Ericsson Update

Trace Compass, TSP, Theia-Based front-end and more

Matthew Khouzam BNEW SAN Tools Engineering 2021-06-18

This talk

- Recap of Ericsson's involvement with the project
- The team
- The tracing ecosystem
  - Trace Compass
  - Theia Trace Extension
  - CDT-Cloud!
- Future work
  - Roadmap
  - Fun announcement
  - Where can you help?
- Thank you
- Cool demo, time permitting.

Expected Duration: 23m

Recap (June 2021)

The goal of this talk is to explain where we are coming from to explain our decision making process

Ericsson has been an industrial partner in the research project for over 12 years

We develop and use tools such as LTTng and Trace Compass in the company to solve timing issues and hard to debug problems

Ericsson contributes to and maintains Trace Compass

The Montreal Team has been closely collaborating with the academic and industrial partners. Austin team is ramped up!

We foresee contributing even more soon.

Recap (Jan 2022)

The goal of this talk is STILL to explain where we are coming from to explain our decision making process

Ericsson has been an industrial partner in the research project for over 12 years

We develop and use tools such as LTTng and Trace Compass in the company to solve timing issues and hard to debug problems

Ericsson contributes to and maintains Trace Compass

The Montreal Team has been closely collaborating with the academic and industrial partners. Austin team is ramped up!

We have more members in our team, and they are contributing at full efficiency!

About The Team (Jul 2021)

Bernd Hufmann – Technical Lead

Patrick Tasse – Sr Developer

Matthew Khouzam – Developer / Product Manager

Ibrahim Fradj – Intern

TBA – Developer

Walter Cigana – Manager

Austin team – Developing internal use cases in open-source way

About The Team (Jan 2021)

Bernd Hufmann – Technical Lead
Patrick Tasse – Employee (Internal Lead)
Marco Miller – Open Source BE/Scrummaster (Linux Lead)
Rodrigo Pinto – FE Expert
Hoang Pham – FTrace + UI (FE+BE)
Elena Giovannetti – Line Manager
David Bainbridge – Strategic Product Manager
Matthew Khouzam – Digital Product Owner
Austin +Sweden teams – **Developing internal use cases in open-source way**

The Ericsson Tracing Ecosystem

- At Ericsson we have very intricate products offered to the public
- At a high level we trace many individual components
- One of the goals of Trace Compass is to provide a unified troubleshooting experience
- **This did not change, there are just more users and more use cases.**

Traces

- LTTng
- Other Linux Tracers
- CTF Hardware
- Chromium style
- Open Tracing

Logs

- HTTPD
- SSH
- Java (GC)

Trace Compass

- 7.1 and 7.2 Released
  - API Enhancements
  - Security Fixes: XML input hardening, Log4j pre-emptive patch.
- **Hide arrows in critical path (Thanks Poly!)**
- Event density view for statistics- Faster Histogram
- Code Cleanup
- Dark Theme fixes
- **UX improvements from Theia front end work. (Thanks Poly!)**
- **Performance improvements for experiments with many (400+) traces (You're welcome, Poly! ;))**

Trace Compass Incubator

- FTrace Binary header support
- **ROS: legally use ROS logo!**
- **OTF2 improvements**
- Server improvements
- Trace event (chrome) improvements
- Swagger API documentation

Bold are external contributions from people attending, thank you!

Theia Trace Extension

- UX fixes. *Note: Erica opened UX bugs and they get fixed. (HINT HINT)*
- Most improvements are UX related as Theia is a UI shim over Trace Compass's core logic.
- Highlights:
  - BigInt timestamps, UTC nanoseconds work!!!
  - Bundling the trace server
  - XY Charts! Scatter charts(soon), tooltips, Y-axis, keyboard and mouse interactions (Rodrigo)
  - Static zoom buttons from UX workshops
  - Events table search
  - Security fixes

Theia Based Front-End Working parts:

