

Smart City Technology Convergence: AI, Broadband Wireless (LTE, 5G and Beyond 5G), Data Analytics, Device Management, and IIoT Applications, Services, and Solutions for Smart Cities 2021 – 2026

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Abstracts

Overview:

Smart cities represent a combination of solutions deployed in an urban environment to transform the administration and support of living and working environments.

Accordingly, Information and Communications Technologies (ICT) are transforming at a rapid rate, driven by urbanization, industrialization of emerging economies, and the specific needs of various smart city initiatives.

Smart city development is emerging as a focal point for growth drivers in several key ICT areas including: Artificial Intelligence, Internet of Things, Connected Devices, Broadband Wireless, Cloud Computing, Big Data and Analytics. This research covers all of these technologies with analysis from 2021 though 2026.

Select Research Findings:

Global AloT market will reach \$81.5B by 2026, growing at 37.2% CAGR

Global market for IoT data as service solutions will reach \$9.3B USD by 2026

5GNR market for private wireless in industrial automation will reach \$5.2B by 2026

Embedded AI software and systems in support of IoT will surpass \$9B globally



by 2026

Machine learning in edge computing will be key to realize the full potential of IoT analytics

Successful smart cities will be dependent on intelligent integration of 5G, AI, edge computing and IoT

Sustainable smart city technology deployments depend upon careful planning and execution as well as monitoring and adjustments as necessary. For example, feature/functionality must be blended to work efficiently across many different industry verticals as smart cities address the needs of disparate market segments with multiple overlapping and sometimes mutually exclusive requirements. This will stimulate the need for both cross-industry coordination as well as orchestration of many different capabilities across several important technologies.

Mind Commerce sees smart cities as a focal point for growth drivers in several key ICT areas including: M2M/IoT, connected devices, broadband wireless, cloud computing, big data and analytics. Smart city developments are causing solution providers to take a much more integrated approach as the design and implement infrastructure and service capabilities.

Processes, systems, and resources are becoming increasingly intertwined as mobility, communications, energy, water, platforms, monitoring/control, performance management, predictability and forecasting all merge together. Feature/functionality must be blended to work efficiently across many different industry verticals as smart cities address the needs of disparate market segments with multiple overlapping and sometimes mutually exclusive requirements.

This comprehensive research evaluates the smart cities market including leading vendors and strategies (such as a single vendor centric approach), infrastructure, solutions, applications and services. It analyzes market factors driving solution adoption, technology readiness and fitness for use, and other considerations. The report assesses the aforementioned factors to derive penetration and revenue to forecast market value for the period of 2021 – 2026. It includes analysis of the role of technology accelerating digital transformation including AI, edge processing, 5G deployment and usage, and advanced data analytics.



In terms of the impact of AI technologies, the research evaluates integration within various networking products and solutions including embedded equipment, components, and software platforms (network automation, optimization, and transformation). It also evaluates the role of SDN, Edge Computing, NFV, and Augmented Intelligence in the formation and support of AI driven networking ecosystems. In addition, the impact of 5G networks, IoT technology and systems, and network analytics functions is also evaluated.

This includes key AI technologies, products, and solutions from most important solution providers, identifying key companies in each segment of the competitive landscape. It also provides a comprehensive quantitative assessment of the AI driven networking market based on major market segments and subsegments, AI technology type, deployment type, network type, industry vertical and region from 2021 through 2026.

This research also provides the most comprehensive study available addressing the LTE and 5G application and service market. This report evaluates cellular broadband applications and services including revenue and usage (subscribers/users) by LTE, LTE Advanced, LTE Advanced Pro, and 5G. This includes an assessment of LTE and 5G in private wireless networks as well as market opportunities for Mobile Edge Computing (MEC) in public and private networks including the market for computing as a service.

This research also evaluates IIoT technologies, companies, applications, services, and solutions. Report forecasts include overall global and regional IIoT outlook as well as IIoT by industry vertical, software, hardware, and services for the period 2021 to 2026. This research is critical to identifying opportunities for R&D, technology integration, and development of new solutions and applications across industry segments.

