VMC workshop goals

VMC Workshop
29-30 November 2004

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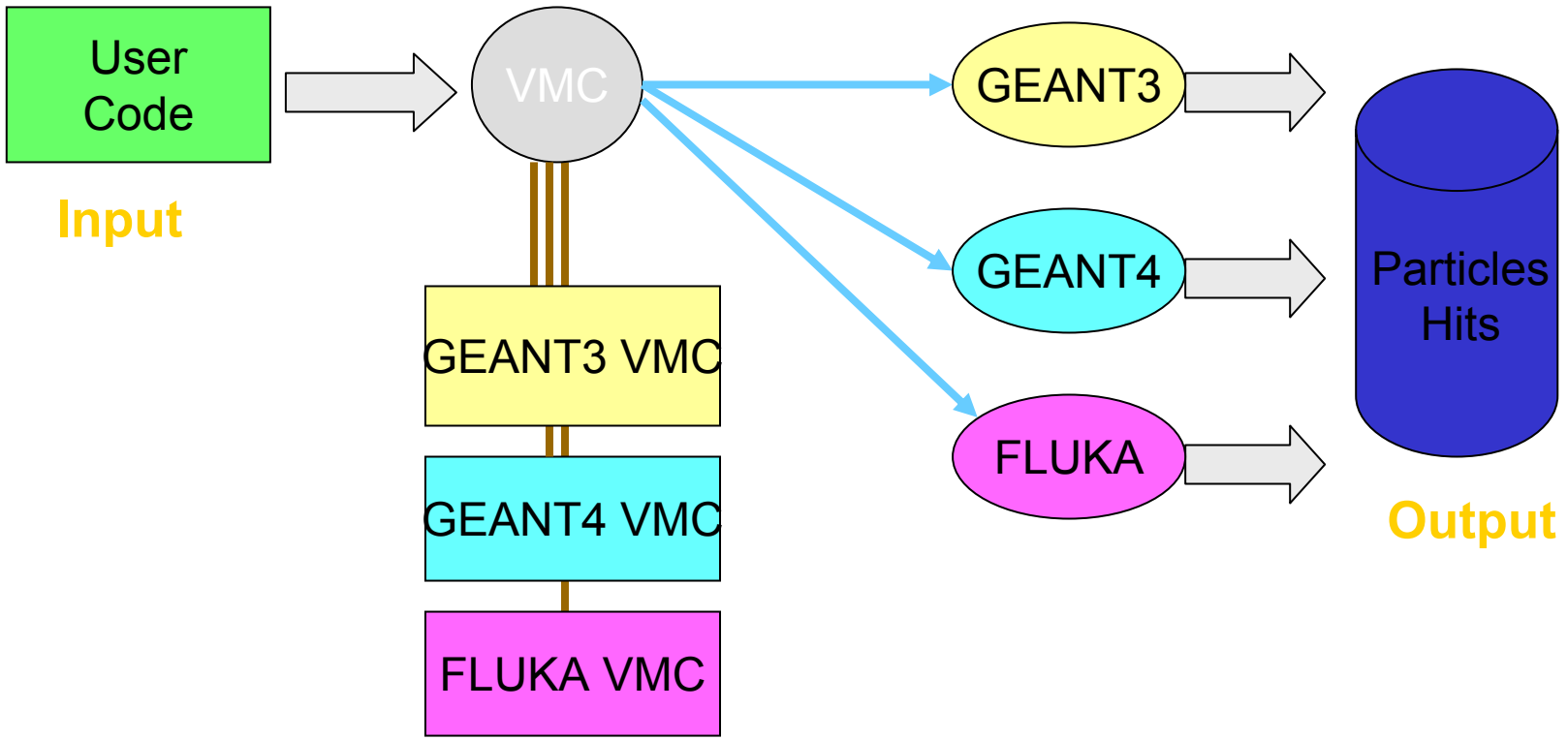
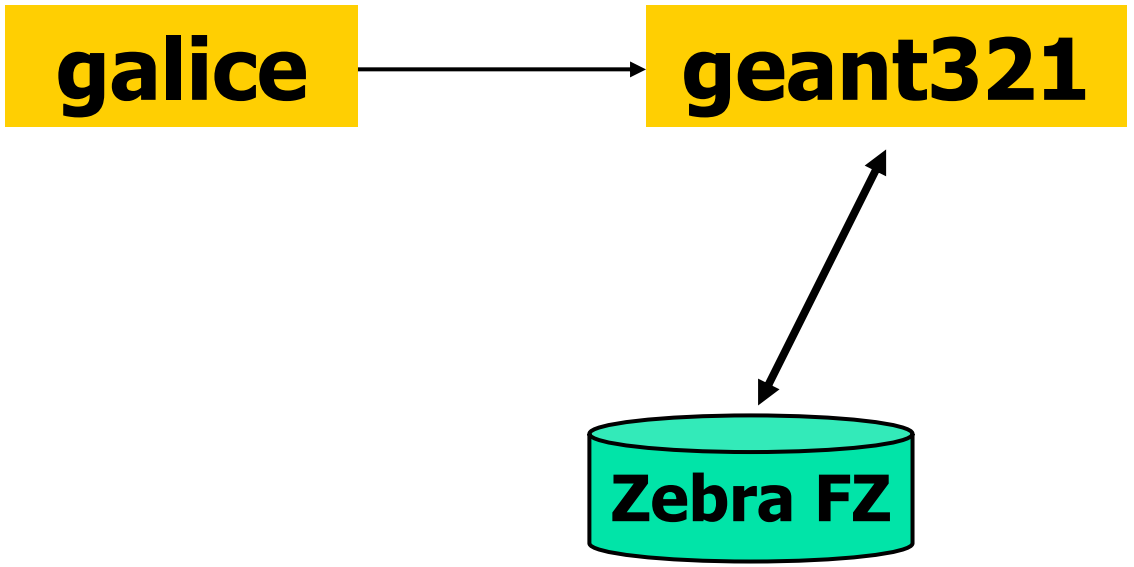
CERN/PH/SFT

