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Adaptative Fault Probing

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> Presenter

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- EfficiOS Inc.
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- Author/Maintainer of
    - LTTng, LTTV, Userspace RCU

- Ph.D. in computer engineering
    - Low-Impact Operating System Tracing

> Plan

- Ring Buffer Library
- Standard Trace Format

> Ring Buffer Library

- Since early May 2010

  - Actively working on extracting the LTTng ring buffer into a standalone library.

  - Steven Rostedt publicly asked me if I was up to the task of coming forward with a drop-in replacement for the **Ftrace** ring buffer.

  - Also gathered requirements from Thomas Gleixner and Peter Zijlstra for **Perf** requirements.

- General-purpose, configurable, ring buffer library

> LTTng tracer core

- Trace Session Management

- Information Channels Management

- Wait-Free Ring Buffer

- Ring Buffer Allocation

- Data Transport with splice()

- Kernel API

- Userspace Interface (debugfs)

> Common Trace Format

- User Requirements, Use-cases

- Working on a common trace format with the Multi-Core Association Tool Infrastructure Workgroup

- Contract from Embedded Linux Forum to create a Linux trace format standard implementation

  - Read/Write libraries

> User requirements (1)

Reflects the needs of the following users:

- Google
- IBM
- Ericsson
- Nokia
- Siemens
- Freescale
- National Instruments

- Wind River
- Monta Vista
- Autodesk
- Cisco
- Mentor Graphics
- Texas Instruments
- Samsung   ......

> User requirements (2)

- Compactness of traces

- Scalability to multi-core and multi-processor

- Low-overhead is key

- Production-grade tracer reliability

> User requirements (3)

- Heterogeneous environment support
    - Portability
    - Distinct host/target environment support
    - Management of multiple target kernel versions
    - No dependency on kernel image to analyze traces (traces contain complete information)

> User requirements (4)

- Network streaming support
- Live view/analysis of trace streams
- System-wide (kernel and user-space) traces
- Scalability of analysis tools to very large data sets

> Common Trace Format (cont.)

- Working on high-level specification with MCA

- Working on a Linux implementation reference for the Embedded Linux Forum

> Questions ?

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– http://www.efficios.com

- LTTng Information

  – http://lttng.org
  – ltt-dev@lists.casi.polymtl.ca