challenges

• domain-specific knowledge required to understand data and format
• limited programming ability by many researchers
• ad-hoc code difficult to reuse

data platform integration

• Archipelago Active Internet Measurement Platform, Supporting Components, and Derivative Data (AS Relationships/Links/Types; ITDK)
• ASRank: Comparison of routing and economic relationships among ISPs
• BGPStream: Efficient framework for routing (BGP) data analysis
• Periscope: Extend topology measurement coverage using public infrastructure
• MANIC: Measurement and Analysis of Interdomain Congestion
• Spoofer: Assessment of IP source address validation best practices

existing systems

Active Internet Measurements (AIMS 11th)
CAIDA hosts annual Active Internet Measurement Systems (AIMS) workshops to promote discussion and collaborations between academics, industry, policymakers, and funding agencies, to better understand challenges and opportunities of active Internet measurement infrastructure.

Workshop on Internet Economics: Knowledge of Internet Structure: Measurement, Epistemology, and Technology (WIE 10: KISMET)
This workshop series provides a unique forum for researchers, commercial service providers, economists, theorists, policy makers, and other stakeholders to empirically inform emerging Internet regulatory and policy debates.

research enabled

The Impact of the General Data Protection Regulation on Internet Interconnection
Ran Zhuo, Bradley Huffaker, kc claffy, Shand Greenstein
The European Union’s General Data Protection Regulation (GDPR) imposes restrictions on processing and sharing of personal data of EU residents. Some economists predicted that a reduction in data usage at the application layer would negatively impact incentives for negotiating interconnection. Using topology data from Archipelago and BGPStream, we confirmed the lack of any measurable change in the number of network-level interconnections at the Internet layer before vs. after GDPR were in effect.

Unintended consequences: Effects of submarine cable deployment on Internet routing
Rodrick Parker, Bradley Huffaker, Ricky Meik, kc claffy
Using topology data from Archipelago and BGPStream, and AS information from ASRank, we evaluated the effects of a new transatlantic cable on the performance of paths that used it. Most source-destination pairs the crossed the cable benefited from its deploying relative to their previous path, but for a surprising number of source-destination pairs, suboptimal routing after the cable deployment actually led to worse performance.

Inferring persistent interdomain congestion.
We implemented a system based on the Time Series Latency Probes (TSLP) technique that identifies links with evidence of recurring congestion. During our window of study, we did not find evidence of widespread endemic congestion on links directly connecting access ISPs and content providers, although some such links exhibited recurring congestion patterns.