

DAVID A. LIFKA

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Executive Profile

Cornell University Vice President and Chief Information Officer. IT leader and business strategist with strong leadership, team building, and problem-solving skills. Develops, executes, and enhances a sustainable, cutting-edge IT organization that drives down costs, operates efficiently, and transforms education, research, and public service by opening new avenues for collaboration and innovation. Expert in developing and deploying optimal IT solutions defined by organizational priorities, strategic value, customer needs, and budget constraints. Over thirty years experience in administrative and research computing as a center director and lead technologist at an Ivy League university and national research laboratory. Invited industry speaker on emerging technologies and best business practices. Active member of the University Board of Trustees Cyber Security subcommittee of the Audit Committee, campus IT committees, advisory boards, and other leadership positions. Federal and industry grant awardee with publications and Computing and Information Science teaching experience.

Skills

Analyzing organizational challenges and identifying opportunities; building relationships with key stakeholders in order to identify and define high-value needs; managing projects; motivating employees; defining and meeting fiscal goals; re-engineering IT functions; dealing with performance issues and celebrating successes; building mutually beneficial vendor relations; implementing commodity and emerging technologies to meet research and administrative computing needs in a timely and transparent manner. Technical skills include: solution architecture and implementation, interconnects, data management and analysis, cloud and grid computing, high performance computing, compilers, parallel and object-oriented programming languages, resource management, and high-speed networking.

Education

Ph.D., Computer Science, Illinois Institute of Technology, 1998
M.S., Computer Science, North Central College, 1991
B.S., Computer Science, Illinois Benedictine College, 1988

Experience

CORNELL INFORMATION TECHNOLOGIES

Vice President and CIO

2015 to present

Lead the central Cornell Information Technology (CIT) organization providing high-value IT services that support the academic, research, and outreach mission of the University.

- Participate in strategic planning activities with the University Provost and Executive Vice President leadership teams.
- Continuously work with CIT leadership team on the development of strategies and initiatives that encourage adoption of services by the campus IT units through the use of metrics, KPIs and transparent cost models.

- Work closely with the Weill Cornell Medicine CIO and IT organization to ensure strategic alignment and to leverage each other’s investments and staff expertise in order to support cutting-edge research and education.
- Participate with Weill Cornell Medicine CIO and our Chief Information Security Officers on the University Board of Trustees Cyber Security subcommittee of the Audit Committee.

Associate CIO

2013 to 2015

Support and advise the CIO and the CIT senior leadership team accelerating the adoption of central standard services that offer economies of scale and scope.

- Work with the CIO and the CIT leadership team on the development of strategies and initiatives that encourage adoption of services by the campus IT units through the use of metrics, KPIs and transparent cost models.
- Oversee the IT Service Group leaders across campus helping to create a common understanding of the value proposition of leveraging central CIT services with a goal of reducing unit IT overhead that can be refocused on differentiating technologies and services.
- Participate in strategic planning to ensure the Cornell community has access to secure, reliable, sustainable and enabling infrastructure that balances feature/functionality with optimal cost.
- Provide the CIO and the CIT leadership team with insights on faculty and researcher requirements in order to properly align current and future service offerings.

WEILL CORNELL MEDICAL COLLEGE INFORMATION TECHNOLOGY SERVICES

Director, Research Computing

2010 to 2016

Support and advise the CIO and the Senior Associate Dean for Research of Weill Cornell Medical College on research computing requirements and strategies including how best to support them in an environment that has essential security requirements.

- Act as an ambassador and liaison between ITS and WCMC faculty and researchers, identifying research challenges and opportunities and how best to support them.
- Support the vision and goals of “One Cornell” by acting as a trusted conduit of information between ITS, CIT, and CAC to identify opportunities for leveraging staff and infrastructure resources across the Cornell campuses.
- Create new services offering economies of scale and scope that address the growing needs of the WCMC research community.
- Work with ITS managers and staff to create tiers of services to address the varied technical and support needs of researchers while meeting institutional fiscal and regulatory requirements.

