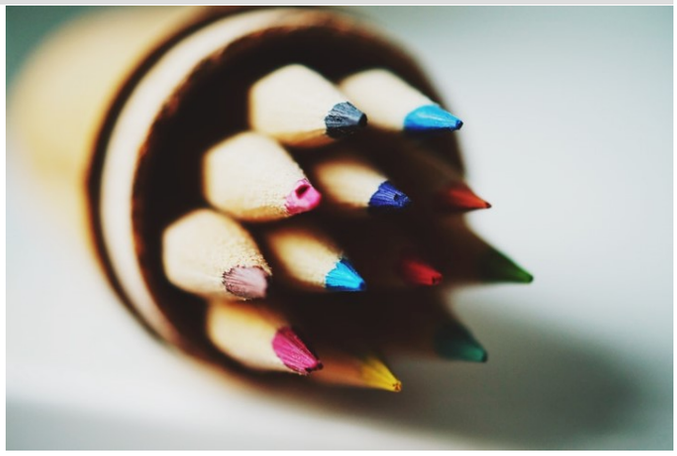
Vedicis DPI-PCEF

Deep Packet Inspection, Policy and Charging Enforcement Function

Software solution for traffic monetization and control



As voice revenue plummets and investments in fiber and LTE access technologies continue, Communication Service Providers need to accelerate IP monetization with new data services.

Launching differentiated packages requires to analyze and segment subscribers' behaviors then to control and charge data traffic based on application criteria. These capabilities, specified in the PCEF (Policy and Charging Enforcement Function) by 3GPP standard, are however not included or not efficient enough in packet gateways (GGSN, PDN-GW or BRAS). Vedicis DPI-PCEF provides a cost-efficient and access-agnostic way to generate new revenues, without impacting mobile and fixed core networks.

Analyze. Control. Monetize

Based on the Vedicis Software Service Gateway (SSG) platform, Vedicis Deep Packet Inspection and Policy and Charging Enforcement Function (DPI-PCEF) empowers carriers to leverage the whole feature set of their Online Charging System with new application- and location- aware use cases.

Monetize data usage

- Create new business models with Application based charging
- Redirect traffic to operators' portal for dynamic top-ups and added value services.

Improve subscriber quality of experience

- Enforce application based policies to control congestion and prioritize profitable traffic
- Leverage access networks' mechanisms for congestion mitigation by intelligently marking the traffic depending on multiple criteria.

Analyze Internet usage

- Analyze traffic patterns and subscribers' behavior
- **Feed Big Data systems** for analytics, revenue assurance, CEM and Fraud management systems.
- Leverage real time processing to enhance **Next best offer services.**

Add new services with no impact on gateways

Packet gateways, either PGW, GGSN, BRAS or Wifi aggregators, are designed to efficiently handle subscribers and IP sessions but with a limited number of services.

Activating DPI or defining quota top-up packages usually leads to decrease gateways' performance and impacts subscribers' quality of experience. Vedicis DPI-PCEF perfectly fits in differentiation demanding environments, providing added value services without burdening exiting core components.

Technology highlights

Full software solution

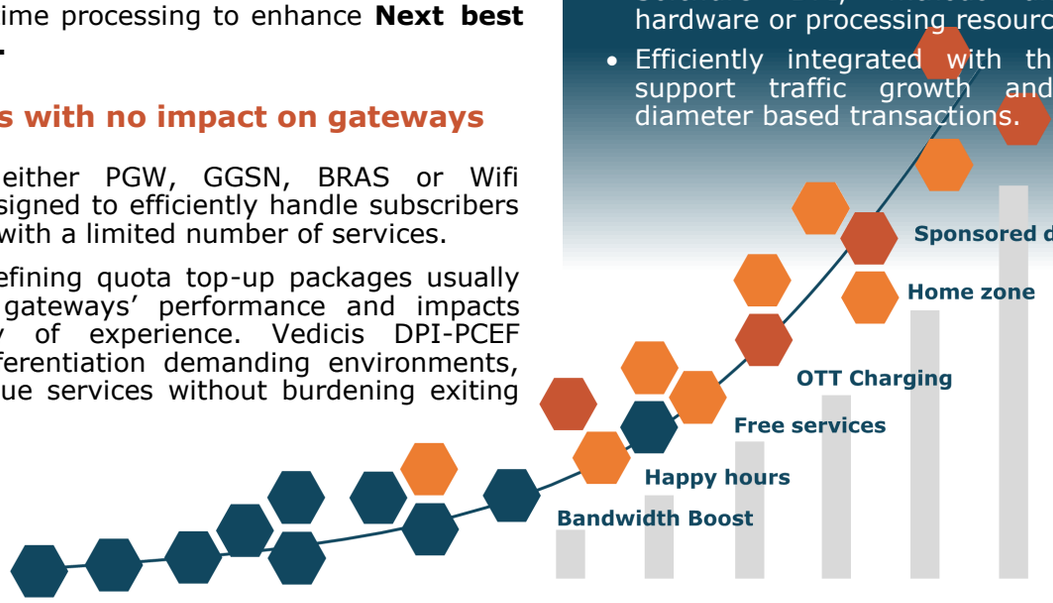
- Cost effective solution, deployed on **COTS Intel servers,** as a **Virtual machine, or as a DPI-PCEF VNF**
- Flexibility to adapt to Operator ecosystem including AAA servers, charging systems and policy servers.
- On demand and dynamic scalability.