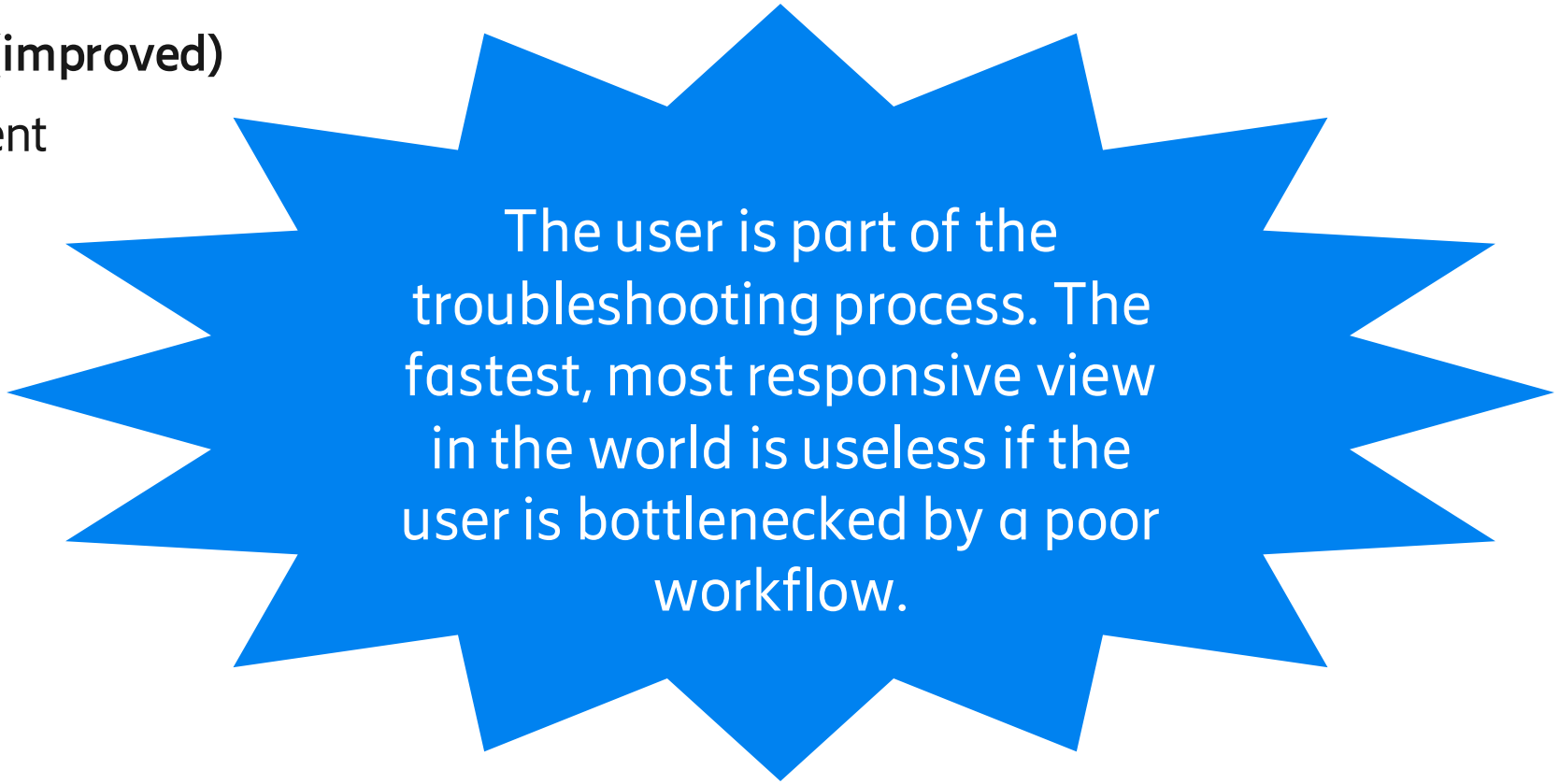
Data Trees for Statistics, existing views are working better.

CDT.cloud Trace Compass

- CDT.cloud Blueprint is a template tool for building custom, web-based C/C++ tools.
- It is basically a demo application of Theia for embedded development.
- Trace Compass front end and TSP to be hosted in it.
- If anyone contributed to Theia front end from Poly, please see us as the code shall be moved to eclipse.org.
- Collaboration between EclipseSource, Ericsson and more!

//TODO

- We need to make sure all the extras are handled. **(Improved WOW)**
- Better inter-view interactions **(improved)**
- Make view navigation consistent
- More user profiling (UX)
- Better file handling
- Flatten learning curve
- Filtering
- Actions on filter



