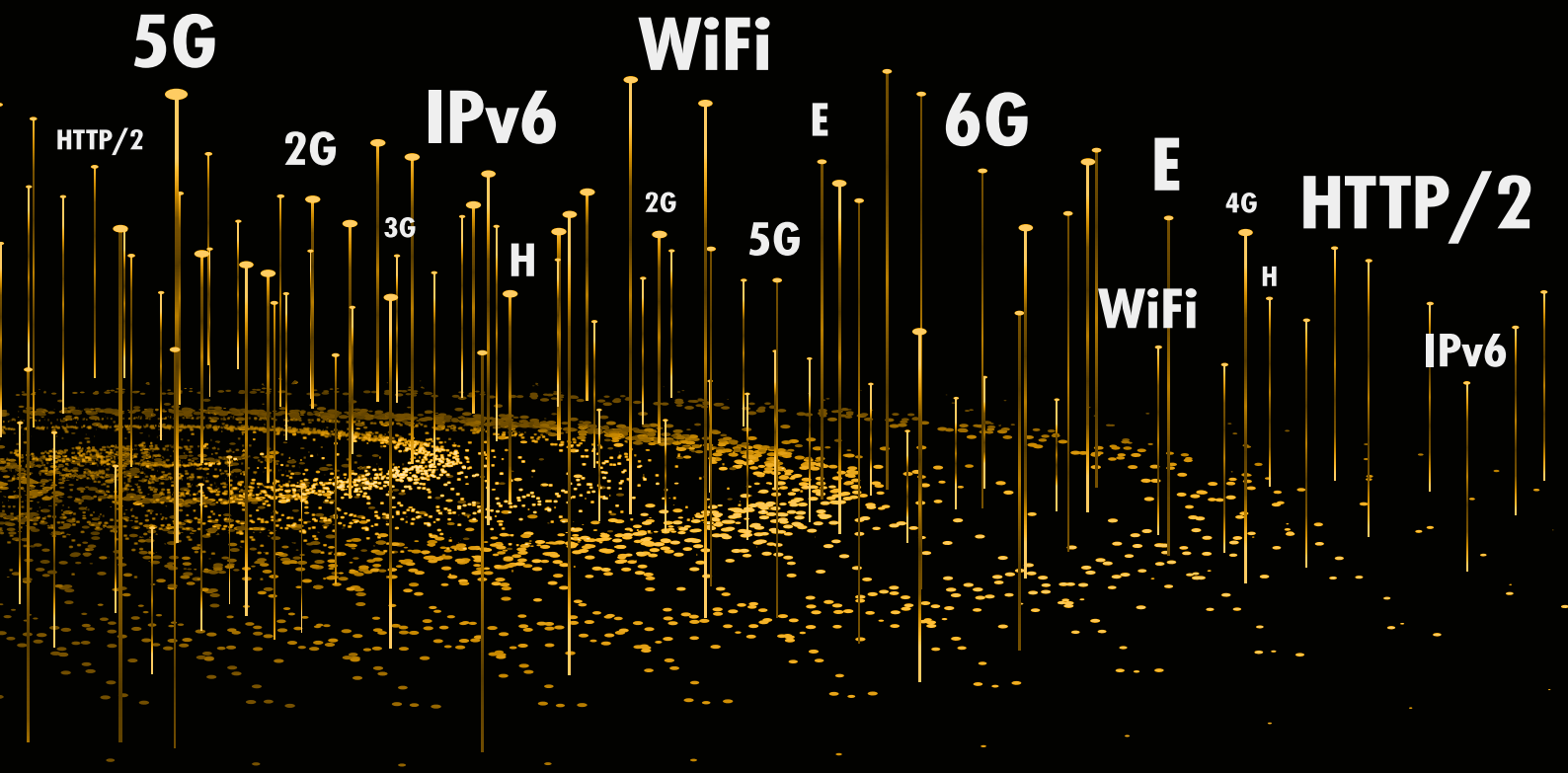
squire technologies

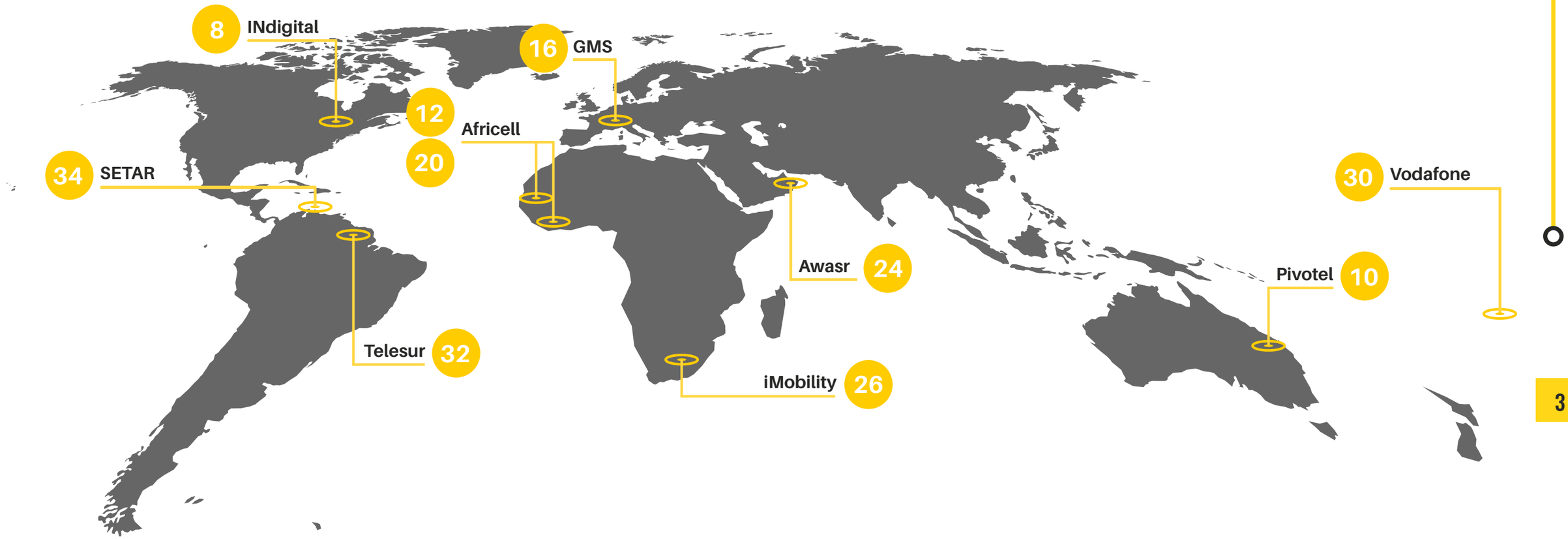


CORE NETWORK OPTIMISATION

Agile signalling solutions bringing order to complex multi-generation networks.

FIND OUT HOW SQUIRE TECHNOLOGIES CAN HELP YOUR BUSINESS SAVE MONEY.

What's inside...



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Introduction

Optimising your core network to reduce operating costs

Working with operators all over the world, we understand the importance for their networks to be both forwards facing and backwards facing, enabling the delivery of services to customers across the complex mix of technologies and standards that make up our global communications networks.

Our mix of evolved network intelligence and converged multi-generation signalling delivers a high degree of agility to our customers and makes us the ideal partner to provide signalling interworking solutions that enable previous, current and future networks to interoperate smoothly.

As operators have had to manage increasingly more complex and varied networks, our converged signalling solutions are helping them to more easily manage signalling across multiple networks and provide their services to new and existing customers.

"We have earned the trust and respect of telecom operators from across the globe for one simple reason — our dedication to quality. As the telecoms industry evolves over the coming years we remain commited to delivering industry leading solutions."

Sanjeev Verma,
CEO at Squire Technologies

Squire Technologies provides agile core network solutions for telecom operators, enabling converged connectivity across multi-generational networks to deliver greater control and reduced operational costs.

+150
Countries

+400
Telecom Operators

30bn Transactions per second

