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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

Filters				
+				
	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 web analytics interface. The main table, titled 'Top subscribers (Clickstream)', has columns: Subscriber, Login, Total, Sessions, Hosts, Devices, and User agents. The 'User agents' column is highlighted with a red box. A red arrow points to the 'User agents' column header. Another red arrow points to the 'Details' window on the right, which shows a list of user agents and their associated statistics. A third red arrow points to the 'Export' button at the bottom of the main table.

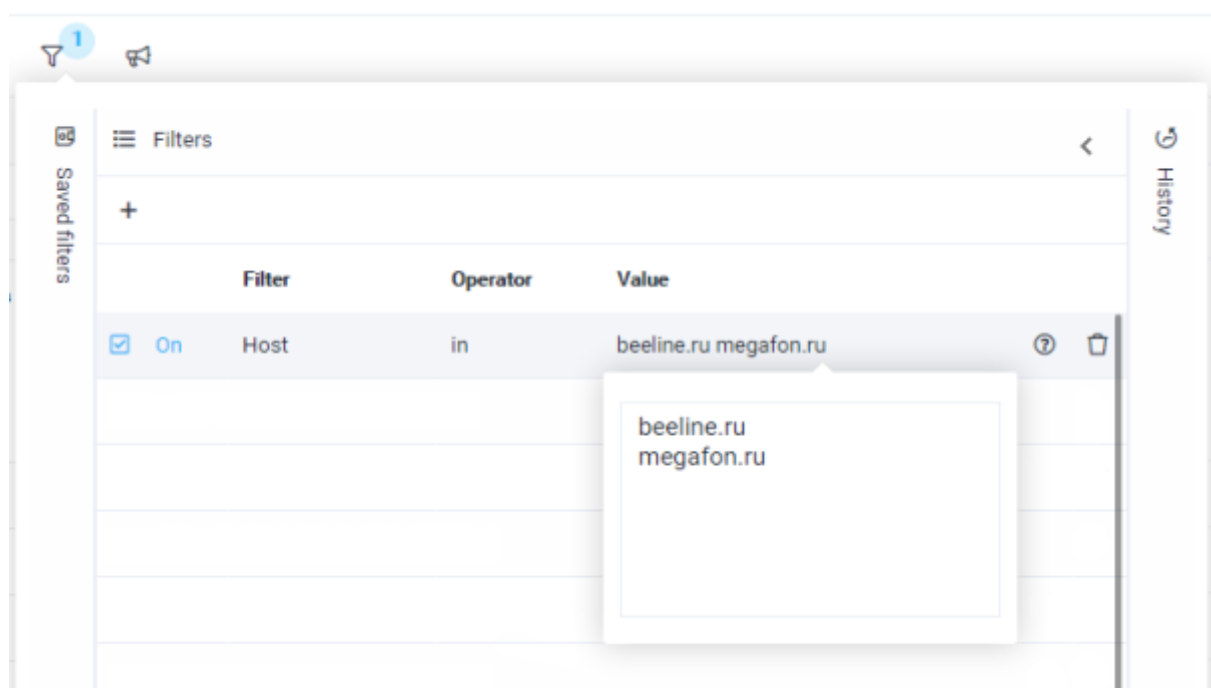
Subscriber	Login	Total	Sessions	Hosts	Devices	User agents
10.90.201.46	24229	8064	2585	400	1	80
10.90.200.226	16915	5531	2084	404	2	77
176.115.139.53	31004	4547	3345	304	2	108
176.115.139.134	19437	4172	2004	370	2	53
10.90.70.122	25857	2326	1127	135	2	93
10.90.13.128	20442	2129	917	115	2	56
176.115.139.20	16133	1800	733	91	2	40
176.115.139.138	27266	1030	277	44	2	48
176.115.139.83	31704	963	680	97	2	69
10.90.80.201	22526	310	280	48	2	31
10.90.82.188	24353	399	304	50	2	42
12	12					

- 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.

