4) Claudio Grandi
Big experiments computing challenges

Even if new experiments in Astronomy and Astro-physics are emerging, LHC experiments currently represent the most demanding activities in High Energy Physics for what concerns data management and computing needs. The search for rare events implies the acquisition of large amounts of data. The infrastructure supporting LHC experiments in 2017 is represented by about 180 data centres in 34 countries, with half a million CPU cores, and almost a ExaByte of disk and tape storage. The management of such an infrastructure required the adoption and the development of distributed computing techniques, ranging from the WWW, invented at CERN in the 1990's, to the Computing Grid in the years 2000's, and now the Cloud. Furthermore the increasing needs in the coming years require the exploitation of performing CPU architectures and the use of emerging software techniques.

In the presentation we will briefly summarise HEP goals, describe the LHC data handling environment and the infrastructure evolution up to now. Finally will present some ideas for the future on infrastructure and software evolution.