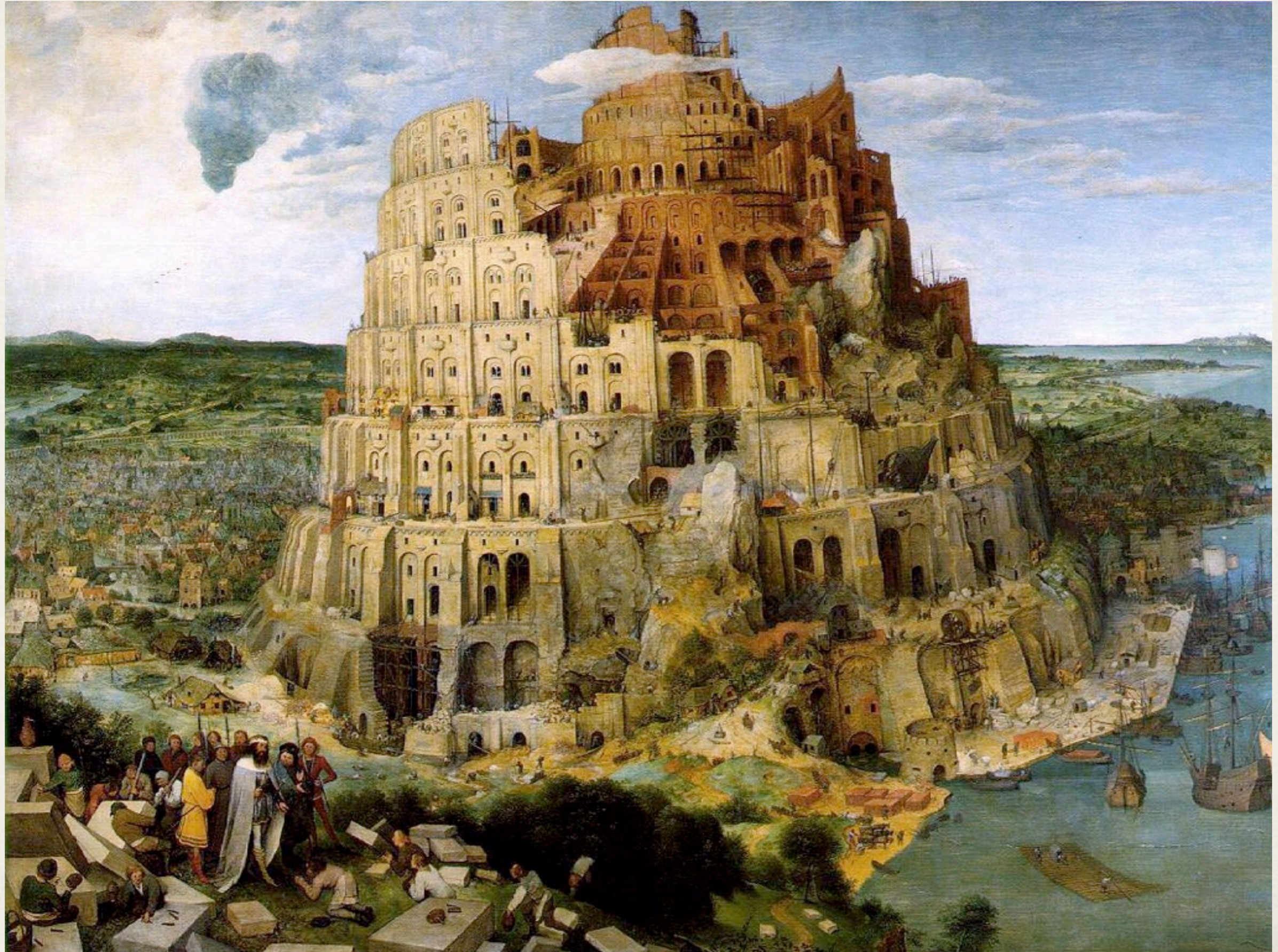


HPS Software

EVO Meeting

March 31, 2011

The Tower of Babel (Pieter Breugel)



The Tower of Babel (Pieter Breugel)

