CCGrid 2014 Proposal

Ioan Raicu

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Math and Computer Science Division, Argonne National Laboratory

CCGrid 2011 Steering Committee Meeting
May 25th, 2011

Overview

- **What: Host CCGrid**
- **When: 2014**
- **Where: Chicago**
- **Who:**
  - Institutions:
    - Illinois Institute of Technology (IIT)
    - Argonne National Laboratory (ANL)
    - University of Chicago (UChicago)
  - General Chairs:
    - Xian-He Sun (IIT)
    - Ian T. Foster (UChicago/ANL)

CCGrid 2014 Proposal

Leadership and Organization

- **General Chairs:**
  - Xian-He Sun, Computer Science Department, Illinois Institute of Technology
  - Ian Foster, Computation Institute, University of Chicago and Argonne National Laboratory

- **Conference Manager and Finance Chair:**
  - Julie Wulf-Knoerzer, Computation Institute

- **Local Organizing Committee:**
  - Xian-He Sun, Illinois Institute of Technology
  - Ian Foster, Computation Institute, University of Chicago, & Argonne National Laboratory
  - Ioan Raicu, Illinois Institute of Technology & Argonne National Laboratory
  - Pavan Balaji, Argonne National Laboratory

Who am I?

- **Current position:**
  - Assistant Professor at Illinois Institute of Technology (CS)
  - Guest Research Faculty, Argonne National Laboratory (MCS)
- **Education:** PhD, University of Chicago, March 2009
- **Relation to General Chairs:**
  - Dr. Sun: CS Chair
  - Dr. Foster: PhD advisor
- **Role in CCGrid 2014:**
  - Local organizing committee member
- **Lead the Data-Intensive Distributed Systems Laboratory (DataSys)**
  - http://datasys.cs.iit.edu/
- **More info:** http://www.cs.iit.edu/~iraicu/index.html

About Ian Foster

- Many awards and titles:
  - 1989: British Computer Society Award for Technical Innovation
  - **1995: "*father of grid computing*"**
  - 1996: Globus Toolkit is released
  - 1997: Global Information Infrastructure "Next Generation" Award
  - 2001: Gordon Bell Award
  - 2002: R&D Magazine's Innovator of the Year, awards Globus "most promising new technology" of the year
  - 2002: Lovelace Medal
  - 2003: Infoworld Magazine awards "*top 10 technology inovators*"
  - 2004: co-founder of Univa Corporation
  - 2005: Network World: "*The 50 most powerful people in networking*"
  - 2006: GridWorld "Industry Leadership Award"
  - 2011: Distributed Computing Award - *Tsutomu Kanai Award*
  - **2011: "*top seven most influential computer scientists worldwide*"**
  - ➔ h-index 90 (http://www.cs.ucla.edu/~palsberg/h-number.html)

About Hian-He Sun

- Chair of CS department at IIT
- Previously
  - Ames National Laboratory
  - ICASE
  - NASA Langley Research Center
  - US Navy Research Laboratories
  - Fermi National Accelerator Laboratory
  - Louisiana State University
- Research interests: parallel and distributed processing, system software, performance evaluation, and high end computing

- **Research Focus**
  - High performance computing and communication, especially in the design and prototype development of scalable software systems, where scalable software means software which can cooperate hundreds or more processes working collectively.

- **People**
  - Dr. Xian-He Sun (Director)
  - Dr. Zhiling Lan
  - 2 Postdocs
  - 1 Research Staff
  - 11 PhD Students
  - 2 MS Students

- **More information**
  - http://www.cs.iit.edu/~scs/home/home.html

- **Research Focus**
  - Emphasize designing, implementing, and evaluating systems, protocols, and middleware with the goal of supporting **data-intensive applications on extreme scale distributed systems**, from many-core systems, clusters, grids, clouds, and supercomputers

- **People**
  - Dr. Ioan Raicu (Director)
  - Tonglin Li (PhD Student)
  - Xi Duan (MS Student)
  - Raman Verma (Research Staff)
  - 3 PhD and 1 UG students joining over the next several months

- **More information**
  - http://datasys.cs.iit.edu/

- 18 tenure-track faculty members
- 28 total faculty members
- 200 undergrad students
- 400 graduate students

XIAN-HE SUN
Professor & Chair, Computer Science
Software systems; distributed & parallel processing; data intensive computing.