It includes an evaluation of the IoT device management market, which encompasses device provisioning, administration, monitoring, and diagnostics important for trouble replication and corrective measures. Important IoT Device Management functions include Enrollment/Provisioning, Configuration/Association, Software Updates, and overall Management and Control.

Target Audience:

Wireless service providers of all types

Sensor network and component providers



	Wireless device and components manufacturers
	Smart appliances and electronic devices companies
	Security device and monitoring equipment suppliers
	Software developers and mobile/wireless app developers
Compa	nnies in Report:
	ABB Group
	Accenture PLC
	Advantech
	Aeris Communications
	AGT International
	AlBrian Inc.
	Airspan
	Airtel
	Alibaba
	Allegro
	Alstom SA
	Altair Semiconductor
	Alvarion
	Amazon

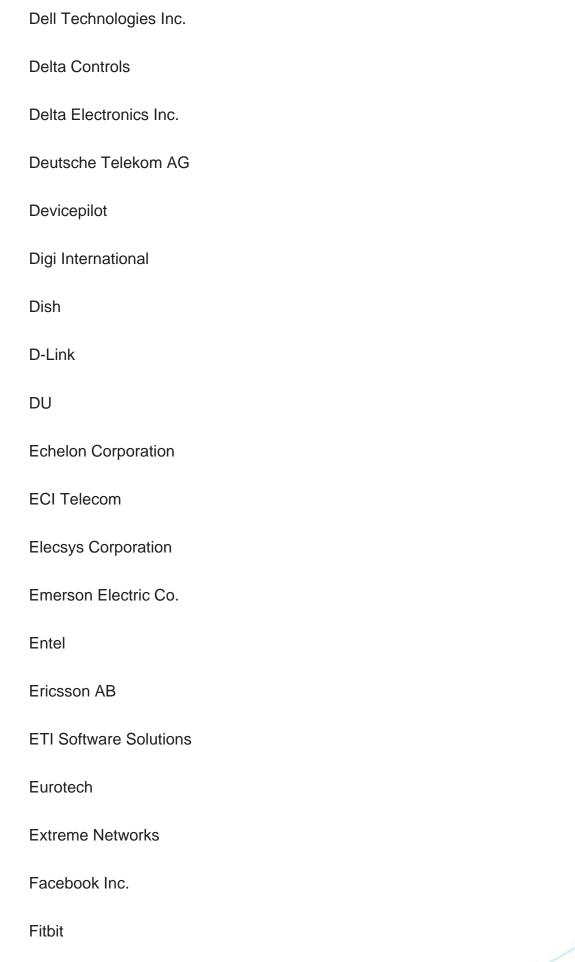


AMD
America Movil
Ampl?a Soluciones S.L.
Analog Devices Inc.
Apple
Aricent Inc.
Arista Networks Inc.
ARM Holdings
Ascom
Asus
AT&T
Atmel Corporation
ATOS
B+B SmartWorx
Baidu Inc.
Barbara IoT
Blackberry Ltd.
Bosch
Bosch Software Innovations GmbH
Broadcom Corporation

