

# Investigate Trace Compass Composability

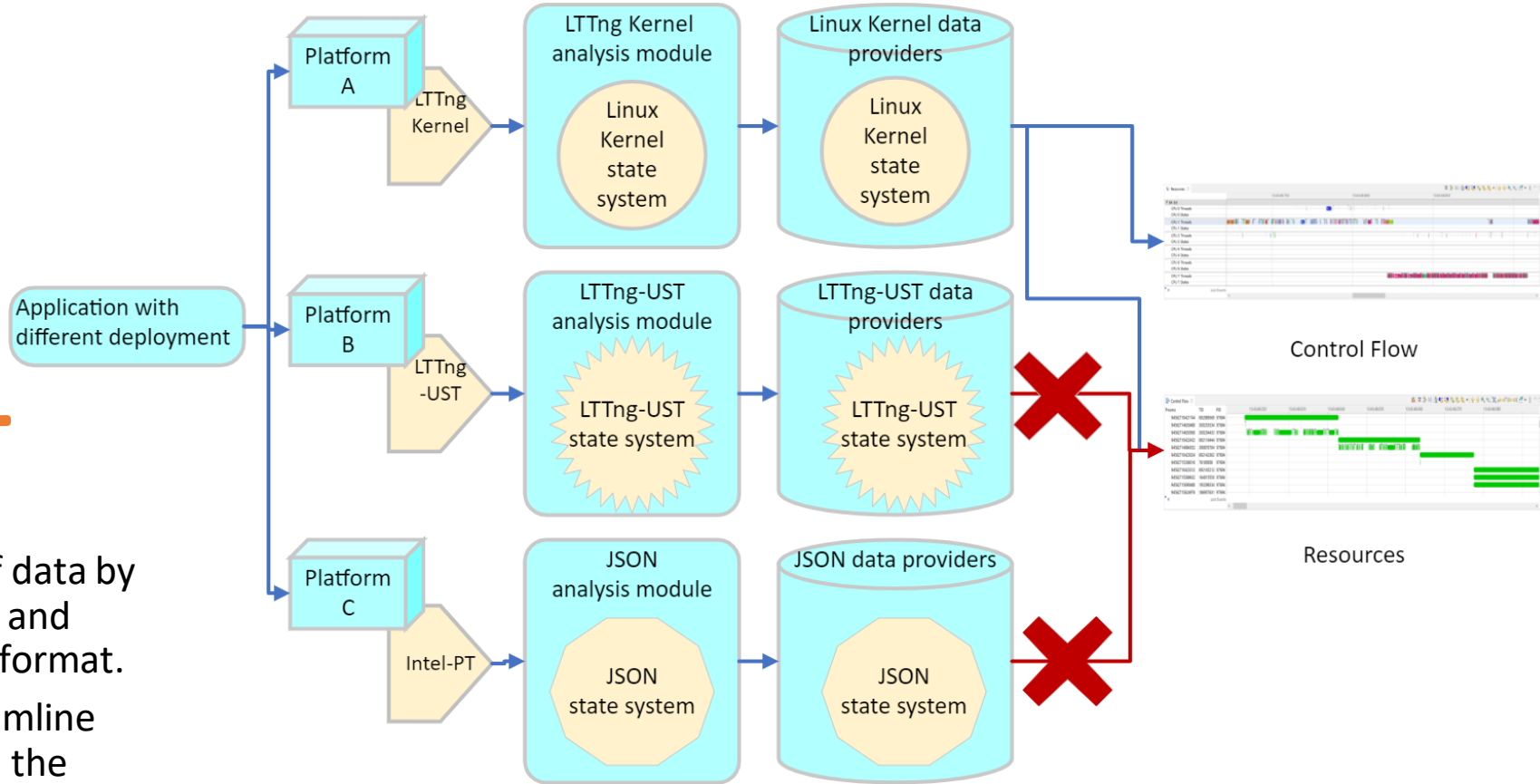
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Supervisor at Ericsson: Francesco Robino

