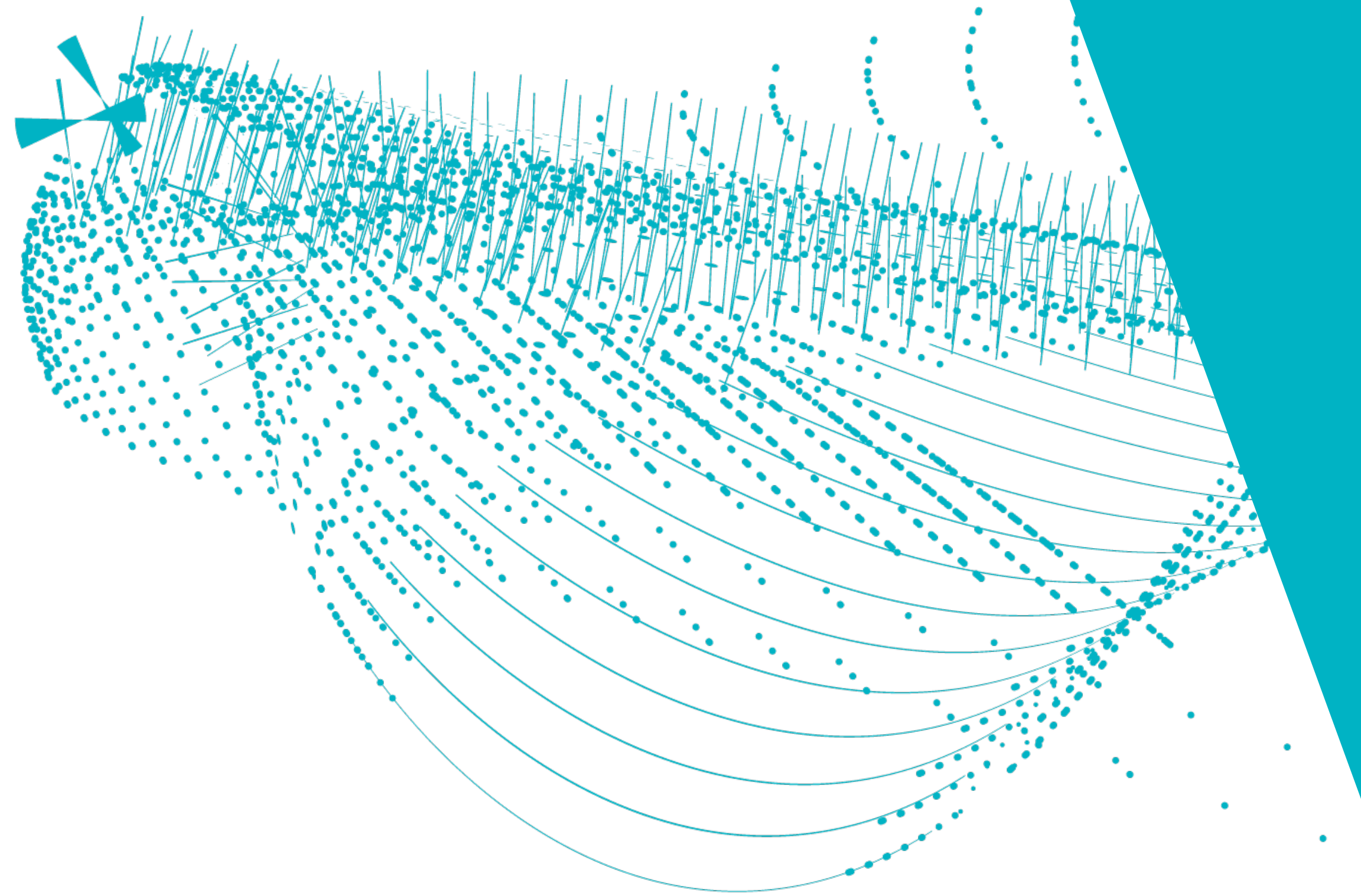




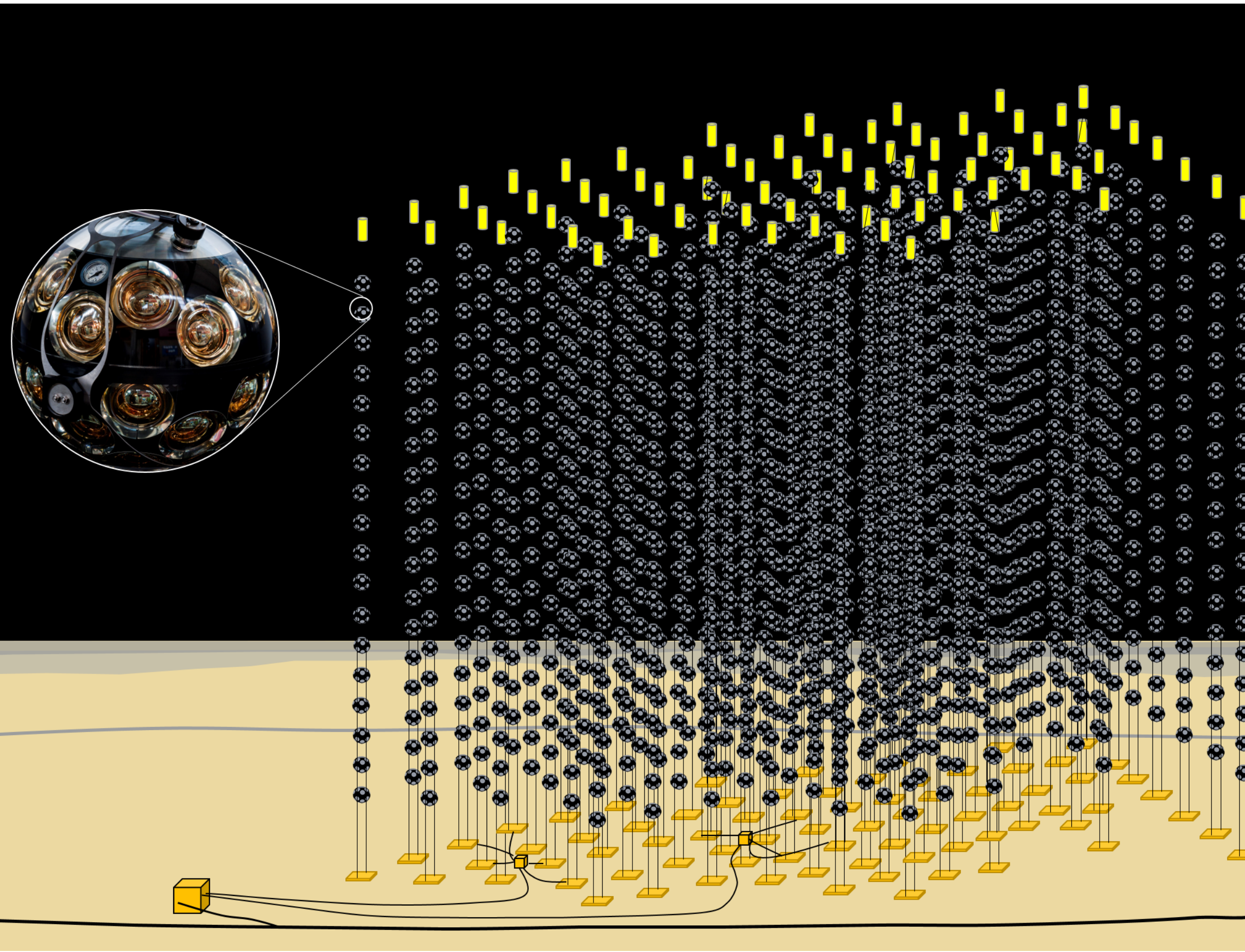
MIEKE BOUWHUIS
KM3NET / NIKHEF

CVMFS FOR KM3NET



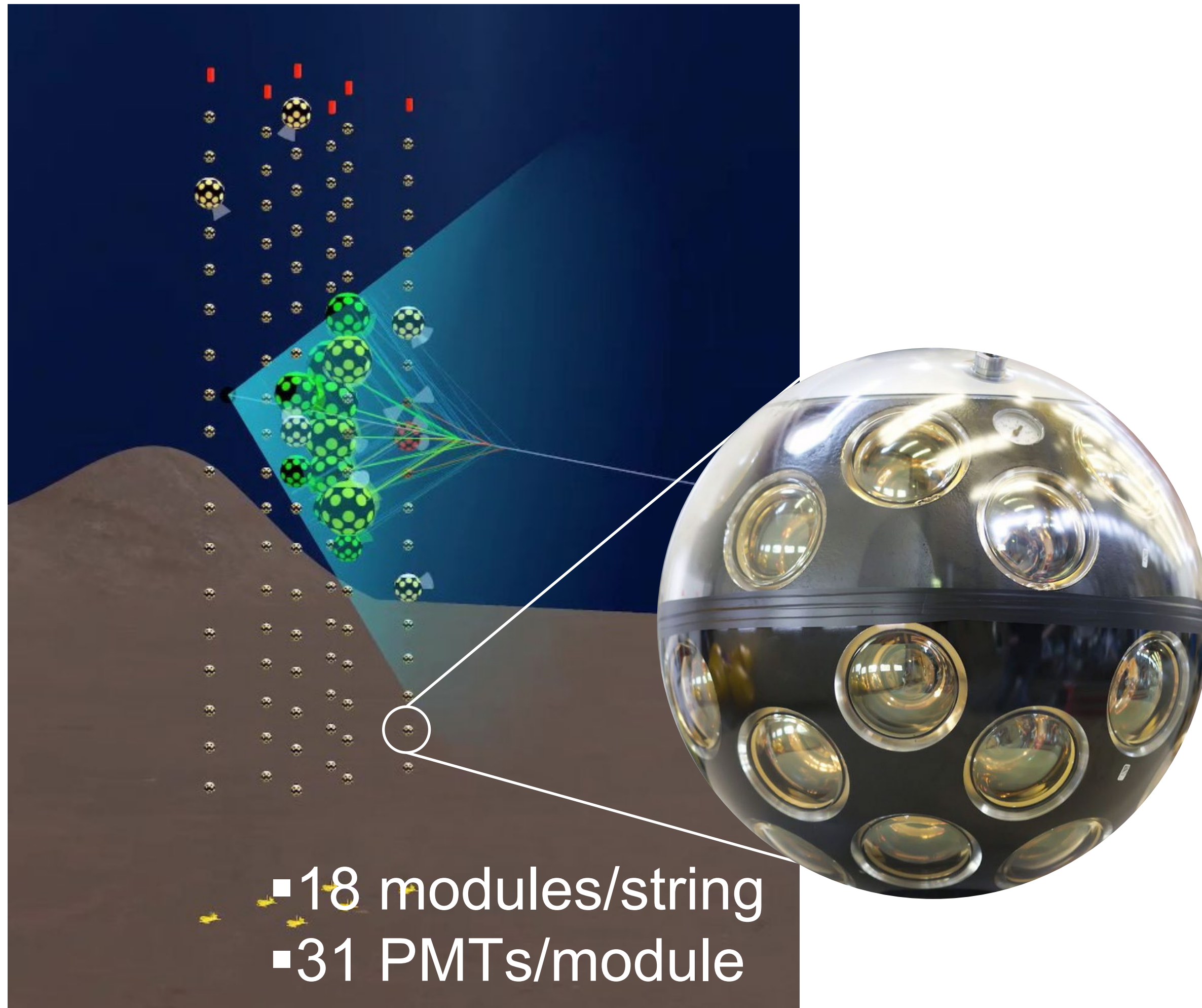
CernVM Workshop
2022
12-13 September

THE KM3NET NEUTRINO DETECTOR



- Distributed infrastructure in the Mediterranean Sea
 - FR: 10^7 m^3
 - IT: 1 km^3
- Modular telescope array
 - 345 vertical strings
 - 200.000 light-sensitive photo-multiplier tubes
- Today
 - FR: 10%
 - IT: 10%

KM3NET DATA RATES



- Detection of Cherenkov light produced by relativistic particles
- Photo-multiplier tubes (PMT) measure the arrival time of the light at the quantum level
- PMT singles rate 10 kHz
- 1string 300 Mbps
- Full detector (345 strings) 100 Gbps

