BNL input on EIC software EOI

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EIC software EOI discussion

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Why a software EOI?

- Precept: EIC detector collaborations will determine for themselves what they do for software, but that will include common software elements
- In January we were discussing ‘greenfield framework’ as a post YR common effort, but a more flexible and perhaps more tenable discussion would be ‘greenfield components’
  - Can we define common software components/projects now that we think will be of interest to one or more collaborations later
  - And make useful progress on them to inform collaboration choices later and promote common software choices
- EOI process seems a good mechanism, with appropriate timescale, to give context and visibility to this

BNL perspective

- BNL is heard from a lot, it's more interesting and informative to hear from the wide community participating today, so this is very brief
- Precept for BNL's software involvement (we *think* our bosses believe it!)
  - Involvement and expertise in software contributes directly to leadership in detector development and ultimately EIC science
- What are highlight EIC software needs in the current, near and longer term?
  - Current: community standard tools for fast simu, full simu, reco, validation that capture and evolve the experience from years of detector development experience for EIC and sPHENIX (eic-smear, Fun4All, EicRoot, EicToyModel) serving the YR report phase, and (only) as long as necessary beyond that
  - Near: distributed workload and data management systems, databases; leverage ops, HEP strengths and collocation with facility
  - Longer: we need to replace the current toolset with modern software and techniques that can (as they evolve) serve EIC science well in the 2030s (ie we believe in greenfield :-)
  - Throughout: make full use of our collaborative home, code and doc, on GitHub
    - And consider data & analysis preservation from the beginning
- What software technologies and techniques should be considered for the EIC?
  - Everything we might say here will be said by others
- What resources can your group contribute?
  - Sustaining contributions to the present software stack. 7 core sw team members from BNL.
  - Current available effort to address the longer term is small, while interest is high
  - Group is strong in HEP as well as NP software, and emphasises common software by both inclination and mandate