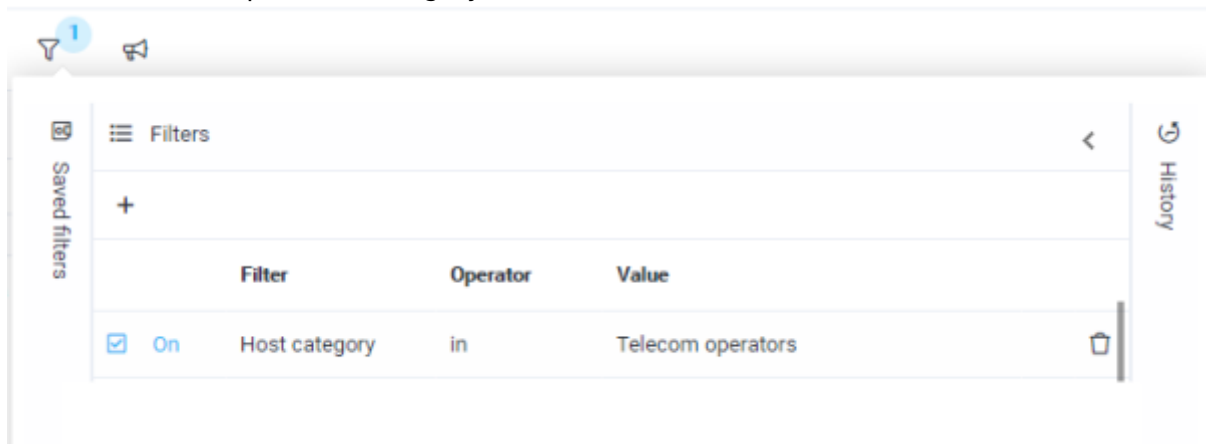
## 2 Controlling customer attrition (search for interest in competitors)

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:

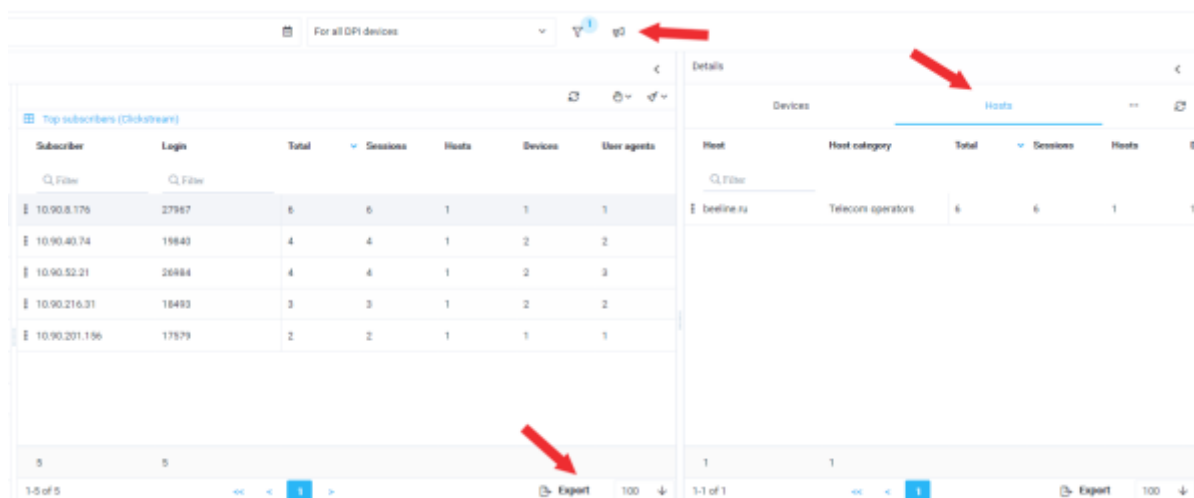
1. switch to the QoE Analytics -> Subscribers -> Clickstream section
2. create a filter including the sites of competing operators in the region



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

Filters

Filter	Operator	Value
<input checked="" type="checkbox"/> On User agent	match	(?!)(\\W ^)(smart LG samsung)(\\W \$)

Cancel Apply

Interpretation of gathered statistics:

Subscriber	Login	Total	Sessions	Hosts	Devices	User
10.90.28.92	36284	7157	7072	5	1	2
10.90.18.9	25853	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	3845	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 190

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/4.0 (KHTML, like Gecko) Chrome/33.0.0.0 Mobile Safari/537.36	73	52	14	1
Mozilla/5.0 (SMART-TV Linux Tizen 3.0) AppleWebKit/537.36 (KHTML, like Gecko) SamsungBrowser/4.0 (KHTML, like Gecko) Chrome/33.0.0.0 Mobile Safari/537.36	20	11	2	1

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Export 190

- 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