HCL

Accelerated ROI with HCL Augmented Network Automation Platform

Tier 1 Global Service Provider Achieves Significant Gains and Savings with HCL

Summary

Amidst increasingly complex networks with multiple radio access technologies, Radio Access Network (RAN) vendors, spectrum bands, and layers of cells, telecommunication service providers must continue to meet service level expectations while delivering enhanced customer experiences and solutions to address emerging needs.

One of the world's largest service providers, with more than 90 million cellular subscribers, was among the first to realize the importance of an automated network management solution to meet these requirements and maintain its competitive edge. The team agreed that a next-generation self-organizing networks (SON) was the solution to help them make better use the time and resources devoted to manual cell coverage optimization. They implemented the HCL Augmented Network Automation (ANA) Platform, which is built upon the foundation of Cisco SON, and realized exceptional results in less than a year.

Customer
Tier 1 global service provider

Challenge
Improve customer experience and network coverage with fast implementation of automated optimization at a low cost

Solution
HCL Augmented Network Automation (ANA) Platform

ROI
- Realized in 8 months
- $4m in annual revenues gained from reduced churn
- Annual cost savings from reduced engineering effort $2M

Challenge

Meeting Quality of Experience (QoE) requirements for customers is of the utmost importance for telecommunication service providers, and it largely depends on efficient network automation management, which has become increasingly difficult. Service providers face unprecedented complexity in delivering services across multiple cellular technologies, like 4G and 5G and across varied vendor equipment in the network. These challenges, plus requirements such as multi-layer management, mobility interference management, and energy savings – further increase the complexity. Many service providers have adopted network automation tools to manage their networks to address these challenges, but most struggle to achieve significant Return on Investment (ROI).

The service provider has been engaged with HCL's SON Technology for more than 8 years. However, the team was still spending far too much engineering time on optimization activities, such as coverage optimization (5% of the time) and frequent antenna tilt optimization/adjustment (25% of the time). This service provider wanted to automate network optimization processes that were being done manually to focus resources on improving customer QoE and increasing efficiency in service delivery.

An additional challenge was latency between issue detection and resolution. Network KPIs (key performance indicators) were a primary source for detecting and resolving cellular coverage gaps, but they lacked real-time user behavior data. This delayed network optimization resolutions and made the recommendation less effective because the usage had changed by the time optimization occurred. In order to review cell usage patterns, constant monitoring and network optimization were required. Over time, this was only increasing costs and did not contribute to customer satisfaction and retention.

Providing end-to-end network optimization for RAN and beyond

The team determined that reducing the engineering time would require more than the existing automation tools in use. The team needed to provide end-to-end network optimization automation that focused not only on the RAN, but also on additional capabilities, including:

- Deployable on-premises, cloud, or hybrid—quickly and easily
- User and service-centric
- Enhanced AI/ML (machine learning)
- Open-RAN (O-RAN) and RIC (Radio Intelligent Controller) in a hybrid network
- Open platform for self-defined and third-party applications and customization
- Prove significant savings over time
- Mature technology that went beyond merely automating previously manual efforts

Solution

A phased approach was taken to avoid rapid network expansion, minimize initial cost, and spread the expenses over time. The priority was to resolve poor coverage that was resulting in customer loss. After evaluating options, the service provider selected the HCL Augmented Network Automation (ANA) Platform to enhance its automated network optimization, because of its mature SON (Self-organizing Networks) foundation and the speed it could be implemented.

The service provider decided to implement the HCL ANA modules that focus on customer experience. Initially, 15 HCL ANA modules were deployed in their network. This strategy resulted in significant OPEX saving with CAPEX deferral.

The customer utilized HCL SONFlex, a key HCL ANA module that is a multi-vendor, multi-technology open framework, to develop custom SON applications for the HCL ANA platform. Easy-to-use, it enables users to create custom applications without writing closed-loop systems and the internal aspects of connecting to the RAN of a specific vendor. A future-proof SON solution, HCL ANA also aligns with 5G SON requirements and the Open Network Automation Platform (ONAP) architecture.

The HCL ANA crowdsourcing module (HCL ANA Crowdsourcing-based Coverage and Interference Optimization, or HCL ANA eCICO) provided location-based data and subscriber information data from radio and GPS readings. This detailed, real-time data is used to detect coverage gaps and improve them by automatically resolving issues that could not be identified based solely on network KPIs.

What is HCL ANA?

HCL ANA is a next-generation SON platform that enables communications service providers (CSPs) to simplify network management complexity with a closed-loop network automation environment that supports multi-vendor, multi-technology deployments.

The HCL ANA Platform collects and processes vast amounts of data in real-time from most network domains (i.e., radio to transport to core) to automatically predict, configure, and optimize multi-domain networks with self-healing techniques.
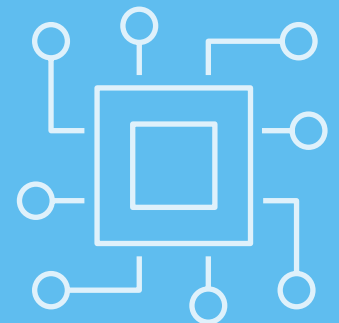
This geolocation data, provided by HCL ANA eCICO, supports SON self-healing actions to meet and exceed network KPIs. This enables automated exposure and resolution of network problems that previously would have required extensive, manual research to uncover and resolve. For example, the HCL ANA Platform detects coverage holes. Coverage improvements were made by automatically changing the antenna tilt to resolve the issues. This resulted in substantial savings by significantly reducing engineering and field service hours and drive tests.

Module	Saving Type	ROI Impact	Savings*
eCiCO	OPEX	4 months	$18.5 m over 3 years
eCiCO/DLB-L/ICLB-L	CAPEX	5000 cell sites	$13.1m
DPAE	OPEX		$190 m over 3 years
AL5R & X2LO	Man hours		8 hrs to 1.15 hrs
DPO-5 & RACO-5	Man hours		7 hrs to 1.04 hrs

Result

The automatic issue detection and self-healing, provided by HCL ANA Platform improved overall network performance, service quality, and enhanced Quality of Experience (QoE) for subscribers. Time spent handling customer complaints and solving coverage issues was reduced, and therefore significant cost savings were realized.

Another benefit realized from implementing the HCL ANA Platform was the deferment of network expansion (CAPEX) to a more opportune time. This resulted in a $13.1M CAPEX saving over four years. It is noteworthy that this figure is conservative, because it is modeled against manual efforts for use cases without the custom-built HCL ANA application or automation.

Ultimately, the service provider approximates a 40% OPEX savings attributed to incorporating the HCL ANA Platform's automation into service optimization efforts, along with a CAPEX deferral cost of approximately 20% reduction of loaded cells. In addition to the monetary benefits, and paramount, are improved customer satisfaction and enhanced customer experiences (QoE), which improves customer loyalty and reduces churn.

8 months — ROI achieved in only eight months

$4m annual revenue gain — $4 million annual revenue gain expected as a result of customer retention (i.e., those that were projected to be lost due to poor coverage)

$2m annual savings — $2 million annual savings in service and engineering time and costs
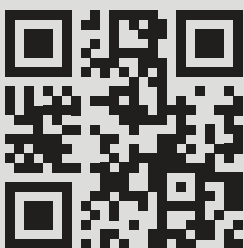
$18m in projected savings — $18 million in projected savings over a three-year period (combining both revenue gains and service cost savings)

Find out more about how HCL ANA Platform delivers a strong ROI