SILAT

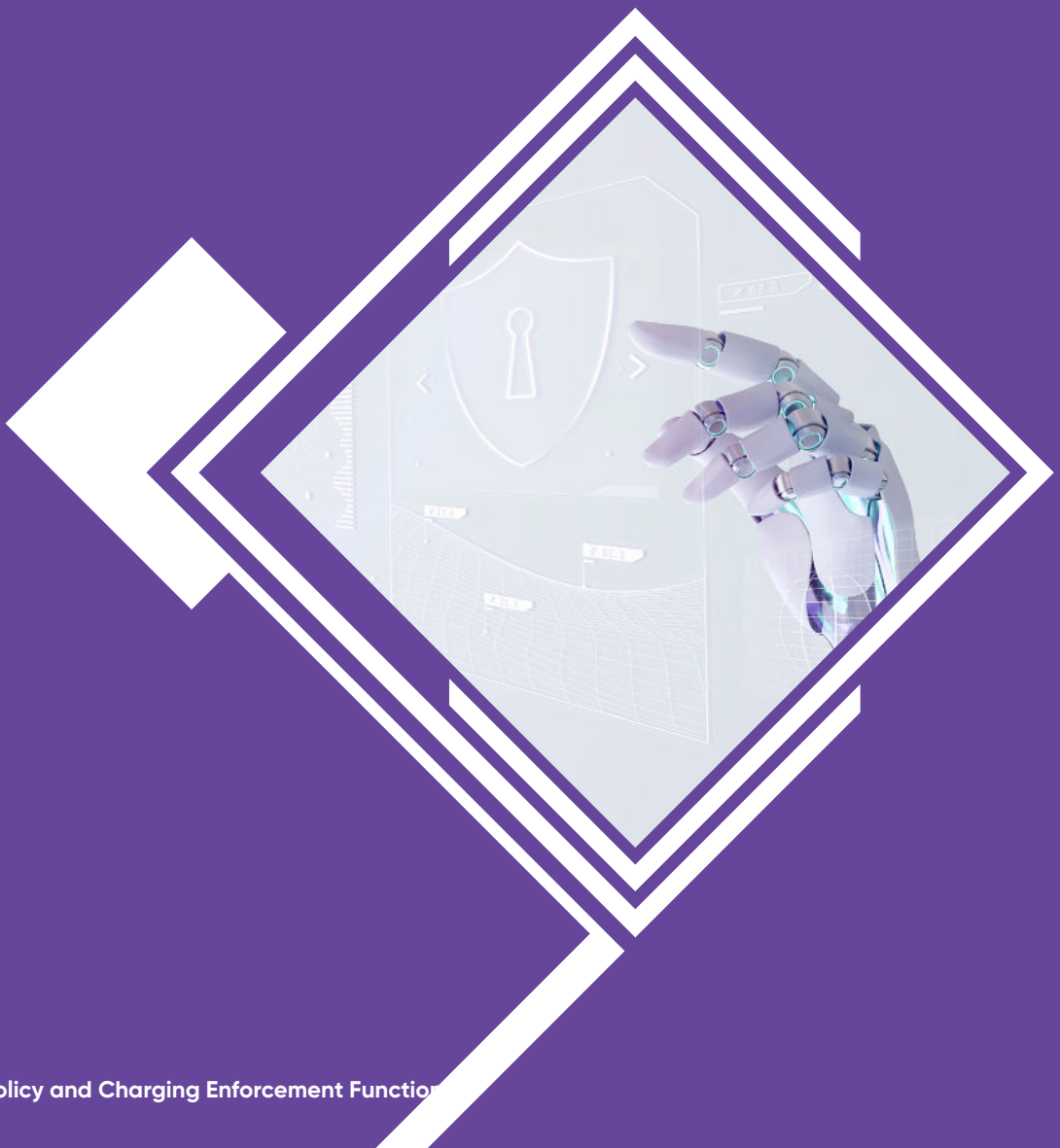
SILAT
Policy and Charging Enforcement Function(PCEF)

SILAT Company Profile

Systems and Information-Leading Advance Technology (Silat) is a premier technology provider and business consulting service dedicated to enhancing our clients' operational excellence and profitability. We pride ourselves on delivering reliable solutions through innovative and intelligent integration of cutting-edge technologies and business processes, all tailored to meet each client's unique needs. With over fifteen years of experience and a proven track record of hundreds of successful projects across various industry sectors, Silat's team excels in providing forward-thinking consulting and technology solutions. Our unwavering commitment to excellence and client satisfaction drives us to continually introduce the latest technologies, serving enterprise companies and telecom operators with unmatched dedication.

