

THE CUSTOMER AWARE NETWORK

For a while now most SON vendors have positioned their technology not just in terms of narrow edge-based radio use cases, but as a critical strategic tool within operators' network management, big data and customer experience strategies.



SON can be the tool that closes the loop between network level optimisation and customer experience. This creates the vision of the customer and revenue-aware network that automates at sub-cell level to provide the best return to operator and customer. In other words, SON can work not just within information about

the conditions of a cell's overall performance, but with data about the users within the cell, any hotspots within the cell, and the application usage going over the network.

Hybrid SON solutions that combine centralised closed loop systems with edge-based D-SON can work at a global and local level within the network to automate the network according to both overall policies and at a very granular level. You will struggle to find a SON vendor from the NEPs like Cisco, Nokia and Ericsson, to big IT players like Amdocs, to assurance platform vendors, to dedicated standalone SON providers, who is not ascribing this cognitive ability to SON. In fact, it creates a situation where SON is both active across the network, but in a sense disappears within it as a discreet function.

So the interesting thing about this drive is how it positions SON not just as a tool that can be

enriched by customer and subscriber data, but as a driver of automation in the wider network as SDN and virtualisation progress.

For example, take Accedian - not a company that you would think of as a SON company but it is one that has put a lot of thought into thinking about how the process of instrumenting, measuring and verifying network and service performance can be automated.

It posits the following scenario, taking place in a network where SDN is mainstream in the mobile core, proposing a vEPC that coordinates with SON controllers through big data analytics to achieve a new level of user experience.

Consider the case where radios are fully optimised - from the SON controller's vantage point - but user experience suffers. Is the SON at fault? Is it doing its part to contribute to the best QoE, or is it impairing it? Centralised analytics and SDN will be able to sort this out, and put the SON network at the service of each end user's policies, most important applications, and their perception of what matters. For example, in a congested area, users that pay a premium for a service should enjoy flawless performance. SON controllers would be instructed to optimise service quality around that user, potentially at the expense of other, less important subscribers or applications.

When a user is engaging in VoLTE call, the SON may be instructed to adjust radio properties, steer beams, or

change backhaul paths to realise the lowest latency to the handset. On the contrary, a user streaming 4k video is relatively insensitive to delay, but needs significantly higher throughput. Only the combination of SON, with total performance visibility, analytics to process

THIS POSITIONS SON AS A DRIVER OF AUTOMATION IN THE WIDER NETWORK.

optimal scenarios, and an SDN controller to issue commands, can see and react to ensure the network delivers the best possible user experience.

In Accedian's vision, analytics that correlate user experience with their context, policies, subscriptions and the network state, will allow operators to see and control as never before, with the ability to add machine

learning into the mix to create a fully intelligent, automated network.

UK start-up Teragece warns that while network optimisation and management are increasingly being automated, the feedback mechanisms that instruct the software to make those changes are not. CEO Christian Rouffaert says that to get feedback on the customer-side impact of their software-driven changes, operators are still overly reliant on old, slow and coarse mechanisms, including drive and walk testing, crowd-sourcing and on-device apps. Other options such as static probes installed at the base stations, or permanently installing measurement equipment in field force vans "struggle to deliver the critical mass required to create a real time view of network performance and customer experience by location and by time of day".

Teragece is developing a measurement methodology that enables them to correlate base network technical measurements such as loss, delay, jitter to the resultant customer experience across different application classes, which they reflect in a proprietary scorecard. This methodology is installed on the handset and auto-generates measurements every 20-30 minutes, and if that sounds like a potential barrier to achieving scale, Teragece claims it is deployed to more

than 100,000 handsets in the UK alone, providing in excess of 30 million measurements per week. This creates a real time data processing and visualisation engine which feeds the information back to its clients in real time. Operators can access the information through an online portal or through an API which in turn can be integrated into existing OSS, analytics and SON platforms.

Rouffaert adds, "This closes the feedback-loop that was started with SON and SDN. However, things can get even more interesting: because our solution is deployed across all operators, we can give an instantaneous view of operators' own performance, but also in the performance of their competitors in any given location. It does not matter that you are "good" in a given location, if your competitor's performance is on par, you are only "average". So not only do we enable real-time management and optimisation, we also enable real-time competition and differentiation."

The principle evolutionary path of SON should be viewed not just in terms of its increased feature set, ie how many dropped calls it saved, improvements in SNR, but in its increasing integration with other automated data analytics and network management platforms to manage the virtual, software-ised, multi-vendor network.