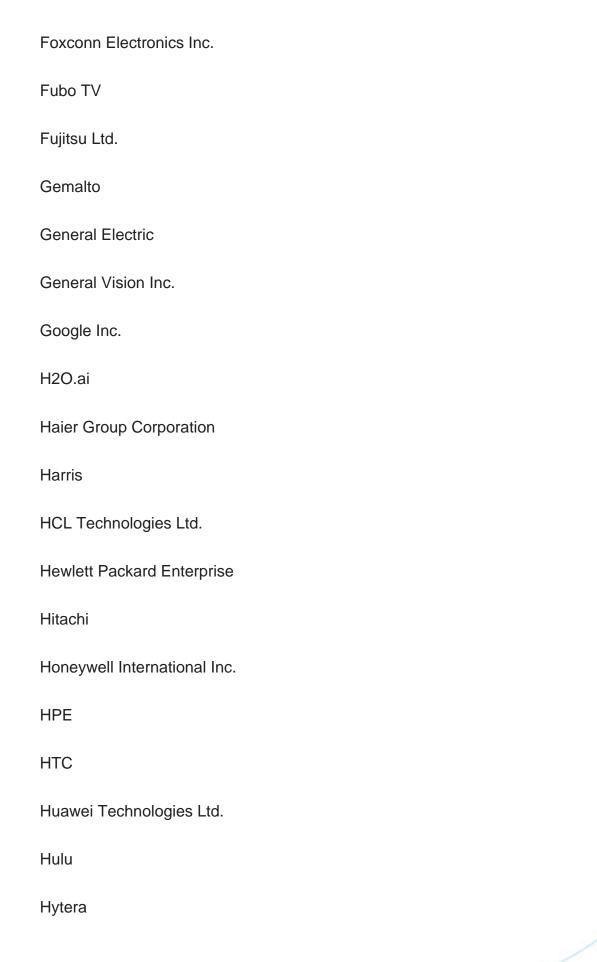


Brocade Communication Systems	
BT Group	
C3, Inc.	
Cavium Inc.	
China Mobile	
China Telecom	
China Unicom	
Ciena Corporation	
Cisco System Inc.	
Citrix Systems	
ClipBucket	
Cobham Wireless	
Colt	
Contus Vplay	
Coolpad Dyno	
Cradlepoint	
Cubic Corporation	
CyanConnode	
Dassault Systemes	





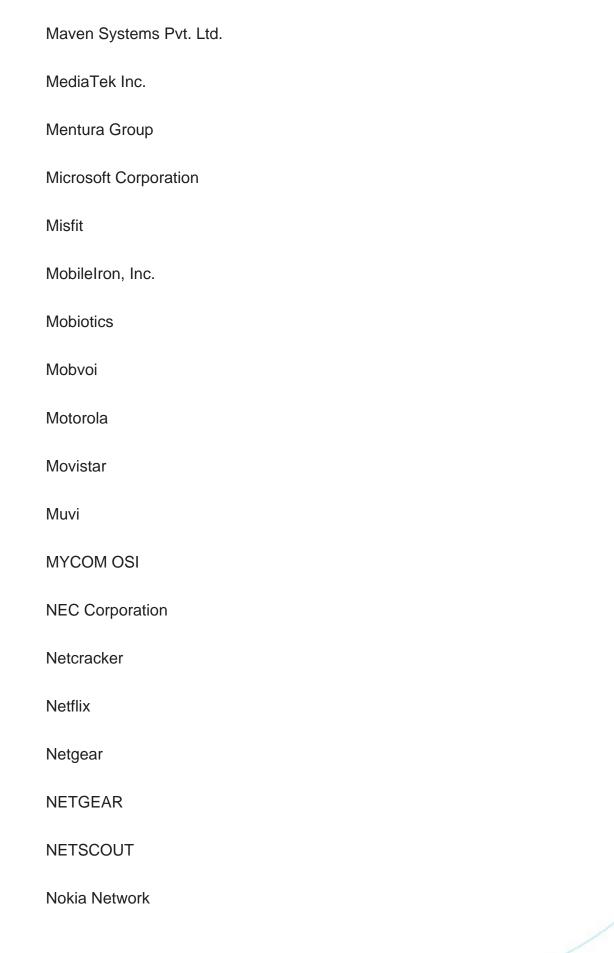






IBM Corporation
Inmarsat
Inbenta Technologies Inc.
Intel Corporation
InteliWISE
IPsoft Inc.
iRobot Corp.
Itron Inc.
JAMF Software
Juniper Networks, Inc.
Kapsch Group
KDDI Corporation
KORE Wireless
KT Corporation
Leonardo
LG Electronics
Lockheed Martin
M2M Connectivity PTY Ltd.
MACOM Technology
Matrix42 AG







