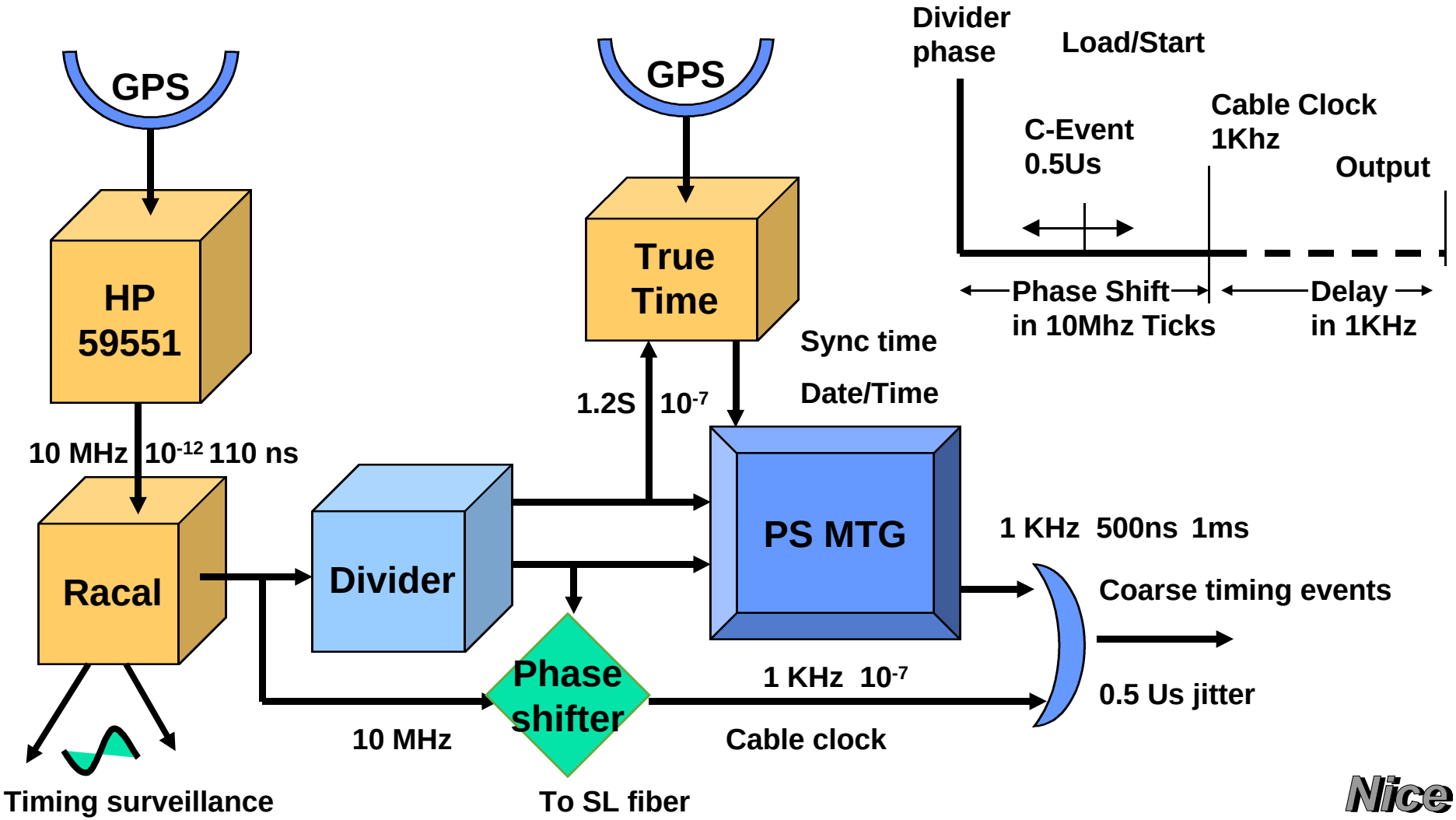
