Extensible trace analysis using the Tracing and Monitoring Framework

Alexandre Montplaisir, Ericsson – Tracing Summit 2012

About me

- Research associate at École Polytechnique de Montréal
- Working in close collaboration with the tracing team at Ericsson
- Involved in the LTTng project

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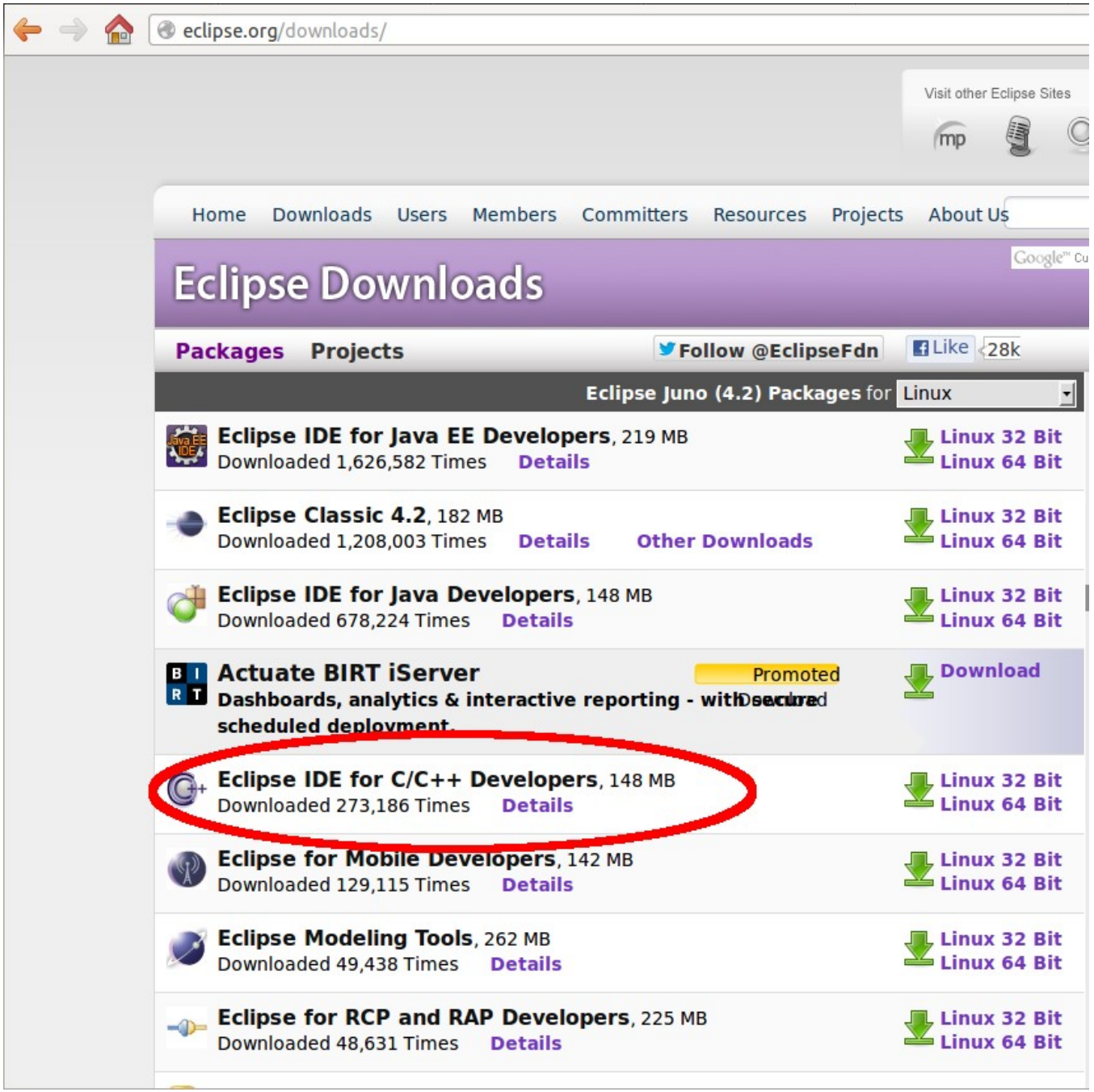
Overview

- The Eclipse Linux Tools project
- The LTTng integration
  - Demo
- The TMF framework
  - Demo: viewing a custom UST trace

Linux Tools project at Eclipse

- Collection of wrappers around Linux tools:
  - GProf
  - GCov
  - LTTng
  - OProfile
  - SystemTap
  - Valgrind
  - …
- Linux Tools 1.0 released last June

http://www.eclipse.org/linuxtools/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LTTng sub-project

- Started off as a visualization tool for LTTng 0.x
- The generic TMF framework emerged over time.
  - Tracer-agnostic analysis
  - LTTng 2.0 support was added last June.
  - Also used internally for Ericsson-specific trace formats.
- It's currently the only OSS graphical analysis tool for LTTng 2.0 kernel traces.