11tn Transactions per year

About us

The signalling specialists to the telecoms industry

Based in the UK and founded in 2001 we have spent over two decades providing innovative core network signalling solutions. As telecom networks have evolved, so have we.

The team here at Squire Technologies possess a wealth of knowledge and experience working in and deploying networks of all different flavours. We continue to cultivate an enviable reputation for solving complex signalling challenges, combining our cutting-edge interworking technology with a raft of proven carrier-grade core network products. As operators have had to manage increasingly more complex and varied networks our converged signalling solutions are helping them to more easily manage signalling across multiple networks and provide their services to new and existing customers.

Why customers choose Squire Technologies

Expertise
Over twenty years of specialist signalling interworking expertise and an enviable reputation for solving complex networking challenges.

Converged
Converged platforms and services that manage signalling and routing, network fraud and messaging across multi-generation networks.

Agility
Solutions designed to scale and adapt to your network demands and provide an environment where you can innovate and drive growth.

Savings
Creating networks that enable operators to make savings on capex and reduce opex with flexible deployment and managed services.

International Accreditation ISO9001
Following in-depth evaluation by an independent assessor, Squire Technologies has been successful in achieving ISO 9001 Certification. This prestigious award is internationally recognised as a benchmark of standardised and quality procedures and systems within the operation of an organisation.

