HCL Augmented Network Automation (ANA) Platform

Automate and Optimize your 5G/4G Access Network

November, 2021

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Industry Software: NextGen Products Group within HCL Technologies

HCL Overview

50 Countries

$10+ BN Revenue

159,000+ Employees

Services

IT & Business Services
- Digital Operation
- Digital Business
- Digital Foundation

Engg and R&D Services
- Product Engineering
- Platform Engineering
- Operations Technology

Products

Software Portfolio across
- DRYiCE
  - Service Orchestration
- HCL Software
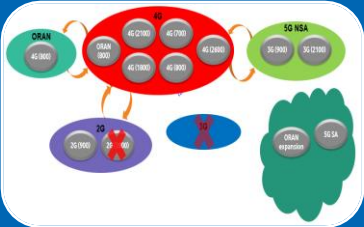 - BigFix
  - AppScan
  - OneTest
  - Unica
  - Commerce
- ISD

Industry Software Division of HCL Technologies

Products
R&D, Innovation

Industry Software

Advanced Services
Professional services

Partnerships
Technology, VAR and OEMs

Telco & 5G

Enterprise AI

Mfg/Industry 4.0

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Network/Business Challenges faced by the CSPs around the Globe

Network complexity

Power saving

Capex ⬇

Smart investment

Backhaul integrity

Mobility optimization

Load management

Key to success: | **Customer-Centric Optimization & Increasing Automation using HCL ANA platform**

HCL ANA

Augmented Network Automation

Automation & orchestration
Full automated cycle
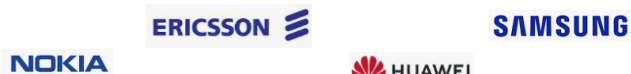
Analyze → Execute → Feedback

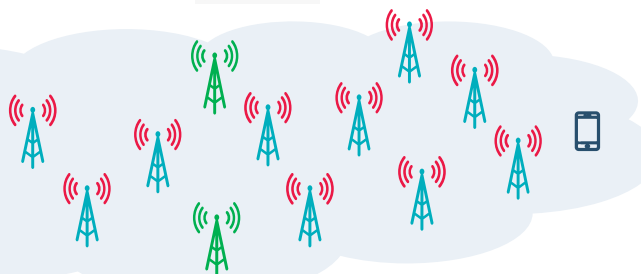**Multi-cloud support**
On-prem, cloud (multi-cloud support), hybrid

Multi RAN-vendor support
Multi-vendor, multi technology
Traditional/NG networks, vRAN/ORAN nRT RIC

ERICSSON
NOKIA
SAMSUNG
HUAWEI

3G/4G/5G RAN
O-RAN ALLIANCE

HCL / 3rd party applications
Rich API/SDK for developing ext. apps

API for full RAN control, ML-based insights for smarted decision

Applications

Core Services / Analytics

Data Management

Network Access

Advanced analytics using ML
Visualization, BI and AI/ML applications

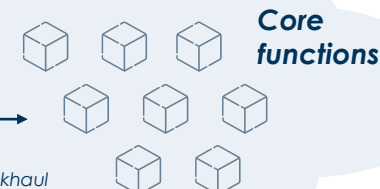Anomaly detection, AI/ML apps e.g., QoE optimization, energy saving, etc.
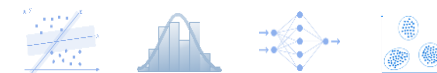
Multi domain support
Transport, ORAN xHaul, 4g/5g core

User-centric data
e.g., Crowdsourcing, CTR, Ookla

Transport / xHaul
CU / DU
Backhaul
O-RAN ALLIANCE
Core functions

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HCL Augmented Network Automation (ANA) – Capabilities

4G & 5G Automation

- Ready to deploy = Time to Market
- Automated for fast and efficient rollout
- Close loop 5G optimization
- No need to wait on OEM capabilities

Agile & Programable

- SONFlex – Openness APIs
- Rapid Development (across all OEMs & technologies)
- Deployable on all major cloud provider
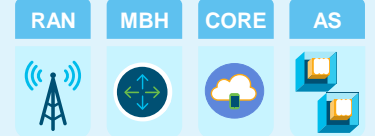
O-RAN (Open) Support

- Cluster SON for open, disaggregated and virtualized RAN
- Real-time, subscriber-centric optimization
- Visibility and actions at subscriber level

