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ClickStream analytics

 DPI exports information about all client web requests in IPFIX (NetFlow v10) format.

1. Detecting Internet service reselling

DPI exports unique UserAgents sent in HTTP requests. The QoE module aggregates information for each IP (or login, if used). The statistics record every phone and PC behind subscriber NAT. Usually, up to 30 unique UserAgents are detected per household — any number higher may indicate reselling the Internet connection to other apartments via the main router.

Steps to find such cases:

- 1. Go to QoE Analytics → Subscribers → ClickStream
- 2. Create a filter (use Shift+Enter to add entries) where:
 - Mozilla – identifies PCs
 - Dalvik – identifies mobile phones

⋮ Filters

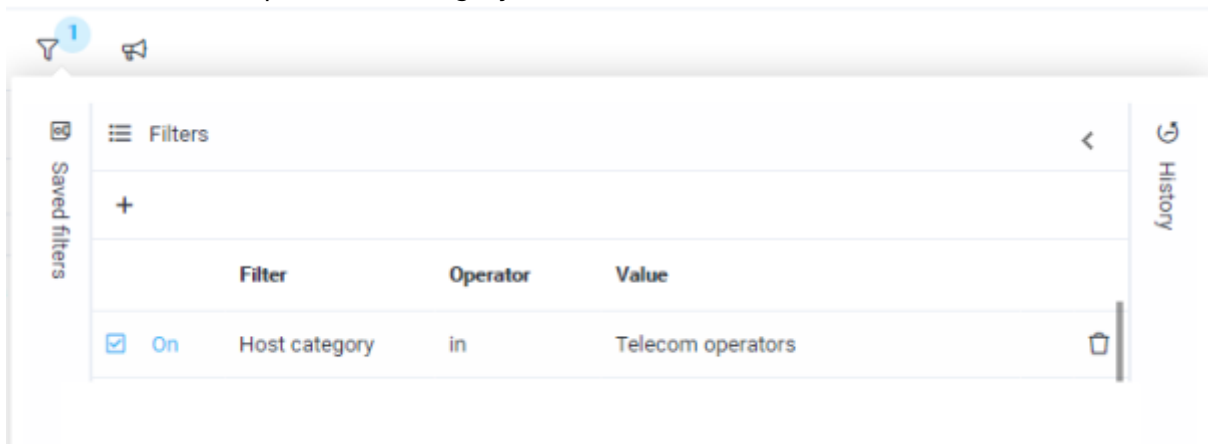
<

+

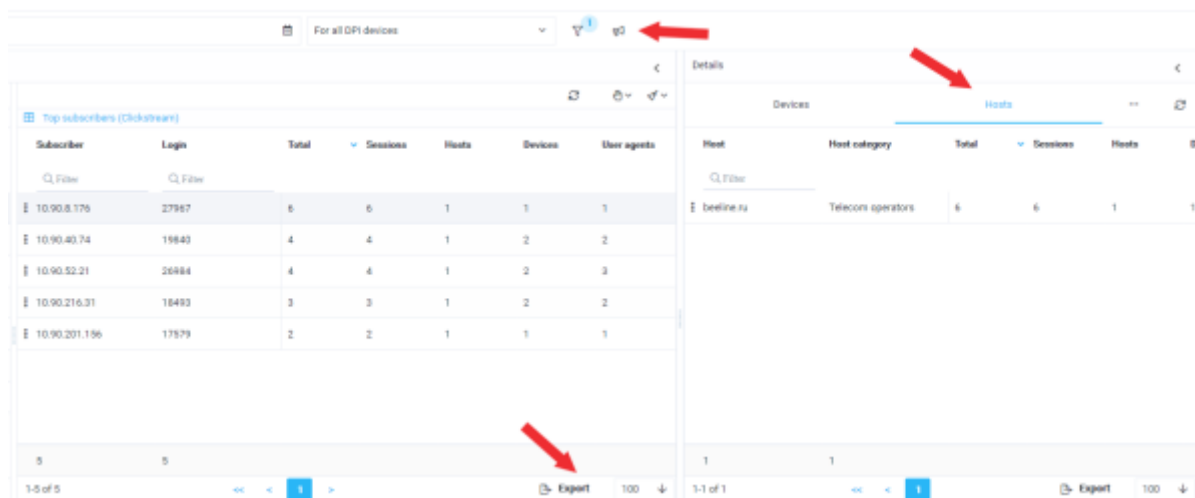
	Filter	Operator	Value	
☒ On	Device	in	Mozilla Dalvik	? 🗑
☒ On	Agents number	>=	30	🗑