VIRGIL BISTRICEANU
Instructor, Computer Science
Information security; agile software development; software testing; computer architecture.

JON HANRATH
Senior Instructor, Computer Science

SHANGPING REN
Associate Professor, Computer Science
Real-time & distributed computing; cyber-physical systems; dependable & adaptive systems; programming languages & software engineering.

CYNTHIA HOOD
Associate Chair & Associate Professor of Computer Science & Engineering
Network & systems management; wireless networks; adaptive systems; innovation in education.

EDWARD CHLEBUS
Industry Associate Professor, Computer Science
Network modeling; teletraffic engineering; congestion control; wireless networks.

SANJIV KAPOOR
Professor, Computer Science
Computational economics & game theory; combinatorial optimization; computational geometry.

MICHAEL SAELEE
Instructor, Computer Science

BOGDAN KOREL
Associate Chair & Associate Professor, Computer Science & Engineering
Software engineering; automated software system analysis; software reliability & testing.

GRUIA CALINESCU
Associate Professor, Computer Science
Algorithms & approximation algorithms.

GEORGE KOUTSOGIANNAKIS
Instructor, Computer Science

JAMES SASAKI
Senior Lecturer, Computer Science; Director, Graduate Professional Program
Programming languages; programming logics; operational semantics; evidence-based semantics.

GADY AGAM
Associate Professor, Computer Science
Advanced computational algorithms for visual computing; algorithms for computer vision; machine learning; pattern recognition.

ROBERT CARLSON
Professor, Computer Science & Information Technology
Relational databases; database design tools & methodologies; multi model & distributed information systems.

ZHILING LAN
Associate Professor, Computer Science
Parallel & distributed systems.

MARIUS SONERU
Senior Lecturer, Computer Science

SHLOMO ARGAMON
Associate Professor, Computer Science
Machine learning; computational linguistics, stylistics, & information retrieval.

TZILLA ELRAD
Research Professor, Computer Science
Concurrent programming; aspect-oriented software development; formal modeling & verification; software adaptability & reuse.

FRANCIS LEUNG
Industry Professor, Computer Science
Software engineering; operating systems & networks; programming languages; AI; software verification.

PENG-JUN WAN
Professor of Computer Science & Engineering
Wireless networks; optical networks; algorithm design & analysis.

MATTHEW BAUER
Senior Lecturer, Computer Science; Computer Science Director of Undergraduate Programs; Director of Undergraduate Academic Advising

OPHIR FRIEDER
Research Professor, Computer Science
Scalable information systems.

XIANG-YANG LI
Associate Professor, Computer Science
Algorithm design & analysis for networks; wireless sensor networks; computational geometry; game theory.

VIDA WINANS
Senior Instructor, Computer Science; Graduate Coordinator

A. MATTOX BECKMAN
Senior Lecturer, Computer Science
Formal methods; partial evaluation; machine learning; functional programming languages.

DAVID GROSSMAN
Associate Professor, Computer Science
Information retrieval; integrating structured & unstructured data; data mining.

EDWARD REINGOLD
Professor, Computer Science
Analysis of algorithms & data structures; calendars.

WAI GEN YEE
Assistant Professor, Computer Science
Collaborative information systems; distributed database systems; search engines.

