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ClickStream analytics



DPI exports information about all subscriber web requests using IPFIX (NetFlow v10) format.

1 Search for reselling internet services

DPI exports the unique UserAgent that is sent withing the HTTP request. The QoE module aggregates information for each IP (or login, if used). Every phone and PC behind the subscriber NAT is recorded in the statistics. Up to 30 unique UserAgents are typically identified per household, all exceeding this value indicates that other apartments can be connected to the Internet through the main router.

Steps to follow:

1. switch to the QoE Analytics - > Subscribers - > Clickstream section
2. create filter (use Shift+Enter to add entries), where
 - Mozilla is PC identifier
 - Dalvik is phone identifier

	Filter	Operator	Value	
<input checked="" type="checkbox"/>	On Device	in	Mozilla Dalvik	ⓘ 🗑️
<input checked="" type="checkbox"/>	On Agents number	>=	30	🗑️

Interpretation of gathered statistics:

The screenshot shows a data analysis interface with two main tables. The left table, titled "Top subscribers (Clickstream)", lists subscribers with columns for Subscriber, Login, Total, Sessions, Hosts, Devices, and User agents. The right table, titled "Details", shows user agent information with columns for User agent, Total, Sessions, Hosts, Devices, and User agents. A red box highlights the "User agents" column in the left table, and another red box highlights the "User agents" column in the right table. Red arrows point to a filter icon in the top right, a subscriber count of 12 in the bottom left, and an "Export" button in the bottom right.

Subscriber	Login	Total	Sessions	Hosts	Devices	User agents
10.90.201.46	24229	8054	2585	400	1	80
10.90.200.226	16915	5531	2084	404	2	77
176.115.139.53	31004	4547	3345	304	2	108
176.115.139.134	19427	4172	3004	370	3	53
10.90.70.122	25857	2326	1127	135	2	93
10.90.13.128	20442	2129	917	115	2	56
176.115.139.20	16133	1800	733	91	2	40
176.115.139.136	27266	1030	277	44	2	48
176.115.139.83	31704	963	680	97	2	60
10.90.50.201	22526	310	280	48	2	31
10.90.82.188	24353	399	304	90	2	42
12	12					

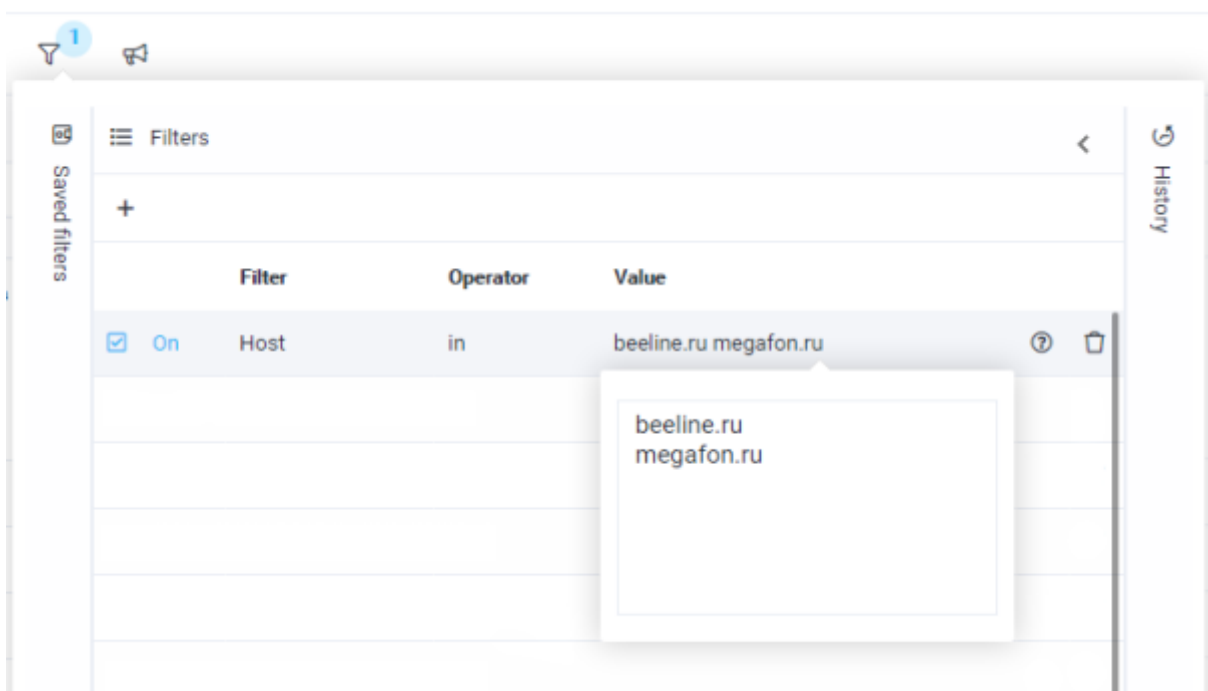
User agent	Total	Sessions	Hosts	Devices	User agents
Mozilla/5.0 (Windows NT)	4119	1272	278	1	1
Mozilla/5.0 (Linux Android)	2521	654	129	1	1
Mozilla/5.0 (Windows NT)	770	309	86	1	1
Mozilla/5.0 (Windows NT)	187	124	43	1	1
Mozilla/5.0 (Linux Android)	186	35	15	1	1
Mozilla/5.0 (Macintosh Int)	116	116	2	1	1
Mozilla/5.0 (Linux Tizen 2)	92	24	10	1	1
Mozilla/5.0 (Windows NT)	1	1	1	1	1
Mozilla/5.0 (Windows NT)	1	1	1	1	1
Mozilla/5.0 (Windows NT)	1	1	1	1	1
Mozilla/5.0 (Windows NT)	1	1	1	1	1
Mozilla/5.0 (Windows NT)	1	1	1	1	1
80					

