Nuts and Bolts of BDEC2 and meeting in Bloomington Indiana November 28-30, 2018

Geoffrey Fox, November 14, 2018

SC18 Birds of a Feather Dallas Texas 2018

Digital Science Center

Indiana University, Bloomington

gcf@indiana.edu, http://www.dsc.soic.indiana.edu/, http://spidal.org/

Overall structure of Bloomington Meeting

- BDEC2 has 6 International meetings spread over 2 years developing a community driven Digital Continuum platform supporting Science and Engineering data research spanning HPC, Clouds, simulations, data analytics (Common Digital Continuum Platform for Big Data and Extreme Scale Computing)
- First meeting has a focus on application requirements but will kickoff other key parts of BDEC2 and will include **working groups** on
  - Applications and Requirements
  - Platform architecture/design and
  - Community (Academia, Government, Industry, Open Source, .org's) building
- It will include **overview talks** expanding on initial talks at BoF discussing overall issues and regional (Asia, Europe, US) perspectives on Digital Continuum.
  - There will be breakouts to start off working groups
- 35 **white papers** were submitted; many of these will be presented
- We will plan working group activities at and in between the 6 meetings
  - The working groups will meet "virtually" and perhaps in person
- First meeting will refine the foci of the following 5 meetings

Topics of White Papers and Application Talks

- Pathology
- Genome Alignment
- Network Science
- Climate
- Weather; Data Assimilation
- Electrical Power Grid
- Real time race car monitoring
- Precision Agriculture
- UAV and Environmental monitoring
- Square Kilometer Array
- Light Sources & Experiment Control

- Interface of Machine Learning, Simulation and Observation
- Biomolecular Simulations
- Material Science
- Fusion

- Smart Cities
- Edge and Fog Computing

- Continuum Platform:
- Modern Clouds, workflow, HPC, Data Transport, Benchmarking

Use case Survey based on NIST Big Data Survey

https://docs.google.com/document/d/1ALUtR4DlonUZcxo8Lj_A7nbIdRsJcnQ-iVxEy0grzxA/edit?usp=sharing

Sample of the most basic fields. Form has more optional fields
NIST had 53 use cases https://bigdatawg.nist.gov/_uploadfiles/NIST.SP.1500-3r1.pdf

Overall Features

- Use Case Title
- Use Case Contacts
- Use Case URL(s)
- Pictures and Diagrams?
- Actors / Stakeholders
- Summary of Use Case and its Solution

Detailed Features

- Use Case Description
- Data Source, Volume, Velocity
- Data Analytics and Computational Methods
- Computer Systems Infrastructure
- Key words and Tags for classification
- Security and Privacy Issues

Questions?
Please comment or contribute on anything!

Big Data and Extreme-scale Computing
http://www.exascale.org/bdec/

- **BDEC Pathways to Convergence Report**
  http://www.exascale.org/bdec/sites/www.exascale.org.bdec/files/whitepapers/bdec2017pathways.pdf
- New series BDEC2 “Common Digital Continuum Platform for Big Data and Extreme Scale Computing” with first meeting November 28-30, 2018 Bloomington Indiana USA.
  - First day is evening reception with meeting focus “Defining application requirements for a Common Digital Continuum Platform for Big Data and Extreme Scale Computing”
- Next meetings: February 19-21 Kobe, Japan (National infrastructure visions) followed by two in Europe, one in USA and one in China.