CORNELL CENTER FOR ADVANCED COMPUTING (CAC)

Director

2007 to present

Provide executive leadership of research information technology. Worked with the Office of the Provost, Deans, and senior faculty members to reengineer/reinvent the research IT business model. Transformed staffing and services to create an effective service unit that delivers high-quality application, IT deployment, and operation services. Manage and deliver multiple faculty and federal grant projects on-time/on-budget. Responsible for unit staffing, financial management, business strategy, technology innovation, and project management.

- Established CAC as a Cornell core facility in 2007 providing advanced computational and data analysis support. CAC is currently supporting 153 projects and 1,619 users with 100% cost recovery (FY2019).
- Re-established Cornell as a national Cyberinfrastructure leader through more than \$10 million in NSF CISE-ACI awards and strategic partnerships with other leading institutions including University of Texas, Purdue University, University of Illinois, University of Chicago and SUNY Buffalo.
- HPC industry veteran with expertise in sustainable models for academic research computing facilities, parallel job scheduling and resource management systems, cloud computing, data management, high throughput systems, and Web services.
- Successfully launched Red Cloud for basic research and Red Cloud Secure with WCMC as a HIPAA/HITRUST resource. Red Cloud was the first academic cloud that provides a sustainable subscription-based business model that allows researchers to easily burst to NSF and public cloud services when necessary.
- Coordinator of Architecture and Design team for the NSF funded Extreme Science and Engineering Discovery Environment (XSEDE) which provides support, services, user allocations and coordination for NSF’s Cyberinfrastructure Service Providers.
- Directed systems, operations, training, education, and outreach for research IT serving campus-wide Ithaca clients and collaborators at Weill Cornell Medical College. Improved quality and diversity of service. Established new client base by analyzing and developing services based on customer needs. Used sales skills, credibility as a knowledgeable technologist, and effective project management skills to successfully expand and maintain customer base.
- Structured staff to efficiently deliver services on demand. Restructured staff responsibilities and right-sized the organization. Built an effective, enthusiastic team.
- Investigated and introduced new technologies to enhance researcher effectiveness such as data server farms and new data compression technologies. Built industry partnerships to prototype services and reduce costs.
- Directed the development of a finance/project management application that captures unit effectiveness and provides transparent cost and project management information to customers.
- Maintained vendor relationships and participated as a speaker and panelist at national IT industry events.

CORNELL COMPUTING AND INFORMATION SCIENCE

Director, High Performance and Innovative Computing 2005-2007

Responsible for day-to-day operations and innovations in platform and application development for Cornell Computing and Information Science (CIS) and Cornell Theory Center.

- Managed staff of 34 systems administrators, programmers, trainers, and technicians and help desk function.

Adjunct Associate Professor, Computing and Information Science 2005-2012

- “Introduction to High Performance Computing Tools and Concepts,” Statistical Science, Spring 2010-2012 – STSCI 4060.
- “High Performance Computing: Platforms, Tools and Effective Strategies for Computationally and Data Intensive Science,” Spring 2005-2009 – CIS 405.

CORNELL THEORY CENTER

Chief Technical Officer 2001-2005

Responsible for all systems administration and user support functions for CTC.

- Managed the development and delivery of computing, programming, training, and consulting services to campus-wide clients.
- CTO and project manager for largest single corporate contract in Cornell’s history (\$19,250,000 Microsoft award).

Associate Director, Computer Systems **1999-2001**

Led the strategic shift from proprietary systems to industry standard computing. Formed strategic corporate partnerships with Dell, Intel, Microsoft, Unisys, and other industry vendors that led to the first “Top 500” Windows based system and other technology and application breakthroughs.

Senior Systems Programmer **1995-1999**

Developed the EASY-LoadLeveler scheduling system in a partnership with IBM to enable Cornell systems to schedule large-scale parallel applications for campus and the national research community.

ARGONNE NATIONAL LABORATORY – CENTRAL IT

Senior Technical Support Analyst **1993-1995**

Managed systems administration staff for Argonne Mathematics and Computer Science Division and developed the Extensible Argonne Scheduling System adopted by hundreds of IBM customers worldwide.

Associate Computer Scientist **1992-1993**

Developed software infrastructure for managing and analyzing petabytes of high energy physics data produced by the National Superconducting Super Collider.

Associate Computer Scientist **1991-1992**

Delivered consulting support for emerging IT and visualization architectures for Argonne Computing and Telecommunications Division.

