

SON (Self-Organizing Networks) in the 5G & Open RAN Era: 2022 – 2030 – Opportunities, Challenges, Strategies & Forecasts

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Abstracts

SON (Self-Organizing Network) technology minimizes the lifecycle cost of running a mobile network by eliminating manual configuration of network elements at the time of deployment right through to dynamic optimization and troubleshooting during operation. Besides improving network performance and customer experience, SON can significantly reduce the cost of mobile operator services, improving the OpEx-to-revenue ratio and deferring avoidable CapEx.

Early adopters of SON have already witnessed a multitude of benefits in the form of accelerated 5G NR and LTE RAN (Radio Access Network) rollout times, simplified network upgrades, fewer dropped calls, improved call setup success rates, higher end user throughput, alleviation of congestion during special events, increased subscriber satisfaction and loyalty, operational efficiencies such as energy and cost savings, and freeing up radio engineers from repetitive manual tasks.

Although SON was originally developed as an operational approach to streamline and automate cellular RAN deployment and optimization, mobile operators and vendors are increasingly focusing on integrating new capabilities such as self-protection against digital security threats and self-learning through AI (Artificial Intelligence) techniques, as well as extending the scope of SON beyond the RAN to include both mobile core and transport network segments – which will be critical to address 5G requirements such as end-to-end network slicing.

In addition, with the cellular industry's ongoing shift towards open interfaces, virtualization and software-driven networking, the SON ecosystem is progressively transitioning from the traditional D-SON (Distributed SON) and C-SON (Centralized

SON) approach to open standards-based components supporting RAN programmability for advanced automation and intelligent control.

The surging popularity of innovative Open RAN and vRAN (Virtualized RAN) architectures has reignited the traditionally niche and proprietary product-driven SON market with a host of open standards-compliant RIC (RAN Intelligent Controller), xApp and rApp offerings, which are capable of supporting both near real-time D-SON and non real-time C-SON capabilities for RAN automation and optimization needs.

SNS Telecom & IT estimates that global spending on RIC platforms, xApps and rApps will reach \$120 Million in 2023 as initial implementations move from field trials to production-grade deployments. With commercial maturity, the submarket is further expected to quintuple to nearly \$600 Million by the end of 2025. Annual investments in the wider SON market – which includes licensing of embedded D-SON features, third party C-SON functions and associated OSS platforms, in-house SON capabilities internally developed by mobile operators, and SON-related professional services across the RAN, mobile core and transport domains – are expected to grow at a CAGR of approximately 7% during the same period.

The “SON (Self-Organizing Networks) in the 5G & Open RAN Era: 2022 – 2030 – Opportunities, Challenges, Strategies & Forecasts” report presents a detailed assessment of the SON market, including the value chain, market drivers, barriers to uptake, enabling technologies, functional areas, use cases, key trends, future roadmap, standardization, case studies, ecosystem player profiles and strategies. The report also provides global and regional market size forecasts for both SON and conventional mobile network optimization from 2022 till 2030, including submarket projections for three network segments, six SON architecture categories, four access technologies and five regional submarkets.

The report comes with an associated Excel datasheet suite covering quantitative data from all numeric forecasts presented in the report.

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- 7.56 Ciena Corporation
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- 7.59 Cohere Technologies
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LIST OF COMPANIES MENTIONED

3GPP (Third Generation Partnership Project)

Aarna Networks

Abside Networks

Accedian

Accelleran

Accuver

Actiontec Electronics

ADTRAN

AI-LINK

AirHop Communications

Airspan Networks

AiVader

Aliniant

Allot

Alpha Networks

Alphabet

AltioStar

Amazon

Amdocs

Am?rica M?vil

Anktion (Fujian) Technology

Anritsu

Arcadyan Technology Corporation

Argela

Aria Networks

ARIB (Association of Radio Industries and Businesses, Japan)

ArrayComm (Chengdu ArrayComm Wireless Technologies)

Artemis Networks

Artiza Networks

Arukona

Askey Computer Corporation

ASOCS

Aspire Technology

ASTRI (Hong Kong Applied Science and Technology Research Institute)

ASUS (ASUSTeK Computer)
AT&T
ATDI
Atesio
ATIS (Alliance for Telecommunications Industry Solutions)
Atrinet
Aurora Insight
Aviat Networks
AWS (Amazon Web Services)
Azcom Technology
Baicells
BandwidthX
beCloud (Belarusian Cloud Technologies)
Beeline Russia
Bell Canada
Betacom
Bharti Airtel
BLiNQ Networks
Blu Wireless
Blue Danube Systems
BT Group
BTC (Botswana Telecommunications Corporation)
BTI Wireless
B-Yond
CableFree (Wireless Excellence)
CableLabs
Cambium Networks
Capgemini Engineering
Casa Systems
CBNG (Cambridge Broadband Networks Group)
CCI (Communication Components Inc.)
CCS (Cambridge Communication Systems)
CCSA (China Communications Standards Association)
Celfinet (Cyient)
CellOnyx
Cellwize
Celona
CelPlan Technologies
CETC (China Electronics Technology Group Corporation)

