Self-forming P2P

- Self-forming P2P: IETF linkage + motivation
- IETF peer-to-Peer Streaming Protocol WG, running code
- Bar BoF: “Media without censorship”
  - open invite: 1st Aug, 20:00, Regency A
  - Motivation and direction
- draft-pouwelse-censorfree-scenarios-01.txt

**DISCLAIMER:** early stage, trying to generate interest in IETF

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Self-forming P2P:
Linkage to IETF TSV technical topics

- **Build on work that has been done; tackle harder problems**
- No server needed
- Exchange potentially large volumes of traffic at potentially high bandwidths
- NAT traversal (BEHAVE)
- Congestion: LEDBAT, ?
- Service discovery
- Peer discovery
- Reliability over UDP
- RELOAD work
- “special bits”: real-time news
Self-forming P2P: motivation

• No single point of failure
• Unbounded scalability: 2 peers – 200 million
• Self-organisation, Self-maintaining, Self-aware;-)
• No business model needed
  • Runs on donated resources
  • Volunteer-based or reward contributors
• Beyond key/value lookup
  • search, share & stream
  • Wiki-style editing
  • Spam & hoaxes
  • Accurate reputations
  • Smartphone network
• Censorship resilience
IETF Peer-to-Peer Streaming Protocol (PPSP)

- **No server needed**
- Live and on-demand streaming
- Draft-ietf-ppsp-peer-protocol-02
- Industry implementation: presented at 83rd
- Runs on: PC, TV, iPad, Android, set-top box, Tribler

Self-forming P2P: running code

- Self-forming:
  - Keyword search
  - Sharing
  - Streaming
- Running code on a TV
- Samsung UE40D7000
- ARMv7 gcc-toolchain
- Thnx to SamyGO
- PPSP, LEDBAT, NAT, etc.
- Open Source
- 6 years of work
  12-18 people

Firmware: http://www.tribler.org/SwiftTV
News dissemination without censorship: motivation and direction

- Internet freedom declining in many areas
- Fragmented small team initiatives
- Microblogging is having real-world impact
- Smartphones below 100 Euro
- Self-forming overlay on smartphones
- Initial running code at several Open Source projects
- Userspace API direct-wifi and NFC on Android
- Future-proof evolution?
Bar BoF: Media without censorship

- **Time&place:** Wednesday 1st Aug 20:00, Regency A
- **Draft:** draft-pouwelse-censorfree-scenarios-01.txt
- **Transport protocols for microblogging on smartphones**
  - self-forming P2P overlay
  - Full implementation using smartphone app
- **Security and censorship resistance.**
- **Microblog entry:** 140 char messages+picture+video
- **Guard against all known forms of censorship such as:** cyberspace sabotage, digital eavesdropping, infiltration, fraud, Internet kill switches and lawyer-based attacks with the best known protective methods.
- **Join and share your experience, insight and code**
Draft-pouwelse-censorfree-scenarios:
4 Scenarios

- **20sec**: Duplicate existing microblogging practices. Ability to reach 20 million people in 20 seconds
- **Internet-Free**: without direct Internet access. ad-hoc packet forwarding between smartphones.
- **Friends-only**: uses friend-to-friend networking to remove the requirement for active networking and wifi sensing. The smartphones of Alice and Bob need to manually synced
- **Spammers and hoaxes**: All technology MUST have capability to deal with spam. Eve is actively disrupting the system by injecting news channels with a mix of genuine news, obviously fake messages (consuming valuable system resources and user attention) and hoaxes.

- **Wednesday 1st Aug 20:00; Room: Regency A**