Pluggable Transports Update

David Oliver | Guardian Project | IETF106

TL/DR

- Transports Update: out with the old; in with the new
  - The need for “plug-ability” continues!
- Usability of Pluggable Transports
  - Bridge availability (devices as ephemeral bridges)
  - Bridge selection / rendezvous
  - PT selection
- PT machine learning (PT effectiveness research)
  - What contribution can end-points (safely!) make?

Transports Update

- Obfs4 - durably successful
- Meek - still viable on non-mainstream app engine providers
- StegoTorus - under security review
- Replicant - Dust2 grows up with instance-specific “tune-ability”
- ShapeShifter - gains a mechanism for real-time PT selection
    - manual -> ”intelligent”
- Marionette - update to FTE Proxy (+ FSM testbed environment)
- Lampshade - active in Lantern VPN

Usability Research

- Bridge availability (devices as ephemeral bridges)
  - Finding a bridge an eternal problem, currently
  - Quality, performance, availability of bridges changes constantly
  - How to make more available w/o too much static resource?
- Bridge selection / rendezvous
  - Huge proliferation of specialized bridges with PTs!
  - How to find an operational bridge that meets my needs (easily!)?
- PT selection
  - What is the censorship regime to be countered?

Mobile Machine Learning (Research)

- Is it possible to use federated edge-based machine learning (ML) to “tune” PT’s to be more effective?
- Tools for developers to capture information about the network and traffic on the device
  - acquisition of that knowledge in a privacy-preserving manner
- Show how Tensor Flow-type ML on mobile could be used as a component of PT selection / configuration

Thanks

- Internews - PT project support!
- IRTF/PEARG

More on Pluggable Transports

- Best single source: https://www.pluggabletransports.info/
- PT 2.1 Internet Draft: https://www.ietf.org/id/draft-oliver-pluggable-transports-00.txt