Our platforms

State of the art unified signalling platform

Sigla is a smart centralised signalling platform that unifies all mediation, routing and interworking, security and measurement between multi-generation networks, reducing core network complexity and operating costs.

For operators to drive digital transformation in their customers they must first undergo core network transformation. Sigla provides a solid foundation from where operators can consolidate network infrastructure, reduce complexity, and simplify the orchestration of signalling across multi-protocol networks.

As 5G presents new opportunities Sigla prepares operators' core networks so they can effectively integrate and deploy new revenue-generating services and ensure seamless interop between existing networks and 5G infrastructure.

- ROUTING & INTERWORKING
- MEDIATION
- MONITORING
- SECURITY

Complete message processing with full campaign management

Mirus is a flexible and robust messaging platform with carrier-grade functionality that combines complete message processing with full campaign management.

For operators to support multi-generation P2P services and capture increasing A2P SMS revenue groWwth before OTT players do, they need a messaging platform that fits their strategy. Mirus grows with your business, scaling to meet your needs and those of subscribers.

The flexibility of Mirus allows customers to rapidly evolve to meet the demands of A2P and MVNO applications, providing full campaign management with rapid, real-time provisioning of new value-added services (VAS).

- ADVANCED ROUTING
- CAMPAIGN MANAGEMENT
- BILLING & MEDIATION
- FRAUD PROTECTION

INdigital

UNITED STATES OF AMERICA

INdigital expands its next-generation 911 project

Nowhere does reliable telecommunications matter more than in an emergency, and no emergency number is better known than 9-1-1. For nearly two decades INdigital has supplied breakthrough technology to support 911 calls. In doing so, the business has become the leader in next-generation 911 telecommunications technology in the United States of America.

The future is bright for the innovative research and development company. Recently, they've expanded into new states and are seeking to provide even more public safety services with their high availability 911 systems.

INdigital started in Fort Wayne, Indiana in 1995, initially providing businesses with integrated voice and data services. However, an over-saturated market and contract work with wireless service providers led them to specialise in a different area.

In 2004, INdigital jumped from the business telephony market to the public safety industry. They went up against AT&T, GTE, and Sprint to deliver a next-gen 911 service platform and beat them all with an unconventional sales pitch for the time. INdigital's pitch included a proof of concept that was demonstrated in the INdigital conference room. The buyers could witness it in action and see first-hand the service continuity of an IP-based design. It was a radical step and something the other companies could not replicate.

Having won the contract INdigital first built a new E911 network, then implemented a private, multi-provider high-speed IP network, the first of its kind in the United States. The network set the stage for delivering new types of emergency services, including Text-for-911, automatic number and location identification, real-time analysis services, and mobile Public Safety Answering Points (PSAPs).

Since then, the company has developed from a handful of people to nearly 150 staff members. They've also crossed borders, running full or partial services in 20 states, and counting.

From early on, the company has embraced open partnership-working, seeing the benefits of working with other specialists to deliver outstanding products and services. In the early 2000s, when INdigital began its 911 project, it sought out a software company that could support their ambitious goals. The next generation of 911 services required a unique solution, so INdigital selected a partner with the flexibility to adapt to a developing industry, purchasing a media gateway controller (MGC) from Squire Technologies.

That was the start of a two-decade-long partnership between the companies. Both companies learned and evolved together, enabling countless emergency services response calls through their combined efforts.

"The public safety industry is continually evolving, and there is lots of space for growth. We have several new developments lined up that we are excited about. However, our immediate focus is to expand our coverage to support more emergency services. Our partnership with Squire Technologies has proved to be highly advantageous. Every call we process is a possible life-and-death situation, and Squire Technologies understand that. So, they put in the effort to ensure our network remains operational. Their tools also make troubleshooting easy. Being able to search CDRs, and conduct packet captures, makes maintenance and upgrades a breeze."

Jim Doty, Senior Switch Engineer at INdigital

Pivotel

AUSTRALIA

Pivotel's critical communications solutions get a Sigla boost from Squire Technologies

Sometimes, getting a mobile signal is difficult, despite what mobile network operators (MNOs) might claim about their coverage. Signal dead zones are a serious risk when you need to communicate urgently.

It is a particular problem for people in Australia, where only about 34% of the country's landmass has mobile coverage, including many popular travel destinations. Natural disasters in Australia are seasonal occurrences and can be life-threatening, particularly for those living in rural and remote communities.

Similarly, people at sea must be able to contact the mainland in an emergency. Thankfully, companies like Pivotel provide solutions to these problems. Pivotel deploys leading critical communications products and services designed to enhance the lives of people and communities in hard-to-reach areas.