JAVA

Fortran

C++

C

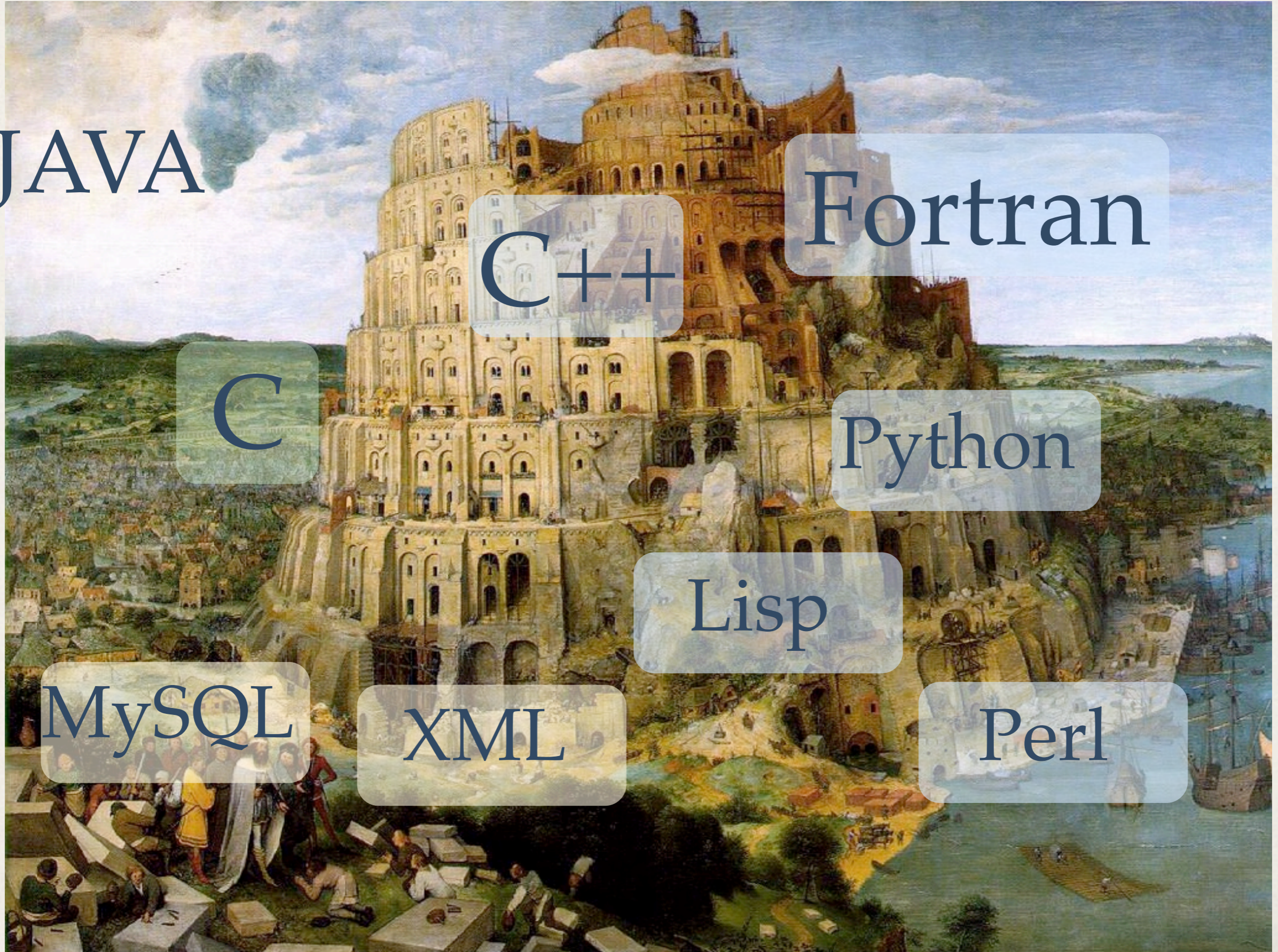
Python

Lisp

MySQL

XML

Perl



The consequences...



Pieter Buegel - The Fall of the Rebel Angels

Requirements

- ❖ The software should enable *all* of us to get work done.
- ❖ Let's not get stuck on specific languages, data formats, storage formats, favorite implementations, features...
- ❖ Provide documentation and / or a “go to” person.

Requirements

- ❖ Three levels: Simulation - DAQ - Offline

Level	Robustness	Speed	Easy to reconfigure	Needed when?
Sim	+	-	++	Now
DAQ	++	++	0	1 Year
Offline	+	++	++	1+ Year

Requirements

- ❖ **Components:**

- ❖ Simulation

- ❖ Online Systems

- ❖ Offline Systems

- ❖ Clearly there is overlap between the implementations of Online and Offline systems....

Requirements

- ❖ **Components:**

- ❖ **Simulation:**

- ❖ Accurate Geometry
 - ❖ Hit Collection
 - ❖ Output of data
 - ❖ Post simulation Analysis
 - ❖ Sim data \Rightarrow Online/ Offline analysis.
 - ❖ Jas, Aida, ROOT, Hbook/Paw... ?

- ❖ Currently 2 existing implementations: SLIC & Gemc

- ❖ Both GEANT4
 - ❖ Different Geometry
 - ❖ Different input format (LCDD (XML) versus MySQL tables)
 - ❖ Different output format (LCIO versus EVIO & Text)

Requirements

- ❖ **Components:**

- ❖ Simulation: SLIC & Gemc

- ❖ **Online Systems:**

- ❖ Systems Monitoring:

- ❖ Strip charts, Scalers, ...

⇒ Online/DAQ tools available

- ❖ “Raw” Data Monitoring:

⇐ Needs to be written

- ❖ Event display

- ❖ Occupancies, noise levels.

- ❖ Data quality, systems OK?

- ❖ Debugging tools?

- ❖ Higher Level Monitoring:

⇐ Needs to be written/integrated

- ❖ Fast Tracking, Vertex reconstruction

- ❖ Fast Cluster construction

- ❖ Trigger efficiency

- ❖ Physics spectra

- ❖ Online systems is probably are most critical software need. It must be working before data taking starts.

Requirements

- ❖ **Components:**

- ❖ Simulation: SLIC & Gemc

- ❖ Online Systems:

- ❖ **Offline Systems:**

- ❖ Calibration codes:

- ❖ Pedestals, linearization of FADC/TDC, alignment...

- ❖ Data Reduction (“cooking”):

- ❖ High quality tracking.

- ❖ High quality cluster reconstruction.

- ❖ Fast

- ❖ Large scale processing infrastructure.

- ❖ Physics Analysis

- ❖ Flexible

- ❖ Multiple options: Jas, ROOT, Paw

- ❖ Offline system can grow out of online system.

- ❖ Offline analysis “should” start as soon as first bit of data is available.

Thank you.



Pieter Bruegel - The Harvest