



Quic measurements IETF Hackathon

IETF 109
November 9-13, 2020
Online



QUIC Measurements: Goals

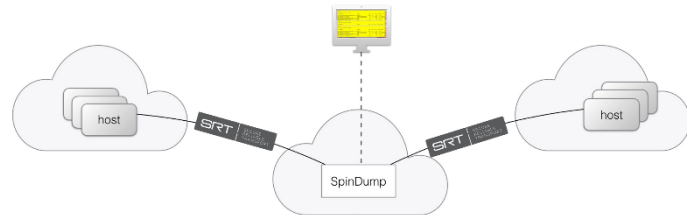
- Provide tools and ideas for traffic performance monitoring in the era of encrypted transports also using Explicit Flow Measurements (EFM).

***Explicit Flow Measurements** employ few marking bits, inside the header of each packet, for loss and delay measurement (protocol independent and valuable for encrypted header protocols: e.g. QUIC)*

- Updates to the spindump tool github.com/ericssonresearch/spindump

What got done

- Giving the monitoring power to customers:
 - Presented Android Explicit Monitoring App based on Spindump: **TIMquic**
 - PoC App live Demo to Hackathon WG
- Drafts:
 - Explicit Flow Measurements ([draft-mdt-ippm-explicit-flow-measurements](#))
 - User Devices Explicit Monitoring ([draft-cnbf-ippm-user-devices-explicit-monitoring](#))
- Spindump maintenance, new versions
 - Fix for TCP RTT
 - Support for last QUIC versions



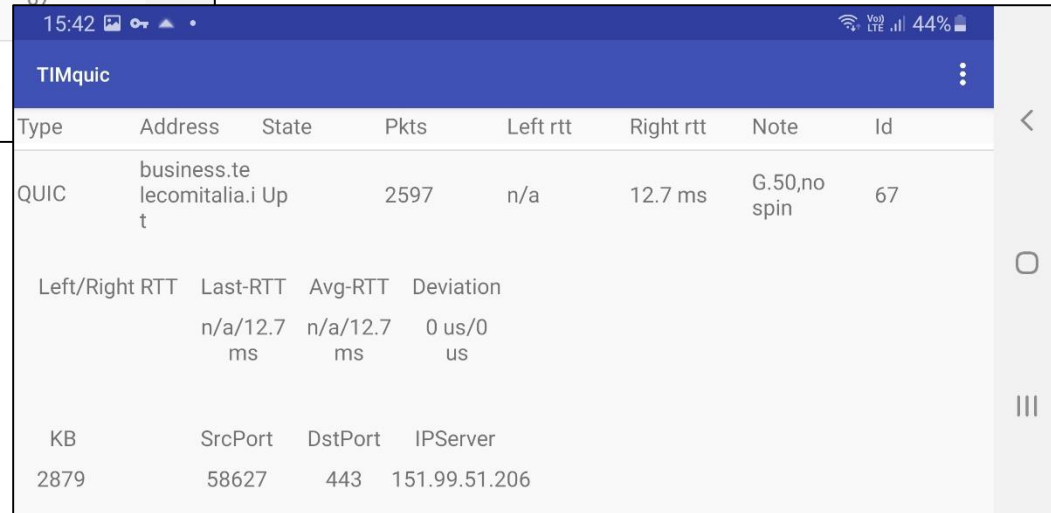
User device explicit monitoring App



| Type | Address | State | Pkts | Left rtt | Right rtt | Note | Id |
|------|---------------------------------------|-------|------|----------|-----------|----------------|----|
| QUIC | edge-star-s hv-01-any2. facebook.c om | Up | 141 | n/a | 22.9 ms | V.fbm, no spin | 63 |
| QUIC | lhr35s11-in-f14.1e100.n et | Up | 37 | n/a | 27.9 ms | G.50, no spin | 66 |
| QUIC | business.te lecomitalia.i t | Up | 2597 | n/a | 12.7 ms | G.50, no spin | 67 |
| QUIC | edge-star-s hv-01-any2. facebook.c om | Up | 103 | n/a | 36.5 ms | V.fbm, no spin | |

Placing the Explicit Performance Observer on user devices gives many advantages

Real time mobile traffic monitoring



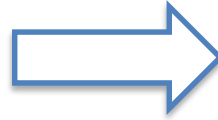
| Type | Address | State | Pkts | Left rtt | Right rtt | Note | Id |
|------|-----------------------------|-------|------|----------|-----------|---------------|----|
| QUIC | business.te lecomitalia.i t | Up | 2597 | n/a | 12.7 ms | G.50, no spin | 67 |

| Left/Right RTT | Last-RTT | Avg-RTT | Deviation |
|----------------|-------------|-------------|-----------|
| | n/a/12.7 ms | n/a/12.7 ms | 0 us/0 us |

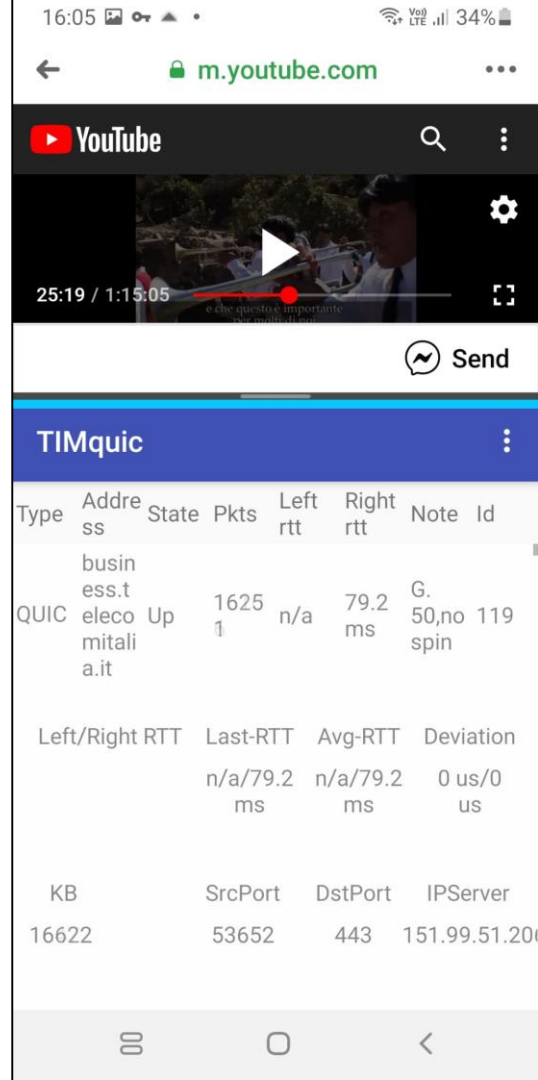
| KB | SrcPort | DstPort | IPServer |
|------|---------|---------|---------------|
| 2879 | 58627 | 443 | 151.99.51.206 |

User device explicit monitoring App

We can see our connections performance while enjoying the service



Operators, with the customer's permission, may use this information to identify network problems and improve the customer experience



Wrap Up

Team members:

Jari Arkko (Ericsson, driver)

Marcus Ihlar (Ericsson)

Mirja Kühlewind (Ericsson)

Giuseppe Fioccola (Huawei)

Mauro Cociglio (Telecom Italia - TIM)

Massimo Nilo (Telecom Italia - TIM)

Fabio Bulgarella (Telecom Italia - TIM)

Plinio Nardozzi (Telecom Italia - TIM)

+ few other interested ones, busy this week

github.com/EricssonResearch/spindump