IDC MarketScape

IDC MarketScape: Worldwide Managed IoT Connectivity Services 2022 Vendor Assessment

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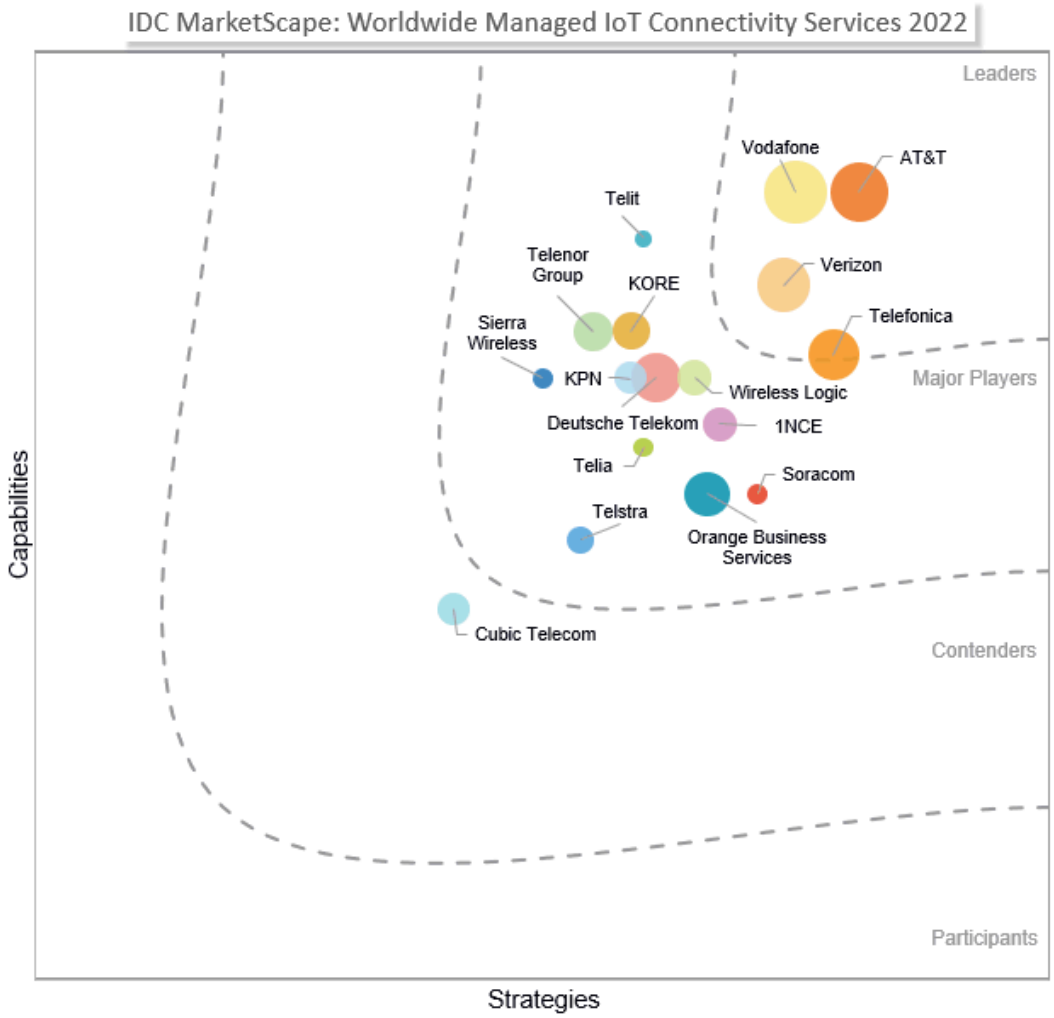
IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide Managed IoT Connectivity Services Vendor Assessment



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Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IDC OPINION

This IDC study presents a worldwide vendor assessment of managed Internet of Things (IoT) connectivity services providers. The market for IoT is broad and complex, and IDC's IoT research offers a holistic view with coverage areas including hardware, software, connectivity, and services. Connectivity underpins all IoT projects as it allows the movement of data between "things."

In addition to cellular IoT connectivity, most mobile operators are offering licensed low-power wide area networks (LPWANs) using NB-IoT and/or LTE-M technologies for IoT deployments. The scope of this analysis includes managed IoT connectivity services of licensed cellular and LPWAN connections, including 2G/3G/4G/5G networks and NB-IoT and LTE-M services.

Managed IoT connectivity services are offered by mobile network operators (MNOs) and mobile virtual network operators (MVNOs), as well as other third-party providers. Typically, vendors and mobile operators offer capabilities for enterprises and organizations to integrate these solutions with other systems — such as a service desk application — as well as create custom rule sets.

Organizations leverage IoT connectivity management platforms (CMPs) to keep cellular-oriented IoT deployments up and running. These products provide data on IoT network connectivity and device status, allowing organizations to effectively monitor, manage, and secure IoT device rollouts.

In this assessment, the IDC MarketScape model was used to evaluate both quantitative metrics and qualitative insights that define success in the managed IoT connectivity services market. The evaluation is based on a comprehensive and rigorous framework that assesses each vendor relative to the criteria and to one another. This IDC MarketScape should be used as a tool to review providers your organization is considering or short listing to support your use of these services.

Industry and Market Trends

In recent years, several new venture capital–backed IoT MVNOs have formed to disrupt the managed IoT connectivity services landscape. While IoT is a secondary business for most mobile network operators, which are primarily focused on their traditional wireless services, many of the IoT MVNOs specifically target IoT connectivity and services and, therefore, offer competitive customer service and managed IoT connectivity services. They also provide competitive pricing and innovations such as integrations with cloud service providers and online marketplaces that make it easy for users to launch and expand IoT projects. The IoT MVNOs are forcing MNOs to refocus their IoT offerings and pricing.

As companies expand their businesses to new geographic areas, there is an associated increased need for global IoT connectivity services. Most of the service providers included in this IDC MarketScape said that more than half of their IoT connectivity deployments are international and involve more than one MNO to achieve the necessary coverage. eSIM gives customers the flexibility to remotely switch an IoT device to another network without physically changing the SIM. eSIM also helps providers avoid the problems of global roaming as some countries don't allow IoT roaming for regulatory, competitive, or legal reasons. Although eSIM technology gives MNOs less control, it's becoming more essential for customers with international connected product requirements.

Most IoT deployments use 4G cellular networks, and with 3G networks beginning to shut down in 2022, many IoT devices on those networks must migrate to new networks. While many will transition to

4G cellular networks, customers are also seeing the value in licensed LPWANs. Modules for NB-IoT and LTE-M are becoming more prevalent, and prices are dropping. In addition, more operators are rolling out licensed LPWANs and establishing roaming agreements. While growth of licensed LPWAN subscribers has not met early predictions for a variety of reasons, the combination of lower module prices, expanded coverage, and sunsetting 3G networks will drive growth for LTE-M and NB-IoT in the coming years.

