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Characterizing network paths in and out of the Clouds

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Cloud computing is becoming mainstream, with funding agencies moving beyond prototyping and starting to fund production campaigns, too. An important aspect of any production computing campaign is data movement, both incoming and outgoing. And while the performance and cost of VMs is relatively well understood, the network performance and cost is not.
We thus embarked on a network characterization campaign, documenting traceroutes, latency and throughput in various regions of Amazon AWS, Microsoft Azure and Google GCP Clouds, both between Cloud resources and major DTNs in the Pacific Research Platform, including OSG data federation caches in the network backbone, and inside the clouds themselves. We also documented the incurred cost while doing so.
Along the way we discovered that network paths were often not what the major academic network providers thought they were, and we helped them in improving the situation, thus improving peering between academia and commercial cloud.
In this talk we present the observed results, both during the initial test runs and the latest state of the art, as well as explain what it took to get there.

Consider for promotion

No

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