VMC concept

- Transport MC transparent to the user application (more details in the VMC presentation at CHEP03)



Very early implementation 1996->1998



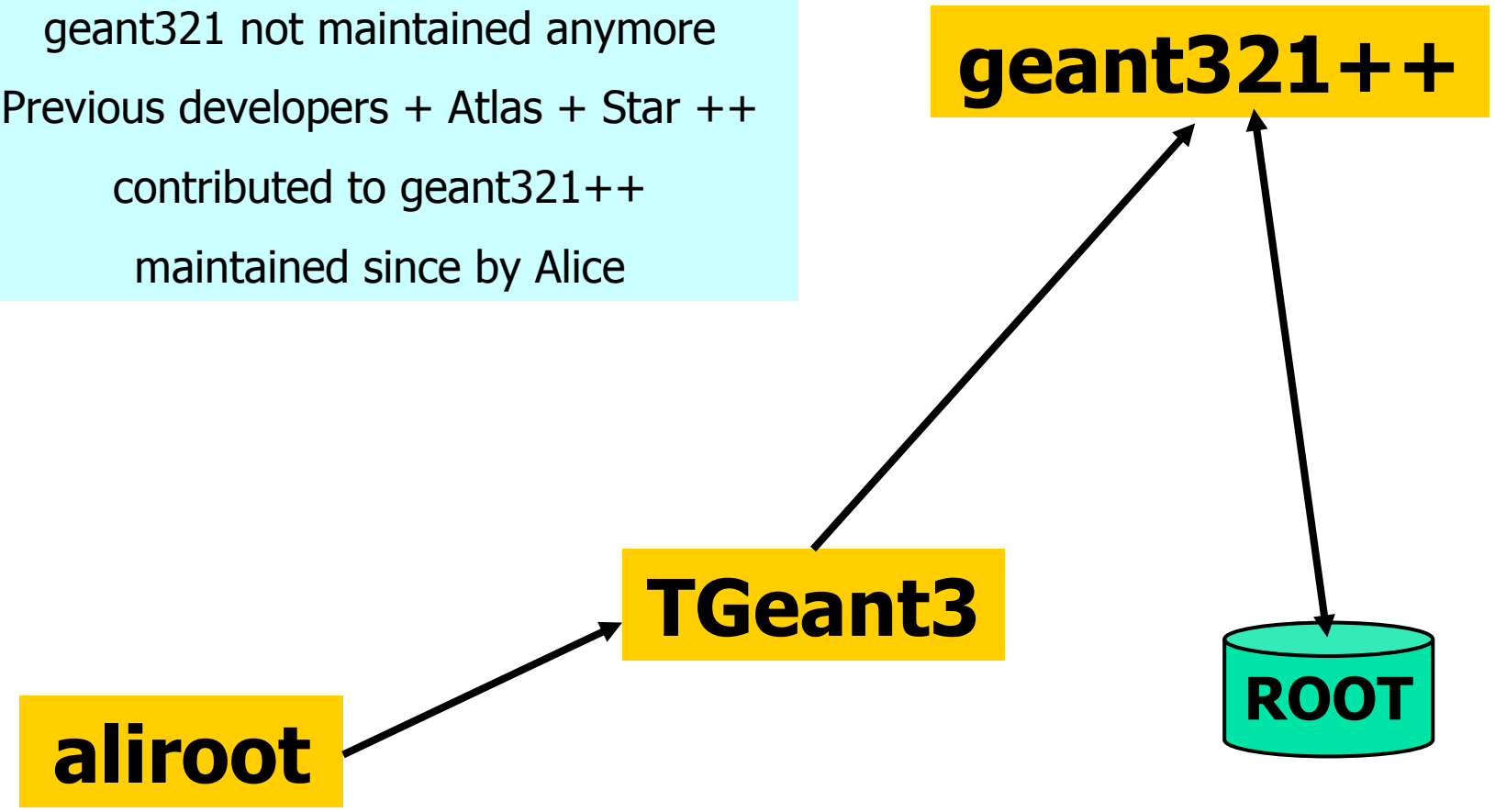
Very early implementation
January 1999

geant321 not maintained anymore

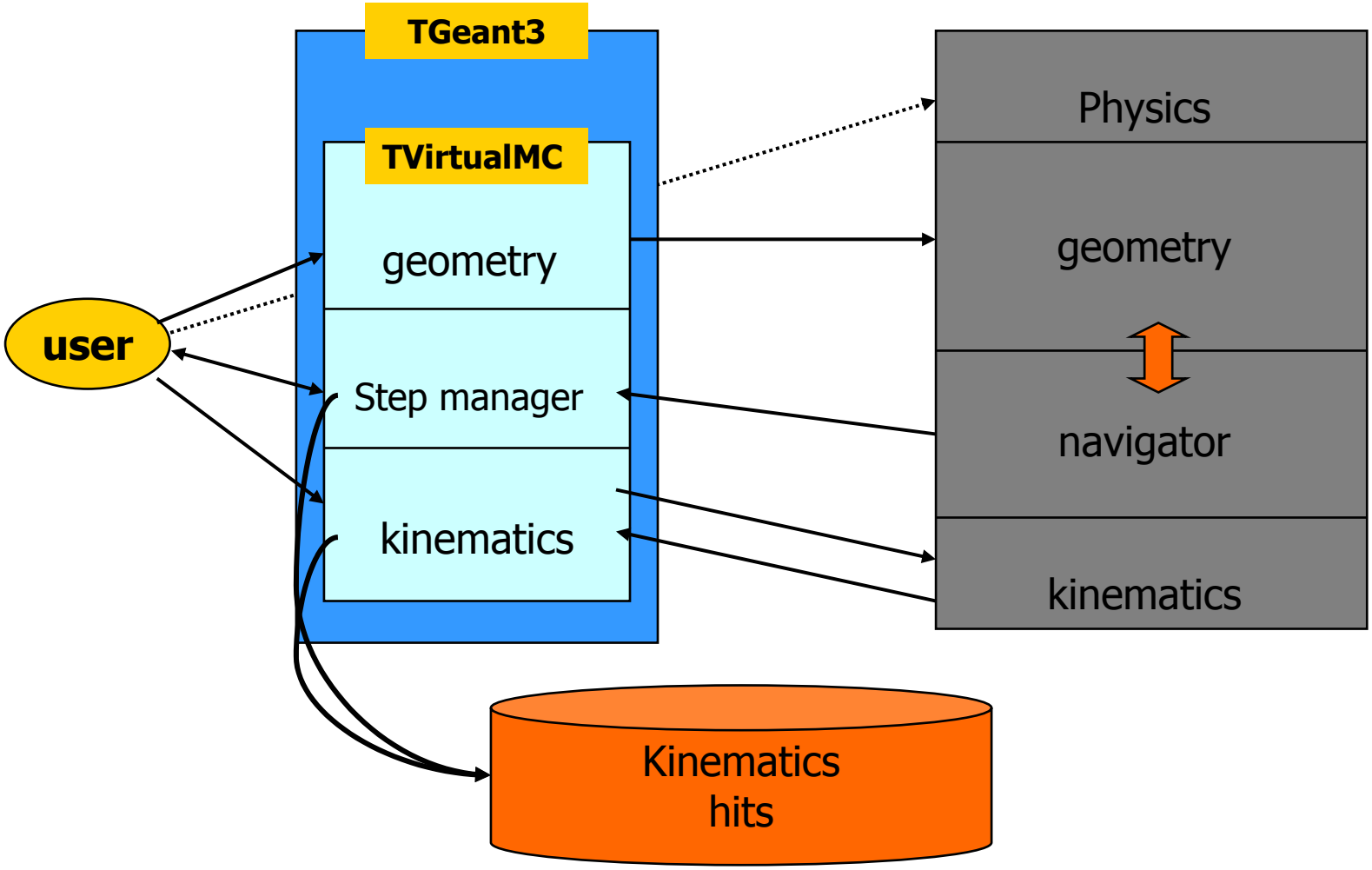
