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A distributed agent based framework for high-performance data transfers

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Current network technologies like dynamic network circuits and emerging protocols like OpenFlow, enable the network as an active component in the context of data transfers.

We present framework which provides a simple interface for scientists to move data between sites over Wide Area Network with bandwidth guarantees. Although the system hides the complexity from the end users, it was designed to include all the security, redundancy and fail-over aspects of large distributed systems. The agents collaborate between them over secure channels to advertise their presence, request and allocate network resources like Dynamic Network Circuits, end-host routing tables and IP addresses, when a user requests a data transfer and release the resources when a transfer finishes. The data transfer tool used by the framework is Fast Data Transfer (<http://fdt.cern.ch/>). It provides the dynamic bandwidth adjustments capabilities also at application level, so bandwidth scheduling can be used where network circuits are not available.

The framework is currently being deployed and tested between a set of US HEP sites, part of the NSF-funded DYNES project: Dynamic Network System (<http://internet2.edu/dynes>). The DYNES “cyber-instrument” interconnects ~40 institutes participating in both US-Atlas and US-CMS collaborations.

Student? Enter 'yes'. See <http://goo.gl/MVv53>

No

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