CGI
Chengdu NTS
China Mobile
CICT – China Information and Communication Technology Group (China Xinke Group)
Ciena Corporation
CIG (Cambridge Industries Group)
Cisco Systems
Claro Colombia
Cohere Technologies
Comarch
Comba Telecom
CommAgility
CommScope
Compal Electronics
COMSovereign
Contela
Continual
Corning
CPQD (Center for Research and Development in Telecommunications, Brazil)
Creanord
Datang Telecom Technology & Industry Group
DeepSig
Dell Technologies
DGS (Digital Global Systems)
Digitata
DISH Network Corporation
D-Link Corporation
DSA (Dynamic Spectrum Alliance)
DT (Deutsche Telekom)
DZS
ECE (European Communications Engineering)
EDX Wireless
EE
eino
Elisa
Elisa Polystar
Equiendo
Ericsson
Errigal

ETRI (Electronics & Telecommunications Research Institute, South Korea)

ETSI (European Telecommunications Standards Institute)

EXFO

Fairspectrum

Federated Wireless

FiberHome Technologies

Flash Networks

Forsk

Foxconn (Hon Hai Technology Group)

Fraunhofer HHI (Heinrich Hertz Institute)

Fujitsu

Gemtek Technology

GENEViSiO

GenXComm

Gigamon

GigaTera Communications

Globe Telecom

Google

Groundhog Technologies

Guavus

HCL Technologies

Helios (Fujian Helios Technologies)

HFR Networks

Highstreet Technologies

Hitachi

Hitachi Kokusai Electric

Hitachi Vantara

HPE (Hewlett Packard Enterprise)

HSC (Hughes Systique Corporation)

Huawei

IBM

iBwave Solutions

iConNext

Infinera

Infosys

InfoVista

Inmanta

Innovile

InnoWireless

Intel Corporation
InterDigital
Intracom Telecom
Inventec Corporation
ISCO International
IS-Wireless
ITRI (Industrial Technology Research Institute, Taiwan)
JMA Wireless
JRC (Japan Radio Company)
Juniper Networks
KDDI Corporation
Key Bridge Wireless
Keysight Technologies
Kleos
KMW
KPN
Kumu Networks
Kuzey K?br?s Turkcell
Kyivstar
Lemko Corporation
Lenovo
Lextrum
Liberty Global
life:)/BeST (Belarusian Telecommunications Network)
lifecell Ukraine
Lime Microsystems
Linux Foundation
LIONS Technology
LITE-ON Technology Corporation
LS telcom
LTT (Libya Telecom & Technology)
LuxCarta
MantisNet
Marvell Technology
Mavenir
MegaFon
Meta Connectivity
MicroNova
Microsoft Corporation

MikroTik
MitraStar Technology
MYCOM OSI
Nash Technologies
NEC Corporation
Net AI
Netcracker Technology
NETSCOUT Systems
Netsia
New H3C Technologies
New Postcom Equipment
Nextivity
NGMN Alliance
Node-H
Nokia
NTT DoCoMo
NuRAN Wireless
Nutaq Innovation
NXP Semiconductors
Oceus Networks
Omnitele
ONF (Open Networking Foundation)
OnGo Alliance
Ooredoo
Ooredoo Algeria
Ooredoo Tunisia
Opanga Networks
Openet
Opticoms
Optus (Singtel)
O-RAN Alliance
Orange
Orange Spain
OSA (OpenAirInterface Software Alliance)
P.I. Works
Parallel Wireless
Phluido
Picocom
Pivotal Commware

PLDT
Polte
Potevio
QNAP Systems
Qualcomm
Quanta Computer
Qucell Networks
RADCOM
Radisys
Rakuten Mobile
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Reliance Industries
RIMEDO Labs
Rivada Networks
Rohde & Schwarz
Ruijie Networks
RunEL
SageRAN (Guangzhou SageRAN Technology)
Saguna Networks
Samji Electronics
Samsung
Sandvine
SCF (Small Cell Forum)
Sercomm Corporation
Shyam Group
Signalwing
Siklu
Singtel
SIRADEL
SK Telecom
Skyvera (TelcoDR)
Smart Communications
Smartfren
SOLiD
Sooktha

Spectrum Effect
SSC (Shared Spectrum Company)
Star Solutions
STC (Saudi Telecom Company)
STL (Sterlite Technologies Ltd.)
Subex
Sunwave Communications
Systemics-PAB
T&W (Shenzhen Gongjin Electronics)
Tarana Wireless
TCS (Tata Consultancy Services)
Tech Mahindra
Tecore Networks
Telecom Argentina
Telefonica Germany
Telefonica Group
Telkomsel
Telrad Networks
Telstra
TEOCO
Thales
ThinkRF
TI (Texas Instruments)
TietoEVRY
TIM (Telecom Italia Mobile)
TIM Brasil
TIP (Telecom Infra Project)
TPG Telecom
Trupico
TSDSI (Telecommunications Standards Development Society, India)
Tsinghua Unigroup
TTA (Telecommunications Technology Association, South Korea)
TTC (Telecommunication Technology Committee, Japan)
TTG International
Tupl
Turkcell
ULAK Communication
Unizyx Holding Corporation
Vasona Networks

Vavitel (Shenzhen Vavitel Technology)
Verizon Communications
VEON
VHT (Viettel High Tech)
Vi (Vodafone Idea)
VIAVI Solutions
Virgin Media O2
VMware
VNC (Virtual NetCom)
VNL (Vihaan Networks Limited)
Vodafone Germany
Vodafone Group
Vodafone Ireland
Vodafone Italy
Vodafone T?rkiye
WBA (Wireless Broadband Alliance)
WDNA (Wireless DNA)
WebRadar
Wind River Systems
WInnForum (Wireless Innovation Forum)
Wipro
Wireless Telecom Group
Wistron Corporation
Wiwynn
WNC (Wistron NeWeb Corporation)
XCOM Labs
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