Minutes of the ABP Computing Working Group meeting

7th June 2017

Participants: X. Buffat, L. Deniau, ,A. Oeftinger, G. Sterbini, M. Schauman, T. Mertens, J. Jowet, M.A. Jebramcik, A. Huschauer

L. Deniau discussed highlights of the last ITUM. Migration to Microsoft Office 2016 will be performed by Sepetember 2017. Adobe Acrobat Pro and Reader will be removed by the end of September 2017 and will be replaced by free software, the license can be requested and will be charged. Analogue phones will be massively migrated to IP phones in 2018. LXPLUS will remain after AFS phase out, it will probably be based on EOSFUSE and be called lxplus-eos. Web pages based on WebAFS should be migrated to webEOS, the possibility to create new websites with WebAFS is disabled.
A survey on IT reveals that iOS is the most commonly used OS on laptops. They note that CERN is the only intergovernmental organisation in Geneva to allow freedom of platform choice, most others enforce Microsoft Windows.

G. Sterbini discussed SWAN, a Jupyter like system that is currently not supported as a CERN service by IT. G. Sterbini suggested that ABP supports this project by showing its power on specific applications. In particular, it would be intersting to have the possiblity to perform data analysis on the technical network, allowing for direct access to the instruments. This would require the possibility to mount eos on the technical network and to run SWAN on a virtual machine. L. Deniau will contact BE-CO to discuss possible solutions.

T. Mertens presented the Collider Time Evolution (CET) code. It is meant to study the behaviour of beam parameters in a collider including the effect of synchrobetatron motion with a single or a double RF system, luminosity burn-off, intrabeam scattering, sychrotron radiation and collimation. Stochastic cooling is implemented in an unofficial version. Different intrabeam scattering models are avilable. The luminosity burn off is based either on a Gaussian model or a full computation based on the distribution obtained with binning, including the effect of the crossing angle and hourglass. Multiple bunches can be simulated. A possibility to introduce an artificial source of blow up is implemented, but not artificial losses.
The macropartciles coordinates are generated according to a given distribution or loaded from a file. The macroparticles are then tracked with time steps equivalent to several turns, in the order of 20k. About 50k macroparticles are needed, resulting in simulation time in the order of 5h.
The original code was written at BNL in FORTRAN, it is now interfaced with f2py. The code is licensed under the MIT license. No parallelisation is implemented.
CET is used to predict and understand the beam parameter evolution in the LHC operating with p-Pb. The obervations are overall in reasonable agreement, but some aspects are not understood. The p-p run can also be estimated, but the contribution from beam-beam interaction is not included. It is used at RHIC, without the python interface, by M. Blaskiewicz.
A manual is being written.

- J. Jowett added that the debunching due to IBS is also included.

- There is currently no dedicated man power, M. Schaumann and R. Bruce are now the main users.