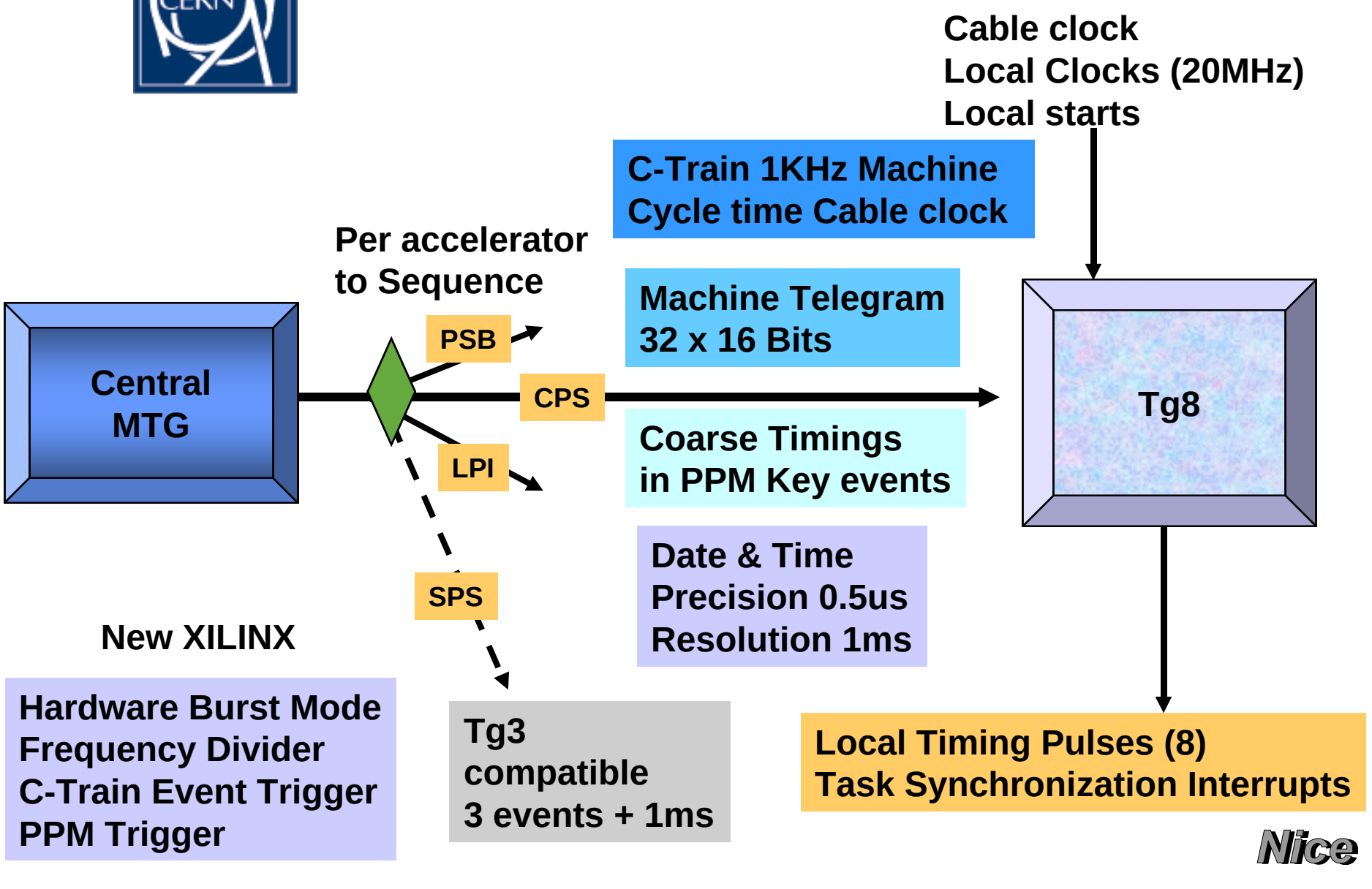
C-Train generation source



