ACCEDIAN

SK Telecom

SK telecom

Type of Company: Mobile Network Operator
Subscriber Base: 28 Million: Largest South Korean Operator
Accedian Solutions: SkyLIGHT™ Performance Platform and Nano Smart SFP Modules

The End-to-End Visibility Challenge

The ability to reliably assure quality of service (QoS) and customer quality of experience (QoE) is a competitive requirement for today's mobile network operators (MNOs), who rely on performance as a key differentiator. Operators need complete network-wide QoS and QoE visibility to maintain control and optimize end-user experience during their migration to the increasingly complex, dynamic networks required to support HetNets, and the transition to 4.5G and 5G.

Core-to-edge, multi-domain performance monitoring is often complicated by a variety of factors, including inconsistent support for standard monitoring protocols across multiple vendors' network equipment, and the difficulty in centralizing uniform key performance indicators (KPIs) for network management and operational support systems (NMS/OSS) to interface with. With networks moving towards automated, programmable systems, end-to-end performance visibility is crucial, but hard to achieve.

SK Telecom overcame this challenge by turning to Accedian Networks for a standards-based, network performance assurance solution capable of providing end-to-end QoS and QoE visibility across a sophisticated, multi-vendor mobile network. This lets SK Telecom drive their software-defined network (SDN) management system directly with the real-time metrics from the Accedian solution, automating network configuration and optimization to deliver the best possible experience to their customers.

Customer Overview

Established in 1984, SK Telecom is Korea's largest telecommunications company with more than 28 million mobile subscribers, accounting for about half the market. Its achievements include some very impressive highlights: world's first company to commercialize CDMA and HSDPA networks, provider of Korea's first LTE service (launched in 2011), world's first mobile carrier to commercialize 225 Mbps LTE-Advanced (2014), and successful commercialization of 300Mbps tri-band LTE-A carrier aggregation (CA). They are now moving swiftly toward 5G, preparing to launch as early as 2018.

To support this transition, SK Telecom is in the midst of implementing a business transformation strategy fueled by big data analytics and network automation.
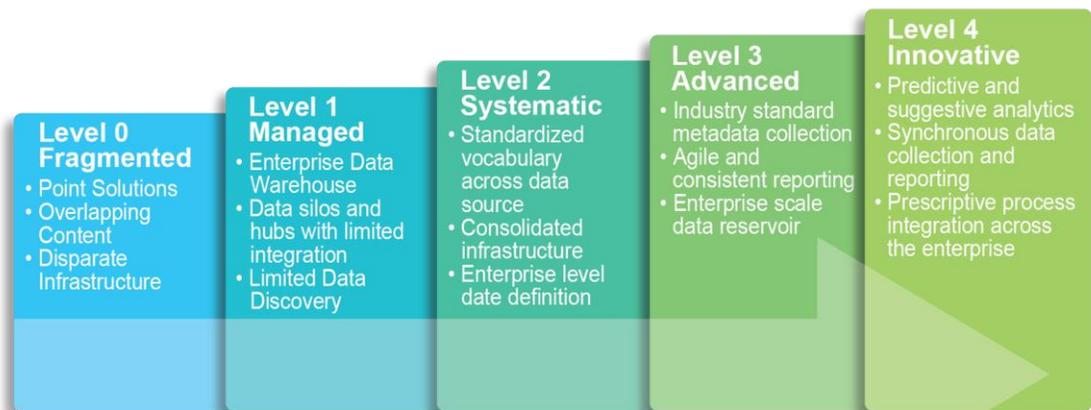

SK Telecom big data and analytics strategic objectives
(BTE conference presentation, June 2015)

One goal of this multi-year program is to use service metrics to develop new revenue through targeted advertising, location- and situationally-aware applications, and on-demand video delivery using a subscription model.

However, Ashish Singh, GM/VP, Products at SK Telecom emphasizes that delivering exceptional user experience is their primary goal. This is because network performance and agility underpin all the services they deliver, from pre-5G mobile broadband, voice and video over LTE (VoLTE / ViLTE) through the new revenue sources targeted by their big data strategy.