SILAT offers a comprehensive portfolio of advanced telecommunications solutions designed to meet diverse industry needs:

- Mobile Network Solutions: Core network services (CS, PS, EPC), messaging, roaming, location-based services, Intelligent Network (IN) platforms, and value-added services (VAS).
- Customer Engagement: IVR-based systems and IP call center solutions for efficient customer care.
- Next-Generation Networks: Scalable NGN/IMS systems for streamlined operations.
- Traffic & Policy Management: DPI and PCRF solutions for optimized traffic control.
- Billing & Charging Systems: Integrated OCS/OFCS and CRM tools for seamless billing.
- IoT & Private LTE: Secure solutions for IoT applications, private LTE networks, and smart cities.



PCEF Key Features

Detection of over 6000 protocols:

- VoIP and Media: SIP, RTP, RTSP, MPEG;
- Torrents and P2P;
- Messengers: WhatsApp, Telegram, Viber, Skype;
- VPN's: openVPN, L2TP, PPPTP;
- Encrypted protocols like SOCKSS, HTTPS,MTproto;
- BRAS with CG-NAT and PCEF functions;
- VAS for ISP: IoT Security and Parental controls;
- Protection against DoS and DDoS attacks;
- Installation on the available server platforms;

Throughput over 100Gbps per RU;

- Connection In-line» and «Mirror»

About Policy and charging enforcement function (PCEF)

PCEF is a hardware-software complex that controls the flow of network data, identifies protocols andapplications, filters by URL, prevent intrusion attempts and spread malicious software by deep packetinspectiondata. PCEF performs important safety functions by checking incoming packets, analyzing the codeand transmitted data after their disassembly and decompression, for compliance with applications andservices. If a malicious URL or code snippet is detected, the system is able to completely block it. PCEF canalso be used by service providers to provide subscribers different levels of access (type of use, datarestriction, bandwidth), compliance with access rules, traffic prioritization, network load balancing andstatistical information gathering. As more and more software products go beyond the workstation andcorporate resources using cloud technologies, network performance becomes critical for high productivity.PCEF can recognize applications; which data passthem.

BASIC WORK SCHEMES

The solution supports filtering by Server Name Indication (SNI), blocking of HTTPS traffic on Common Namecertificates and blocking by «*.domain.com» mask. For greater flexibility, it is possible to use own black andwhite lists.

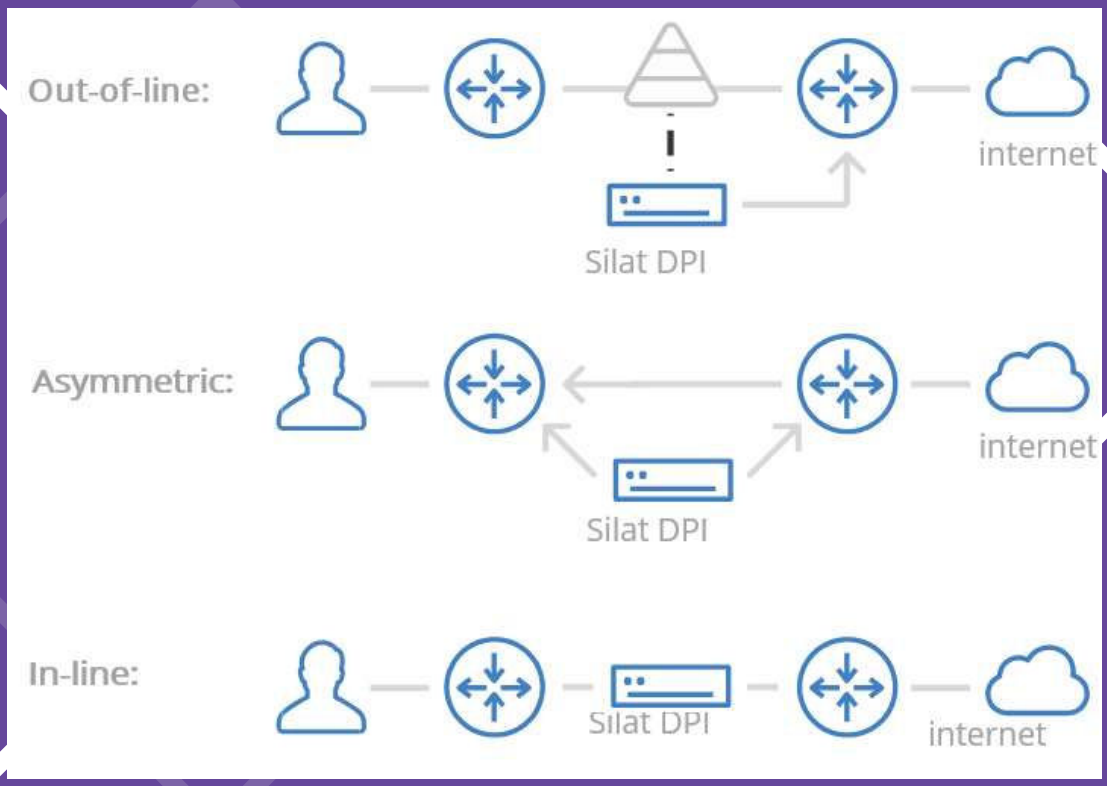
Silat PCEF has a full set of functions for working as L3 and L2 BRAS functionality and can alsoact as eGNATwithsupportHairpinning, Paired IP address pooling and Full Cone. Simple integrate by Radius protocol withmostpopulate billing systems.

