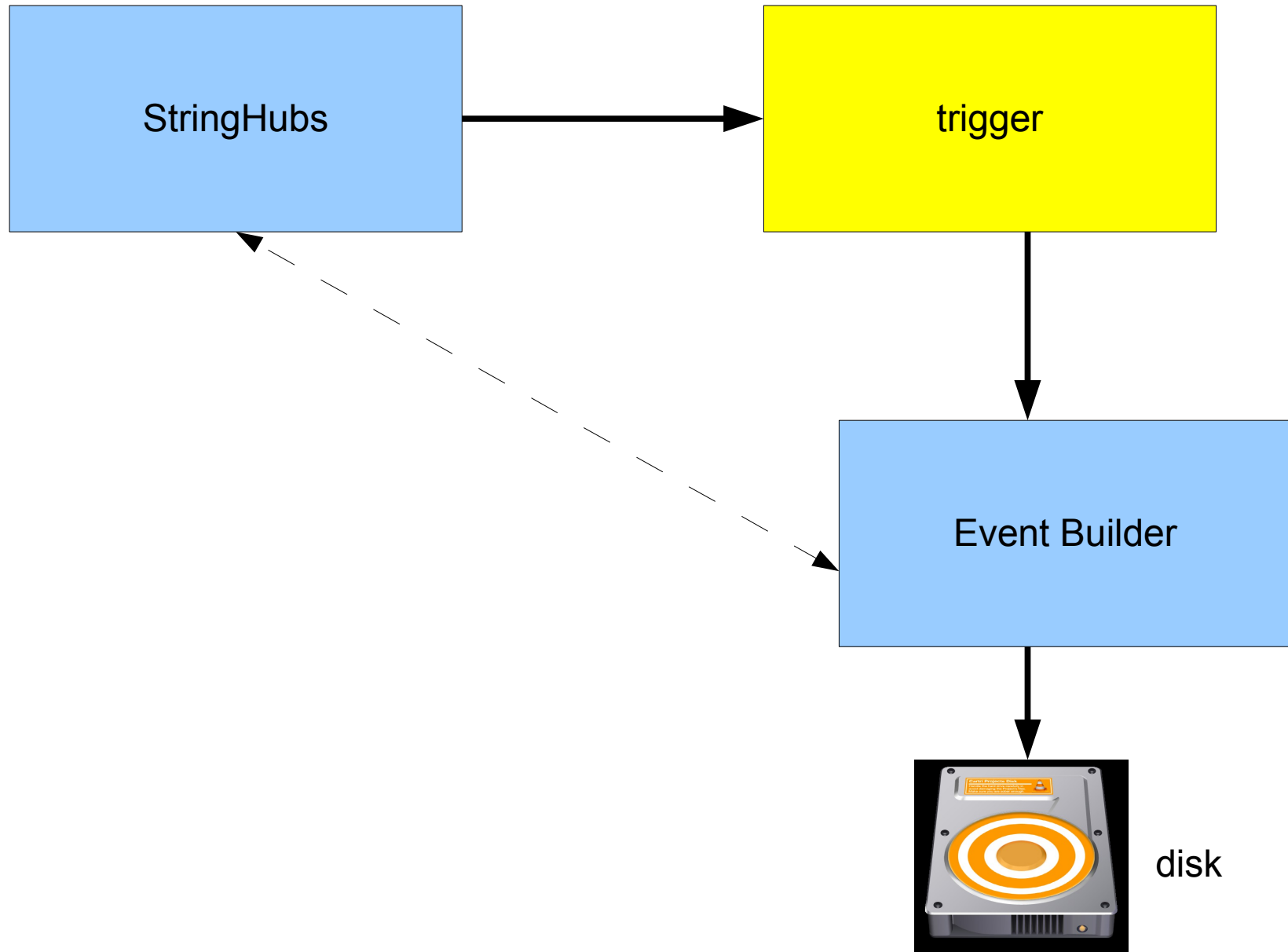
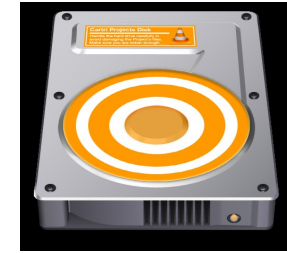


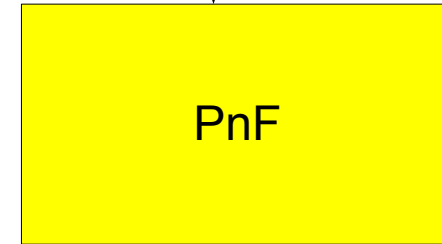
DAQ (Data AcQuisition system)



