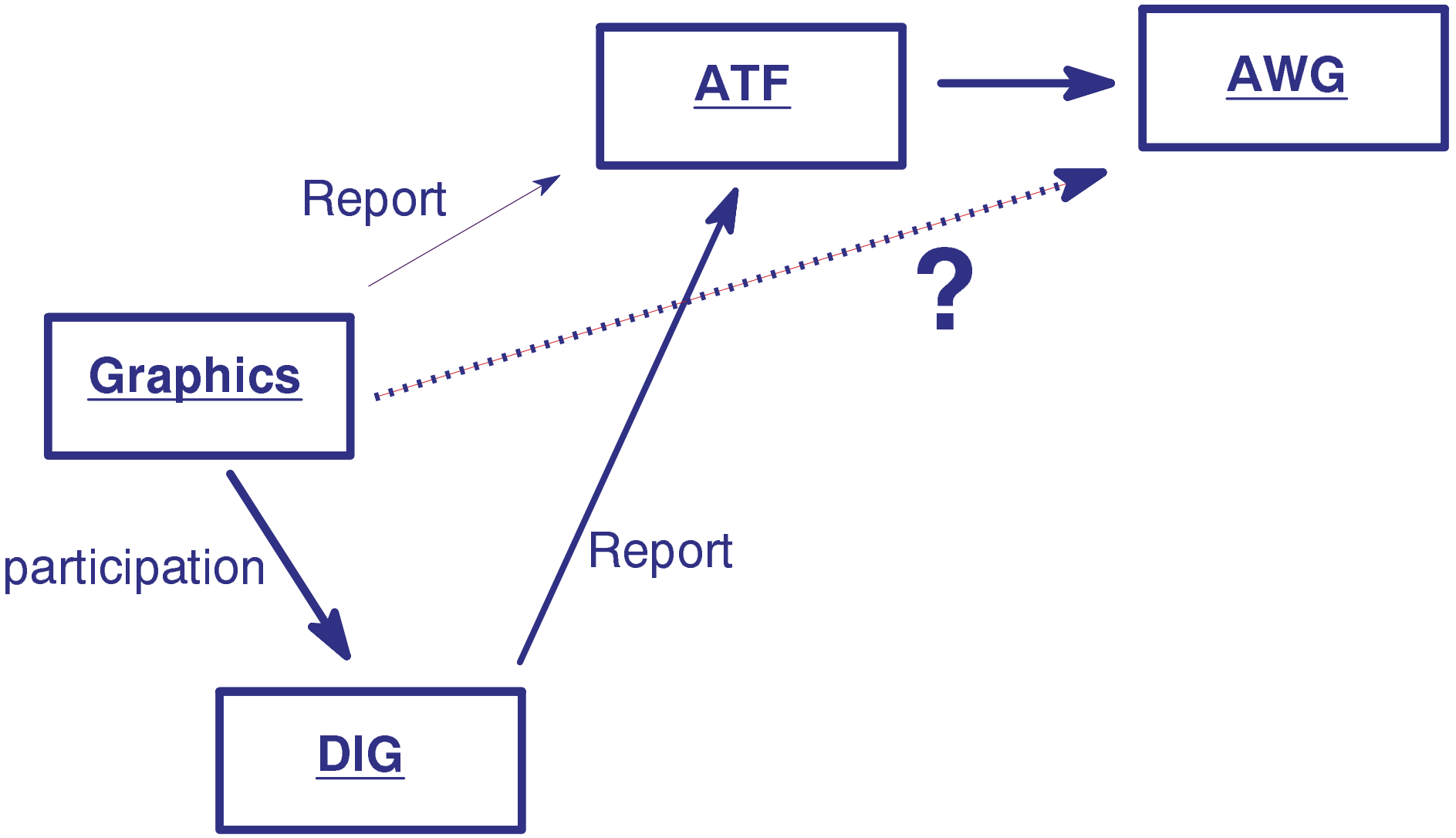
GRAPHICS - ATF



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ATF REPORT

1 Introduction

1.3 General Comments

1.3.5 The Complete ATLAS Software System

Figure 1-1 Different sets of libraries comprising the ATLAS Software System.

