

## **DNS and Internet Measurement Testbed as part of AIORI (Advanced Internet Operations Research in India) Project**

### **Abstract**

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The Internet presents great challenges to the characterization of its structure and behavior resulting in Internet divide among the Internet users in the country. Different reasons contribute to current situation ranging from huge user community, large range of applications, equipment heterogeneity, distributed administration, incorrect routing of packets, less optimized peering infrastructure and vast geographic coverage. To deal with these challenges data driven research is done using the AIORI infrastructure to estimate and better understand the behavior, dynamics, and properties of the Internet.

The AIORI infrastructure is developed with an objective of strengthening the core of Internet infrastructure, measurement, resiliency, Routing and DNS research and cultivating interest in academia, next generation researchers and entrepreneurs towards innovating protocols, products, services in this domain.

A portal <https://aiori.in> is developed for visualization as well as providing research capabilities using the infrastructure to the interested stakeholders. The functional aspects are defined below:

- Measurement vantage Points across 100 + locations
- Anycast testbed for DNS Research
- Data Analytics and Visualization
- Protocol Diagnostic Tools
- Open-Source Solution Architecture
- API Endpoints for Integration

AIORI is a grant in aid program of Ministry of Electronics & Information Technology (Meity) Government of India with Software Technology Parks of India (STPI) as the executing agency and India Internet Foundation (IIFON) and ISOC Kolkata Chapter as the implementing agency. The AIORI program with its DNS Anycast and Internet Measurement Anchor research testbed gives a unique opportunity for different stakeholders to measure different characteristics of Internet using protocol parameters and develop and test in production environment, the next generation Internet artifacts.

Participating in this workshop will provide an opportunity to share the findings and receive valuable feedback. It will also help to learn, and work with the larger community to solve various problem statements with the shared vision of building interoperable measurement platforms. Such a platform will be critically important to measure the next generation DNS artifacts in unison for a more resilient and available DNS implementation.