The Australian government's 2022 Regional Strengths and Infrastructure Gaps report highlighted mobile and broadband connectivity as an enduring problem for communities, affecting their economic and social well-being. Remote communities suffer from exclusion due to minimal or absent telecommunications infrastructure, and the Covid-19 pandemic only emphasised the need for improved connectivity for these people.

Pivotel's head office is in Queensland, Australia, and the company utilises a unique blend of cellular and satellite technology to extend its coverage into dead zones, supporting rural communities, emergency services and maritime operators. Their focus on providing reliable and intuitive solutions in remote and critical environments has enabled them to support a variety of sectors, including agriculture, natural resource extraction, fisheries, defence, and more. However, arguably, their most important work is offering a means for people in isolated areas to stay connected.

Maintaining communications for remote areas is vital and saves lives.
Australia is famed for beautiful landscapes and delicious food and drinks, but it also has vast, inhospitable regions, and increasing incidences of natural disasters such as bushfires, flooding, drought, heatwaves, and severe storms. So, being able to call emergency services is crucial for those living in signal dead zones.

Recently, Pivotel appointed Squire Technologies to help them update an important part of their core network.
The project would support innovative network solutions for current and emerging network standards for multi-generation-based satellite and terrestrial connectivity, including voice, messaging, data and IoT applications.

Pivotel required a new platform from an established vendor to replace a legacy signal transfer point. The platform would require full backwards compatibility and support for new and emerging standards. Using their Sigla platform, Squire Technologies was able to meet Pivotel's needs, providing connectivity and routing between multiple network generations, supporting their long-term strategy.

Squire Technologies' Sigla platform unifies all mediation, routing and interworking, security, and measurement between multi-generation networks. The solution reduces network complexity and operating costs as it helps operators to avoid costly network overhauls.

Signal dead zones are a persistent issue in many countries. As MNOs are compelled to deploy standalone 5G (SA5G) in urban areas, those dead zones are unlikely to get coverage anytime soon. So, companies like Pivotel provide an essential service keeping people in remote areas connected.

"We were very happy with both the speed and level of support from the team at Squire Technologies. They immediately understood the importance of our service for various sectors and individuals. The versatility of their Sigla platform is outstanding and has given us the flexibility to operate our multiple networks with ease. Their Sigla Platform will enable Pivotel to supply cost-effective and best-in-class, mission-critical connectivity solutions for our diverse customer base going into the future."

Michael Keaney, Chief Technology Officer at Pivotel Group

Africell

SIERRA LEONE

Providing next generation solutions for Africell in Sierra Leone

For years, telecommunication has provided better access to healthcare, education, and the jobs market and aided economic, social, and cultural developments. However, for many nations, these benefits are hampered by inadequate network infrastructures and poor access to mobile technologies.

In Sierra Leone, access to formal education is a problem. Along with many socio-cultural obstacles like attitudes towards the value of formal education, gender discrimination, and early marriages, 57% of the population live in rural locations, making it difficult to travel to schools, which can also be unsafe learning environments.

As a result, few children complete their schooling, and other educational opportunities for non-school-age individuals are rare, impeding financial gains for millions of people. So, mobile devices and affordable data are an issue when providing access to education in Sierra Leone, particularly for rural communities.

Africell, Africa's leading mobile operator and the largest provider in Sierra Leone, aims to create social development and economic prosperity for people in countries in which it operates. Last year, they took a big step towards delivering this, piloting an SMS-led educational tool in Sierra Leone, capable of providing quality teaching and instant feedback to millions of children. However, with only an 11% spectrum allocation for mobile networks in the country, mobile network operators need highly efficient networks.

To improve their offer, Africell appointed NetEngage and Squire Technologies to enhance their network. Previously, the two companies worked together on a successful project to deliver advanced real-time billing for Africell in The Gambia and were happy to partner once more for this project in Sierra Leone.

NetEngage's online charging system (OCS) platform provides up-to-date rating and charging functionality, catering to next-generation network Voice, Video, SMS and Data needs. Squire Technologies' Sigla platform was vital in integrating Africell's multi-generation network with its Interworking Function (IWF).

The advanced OCS platform offers robust real-time rating and charging services while still being able to communicate with Africell's existing core network. In addition to allowing the operator to extend its offer to new customers, Africell will save significant infrastructure costs by updating its network instead of overhauling it.

Squire Technologies' highly flexible Sigla platform uses its IWF to enable integration of leading-edge OSS/BSS network components into next-generation and legacy networks. Traversing the hybrid mix of networks, it translates and converts between multiple standards and protocols.

"We are delighted that our ongoing partnership with Squire Technologies is continuing to yield positive results for us, our customers, and communities in Africa."

