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Policy & Charging Rule Function:

How to add more intelligence to mobile networks

Thomas Schöpf, COO of Kapsch CarrierCom, talks about how PCRF provides network operators with a powerful tool for traffic management while providing greater price transparency for customers

Thomas Schöpf, COO, Kapsch CarrierCom

Thomas Schöpf is a member of the Kapsch CarrierCom Executive Board and Chief Operating Officer. Kapsch CarrierCom is an independent systems integrator for fixed and mobile operators as well as access network providers.

Q: What are the market drivers for Policy & Charging Rule Function (PCRF) solution?

A: Smart phone use is increasing with tremendous speed. In certain countries numbers have doubled within the past two years and some analysts expect even higher growth rates for the future. In parallel the data usage per subscriber is increasing. People are always online, they are using lots of different services and applications on different devices and more and more of them will use new technologies like LTE. This diversity brings enormous complexity that has to be managed properly.

It is not only the operators who are looking for better solutions, it's the users as well. Parents for example ask for services to control which content types their children are allowed to use, while requirements issued by regulatory bodies for improved consumer protection is another important driver.

Q: What is the motivation for operators to implement PCRF?

A: Operators are looking for new opportunities to change their tariff structures from flat rates to more sophisticated models which include quality of service pricing. They want to improve customer experience by providing improved opportunities for cost management and online self-service, not only in terms of cost control but also for settings and access controls for kids. In addition there are some regulatory requirements operators have to deal with; for example the EU regulative for roaming. Customers have to be notified when the roaming costs exceed a certain limit and the connection has to be

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terminated automatically unless an additional roaming package is purchased. The same function can be used for bill-shock prevention, where customers receive warnings when certain pre-defined values are reached.

PCRF can also help to reduce network traffic. Features for anti-spam or anti-virus detection can prevent this kind of traffic from being delivered to the users' device. And last but not least, operators can use it to optimize their networks by detecting RAN congestion in real-time.

Q: How do end-customers profit from using the PCRF service?

A: The most important arguments for PCRF are the better user experience and the increased opportunities for subscriber engagement. Users can monitor their costs and the download volume in real time. With features based on PCRF they will get new opportunities to manage their account and their contract. Parents will also be able to control the spending of their children and to administer access controls to services and applications.

Some operators are already thinking about new tariff-models for small companies or families based on PCRF functions. For example when a group of subscribers shares a cost-efficient data bundle with different devices. Each member of the group gets a notification when a certain threshold is reached.

Q: Can you tell us about your experience with one of the PCRF projects you implemented?

A: The challenge is to implement a new software right in the center of the packet core network. There are lots of interfaces and surrounding systems which have to be considered carefully when you plan an implementation project for PCRF. The ongoing network operations must not be affected by the actual implementation. The system integrator needs a deep understanding of how Policy Enforcement works and where exactly the different rules influence the system. This is crucial when it comes to discussing of requirements. Many uses for PCRF are defined in marketing departments and you have to carefully consider lots of dependencies in the whole system architecture. In some cases the cost-profit ratio might dictate whether the specific function should be offered to a customer or not.

Q: What are the classical use cases the operator may consider implementing first?

A: One of the big topics that will confront operators in the near future is Voice over LTE (VoLTE). According to the 3GPP standard, PCRF is an integral part of mobile networks. It is responsible for a coordinated policy and charging control. With regards to VoLTE this means that the quality of service for voice calls can only be guaranteed once the data traffic is managed.

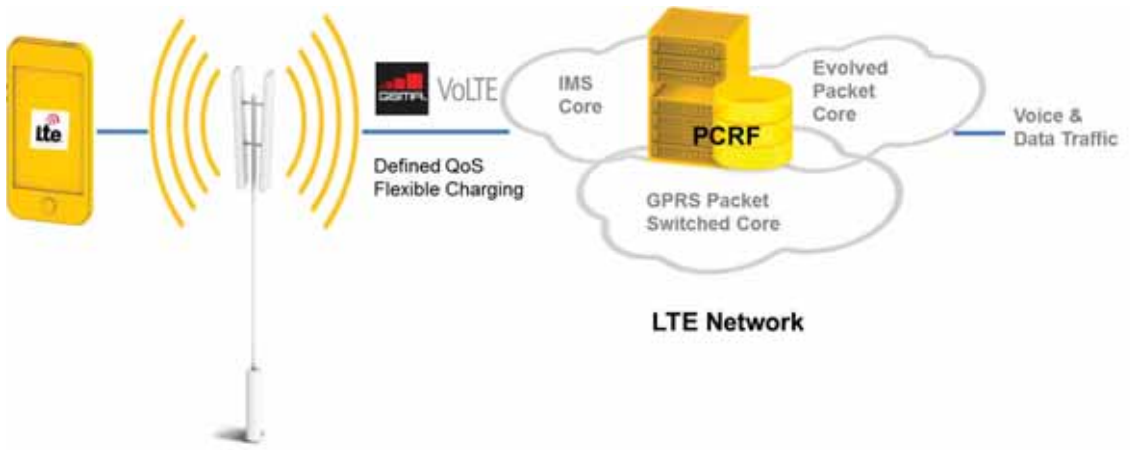
Examples of Smart Device Client Applications. © Openet