Nice

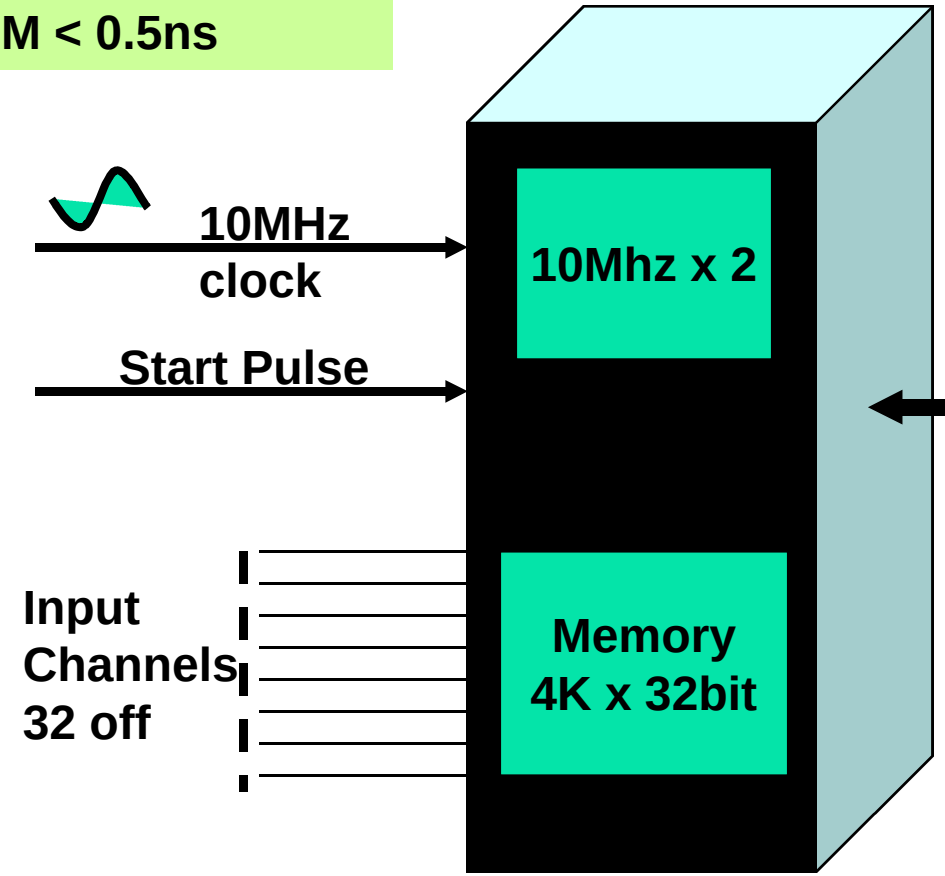
MTG and Tg8 Timing events



Timing surveilence module TSM

TTSM Precision < 2ns
EPTSM < 0.5ns

Same clock as MTG
No relative drift
No normalization