PnF (Processing and Filtering) and Transmission



disk



Another disk



Satellite

Triggers (2011 configs)

Name	Trigger config ID	Source ID	Trigger Type	Parameters	Readout
In-Ice SMT	1006	4000	0	Window = 5 μ s Nhit \geq 8	IceTop \pm 10 μ s InIce: -4, +6 μ s
IceTop SMT	102	5000	0	Window = 5 μ s Nhit \geq 6	All \pm 10 μ s
String	1007	4000	14	Window = 1.5 μ s Nhit \geq 5 or 7	IceTop \pm 10 μ s InIce: -4, +6 μ s
DeepCore SMT	1010	4000	0	Window = 2.5 μ s Nhit \geq 3	IceTop \pm 10 μ s InIce: -4, +6 μ s
Calibration	1009	5000	1	Hit Type = 4	All \pm 1 μ s
IceTop MinBias	101	5000	2	Prescale = 10000	All \pm 10 μ s
Phys MinBias	106	4000	13	Prescale = 200 Deadtime = 5 μ s	IceTop \pm 10 μ s InIce: -4, +6 μ s
Cylinder	?	?	?	?	?
Slow Monopole	?	?	?	?	?

Simple Majority Trigger - Threshold (multiplicity) above Nhits in Window

String Trigger - 5 hits from a run of 7 adjacent DOMs in a time window of 1500 ns

Calibration Trigger - Used to select hits of a certain type (e.g., flasherboard hits).

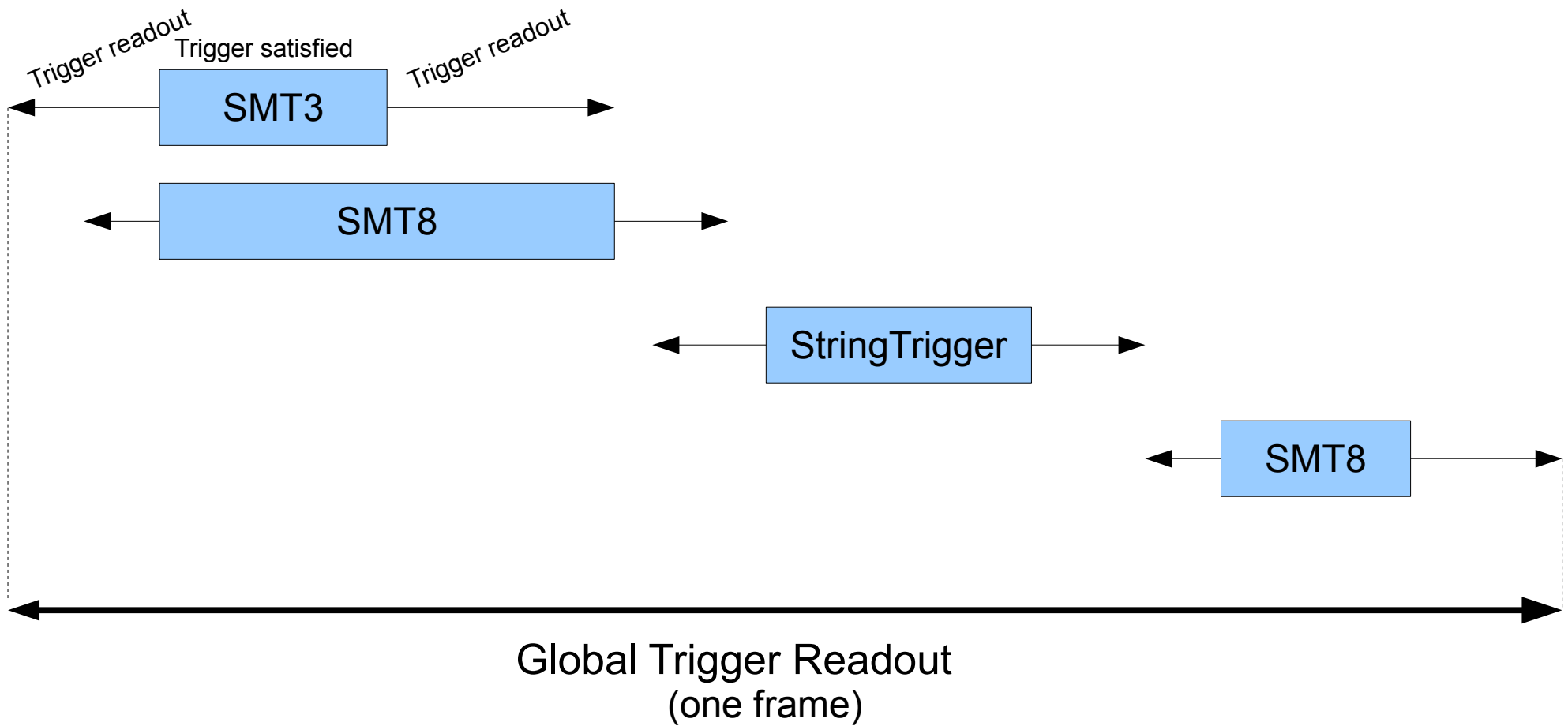
Cylinder Trigger(fka volume trigger) - simple majority of HLC hits (SMT4) with volume element including one layer of strings around a center string. The cylinder height is 5 DOM-layers (2 up and down from the selected DOM).