Previous developers + Atlas + Star ++

contributed to geant321++

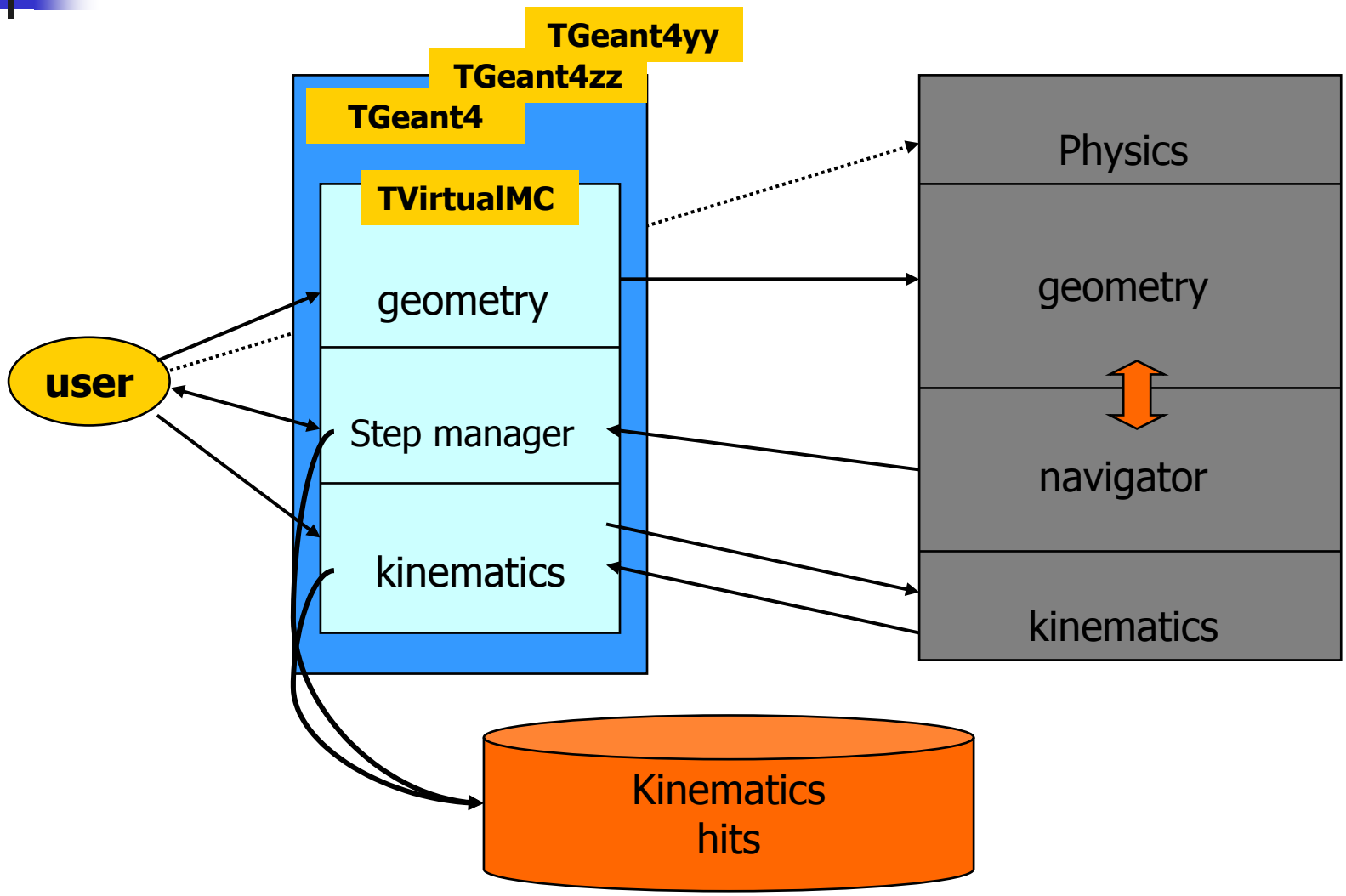
maintained since by Alice



Early implementations (TGeant3)