Security challenges became even more pronounced and public in 2021, and IDC found that security topped lists of both IT and networking connectivity challenges (source: IDC's *Future of Connectedness Survey,* July 2021). IoT deployments are often cited as potential areas for hackers and cybersecurity attacks. IoT SAFE is a GSMA standard for IoT security for all SIM form factors: SIM, eSIM, and iSIM. Although not widely deployed, iSIM can act as a root of trust for payment, identity, and critical infrastructure applications.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

IDC collected and analyzed data on service providers and MVNOs within its 2022 IDC MarketScape for worldwide managed IoT connectivity services assessment. The competitive landscape is extensive with a broad set of providers of managed IoT connectivity services. In determining the group of vendors for analysis in this IDC MarketScape, IDC used the following set of inclusion criteria:

- Sell managed IoT connectivity services directly to enterprises or organizations with IoT deployments
- Offer managed IoT connectivity services and associated services to monitor a number of deployed SIMs
- Provide an IoT connectivity management platform or online dashboard view of connected IoT devices, along with the capabilities to manage various services
- Offer global managed IoT connectivity services, defined as offering services in two or more geographic regions of the world
- Have $100 million or more in annual recurring revenue and/or at least 3 million managed IoT connections

ADVICE FOR TECHNOLOGY BUYERS

All the service providers in this assessment sell their services to enterprises or organizations with IoT initiatives. The following are some key points to consider before choosing a managed IoT connectivity services vendor:

- **Define your coverage needs.** Are your geographic coverage needs domestic or global? Does the vendor's solution offer the same managed connectivity capabilities across each of the regions you need to be covered or will there be differences? In addition, does the network offer the coverage you need for your specific deployment? For example, utility meters in the ground require a stronger signal than a typical smartphone.
- **Determine the best network type for your IoT project.** Keep in mind that many operators are sunsetting 3G networks beginning in 2022. If your project requires low bandwidth, licensed LPWANs might be the most cost-effective long-term option. If you need higher data throughput, 4G LTE technology could be best. And for high data throughput, fast data speeds, and low latency requirements, 5G networks will be the most effective option. Private 4G/5G

networks are another option for customers that need tight control of their data or a combination of local premises and wide area coverage needs.

- **Assess what SIM type is best for your IoT deployment.** The best SIM type will be tied to your coverage and network requirements. A traditional physical SIM might be sufficient for a domestic IoT project. For 5G global deployments, eSIM is likely the best option. A global SIM will work well if you have international coverage needs and the vendor offers localization in specific markets where you need coverage and there are regulatory or legal challenges. Multi-IMSI offers the profiles of several MNOs on one SIM.
- **Determine what pricing model best fits your project and whether the vendor is flexible.** Do you prefer to pay a recurring monthly fee for each SIM card along with data usage or does a flat rate per month or year work best? Perhaps SIMs with embedded long-term connectivity and up-front costs are best. Can you top up your data or buy more SIMs using online tools or platforms? Ensure the provider offers tools for you to monitor your expenses and adjust if needed. Many customers find that their pricing needs change as their IoT device fleets increase or change. Make sure you're not locked into a contract that can't accommodate your evolving business needs.
- **Ensure your provider offers end-to-end security.** Providers should make sure security is integrated into every part of an IoT initiative and offer additional security services to address the needs of mission-critical customers. Ask questions of your provider around security standards and whether extra security services are included with the managed IoT connectivity services offered.
- **Determine what additional services needs you have beyond basic connectivity.** Additional services to consider include device management, monitoring and diagnostics, rules and automation, location services, security, APIs, and professional services. Do you need to integrate with a public cloud service provider or with specific business systems? Ask for a demonstration of a provider's platform so you can see how each of these services works and determine whether it will meet your needs.
- **Define your customer support requirements.** Do you need multitime zone and multilingual customer support? Determine what a typical response time is for both urgent and nonurgent customer support requests. Which of the following support types are offered: telephone, email, online knowledge base, online user forum, online video, and chatbots? Ensure the times and types of support offered fit your needs. Some customers need priority support that is best served through a service-level agreement (SLA) with the provider.

VENDOR SUMMARY PROFILES

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of each vendor's strengths and challenges.

1NCE

1NCE is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

A relatively new player in the market, Cologne, Germany-based 1NCE was formed in 2017 and raised $50 million in private equity funding from Deutsche Telekom (DT), SoftBank, and others in September 2021. Ivo Rook, who has held IoT leadership positions at Vodafone and T-Mobile US/Sprint, was appointed chief operating officer (COO) in November 2021.

Although relatively new to the scene, 1NCE has demonstrated growth and the ability to effectively compete in the managed IoT connectivity services market through connectivity partnerships with its investors and other operators. The MVNO is banking on a projection that 78% of IoT projects have international requirements and is setting up a global coverage footprint with the United States as its next big target market. 1NCE has coverage in more than 100 countries including NB-IoT and LTE-M connectivity.

1NCE operates a prepaid pricing model, with 10 years of connectivity for €10 in Europe or $10 in North America. This model starkly contrasts with the recurring monthly revenue of subscription fees or monthly data usage fees that most MNOs and other MVNOs implement.

The MVNO's business model also includes white labeling its connectivity management platform to operators as their branded solutions and for specific use cases such as private networks for IoT services. The company plans to offer a platform to attract developers of IoT services and use cases. 1NCE also sees its success linked to zero-touch device provisioning through pre-activated SIMs via the cloud and pre-authenticated devices and eSIMs.

Strengths

1NCE's strength lies in its prepaid long-term connectivity for customers that have low data needs and plan to have devices in the field for up to 10 years. The company has strong Asian coverage including in China and cloud integrations through Amazon Web Services (AWS). Customers appreciate 1NCE's strong customer service, simple pricing model that allows them to top up data and order more SIMs as needed, and seamless implementation.

Challenges

1NCE recently opened an office in the United States, a market that is key to future growth. The MVNO has partnerships with T-Mobile US and AT&T but does not yet have an agreement with Verizon. In addition, some customers want 5 or 12 years of connectivity, for example, but the 1NCE model is based around 10 years. The company is growing quickly, and time will tell if 1NCE can maintain its business model as it continues to grow and add customers and connections.

Consider 1NCE When

For companies that require low cost, low battery, and low data usage with connectivity, particularly those with European coverage requirements,1NCE is a good fit. In addition, if a business relies on cloud or other integrations, 1NCE is well versed in helping customers integrate their cloud, development, software, and IoT connectivity needs.

AT&T

AT&T is positioned in the Leaders category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

U.S. telecommunications provider AT&T is based in Dallas, Texas, and has been competitive in IoT connectivity for more than 20 years. The company offers a range of IoT connectivity services from a global IoT connectivity platform to cellular and licensed LPWANs to professional services to cybersecurity.

The provider has integrated its wireline and wireless products for IoT, along with its businesses around SD-WAN, multiaccess edge compute (MEC), managed private networks, and professional services.

AT&T implements Cisco's Control Center connectivity management platform for its IoT customers. The operator is a leader in the connected car market and counts 43 automotive brands as IoT customers.

AT&T's network coverage includes 200 roaming agreements globally, along with LTE-M and NB-IoT coverage in the United States, with LTE-M roaming in 26 countries and territories and NB-IoT roaming in 22 countries and territories. In 2021, AT&T gave its IoT customers access to its U.S. nationwide 5G network capabilities, including MEC and private networks for IoT deployment.

