



LECTURE SERIES

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“Service Oriented Science”

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My work is frequently motivated by the information technology concerns of "big science", a frequently fascinating source of problems for the computer scientist due to the broad scope and ambitious goals of many scientific communities. I speak here about work that seeks to rethink science's information technology foundations in terms of service-oriented architecture. In principle, service-oriented approaches can have a transformative effect on scientific communities, allowing tools formerly accessible only to the specialist to be made available to all, and permitting previously manual data processing and analysis tasks to be automated. However, while the potential of such "service-oriented science" has been demonstrated, its routine application across many disciplines raises challenging technical problems. One important requirement is to achieve a separation of concerns between discipline-specific content and domain-independent infrastructure; another is to streamline the formation and evolution of the "virtual organizations" that create and access content. I describe the architectural principles, software, and deployments that I am and my colleagues have produced as we tackle these problems, and point to future technical challenges and scientific opportunities.



Bio: Dr. Ian Foster is Associate Division Director in the Mathematics and Computer Science Division at Argonne National Laboratory, and the Arthur Holly Compton Distinguished Service Professor at the University of Chicago. The co-editor with Carl Kesselman of "The Grid: Blueprint for a New Computing Infrastructure", he is an internationally recognized researcher and leader in the area of Grid computing. His Distributed Systems Lab at Argonne National Laboratory and the University of Chicago is a founding member of the Globus Alliance, the open source community that develops the Globus Toolkit, the open source software that has emerged as the de facto standard for Grid computing. Foster is also Chief Open Source Strategist at Univa Corporation, a company he founded with other Globus leaders to foster and promote the adoption of Globus in commercial environments. Foster is a fellow of the British Computer Society and AAAS. His awards include the GII Next Generation Award, the Lovelace Medal, and DSc Honoris Causa from the University of Canterbury, New Zealand.

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