Mobile and fixed broadband traffic is exploding driven by increasing penetration of broadband infrastructure, smart devices (phones, tablets, phablets etc.) and some compelling internet based applications. All this has brought new challenges to Internet services providers (Mobile operators, fixed line service providers, ISP’s etc.). One of the critical challenges for the Internet Service providers has been the emergence of OTT vendors, who seem to be pushing the service provider’s caching system, is a transaction saved by the OTT vendors, which means lower CAPEX overheads for the OTT vendor. So there is a case for service providers to offer “Caching as a service”.

Madan G Onkar, VP, Corporate Strategy, Broadband Data Solutions, Mahindra Comviva

Caching as a Service: OTT Monetization opportunities for service providers

Service Providers Caching Systems will need to support the fulfillment of such a business model, by generating revenue reconciliation reports including percentage hits to the specific OTT vendors cached content and revenue reconciliation reports based on the agreements/SLA’s. It is apt to remember that every transaction processed by the service provider’s caching system, is a transaction saved by the OTT vendors, which means lower CAPEX overheads for the OTT vendor. So there is a case for service providers to offer “Caching as a service”.

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the same network more number of times. So caching essentially creates additional bandwidth for the service provider.

The fact that the above infrastructure is already in place, service providers are looking to find other useful monetization techniques using their Caching infrastructure. The following caching enhancement possibilities will help service providers to increase the potential of monetizing their caching infrastructure.

**Optimized Caching System:**

Given the context of evolution of cloud based technologies, there is a high possibility that most of the service provider’s infrastructures are likely to be moving into the cloud. RAN or the Radio Access networks will remain for some time to come being the last mile access to service provider’s network. Investments around RAN are very capital intensive and any technology which will help the service providers to save on this will be compelling, especially in these times of uncertainty for the service providers. In addition, if it also helps in improving the customer experience it will be icing on the cake which can be taken to OTT vendors as differentiated value proposition. Incremental capabilities around content optimization with the caching systems (like Image transcoding and device based caching), will offer compelling differentiators. Simple capabilities like image transcoding (which means lossless image compression), can potentially reduce the size of image by 40% which would mean significantly less traffic on RAN. Less traffic on RAN means service providers or operators can delay (postpone) their investments on RAN, while allowing them to squeeze in more customers to serve (ability to serve more number of unique customers), which allows further monetization abilities for the operators.

Considering the fact that video is more than 50% of the overall traffic today, If the caching systems further support additional optimization capabilities like video/audio transcoding/ transrating this could be a compelling value proposition to operators, with multifold improvements in all the benefits listed above.

Continuing on the optimization theme, the device based caching capability brings in a certain level of intelligence to both optimization and caching capabilities. Once a specific content has been optimized for a device, it is cached. This makes the device specific optimized content available for a similar device trying to access the same content. So that means we are doing intelligent delivery of cached content, the benefit would be better customer experience which will indirectly result into more revenues explained in the previous paragraph and the ability to delay investments again on the RAN side.

These simple techniques will go a long way in enhancing the monetization capabilities of the service providers.

**More Monetization: Policy-based caching systems - “CASHING as Service”**

It is possible for the service provider’s to go ahead and have different kind of agreements with OTT vendors with varying levels of SLA’s. for example, if they use the service provider’s caching, Caching systems can support multiple channel segregation at the backend for the request to be routed over premium channels. So in case a service provider has three different ISP connections 2Mbps, 4 Mbps and 8 Mbps then, the service provider has an agreement to deliver differentiated quality of service for a specific OTT vendor then the Caching System can route the request to 8Mbps link. This means OTT vendor is able to create a compelling user experience for its customers and the operators will be able to monetize further, through OTT vendors by offering infrastructure with differentiated capabilities.

Further, the caching systems can support policy based caching wherein it is possible for the service provider to decide content from which OTT vendor needs to be cached, depending on whether the OTT vendor has an agreement with service provider or not. So if the OTT vendor has an agreement with service provider, then he can decide to cache the content or not. Coupled with all the optimization features discussed above, this becomes extremely relevant since the bandwidth prices for some ISP’s are dropping down significantly so the backhaul cost saving may not be compelling enough. However, the differentiated customer experience is compelling value proposition which can be definitely be offered to OTT vendors.

Service Providers Caching Systems will need to support the fulfillment of such a business model, by generating revenue reconciliation reports including percentage hits to the specific OTT vendors cached content and revenue reconciliation reports based on the agreements/SLA’s. It is apt to remember that every transaction processed by the service provider’s caching system, is a transaction saved by the OTT vendors, which means lower CAPEX overheads for the OTT vendor.

Caching and its evolution for further monetization: ‘Federated Caching’

As such I believe that the caching as architecture is evolving with philosophy of content close to consumer, Multi layered caching (L1 and L2 caching systems) and intelligent federated policy based caching. These evolutions will demand flexibility which as such we believe will be difficult to achieve with existing appliance based caching systems. The fact that there could be multiple caching systems deployed across various points of the network and across geographies for larger operators it is imperative to standardize the policies across these caching systems in order ensure consistent user experience across their networks. This will mean Policy enforcements across different points of caching using a centralized policy definition framework, with standardized interfaces like 3GPP defined Gx interface. The next generation caching systems will need to evolve to support such concepts.

With humongous demand for data services, the service provider will need to ensure that their infrastructure is flexible to support scaling on demand. With virtualization technologies, it is feasible to implement an architecture which is scalable on demand which is practically ruled out when it comes to appliance based caching systems.

In summary, with so many possible evolutions around caching, the basic infrastructure deployed widely by service providers can be tinkered at minimal cost to ensure that additional revenue opportunities are created to exploit the OTT boom. ☑