The company offers a white-glove service portfolio for customer care that includes everything from outsourced SIM management to road map consulting to solution-specific support to security, depending on the customer's needs. The company also envisions its cybersecurity business aligning more closely with the IoT business, especially around 5G services.

Strengths

AT&T has strong know-how and experience in the automotive market, which is a large market for 5G cellular services and eSIM deployments. The operator has announced several managed private network 5G contracts in manufacturing, academia, and the military. The company has strong U.S. coverage and global partnerships and can offer competitive pricing and resources for large deployments.

Challenges

Because AT&T is a large company, quickly moving specific customer requests and services through the chain of command can be difficult. Similarly, deploying innovative IoT solutions within short time frames can also be difficult for a large organization like AT&T. Quickly turning a proof of concept into a fully implemented solution is also often challenging, but the operator's increasing deployment of professional services bodes well for its ability to increase the speed at which it can deliver proof of concepts and new solutions.

Consider AT&T When

AT&T combines two specialty services, IoT and first responder services, allowing first responders on AT&T's separate FirstNet core to add IoT deployments around video, healthcare, fleet services, or Smart City use cases with the use of Control Center. In addition, AT&T can be a helpful partner with complex IoT deployments involving 5G technology, MEC, and managed private networks. The company has a long, proven track record in the managed IoT connectivity services market.

Cubic Telecom

Cubic Telecom is positioned in the Contenders category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Cubic Telecom is headquartered in Dublin, Ireland, and has offered connected software for the IoT market since 2009. The company focuses on three vertical markets: automotive, agriculture, and transportation. The IoT MVNO counts 7 million connected devices.

Cubic's Platform for Application & Connectivity Enablement (PACE) is a global connectivity management platform that enables a single point of access to various mobile network services across 190 countries. The platform supports remote SIM provisioning (RSP) and eSIM localization. The company offers global coverage through 88 MNO agreements and 190 available countries.

The company's PLXOR global data traffic classification service provides insights on how content services are being consumed across global fleets. Through visualized data, PLXOR helps OEMs optimize vehicle performance, personalize connected services, enrich customer experience, and unlock revenue streams.

The company's Insights connected intelligence offers data on devices and vehicles that run through PACE. Business intelligence tools display the data through real-time dashboards and monthly reports, customized to customers' specific requirements.

Strengths

Cubic Telecom developed its business around the automotive industry and has contracts with Audi, Bentley, and Volkswagen, among others. As vehicle to everything (V2X) and autonomous vehicles continue to transform the sector, Cubic is poised to capitalize on growth. In addition, the company has expanded into the agriculture and transportation industries, with devices live in 93 markets. The company has several strong customer testimonials on its website.

Challenges

Cubic has been in the market for 13 years and has contracts with well-known logos but doesn't have the brand recognition of those customers or many of its managed IoT connectivity services competitors. More effective branding and marketing are needed to accelerate the company's growth. The company's addressable market is currently limited to three vertical markets, which could affect its growth prospects.

Consider Cubic Telecom When

With a customized platform for the automotive industry and global connectivity, the company is ideal for automotive OEMs that need a global connectivity management solution. In addition, for agriculture and transportation, the company's technology and services are well suited to serve the sectors.

Deutsche Telekom

Deutsche Telekom (DT) is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Bonn, Germany-based Deutsche Telekom holds a 43.6% stake in T-Mobile US, the second-largest mobile operator in the United States following its 2020 merger with Sprint, along with shares in other European operators. Deutsche Telekom and T-Mobile US are coordinating their IoT portfolios across Europe and the United States. Combined, Deutsche Telekom and T-Mobile US offer connectivity management platform choice from at least three different vendors, with extended geographic coverage in the United States, Europe, and the rest of the world.

In addition, DT is an investor in 1NCE, an IoT MVNO with a prepaid pricing model that includes long-term connectivity, and 1NCE is also evaluated in this assessment. DT has white labeled the 1NCE service for its Business Smart Connect online offering, which is helping the operator quickly grow customers. Other DT mobile subsidiaries could follow in DT's footsteps in implementing the prepaid platform. The Business Comfort Connect tariff includes a tool to guide a user through a custom pricing process based on coverage and duration, and Business Choice Connect is a tariff tailored for large customers with specific requirements.

DT, together with chipset manufacturer Qualcomm Technologies, module maker Quectel, and solution provider Redtea Mobile, is introducing an implementation of nuSIM, which is DT's iSIM IoT offering. nuSIM removes the physical SIM, includes more than 30 partners, and allows industry players to work together to establish an open ecosystem, competition, and freedom of choice.

Strengths

DT is an established B2B brand in Europe and offers its IoT customers its strong global mobile network coverage. DT offers a flexible and comprehensive range of IoT connectivity pricing models, including a prepaid option, to its users. The operator also provides several SIM choices from traditional SIM to eSIM to the nuSIM offering.

Challenges

T-Mobile US has indicated it is shutting down its Sprint CDMA network on March 31, 2022. Many IoT customers are still connected to the 3G network, so a strong upgrade and transition plan is required for the U.S. market. The organization must also ensure it offers customers a single pane of glass to easily analyze their IoT deployments across the platforms the company supports. In addition, the nuSIM technology could be difficult to scale for customers that need standards-based solutions.

Consider Deutsche Telekom When

For companies that require 5G IoT connectivity, DT and T-Mobile US both lead in 5G coverage in their respective markets. Complex IoT deployments that might need more than one connectivity management platform or custom pricing models would be good candidates for the IoT services from Deutsche Telekom. Customers with European, U.S., and global coverage requirements will do well with DT as well.

KORE

KORE is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Founded in 2002, KORE is based in Atlanta, Georgia, United States, and went public in 2021 through a special purpose acquisition company (SPAC). The company cites two revenue streams: IoT connectivity, which is the company's main revenue source and is covered in this document, and IoT solutions.

KORE focuses on specific industry sectors including connected health, fleet management, asset management, communications services, and the industrial sector. The IoT services provider works to tailor its managed IoT connectivity services around solutions and analytics, along with mobile virtual network enabler (MVNE) services to allow its customers to offer customized connectivity services to their users.

ConnectivityPro is KORE's connectivity management platform for ordering, provisioning, and activating new services; monitoring usage and identifying issues; and analyzing trends. SecurityPro provides rule-based alerts and actions to protect devices and transmitted data from anomalies, threats, excessive data use, misconfigured firmware, stolen SIMs, and network failures. The company recently launched a global eSIM solution called OmniSIM for global deployments.

KORE offers IoT strategy, end-to-end security, and technology selection. It then offers either connectivity as a service through SIM, eSIM, or iSIM or connectivity enablement as a service (MVNE

offerings). The company also provides IoT managed services for logistics and operations, and finally analytics and data transformation as a service. These capabilities are aligned across the previously mentioned five industry sectors.

Strengths

KORE has a strong U.S. and Western European presence and coverage. The company also does well with hybrid deployments that might include Bluetooth and cellular connectivity, for example, or satellite and cellular networks. The company recently launched a global eSIM solution called OmniSIM for global deployments. Time will tell whether its recent listing on the New York Stock Exchange will brings benefits around global branding and financial flexibility.