No aliasing

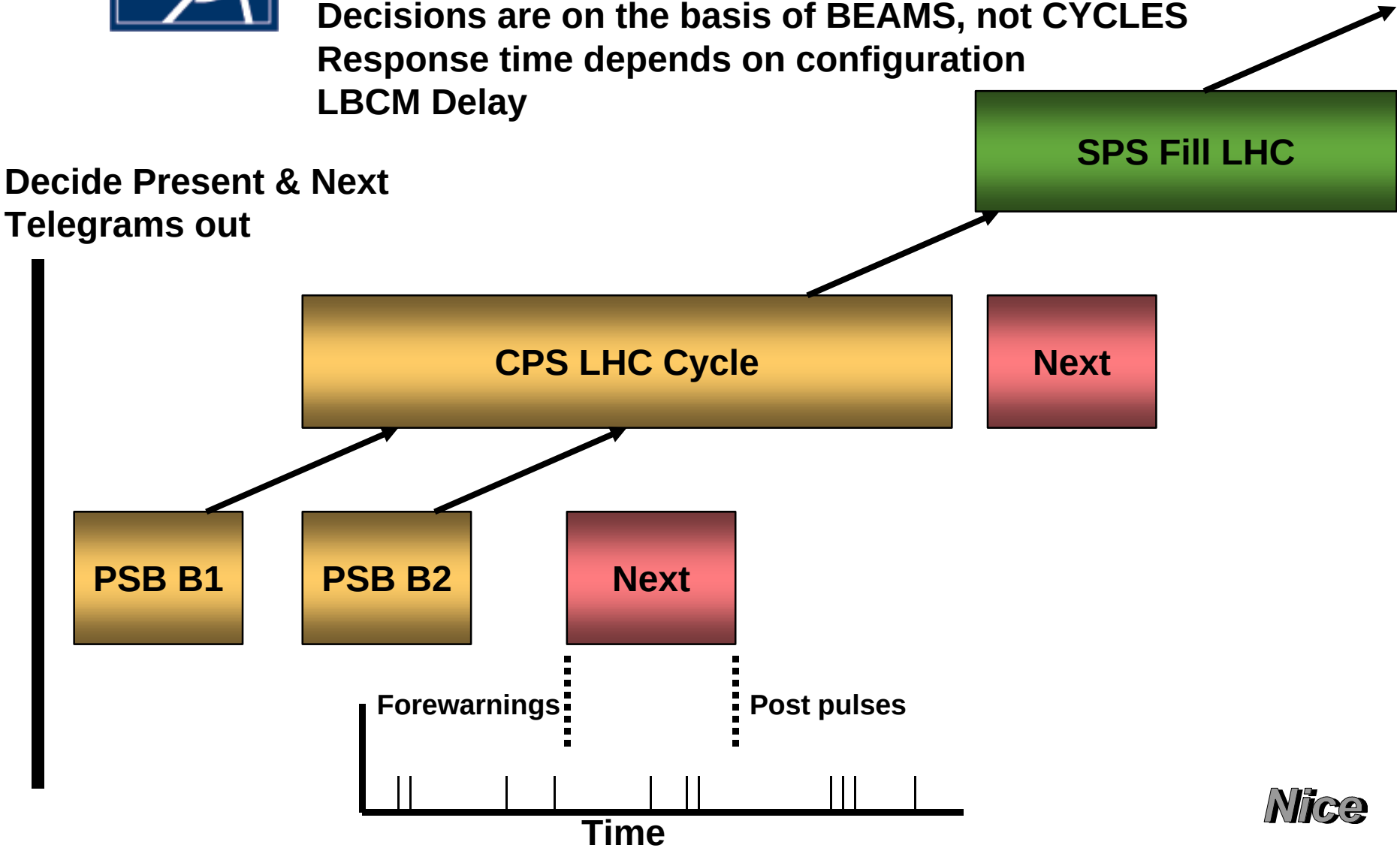


4096 32 Bit values
Can empty on the fly
20Mhz phase locked
32 Channels
50ns Precision
Very precise time stamp
Jitter ~ 2ns

