



Ecosystem Evolution and System Concerns

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The Muon g-2 ecosystem

Our ecosystem consists of g-2 packages and externals

Use Relocatable UPS for package repository and setting the environment

- No plans to move to Spack
- Lisa is working on GitHub

Our externals come from summer 2018 (!!)

- Art v2_10_03a
- Geant v4_10_3_p03a (with special gm2 patch)
- Root v6_12_04e

The production environment is frozen

- Migrated to SL7 in summer of 2020
- No changes since then...
 - Need a stable system for production
 - No time/resources to update externals between production eras
 - To do this quickly would need more people
 - Extensive testing is difficult
 - Especially challenging since we're grouping datasets together
 - Must be reconstructed with the same software system
 - Run 2/3
 - Run 4/5
- Good that this ecosystem is running extremely well

Production environment != Analysis environment

- While the production environment is frozen, analysis is not
- We can also change the simulation environment if necessary

- Many groups skim to a Root tuple

- Some analyses using python3, Jupyter, more modern Root, etc
 - People & Groups maintain these externals themselves

- Efforts underway to make a common one

What happens with SL7 is end of life?

- Projected end of life for SL7 is June 30, 2024
- Run 6 production projected to end early 2024
- Run 6 analysis goes to end of 2024
- May need waivers, containers, etc so we can continue to use SL7 to read the data
- Will potentially get complicated if Online needs a newer OS next year
- Haven't thought about data preservation yet

New topic: System concerns

- The ecosystem runs well
 - We don't have the human resources to make big changes to it
- The Computing Infrastructure runs well most of the time
- **Until it doesn't**
- **Accessing the data (especially from tape) has been very problematic at times**
 - Especially when other experiments are very busy
 - This exacerbates the "small enstore queue" problem – difficult to hold on to a tape drive
 - Breaks prestaging
 - Having our own Read Pool helps (Thanks!), but only so much

System concerns

- Fast skim jobs can saturate the FCC <-> GCC network link
 - Seems to be a “feature” of the system
 - Not sure what we can do about this

- Thanks for making things work and helping Muon g-2!
 - Special thanks to Yujun, Brandon, Robert, Dmitri, Ed, Glenn, Bonnie, Ken, Vladimir, Igor, Kyle, Stu and everyone else behind the scenes
 - Muon g-2’s success is due to your success!