Challenges

Coverage outside North America and Western Europe and/or localization in highly regulated markets are challenge areas for KORE. More consistent communications with all customers around its road map and upcoming innovations would benefit KORE. Prioritizing projects and finding strategic customers can be difficult, and marketing education is a big part of KORE's current sales process.

Consider KORE When

KORE has a strong platform specific to healthcare along with North American and Western European coverage and partners. KORE also has expertise in a diverse range of areas including LoRaWAN, satellite, and 5G connectivity. The company also excels in services, staging, kitting, and delivery and can help customers that need guidance find the technology and solutions that suit their business needs.

KPN

KPN is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

KPN is a Dutch mobile and fixed operator with headquarters in Rotterdam, The Netherlands. The company has a growing managed IoT connectivity services business overseen by a business unit focused on IoT connectivity and services. In addition to cellular connectivity, the company offers a LoRaWAN network, along with LTE-M connectivity.

KPN Things is the company's IoT portfolio that includes hardware, connectivity, and data processing. The connectivity management platform is based on Cisco's Control Center, with device management and data processing as two main components. KPN offers 2G and 4G roaming, along with LTE-M roaming. Remote SIM provisioning provides localization for carriers in countries where permanent roaming is a problem for regulatory or commercial reasons.

The company has a robust partner ecosystem. Wireless Logic, an IoT MVNO also profiled in this document, is a partner and resells KPN IoT connectivity services. The company also has partnered with several hardware providers for customers to tap into.

KPN is targeting a group of 10 vertical markets where it can become an expert and grow its IoT business among customers in those verticals. KPN offers three value-added services for 5G focused on application priority, guaranteed bandwidth, and coverage on demand and is exploring the opportunities that 5G brings to IoT deployments. KPN also aims to facilitate data infrastructure to support data analytics and artificial intelligence (AI).

Strengths

The operator helps simplify the IoT rollout process by helping customers source the most appropriate hardware. KPN works closely with companies to understand how IoT can help their business and bottom lines. Customers appreciated the direct and quick customer service that KPN offers, along with its willingness to collaborate on pricing, areas where MVNOs usually shine more than network operators.

Challenges

Competitive pricing from IoT MVNOs is the biggest challenge for KPN, although the operator hopes growth in data use to counter the pricing pressure in the managed IoT connectivity services market. In addition, because of global supply chain issues, chip prices are increasing and KPN might have to adjust IoT SIM card pricing. The operator is also competing against several larger MNOs for European managed IoT connectivity services customers.

Consider KPN When

KPN is a good option for small and medium-sized European companies with operations in the United States and other global markets. Consider the MNO when you don't always need the lowest price but you require strong coverage and customization. KPN is small enough to avoid being slow and bureaucratic and big enough to service large contracts as a tier 1 operator. The company is willing to tailor technology and pricing to help its customers achieve success.

Orange Business Services

Orange Business Services is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Orange is based in Paris, France, with operations in 8 European countries, 16 countries in the Middle East and Africa, and 3 each in the Indian Ocean and the Caribbean. The company's IoT and mobility services operate under Orange Business Services, along with three other strategic areas around digital and data, cloud, and cyberdefense.

The company offers its proprietary Live Objects device management and data collection platform, along with two connectivity platforms: Ericsson's IoT Accelerator branded as IoT Advanced and Malima, the Orange proprietary platform. The best platform is selected depending on the customer's needs, along with enriched connectivity through Live Objects. For devices, Orange offers IoT Continuum, a partnership among hardware, software, and manufacturing companies for IoT deployments. IoT Journey provides solutions procurement, with off-the-shelf solutions directly bundled with the device.

Orange has a dedicated team focused on managed private networks to create new business opportunities for IoT deployments. In addition, it is working to extend its global coverage and roaming footprint, along with providing end-to-end IoT solutions incorporating its three other business areas within Orange Business Services. A vertical approach targets connected cars, Industry 4.0 through a partnership with Siemens, and Smart Cities and buildings.

Orange has an LPWA strategy involving licensed and unlicensed LPWANs. Initially, the operator deployed unlicensed LoRaWAN networks in France, Slovakia, and Romania, along with five cities in Russia, and in Reunion in the Indian Ocean. Subsequently, Orange has also deployed licensed LTE-M networks in its European operator footprint. This strategy differs from other MNOs, which focus on

cellular IoT connectivity and licensed LPWANs. If operators do connect unlicensed LPWA devices, it is usually part of a hybrid approach with cellular connections versus building LoRaWAN or Sigfox networks, generally considered competing technologies.

Strengths

While several MNOs are working to tie managed private networks to their IoT offerings, Orange is making a strong push in combining managed private mobile networks and IoT deployments with a packaged 5G SA private network with edge computing. The operator already has some strong customer references implementing the technology. Orange is also executing its go-to-market strategy to effectively develop its vertical market value proposition.

Challenges

Orange has not deployed NB-IoT networks in its footprint with the exception of Belgium and Luxembourg and is considering offering NB-IoT roaming in the future. In addition, Orange does not yet offer IoT localization in markets where global IoT roaming is challenging. Customers suggested continued work around unlicensed LPWA coverage and service features and innovation.

Consider Orange When

Orange excels for businesses that need European and/or Middle Eastern or African coverage, particularly hybrid LoRaWAN and cellular IoT deployments. No other operator has the experience level in LoRaWAN technology as Orange. For those customers where a managed services private network can improve their IoT deployment, Orange's early deployments and innovations around the technology are worth exploring.

Sierra Wireless

Sierra Wireless is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Sierra Wireless, based in Richmond, British Columbia, Canada, has a long history in the IoT market. The company offers IoT modules and gateways, along with IoT connectivity and managed IoT services.

Specifically, Sierra provides connectivity solutions for companies that need North American coverage or a global multi-IMSI SIM for multinational companies with global coverage needs. The AirVantage IoT connectivity management platform provides device management, monitoring and diagnostics, rules and automation, and APIs. The company also offers an edge-to-cloud solution called Octave and vertical IoT applications for asset tracking, offender monitoring, and alarm panels.

Sierra Wireless has embraced eUICC technology and includes eSIMs inside its own modules, gateways, and routers. Sierra Wireless works to simplify IoT deployments for customers by handling global deployments, coverage, security, and partners, as well as accelerating time to market.

Because it offers products across the IoT ecosystem, Sierra Wireless integrates security into all parts of the IoT process and its products. About a year ago, Sierra launched an eStore for online IoT services sales to allow customers to trial and deploy IoT projects more quickly.

Strengths

Because Sierra also sells IoT hardware components, it can help customers that need custom IoT devices or that have complex deployments. Sierra's customers are early adopters of licensed LPWANs, although the majority of Sierra Wireless' connectivity services customers use 4G cellular networks. Device management, coverage, and security are additional areas of strength noted by customers.

Challenges

The IoT MVNO market is competitive, and Sierra Wireless must continue to differentiate to maintain market share. With many MVNOs competing heavily on price, this could be a challenge to Sierra's model and profitability. Customers said Sierra could offer better flexibility in monitoring IoT data consumption and improve onboarding and implementation.