Nice

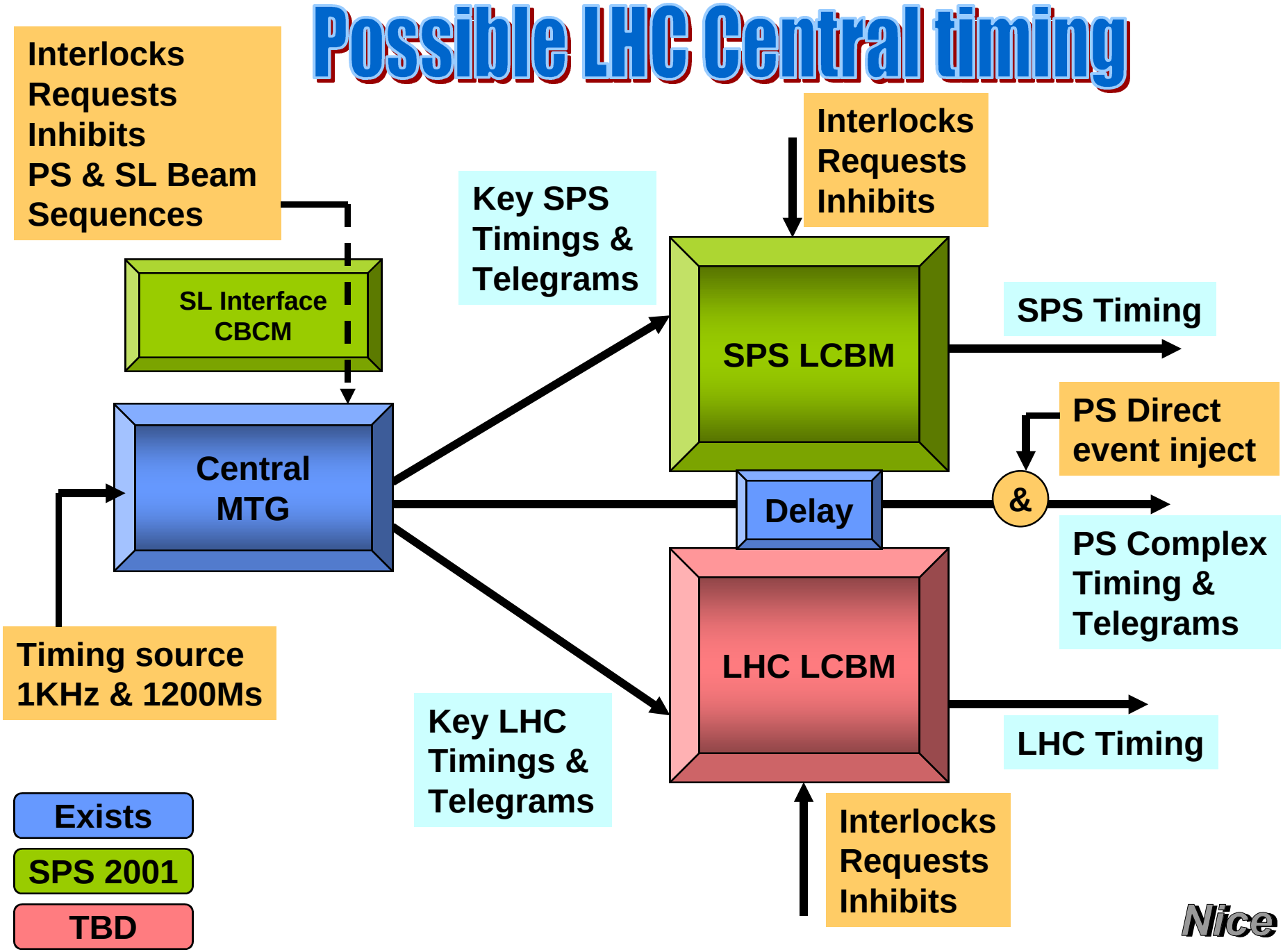
Current PS Mtg responce time

Once a decision has been taken we are committed.
Response is the maximum forewarning
Decisions are on the basis of BEAMS, not CYCLES
Response time depends on configuration
LBCM Delay



Nice

Possible LHC Central timing



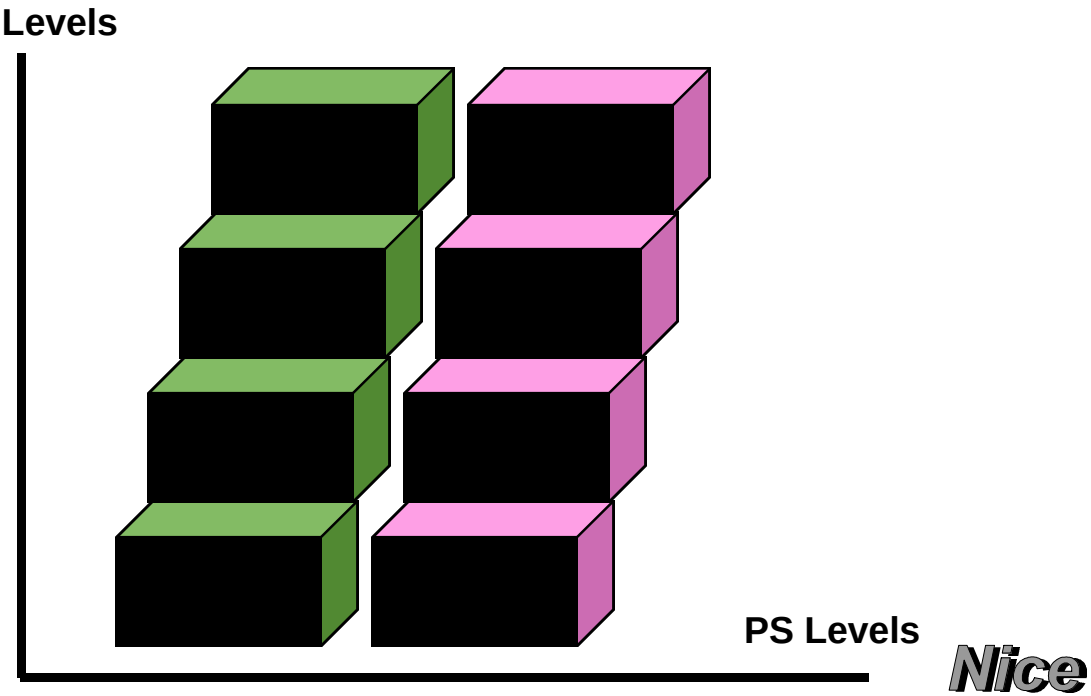
SL specifies a sequence of Beam names, and a level group

SPS Beam E.g. “LHC Fill”

Level changes occur only at super-cycle boundaries.