NTT DATA
NTT DoCoMo
Nuance Communications Inc.
NVIDIA Corporation
Ooredoo
Ooyala
Oracle
Orange SA
Orbcomm
Panasonic Corporation
Particle
Philo TV
Proximetry Inc.
PTC Corporation
Qorvo Inc.
Qualcomm Incorporated
Quickplay
Rakuten
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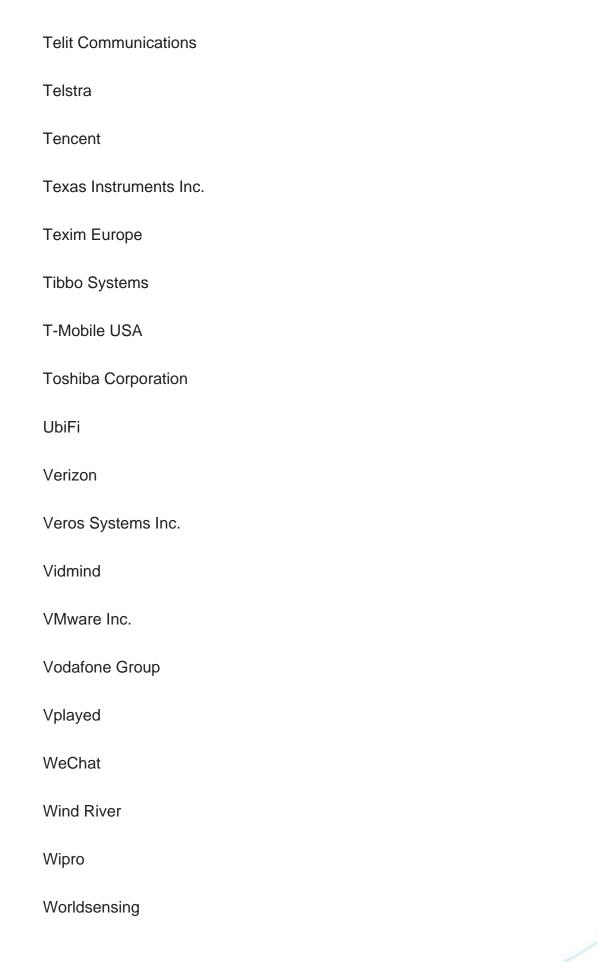


Rethink Robotics
REVE Systems
Ribbon Communications
Riverbed Technology
Rockwell Automation
Rogers Communications
Roku
Samsung Electronics Co Ltd.
SAP
SAS Institute Inc.
Saudi Telecom Company
Schneider Electric SE
Sensata Technologies
Sentient Technologies Holdings Limited
Siemens AG
Sierra Wireless
Signify Holding
Silver Spring Network
SimNet Wireless



SingTel
Siretta
SiteWhere LLC.
SK Telecom
Sky Go
Skype
SmithMicro Software
Snap Inc.
Softbank Group
Sony
Sophos Plc
SOTI Inc.,
Spark NZ
Spotify AB
Sprint Corporation
Swisscom
Telecom Italia
Telefonica
Telegram
Telenor







WSO2
Xiaomi Technology Co. Ltd.
XILINX Inc.
Xively
Zain
Zenitel
Zentri
Zoho Corporation
ZTE Corporation
Zyxel



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Artificial Intelligence in Next Generation Networking by Infrastructure, Network Type, IoT Solution, Segment (Consumer, Enterprise, Industrial, and Government), and Industry Vertical 2021 – 2026

