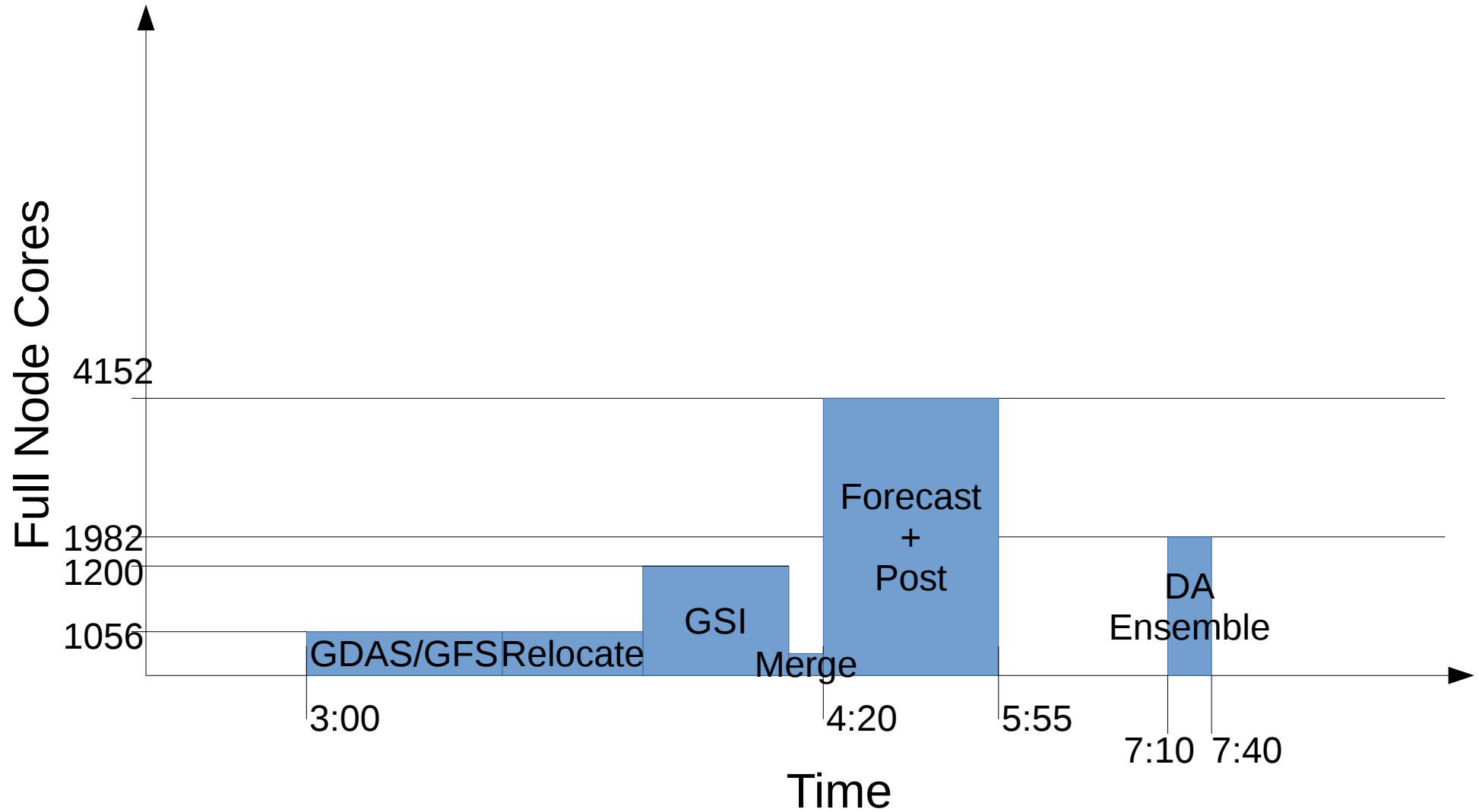


2016 HWRF Physics Upgrade Planning Overview

EMC HWRF Group
Thursday, August 20, 2015

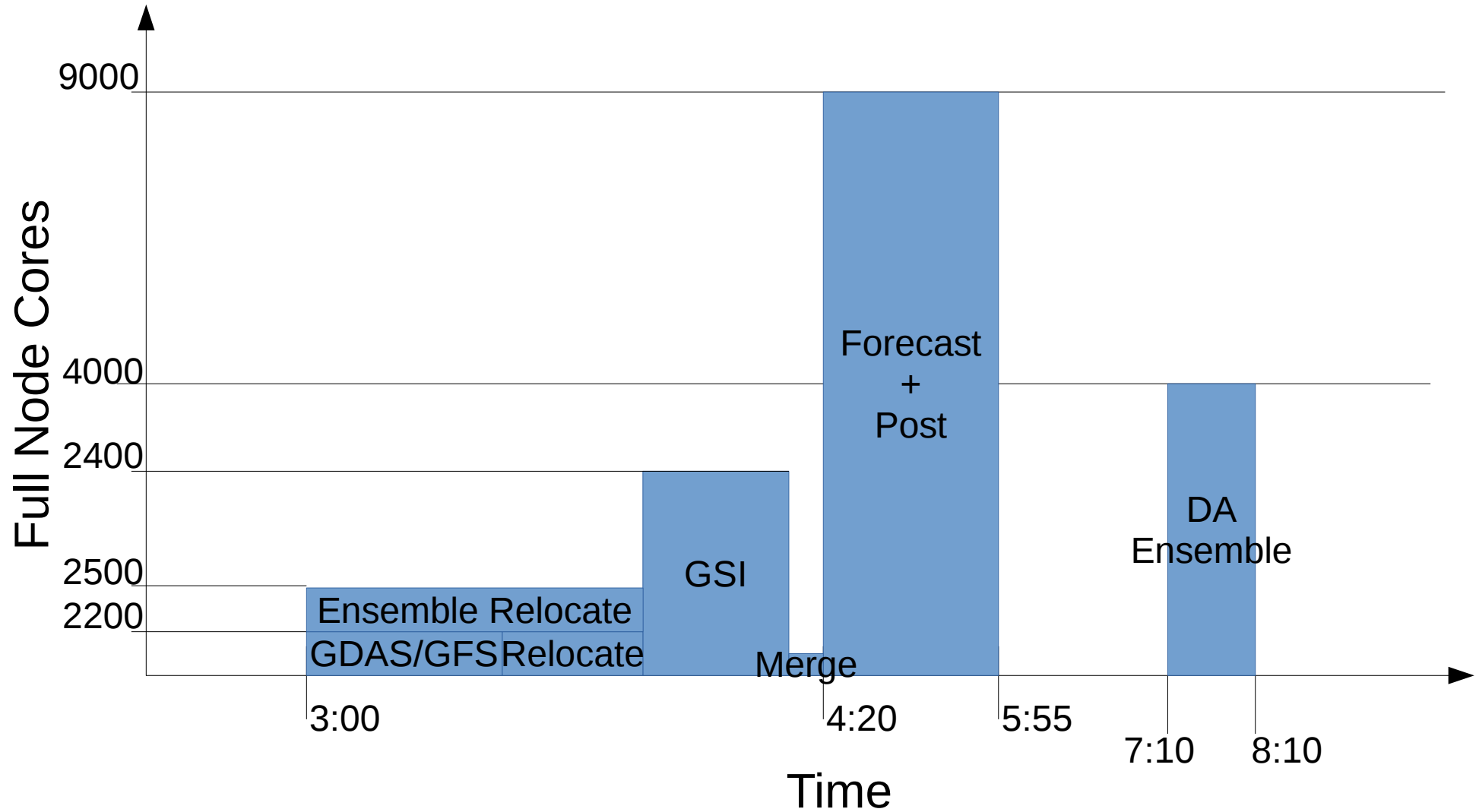
Likely Resource Increases

Existing 2015 (Phase 2) Resources



Likely Resource Increases

2016 on WCOSS Task Order 4



Discontinuity Issues

- 2km-6km discontinuities
 - Strong signal in clouds.
 - Strong signal in lowest parts of boundary layer.
 - Major problem for large storms that span domain 2
- Likely causes:
 - Physics is not scale-aware.
 - No species advection of microphysics.
 - Convection in d01, d02, but not d03

Vertical Motion Issues

- Non-hydrostatic state discarded when nest moves
 - Weakens vertical wind
 - Causes big model shocks
 - A fix is being tested!

Other Issues

- Dry air in upper levels too dry.
- Consistent problems in EP basin for all HWRF configurations.
- As always, we seek to improve:
 - Track
 - Wind
 - Rainfall
- Hopefully physics upgrades will do that.

Desired tests for 2016

- Advected Ferrier-Aligo - being tested now
- Advected Thompson
- 2015 GFS PBL
- **Grell-Freitas - presentation after this**
- Scale-aware SAS scheme.