Early implementations (TGeant4)



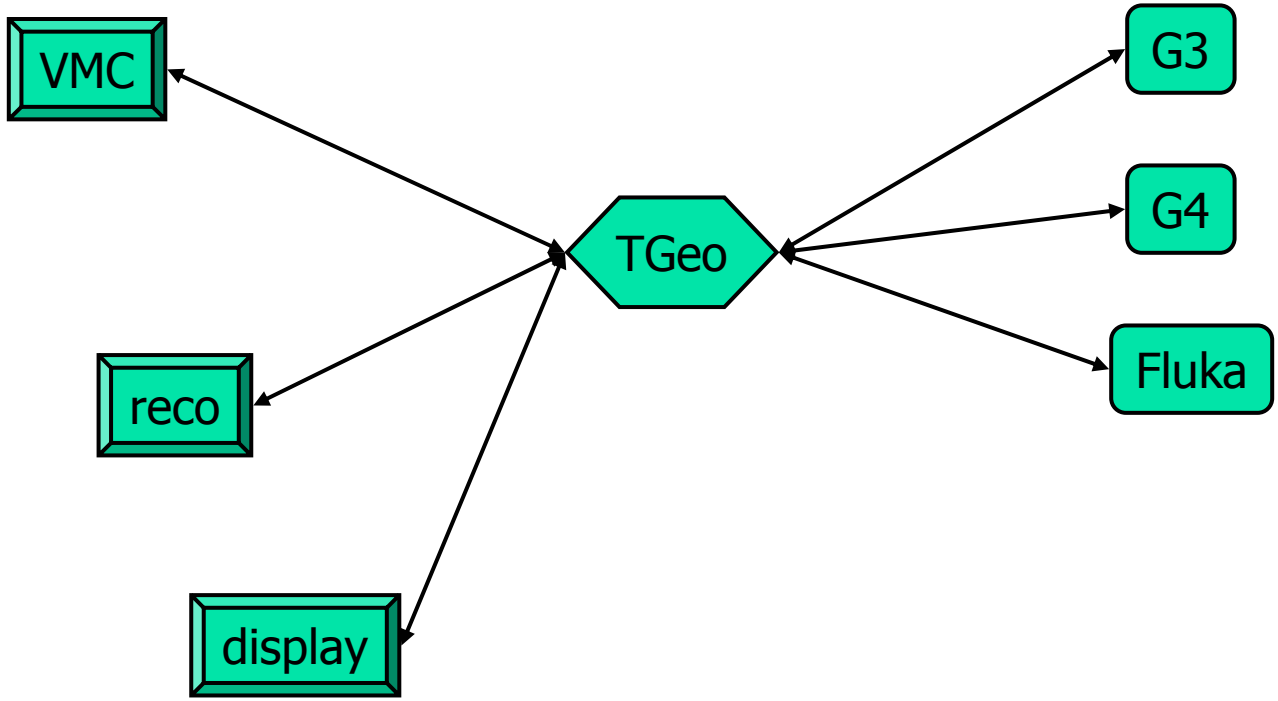
Problems with early implementations

- The first TGeant3 interface was strongly biaised by geant3.
- We experienced difficulties with the implementation of TGeant4 because the Alice geometry was using heavily "MANY" volumes and reflection matrices
- Only a subset of Alice could be run with TGeant4.
- Because many things in common between TGeant3 and TGeant4, we started the design of a common interface TVirtualMC.