- The result of the filter applied is 12 subscribers who might resell services.
- More details about the devices they are associated to can be found in the **"Details"** window.
- Using a voice-tube pictogram, you can drag-and-drop them to [marketing campaign and notify them using browser](#).
- You can export a report in a convenient format.

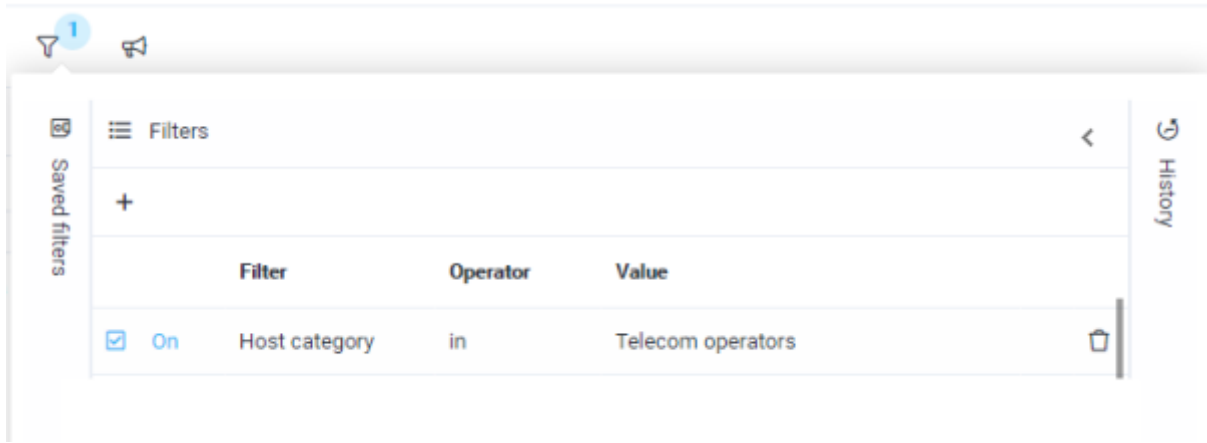
2 Controlling customer attrition (search for interest in competitors)

DPI exports ClickStream, i.e all the HTTP/HTTPS subscriber requests on the Internet. The QoE module aggregates information for each IP (login, if used). The statistics include URL for the HTTP and domain name for the HTTPS. Steps to follow:

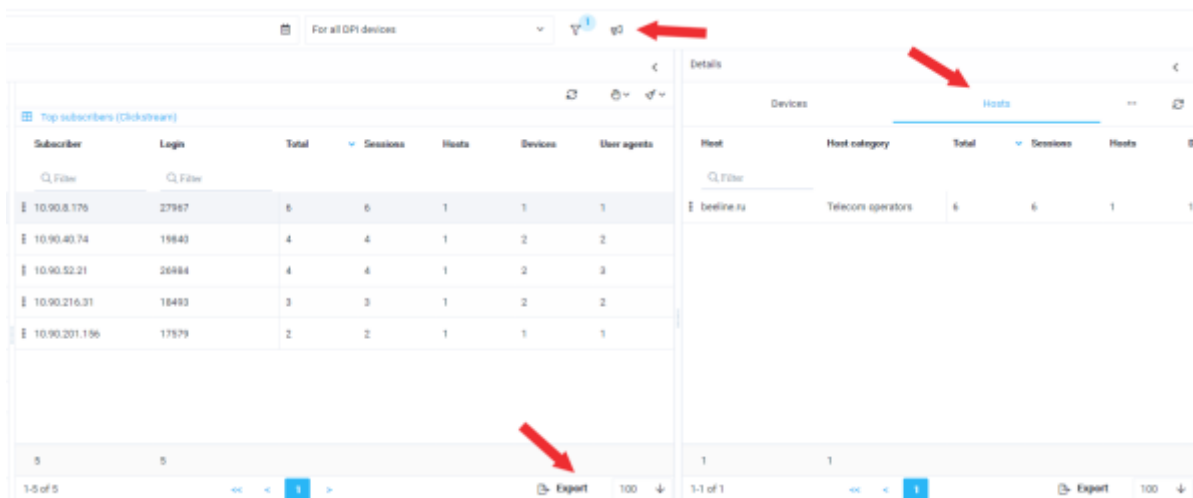
1. switch to the QoE Analytics -> Subscribers -> Clickstream section
2. create a filter including the sites of competing operators in the region



3. or use the Telecom operators category



Interpretation of gathered statistics:

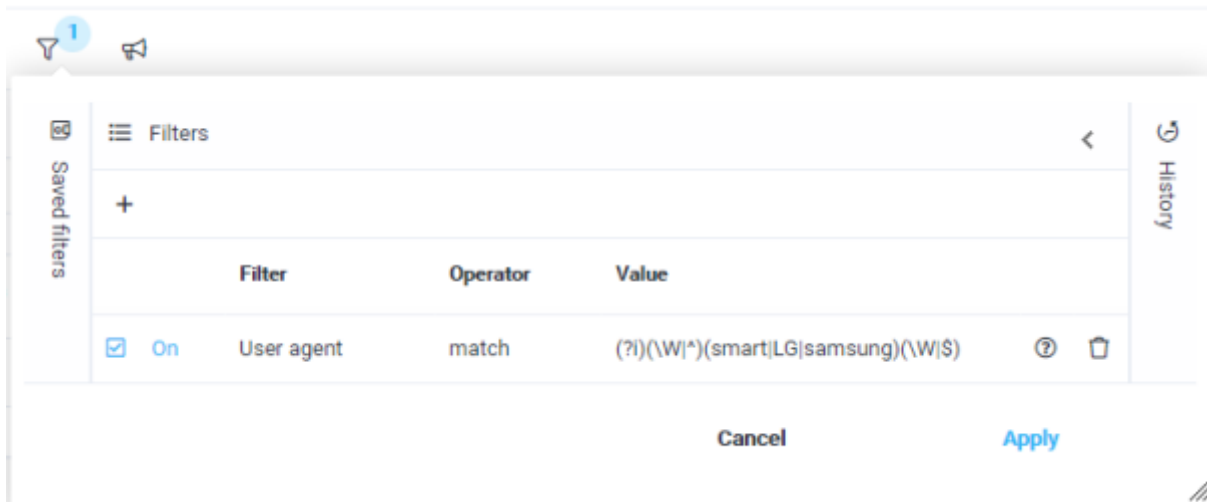


- The result of the filter applied is 5 potential subscribers who might be interested in competitors.
- More statistics can be found in the "**Details**" window.
- Using a voice-tube pictogram, you can drag-and-drop them to [marketing campaign and notify them or conduct a survey on satisfaction with services using browser](#).
- You can export a report in a convenient format.