From SK Telecom's perspective, operational efficiency drives an optimized user experience by coupling complete network monitoring coverage with their SDN control infrastructure. This permits automated network (re)configuration and dynamic performance optimization (DPO) over their multi-vendor infrastructure, streamlining the process of network management, and eliminating the link between network redundancy and resilience.

SK Telecom's big data maturity model, supporting their big data analytics strategy

SK Telecom is now reaching the last stage of their big data maturity model (shown above), where a broad range of real-time consistent KPIs are accessible from their data lake for detailed predictive analytics, reporting, and process optimization.

The Challenge
To effectively apply big data toward achieving its long-term goals—including reliably assuring LTE and small cell backhaul, SLA-backed business services, financial WANs, data center interconnect, and SDN optimization—SK Telecom determined it needed the ability to:

- Ensure service performance standards using key KPIs to proactively mitigate risks to the customer experience.

- Detect traffic bursts in order to optimize LTE networks and reduce QoS impact.

- Locate bottlenecks and use that information to improve overall network capacity.

- Immediately identify and correct any network misconfigurations.

- Optimize fault failover to eliminate service downtime and improve network quality.

To achieve all these objectives, the operator needed a solution capable of per-flow measurements with microsecond precision, ultra-granular sub-second sampling, and one-way measurement capabilities, all integrated into SK Telecom's sophisticated, multi-vendor network and their custom-designed management and orchestration systems.

The Solution

Accedian's SkyLIGHT Performance Platform and Nano smart SFP Modules are the solution to SK Telecom's challenge outlined above. As a multi-vendor, standards-based solution, it centralizes a real-time view of network performance throughout the network, and opens real-time QoS and QoE KPIs to SK Telecoms existing management systems.
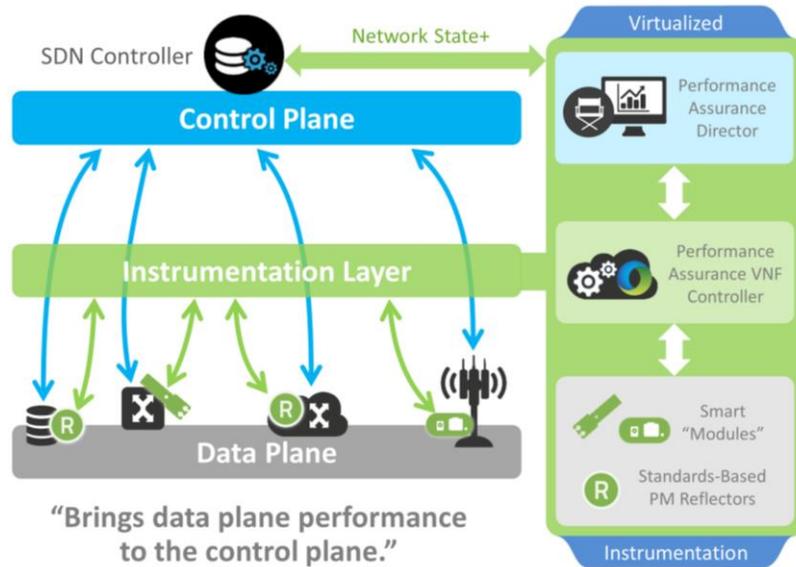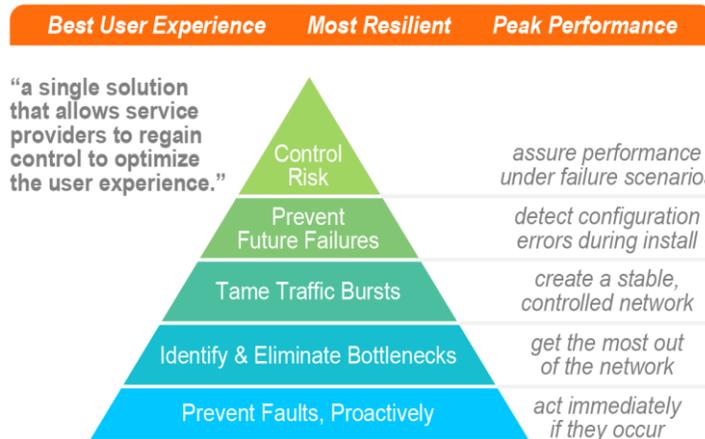