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- 5.5 Microsoft Corporation
- 5.6 Google Inc.
- 5.7 Baidu Inc.
- 5.8 Qualcomm Incorporated
- 5.9 Huawei Technologies Co. Ltd.
- 5.10 Fujitsu Ltd.
- 5.11 H2O.ai
- 5.12 Juniper Networks, Inc.
- 5.13 Nokia Corporation
- 5.14 ARM Limited
- 5.15 Hewlett Packard Enterprise
- 5.16 Oracle Corporation
- 5.17 SAP
- 5.18 Siemens AG
- 5.19 Apple Inc.
- 5.20 General Electric (GE)
- 5.21 ABB Ltd.
- 5.22 LG Electronics
- 5.23 Koninklijke Philips N.V
- 5.24 Whirlpool Corporation
- 5.25 AB Electrolux
- 5.26 Wind River Systems Inc.
- 5.27 Cumulocity GmBH
- 5.28 Digital Reasoning Systems Inc.
- 5.29 SparkCognition Inc.
- **5.30 KUKA AG**
- 5.31 Rethink Robotics
- 5.32 Motion Controls Robotics Inc.
- 5.33 Panasonic Corporation
- 5.34 Haier Group Corporation
- 5.35 Miele



- 5.36 Next IT Corporation
- 5.37 Nuance Communications Inc.
- 5.38 InteliWISE
- 5.39 Facebook Inc.
- 5.40 Salesforce
- 5.41 Amazon Inc.
- 5.42 SK Telecom
- 5.43 motion.ai
- 5.44 Buddy
- 5.45 AOL Inc.
- 5.46 Tesla Inc.
- 5.47 Inbenta Technologies Inc.
- 5.48 Cisco Systems
- **5.49 MAANA**
- 5.50 Veros Systems Inc.
- 5.51 PointGrab Ltd.
- 5.52 Tellmeplus
- 5.53 Xiaomi Technology Co. Ltd.
- 5.54 Leap Motion Inc.
- 5.55 Atmel Corporation
- 5.56 Texas Instruments Inc.
- 5.57 Advanced Micro Devices (AMD) Inc.
- 5.58 XILINX Inc.
- 5.59 Omron Adept Technology
- 5.60 Gemalto N.V.
- 5.61 Micron Technology
- 5.62 SAS Institute Inc.
- 5.63 AlBrian Inc.
- 5.64 QlikTech International AB
- 5.65 MicroStrategy Incorporated
- 5.66 Brighterion Inc.
- 5.67 IPsoft Inc.
- 5.68 24/7.ai Inc.
- 5.69 General Vision Inc.
- 5.70 Sentient Technologies Holdings Limited
- 5.71 Graphcore
- 5.72 CloudMinds
- 5.73 Rockwell Automation Inc.
- 5.74 Tend.ai



- 5.75 SoftBank Robotics Holding Corp.
- 5.76 iRobot Corp.
- 5.77 Lockheed Martin
- 5.78 Spacex
- 5.79 Fraight Al
- 5.80 Infor Global Solutions
- 5.81 Presenso
- 5.82 Teknowlogi

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7.0 CONCLUSIONS AND RECOMMENDATIONS

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- 7.4 Broadband Infrastructure Providers
- 7.5 Communication Service Providers



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- 4.17.8 Energy and Utility Applications
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5.0 COMPANY ANALYSIS

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- 5.2 Airtel
- 5.3 BT Group (EE)
- 5.4 China Mobile
- 5.5 China Telecom
- 5.6 Deutsche Telekom AG
- 5.7 DU (Emirates Integrated Telecommunications Company)
- 5.8 KT Corporation
- 5.9 NTT DoCoMo
- 5.10 STC Saudi Telecom Company
- 5.11 SK Telecom
- 5.12 Sprint Corporation
- 5.13 Telstra
- 5.14 Verizon
- 5.15 Vodafone Group
- 5.16 Telenor
- 5.17 T-Mobile USA
- 5.18 Rogers Communications
- 5.19 America Movil
- 5.20 Entel
- 5.21 Movistar
- 5.22 China Unicom
- 5.23 Ooredoo
- 5.24 Zain
- 5.25 Swisscom
- 5.26 Spark NZ
- 5.27 Telecom Italia
- 5.28 Orange SA
- 5.29 KDDI Corporation