Watch out for phase shifts between machines on different levels !!!!

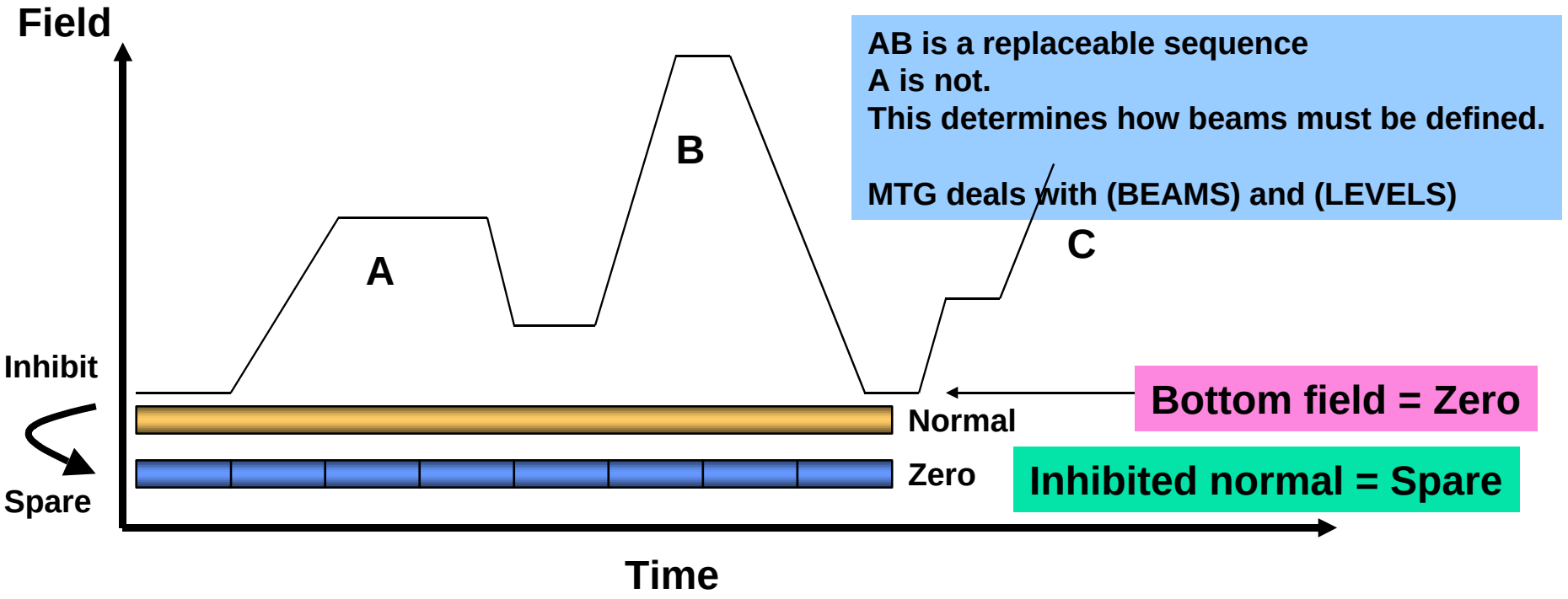
They are not suitable for managing vetoes.
The parasitic beams may be different on the PS levels.



Nice

Spares for SPS are zero beams not coupled to the CPS

Can we use this as a way to implement an inhibit ?
What is a sequence ?
What is replaceable by zero ?
What about “Beam Process” do the telegrams change ?