KTH Master's thesis

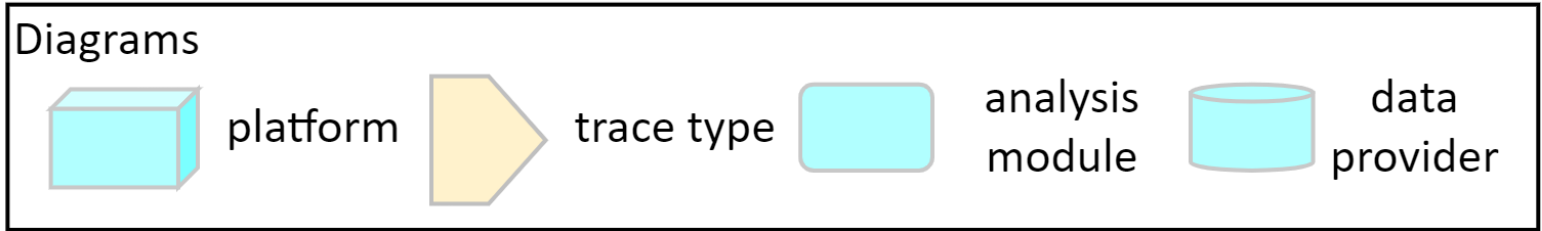
2023-06-01

# Current architecture



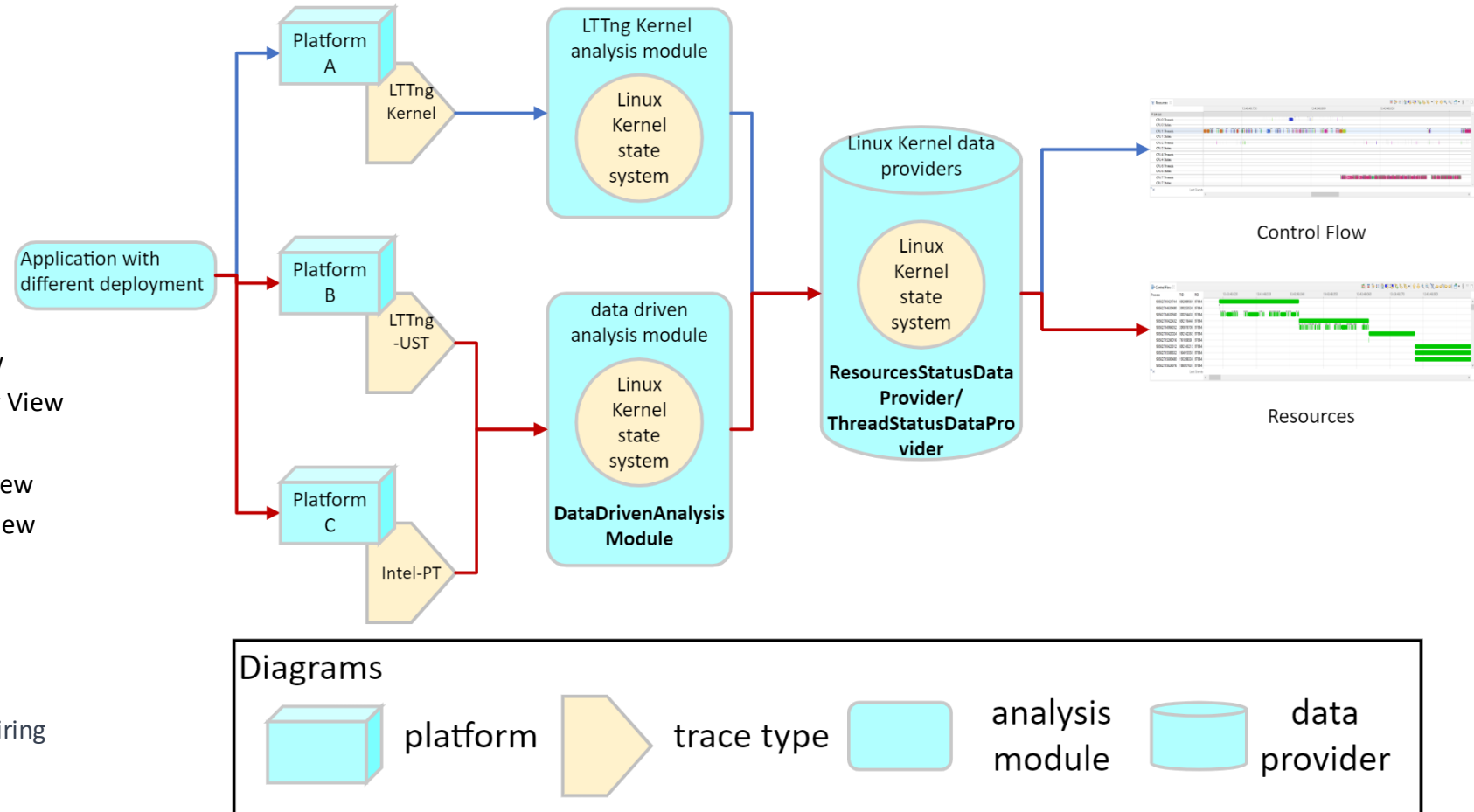
## Our Goal:

- Ensure consistent visualization of data by composing the same data providers and views, regardless of the input trace format.
- Reduce the required effort. Streamline the user's experience by minimizing the need for creating new analysis modules, data providers, and views when working with different input trace formats that contain similar information.