- Performed comprehensive comparative analysis of Cray and other HPC platforms for two- and three-dimensional heat transfer codes.

Assistant Computer Scientist **1988-1991**

Provided administrative and research computing consulting for DEC VAX/VMS systems.

IT Industry Awards/Recognition

- Mentors Lecture Hall in Gates Hall named by Rohan N. Murty in honor of CU professors and Dr. David Lifka.
- Received ComputerWorld Smithsonian Laureate Award for visionary use of IT in education.
- Developed first parallel job scheduler for Windows (commercially licensed).
- Received Intel Architecture Lab Award for reliability, availability, and serviceability project.
- Received Argonne National Laboratory Pacesetter Award for the development of the Extensible Argonne Scheduling System.
- Quoted as industry expert in Bio-IT World, CIO Magazine, CNET News, Drug Discovery News, Enterprise Storage, GenomeWeb, InformationWeek, Inside HPC, ITWorld, Nature, Network Computing, PCWorld, SearchStorage, ScienceDaily, Scientific Computing World, and ZDNet.
- Utility computing poster selected by SC09 Committee, “Seamlessly Scaling a Desktop MATLAB Application to an Experimental TeraGrid Resource,” Portland.

Recent Federal Awards

- PI, NSF Office of Advanced Cyberinfrastructure (OAC), “CC*Networking Infrastructure: Enabling Data Intensive Science at Cornell University,” NSF Award 1659088: \$376,714 (2017).
- PI, NSF Division of Advanced Cyberinfrastructure (ACI), “CC*DNI DIBBs: Data Analysis and Management Building Blocks for Multi-Campus Cyberinfrastructure through Cloud Federation,” NSF Award 1541215: \$7,189,287 (2015).
- PI, NSF Division of Advanced Cyberinfrastructure (ACI), “Sustainable Funding and Business Models for Academic Cyberinfrastructure (CI) Facilities Workshop II,” NSF Award 1357872: \$40,872 (2013).
- PI, NSF Division of Advanced Cyberinfrastructure (ACI), Collaboration with University of Chicago, “Managing Cloud Usage Allocation and Accounting for the NSF Community,” NSF Award 1250545: \$90,000 (2012).
- Co-PI, PI, NSF Division of Advanced Cyberinfrastructure (ACI), “Sustainable Research Computing Center Models Workshop,” NSF Award 0944039: \$49,613 (2009).
- PI, NSF OCI, “A TeraGrid MATLAB Cluster – Exploring New Services for an eXtreme Digital Future,” \$659,137 NSF/~\$350,000 industry (2009).
- Co-PI, NSF IT Research, “Large Causal Databases,” \$1,764,846 (2009).
- Co-PI, USDA CSREES, “Computational Agriculture Initiative,” \$164,000 (2008).

Selected Publications

- C. Stewart, D. Hancock, J. Wernert, T. Furlani, D. Lifka, A. Sill, N. Berente, D. McMullen, T. Cheatham, A. Apon, R. Payne, S. Slavin, “Assessment of financial returns on investments in cyberinfrastructure facilities: A survey of current methods,” Practice and Experience in Advanced Research Computing (PEARC19 Conference), Chicago, IL, 2019.
- J. Brown, E. Coulter, J. Ferguson, B. Hallock, R. Knepper, D. Lifka, M. Pierce, J. P. Navarro, J. R. Scott, S. Smallen, C. Stewart, “Technology Contributions Toward Regional Coordination of Cyberinfrastructure Resources and Expertise through New Approaches by XSEDE,” Role of Regionals Workshop, 2015.
- D. Lifka, I. Foster, S. Mehringer, M. Parashar, P. Redfern, C. Stewart, S. Tuecke, “XSEDE Cloud Survey Report,” NSF Award 1053575, 2013.
- F. Bachmann, I. Foster, A. Grimshaw, D. Lifka, M. Riedel, S. Tuecke, “XSEDE Architecture Level 3 Decomposition,” 2013.
- V. Hazlewood, R. Knepper, S. Lee, D. Lifka, J.P. Navarro, C. Stewart, “XSEDE Campus Bridging - Cluster Software Distribution Strategy and Tactics,” 2013.
- S. Ahalt, A. Apon, D. Lifka, H. Neeman, “NSF-Sponsored Workshop Report: Sustainable Funding and Business Models for Academic Cyberinfrastructure Facilities,” 2010.
- G. Almes, A. Apon, G. Brown, D. Lifka, A. Lumsdaine, M. Pierce, B. Plale, R. Pordes, C. Stewart, V. Welch, B. Wheeler, “Cyberinfrastructure Software Sustainability and Reusability: Report from an NSF-Funded Workshop,” 2010.
- D. Lifka, S. Kramer, W. Block, E. Chen, J. Cordes, D. Dietrich, D. Krafft, J. McCue, G. Steinhart, “Meeting Funders’ Data Policies: Blueprint for a Research Data Management Service Group (RDMSG),” 2010.
- G. Alms, A. Apon, G. Brown, D. Lifka, et al., “Cyberinfrastructure Software Sustainability and Resuability,” National Science Foundation Report, 2010.
- D. Lifka, R. Alvord, S. Mehringer, P. Redfern, “Overview of the Cornell Center for Advanced Computing Sustainable Funding Model,” NSF Sustainable Funding and Business Models for High Performance Computing Centers Workshop, 2010.
- W. Arms, D. Lifka, et al., “Three Case Studies of Large-Scale Data Flows,” International Conference on Data Engineering, 66-75, 2006.