Consider Sierra Wireless When

Companies, particularly those based in North America and Europe with global coverage needs, will find Sierra's global SIM and management platform helpful for their IoT deployments. For companies with complex deployments that are unsure of the best IoT connectivity and device technology, Sierra can simplify the hardware process and help determine the best connectivity network.

Soracom

Soracom is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Tokyo, Japan-based Soracom is a cloud-native IoT platform-as-a-service (PaaS) company with MVNO capabilities. In 2017, Japanese mobile operator KDDI acquired Soracom, which was founded in 2015 by former AWS and ex-telecom executives. The company recently opened offices in London, United Kingdom, and Bellevue, Washington, United States, and is working to further expand its business into Europe and North America.

The company's Soracom Air service offers cloud connectivity through the company's mobile network operator and Sigfox partners. Soracom Air offers customers API automation and control of the life cycle of SIM cards from activation. A user console provides SIM card fleet management capabilities, event handler automations, remote access, cost management tools, and security functionality. Soracom Arc provides secure access to Soracom services, including integrations with cloud computing services, for devices that have any internet connection including Wi-Fi, Ethernet, or satellite.

Soracom said its architecture adds a security layer through the cloud. Customers can integrate their devices with AWS, Microsoft Azure, or Google Cloud, as well as their own cloud. The company can also integrate with private LTE networks. Most pricing is on a pay-per-use basis for all connectivity and platform services; there are no commitments, minimums, or pooled plans, which also means no recurring revenue, although Soracom recently began offering flat rate package plans as well. Soracom also offers self-service purchasing.

The company's main business area is in Japan via KDDI's cellular network, along with NTT DoCoMo, and Kyocera's nationwide Sigfox network. Soracom has coverage in several other Asian countries, and the company is expanding in North America and Europe through additional operator partnerships. The company also conducted an iSIM proof of concept with Altair Semiconductor and Kigen in 2021.

Strengths

Soracom's strength lies in its tight integrations with AWS and other cloud services. The company is innovative, allowing customers to deploy extended discontinuous reception (eDRX) technology, a 3GPP standardized feature that extends device battery life, in IoT projects, for example. Customers said Soracom's cloud integrations, pricing model, and customer service exceed expectations.

Challenges

While Soracom provides global roaming, it has limited carrier localization, although it is working to address its limitations with additional partnerships with European and North American mobile operators. Most managed IoT connectivity services providers generate recurring revenue through subscription-based pricing, while Soracom takes a different tack with a pay-per-use pricing model. As a relatively new player in the competitive managed IoT connectivity services market, Soracom faces established competitors with more proven track records.

Consider Soracom When

Companies with small and medium-sized IoT device fleets that prefer pay-per-use pricing will do well with Soracom. In addition, companies that rely heavily on advanced cloud services and require tight integrations will appreciate Soracom's expertise in this area. End users with hybrid connectivity needs, such as Wi-Fi and cellular IoT connections, would also be a good fit for Soracom.

Telefónica

Telefónica is positioned in the Leaders category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Spanish telecommunications provider Telefónica is based in Madrid and is a mobile network operator in Spain operating under the name Movistar. The operator has full operations in 13 countries, mainly in Europe and Latin America including its strategic markets of Brazil, Germany, and the United Kingdom, as well as a robust managed IoT connectivity services business.

Telefónica has a big data and artificial intelligence offering for its IoT customers, including blockchain and security, which it describes as the AI of things. IoT and big data/AI are housed within Telefónica Tech, one of the company's key areas where it plans to capture growth. The operator believes that the combination of IoT and big data/AI extracts the value of data from a connected ecosystem for better business decisions.

The Kite connectivity management platform is a key pillar of Telefónica's IoT offering and was developed in-house. The company developed a specific version of Kite to address the smart meter sector, recognizing its inherent need for LTE-M and NB-IoT networks. The adaptations include streamlined management connectivity functionality and competitive prices. In addition, a SIM applet for Kite allows the recovery of unavailable devices and secure network information. Telefónica also developed a prepaid model that includes connectivity with an IoT device for massive use cases.

Telefónica created an MVNO completely dedicated to IoT connectivity, with specialists for IoT sales, operations, and customer care. The MVNO recently gained approval from Spain's regulatory bodies and is operational. In addition, Telefónica has launched a dedicated company to address IoT solutions in Brazil on top of its own local connectivity. This company was formed to offer more flexible local IoT solutions in Brazil, a difficult market for global connectivity because of regulatory and roaming restrictions.

Strengths

Telefónica has done a good job of tailoring its offerings for various vertical markets from retail to utilities to 5G use cases in industrial sectors, helping companies in their digital transformations. The company is also adapting to a more competitive managed IoT connectivity services market by launching an MVNO service and targeting data and AI to enhance value for customers. Telefónica is focused on future innovation and customer needs for managed IoT connectivity services.

Challenges

Moving quickly to address customer needs is often difficult for large telecommunications companies like Telefónica. For large complex IoT deals, sales teams can be spread out, and bringing all the ecosystem partners together and integrating technology takes time. In addition, while the operator has a strong platform and service, it competes against the largest MNOs for multinational IoT customers.

Consider Telefónica When

For multinational companies that need localized coverage in Brazil or general coverage in Latin America, Telefónica is a strong choice based on its presence in Brazil and operations in the region. The operator also has a strong European customer base and has launched numerous 5G pilots and projects based on specific use cases and is a European leader in 5G for enterprises.

Telenor Group

Telenor Group is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Telenor Group, headquartered in Fornebue, Norway, is providing managed IoT connectivity services through Telenor Connexion and its operating companies across the Nordics and Asia. In 2021, Telenor unified its IoT offering across the Nordics and internationally under the brand Telenor IoT. By centralizing the IoT strategy and portfolio into Telenor Connexion, the full scale of the group can be leveraged to better serve customers.

Telenor's IoT portfolio includes managed connectivity services, IoT Cloud, and a strategic partner ecosystem. The connectivity services, including the available connectivity management platforms, are adapted to the needs of the customer. IoT Cloud is a set of APIs for cloud and information, connectivity, and development through AWS.

The operator provides global connectivity services in 200 countries through global roaming, as well as local access in countries where permanent roaming restrictions exist. Connections can be delivered using a single physical SIM and managed through a single interface. Telenor Group has LTE-M and NB-IoT networks in five markets, and 5G services are commercially available in five markets. The company also offers access to private networks in several vertical industries. In addition, connectivity services for offshore oil rigs and ships can be delivered through Telenor Maritime.

Telenor's IoT portfolio also includes digital solutions based on IoT technology for specific local market use cases. These solutions help companies achieve digital transformation goals with varying customization depending on the use case and geographic location.

Strengths

Telenor has capabilities to serve large international OEMs and companies with international fleets of devices. The operator can provide access in key markets such as Brazil, China, and the United States.

The operator also does well with customized solutions. IoT Cloud offers an extensive set of services in partnership with AWS.

Challenges

Telenor's pricing is sometimes perceived as higher than other service providers by customers. Telenor IoT is new, and as capabilities are centralized, customers may need to manage potential risks, such as migrating platforms. Telenor's customer base outside Europe and Asia is relatively small but growing.

