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Design of a Diversified Network Substrate

Jonathan Turner

A diversified network substrate enables multiple end-to-end metanetworks to co-exist within a shared physical infrastructure. Metanetworks are implemented by metarouters, hosted by substrate routers, and metarouters are connected by metalinks. The substrate allocates resources (both link bandwidth and processing resources) to metarouters based on advance reservations received from metanetwork planning systems. It also enables dynamic creation of access metalinks, connecting end systems to metarouters, and supports mobility of end systems under the control of their metanetworks. This report defines a model for a diversified internet and presents a detailed design of the substrate that enables metanetworks to co-exist. The... Read complete abstract on page 2.

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