Accedian solutions deployed as uniform instrumentation layer across SK Telecom's Network
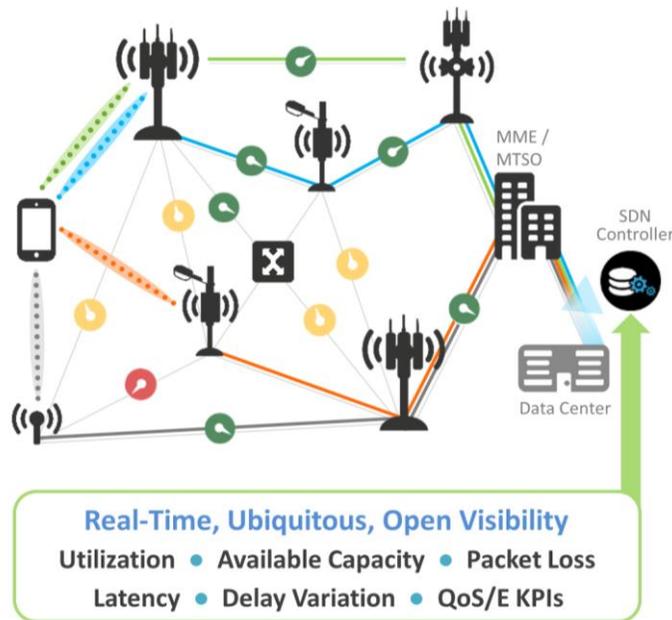
When selecting network equipment, SK Telecom tries to ensure that core and cell site routers, base stations and small cells can be monitored using the industry-standard, Two-Way Active Monitoring Protocol (TWAMP, RFC-5357). Where network elements lack TWAMP support, SK Telecom installs Accedian's Nano smart SFP module directly into those element, effectively upgrading them with this functionality. This ensures that all critical service, aggregation, and core sites are covered, and performance monitoring blind spots are eliminated. QoS and QoE KPIs from TWAMP sessions monitoring all locations, links, and services are now available from a single, open, programmable Accedian platform.

Now implemented at more than 12,000 locations across the six largest cities in South Korea, the Accedian platform gives SK Telecom a uniform instrumentation layer that bridges performance metrics from their multi-vendor network to their automated, SDN-based network control. The detailed metrics collected from all areas of the network provide a real-time performance-aware feedback loop, allowing the network to optimize itself to serve the diverse needs of the many applications sharing its resources.

Best User Experience   Most Resilient   Peak Performance

"a single solution that allows service providers to regain control to optimize the user experience."

Control Risk	assure performance under failure scenarios
Prevent Future Failures	detect configuration errors during install
Tame Traffic Bursts	create a stable, controlled network
Identify & Eliminate Bottlenecks	get the most out of the network
Prevent Faults, Proactively	act immediately if they occur

Benefits of Accedian Solutions Benefits to SK Telecom

As SK Telecom progressed through each level in their big data maturity model strategy, they also systematically configured the Accedian solutions to cover the full hierarchy of performance assurance fundamentals. They are now able to not only predict and mitigate future failures, but also proactively assure and optimize QoS and QoE under even the most adverse conditions.

