Regional Internet Blocking Considerations

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• For those not familiar with IETF processes: this document is an individual contribution and does not represent the IETF consensus
Motivation/Purpose of this Doc

• Recent discussions on blocking Internet connectivity for regions
• Describe well-known approaches for blocking connectivity and the implications of each (positive/negative/advantages/disadvantages)

• Intended audience:
  • Policy makers
  • General public

• Good policy depends on good, unbiased info
  • What is technically possible, how it works, efficacy
  • Potential intended/unintended consequences
What this Doc is NOT

• Advocacy for/against any particular policy or position
• Political opinion
• Analysis on the ethics of regional Internet blocking
• Applicable only to a single geopolitical episode
• Guide for blocking to protect against security threats
• How-to guide on weaponizing the Internet
  • Limited to describing well-known approaches that operators occasionally use for legitimate blocking purposes
• Survey of malicious attack methods- not in scope for this doc
Blocking Techniques

• Physical Layer
  • Disconnecting cables

• Routing Layer (Control Plane)
  • De-Peering
  • Route filtering- prefix-based, ASN-based

• Packet Layer (Data plane)
  • GeoIP ACLs

• DNS
  • Removing delegations to ccTLD and other relevant domains
  • Blocking resolution requests from resolving nameservers or end hosts in a region
Gaps in Efficacy

• Blocking connectivity for a region may be counterproductive
  • Policy maker may want some messages to get into/out of a region
  • Or may want certain parties to be able to freely communicate and coordinate activities
  • Blocking connectivity may empower a party targeted for sanction

• The network doesn’t discriminate between “good” and “bad” bits

• ASNs/Prefixes are not allocated based on geopolitical bounds
  • Registry info may be inaccurate

• Decentralized nature of the Internet makes it is nearly impossible to totally block a region
  • But connectivity and throughput can be inhibited at certain chokepoints
Related Work

• RFC7754 Technical Considerations for Internet Service Blocking and Filtering
  • More focused on blocking content at app/transport/host level than prefix/ASN/TLD
  • Purpose- focus on restricting content for security, objectionability and business arrangement, not sanction
  • Overlapping themes: efficacy and importance of specificity

• Draft-irtf-pearg-censorship
  • More focused on censorship by regimes within their borders than blocking a region as sanction of such a regime (directionality)
  • Overlap: consideration of service disconnection
Open Questions/Next Steps

• Is this document useful?
• Other blocking techniques we missed?
• Adoption by INTAREA?
• BCP vs Informational
• Review and comments welcome