**Active Monitoring Hackathon**

Active monitoring is the measurement of end to end reachability, packet loss and delay across a network through the use of test traffic injected and measured by agents or sensors on that network.

Simple topologies with a single active path can be measured with simple mechanisms since the test traffic is guaranteed to follow that path. Topologies with multiple active paths require increased complexity to ensure coverage of all possible path segments.



For example, in this simple topology, traffic between Host A to B can take:

|  |  |  |  |
| --- | --- | --- | --- |
| R1-> R2 -> R4->R6 | R1-> R2 -> R5->R6 | R1-> R3 -> R4->R6 | R1-> R3 -> R5->R6 |

In order to make sure that network is in healthy state, test traffic should take all possible path segments from host A to B and from B to A:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A->R1 | R1->R2 | R2->R4 | R4->R6 | R6->B |
|  | R1->R3 | R2->R5 | R5->R6 |  |
|  |  | R3->R4 |  |  |
|  |  | R3->R5 |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B->R6 | R6->R4 | R4->R2 | R2->R1 | R1->A |
|  | R6->R5 | R4->R3 | R3->R1 |  |
|  |  | R5->R2 |  |  |
|  |  | R5->R3 |  |  |

This hackathon is to come up with a POC that can be used as active monitoring solution in similar networks. Goals for this hackathon are:

* Extract topology information.
* Use that topology information to calculate all paths between two end points
* Probe all paths and display metrics
* Introduce a failure and identify it using active monitoring probes