

MYRRHA - CERN collaboration day, 27 February 2020

Proposal: "Seamless redundancy in White Rabbit"

CERN Participants: J. Serrano and WR team

MYRRHA Participants: D. Vandeplassche and controls team

Topic:

White Rabbit (WR) as a way to develop distributed hard real-time systems. Potential applications include reference clock distribution for LLRF. Other applications can be identified once the experience grows in the MYRRHA team.

Goal(s):

- *Validate the suitability of WR for the use cases in MYRRHA.*
- *Conditioned on the former, add seamless redundancy support so as to increase the availability of systems based on WR. By seamless we mean that cutting a fibre should not result in any noticeable degradation for either the time or the data supplied by WR.*

Timeline: 2020-2025

CERN support for this project is (0 = nice,, 5 = crucial): 2

Collaboration proposal

Benefits for MYRRHA:

- Contact with experienced WR team at CERN.
- Good OSHW solution with no vendor lock-in and an active and enthusiastic community.
- State-of-the-art, standards-based synchronisation system.
- Potentially other applications aside from LLRF reference clock distribution.

MYRRHA contribution:

- *Start with a visit to CERN for a few days to learn the ropes of WR technology.*
- *If deemed appropriate, consider financing development resources (e.g. a fellow) to work at CERN on seamless redundancy.*

MYRRHA technical contact: D. Vandeplassche

Benefits for CERN:

- *More users of WR, so better debugged hardware and software and lower prices for common building blocks thanks to scale effects.*
- *Increase the reliability of some WR applications at CERN such as the BTrain systems in the injectors.*

CERN contribution:

- *Supervision of fellow or equivalent.*

CERN technical contact: J. Serrano