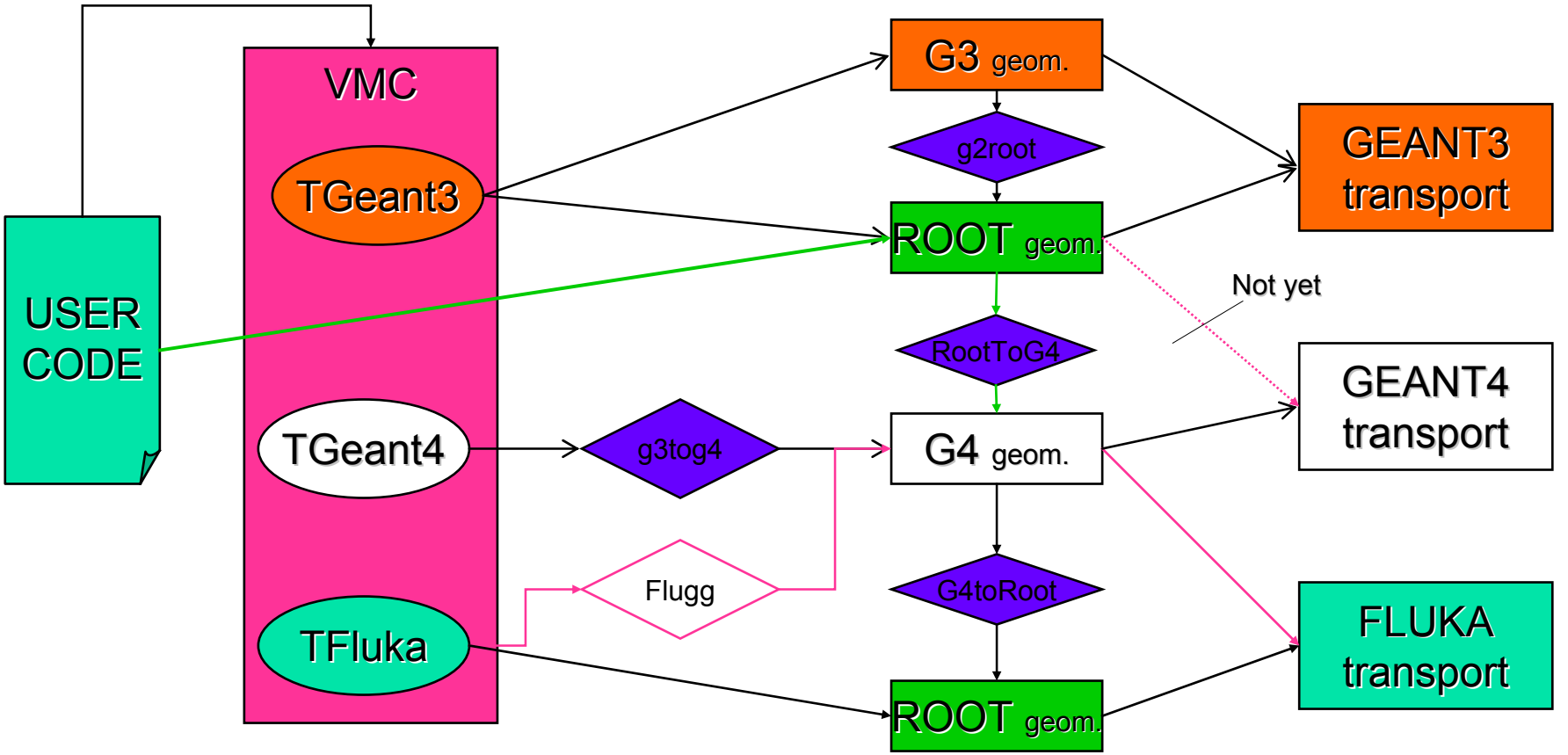
Situation in 2001

- At the ROOT workshop at Fermilab, the main request from the participants was the development of a geometry package that could be used not only by the simulation tools, but also by the fast simulations, the reconstruction and analysis programs, the visualization tools and the DAQ.
- At the same time, Alice considering an interface with Fluka.
- In 2002 Andrei started the development of the TGeo classses.

New vision in 2002
A common geometry

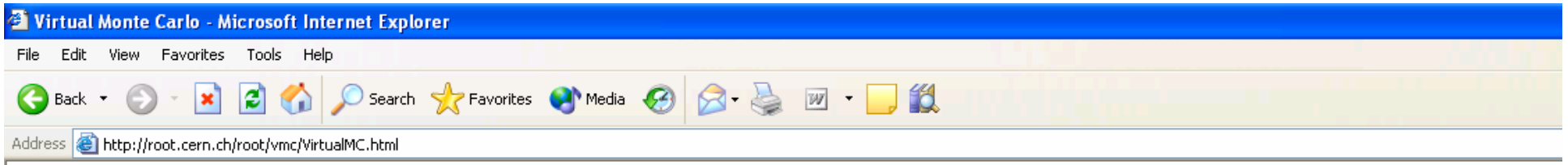


The VMC today



The VirtualMC web page

- http://root.cern.ch/root/vmc/VirtualMC.html
- Describes access to the CVS source and tar balls
- Show current versions



