Cyberinfrastructure for Large-Scale Environmental Observing Systems

Speaker: Dr Sameer Tilak, Cyberinfrastructure Laboratory for Environmental Observing Systems (CLEOS), San Diego Supercomputer Centre

Abstract

Science and engineering communities have initiated programs to design and deploy observing systems for monitoring both civil infrastructure and natural environments to address significant national and international issues that impact basic science, human health, resource management, and economic sustainability. These observing systems are complex enterprises consisting of field-deployed sensors networked (both wired and wireless) to back-end high-performance computing, storage, and visualization facilities for analyzing, storing, and visualizing the collected data and in some cases, closed loop control. In this talk I will describe our approach for cyberinfrastructure design, development, and deployment at the Moorea Coral Reef site, a node of the The Coral Reef Environmental Observatory Network

(**http://www.coralreefeon.org/**   ).

Digital Moorea is a collaborative vision of a coral reef ecosystem instrumented with real-time sensors connected to high-performance backend resources and sophisticated client applications. It will be a living laboratory for long-term studies of marine ecology and a testbed for evolving technologies for environmental and biological sensing, communications, and analysis. A diverse team of ecologists, computer scientists, and engineers from the Marine Science Institute at the University of California Santa Barbara (MSI, www.msi.ucsb.edu/) and the California Institute of Telecommunications and Information Technology (CalIT2, www.calit2.net/) are collaborating to bring this vision to reality at the Moorea Coral Reef site (MCR LTER, www.mcr.lternet.edu) of the U.S. National Science Foundation's Long Term Ecological Research (LTER) program. In this talk I will describe the existing cyberinfrastructure for data acquisition, event detection, data processing and publication at MCR. The first phase of this system was deployed in May 2009. Initial tests indicate that the system is robust and reliable. I will also describe our future plans for system extensions, including additional sensor deployments and OGC-compliant service interfaces.

Bio

Sameer is a Researcher at University of California at San Diego, in the San Diego Supercomputer Center and was previously a Systems Engineer at Elock Technologies. He did his PhD at State University of New York at Binghamton, and also studied at Pune Institute of Computer Technology, University of Pune and University of Rochester.

He has focussed on Sensor and Data Storage Networks and a major project has been The Open Source Data Turbine Initiative which is sponsored by NSF

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