Hymie Marnewick, Chief Executive Officer at NetEngage

A2P SMS strategies - what should I watch out for?

Solid A2P SMS strategies are pivotal for capitalising on A2P market opportunities. Trustworthy partnerships are an essential part of those strategies. Otherwise, you can fall victim to grey route scammers or cyber criminals and lose revenue.

The volume of application-to-person (A2P) SMS business traffic is rocketing. According to Juniper Research, A2P SMS traffic will reach 3.5 trillion messages in 2023, and some experts project that A2P SMS global revenue will hit $ 77.76 billion by 2027.

The industry has been growing for years, but the technology found its calling during the 2020 pandemic. Thanks to its simplicity, ubiquity across devices, and cost-effectiveness, governments worldwide chose it as a trusted means of communicating with citizens about COVID-19.

More businesses are recognising the value of SMS as a revenue generator thanks to its reliability, speed, reach and significantly higher open rates than emails or messaging apps like WhatsApp, Viber, or WeChat. Understandably, businesses are embracing A2P SMS as an effective B2C communications channel.

However, where there is money to make, immoral people will try and take advantage. Here are a couple of things to look out for.

Grey route scammers

Grey route scams typically involve a nefarious partner routing A2P traffic through cheaper routes. It can happen by sending your A2P traffic via cheap prepaid P2P (person-to-person) sim cards, masking A2P traffic as P2P traffic, or charging an international A2P rate while using a cheaper national A2P route.

Filtering A2P SMS traffic is another fraudulent method of overcharging. It happens when a partner only delivers critical communications like one-time passwords and generates fake message-delivered reports for the undelivered messages but still charges for them.

Even the intentional use of grey route operators is ill-advised and can damage brand reputations and impact revenue. Grey routes are unreliable, and your SMS campaigns can experience dodgy deliveries or manipulated content and sending addresses. Networks could also register your SMS messages as spam and block them.

SMS cyber criminals

Text messages are a vital tool for many businesses. Two-factor authentication codes, order delivery information, or suspicious account activity notifications are some sensitive types of SMS messages subscribers might receive. Using SMS for these reasons has made SMS security highly important for A2P SMS.

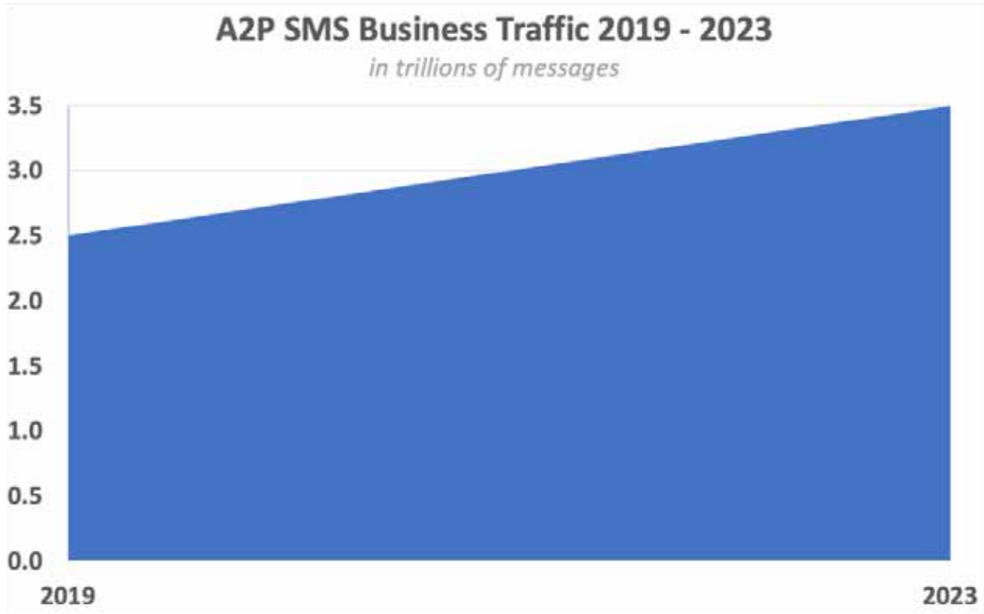
A significant security advantage of SMS over messaging apps is that SMS is more direct. While you and your immediate partners' security might be of the highest standard, it's hard to account for the security of all the actors in a supply network. Messaging app communications have more stakeholders than SMS, increasing the opportunities for cybercriminals to strike. By keeping the number of stakeholders low, it's easier to safeguard systems.

What to look for in a partner

Criminals always seek new ways to infiltrate systems and exploit vulnerabilities as new technologies emerge. So, working with trusted partners is the best option when planning your SMS strategy.