Data Enrichment
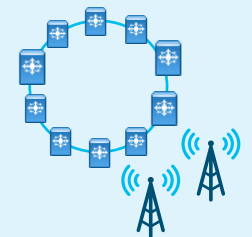
Comprehensive Predictive Analytics

- Integrating 3rd party data source
- Using ML to predict and respond with corrective action

Multi Domain Service Optimization (MDSO)
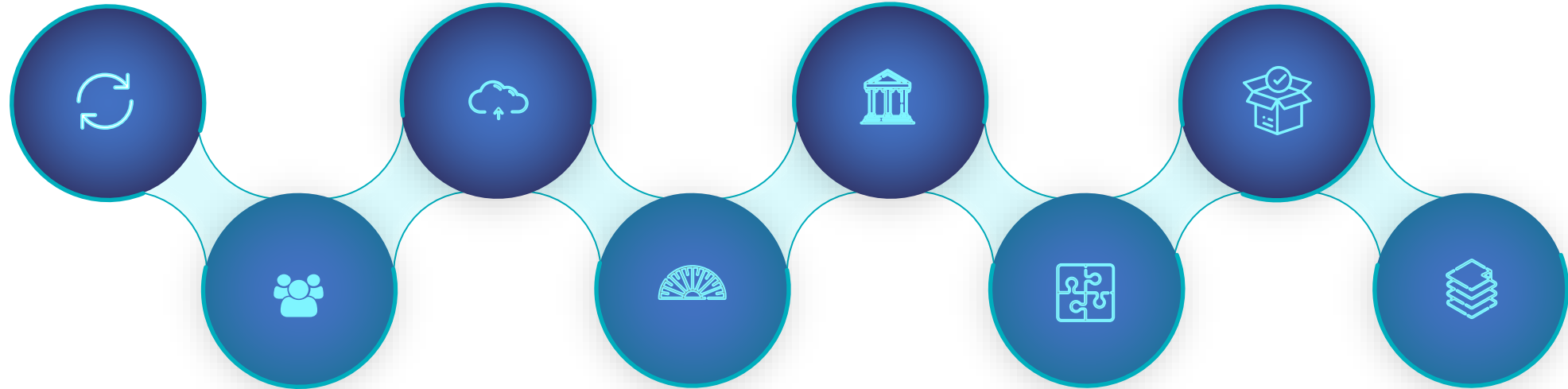
- E2E Slice SLA Management

Transport Aware SON

HCL Augmented Network Automation (ANA) Platform – Key Differentiators

Closed Loop 24/7 automation with minimal human intervention

Open & Flexible API (SONFlex) deployable on-prem or private/public cloud

Unified Mgmt. & Orchestration of the ANA Apps. incl. Conflict resolution

Comprehensive Services Portfolio

User friendly SON GUI and Analytics platform

Multi-Vendor incl. Ericsson, Huawei Samsung & Nokia. Multi-technology (2G/3G/4G/5G)

Partnership with best-of-breed solutions vendors for delivering a complete E2E Solution

**Multi-layered architecture, allows adding plug-ins for collecting/processing new data sources**

Industry Software
By HCL Technologies

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HCL Augmented Network Automation (ANA) - Business Value

Productivity Savings
Reduced OPEX With Automation

CAPEX Deferral
With Network Efficiency

Return on Investment(ROI)