Distributed Systems Laboratory University of Chicago
http://dsl-wiki.cs.uchicago.edu/index.php/Main_Page

- Lead by Dr. Ian Foster

- Research Areas:
  - Distributed systems
  - Grid middleware
  - Grid applications
  - Designing, implementing, and evaluating systems, protocols, and applications
  - Data-intensive scientific computing

- People:
  - 1 faculty (Dr. Ian Foster)
  - 11 students
  - 2 research staff
  - 16 alumnis

Computation Institute
University of Chicago
http://www.ci.uchicago.edu/index.php

- People:
  - Director: Ian Foster
  - 100+ faculty, scientists, staff, and students

- Focus
  - Deep Supercomputing
  - Data Intensive Computing
  - Next Generation Cybertools

- Many high-impact projects
  - Open Science Grid
  - TeraGrid
  - Globus
  - Social Informatics Data Grid
  - CBC: Chicago Biomedical Consortium
  - National Microbial Pathogen Research Center
  - CIM-EARTH: A Community Integrated Model of Economic and Resource Trajectories for Humankind
  - ASC FLASH: ASC / Alliances Center for Astrophysical Thermonuclear Flashes
  - MWT2: ATLAS Midwest Tier 2 Center
  - PADS: PetaScale Active Data Store
  - Text Mining

Math and Computer Science Div. Argonne National Laboratory

http://www.mcs.anl.gov/index.php

- People:
  - Over 180 staff, researchers, scientists, developers
- Research Areas
  - Algorithms, Software, and Applications
  - Parallel Tools
  - Distributed Systems Research
  - Collaborative and Virtual Environments
  - Computational Science
- Many high-impact projects
  - TeraGrid (largest national cyber-infrastructure project)
  - Globus Toolkit (defacto Grid Computing midleware)
  - MPI (synonymous with HPC and Supercomputing)
  - PVFS (scalable and high performance parallel fie system)

Argonne Leadership Computing Facility
Argonne National Laboratory
http://www.alcf.anl.gov/

- ## People:
  - Over 40 staff, researchers, scientists, developers

- ## Leadership class computing resources to scientific community

- ## Hosts the IBM Blue Gene/P supercomputer
  - 500TF system
  - #13 in Top500 (November 2010)