The complete ATLAS software will consist of a set of libraries:

1. Basic C++ utility libraries, such as STL, CLHEP, histogramming and persistent libraries, etc.

2. The ATLAS Common Framework, which defines such things as access to event data and the detector description.
   This is the focus of the work of the ATF.

3. Libraries for well defined applications such as Event Filter, reconstruction, simulation, analysis and visualisation (includes event displays, histogramming etc.).

Visualisation doesn't belong to Common Framework

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3 Introduction to the Architectural Design Work

3.2 General Design Choices

Language
At the time of writing, Java looks like the only serious long-term alternative to C++. We suggest the the Quality Control Group provide recommendation for how to use C++ in order to be prepared for a potential future migration.

Very passive approach

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4 Use-case based Architecture Design

4.2 Use-cases

4.2.2 Use-case Matrix

Table 4-1 Matrix of which Actors use which Use-cases..

Visualisation is present

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5 Components Expected in the ATLAS Common Framework

Table 5-1 The main components which we would expect to be important for ATLAS.

Visualisation is missing

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6 Detailed Discussion of Some Components

6.7 Visualisation

6.7.1 Design Choices

The following design choices have come from those working in the Visualisation Domain:

1. *All data objects are independent of whether or not they can be visualised.*
   This means, for example, that visualisation attributes (e.g. colour) are defined within the Visualisation Domain, and are not attributes of the data objects itself.

2. *Applications communicate with the visualisation through an abstract interface.*
   Adding another visualisation toolkit does not require any changes on the application side.

We note that these choices ensure that the Visualisation is largely decoupled from the aspects of the Architecture considered here, and therefore we are confident that the Visualisation will fit smootly into the Architecture. Hence, Visualisation is not discussed further in this report.

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11 Appendix A - Glossary

Visualisation
This includes event displays as well as the plotting of statistical data.

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14 Appendix D - Associated Proposals

14.1 Libraries

14.1.1 Proposals

Visualisation

This is primarily for the Visualisation Domain to make a suggestion; they seem to prefer QT.

ATF REPORT

ATF Reports covers mainly Domains (and Designs), which have been represented (Control, Event, Detector Description,...).

Graphics has not been represented, so it is covered in much less details.

Where Graphics is covered, it corresponds to the current Architecture developed in the Graphics Group.

Detailed Designs often don't take Visualisation Design Choises into Account.

ATF REPORT

Visualisation Design Choices ensure the independence of the Visualisation on the choice of the Visualisation Tools and the independence of the Data Objects on the Visualisation.

The Visualisation, however, visualises the Data Objects in the Common Framework and so the Visualisation Architecture is part of the Common Architecture.

Hopefully, the interaction between Visualisation and the rest of the Atlas Software will be worked on by the AWG.