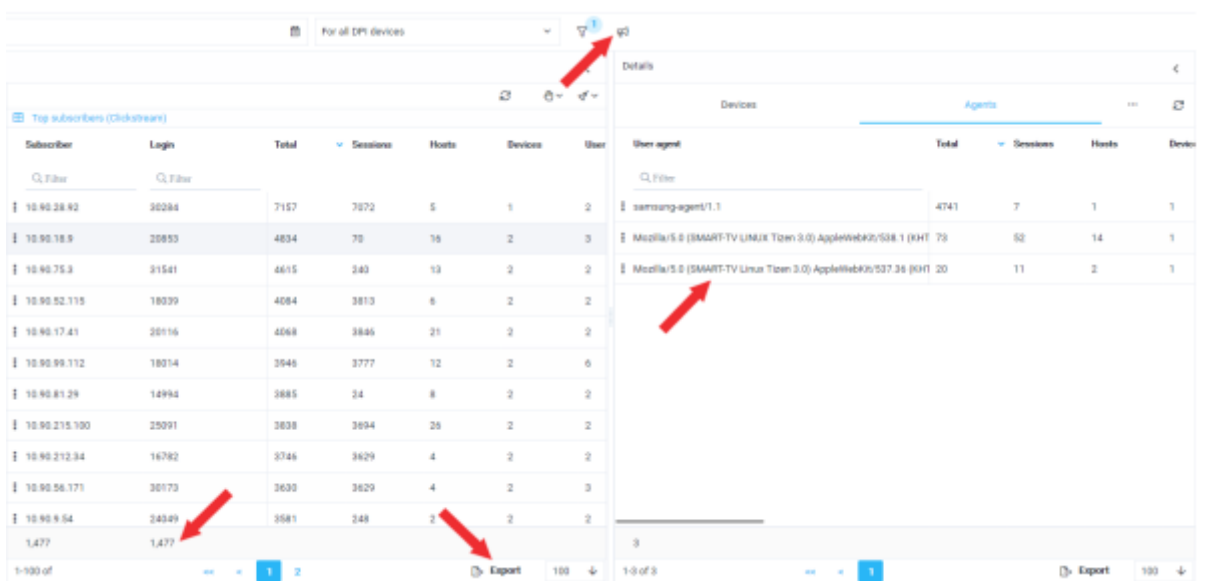
3 Search for Smart TV devices

DPI exports unique UserAgent being sent within the HTTP request. The QoE module aggregates information for each IP (login, if used). Statistics uses each Smart TV behind subscriber NAT. Steps to follow:

1. switch to the QoE Analytics -> Subscribers -> Clickstream section
2. create a filter, use match operator to apply a regular expression search:
(?i)(\W|^)(smart|LG|samsung)(\W|\$) containing the following device list to be searched:
 - smart
 - LG
 - samsung



Interpretation of gathered statistics:



- The result of the filter applied is 1477 subscribers having such devices.
- More statistics can be found in the "**Details**" window.
- Using a voice-tube pictogram, you can drag-and-drop them to [marketing campaign and notify them or conduct a survey on satisfaction with services using browser](#).
- You can export a report in a convenient format.

4 Profiling subscribers by their interests

ClicStream allows you to determine the popular resources and services your subscribers use or identify their interest in sites by certain topics.



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

OTT services usage

Steps to follow:

1. switch to the QoE Analytics - > Subscribers - > Clickstream section
2. create a filter **filter by Host**, use match operator to apply a regular expression search: `(?i)(\W^)(smotreshka|ivi|okko|netflix)(\W|$)` containing the following OTT resources list to be searched:

- smotreshka
- ivi
- okko
- netflix

Database segmentation example

Steps to follow:

1. switch to the QoE Analytics - > Subscribers - > Clickstream section
2. create a filter **filter by Host Category**, use the category of interest

- Auto
- Websites for children, etc.

Example of searching for subscribers with high traffic consumption

Steps to follow:

1. switch to the QoE Analytics - > Netflow - > Top with high traffic (to the right) - > Top subscribers
2. sort by traffic volume