Baseline System
32 Racks

Rack   Cabled 8x8x16

500TF/s

14 TF/s
2 TB

Node Card

32 compute, 0-4 IO cards

435 GF/s
64 GB

Compute Card

Chip
4 processors

13.6 GF/s
2 GB DDR

13.6 GF/s
8 MB EDRAM
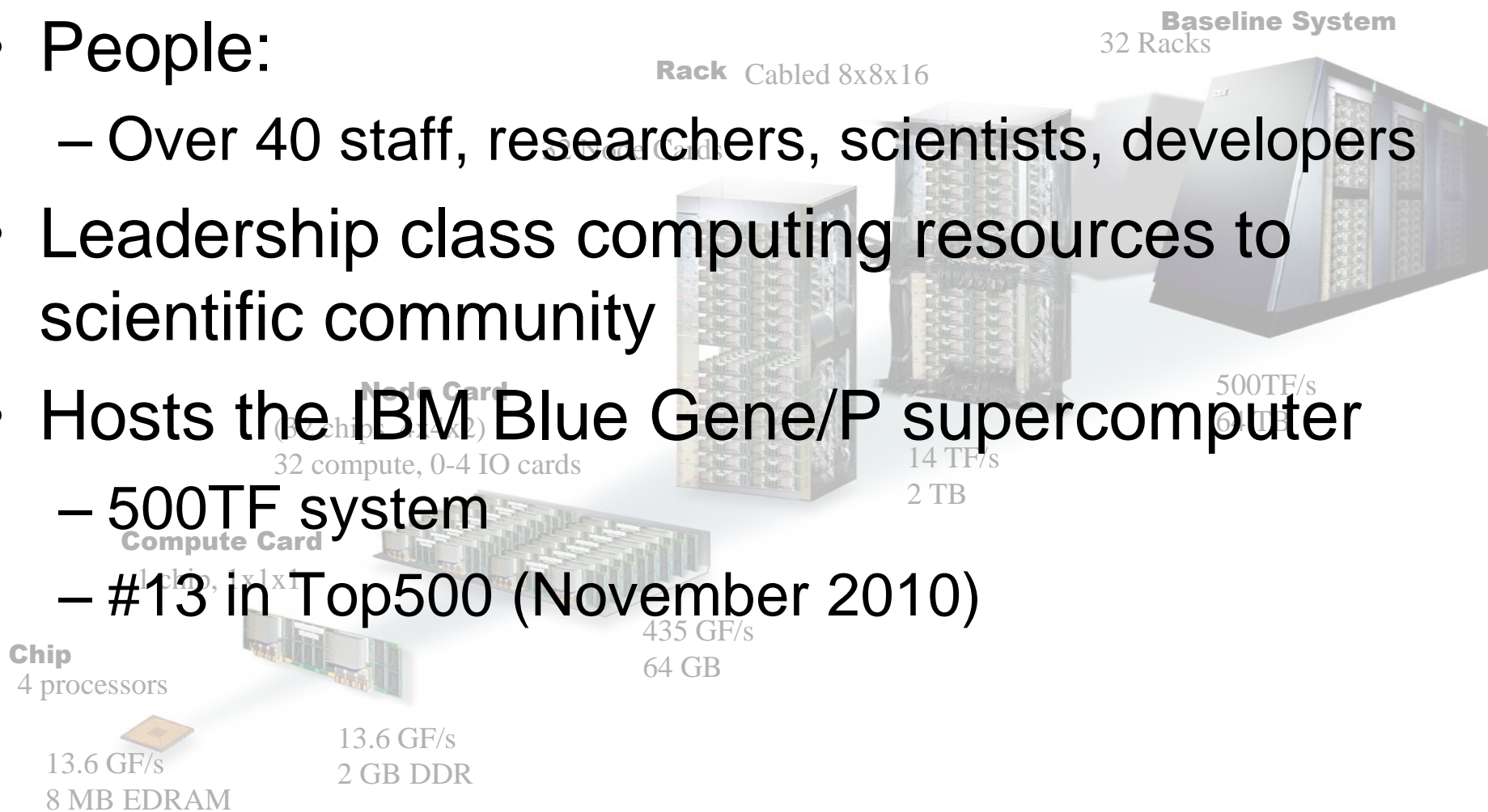
Relevant Conferences

- **eScience**: IEEE e-Science Conference, 2012
- **HPDC**: ACM Int. Symposium on High Performance Distributed Computing, 1998, 2000, 2001, 2010, 2011
- **CCA**: Cloud Computing and Its Applications Conference, 2008, 2009, 2011
- **GlobusWORLD**: GlobusWorld Conference, 2003-2011
- **GRID**: ACM/IEEE International Conference on Grid Computing, 2011
- **SC**: IEEE SuperComputing Conference, 2003.
- **NCA**: International Symposium on Network Computing and Applications, 2005
- International Conference on Information Technology and Sustainable Development, 2005
- **SoCAPS** Symposium: Being Professors in the USA & Promoting International Collaboration, 2005
- **ICPP**: International Conference on Parallel Processing, 2004
- IEEE Symposium on the Frontiers of Massively Parallel Computations 1999
- PDEs on the Sphere Conference 1994

Relevant Workshops

- **DataCloud**: IEEE Int. Workshop on Data-Intensive Computing in the Clouds (at IPDPS), 2011

- **MTAGS**: ACM Workshop on Many-Task Computing on Grids and Supercomputers (at SC), 2008, 2009, 2010, 2011

- **ScienceCloud**: ACM Workshop on Scientific Cloud Computing (at HPDC), 2010, 2011

- IIT-IBM Cloud Computing in Education Workshop, 2010

- China HPC Workshop (co-located with IEEE/ACM Supercomputing), 2010

- **DSLW**: Distributed Systems Laboratory Workshop, 2006, 2007, 2008, 2009

- NSF Workshop on Building Effective Virtual Organizations, 2007, 2008

- International Provenance and Annotation Workshop, 2002, 2006

- International Workshop on Performance Analysis and Optimization of High-End Computing Systems (at IEEE SC), 2006

- **GCC**: International Workshop on Grid and Cooperative Computing, 2003.