- 5.30 LG Uplus
- 5.31 Softbank Group
- 5.32 SingTel
- 5.33 Telefonica
- 5.34 Apple
- 5.35 Facebook (Whatsapp)
- 5.36 Google
- 5.37 Microsoft
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- 5.39 Snap Inc.
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- 5.43 WeChat
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- 5.45 Telegram
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- 5.49 Netflix
- 5.50 Dish (Sling TV)
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- 5.70 Qualcomm
- 5.71 Intel Corporation
- 5.72 NEC Corporation
- 5.73 ZTE Corporation
- 5.74 Ciena Corporation
- 5.75 Cavium Inc.
- 5.76 Qorvo Inc.
- 5.77 Fujitsu Ltd.
- 5.78 Broadcom Corporation
- 5.79 HPE
- 5.80 VMware Inc.
- 5.81 MediaTek Inc.
- 5.82 Juniper Network Inc.
- 5.83 Analog Devices Inc.
- 5.84 MACOM Technology
- 5.85 Motorola
- 5.86 Ascom
- 5.87 Harris
- 5.88 Hytera
- 5.89 Cobham Wireless
- 5.90 Leonardo
- 5.91 Mentura Group
- 5.92 Inmarsat
- 5.93 Zenitel
- 5.94 HTC
- 5.95 Airspan
- 5.96 Alvarion
- 5.97 Sierra Wireless (Accel Networks)
- 5.98 Coolpad Dyno
- 5.99 Mobvoi
- 5.100 Fitbit
- 5.101 Misfit
- 5.102 Asus
- 5.103 Netgear
- 5.104 Zyxel
- 5.105 Alibaba
- 5.106 D-Link
- 5.107 UbiFi



- 5.108 Altair Semiconductor
- 5.109 SimNet Wireless
- 5.110 Siretta
- 5.111 Cradlepoint
- 5.112 Telit Communications
- 5.113 Gemalto
- 5.114 Netcracker
- 5.115 Texim Europe
- 5.116 M2M Connectivity
- 5.117 Eurotech
- 5.118 RedLinX
- 5.119 MYCOM OSI
- 5.120 Colt

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- 6.14.3.1.1 Global 5G Mobile Office/Productivity (Smart Workplace) Users 2021 2026
 - 6.14.3.1.2 Global 5G Users by Connected Vehicle Type 2021 2026
 - 6.14.3.1.3 Global 5G Multimedia Communication Users 2021 2026
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 - 6.14.3.3.2 Global URLLC Users in Autonomous Vehicles 2021 2026
 - 6.14.3.3.3 Global URLLC Users in Teleoperation/Tele-robotics 2021 2026
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 - 6.14.3.3.6.1 Global Immersive Users by Application Type 2021 2026
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7.0 CONCLUSIONS AND RECOMMENDATIONS

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- 7.2 Artificial Intelligence Providers
- 7.3 Automotive Companies
- 7.4 Broadband Infrastructure Providers
- 7.5 Communication Service Providers
- 7.6 Computing and Datacenter Companies
- 7.7 Data Analytics Providers
- 7.8 Immersive Technology (AR, VR, and MR) Providers
- 7.9 Network Equipment Providers
- 7.10 Network Security Providers
- 7.11 Semiconductor Companies
- 7.12 IoT Suppliers and Service Providers
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Industrial Internet of Things: IIoT Market by Technologies, Solutions and Services

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- 5.15 IBM
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- 5.6 Bosch Software Innovations GmbH
- 5.7 Devicepilot
- 5.8 ETI Software Solutions
- 5.9 IBM



- 5.10 Microsoft
- 5.11 PTC
- 5.12 Particle
- 5.13 Proximetry Inc. (Relayr)
- 5.14 SiteWhere LLC.
- 5.15 SmithMicro Software
- 5.16 Telit
- 5.17 Tibbo Systems
- 5.18 Wind River
- 5.19 WSO2
- 5.20 Xively (LogMeIn)
- 5.21 Zentri
- 5.22 42Gears Mobility Systems Pvt Ltd.
- 5.23 Blackberry Ltd.
- 5.24 Cisco Systems
- 5.25 Citrix Systems
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