**SYSTEM ANALYSIS**

**EXISTING SYSTEM:**

* Testing liveness of a network is a fundamental problem for ISPs and large data center operators. Sending probes between every pair of edge ports is neither exhaustive nor scalable . It suffices to find a minimal set of end-to-end packets that traverse each link. However, doing this requires a way of abstracting across device specific configuration files, generating headers and the links they reach, and finally determining a minimum set of test packets (Min-Set-Cover).
* To check enforcing consistency between policy and the configuration.

**DISADVANTAGES OF EXISTING SYSTEM:**

* Not designed to identify liveness failures, bugs router hardware or software, or performance problems.
* The two most common causes of network failure are hardware failures and software bugs, and that problems manifest themselves both as reachability failures and throughput/latency degradation.

**PROPOSED SYSTEM:**

* Automatic Test Packet Generation (ATPG) framework that automatically generates a minimal set of packets to test the liveness of the underlying topology and the congruence between data plane state and configuration specifications. The tool can also automatically generate packets to test performance assertions such as packet latency.
* It can also be specialized to generate a minimal set of packets that merely test every link for network liveness.

**ADVANTAGES OF PROPOSED SYSTEM:**

* A survey of network operators revealing common failures and root causes.
* A test packet generation algorithm.
* A fault localization algorithm to isolate faulty devices and rules.
* ATPG use cases for functional and performance testing.
* Evaluation of a prototype ATPG system using rule sets collected from the Stanford and Internet2 backbones.