KM3NET COMPUTING MODEL



data
analysis

Tier-2

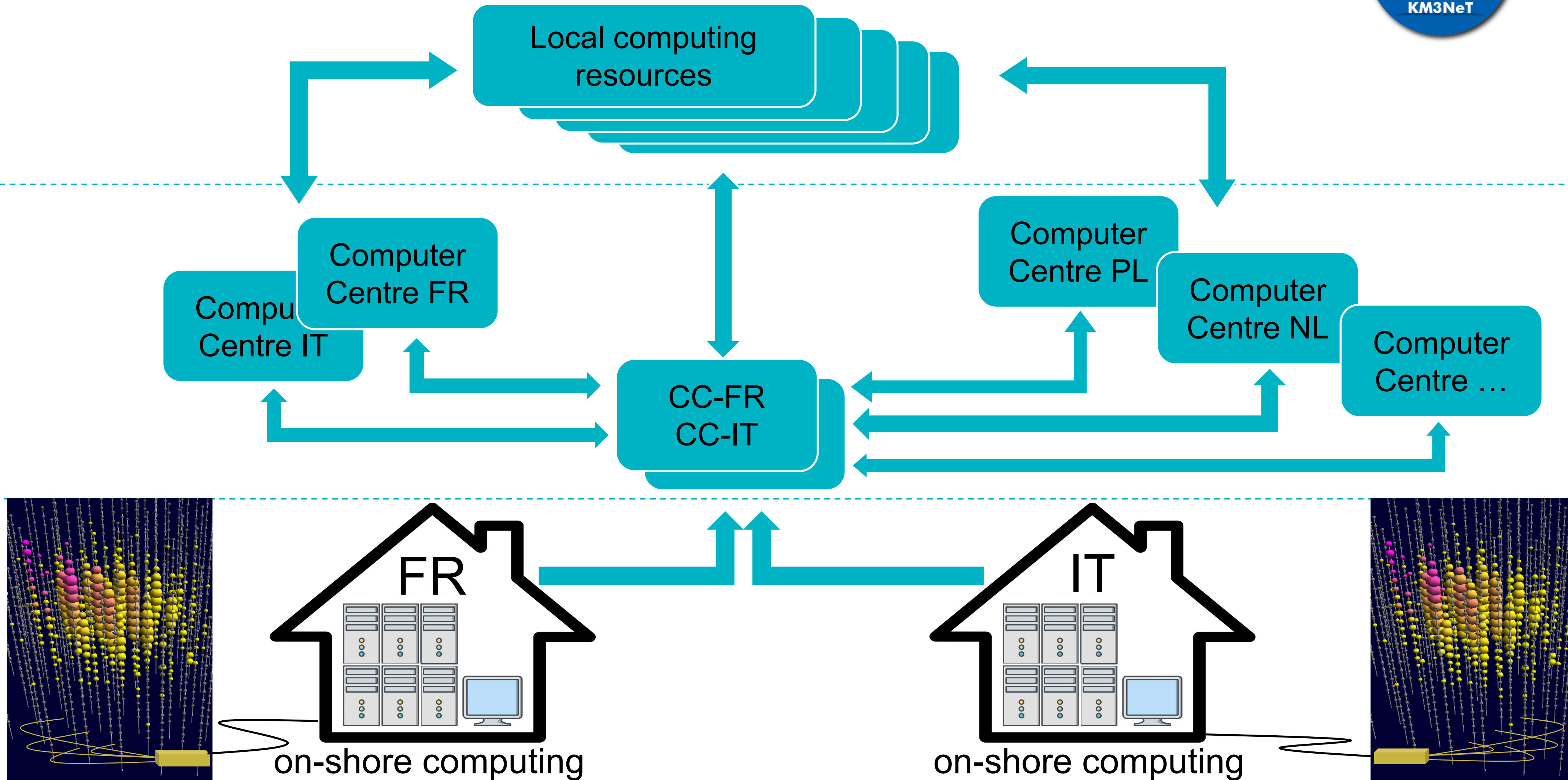
data
processing

data
storage

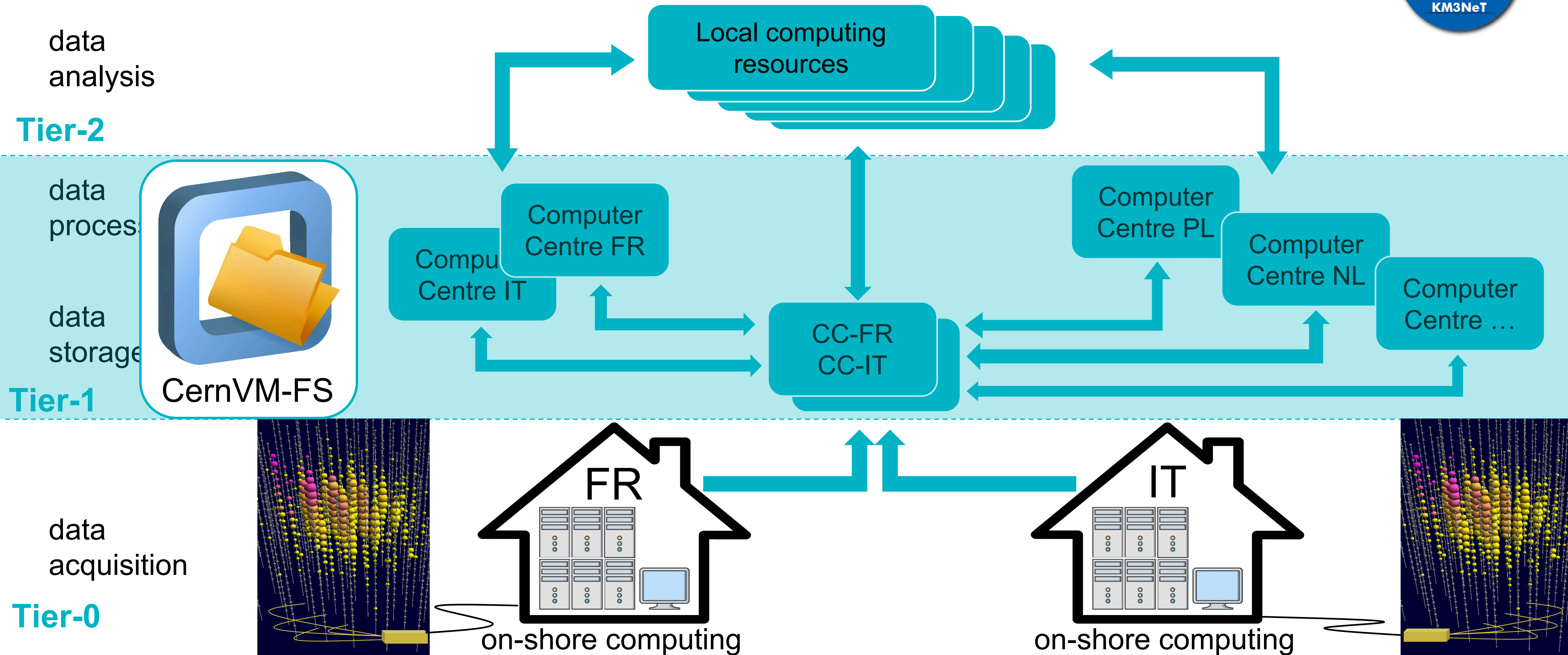
Tier-1

data
acquisition

Tier-0



KM3NET COMPUTING MODEL



TIER-1 LEVEL DATA PROCESSING



- Calibration and reconstruction are common to all analyses
- Simulations are subject to the same data processing
- Currently only local batch processing
 - Transition to distributed processing and distributed storage
- Requirements for software package distribution:
 - Accessible from all computer centres
 - Availability of different versions
 - Available for the next 20 years

STATUS OF CVMFS FOR KM3NET



- KM3NeT software packages distributed by the STFC CVMFS service
- Software in singularity containers
- Single (latest) version of each software package
- Total volume of the software packages ~30GB
- Other versions available at local computer centres
- Currently CVMFS is not used for the mass productions

QUESTIONS FROM KM3NET



- Q What is the available storage on CVMFS?
 - Can we have multiple versions of software packages on CVMFS?
- Q What is the procedure for publishing software packages to CVMFS?
 - Can the experiment representatives do this?
 - Is there a contact?
- Q What is the performance of the service?
 - E.g. are there interruptions, maintenance, ...
- Q Can the Modules package be on CVMFS, for version management?

CONCLUSIONS



- KM3NeT under construction
 - Data taking ongoing 24/7
 - Analyses progressing
- KM3NeT needs a data processing solution for the next 20 years
- Transition to the grid ongoing
- CVMFS is the preferred solution for software distribution