One of the first signs of a grey route scammer is the price. If you find an A2P SMS solution at a low cost, you may well be dealing with a grey route scammer.

Security is another important factor. Some key security features to look for with an SMS platform provider are transparency, compliance with regulations, and direct routing without grey routes. Additional platform security tools might include two-factor authentication, deny and allow listing, SMS content filtering, and fraud prevention features.



GMS

SWITZERLAND

GMS and Squire Technologies partnership dominates messaging market

The global A2P SMS market is on fire, and with the help of Squire Technologies, Global Message Services (GMS) is cleaning up. Advances with AI combined with 5G rollouts are opening opportunities across the telecoms industry that can be leveraged through strong, technology based, partnership working.

Application-to-person (A2P) SMS messaging has experienced consistent growth as a business-to-consumer communications tool, and expectations are that it will continue to flourish. Analysis from Statista predicts that global A2P SMS revenue will increase by 47% between 2023 and 2027, having already increased by 26% between 2020 and 2022.

The ubiquity of SMS across all mobile phones makes it the text facility with the broadest reach, and companies worldwide are utilising it for anything from sales promotions to two-factor authentication. Expectations are that A2P SMS volumes will increase from their 2022 level of 2.8 trillion to 8.7 trillion by 2030, and those who act soonest are likely to capitalise the most.

A2P SMS utility is also diversifying. As businesses seek to optimise customer interactions, A2P SMS will further integrate into customer relationship management, email, and social media platforms. So, companies will leverage information from these platforms and reach more customers with enhanced communications.

Customer experiences will improve as A2P SMS further fuses with IoT devices like smart watches or connected vehicles. Businesses will increasingly be able to keep people informed even when they are away from their phones or unable to access them. Effective partnership working will be critical for this meshing of technologies.

One such partnership is between GMS and Squire Technologies. GMS first approached Squire Technologies in 2016, and it was immediately evident that the two businesses would work well together. Each team is technology-driven with a desire to deliver high-quality solutions.

GMS has long held a reputation as a messaging industry leader. It was founded by a team of telecoms experts in 2006, becoming Ukraine's first SMS services provider. Initially, they focused on person-to-person (P2P) messaging for Commonwealth states. However, they soon realised the opportunities of A2P messaging and boosted their international presence.

Through their experience and direct connections with mobile network operators (MNOs), the company advanced their ambition to create meaningful B2C interactions. This goal has underpinned their enormous achievements, becoming one of the largest global SMS aggregators.

Squire Technologies' Sigla Platform is a core feature of the GMS system.

The signalling expertise of the team at Squire Technologies has ensured direct and safe routing, interworking, and security for traffic on the GMS system. Reliability and ongoing support for GMS are central components of the partnership.

Despite its success, GMS has not sat back. As technology has evolved, so has the company. In early 2023, GMS launched an AI chatbot for enterprise. The solution aims to enhance cost efficiencies and improve customer experiences and engagement through messaging.

Again, in 2023, GMS won several honours from the market research business, ROCCO. The comms provider topped the leaderboards in the A2P SMS, SMS Firewall and Communications Platform as a Service (CPaaS). ROCCO, the independent telecom research business, ranked them as a Tier 1 vendor in all three reports and commended them for their service quality, expertise, and reliability.

"Squire Technologies is an innovative, future-focused company with flexible solutions and we're glad to have such a great partnership with them. Together, we'll deliver a best-in-class service for many years to come."

Olexandr Vashchenko, Senior Engineer for Operation & Maintenance at GMS

Future proofing critical transport communications

Critical Transport Communications (CTC) are often taken for granted until they fail. When boarding a plane or train or starting your car, you don't think about the communications technology linking you to emergency services. You just want to get to your destination quickly and safely.

However, governments and businesses constantly worry about CTC failures, weighing risks against costly system overhauls. Unfortunately, the longer a necessary upgrade is avoided, the higher the risk of a life-threatening event.

In January 2023, in the USA, a disaster was averted when the FAA grounded all flights after discovering corrupted files on its Notice to Air Missions (NOTAM) system and the backup system. The outdated NOTAM system, in place since 1947, transmits vital information to pilots about weather hazards, infrastructure, and ground conditions. The corrupted files put 5,000 flights at risk, and the grounding cost the country millions of dollars. The incident has also drawn a sharp focus on CTC systems. Tech innovations, new regulations, and shifts in societal expectations can rapidly place systems into a legacy state, which can be fatal when things go wrong. So, those involved in CTC must constantly ensure that systems are fit for purpose.

