Major Accomplishments (2014-2015)

- Maintained and upgraded all SaM hosted web sites:
  - `http://www.sam.pitt.edu`,
  - `http://core.sam.pitt.edu`,
  - `http://collab.sam.pitt.edu`.
- Upgraded cluster support ticketing system. Consultants can now update and respond to a ticket directly via email and registered users can create new tickets by emailing `help@sam.pitt.edu` in addition to using the web interface.

Major Consulting Projects (2014-2015)

- Data management and visualization in petascale turbulent combustion simulation; Peyman Givi (MEMS), Alexandros Labrinidis (CS), Panos Chrysanthis (CS).
- Load balancing, dynamic partitioning and data migration; Peyman Givi (MEMS), Alexandros Labrinidis (CS), Panos Chrysanthis (CS), Esteban Meneses (SAM).

Participation of SaM Consultants in Proposals

- NSF: "CDS&E Collaborative Research: Appraisal of Subgrid Scale Closures in Reacting Turbulence via DNS Big Data." PI: Alexandros Labrinidis. Co-PIs: Patrick Pisciuneri, Panos Chrysanthis, Peyman Givi and William Layton. (Submitted: October 31, 2014. Status: Pending.)
- NSF: "UNS: Collaborative Research: Stochastic Modeling and Exascale Simulations of Turbulent Reacting Flows." PI: Peyman Givi. Co-PI: Patrick Pisciuneri. (Status: Declined, March 8, 2015.)
- NSF: "CC*IIE Networking Infrastructure: Accelerating Science, Translational Research, and Collaboration at the University of Pittsburgh through the Implementation of Network Upgrades." PI: Brian Stengel. Co-PIs: Patrick Pisciuneri, Christopher Keslar and Mahmud Barmada. (Status: Awarded, August 7, 2014.)

Courses Taught and Workshops/Tutorials Organized by SaM Team

- ME 2060: Numerical Methods in Engineering Analysis, Patrick Pisciuneri, guest lecturer (Spring 2015).
- MPI-X Hybrid Programming workshop, Patrick Pisciuneri and Kim Wong, organizers and teachers (Spring 2015).
- ME 3079: Turbulence, Patrick Pisciuneri, guest lecturer (Fall 2014).

Publications (2014-2015)

1. P. H. Pisciuneri, S. L. Yilmaz, P. A. Strakey and P. Givi, "Massively Parallel FDF Simulation of Turbulent Reacting Flows," Chapter 8 in *Stochastic Equations for Complex Systems: Theoretical and Computational Topics*, editors: S. Heinz and H. Bessaih, Springer International Publishing, pp. 175–192, 2015.
2. A. Maries, T. Luciani, P. H. Pisciuneri, M. B. Nik, S. L. Yilmaz, P. Givi and G. E. Marai, "A Clustering Method for Identifying Regions of Interest in Turbulent Combustion Tensor Fields," chapter in *Visualization and Processing of Higher Order Descriptors for Multi-Valued Data*, editors: I. Hotz and T. Schultz, Springer, in press.

3. P. H. Pisciuneri, E. Meneses, A. Zheng, A. Labrinidis, P. Chrysanthis and P. Givi, "Load Balancing, Dynamic Repartitioning, and Data Migration in Turbulent Reactors' Simulation," *15th International Conference on Numerical Combustion*, p. 81, Avignon, France, April 19-22, 2015.

4. P. H. Pisciuneri, E. Meneses and P. Givi, "Dynamic Load Balancing Strategies for Parallel Reacting Flow Simulations," *Bulletin of the American Physical Society*, vol. **59**, no. 20, p. 557, 67th Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, San Francisco, CA, November 23-25, 2014.

Workshop/Conference Participation by SaM Consultants

- 15th International Conference on Numerical Combustion (April 2015, Avignon, France). Patrick Pisciuneri attended and presented work on behalf of himself and coauthors titled "Load Balancing, Dynamic Repartitioning, and Data Migration in Turbulent Reactors' Simulation"

- 67th Annual Meeting of the APS Division of Fluid Dynamics Meeting (November 2014, San Francisco, CA). Patrick Pisciuneri attended and presented work on behalf of himself and coauthors titled "Dynamic Load Balancing Strategies for Parallel Reacting Flow Simulations."

- Argonne Training Program on Extreme-Scale Computing (ATPESC) (August, 2014, St. Charles, IL). Patrick Pisciuneri was accepted into and completed the two-week advance training workshop offered by Argonne National Laboratory.