Real-time Account Management

Personal Usage & Spend Controls

Dynamic Service Purchase

PCRF as a fixed part of LTE networks. © Kapsch



The second big topic is the enforcement of the EU directive on limiting the roaming costs. Subscribers currently receive information when their data roaming costs reach the limit of 50 Euro. The customer then has the opportunity to increase this limit through an application. This gives the subscriber better control over their spending. At the same time it opens additional revenue streams for operators who can sell packages and it brings new opportunities for promotional activities. One example is an application offered free of charge at different times of the day. Thus the subscriber profits from lower costs while the operator manages the traffic in peak times by moving parts of it to off-peak. This is a win-win situation for operator and subscriber.

Q: Why should operators or PCRF vendors seek cooperation with Kapsch CarrierCom?

A: We at Kapsch CarrierCom follow a multivendor strategy. This enables us to focus on the needs and expectations of our customers and to support them in designing and implementing the most suitable solution that fits into their existing architecture.

Kapsch also has a long lasting experience in integrating telecommunication equipment and in related support services. In case of implementing PCRF, our special knowledge about the 3G core network (especially the GGSN component) is crucial because it is here where rules and policy enforcement takes place.

Kapsch CarrierCom is a global manufacturer and independent system integrator of telecommunication solutions for providers of fixed, mobile, transportation and access networks as well as for railway operators. In seven R&D centers in Europe and Asia, Kapsch CarrierCom develops applications and services for next generation networks and innovative OSS/BSS solutions. In addition, Kapsch CarrierCom provides an end-to-end service spectrum, which ranges from consulting, designing, installing and integrating, to maintaining, operating and supporting entire networks. Among others, Kapsch CarrierCom's customer list includes service providers such as Bouygues Telecom (France), Chunghwa Telecom (Taiwan), eircom (Ireland) and the companies of the Telekom Austria Group. Kapsch CarrierCom - a company of the Kapsch Group - maintains its headquarters facilities in Vienna, Austria.

For more information visit:
www.kapschcarrier.com
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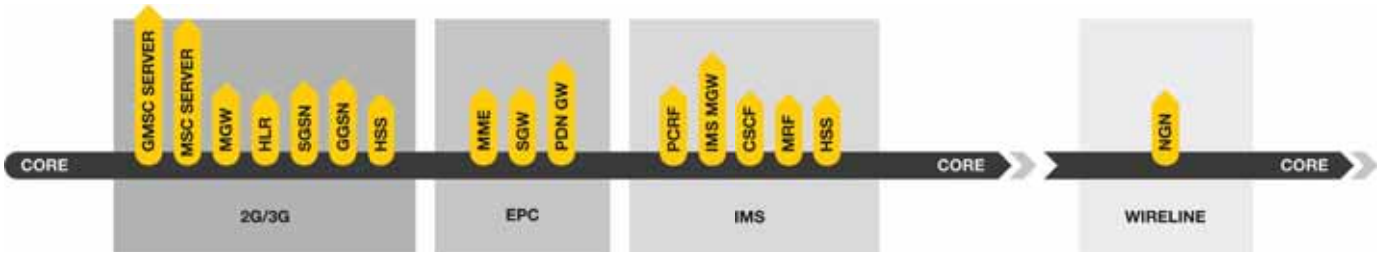
Core network portfolio. © Kapsch



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network optimization professional services
take action sustainable growth
take action **sustainable growth**
improve customer experience
improve customer experience
network BSS innovative
network **BSS** innovative

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voice data future-oriented wireless
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leading innovation OSS end-to-end solution
leading innovation OSS end-to-end solution
next-generation maximize profits
next-generation maximize profits
smart investment wireline
smart investment **wireline**
we make your net work
we make your net work

always one step ahead