EXPERT OPINION:

Why real-time charging and policy management must converge

Policy management is a hot button these days. What started out as a fixed line appliance utilising deep packet inspection (DPI) for traffic tiering has blossomed into a crowded market of vendors promising to help solve operator issues with growing mobile data usage. As Dave Labuda points out, while most operators agree they must have some form of policy management, it has become a loosely defined term covering practically anything that helps control or shape network traffic and customer behaviour.

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When you take a closer look, it appears the left hand does not know what the right hand is doing. This often-heard phrase perfectly describes the current state of the policy management sector.

For a niche that prides itself on sophisticated systems that help operators manage network bandwidth consumption and marry it up with subscriber service preferences, we still have a long way to go to ensure that policy management has a firmer basis in financial reality.

That's not to say that this fast-moving sector has got it wrong; much progress has been made to solve two of the most troubling dilemmas that operators have faced in recent years. First, the inability to enforce fair usage or usage caps on heavy bandwidth users. Second, the inability to tier traffic based on pre-defined priorities of the traffic type.

But if we zoom out again to the bigger picture, you can see that there are still major issues fundamentally caused by a lack of linkage between what a subscriber is spending, what they are actually using, and their understanding of data pricing. Information about pricing, subscriber usage, balances and the ability to implement spend controls exist within the rating and charging applications. So why are policy management solutions and online charging systems (OCS) often being implemented as stand-alone solutions, by different organisations, each existing in a separate vacuum?

Improving decision-making visibility

This situation has largely arisen because operators have been understandably keen to ensure fair usage in order to protect their assets. So, network policy management systems have been implemented that look at network congestion, subscriber bandwidth and data consumption limits. Although these systems have been successful in metering out data access to subscribers, they do have one big drawback if they're asked to work alone in the network: providing a compelling subscriber experience.

The real limitation of stand-alone network policy management systems is that they have no view into subscriber spend and therefore can only make decisions based on data consumption. There's little visibility into subscriber balances, pricing, billing relationships, credit history, balance sharing and other criteria, and this can cause a number of problems with the subscriber experience. These include the throttling of high value customers' usage, the inability to tier megabyte pricing based on consumption, or to offer bonuses or discount packages that encourage further use.

Missing the point?

Policy decisions that are based solely on the network without reference to the subscriber spend can often miss the practical point, too; having a Blackberry® download email every two minutes while you're in a lengthy meeting is pointless because you can't view it, and yet this activity could result in you being throttled or even cut off by the time you emerge from the boardroom. Another problem is that network policy systems only count abstract resources such as kilobytes and megabytes, making it tough for subscribers to set meaningful usage limits.

The OCS, on the other hand, watches over spend thresholds and understands the subscriber from the perspective of managing balances, discounts and credit authorisation. It's therefore better positioned to authorise or de-authorise data network access, or varying qualities of service, by taking these factors into account and providing a better subscriber experience. By contrast, the OCS does not have a view of network or base ▶

station congestion and so is dependent on the network policy management system to form a rounded view of congestion issues, what the subscriber is consuming versus what they're paying, or might pay when confronted with a discounted offer.

On the negative side, it's pretty clear that operators will leave money on the table or even churn subscribers if they simply implement network policies without looking at subscriber value. On the positive side, they have the opportunity to build an enhanced subscriber experience if OCS and policy management work together.

This blending of network policies, subscriber policies and spend management is what we'd term convergent policy management. It's not that policy and OCS should be a single application, but that they should work in concert to enable better price stratification, customer segmentation and service personalisation.

New OCS and policy-based services

For a while, the uptake in 3G services was driven by 'unlimited' tariffs that assured subscribers they would pay only one price, no matter how much data they used. With the explosion in mobile data traffic, operators now need to look at offering lower priced plans to low usage customers who may have been over-paying. High usage customers, who have previously been consuming huge chunks of bandwidth for a flat price, now have the opportunity to pay more for increased bandwidth or quality of service.

There's no doubt, too, that we're moving away from fixed, monthly billing cycles. Subscribers want to see their spend on a real-time basis, and operators want to launch interactive services that require real-time credit authorisation. There's been some progress here as operators allow subscribers to pick their own billing date, and some are offering data packages that provide a specific amount of bandwidth for a fixed period of time, such as a day or a week.

All of which opens up new services based on both OCS and policy. Examples here include basing the quality of service on a subscriber's monthly spend, allowing subscribers to set their own throttling preferences based on their remaining balance, or even receiving Advice of Charge alerts based on the quality of video they are about to have streamed to their handset. The number of such services that can be created by combining policy management and OCS is almost limitless.

A converged view of rating, charging and policy

So how is convergent policy management implemented? While there are 3GPP interfaces defined to enable communication between the policy enforcement layer and the OCS, there is no information sharing or communication defined between the two applications. This is accomplished by leveraging a common data set and a common rules engine for both policy and charging.

This gives the policy application access to dynamic subscriber information such as balances, offers, discounts, preferences, and monetary spending limits. With the ability to share data, policy decisions can be made with a much smarter view of the subscriber, rather than being based solely on network congestion or megabyte counting.

By leveraging an integrated platform for policy and charging, there are also fewer parts to provision, maintain and integrate and a single subscriber data repository that reduces duplication, eliminates consistency errors and minimises transaction processing latency. The single subscriber view that results allows operators to make better-informed business decisions and roll out new services they know will be compelling as well as profitable.

Where do we go from here?

Policy management can have many uses within an operator that are not limited to managing network congestion. By combining policy and OCS together, simple concepts are extended into more sophisticated segmentation, personalisation and enhanced user experiences.

Data service pricing needs to become value-based and targeted at the right price point for specific customer segments. For example, offering a corporate subscriber dynamic QoS upgrades for video calling during an important sales meeting. Awareness of who the customer is and what they typically spend on video or mobile conferencing each month makes this offer relevant and boosts margins.

If operators are making policy decisions without a real-time view of the financial relationship that's supplied through the charging system, then the value of those policy decisions is lowered. We believe it's time to leave behind throttled bandwidth, flat rate pricing plans and inflexible financial relationships and move towards more profitable real-time interactions for both operators and their subscribers.

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