Download

Tar files (pro versions)

geant3:	*version 321+_vmc.0.8*	geant321+_vmc.0.8.tar.gz	*Tested with Root 4.01/04*
geant4_vmc:	*version 1.4*	geant4_vmc.1.4.tar.gz	*Tested with Root 4.01/02, Geant4 6.2, CLHEP 1.8.1.0*

Tar files (old versions)

geant3:	*version 321+_vmc.0.7*	geant321+_vmc.0.7.tar.gz	*Tested with Root 4.01/02*

CVS

All sources are available from the Root CVS server and can be obtained in the same way as the Root source (see Source Code via CVS

When you are using the Root CVS server for the first time, you have first login:
cvs -d :pserver:cvs@root.cern.ch:/user/cvs login
CVS password: cvs

Download geant3:

Development version (cvs HEAD):
cvs -d :pserver:cvs@root.cern.ch:/user/cvs co -P geant3

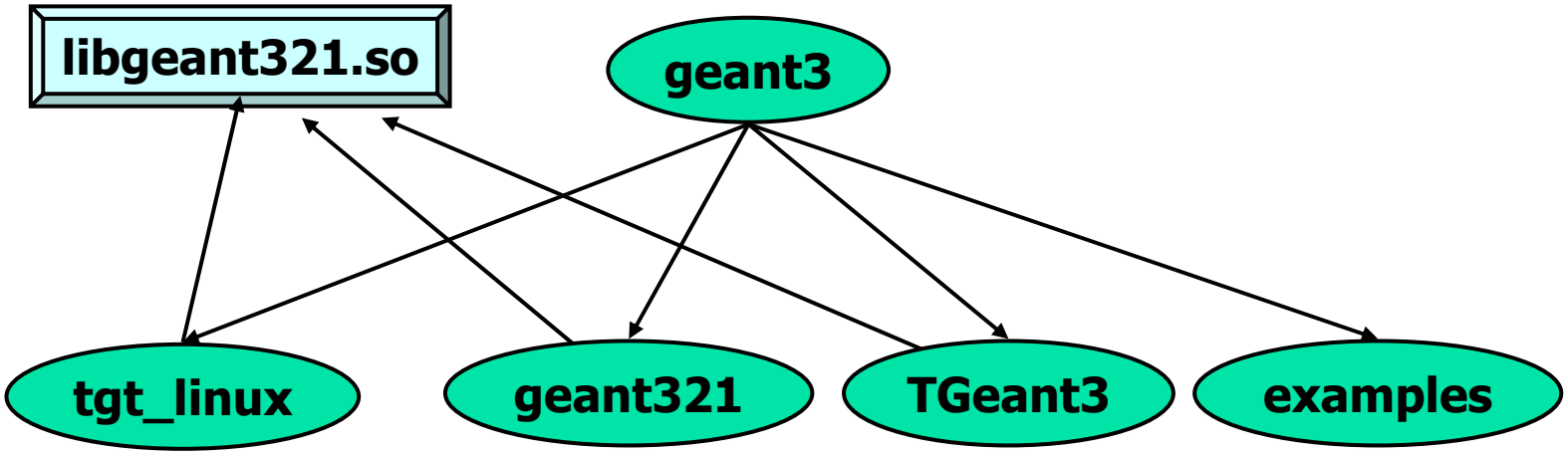
Pro tagged version 0.8
cvs -d :pserver:cvs@root.cern.ch:/user/cvs co -P -r v0-8 geant3

old tagged version 0.7 (for older versions see the correspondent tag and the required version of Root in the table):
cvs -d :pserver:cvs@root.cern.ch:/user/cvs co -P -r v0-7 geant3

Download geant4_vmc:

Development version (cvs HEAD):
cvs -d :pserver:cvs@root.cern.ch:/user/cvs co -P geant4_vmc