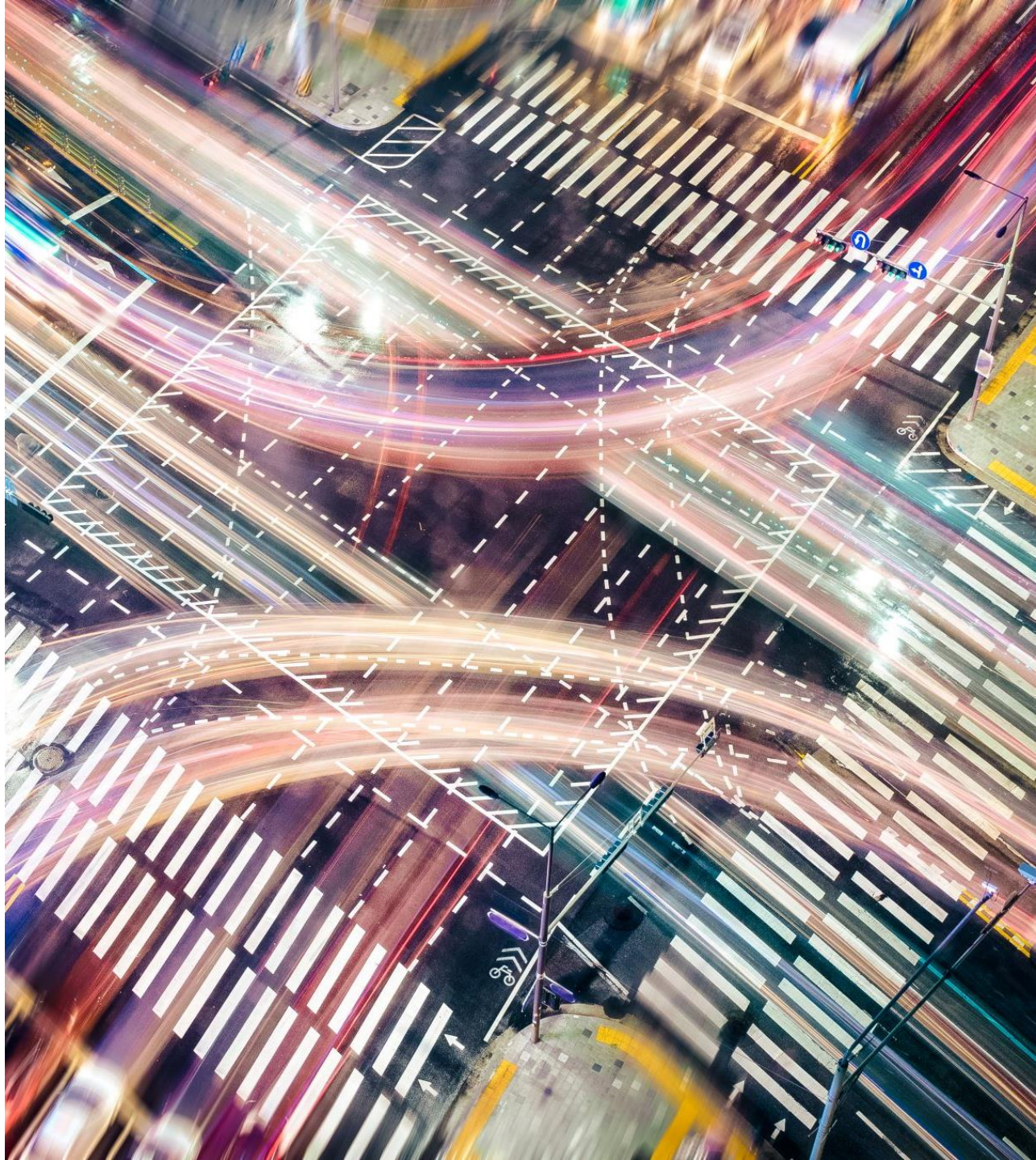
Future Work

Roadmap out. Next one in progress

The following slides are a TENTATIVE roadmap.

There is no guarantee.

The following is for illustrative purposes only



Road Map

- Be a good Ericsson Citizen - Ongoing
- Open-Source Activity and Leadership (General) - Ongoing
- Migrate front-end to eclipse repo (CDT.cloud) - Q2 2022
- Trace Compass Releases (Eclipse) - Ongoing
- Open-Source Features to support internal implementation of trace viewer (Theia) - Ongoing
- Open-Source Trace Compass Cloud MVP (LTTng)
- Continue to support internal hardware team
- Continue to support internal Linux teams
- Tentative: Session rotation support (Merge experiments per Host ID)

Trace Compass

- New Trace Compass Cloud Project – ~~Q3 2021~~ Done
- Linux Tracing use case – ~~Q4 2021~~ In review
- Internal Support – Ongoing
- Performance improvement – On demand

Theia Based Front End

- Open-Source Features to support of internal trace format (Theia) - Ongoing
- Open-Source Trace Compass Cloud MVP (LTTng) (lower priority) - ~~Q4 - 2021~~ See Poly Collab
- UX Design – Participate in UX workshops - ~~Q2 / Q4 2021~~
- UX Design – Limited Prototypes of UX – ~~Q2 2021 (See later presentation)~~ More improvements coming!
- Common – Migration to VsCode plug-in - (Low Priority) ~~Q3 2021~~ In question
- Nano-second support for LTTng – ~~Q3 2021~~
- Performance Improvements – Ongoing
- Improve XY Charts

Command Line/Headless

- CLI-Headless: Support of investigations for internal solutions
- CLI-Headless: EASE support internal solution RCP
- CLI-Headless: Python Client to trace server
- CLI-Headless: Support more of the TSP

Improved workflow for an existing tracer

Improved workflow for an existing tracer

CLANG

DEMO

Video

Where can you help?

Drop a review, a bug or a feature request
Fix a bug, especially if it helps you and is not in our interest
We have limited bandwidth, we would appreciate code contributions

Thank You

- Code Contributors
- Issue Reporters
- Designers
- Community Maintainers
- Enthusiasts
- Steak Holders