Consider Telenor Group When

European and Asian multinational companies that need to track large fleets of products or services globally will do well with Telenor. In addition, midsize North American and African businesses with international IoT needs would be a good fit. Telenor also does well with enterprises that need specialized or more complex services.

Telia

Telia is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Communications service provider Telia is based in Stockholm, Sweden. Telia offers telecommunications services in Sweden and has mobile subsidiaries in seven other Nordic and Baltic countries. Telia launched its global IoT offering in early 2020 and is seeing increasing IoT service revenues and connections.

The carrier considers the advantage of its global offering around three different points of presence (POPs) it has built in Asia, Europe, and North America where the underlying operator can integrate to the closest POP via a cloud interface. Telia offers an eUICC-powered SIM with a Telia subscription, allowing an IoT device to download a profile from the international operator and then roam into that country. Telia tackles the legal, regulatory, privacy, and tax challenges in 10 highly regulated countries to allow customers to focus on their core businesses. Telia has more than 300 roaming partners for low regulation markets.

Telia has developed its own connectivity management platform and offers APIs to Cisco Control Center, Ericsson's IoT Accelerator, and other carriers' platforms. The operator's pricing model is primarily pay as you go with a fixed setup fee and monthly fees for the platform and SIMs, as well as tiered usage fees.

Telia offers cellular 2G/3G/4G connectivity, along with connectivity to LTE-M and NB-IoT networks. 5G networks are being rolled out to strengthen and complement the LPWA capabilities. Telia's aggregation layer allows customers to manage consistency across its macro and potentially managed private networks. The operator also offers a single cloud interface to allow a customer to connect and manage its devices.

Strengths

Telia offers strong coverage and service in the Nordic and Baltics countries, with localization in difficult markets such as China and Brazil. Global IoT connectivity is a recent focus for Telia, and the operator provides high-quality customer service. Customers said the operator exceeds expectations in knowledge of their industries, which is the first step to a successful IoT deployment.

Challenges

North American coverage and customer service are challenge areas for Telia, although the carrier is working through new North American partnerships. The carrier is also working on ways to better communicate its road map and future services to customers and the market.

Consider Telia When

If your business requires IoT connectivity in markets that are highly regulated, such as Turkey, Brazil, India, or China, Telia handles the challenges of IoT connectivity in these countries. In addition, Telia is a good option for managed IoT connectivity services for customers that require strong coverage in the Nordic and Baltic regions.

Telit

Telit is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Telit has been in the IoT business for 20 years and the IoT connectivity market for more than 10 years. Based in London, United Kingdom, Telit supplies IoT modules, software and platforms, and services, as well as managed IoT connectivity services. Telit offers SIMWISE, an iUICC technology that allows the company to embed an operator's profile or multiple profiles without a physical SIM. The technology gives customers the ability to switch to an operator's profile or download additional profiles.

The company's work in eSIM and iSIM technology lends itself to its IoT connectivity business. Telit became a full MVNO, launching an IoT core network called Telit NExT in 1Q21. The company moved from a reseller to a full IoT MVNO by incorporating FloLIVE's cloud-native core and other infrastructure components developed in-house, as well as its own billing and global footprint. The company partners with SAP and AWS for billing and cloud services, respectively.

Telit's IoT connectivity management platform offers SIM management, statistics and diagnostics, location information, remote diagnostics and troubleshooting, deployment insights, geofencing, and notifications and triggers. The platform is offered in three tiers, with the surcharge and functionality increasing in each tier. The Optimus data plan management service automates any necessary monthly data plan changes to reduce costs for the customer.

The company has pricing models for businesses that need North American connectivity and for companies with global requirements. A new prepaid offering combines 5 or 10 years of connectivity on the Telit NExT IoT network. Because of its companion IoT hardware and platform businesses, Telit can use its sales channels to upsell module customers with managed IoT connectivity services, for example, or offer a bundled connectivity, module, and platform solution.

Strengths

Because of its products in several areas of IoT from hardware to platforms to services to connectivity, Telit understands and participates in the full IoT ecosystem. For multinational companies, Telit has strong U.S. connectivity through partnerships with all three nationwide operators, and elsewhere, the company offers its own MVNO core network including a multi-IMSI solution and eUICC capabilities with 600 mobile carriers in 200 countries. Customers were happy with Telit's competitive and custom pricing, along with its proactive and responsive customer service.

Challenges

For 5G services, Telit is dependent on its MNO partners, which will work to retain lucrative 5G customers on their own managed IoT connectivity services. This is a challenge for most IoT MVNOs. Likewise, some of Telit's offerings around eSIM and iSIM are dependent on mobile operator uptake, although Telit predicts a shift in the balance of power as operators compete to add their connectivity services on more modules and become more dependent on IoT hardware companies. Telit must find ways to reach new customers to continue to spur its growth.

Consider Telit When

Medium-sized customers with North American or global IoT connectivity requirements will gravitate to Telit. The MVNO serves customers in numerous vertical industries and has a strong presence in the mobile personal emergency response system (MPERS) industry, which tracks at-risk individuals with IoT technology that includes voice and video capabilities. Companies looking for custom connectivity services or bundled IoT solutions will do well with Telit.

Telstra

Telstra is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

The company is headquartered in Melbourne, Australia. Telstra is the dominant MNO in Australia and has a robust managed IoT connectivity services business as well. The operator is the only MNO surveyed for this document located on the Australian continent.

The MNO offers three different IoT connectivity management platforms: Ericsson's IoT Accelerator, Cisco Control Center, and Telstra IoT Connection Manager (ICM). The latter two are mainly used by domestic customers. Telstra Cloud Connector connects IoT devices into its Hyperscale Cloud Provider (HCP) IoT core, authenticating into the cloud provider with Telstra gateway management of SDKs and device certificates.

Telstra offers 3G, 4G, and 5G cellular coverage for IoT deployments, in addition to satellite, LTE-M, and NB-IoT networks in Australia. It also offers a global SIM and eSIM connectivity service for international customers. A regional remote connectivity management service offers localized service in the Asia/Pacific region via a POP located in Singapore to reduce latency.

Professional services through Telstra Purple and software solutions are part of Telstra's IoT offering, and the MNO is focusing on industry IoT solutions for the supply chain, transport, government, utilities, and energy sectors. Telstra also supports large automobile manufacturers that manufacture globally and distribute cars to Australia.

Strengths

Telstra offers strong IoT coverage in Australia and in the Asia/Pacific region, and it has LTE-M and NB-IoT networks with exceptional Australia coverage. The company has a robust systems integration business (Telstra Purple) that it can leverage for complex IoT deployments. The operator has a road map around innovations in eSIM and cloud and enhancements to its IoT Connection Manager. In addition, its three connectivity management platforms offer customers choice.

Challenges

Telstra's main challenge is geographic because Australia does not have a large domestic manufacturing industry that exports products. Therefore, the operator's main global connectivity business comes from companies outside Australia that export their products into the country. Growth is a challenge in Australia, where the market for global managed IoT connectivity services is smaller than in other regions of the world.