In Europe, high-speed trains and connected cars have both been affected by changes to communications networks and new technologies that have undermined CTC systems. A problem up ahead on a railway track can become a catastrophe in seconds with a high-speed train travelling at 500km/h (310 mph). Train drivers need clear and immediate communication connections for safety updates. Similarly, outdated eCall systems risk lives if poor connectivity issues delay emergency service calls.

Despite these concerns, businesses should not panic. CTC upgrades are becoming easier and less costly. Squire Technologies has been improving CTC systems around the world, providing cost-effective, future-proof solutions that make infrastructure overhauls unnecessary.

For example, the next generation eCall (NG-eCall) offer of a major European fleet management software company is safe thanks to Squire Technologies' multi-generation network solutions. The upgrade enables their NG-eCalls to work across the various network generations, improving emergency service response times and increasing the data quality cars transmit to emergency services. It also means that cars with the feature will adhere to the latest European eCall standards.

When Deutsche Telekom moved to an IMS network, Europe's largest high-speed railway operator adapted, using Squire Technologies' Sigla platform. Deploying the platform enabled their private network to connect with Deutsche Telekom's IMS, meaning vital safety information from across the railway network could be transmitted to drivers quickly, clearly, and effectively. Altering their existing system saved the railway operator from a costly CTC overhaul, and the railway's communications system will continue to work with any mobile operators that upgrade their networks to 5G and beyond.

Aviation is another area where Squire Technologies has had an impact on CTC. A partnership between Squire Technologies and Calian, Advanced Technologies has delivered a world-leading aviation communications solution. The solution supports a global satellite service that allows flight crews and passengers to communicate with terrestrial networks, including transmitting data, voice, and mission-critical safety services from air traffic control. This mission-critical function helps keep our skies safe.

Businesses need to recognise that solutions are available that may make costly overhauls obsolete. When a third party updates its systems, it no longer means that an entire CTC system is subsequently made redundant.

Africell

THE GAMBIA

Supporting societal development in The Gambia with Africell

Africell, with the aid of Squire Technologies, is helping to enrich the lives of Gambians following decades of political unrest and widespread poverty. The new government, which came into power in 2017, ousting the previous ruler, wants to make positive changes. Telecommunications are fundamental to those changes and the government's National Development Plan.

Since The Gambia began its information communication and technology (ICT) journey in 2002, a knot of issues has hindered its telecoms market development. Financial and infrastructure problems with the state-run operator and other mobile network operators (MNOs) have resulted in the US International Trade Administration describing The Gambia's telecommunications infrastructure as operatively expensive, with slow service and frequent maintenance associated black outs.

High operating costs limit the ability of MNOs to invest in infrastructure, causing network congestion, insufficient coverage, particularly for rural areas, and high prices for customers. As a result, there is a slow uptake of digital services, such as digital financial services and online learning, which are essential for Gambian's economic and social development. However, despite these obstacles, Africell has shone through, continually enhancing its service and maintaining its place as the country's most popular MNO. The company seeks to make a difference for citizens and is The Gambia's biggest Corporate Social Responsibility provider. Its recent activities include sponsoring the building of sports facilities, support for the health sector, and partnerships with education providers to make learning more accessible.

The company continually boosts its network. In 2018, Africell began deploying 4G/LTE, covering the country with 150mbit/s download and upload speeds, and the following year enhanced its 4G offer. By introducing 4G+ and doubling its download speeds to 300mbit/s, it made its network five times faster than the networks of national competitors.

While competitors seek to introduce services that many citizens cannot afford and do not need, Africell focuses on improving services for as many people as possible. To do this, the MNO has again engaged Squire Technologies and NetEngage. The partnership delivers fantastic results for customers throughout Africa, and the two companies are delighted to work on another project for Africell.

The project in The Gambia uses Squire Technologies' Interworking Function (IWF), part of its Sigla platform, to seamlessly converge Africell's multigeneration network with NetEngage's online charging system (OCS). In so doing, Africell can provide improved offers to customers across their entire multi-generation network, avoiding huge network overhaul costs.

Over half of the population of The Gambia lives in poverty, and many citizens lack formal education or the means to improve their lives. The combination of the IWF and OCS will help create affordable telecommunications offers for Gambians, giving more people access to online education and digital financial services. These socio-economic changes are critical for the government's plan to boost the private sector, reduce poverty and achieve middle income economy status, removing the country from the UN's Least Developed Countries list.

NetEngage's OCS provides up-to-date rating and charging functionality, catering to next-generation network Voice, Video, SMS, and Data needs. The advanced platform offers robust real-time rating and charging services while still being able to communicate with Africell's existing core network.

Squire Technologies' highly flexible Sigla platform uses its IWF to enable integration of leading-edge OSS/BSS network components into next-generation and legacy networks. Traversing the hybrid mix of networks, it translates and converts between multiple standards and protocols. The backwards and forwards compatibility of the IWF establishes a long-term, flexible network structure for future system integrations.