- DARPA/DOE/NASA/DOE Computational Grids Workshop 1997

- DARPA/NSF Workshop on Performance 1996

Relevant Journals

- **JGC**: Journal of Grid Computing, 2003-2011
- **TPDS**: IEEE Transactions on Parallel and Distributed Systems, 2009 – 2011
- **JPDC**: Cluster computing: Journal of Parallel and Distributed Computing, 2006 - 2011
- **JoCCASA**: Journal of Cloud Computing Advances, Systems and Applications (Springer), 2011
- **SPJ**: Scientific Programming Journal, 2011
- Journal of Performance Evaluation and Modeling for Computer Systems
- **IJHPCN**: International Journal of High Performance Computing and Networking
- **IJGUG**: International Journal of Grid and Utility Computing
- International Journal of Web Services Research
- Journal of Supercomputing

Chicago is a Central Hub for Grid and Cloud Computing

- Chicago is arguably the world's most connected city, housing the StarLight international network connection point
- Many top universities (ordered by distance):
  - University of Illinois at Chicago
  - University of Chicago
  - Illinois Institute of Technology
  - DePaul University
  - Northwestern University
  - University of Illinois at Urbana Champaign
  - Purdue University
  - University of Wisconsin Madison
  - University of Notre Dame
  - Indiana University
  - Michigan State University
  - University of Michigan
- Government labs:
  - Argonne National Laboratory
  - Fermi National Laboratory

Potential Local People for Various Chairs and Committees

- **Argonne National Laboratory**
  - David Martin
  - Rajeev Thakur
  - Pavan Balaji
  - Kate Keahey
  - Mike Papka
  - Rick Stevens
  - Ravi Maduri
  - Rob Ross
- **University of Chicago**
  - Andrew Chien
  - Bob Grossman
  - Dan Katz
  - Borja Sotomayor

- **University of Illinois at Urbana Champaign**
  - Gabriel Mateescu
  - Jim Myers
  - Marc Snir
  - Roy Campbell
  - William Gropp
  - Shaowen Wang
- **Northwestern University**
  - Alok Choudhary
  - Joe Mambretti
  - Peter Dinda
- **Fermi National Labs**
  - Catalin Dumtrescu
  - Gabriele Garzoglio
  - Don Holmgren
  - Ruth Pordes

- **Indiana University**
  - Geoffrey Fox
  - Gregor von Laszewski
  - Judy Qiu
- **University of Wisconsin Madison**
  - Miron Livny
  - Remzi Arpaci-Dusseau
- **Wayne State University**
  - Shiyong Lu
  - Weisong Shi
- **Illinois Institute of Technology**
  - Zhiling Lan
- **University of Notre Dame**
  - Douglas Thain
- **University of Minnesota**
  - Abhishek Chandra

Potential International People for Various Chairs and Committees

- Adriana Iamnitchi, University of South Florida
- Alexandru Iosup, Delft University of Technology, Netherlands
- Bernard Traversat, Oracle
- Bill Howe, University of Washington
- Brian Cooper, Google
- Craig Lee, Aerospace Corp., USA.
- Dan Reed, Microsoft Research
- Daniel Zinn, University of California at Davis
- David Abramson, Monash University, Australia
- David O'Hallaron, Carnegie Mellon University & Intel Labs
- Dennis Gannon, Microsoft Research, USA
- Dick Epema, Technical University of Delft, The Netherlands
- Ed Lazowska, University of Washington & Computing Community Consortium
- Erwin Laure, CERN, Switzerland
- Ewa Deelman, Universtiy of Southern California, USA
- Florian Schintke, Zuse institute Berlin, Germany
- Franck Cappello, INRIA/UIUC, France/United States.
- Henri Casanova, University of Hawaii at Manoa
- Henri, Bal, Vrije Universiteit, Amsterdam, Netherlands.
- Hyunjoo Kim, Rutgers University, USA.
- Ian Taylor, Cardiff University, UK
- Ignacio Llorente, Open Nebula, Universidad Complutense de Madrid, Spain
- Ion Stoica, University of California Berkeley
- Ivona Brandic, Vienna University of Technology, Austria.
- Jack Dongarra, University of Tennessee, USA
- James Hamilton, Amazon Web Services
- Jeff Broughton, Lawrence Berkeley National Lab.
- Jeff Chase, Duke University
- John Bent, Los Alamos National Laboratory
- Jose Moreira, IBM Research
- Josh Simons, VMWare

