Tribler:

Internet standard for (anonymous[2014]) streaming?

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Research goal: a new IETF Internet standard for streaming

Streaming&communication for:

Bittorrent

Wikipedia

Youtube

Skype

Twitter

MSN

Facebook

And below IPv4+NAT+IPv6

Plus creative new uses

P2P-Next: European Funding (19MEuro)
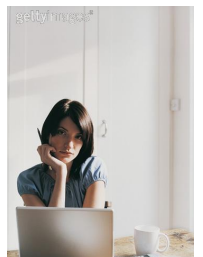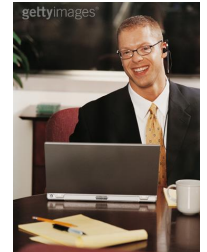
Cooperative streaming

- P2P streaming (live&on-demand)
- Every user helps
- Forward video to others

1 of 100,000

0010101

2007: TUDelft & Harvard: bandwidth-as-a-currency

Upcoming IETF Internet standard

[ppsp] I-D Action: draft-ietf-ppsp-peer-protocol-00.txt - Chromium

[ppsp] I-D Action: draft-iet ×

www.ietf.org/mail-archive/web/ppsp/current/msg01263.html

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[ppsp] I-D Action: draft-ietf-ppsp-peer-protocol-00.txt

- *From*: internet-drafts at ietf.org
- *To*: i-d-announce at ietf.org
- *Cc*: ppsp at ietf.org
- *Date*: Mon, 19 Dec 2011 01:47:39 -0800

A New Internet-Draft is available from the on-line Internet-Drafts directories. This draft is a work item of the Peer to Peer Streaming Protocol Working Group of the IETF.

```
        Title        : Peer-to-Peer Streaming Protocol (PPSP)
        Author(s)    : A. Bakker
        Filename     : draft-ietf-ppsp-peer-protocol-00.txt
        Pages        : 40
        Date         : 2011-12-19
```

Libswift P2P streaming engine

- Radical redesign of P2P

- Implemented in C++

  Video-on-demand over UDP

- Upcoming IETF standard (PPSP)

- Running on:

  – iPad,Android,set-top box

  – Inside a television

  – Firefox: <video src="swift://…
    100 KB plugin, en.wikipedia.org

  – within Tribler

- Designed for P2P caching +
  proxies (content-centric networking)
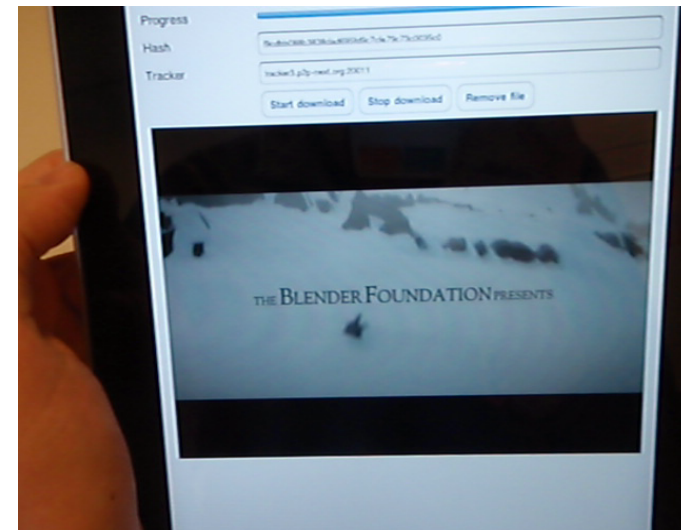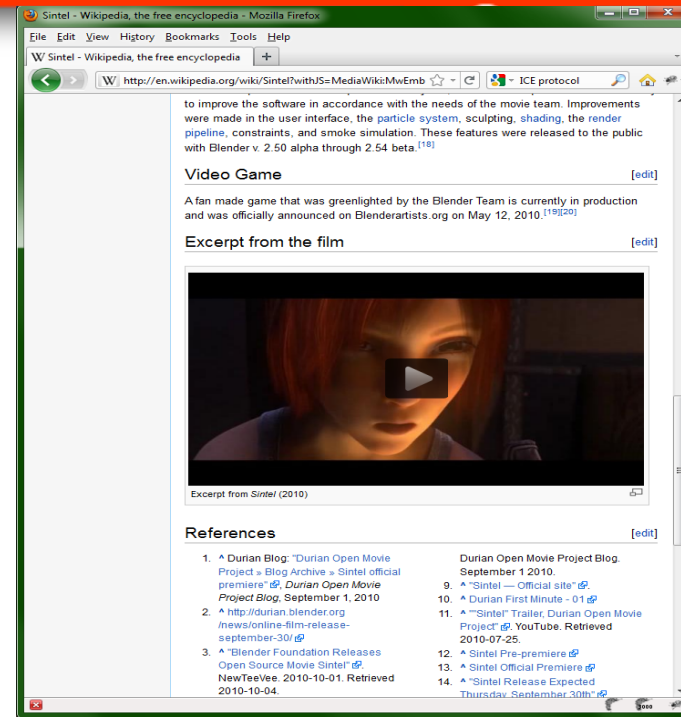
Source: Grishchenko, "On the Design of a Practical Information-Centric Transport", March 2011, http://www.pds.ewi.tudelft.nl/fileadmin/pds/reports/2011/PDS-2011-006.pdf