Consider Telstra When

Customers that need strong coverage in Australia, particularly LPWA or 5G coverage, will do well with Telstra. The company's cellular coverage reaches 99.5% of the population. In addition, if you need coverage in the Asia/Pacific region, Telstra has strong regional connectivity for IoT assets. Telstra's customers praised the operator's breath of feature functionality and industry-specific services that it offers.

Verizon

Verizon is positioned in the Leaders category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Verizon is a U.S. mobile network operator and is based in New York. The company reorganized in 2019, including its IoT business in the Verizon Business Group. Since then, Verizon has enhanced its IoT services and customer experience.

Verizon's foundational role is in connectivity, and Verizon has added LPWA coverage in addition to its cellular networks in recent years. The operator also enables the IoT ecosystem through value-added services, device certification, and other Verizon Business Group assets within managed services, security, and professional services for IoT. Verizon also is a solution provider, focusing on the telematics industry with its Verizon Connect SaaS business and helping utilities create and manage energy grids.

ThingSpace is Verizon's managed IoT connectivity services platform. In August 2020, Verizon Business launched ThingSpace IoT Marketplace, a digital portal that helps customers of all sizes to quickly purchase, activate, and manage customized IoT solutions, which has contributed to the operator's IoT growth. Verizon also has partnerships with AWS and Microsoft Azure for cloud integrations.

In 2021, Verizon launched a global roaming service for its IoT customers and supports 11 global markets with localization. The operator offers LTE-M coverage across 98% of the U.S. population and is working toward that same coverage for NB-IoT services. Verizon has certified its first set of LPWA modules and devices, and global eSIM orchestration is on its road map as well.

Strengths

Verizon is a leader in the U.S. telematics sector with its Verizon Connect business. The operator is also gaining automobile OEM share, with eSIM at the core of its strategy for that market. Verizon can tailor solutions to a breadth of industries using its extensive reach and partnerships. Verizon also claims to have the most licensed LPWAN coverage and growth in the U.S. market.

Challenges

Pricing, particularly for large volume plans, is a challenge for Verizon as it sees pressure from IoT MVNOs that are competing squarely on price. In addition, as with other large operators, it's more difficult to quickly integrate and implement customer feedback or specific requirements. It often takes longer than customers would like to update tools or handle requests.

Consider Verizon When

Verizon plans to increase the number of global markets with localization from 11 to 30 by mid-2023, so multinational companies with connected products will do well with the operator. Verizon also has a 5G IoT offering for high-bandwidth use cases, as well as new 5G partnerships, managed services private network and MEC offerings, and a Hyper Precise Location service for precision positioning of IoT devices, all of which bode well for customers with highly automated and advanced IoT requirements.

Vodafone

Vodafone is positioned in the Leaders category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

London, United Kingdom-based Vodafone IoT is a global IoT service provider operating across 23 local operating companies in Europe, Africa, Asia, Australasia, and the United States. Vodafone has a sales presence in Japan, China, Australia, New Zealand, and the United States, along with a long track record in managed IoT connectivity services.

Vodafone owns and manages its own connectivity management platform rather than licensing it from a third party, boosting cost effectiveness and scale. The operator supports eSIM (eUICC) and has extended this capability into iSIM, most notably for smart labels, and introduced SIMTrust to secure the end-to-end connection with encryption for SIMs and applications. The carrier added quality-of-service features in 2021.

Ultra Global is the company's permanent roaming SIM with localization in highly regulated markets. The operator has IoT coverage across 581 networks in 190 countries and 24 LPWANs in Europe and 55 LPWANs worldwide. Vodafone touts its strong NB-IoT coverage and connections in the market, along with its 5G network rollouts.

Automotive, which offers internet in the car for infotainment services and deploys IoT within manufacturing assets to produce vehicles, is the largest IoT market for Vodafone. Because of its scale and ability to bring together many partners within the IoT ecosystem, Vodafone has use cases and customers across vertical markets, including Industry 4.0, digital healthcare, and utilities. Vodafone aims to be a hyperscaler for IoT deployments and has refocused its IoT business during the global pandemic to increase its global IoT connectivity market share.

Strengths

Vodafone's strengths lie in its size and ability to bring together various players across the IoT landscape for complex projects within large enterprises. The company also has strength in managed private networks for IoT deployments, with 28 MPN contract wins during 2020 and 2021. Vodafone has also announced several 5G projects and offers strong overall global coverage across network types.

Challenges

Some customers are considering NB-IoT versus LTE-M as they begin to upgrade their device fleets and are waiting for major carriers like Vodafone to offer more clarity around each of the licensed LPWA technologies and their future plans. A customer said Vodafone should aim to decrease its SIM delivery times and boost its portal features.

Consider Vodafone When

For customers with complex global projects that need coverage in a variety of countries, Vodafone is a good choice. In addition, for projects that need innovation around blockchain, iSIM, combined prepaid and connectivity models, and MPNs, Vodafone is addressing those requirements. Customers that require global 5G coverage will do well with Vodafone as well.

Wireless Logic

Wireless Logic is positioned in the Major Players category in this 2022 IDC MarketScape for worldwide managed IoT connectivity services.

Wireless Logic is a London, United Kingdom-based IoT MVNO that has been in business since 2000. In recent years, it has seen strong growth in connections and technology capabilities through acquisitions of smaller MVNOs in Europe mainly through venture capital financing. The most recent acquisitions were of Arkessa and Com4 in 2021.

Wireless Logic owns a global core network, eSIM management platform, and local network profiles so it has its own IMSIs. SIMPro is the company's SIM management platform that integrates 45 MNOs and connects to the Wireless Logic mobile core network. The company also offers API integrations to RSP vendors and cloud service providers. NetPro is the company's suite of security management capabilities, which includes private APN and VPN, as well as features such as IMEI locking, SIM management, and 24 x 7 network monitoring.

The company claims 1 million eSIMs deployed across its customers, giving it strong IoT eSIM market share. Wireless Logic also bundles device management services with a connected hardware offering, with access via SIMPro. The business model is a mix of capex for router hardware and migrations and opex for mobile data and SIMs, as well as device management services.

Wireless Logic touts its service aggregation capabilities, which can particularly help address the fragmented nature of licensed LPWAN rollouts. Most of its customers access the core network via two or more of Wireless Logic's MNO partners and rely on the company to handle the cross-network aggregation of data and associated billing and security integration for them. Dedicated network services and commercial teams manage the sourcing and integrations aspects.

Strengths

SIMPro is a user-friendly connectivity management platform portal with excellent customer service features. Wireless Logic has a large number of eSIM and RSP deployments, resulting in increased knowledge, along with experience in AT commands, eDRX, and power saving mode (PSM) for licensed LPWANs. Because of the number of companies that Wireless Logic has acquired, the company has a diverse set of technologies and pricing models from which to draw to remain competitive.

Challenges

While the acquired businesses can be a strength for Wireless Logic, the company also has many moving parts to bring together from the various companies that have been acquired, which sets up challenges around business integration, technology road map, and general areas of focus. In addition, the company's cloud services strategy is not as defined as some of its competitors, especially other IoT MVNOs.

Consider Wireless Logic When

For businesses that need two or more mobile networks, either cellular or licensed LPWA technology, for IoT deployments, Wireless Logic is a good fit. In addition, the company has a lead in eSIM for IoT rollouts that require the flexibility, future proofing, and other benefits that eSIM offers. For companies that need new features around licensed LPWA such as eDRX or PSM, Wireless Logic is a strong option.