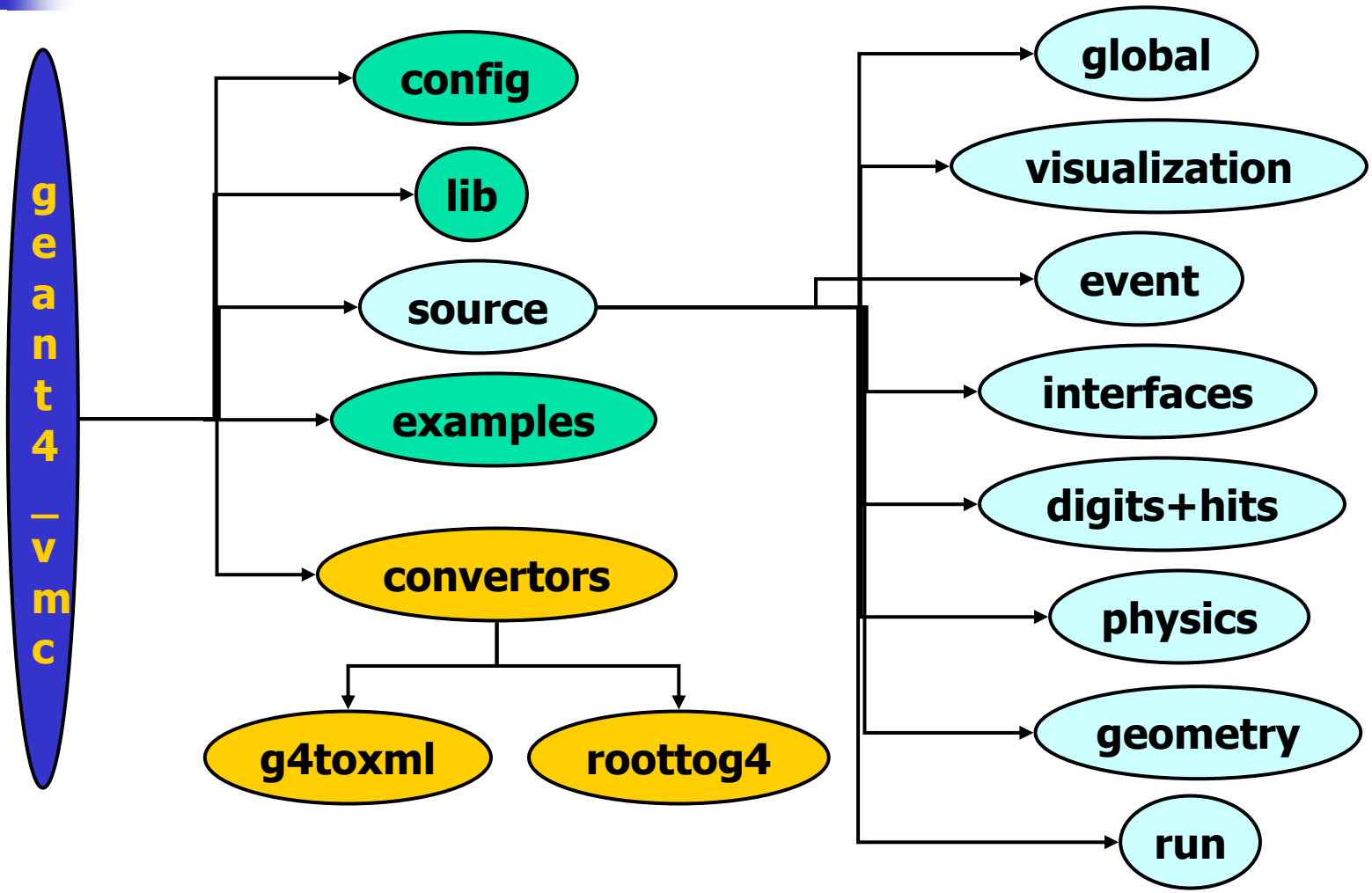
Geant3 /VMC situation



TGeant3 source

- Default is geant3 with geant3 geometry
- Select “WITHROOT” in makefile to activate the alternative geant3 with TGeo
- Proposal by STAR to have the two options available at execution time rather than compilation time.
- This will imply restructuring the source.

geant4_vmc (see Ivana's talk)



geant4_vmc problems

- Complex set of classes
- Includes different converters and interfaces
- Uses the VMC API to create the G4 geometry

VMC /TFluka

- See Andrei's talk
- Currently in the hands of Alice
- We need a public access to the source to consider a general distribution.

Physics interface

- Nothing in VMC
- It is a pain to define conditions/cuts that are the same in all the MCs.
- Volunteers for this job?