Access agnostic

- Fixed, Mobile and Wifi access compatibility
- **Single point of integration** for policy servers and charging systems.

Best of breed DPI

- Software DPI, without any specific hardware or processing resources.
- Efficiently integrated with the PCEF to support traffic growth and minimize diameter based transactions.



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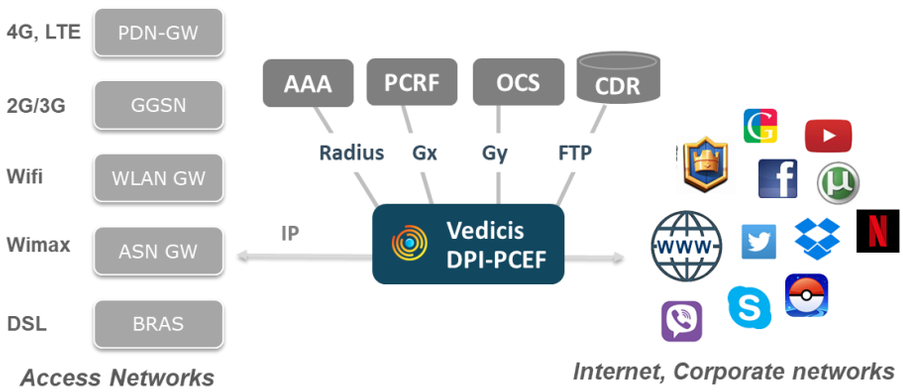
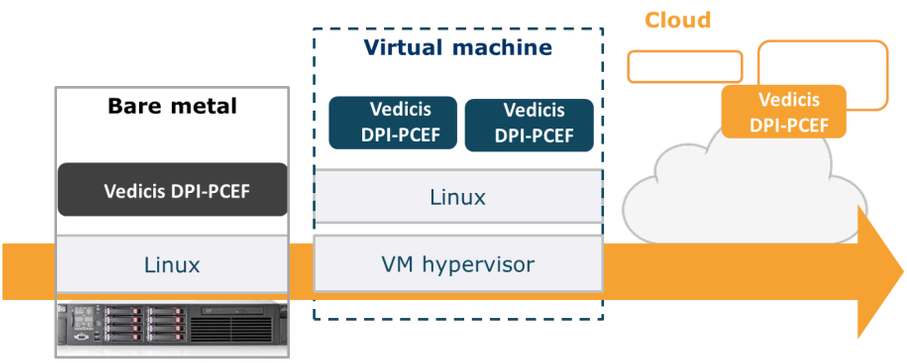


Deployment and integration overview



Software and virtualized DPI-PCEF

Performance per Intel server and NIC (HPE DL380 G9 or equivalent)	
Subscribers support	10 million concurrent subscribers, expandable
Throughput	Up to 40 Gbps Packet latency below 20 µs
Sessions	200 000 000 IP sessions 500 000 new sessions/s
Data Records	200 000 IP Data records /s Up to 500 counters per User Data Record
Policy and charging	Multiple rating groups and stackable dynamic rules for 100% subscribers
High availability	Active/hot standby node
Software technology	Linux operating system VMWare and Openstack compliant

Traffic analysis

Subscriber awareness
- Subscriber and IP traffic correlation
- Radius, Gx, Web services

Service awareness and DPI
- More than 3000 applications and protocols available in DPI library
- DPI customization module: IP, ports, domain names (http, https).

Policy and charging enforcement

Subscriber policy enforcement
- Controlled by PCRF or embedded policy rule engine
- Traffic shaping and control
- Per service or service category

Subscriber traffic metering
- Real time charging enforcement
- Time and volume based
- Multiple rating groups, per service or service category

Traffic redirection to captive portal

Congestion mitigation

Application based traffic shaping
- Bandwidth hogging service shaping
- Integrated schedule

Aggregated traffic management
Real time bandwidth optimization depending on network criteria (APN, Subnet, etc.)

Traffic visibility

Data records
- IPDR: Per IP session (TCP, UDP)
- UDR: per subscriber and time period
- SDR: per subscriber connection
- ADR: configurable aggregation
- EDR: real time event data records

Traffic statistics and monitoring
Per configurable period of time
Per service / service category

Legal services

- Records
- Traffic interception
- URL filtering.

About Vedicis
Vedicis provides advanced IP broadband packet management software platform to fixed and mobile Communication Service Providers. With Vedicis PGW, DPI-PCEF and Wireless Access Gateway solutions, CSPs take informed actions for better traffic connectivity, control and monetization.
Vedicis' leading NFV ready platform uniquely enables the technology migration to Software Defined Networks and to reap the benefits of more flexibility, faster integration and better ROI.

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