- M. Salsburg, D. Lifka, R. Mitchell, “A Management Framework for Petabyte-Scale Disk Storage,” Computer Measurement Group, 2005.
- G. Heber, D. Lifka, P. Stodghill, “Post-Cluster Computing and the Next Generation of Scientific Applications,” 2002.
- D. Lifka, “Special Purpose Clusters,” *login USENIX/SAGE* 26:5, 51-52, 2001.
- A. Skjellum, D. Lifka, et al., “Systems Administration,” *International Journal of High Performance Computing Applications*, 15:2, 143-161, 2001.
- D. Lifka, “Setting Up Clusters: Installation and Configuration,” 149-155; “MPI Software Technology Cluster Controller,” 385-397, in *Beowulf Cluster Computing*, T. Sterling, MIT Press, 2001.
- D. Lifka, L. Walle, V. Zaloj, J. Zollweg, “Increasing the Accessibility of Parallel Processing with Microsoft .NET,” *Dell Power Solutions*, 42-46, 2000.
- D. Lifka, “High Performance Computing with Windows 2000,” *Cluster 2001*, 47-54, 2001.
- W. Vogels, D. Follett, J. Hsieh, D. Lifka, D. Stern, “Tree-Saturation Control in the AC Velocity Cluster,” 2000.
- G. Coulouris, G. Heber, D. Lifka, et al., “Parallel FEM Simulation of Crack Propagation,” 7th Workshop on Cluster-Based Computing, 2000.
- S. Mehringer, D. Lifka, “The Virtual Workshop Companion: A Web Interface for Online Learning Labs,” *Proceedings of WebNet*, 1998.
- F. Abraham, D. Lifka, et al, “*Ab initio* Dynamics of Rapid Fracture,” *Modeling and Simulation in Materials Science and Engineering* 6, 639-670, 1997.
- J. Skovira, W. Chan, H. Zhou, D. Lifka, “The EASY – LoadLeveler API Project,” *Job Scheduling and Strategies for Parallel Processing*, 41-47, 1996.
- D. Lifka, M. Henderson, K. Rayl, “Users Guide to the Argonne SP Scheduling System,” 1995.
- R. Grossman, D. Lifka, et al., “Analyzing High Energy Physics Data Using Databases,” *Scientific and Statistical Database Management Conference*, 1994
- R. Grossman, X. Qin, D. Lifka, “Proof-of-Concept Implementation Interfacing an Object Manager with a Hierarchical Storage System,” *IEEE Mass Storage Systems*, 1993.
- E. May, D. Lifka, E. Lusk, et al., “Requirements for a System to Analyze High Energy Physics Events Using Database Computing,” 12th IEEE Symposium on Mass Storage Systems, 1992.