The real-time feed of network performance SK Telecom uses from the Accedian Networks solution brings data plane awareness to their self-organizing network (SON), building from a foundation of network stability and control to a system that mitigates risk, predicts the evolution of network usage, and proactively adapts the network to maintain exceptional QoE across all regions of their national footprint.
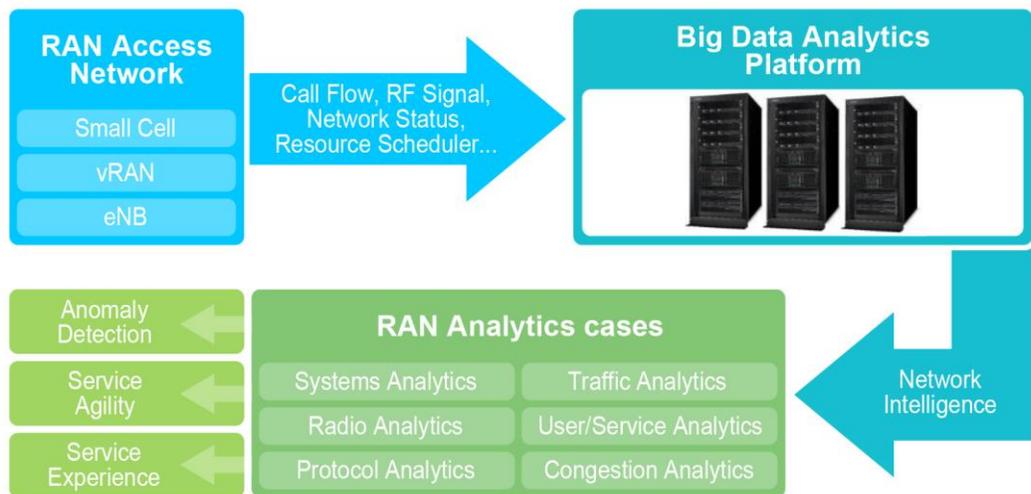

Descriptive Analysis   **Predictive Analysis**   **Prescriptive Analysis**

Provide insight on a specific event by analyzing large volume of multi-dimensional unstructured data

Improve network usability and performance using performance data from elements in real-time

SON, sophisticated anomaly detection and network traffic congestion prediction using correlation on the edge

SK Telecom's real-time data processing foundation for the transition to 5G

Network intelligence from the Accedian solution is also used to detect issues, automatically provision virtual network slices and related virtual network functions, and optimize the user experience using dynamic performance optimization (DPO), including auto-scaling of virtual network functions (VNFs) and supporting infrastructure (NFVI).

With the Accedian solution now part of their overall 5G and big data analytics strategy, SK Telecom has the complete network visibility required to optimize and assure services as their offerings scale and evolve, with programmable hardware, automation, and reporting platforms that grow along with them.

CUSTOMER CASE STUDY

SK Telecom RAN analytics-based intelligent network model

Featured Quotes:

"Our definition of success in SDN and NFV deployments is to use a wide range of hardware instead of vendor-specific appliances, while remaining heavily focused on QoS and QoE—Quality of Experience—for the customer. To reach that level of network traffic sophistication you have to have analytics in place to understand what is going to happen in your network, track and analyze this data, and use it to provide and manage QoS."

- Ashish Singh, GM/VP Products, SK Telecom

"At SK Telecom, best-possible quality of customer service and experience is at the heart of our reputation and our business. Partnering with Accedian helps us ensure the highest levels of QoS and QoE, which is particularly important as we continue to extend our network towards 5G, and to expand coverage with small cells, making the need for 24x7 end-to-end network visibility critical. Accedian's performance monitoring solutions make this possible."

- Choi, Seung-won, Senior Vice President and Head of Network Solution Office, SK Telecom

Next Steps

As SK Telecom moves ahead with their aggressive plan to roll out 5G technology by 2018, ensuring they continue to have the best possible QoS and QoE monitoring visibility is a priority. SK Telecom will extend its deployment of the Accedian performance assurance solution beyond the original six largest cities to reach all regions in its network. This will ensure that their 28 million subscribers will be covered by the same analytics-based performance assurance strategy—and experience the best possible customer experience—everywhere in the SK Telecom network.

Sources: This case study combines Accedian's press release outlining SK Telecom's solution deployment with insight and diagrams from the 2015 BTE Conference session titled "The Role of Big Data and Advanced Analytics in SDN-NFV." To view the presentation of this panel session featuring speakers from SK Telecom and Accedian, click here.