

HCL

HCL SONFlex - Datasheet



The new era of RAN automation for reducing costs and agile service innovation

HCL SONFlex extends the Self-Organizing Network (SON) automation and optimization capability to its full potential. It enables operators to create customized applications for their individual needs in an agile development cycle, significantly shortening the time to market for new service launches and increasing SON savings. Part of the HCL Telecommunication offering, it is a future-proof solution supporting your end-to-end service automation and optimization needs.

Product Overview

When rolling out 5G, operators will be facing the challenge of deploying millions of smaller cells with significantly increased network complexity. They will need to configure and manage the new radio features to manage the connection and coordination with the underlying 4G layer; to configure the interconnection between the centralized and remote network components; and create (and then continually optimize) the network slices required to support the new services.

Facing the need to innovate their service offering in an ever-accelerating rate, mobile operators seek Self-Organizing Network (SON) automation and optimization solutions that can be customized for their specific needs and be rapidly deployed in an agile manner to improve network performance, assure the service Key Quality Indicators (KQIs), and reduce operational costs.

Many operators are looking to commoditize the Radio Access Network (RAN), via “Open RAN” initiatives, for example, which is making a multi-vendor and multi-technology SON solution a critical enabler to avoid vendor lock-in while managing the complexities of a network mix where there are different RAN vendors, technologies, hardware types, and software versions simultaneously.

HCL SONFlex extends SON automation and optimization capability to its full potential. It enables operators to create customized applications for their individual needs in an agile development cycle, significantly shortening the time to market to be ready for service launch and to make the most of SON savings.

HCL SONFlex expands HCL’s market-leading SON platform to operator-led innovation. It provides powerful services and a feature-rich RESTful API that can enable intent-based development of SON applications while managing the complexities of the underlying networks. It reduces the need for SON and radio-vendor expertise, supporting deployment of multiple SON functions simultaneously on the same network with powerful conflict management and coordination between the different applications.

Features and Benefits

Table 1 outlines features and benefits of HCL SONFlex solution

Table 1. Features and Benefits

Feature	Benefit
Multi-vendor, Multi-technology open platform for SON innovation	Reduce the cost of development, deployment, and maintenance of SON applications, and the cost of introducing new SON solutions successfully into your network. Eliminate the need to understand the complexities of writing a closed-loop application, or the internal aspects of connecting to the RAN of a specific vendor.
Intent-driven vendor-agnostic optimization with HCL SON's insights	Enable faster time to market and shorten the time between idea inception and application deployment. Shorten the time to value and increase savings.
Feedback service	Avoid degradation and automatically revert bad actions. Simplify the development of closed-loop SON applications.
Conflict management	Conflict management features enable simultaneous operation of multiple SON applications— both operator and third-party. Increase SON value while avoiding conflicts and network degradation.
Aligned with 5G SON requirements and ONAP architecture	This future-proof SON solution is ideally aligned with 5G SON requirements (see Figure 1) and Open Network Automation Platform (ONAP) architecture (see Figure 2).
End-to-end service optimization	Enable operators quick time to market with innovative services while assuring service SLAs across all network domains (RAN, backhaul, core, policy, etc.) while optimizing service slices to assure service SLAs.
SONFlex Studio	Support extreme automation by non-programmers. Free radio engineers to focus on decision-making activities while automating routine tasks.
SON microservices hosting environment	Enjoy instant deployment of SON applications for specific markets or your entire network. The solution offers seamless migration to any hosting environment.

Architecture

The HCL SONFlex virtualized architecture is ideally aligned with 5G SON requirements (see Figure 1).

