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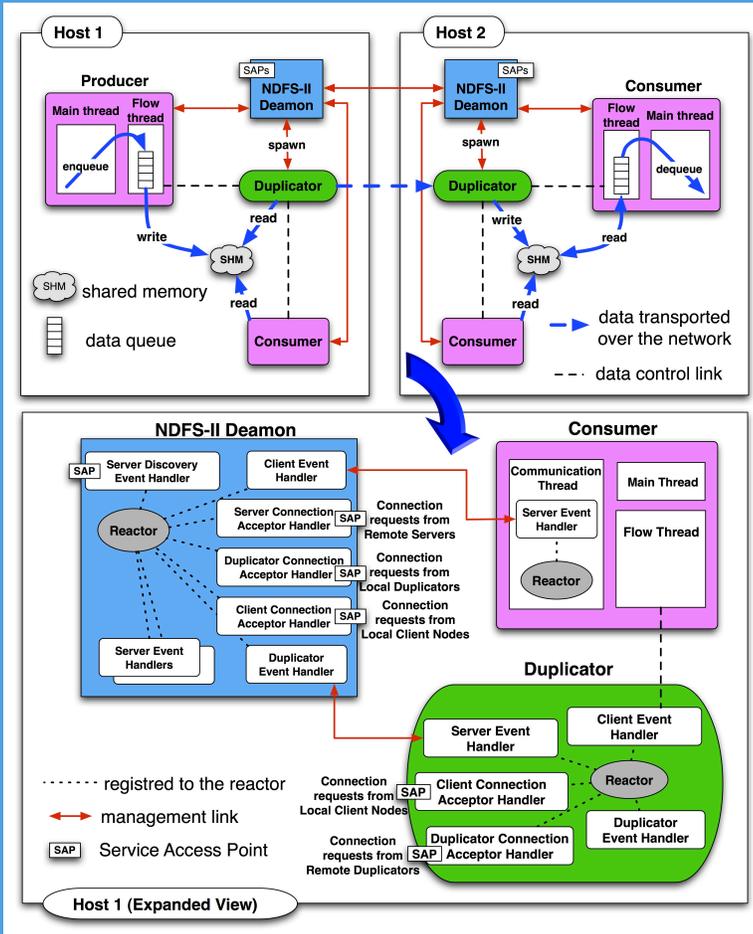
Vincent Stanford

complex systems

IMAGE OF THE MONTH

July

Architecture of Distributed Agent-Based Graph Search



- Abstract data transport architecture
- NDFS-II Daemons manage flow metadata, and control clients
- Buffered Flow Objects used to transport data in realtime
- Duplicators manage flows within and between hosts
- Clients processes
 - Exchange data by publishing and subscribing to flows
 - Can dynamically join or leave running applications

For more information see: "<http://www.nist.gov/itl/cxs/index.cfm>"

NDFS-II (NIST Data Flow System II) is distributed across major operating system environments (Windows, Linux, Mac OS X). It was developed for distributed sensor stream management, now extended for pure parallel computation. The ACO

(Ant Colony Optimization) problems we have simulated in this environment have shown that "enough" agents are needed to solve a given problem efficiently. Conversely "not enough" agents results in a system producing no solution. In addition large problems require parallelism to make solutions tractable.



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The Complex Systems Program is part of the National Institute of Standards and Technology's Information Technology Laboratory. Complex Systems are composed of large interrelated, interacting entities which taken together, exhibit macroscopic behavior which is not predictable by examination of the individual entities. The Complex Systems program seeks to understand the fundamental science of these systems and develop rigorous descriptions (analytic, statistical, or semantic) that enable prediction and control of their behavior.

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