P2P-Next project: Industry usage

Name (IP:port)	↓ KiB/s	↓ KiB	↑ KiB/s	↑ KiB
Arno 🇳🇱 130.161.211.240:7705	35	20480	33	15808
MarshConsult 🇬🇧 82.33.212.26:7707	26	12896	30	13408
[Unknown 1] 🇳🇱 130.161.211.198:7764	91	51392	0	0
[Unknown 2] 🇬🇧 132.185.142.131:7705	45	18592	35	15872

This Is BBC Three
Sat 10th Sep, 05:30

Libswift on the wire (1)

- Peer A and B both have some chunks

```
A ──────── HANDSHAKE + HAVE ──────────────────────▶ B

A ◀──────── HANDSHAKE + HAVE + HINT ─────────────── B

A ──────── HINT + HASH + DATA ────────────────────▶ B

A ◀──────── HINT + HASH + DATA ──────────────────── B
```
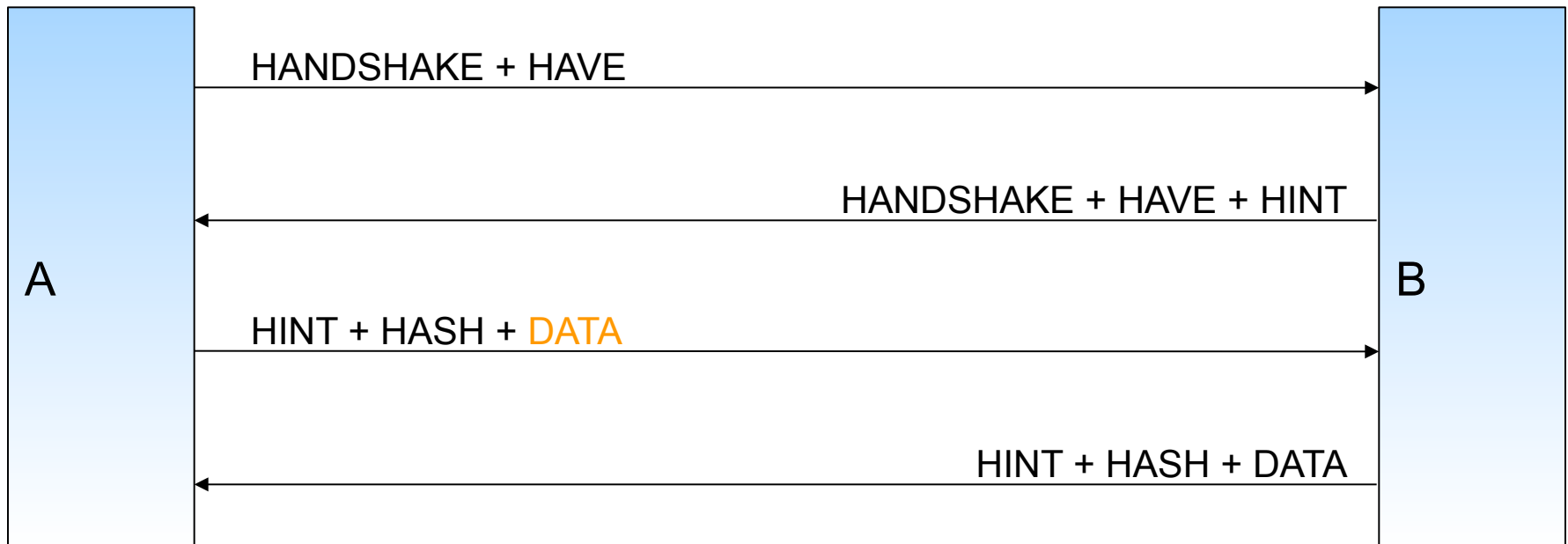
- Note: low latency, data transfer already in 3rd datagram.

