

# PROTEI DPI

PROTEI DPI is a packet processing platform with deep packet inspection capabilities allowing to efficiently manage utilization of network resources and provide new value generating services.

PROTEI DPI performs policy enforcement on a per-subscriber per-flow basis. All the traffic flows traversing through the system are classified by means of signature and statistical analysis and are associated with a service e.g. «Social networking» or «VoIP». A policy rule appropriate for the service is retrieved from a PCRF or other external policy server and is applied to the flow. Policy rules define whether the flow shall be blocked or allowed, bandwidth, available for the flow and its priority to solve conflicts between flows. In case of overload flows with higher priority are allocated with the required throughput while other flows are throttled thus ensuring guaranteed level of service quality.

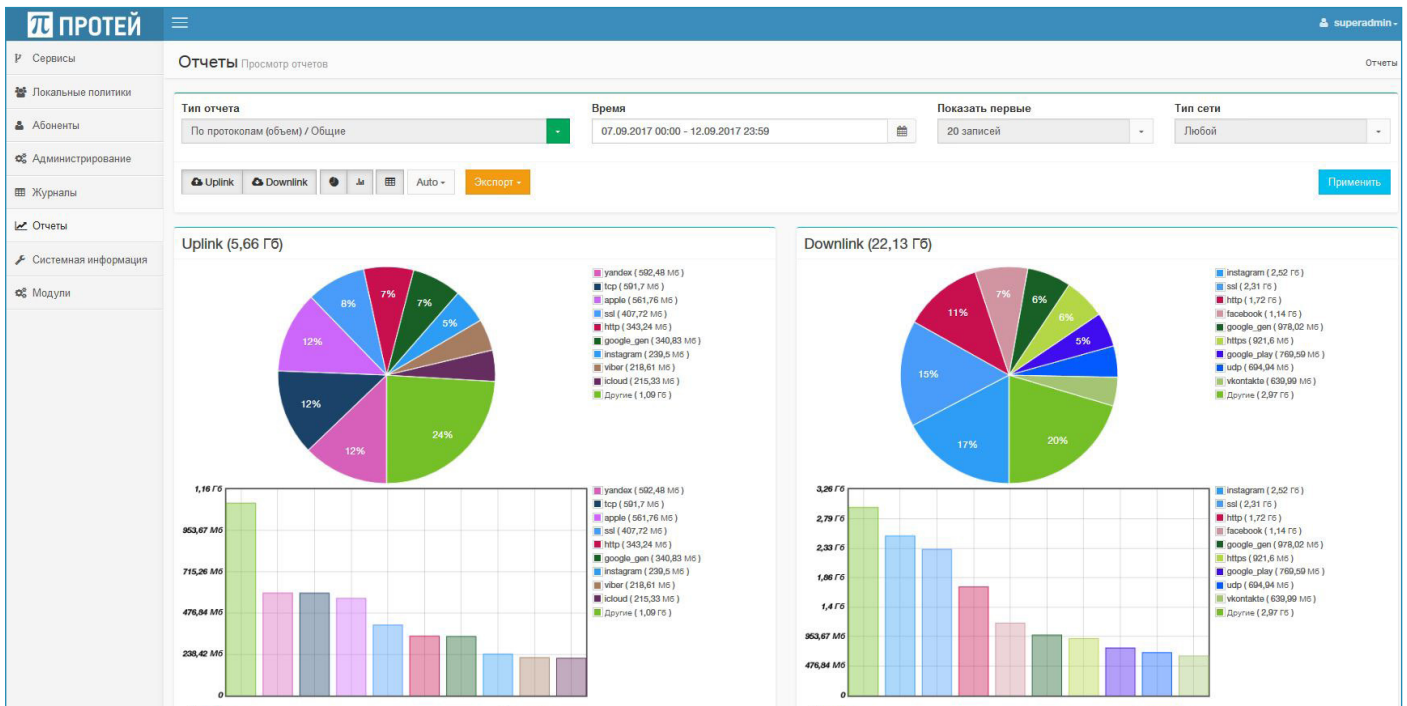


## Key benefits

- Maximum efficiency of bandwidth usage.
- Suitable for fixed and mobile broadband networks including LTE.
- Signature-based and statistical-based detection of application layer protocols.
- Support of 2700 protocols and 6000 protocol parameters.
- Value added services providing.
- Efficient policy management.
- Flow-based and event-based real-time charging.
- Dynamic congestion control using subscriber priorities.
- Embedded user-friendly tools for system maintenance, collecting statistics and channel monitoring.
- Flexible settings of charging and policy rules.
- Integration with PCRF and external databases via Gx or via XML.
- 1+1 active redundancy, hardware bypass.
- Hardware and software developed by PROTEI.

## Functionality

- Signature-based and statistics-based detection of application layer protocols including P2P, IM, E-mail, Voice/Video over IP, streaming, gaming, web and security.
- Traffic filtering by black/white lists or site categories.
- Real-time charging via Gy, periodical per-service quota, Gx usage monitoring.
- Policy enforcement by bit rate limitation and priority control on a per-subscriber per-flow basis.
- Configurable charging and policy rules by different parameters (time, date, location, terminal type, tariff options, traffic volume and others).
- Tethering detection, fraud prevention, SPAM blocking.
- Traffic forwarding to VAS platforms and redirection to partners' resources.
- WEB-based statistical and configuration interface, CSV UDR files, online channel monitoring.
- Subscribers' notification about tariffs, quotas and service options.



PROTEI DPI applies policy rules on a per-subscriber basis. Every subscriber is assigned with a tariff plan containing policy rules, charging rules and subscriber's traffic priority which allows to solve conflicts between traffic of different subscribers in case of congestion. As a result, subscribers of privileged plans suffer less QoS degradation during periods of overload than the subscribers of economy plans (for example on a stadium during a football match or concert).

Traffic charging is executed on a per-flow per-subscriber basis as well. PROTEI DPI provides the following ways of charging:

- Flow-based and event-based real-time charging using Diameter (Gy).
- Usage monitoring (Gx).
- Periodical replenished per-service quota and bonuses (e.g. 1 Gb for YouTube per day).

In case of not enough credits on subscriber's account or if the granted periodical quota is depleted PROTEI DPI allows to apply penalty rule which can limit available bandwidth or grant access only to limited number of resources. For example, "limit P2P traffic bandwidth to 512 kbps between 6 p.m. and 11 p.m." or "don't charge YouTube traffic from 1 a.m. till 7 a.m." and so on.

PROTEI DPI is not only a utility for charging and regulating bandwidth consumption but also a value-adding service platform. PROTEI DPI allows to:

- Collect statistical data about subscriber's preferences to make advertising campaign more efficient.
- Perform URL blacklisting and categorization using external source (e.g. security cloud).
- Malware detection and filtering.

Specifications	PROTEI DPI 20	PROTEI DPI 40
Throughput	20 Gbps Full duplex	20 Gbps Full duplex
Flows	46M	94M
Subscribers	1M	1M
Flows per second	250K	250K
Number of channels	7x10GE	16x10GE, 4x40GE
Interfaces	1000 Copper, 10GE Fiber	10GE Fiber, 40GE Fiber QSFP+
Hardware	X86 server with PCI-E interface board	1 rack unit (RU), 19" rack-mounted