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here, and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the IoT connections of each individual vendor being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Customer Interviews

IDC conducted online and telephone interviews with vendor-provided customer references from October to December 2021. These interviews were conducted to understand client satisfaction, selection criteria, vendor strengths, areas of improvements, outcomes/value delivered, and ratings of specific capabilities.

Market Definition

Managed IoT connectivity services are oriented toward IT or telecom operations staff, developers of IoT connected products, and/or other employees responsible for keeping cellular-enabled IoT deployments up and running. These services provide data on IoT network connectivity and SIM device status, as well as the ability to monitor, manage, and secure IoT device rollouts more effectively.

This IDC MarketScape focuses on:

- **Connectivity services** that allow an IoT device to connect to a wide area cellular or LPWAN
- **SIM management tools** that provide a means to activate or suspend SIM cards, see what networks they are connected to, set SIM data connection options and limits, and other capabilities
- **IoT connectivity management platforms (CMPs)** that provide data on IoT network connectivity, allowing an organization to effectively monitor, manage, and secure IoT device rollouts; CMPs analyze connectivity services but often include additional components as outlined in this section.

Service providers may offer additional value-added services that include:

- **Device onboarding and management** ensures the ongoing ability of the endpoint to send and receive data. Endpoint provisioning, remote configuration, data monitoring, software updates, error reporting, and identity management are common attributes of device management. Each device typically has an ID, name, and properties or attributes that are used to connect, collect information, and manage devices. Information about hardware and firmware version levels, install date, maintenance dates, and other static information are displayed. Location of the device may be static if it is fixed, but devices that are mobile would more likely include location.
- **Monitoring and diagnostics** tools optimize monthly operating costs with usage and rate monitoring. They can show patterns, deviations, and reliability of an IoT device fleet. Network intelligence and diagnostics help customers manage performance.
- **Rules and automation** allow a user to set rules to monitor usage and trigger actions to increase operability and control costs. The rules help users track data usage or device roaming, for example.
- **Analytics and AI** help users analyze and make better use of their IoT data for business decisions.
- **APIs** help integrate IoT management controls into an enterprise's native life-cycle applications.
- **Professional services** help customers tailor their specific services for a specific vertical market, onboard a new project, or scale up a current project.
- **Security management services** can secure several IoT layers from endpoints to data to IT systems.
- **Integration with business systems** such as customer relationship management (CRM) software help users see numerous systems through one pane of glass.
- **Integration with cloud providers**, either public or private cloud providers, allows users to store and manage IoT data in the cloud.

The benefits of managed IoT connectivity services for an enterprise IoT deployment include providing visibility into the network, controlling costs, streamlining operations, enhancing the user experience, and improving security.

Strategies and Capabilities Criteria

Tables 1 and 2 provide key strategy and capability measures, respectively, for the managed IoT connectivity services. The tables also provide the relative weight of each criterion.

TABLE 1

Key Strategy Measures for Success: Worldwide Managed IoT Connectivity Services

Strategies Criteria	Definition	Weight (%)
Functionality or offering strategy	There is a road map for network connectivity that offers customers options and technology evolution. In addition to connectivity, the provider offers a managed service and platform, along with additional services.	20.0
Service road map	Providers offer access to a breadth of network types to give customers the best network starting with cellular and licensed LPWA to additional options such as unlicensed LPWA and private networks to address their needs.	20.0
Innovation	Firms have new services and innovations planned in addition to deployment strategies. Customers are satisfied with the innovation and road map.	10.0
Service delivery	Providers make available various implementation models from self-service to customer teams and help customers implement services. Customers are satisfied with implementation options and timelines.	5.0
Value	Vendors have dedicated managed IoT connectivity services staff and budgets, along with differentiated positioning in the market.	5.0
Expansion plans	Providers have plans to add new partners in various IoT business and technology areas, helping them expand services and add customers.	5.0
Marketing strategy	Vendors are promoting success stories through different formats that include customer case studies and references, thought leadership, and involvement in industry events and policy groups.	5.0
Growth	Providers are demonstrating consistent growth in annual managed IoT connectivity services revenue. Firms are seeing consistent annual growth in the number of new customers deploying managed IoT connectivity services. Service providers are demonstrating consistent growth in the number of IoT connections under their management.	30.0
Total		100.0

Source: IDC, 2022

TABLE 2

Key Capability Measures for Success: Worldwide Managed IoT Connectivity Services

Capabilities Criteria	Definition	Weight (%)
Functionality or offering	Vendors demonstrate the ability to offer specific connectivity management platform capabilities including integrations with third-party partner services and applications.	10.0
Pricing model or structure of product/offering	Firms offer flexibility for customer pricing with options including recurring subscription fees, usage-based pricing by data and SIM, flat rate, and embedded connectivity in modules. Customers are satisfied with their pricing options.	10.0
Customer service delivery	Customers have several support options included with their managed IoT service that align with their needs. Customers are satisfied with their support levels from providers.	10.0
Range of services	Service providers offer various SIM services and functionality to complement their network services and have a road map for future technology.	20.0
Go to market	Customers have several ways to buy SIM cards and managed IoT connectivity service. Providers are establishing new ways to reach new customers.	10.0
Portfolio benefits	Providers have partners in a range of different technology and business areas from IoT hardware to software to cloud services, and those partners help enhance the managed IoT connectivity services.	10.0
Return on investment	Customers are achieving a return on investment in IoT connectivity and managed services.	10.0
Geographic coverage	Service providers are offering global network coverage. The coverage is across more than one geographic region and includes a comprehensive set of partners and functionality to help achieve coverage outside of home regions.	20.0
Total		100.0

Source: IDC, 2022

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Related Research

- *Top 5 Trends in IoT Connectivity to Watch in 2022* (IDC #US48777222, January 2022)
- *The IoT Cellular Connectivity Growth Trend Will Continue in 2022* (IDC #US48466221, December 2021)
- *IoT Connectivity: Demand-Side Perspectives* (IDC #US48360821, November 2021)

- *Worldwide and U.S. IoT Cellular Connections Forecast, 2021-2025* (IDC #US47296121, August 2021)
- *IoT Cellular Connectivity Market Overview* (IDC #US47948721, August 2021)

Synopsis

This IDC study presents a worldwide vendor assessment of managed IoT connectivity services providers, looking specifically at how they are addressing the demand for global IoT connectivity services and connectivity management platforms to manage and analyze IoT device fleets. In this assessment, the IDC MarketScape model was used to evaluate both quantitative metrics and qualitative insights that define success in the managed IoT connectivity services market. The evaluation is based on a comprehensive and rigorous framework that assesses each vendor relative to the criteria and to one another.

"Competition within the managed IoT connectivity services market is ramping up as new MVNOs enter the field of providers with innovations and cutthroat pricing," says Sandra Wendelken, senior research analyst, Mobile and IoT Services at IDC. "Mobile network operators are being forced to deploy new pricing models and enhance customer service to better compete with the IoT MVNOs and other managed IoT connectivity service providers."

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

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