Interpreting the statistics:

3. Or use the "Telecom operators" category



Interpreting results:



- The filter shows 10 potential clients interested in competitors.
- More details can be viewed in the **"Details"** window.
- Using the megaphone icon, you can add them to a [marketing campaign and send browser notifications or satisfaction surveys](#).
- Reports can be exported in a convenient format.

3. Detecting Smart TV devices

DPI exports unique UserAgents sent in HTTP requests. The QoE module aggregates information per IP (or login, if used). The statistics include each Smart TV detected behind subscriber NAT.

Steps to detect Smart TVs:

1. Go to QoE Analytics → Subscribers → ClickStream
2. Create a filter using math and enter a regular expression ``(?:)(\W|^)(smart|LG|samsung)(\W|$)`` to find specific devices:
 - smart
 - LG
 - samsung

Filters

History

Filter Operator Value

☒ On User agent match (?i)(\\W|^)(smart|LG|samsung)(\\W|\$) ? ?

Cancel Apply

Interpreting results:

For all DPI devices

Top subscribers (Clickstream)

Subscriber	Login	Total	Sessions	Hosts	Devices	User
10.90.28.92	30284	7157	7072	5	1	2
10.90.18.9	20853	4834	70	16	2	3
10.90.75.3	31541	4615	243	13	2	2
10.90.52.115	18039	4084	3813	8	2	2
10.90.17.41	20116	4068	3846	21	2	2
10.90.99.112	18014	3946	3777	12	2	6
10.90.81.29	14994	3885	34	8	2	2
10.90.215.100	25091	3838	3694	26	2	2
10.90.212.34	16782	3746	3629	4	2	2
10.90.56.171	30173	3630	3629	4	2	3
10.90.9.54	24349	3581	348	2	2	2
1,477	1,477					

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Export 100

Details

Devices Agents

User agent	Total	Sessions	Hosts	Devices
samsung-agent/1.1	4741	7	1	1
Mozilla/5.0 (SMART-TV LINUX Tizen 3.0) AppleWebKit/538.1 (KHTML, like Gecko) SamsungBrowser/3.0	52	14	1	1
Mozilla/5.0 (SMART-TV Linux Tizen 3.0) AppleWebKit/537.36 (KHTML, like Gecko) SamsungBrowser/3.0	11	2	1	1

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Export 100

- The filter shows 893 clients with such devices detected.
- More details can be viewed in the **"Details"** window.
- Using the megaphone icon, you can add them to a [marketing campaign and send browser notifications or satisfaction surveys](#).
- Reports can be exported in a convenient format.

4. Subscriber profiling by interests

ClickStream allows identifying clients' usage of popular services or interest in certain website categories.



QoE Stor provides a [categorized list](#) that includes resources divided into 54 categories.

OTT services usage

Steps to find:

1. Go to QoE Analytics → Subscribers → ClickStream
2. Create a **Host filter**, use math and enter the regular expression
``(?i)(\W|^)(smotreshka|ivi|okko|netflix)(\W|$)`` to search for OTT services:
 - smotreshka
 - ivi
 - okko
 - netflix

Example: segmenting the subscriber base

Steps to find:

1. Go to QoE Analytics → Subscribers → ClickStream
2. Create a **Host category filter**, use the desired category:
 - Auto
 - Kids websites, etc.

Example: finding subscribers with high traffic usage

Steps to find:

1. Go to QoE Analytics → NetFlow → High traffic top (right side) → Top subscribers
2. Sort by traffic volume