A summary...??...

Ties Behnke, DESY

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After 2 days of software:

where are we going

This is a discussion meeting: please interrupt at any time with comments / questions / remarks

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Software for the ILC



Open problems raised at the last dedicated software meeting in Cambridge:

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- Geometry interface
- LCIO version 2
- GRID and the ILC
- Tracking software
- Vertexing software
- Helper applications
- Particle Flow: performance and software

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We have seen tremendous progress in many areas

but there remain many problems which we need to work on

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Extremely important, needed by nearly any application the absence of a really powerful system is a real problem

Frank presented the proposed solution (LCGO) what is needed is more personpower for this: HELP!!!



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Interfaces: Geometry

Geometry information is used in many places

- Very detailed, but local: simulation
- Less detailed, but know surroundings: reconstruction
- → Little detail: e.g. Event display



LCIO

LCIO: our common data model and persistency framework

LCIO is certainly limited LCIO is probably too simple in some areas LCIO does present a (small) overhead

but

LCIO is an extremely important piece of common and shared software, which helps to keep the community together, which allows us to talk more easily to each other.

The agreement on LCIO by a large part of the community is in itself nearly a miracle, and we should not lightly give this up

I personally like to see more help in making LCIO better than the introduction of new and different systems

Why LCIO?

Common tools: without common data model there will be no shared software

(example: ZVTOP and friends development)

Without a clear understanding of the elements an event is made of we can not really compare algorithms etc

With a common data model boring tools need to be coded only once, not N times: save time and effort The biggest argument of all:

in the not too distant future, we will need to pool our resources,

to meet the demands of the engineering phase of these detectors

There will be only 2 experiments, not 4 or 5 or 6 We will need to come together anyway

Lets not waste resources now by doing multiple developments, lets try to utilize fully what we already have, and try to increase the commonalities

LCIO Version 2?

LCIO is constantly evolving: your input is needed

(see also Romans talk on the needs of the online community)

How shall we evolve LCIO:

- root as IO package?
- home grown solutions?
- other solutions?

Added functionality for analysis:

- trajectory discussion here at this workshop
- we need a similar discussion on clusters
- maybe other objects

Still part of LCIO or beyond the scope?

The Future of CORE software

The ILC software community is small

The expectations are large

Resources:

DESY is committed to continue to support core ILC software developments EUDET provides some amount of additional person power for this LLR is committed to continue support for MOKKA

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Progress is possible only if:
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we concentrate on the urgent and important tasks at hand everyone pulls in the same direction

(openeness - standards - responsibility - documentation)

(in my personal opinion: the excellent but insular solution in software is less useful than the well documented, boring solution which respects the standards!)

The Future

Our goal: "lightweight" software: are we still true to this goal?

Lets remember the important NOTs in our community:

we are NOT a collaboration we do NOT have broad support for the software from professionals we do NOT have huge resources as the LHC experiments do we do NOT have system managers/ responsibles dedicated to the ILC we do NOT in general cater to full time people

This influences the way the software

- is conceived
- is installed
- is run and used

Cooperation

At Bangalore, at Cambridge, at Valencia and at Beijing I said:

We are dublicating efforts on 50% of the needed functionality

and never get around to attack the other 50% because of lack of person power

My pledge:

we should work together more closely we should try to bridge the Atlantic and the Pacific more efficiently we should try to learn from each other more

> We will start to compete for the IP's early enough there is no need to start this already now.

Highlights

Particle Flow clearly was the Highlight of this meeting:

- Four (?) different algorithms presented (this is great, though there is too little exchange and cooperation at the moment)
- Great progress shown by Mark on the performance of particle flow: is this the proof of principle we need?
- Excellent progress by GLD team: Pandora and GLD PFA both start to see detector effects!
- Very promising: modular and structured Ansatz reported by Oliver (Marlin) and Steve (org.lcsim)

Release of the Vertexing package as MARLIN suite of tool

Particle Flow



Analysis

Full session of Analyses this morning

Very central to the understanding of the field

We need to do even more analyses and we need to move to full simulation/ reconstruction

Very encouraging: see first in depth analyses of performance driven by physics analyses clearly very preliminary, but this is the way to go!



Summary of the non-Summary

Lots of progress since the last software/ reconstruction meeting, BUT

We need to find a proper forum to keep discussing open questions

and to come to some sort of decisions

Linear collider forum simulation meetings like this one phone conferences etc?

Lots of good presentations and discussions in this meeting very nice to see the level of attendance (also international)

Concrete Proposal

Working group on Jet Energy Reconstruction / Event reconstruction at the ILC

Bring together the people who do the work

for more frequent discussions and exchange of ideas

organise a regular (1/month?) series of phone conferences to present methods, progress reports, and results

(broaden the scope of the existing regional software phone meetings to be truly international)

Report from the working group to the community regularly at ILC meetings

ILC software: summary. Ties Behnke, DESY

Thanks

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See you at the next software / reco meeting