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RELATIONS TO ATLAS SW

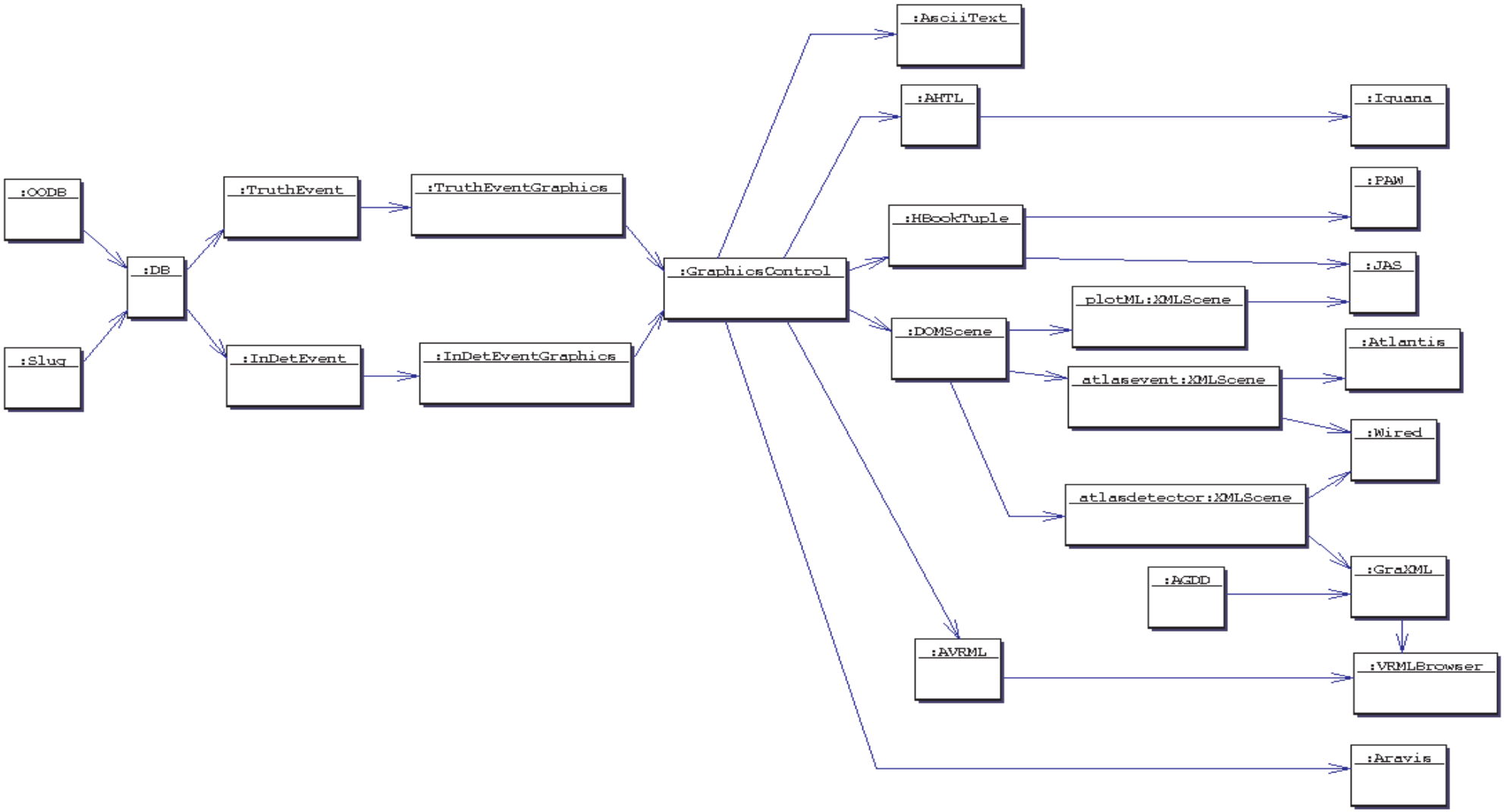
- Graphics Domain officialy doesn't exist. It has serious impact on the Defintion and the Implementation of the Interfaces between Graphics and other Domains (SubSystems).
- Contacts in SubSystems:
  - ID: M.Tadel
  - Mu: A.Farilla (unofficial)
  - LAr: ?
  - Tile: ?
  - Trigger: ?

NEW DESIGN

Action Plan agreed on meeting yesterday:

- WalkThrough the code:
  - translate AVRML
  - look at MultiMethods + Dynamic Loading
  - look at Bus + associated concepts
- Consolidate use of MultiMethods with Event
- Update Requirements Table
- Update Documentation

