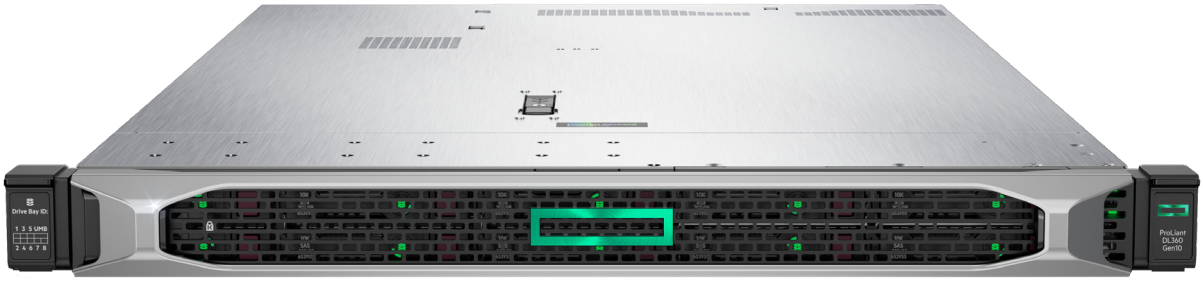
PROTEI DPI

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 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.

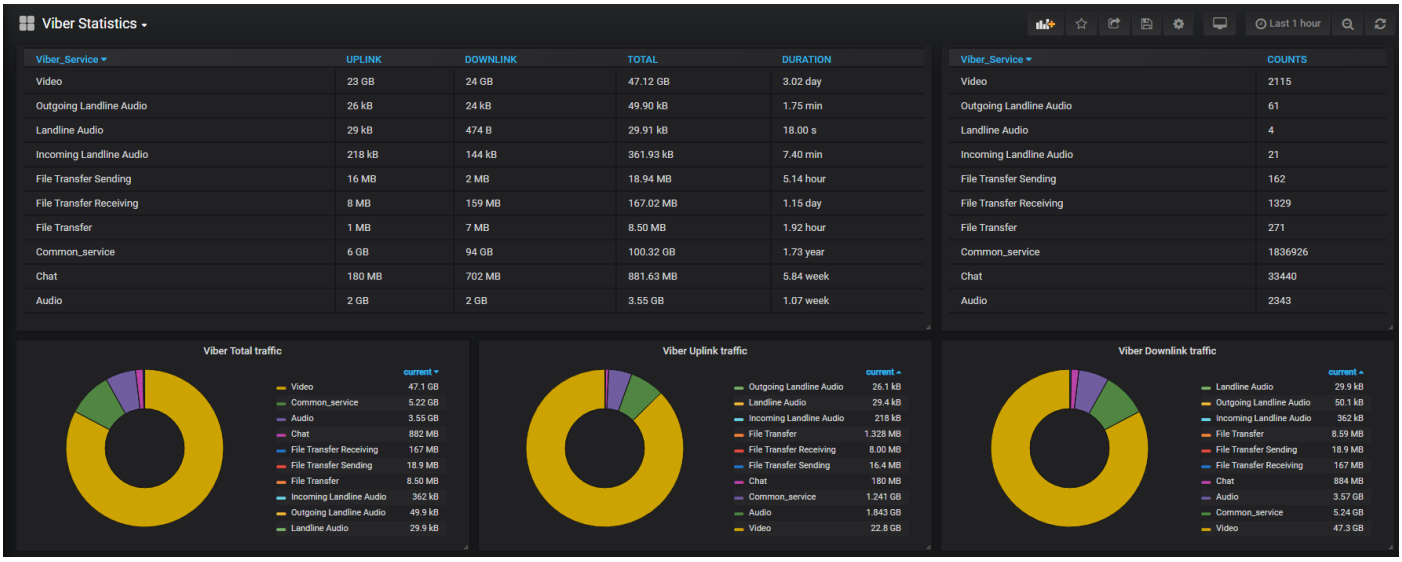


Key benefits

- Maximum efficiency of bandwidth usage.
- Suitable for fixed and mobile broadband networks including LTE.
- Wide detection capabilities based on 9 classification methods.
- Support more than 3300 protocols and more than 5000 protocols' parameters.
- Support 487 sites' categories, include full URL in case of HTTP.
- Value-added services providing.
- Efficient policy management.
- Support standard 3GPP interfaces like DIAMETER Gx/Gy, GTP' Ga and FTP/SFTP Gz.
- 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.
- Hardware bypass can be used.
- N: N+1 or N: N+N redundancy modes supported.
- Software developed by PROTEI and can be customized.

Functionality

- Signature-based and statistical-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 DIAMETER Gy.
- Offline charging via GTP' Ga or FTP/SFTP Gz.
- QoS profile and charging rules control via DIAMETER Gx with possibility to change rules in real-time without service interruption.
- Dynamical policy enforcement by bit rate limitation and priority control on a per-subscriber per-flow basis in case of network congestion.
- Tethering detection (line sharing).
- Detection and prevention of different fraud types (DNS, ICMP, HTTP, SSL).
- Enforcement of charging and policy rules by different parameters (time, date, location, terminal type, tariff options, traffic volume and others).
- Traffic forwarding to VAS platforms and redirection to partners' resources.
- WEB-based statistical and configuration interface, CSV UDR files, online channel monitoring.



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 from QoS degradation during periods of overload than the subscribers of economy plans.

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

- By volume, by time, by time and volume with Credit Pool support in addition to charging by events.
- Without tariffication with consumption control over DIAMETER Gx interface feature Usage Monitoring.
- 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-added service platform. PROTEI DPI allows to:

- Traffic diverting to external value added or partners' systems.
- 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).

Parameters	PROTEI DPI 40G
Cores	2x(18C, 2.6GHz)
Memory	16x16GB DDR4
Throughput	40Gbps full duplex
Flows	16M
Subscribers' session online	1M
TPS on each signaling interface RADIUS/Gx/Gy	6K
Flows per second	250K
Interfaces	TBD
Hardware	x86 server

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