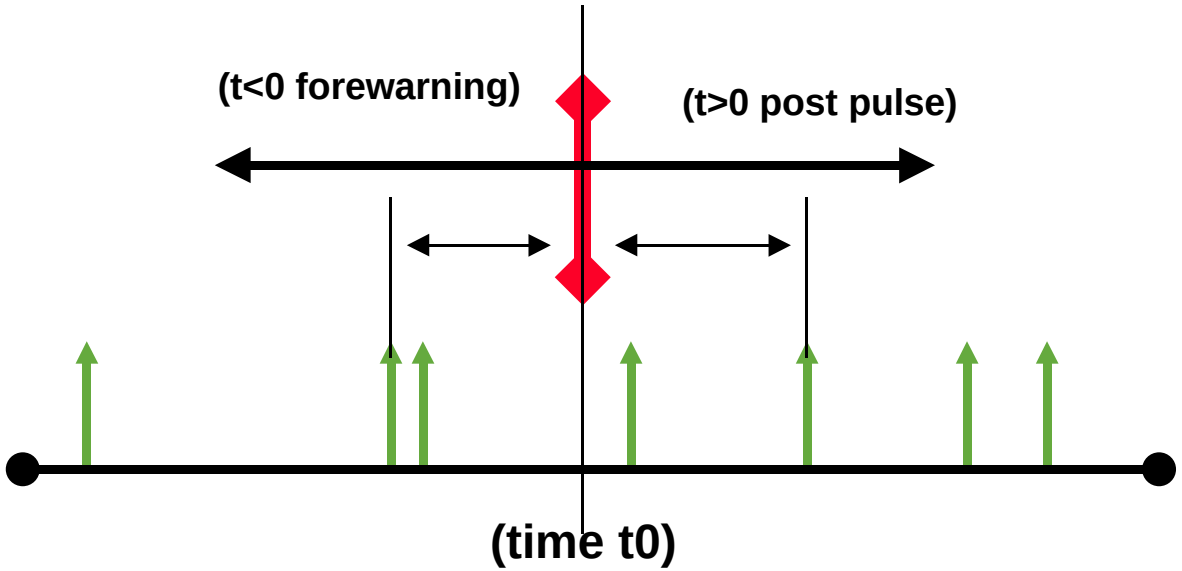


Nice

Family of key events related to Master virtual event. They are expressed relative +/- to the virtual master, and have real event codes sent over the cable

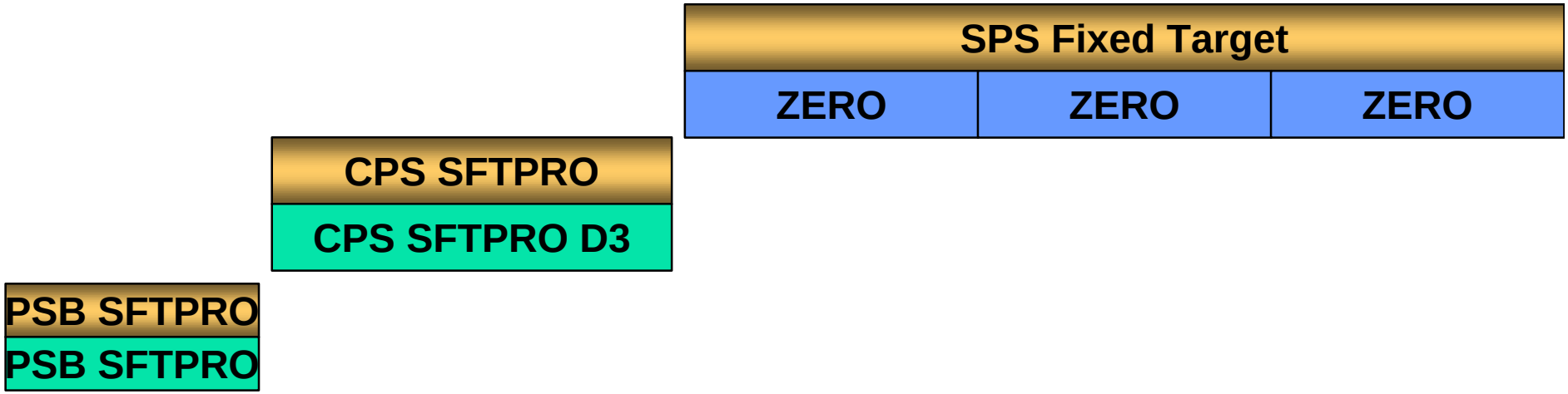
Is this a beam process ?

Master Virtual Event
Can be enabled/disabled
Moves in PPM
Any number can be defined



Nice

Alternative beams selected when SPS request removed



Nice