- OPEX Saving by ~**40%** with Automation

- CAPEX Deferral ,reduction by ~**20%** of loaded sites

- Improved Customer Satisfaction

ROI – 6 Months
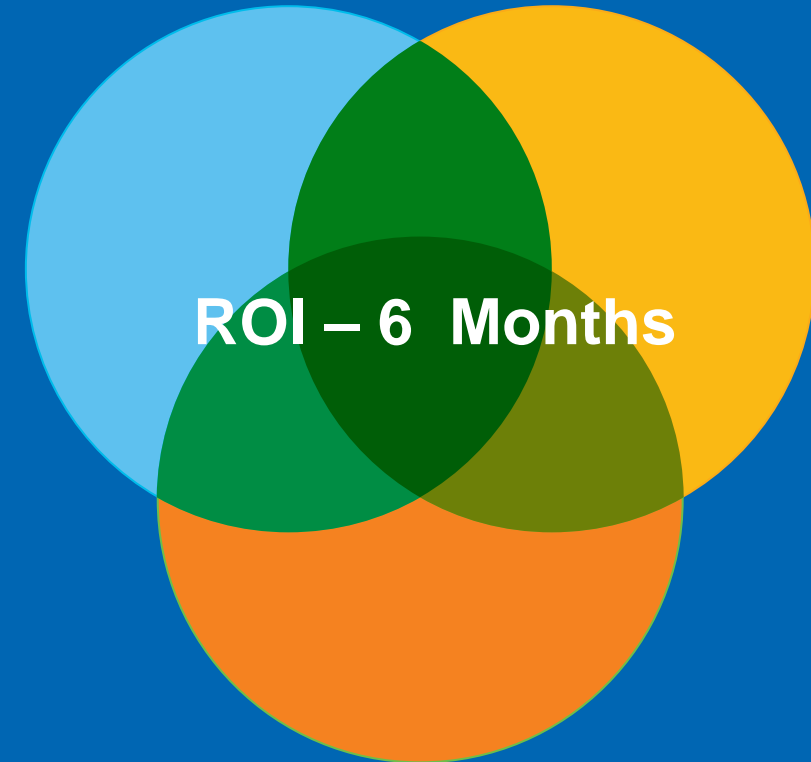
Increased Revenue
Improved Network Quality of Experience

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Commercially Available ANA Applications

5G	• DPAE • DSS	• DPO • RACO	• FRM • AL5R
LTE Products	• CICO-L • DPAE-L/PAE-L • DPO-L • DSH-L • RACO-L • ANE-L • X2LO-L	• MEH-L • eCICO-L • ICLB-L • DLB-L • ISHO-L • ALUR-L	• ALGR-L • PBLM-L • MRO-L • IRLB-L • IFHO • MCM
UMTS Products	• ANR-INTRA-U • ANR-INTER-U • DLB-U • AUGR-U • MPM-U	• APO-U • ICLB-U • DSH-U • ISHO-U • PAE-U	• MEH-U • CCO-U • DIM-U • AULR-U • SCO-U • PBLM-U
GSM Products	• ANR-G	• AGLR	• AGUR
Hetnet Products	• HANR-U	• HDLB-U	• HSCO-U
Infrastructure and New Solutions	• SONFlex • RAN Sharing support		

SONFlex APIs for Custom Application Development

Evolved Platform with Open APIs

Develop in all major programming languages

Mediating interaction with multi-vendor and multi-technology

New app hoster

Deploy and manage SONFlex apps across lifecycle on separate resources

SONFlex Studio enhanced

Enhanced GUI with assistance – verification & validation for light application designing

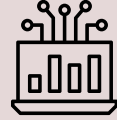Integrated with ANA core services platform –ML/AI Engine and more

Orchestrated

Arbitration core service to orchestrate current and future applications developed by HCL ,CSP or any 3rd party

SONFlex – Make it Simple

Rich Portfolio by leveraging the SONFLEX Marketplace

Address complexities of underlying networks & EMSs
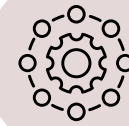
Virtual Hosting Environment

Making It Simple

Intent-driven optimization

Orchestrated by SONFlex Conflict Management
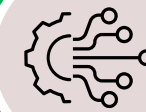
Automation by non-programmers with SONFlex Studio

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1 Billion Subscribers and 3 Million Cells

Vendors:

E - *Ericsson*

N - NOKIA

S - SAMSUNG

A - *Airspan*

H - HUAWEI

1B subscribers

3M Cells

North America
Cells: 2.2 M
Subscribers: 340 M
Vendors: E, N, S, A
Technology: CDMA, 3G,4G,5G

EMEA
Cells: 300 k
Subscribers: 78 M
Vendors: E, N, H
Technology: 2G, 3G,4G,5G

Russia
Cells: 100 k
Subscribers: 80 M
Vendors: N, SA
Technology: 2G, 3G, 4G

South/Center America
Cells: 100 k
Subscribers: 175 M
Vendors: H, E, N
Technology: 3G,4G

India
Cells: 350 k
Subscribers: 480 M
Vendors: E,N,H,Z
Technology: 2G, 3G, 4G

Asia
Cells: 50 k
Subscribers: 2 M
Vendors: N, H, E
Technology: 3G, 4G

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$10.02 BILLION | 159,000+ IDEAPRENEURS | 50 COUNTRIES