The Berkeley Open Infrastructure for Network Computing

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Abstract:

The Berkeley Open Infrastructure for Network Computing (BOINC) is an open source middleware system for Volunteer and Grid Computing. It was originally developed to support the SETI@home project before it became useful as a platform for other distributed applications in areas as diverse as mathematics, medicine, molecular biology, climatology, and astrophysics. The intent of BOINC is to make it possible for researchers to tap into the enormous processing power of personal computers around the world. A lot of scientific research groups have been the beneficiary of this new paradigm where thousands of individuals abstain hundreds of TeraFPLOS of their real time computing power.

As BOINC is designed to harness heterogeneous and untrusted computers in terms of hardware, OS, software etc., it creates mechanisms such as validation and credit system to cope with these issues. As a distributed computing platform, a range of research topics are conducted on the BOINC platform, such as scheduling or Volunteer Storage Archive. This presentation will particularly cover the collaboration research work done with computer scientists from INRIA on the BOINC scheduling mechanism in which we tried the simulation tool SimGrid to model various factors affecting both the throughput and latency on given applications running on BOINC.

About the Speaker:

Dr. Wenjing Wu is an associate professor at Institute of High Energy of Physics (IHEP), Chinese Academy of Sciences. Her main research interests are in distributed computing and massive storage systems. She received her PhD degree in “Computer application technology” from IHEP in January 2010. Her doctoral dissertation is about the “research on performance of grid storage system over 10Gb networks”, and all the related research work was conducted at the University of Michigan during her two year exchange there. She has been working on Grid Computing since 2006, mainly in the High Energy Physics field, including ATLAS, BELLEII and BESIII experiments. Later, she found her new interests in Volunteer Computing, and leads the first Chinese volunteer computing project CAS@home which is a BOINC-based platform hosting multiple scientific computing applications. In 2013, she started another project ATLAS@home which is based at CERN and harnesses and integrates virtualized Volunteer Computing resources with Grid Computing resources, providing the huge amount of computing power that the ATLAS experiment demands.

All are welcome!
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