- Surendra Byna, Lawrence Berkeley National Laboratory
- Zhiwei Xu, Institute of Computing Technology, China
- Qian Depei, Beijing University of Aeronautics and Astronautics, China
- Nong Xiao, National University of Defense Technology, China
- Kirk W. Cameron, Virginia Tech
- Kento Aida, National Institute of Informatics, Japan.
- Lavanya Ramakrishnan, Lawrence Berkeley Nat. Lab.
- Liang-Jie Zhang, IBM Research
- Manish Parashar, Rutgers University, USA.
- Maria Indrawan, Monash University, Australia
- Marty Humphrey, University of Virginia, United States.
- Matei Ripeanu, University of British Columbia, Canada
- Murat Demirbas, University at Buffalo
- Paolo Missier, University of Manchester, UK
- Peter Kacsuk, Hungarian Academy of Sciences, Hungary
- Rajkumar Buyya, University of Melbourne, Australia.
- Reagan Moore, Univ. of North Carolina, Chappel Hill
- Renato Figueiredo, University of Florida, United States.
- Rich Wolski, University of California, Santa Barbara
- Roger Barga, Microsoft Research
- Rong Ge, Marquette University
- Rong N. Chang, IBM Research
- Ruben Montero, Univ. Complutense de Madrid, Spain
- Shantenu Jha, Louisiana State University
- Steven Ko, University at Buffalo
- Tevfik Kosar, Louisiana State University
- Umit Catalyurek, Ohio State University
- Viktor Prasanna, University of Southern California
- Yong Chen, Texas Tech University
- Yong Zhao, University of Electronic and Science Technology of China
- Shaowen Wang, University of Illinois at Urbana-Champaign

Hotel Venue
Hyatt Regency Chicago

- **Hyatt Regency Chicago Factsheet**
  - 151 East Wacker Drive, Chicago, Illinois USA 60601
  - Photo Gallery
  - Google Earth Demo
- Some highlights:
  - Situated on the Chicago River near Chicago's Magnificent Mile
  - Near world-class shopping, entertainment and commerce centers
  - Easy walk or cab ride to the city's best theater, museums, and cuisine as well as Grant and Millennium Parks, Lake Michigan beaches, Navy Pier and Michigan Avenue
  - 2000+ guest rooms
  - 228K square feet of meeting space over 63 rooms
  - 12 miles from Chicago Midway Airport and 18 miles from Chicago O'Hare Airport CCGrid 2014 Proposal

Dates

- Proposed dates: May 19th to 22nd, 2014.
  - May is one of the most wonderful months of the year to visit Chicago. The average high in Chicago is 69 F (20 C) and the average low is 49 F (9 C), with generally low humidity during this time of the year.
  - May in Chicago is a great month, as the warmer weather finally starts to hold, the Chicago beaches open, and summer is right around the corner.
- We will use Easychair software to manage paper submissions
- Timeline:
  - Workshop Proposals Due: October 1, 2013
  - Workshop Notification: October 6, 2013
  - Submission Deadline: Dec. 3, 2013
  - Acceptance Notification: Jan. 24, 2014
  - Camera-Ready Version Due: Feb. 21, 2014
  - Tutorial Submissions Due: March 4, 2014
  - Author Registration Deadline: March 21, 2014
  - Workshops: May 19, 2014
  - Main Conference: May 19-22, 2014

Costs

- ## Registration:
  - We anticipate registration rates to be consistent with past years and will adhere to IEEE rules and regulations. Every effort will be made to pursue sponsorship to offset attendee costs.

