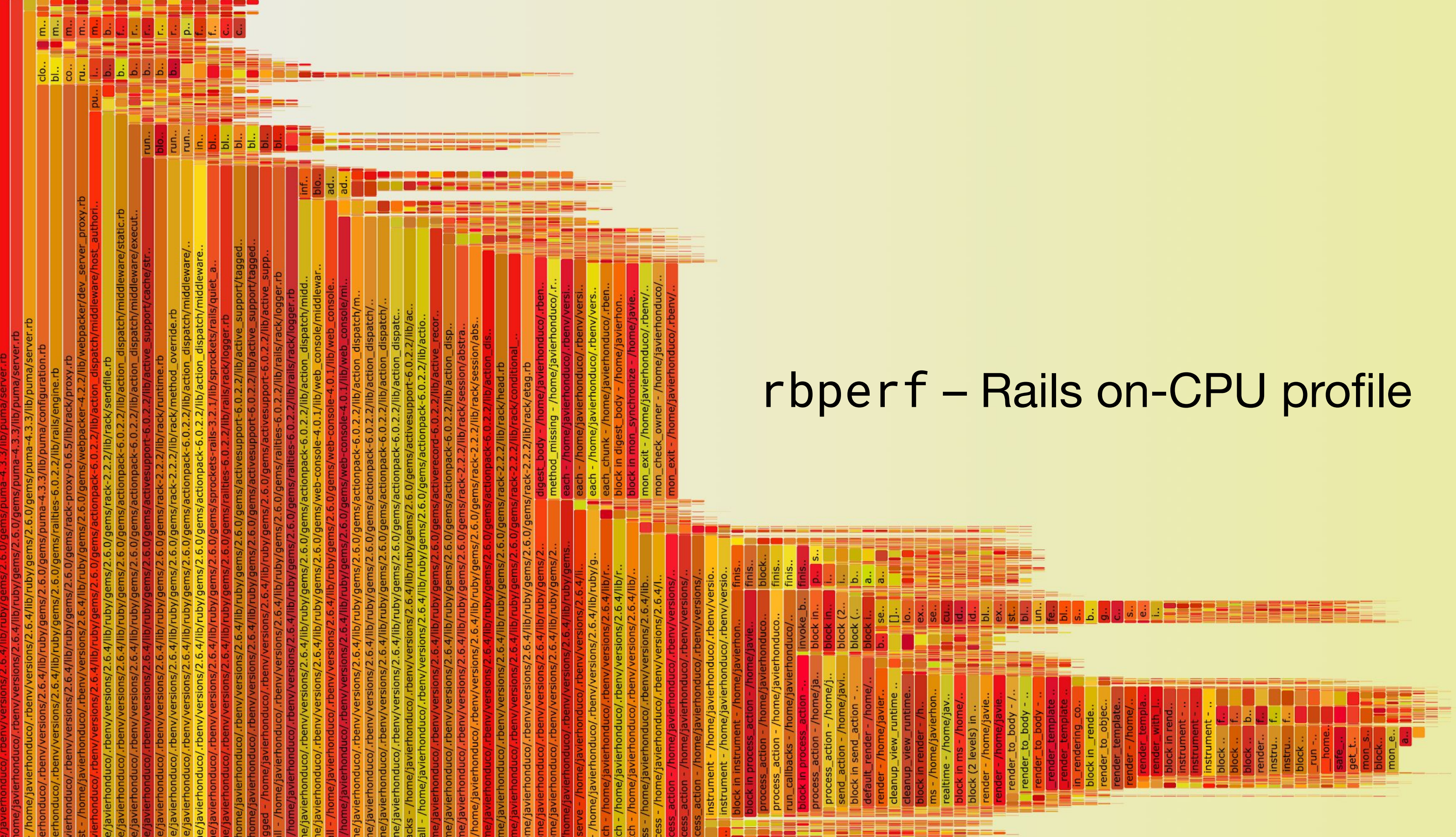
- Trace complex Ruby programs execution

`rbperf` – on-CPU profiling

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

- `$ rbperf report [...]`

`rbperf` – Rails on-CPU profile

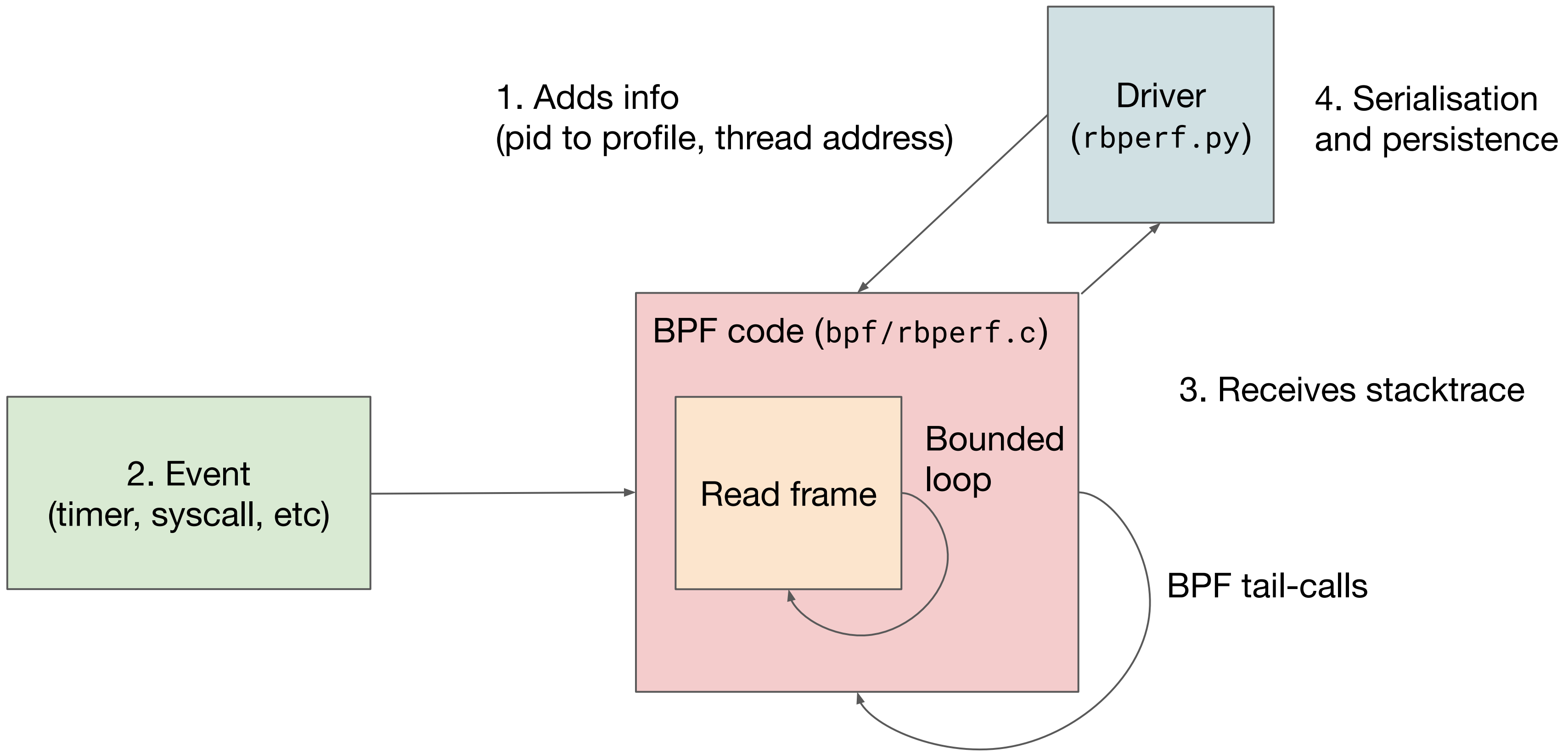


`rbperf` – tracing `write(2)` calls

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

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

Architecture



Challenges

- Implementing the stack walking for a dynamic language

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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/**javierhonduco/rbperf**

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