IT Industry Speaker

- “CC*DNI DIBBs: Data Analysis and Management Building Blocks for Multi-Campus Cyberinfrastructure through Cloud Federation,” panelist/poster presentation, National Science Foundation DIBBs PI Workshop, Arlington, 2018.
- “1st NSF Data Infrastructure Building Blocks PI Workshop,” National Workshop Chair, Arlington, 2017.
- “Aristotle Cloud Federation,” Coalition for Academic Scientific Computation, Arlington, 2015.
- “Red Cloud,” HUBzero Conference, Indianapolis, 2014.
- “Delivering a Campus Data Service,” Globus and ESNet Webinar, 2013.
- “Introduction and Overview,” Sustainable Funding and Business Models for Academic Cyberinfrastructure (CI) Facilities Workshop II, 2013.
- “XSEDE Birds-of-a-Feather: Science Clouds,” XSEDE 13 Conference, 2013.
- “A Sustainable Business Model for Advanced Research Computing,” New York State CIO Conference, 2013.
- “XSEDE Cloud Survey,” NSF Seminar, 2013.
- “A Sustainable Business Model for Advanced Research Computing,” Globus World, 2013.
- “Initial Findings from the XSEDE Cloud Use Survey,” NIST Cloud Computing and Big Data Workshop, 2013.
- “Red Cloud,” EucaDay Workshop, New York City, 2012.
- “Red Cloud,” MathWorks Virtual Conference, 2012.

- “Enhancing the Experimental "MATLAB on the TeraGrid" Resource,” TeraGrid 11 Poster, 2011.
- “Cornell University Life Sciences Core Facilities Expo Poster,” 2011.
- “Cornell CAC Sustainability Model,” NSF Sustainability Workshop, Ithaca, May, 3-5, 2010.
- “HPC Center Sustainability,” Coalition for Academic Scientific Computation, DC, 2009.
- “Exploring New Services for an eXtreme Digital Future,” Microsoft SC09, Portland, 2009.
- “Data Intensive Computing,” Northrop-Grumman Office of the CIO, Andover, 2008.
- “Opportunities for HPC,” USDA Agriculture & Life Sciences Symposium, Logan, UT, 2007.
- “Advanced Computing Solutions,” Corning IT Department, Corning, 2006.
- “Management Framework for Petabyte-Scale Storage,” CMG Conference, Orlando, 2005.
- “Web Services for HPC,” The Research Channel, 2005.
- “Enabling Seamless High Performance Computing,” Microsoft, Seattle, 2004.
- “Performance Computing,” Lockheed-Martin Mission Systems & Sensors, Owego, NY, 2003.
- “HPC in Brief: the History and the Opportunity,” The Boeing Company, Seattle, 2003.
- “.NET – What it Means to HPC and the Grid,” Intel SC02, Baltimore, 2002.
- “Meeting Engineering Application Requirements,” LS-DYNA Conference, Dearborn, 2001.
- “Scalable HPCC,” Dell Scalable Computing Workshop Keynote, Chicago, 2001.
- “Advanced Cluster Computing,” SIAM Conference on CS&E, DC, 2000.
- “Maximizing Performance, Minimizing TCO,” Dell/Intel Keynote, New York, NY, 2000.
- “Delivering Digital Content in the New Academic Enterprise,” EDUCAUSE, CA, 1999.
- “Increasing Dell Server Opportunities,” Dell Executive Center, Austin, 1998.
- “ANL/IBM SP Scheduling,” 1st Job Scheduling Strategies Workshop, Santa Barbara, 1995.

Professional Activities

- Advisory Committee, National Science Foundation Directorate for Computer, Information Science, and Engineering, 2017-2020
- Co-Chair, Internet2 Program Advisory Group for High Performance and Research Computing, 2014-2015
- Chair, Coalition for Academic Scientific Computation, 2013-2014.
- Vice-Chair, Coalition for Academic Scientific Computation, 2011-2012.
- Workshop Committee, HPC Advisory Council Switzerland, 2010.
- Workshop Participant, NSF “Cyberinfrastructure Software Sustainability/Reusability,” 2009.
- Advisory Committee, New York Center for Computational Science, 2009.
- Workshop Participant, EDUCAUSE/CASC “Developing a Coherent Cyberinfrastructure from Local Campus to National Facilities,” 2008.
- Member: Association for Computing Machinery; Cornell Computing Directors; EDUCAUSE; HPC Advisory Council; IEEE Computer Society; Coalition for Academic Scientific Computing.