- ## Accommodations:
  - We expect the sleeping room rate at the Hyatt Regency Chicago to be around $200 a night plus taxes

- ## Funding Support:
  - Funding support will be solicited from industry and research partners who are active and/or interested in cluster, grid, and cloud computing
  - Goal is to raise $50,000 in financial and in-kind contributions
  - We anticipate approaching Cray, IBM, Microsoft Research, Accenture, and Google, as well as local research partners such as the University of Chicago, Argonne National Laboratory, Illinois Institute of Technology, and Fermi National Laboratory

Attractions

- Sears Tower Skydeck: www.the-skydeck.com
- Millennium Park: www.milleniumpark.org
- Magnificent Mile Shopping: http://www.themagnificentmile.com/shopping.cfm
- John Hancock Center Observatory: http://www.hancock-observatory.com/en/
- Museum of Science and Industry: http://www.msichicago.org/
- Adler Planetarium & Astronomy Museum http://www.adlerplanetarium.org/
- The Art Institute Of Chicago http://www.artic.edu/aic/
- Frank Lloyd Wright Architecture http://www.oprf.com/flw/
- Garfield Park Conservatory: http://www.garfield-conservatory.org/
- Grant Park And Buckingham Fountain: http://en.wikipedia.org/wiki/Grant_Park_%28Chicago%29
- Lincoln Park Conservatory: http://www.chicagoparkdistrict.com/index.cfm/fuseaction/parks.detail/object_id/45AA3ED2-7C6F-4461-83B2-29CB991637E6.cfm
- Lincoln Park Zoo: http://www.lpzoo.com/
- Joffrey Ballet: http://www.joffrey.com/index.asp
- Lookingglass Theatre Company: http://www.lookingglasstheatre.org/content/
- Steppenwolf: http://www.steppenwolf.org/
- Black Ensemble Theater: http://www.blackensembletheater.org/
- Buddy Guy's Legends: www.buddyguys.com, located in the South Loop
- Lee's Unleaded Blues: http://www.rosaslounge.com/, stationed in Grand Crossing
- Rosa's Lounge: www.rosaslounge.com, situated in Logan Square
- B.L.U.E.S.: http://www.chicagobluesbar.com/, set in Lincoln Park
- The Green Mill: http://www.greenmilljazz.com/?
- The Original Mother's: http://www.rushanddivision.com/mothers.html
- Second City: http://www.secondcity.com/
- Sound-Bar: http://sound-bar.com/
- Hothouse: http://hothouse.net/programs/upcoming.jsp
- Pump Room: http://pumproom.com/
- Davenport's Piano Bar: http://www.davenportspianobar.com/

City of Chicago

More Information

- **Host Institutions:**
  - Illinois Institute of Technology (http://www.iit.edu/)
    - Department of Computer Science: http://www.iit.edu/csl/cs/
    - Scalable Computing Software Laboratory: http://www.cs.iit.edu/~scs/home/home.html
    - Data-Intensive Distributed Systems Laboratory: http://datasys.cs.iit.edu/
    - Dr. Xian-He Sun: http://www.cs.iit.edu/~scs/sun/
    - Dr. Ioan Raicu: http://www.cs.iit.edu/~iraicu/
  - University of Chicago (http://www.uchicago.edu/index.shtml)
    - Department of Computer Science: http://www.cs.uchicago.edu/
    - Computation Institute: http://www.ci.uchicago.edu/
    - Distributed Systems Laboratory: http://dsl-wiki.cs.uchicago.edu/index.php/Main_Page
    - Dr. Ian Foster: http://www.cs.uchicago.edu/people/foster
  - Argonne National Laboratory (http://www.anl.gov/index.html)
    - Mathematics and Computer Science Division: http://www.mcs.anl.gov/index.php
    - Argonne Leadership Computing Facility: http://www.alcf.anl.gov/
    - Distributed Systems Laboratory: http://www.mcs.anl.gov/research/group_detail.php?id=5
    - Dr. Ian Foster: http://www.mcs.anl.gov/about/people_detail.php?id=285