LTTng subproject

Composed of three separate features:

- CTF
  - A reader for the CTF format implemented in Java
  - No need for native C libraries
- LTTng2
  - The LTTng 2.0 integration (control + analysis)
  - LTTng 0.x support was recently dropped in git master
- TMF
  - The generic framework

Demo 1

Viewing LTTng 2.0 kernel traces

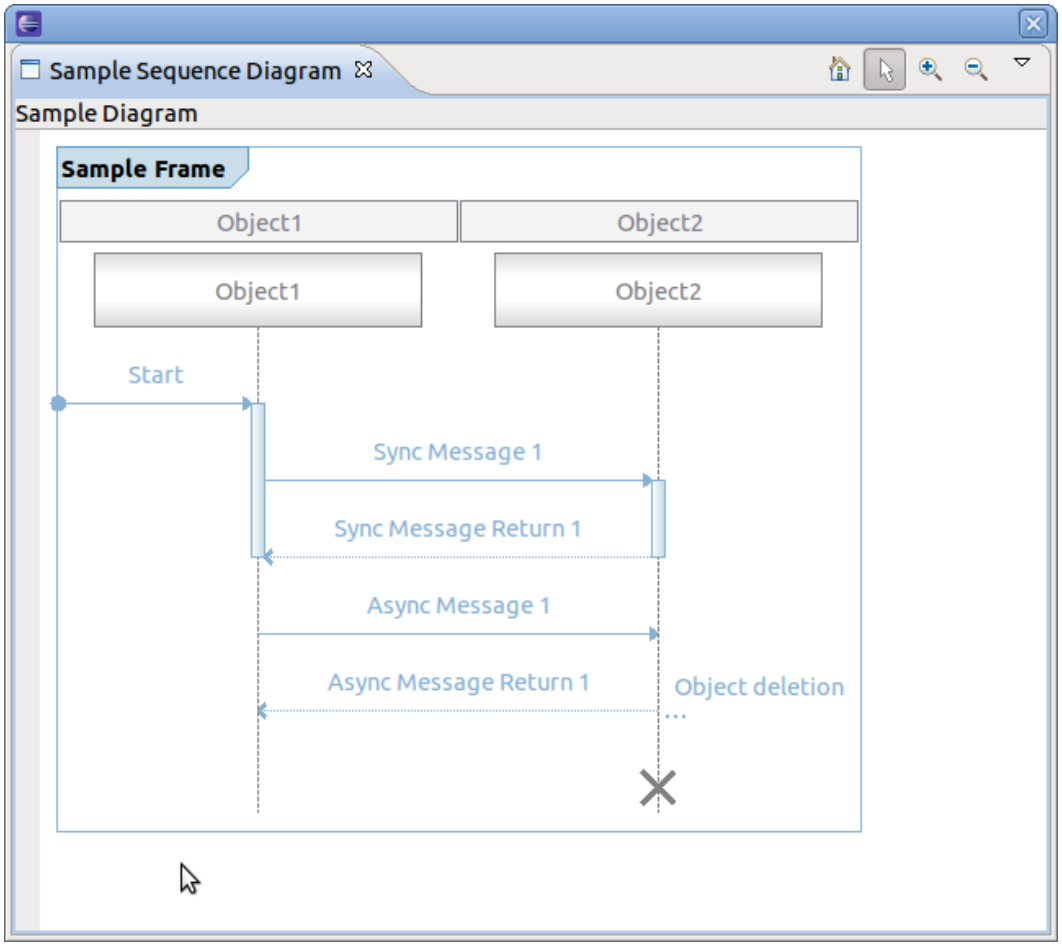
Tracing and Monitoring Framework

- Base framework to support multiple trace types
  - ITmfTrace, ITmfEvent, ITmfTimestamp, etc
  - Generic state system
  - Basic views that can be extended/adapted

- CTF format is supported out of the box.
- Other trace formats would require writing a parser.

Tracing and Monitoring Framework

- Sequence Diagram:



Demo 2

Implementing a view for a new trace type

What's planned next

- Integrating the CTF writer/reader work
  - Java tracer?
- Improving the statistics and histogram
- Improving the API for extending views
  - Abstract Gantt chart view
  - Call stack view
  - etc.
- Anything else our users wish!

References

- http://lttng.org/eclipse
- http://wiki.eclipse.org/index.php/Linux_Tools_Project/LTTng2/User_Guide

- Mailing list:
  - linuxtools-dev@eclipse.org

- IRC:
  - #eclipse-linux on Freenode

Questions ?

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