# Modified architecture

- What has been Prototyped :
  - Intel-PT -> LTTNG Kernel Resources View
  - LTTNG-UST -> LTTNG Kernel Control Flow View
  - Intel-PT -> LTTNG Kernel Control Flow View
  - LTTNG-UST -> LTTNG Kernel Resources View
  - Intel-PT -> Incubator Flame Chart
- Benefit:
  - Reuse of pre-existing codes
  - Reduce the number of components requiring maintenance
  - Same look and feel across deployments
  - Simple composable approach for other trace types



Link to code review: [xml.core: Investigate Trace Compass Composability \(17d85525c\) · Gerrit Code Review \(eclipse.org\)](https://gerrit.eclipse.org/#/c/17d85525c/)

# I. Changes made to data driven analysis

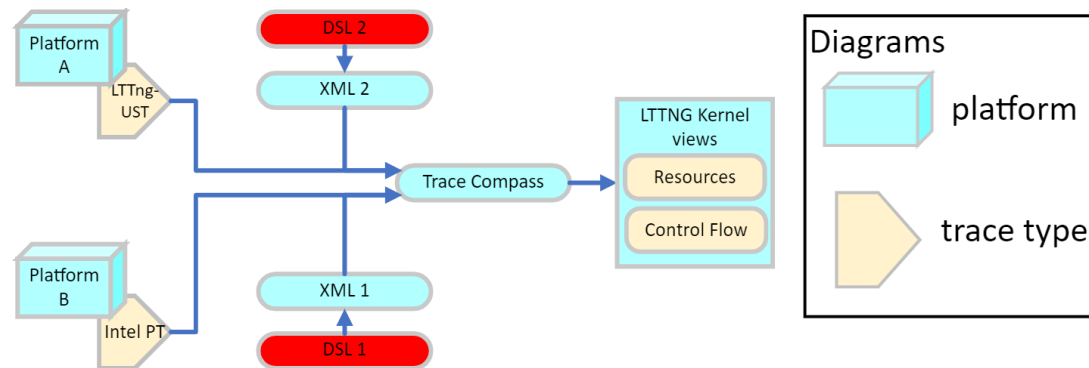
```
<stateProvider id="org.eclipse.linuxtools.kernal.example">                                     //User-defined id for the analysis module
                                                                                               CallstackXmlAnalysis & DataDrivenAnalysisModule

  <head>
    <traceType id="org.eclipse.tracecompass.incubator.traceevent.core.trace" />
  </head>

  <eventHandler eventType="ph" typeValue="X">                                           //select the event with a field called "ph",check if the value inside "ph" is "X"
    <stateChange>
      <stateAttribute type="constant" value="Threads" />
      <stateAttribute type="eventFieldToBeHashed" value="args/address" />           //transform the attribute in args/address into a number identifier
      <stateValue type="null" />
      <extendedTime type="eventField" value="dur" />                                   //Delay the event by "dur" time
    </stateChange>
  </eventHandler>
</stateProvider>

<viewWithId id="org.eclipse.tracecompass.analysis.os.linux.views.controlflow"> //Id of the target view
  <head>
    <analysis id="org.eclipse.linuxtools.kernal.example" />                         //Id of the analysis module to use
  </head>
</viewWithId>
```

# II. Declarative approach

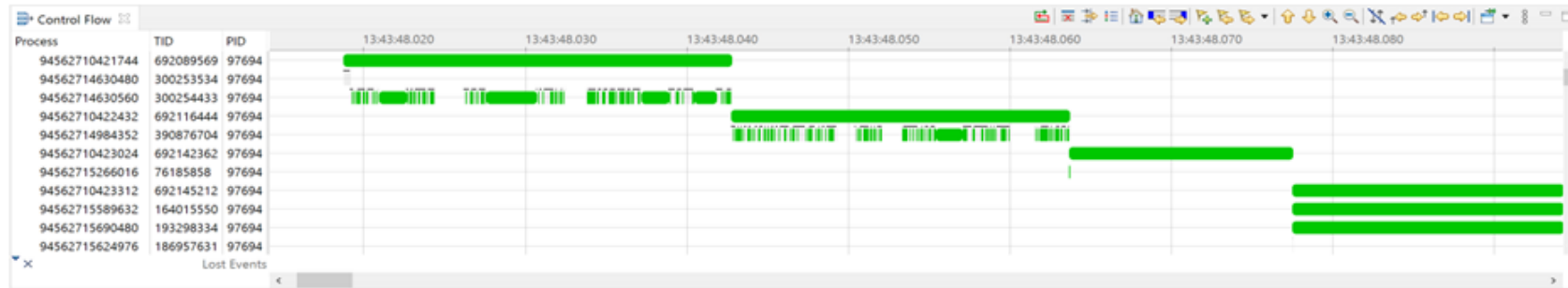


- Benefit:
  - Defining state systems in a Domain-Specific Language (DSL) is more convenient than doing so in XML.

# LTTng-UST trace for Control Flow & Resources



## Resources



## Control Flow

# LTTng-UST & Intel-PT traces for Flame Chart