SUBDOMAINS



Graphics SubDomains
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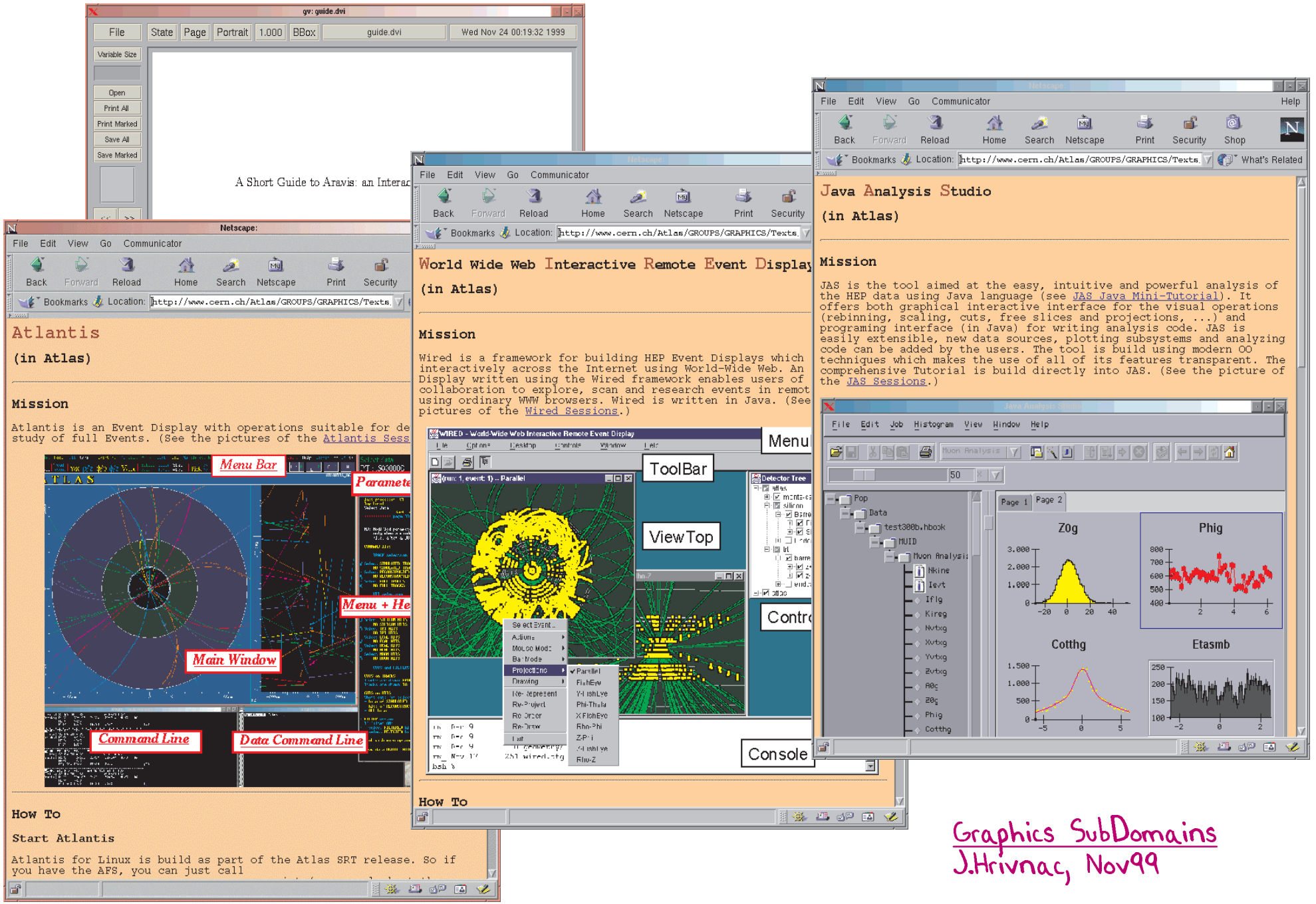
SCENES

- Atlantis: ID data available (see elsewhere)
- Aravis: will migrate Motif/LessTif -> Qt
- Wired (see later)
- AVRML: will move to VRML2.0
- GraXML: prototype (see later)
- PersInt: reads AGDD XML files
- AsciiText
- XMLScene: will be extended with other DTDs (see later)
- HBookTuple: will with Slug will be solved
- AHTL: will be dressed with Iguana

PLOTTABLES

- Simulation:
  - TruthTrack
- ID:
  - SiDetector, TRTDetector
  - SiDigit, TRTDigit
  - StripCluster
  - SpacePoint (see elsewhere)
- Mu:
  - --- will be migrated from Amber ---

DOCUMENTATION



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XMLSCENE

- Event (atlasevent.dtd):
  - created by XMLScene
  - readable by Wired, Atlantis
- Detector Description (AGDD.dtd):
  - created by Hand
  - readable by GraXML, PersInt, G4Builder
- Histogram (PlotML.dtd):
  - created by XMLScene (soon)
  - readable by JAS

XMLScene will be migrated to DOMScene, which will be able to create and manipulate all those XML files.

XSL will be used to create other kinds of representations.