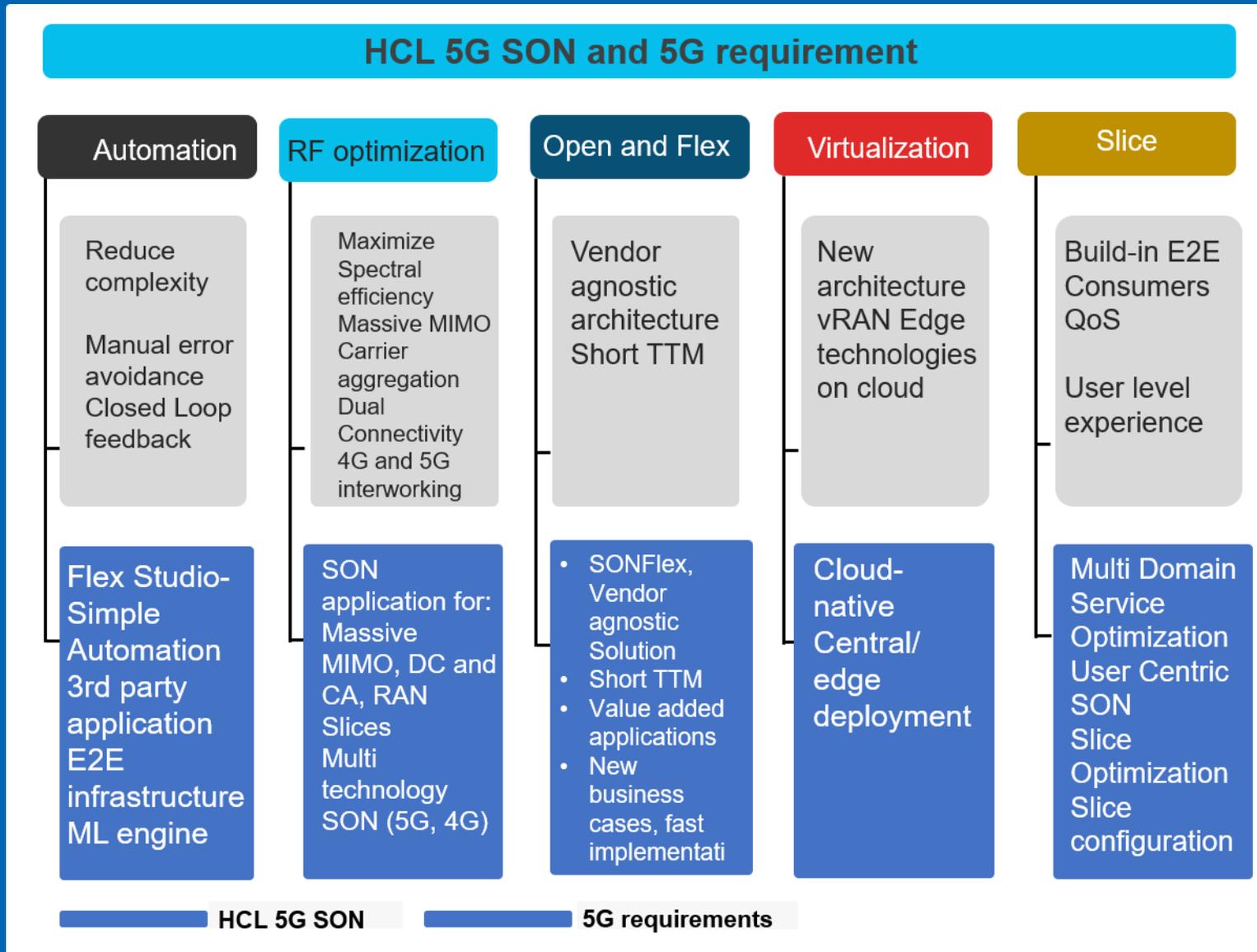
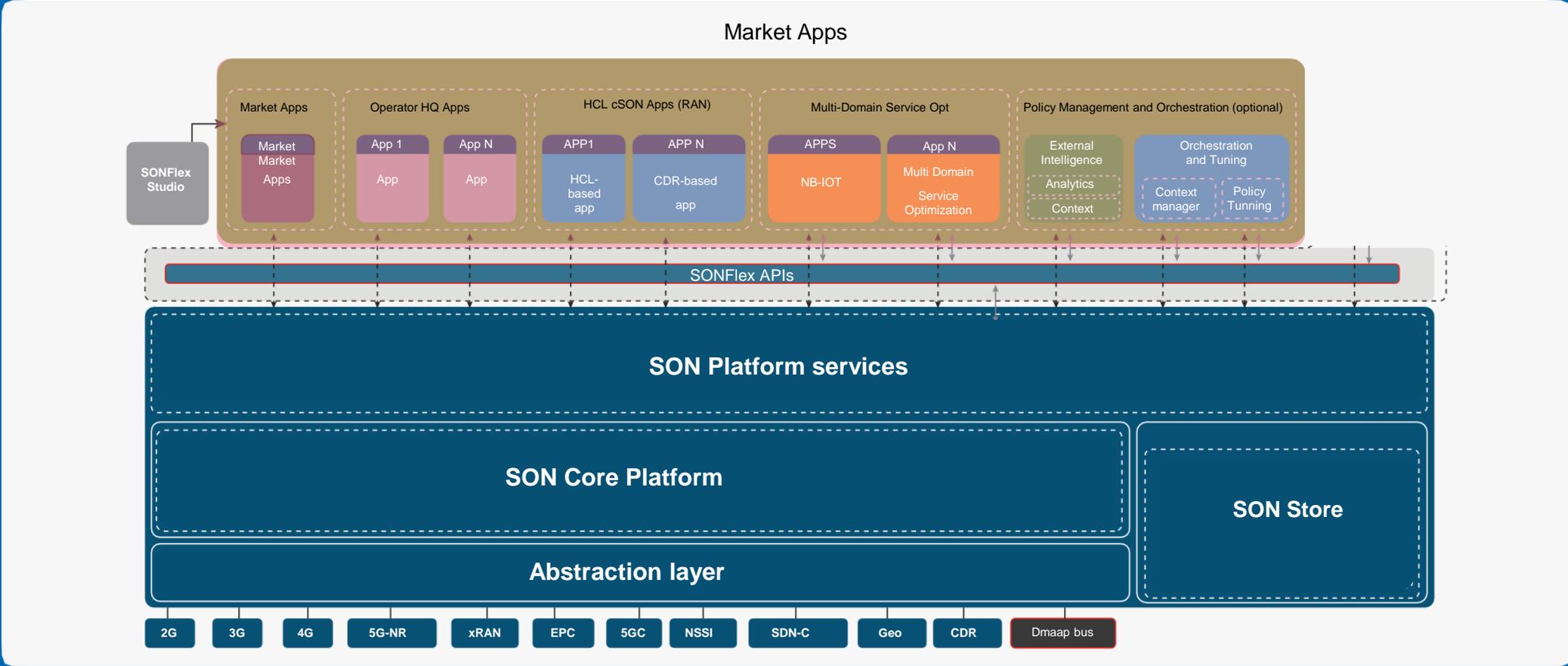