Slow Monopole Trigger – hits in a line, slow moving, lengths of the order of 500 μ s and extend up to milliseconds

Trigger Window vs Readout Window

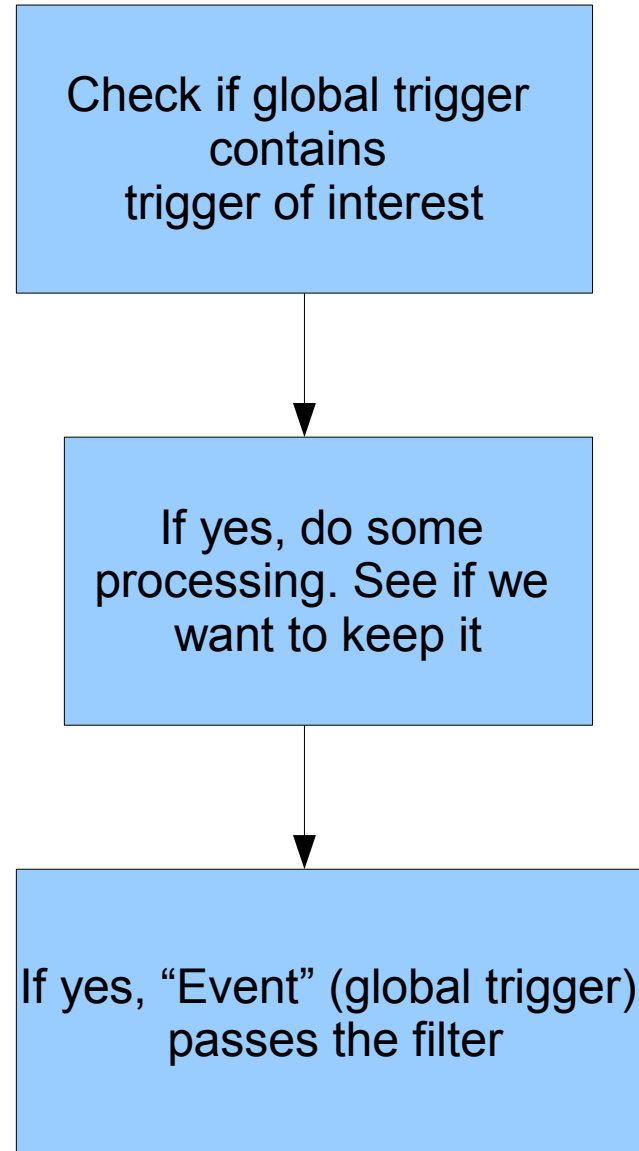
Triggers vs Global Triggers

Trigger Windows



Filters in PnF

LowUp
DeepCore
EHE
Vertical Event
IceTop
Muon
Galactic Center
Slow Monopole
Cascade
Sun/Moon
Prescales
DST



Too abstract? How about some examples..

Questions you should have asked by now....

Can an event have multiple filters?

Can an event have multiple triggers?

Can an event have multiple filters of the same kind?

Can an event have multiple triggers of the same kind?

Can triggers overlap?

Filtering is Managing CPU and Data Load!

Everything here can be found on

[http://wiki.icecube.wisc.edu/index.php/
TFT_2011_Season_Planning](http://wiki.icecube.wisc.edu/index.php/TFT_2011_Season_Planning)

TFT Board= Trigger Filtering Transmission Board

all mighty board that decides the source of all data to be taken with the IceCube detector. Usually convenes once a year to decide the following year's trigger and filter parameters. Takes proposals and approves/disapproves them.