BRAS with PCEF allows using prioritization in subscriber tariff plan. Silat PCEF have some level of prioritization: byprotocols/applications and by directions (AS number). It is available for subscriber, Vlan or pair physicalsportsand common channel. Thesystem allows to pass messages to the subscriber while working on theInternet orredirect to the start page. PCEF gives ISP channel to communicate with customers. Marketingprograms allow todelivery news, promo or info0rmation about network failures.

The system has built-in protection against DoS and DDoS attacks, realizes fight against TeP SYN Flood,fragmented UDP Flood and supports the Turing test. Dynamic bandwidth management with protocolpriorities is supported. Silat PCEF provides up to 15% savings on the uplink channels and fast delivery ofaudio and video content through the caching system. Thus, caching of Windows and iTunes updates is fullyavailable. And it also possible to control the torrents by hash value, which significantly reduces thetorrenttraffic on the uplink channels.

Different Silat PCEF connectivity schemes are supported:

- **«In-line» PCEF connects between the Edge Router and the TerminationDevice (BRAS). Faulttolerance isprovided by using the bypassfunction in Silicom cards.**
- **Asymmetric connectionPBR function is used to implement web traffic filtering relying onpolicy-basedrouting.**
- **«Out-of-line»A scheme of traffic mirroring is performed through SPAN ports or optical splitters.**
- **The system supports integration with billing andRADIUS server.**



BRAS

This solution allows broadband operator to control subscribers access to the Internet and apply the policiesof tariff plans and additional
tariff options. Silat PCEF directly interacts withRADIUS server to obtaininformation aboutthe authorizeduser, compares IP addresseswith the tariff plan and additional servicesthat are defined on the billingserver.

•Authorization of IPoE and PPPoE sessions on RADIUS;
•Identification of users by IP, Q-in-Q label, MAC address;
•Assignment and modifying policies (tariffplanand additional services) through VSA (Vendor SpecificAttribute) in the process of authorization on RADIUS and through CoA (Change of Authorization;
•Redirecting users to Captive Portal (blocking); •Workingat L3 and L2 levels;
•Performance of Silat PCEF system can reach160 Gbit and process simultaneously up to128 M usersessions.

CG·NAT

Network Address Translation function allows the telecom operator to share one public IPv4 address withmultiple subscribers, extend usage of the restricted IPv4 address space, and simplify passing to IPv6addressing. Since PCEF platform is designed for huge loads with deep traffic analysis, it can easily realizenetwork address translation function (Carrier-Grade NAT), in addition to which the customer receives a fullset of standard PCEF tools

• Effectively uses the limited IPv4 address space;
• Complies with industry standards specified in RFC 6888, RFC 4787;
• Provides transparent operation of peer-to-peer protocols(torrents, games);
• Allows to limit the number of TCP and UDP ports for the subscriber (DDoS protection);
• Supports functions of Hairpinning, Paired IP address pooling and Full Cone.

QoE

Silat PCEF QoE-this is a software product createdfor collecting statistics and assessing thequalityof serviceperception (Quality of Experience-QoE).
The resulting statistics is superimposed on specific metrics to determine user experience and take actionsaimed at improving the quality of communication services.

TECHNICAL CHARACTERISTICS OF SPECTRE PCEF PLATFORM

Name measurement						
	Silat DPI 6	Silat DPI 10	Silat DPI 20	Silat DPI 40	Silat DPI 80	Silat DPI 160
Performance Gbit	6	10	20	40	80	160
Ports Pcs.xGbit	6x1/2x10	2x10	2x10	4x10	8x10	4x40/2x100
Intefaces -	RJ-45/SFP+	SFP+	SFP+	SFP+	SFP+	FP+/100
Dimension RU	1	1	1	1	2	3
Subscribers -	400K	1M	2M	4M	8M	16M
Maximum number of sessions	4M	8M	16M	32M	64M	128M
New sessions sessions/sec	100K	250K	250K	350K	400K	400K

Our Customers

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