Libswift inside TV firmware
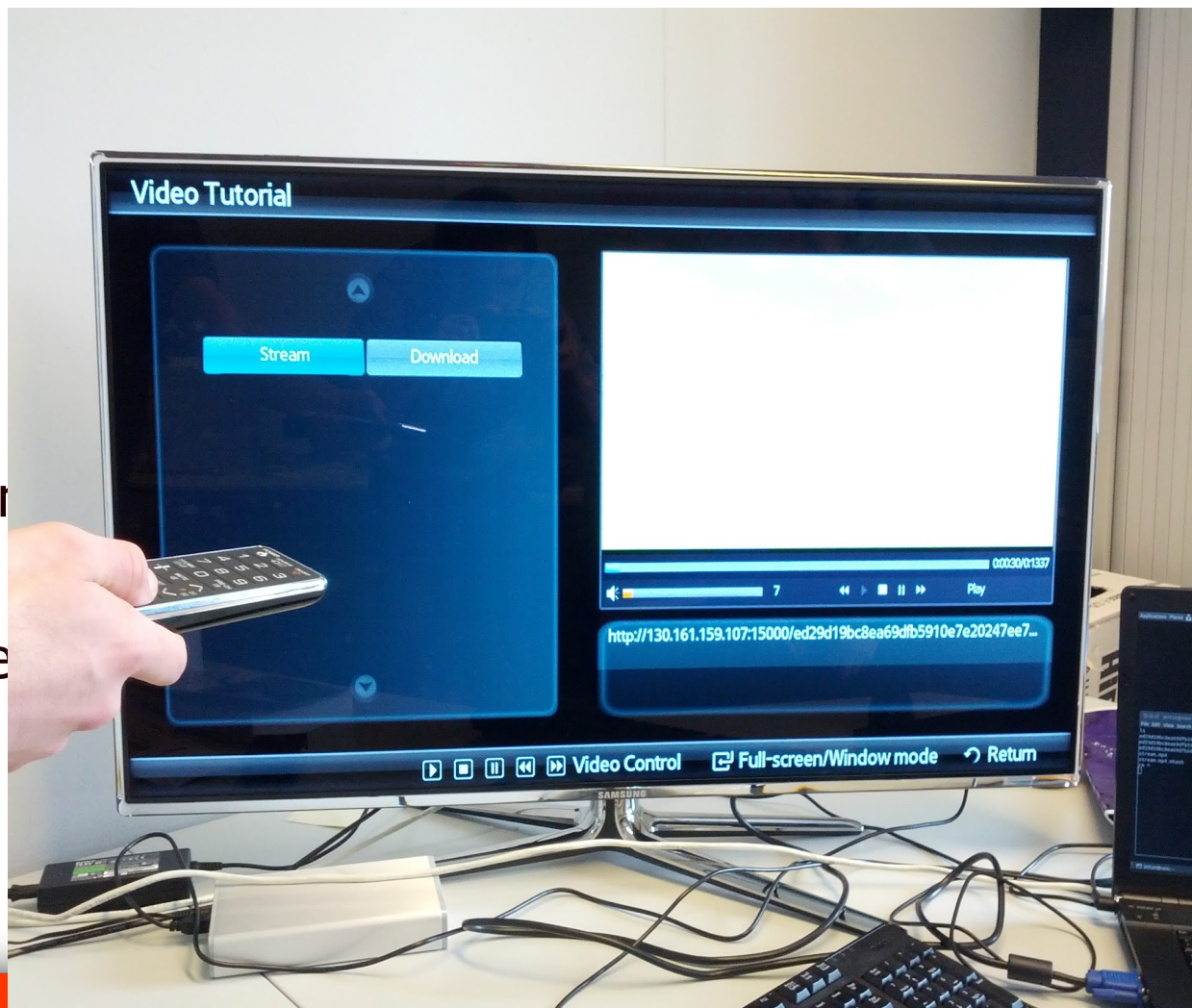
- Self-forming:
  - Keyword search *Firmware: http://www.tribler.org/SwiftTV*
  - Sharing
  - Streaming
- Running code on a TV
- Samsung UE40D7000
- ARMv7 gcc-toolchain
- Thnx to SamyGO
- PPSP,LEDBAT,NAT,etc.
- Open Source
- 6 years of work, 12-18 people

"Tribler Mobile" app

From Android:

H.264 Encoder → PPSP Engine →

To Android:

PPSP Engine → VLC →

No server infrastructure!

https://play.google.com/store/apps/details?id=org.tribler.mobile

Questions

Further reading:

"*Tribler search and stream*", http://sigmm.org/records/

records1201/featured03.html

"*Improving accuracy and coverage in an internet-deployed*

reputation mechanism", (Google is your friend)

Code: Github.com/Tribler