Figure 1.
HCL SONFlex Alignment with 5G SON Requirements

HCL SONFlex architecture is ideally aligned and with industry network automation initiatives such as the ONAP open source project (see Figure 2).

HCL SON enables utilizing ONAP architecture across all RAN technologies (3G, 4G, and 5G). ONAP can dynamically instantiate a new RAN VNF while SON would automatically integrate the new VNF and optimize it at the radio network level.

Figure 2.
HCL SONFlex and ONAP Architecture



Architecture

The HCL SONFlex cloud-native virtualized architecture is ideally aligned with 5G SON requirements (see Figure 1).

Main SONFlex APIs and services include:

- **Cloud-Native:** Gain instant deployment using the HCL SON Kubernetes-based microservices hosting environment. Easily deploy on a specific area or your entire network. Seamlessly migrate to any hosting environment
- **Network visibility** - allows for the retrieval of information related to RAN network elements, configuration, topology, and performance. This includes configuration management parameters and performance management counters, and standard KPIs related to eNBs, cells, and relations.
- **SON Insights** - provides visibility into network topology information applicable to SON, such as meaningful neighbors (based on handover statistics), cells with coverage intersection, TA information, “face” information (cells covering the same sector), cell down indication, etc.
- **Command service** - allows the operator to send action sets to be executed by the HCLSON platform. The API allows the operator to use either vendor-specific names or the HCL SONFlex harmonized names, such that the application can be developed in a vendor- or release-agnostic manner.
- **Feedback service** - allows the application to optionally use the HCL SONFlex feedback services to avoid degradation and automatically revert bad actions (see Figure 3).
- **GUI services** - Applications using the SONFlex APIs are seamlessly integrated into the HCL SONFlex GUI, supporting the management of module activation (i.e. in a polygon or in a group); configuration of per- market application settings and per-cell SON application profiles; seeing all SON activities, including an action layer on the map; as well as management of app notices and logs.
- **Easy onboarding of new data sources** - The SONFlex Dynamic performance management feature can enable operators to dynamically onboard (without a software change by HCL) new performance management counters and KPIs that are not collected, by default, by the HCL platform. Similarly, the SONFlex dynamic configuration management feature enables onboarding configuration management components that are not used by default by the SON platform. This enhances the agility of the operator to develop required SON applications without dependency upon HCL’s SON release cycle.

Take automation to the Next Level with SONFlex Studio

The SONFlex Studio is a GUI tool that helps non-programmers create light-weight SON automation and optimization solutions using SONFlex APIs. The SONFlex Studio increases the value and productivity of operators and radio engineers, allowing them to focus on decision-making instead of routine tasks. It supports zero time to market to address market needs, tailored to market challenges and operational practices (even in cases where there is no business justification, or when there is no capacity to develop a SON application by a development team). The HCL SONFlex hosting environment allows instant local deployment of the solution in a specific market (or group of cells in the market) while orchestrated with the other apps by the SONFlex Conflict Management service. This enables users to drive innovation from the ground up, as market apps can be shared with other markets.

HCL SONFlex Application Hosting

HCL SONFlex provides an optional hosting environment for scalable and robust deployment and hosting of SON apps (running the apps on the HCL SON platform). This Kubernetes-based microservice-hosting environment supports instant onboarding of SON applications. This environment can be used in conjunction with other hosting environments (for example, ONAP) for quick deployment of an algorithm prototype or business-case analysis (without the overhead associated with onboarding it elsewhere) or for a market-specific app. The SON microservices onboarded to HCL's app hosting environment can be easily migrated to another ONAP environment without having to change the way the SONFlex APIs are used.

Summary

The HCL SONFlex platform and APIs have been designed based on HCL's field-proven experience in delivering scalable, multi-vendor, multi-technology SON solutions for all technologies and deployment modes. SONFlex has been hardened over years of use for internal HCL SON development, and since its launch last year, it has been field-proven with Tier 1 accounts in North America and Europe. It is currently the only solution in the industry that has been field-proven to scale up for more cells and more applications with powerful SON insights, orchestration, conflict management, and feedback.

As part of the HCL Telecommunication offering, HCL SONFlex is a future-proof solution for 5G optimization, supporting integration into multiple network domains such as the transport and backhaul, the core, and policy domains, enabling end-to-end service optimization solutions



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