Analytics and Visualization Panel
VisIt Demo

- Tomorrow 10:30 AM
- VisIt with FITS data
VisIt runs where you want to work

• Same user interface on each platform
• Platforms
  • Windows
  • MacOS X
  • Linux
VisIt Architecture
Application focused applications
Exascale is coming....
Exascale is coming.....
Exascale computer is very different

System architecture targets are aggressive in schedule and scope.

<table>
<thead>
<tr>
<th>System attributes</th>
<th>2010</th>
<th>“2015”</th>
<th>“2018”</th>
</tr>
</thead>
<tbody>
<tr>
<td>System peak</td>
<td>2 PF/s</td>
<td>200 Petaflop/sec</td>
<td>≥ 1 Exaflop/sec</td>
</tr>
<tr>
<td>Power</td>
<td>6 MW</td>
<td>15 MW</td>
<td>≤ 20 MW</td>
</tr>
<tr>
<td>System memory</td>
<td>0.3 PB</td>
<td>5 PB</td>
<td>64 PB</td>
</tr>
<tr>
<td>Node performance</td>
<td>125 GF/s</td>
<td>500 GF/s</td>
<td>1 TF/s</td>
</tr>
<tr>
<td>Node memory BW</td>
<td>25 GB/s</td>
<td>200 GB/s</td>
<td>2 TB/s</td>
</tr>
<tr>
<td>(consistent with 0.4 B/F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Node concurrency</td>
<td>12</td>
<td>100</td>
<td>1,000</td>
</tr>
<tr>
<td>System size (nodes)</td>
<td>18,700</td>
<td>400,000</td>
<td>40,000</td>
</tr>
<tr>
<td>Node link BW</td>
<td>1.5 GB/s</td>
<td>50 GB/sec</td>
<td>0.5 TB/sec</td>
</tr>
<tr>
<td>(consistent with 0.1 B/F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean time before</td>
<td>days</td>
<td>≥ 24 hours</td>
<td>≥ 24 hours</td>
</tr>
<tr>
<td>application failure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IO</td>
<td>0.2 TB/s</td>
<td></td>
<td>60 TB/s</td>
</tr>
</tbody>
</table>
Preparing for data analysis at the Exascale

Supercomputer

Simulation
  in situ

Indexing  I/O

Parallel FS

Staging Area

Dashboards

Post processing

Indexing

ADIOS
Discussion Questions

• What does the community need/want?
  • What would we do with it?

• What tools are you using?
  • Scalability?

• In situ:
  • What can you compute on the fly
  • What can’t you compute on the fly

• What analytics are needed?
  • R and VisIt coming

• Provenance
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