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HEP grids face IPv6: A readiness study

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Due to shortages of IPv4 address space - real or artificial - many HEP computing installations have turned to NAT and application gateways. These workarounds carry a high cost in application complexity and performance. Recently a few HEP facilities have begun to deploy IPv6 and it is expected that many more must follow within several years. While IPv6 removes the problem of address shortages and its painful workarounds, it comes at some initial price in software and network infrastructure evolution.

Routers and host protocol stacks have been ready for IPv6 for quite some years, many major backbone networks carry IPv6 and peer with each other, and site network management applications are available. Now application and security considerations are on the critical path to full exploitation of IPv6. We examine the steps required for grid applications (storage and computation) and security mechanisms and site network infrastructure (DNS, DHCP, access control policies) to move to a mixed v4/v6 environment.

Summary

Requirements for moving grid facilities to mixed IPv4/v6 operation.

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