"This fantastic project in The Gambia is another example of how our strong and ongoing partnership with Squire Technologies improves lives in Africa".

Hymie Marnewick, Chief Executive Officer at NetEngage

The rise of diverse mobile networks

Mobile networks will become increasingly complicated as operators invest in standalone 5G (SA5G), despite switching off 2G and 3G. Without signalling interworking between 4G and various 5G types, network management will be challenging, and consumers will experience poor connections, jeopardising profits.

In GSMA's Network Slicing Use Cases Requirements report, experts state: "… the requirements of verticals are many and diverse, and operators would need to manage a high level of risk in the complexity of their service offering and cumbersome management, driving up costs."

MNOs (Mobile Network Operators) have numerous obstacles to overcome. Non-standalone 5G (NSA5G) bolted on to 4G LTE, convoluted SA5G deployment strategies, and SA5G diversification opportunities will create hugely varied networks, complicating management. However, there are reasons to be optimistic. While many are lauding the role SA5G will play in businesses, these network changes might also radically alter how subscribers perceive mobile technology. It could shake up the entire industry, felling giants, creating new sectors and leaders, and ending the great, decades-long commoditisation of the mobile market.

The end of the mobile industry's race to the bottom

MNOs have been in a bloody fight for a long time according to Strategy& from PWC, resulting in a race to the bottom and years of thinning profit margins. Their report and those of MTN Consulting and Ofcom show how the market has been commoditised and focused on cost-cutting and price differentiation as subscribers increasingly get more data for less money.

However, things may change as SA5G offers more paths for differentiation strategies. For the first time in years, MNOs and mobile virtual network operators and enablers (MVNO/Es) could move away from low-cost strategies, sparking a de-commoditisation of the market of ubiquitous contracts and bundles.

Why will networks be more convoluted?

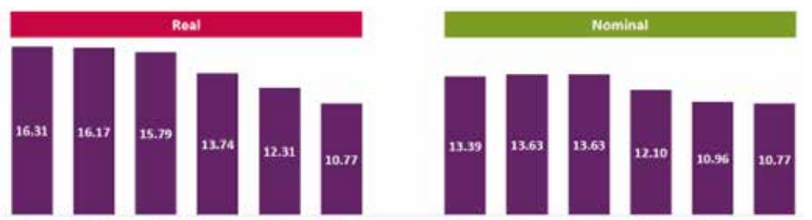
To afford rollouts, MNOs will probably adopt typical deployment strategies that focus on high-consumer areas first, like cities. Doing so will likely create an SA5G patchwork, where subscribers lose their SA5G benefits as soon as they leave an area of coverage. It has been a similar situation with 4G. Still, it is possible to cover large areas with SA5G. GSMA's guide to 5G spectrum shows how MNOs can opt for different types of 5G that sacrifice network speeds for more coverage. While mmWave 5G has the least coverage and difficulty penetrating concrete, it offers ultra-reliable low latency connections and massive Internet of Things device capabilities. Transport hubs, stadiums, and other high-population areas will benefit from mmWave 5G, and it could spur a wave of innovations and job creation as phones turn into revenue-generating devices.

Forbes has documented an explosion of content creators and influencers, and SA5G will make this an attractive path for anyone with a mobile phone. To this end, operators that want to differentiate should stop viewing subscribers as end users and start looking at them as budding entrepreneurs. Similarly, the diversification of networks sets the stage for an upswing in new Mobile Virtual Network Operators. MVNO Nation reveals how niche market opportunities are emerging for radical MVNOs to exploit. However, the array of new uses will create a granular network of spectrum layers and slices, transferring ever-larger amounts of data and creating disorder for network management.

How will network management change?

Network slicing will be central for competitive business strategies that seek to use the versatility of SA5G. Slices of networks tailored for hospitals, schools, content creators, connected cars, or the private networks of individual businesses will offer a multitude of revenue paths for MNOs, and create masses of network connections to manage. According to recent insights from Qualcomm, the chip maker, coverage, and connectivity are the top concerns of mobile subscribers. So, an unreliable network could damage brand perceptions and revenues. If MNOs want to keep consumers happy, they must optimise their networks.

As 4G didn't replace 2G and 3G, 5G will not replace 4G. Therefore, multi-generation and multi-band networks and spectrum slices must integrate and work seamlessly to deliver the experience consumers and businesses expect. In this regard, there are opportunities to improve efficiency and reduce costs while upgrading to SA5G. Using existing infrastructure, similarly to how NSA5G uses 4G LTE infrastructure, operators can reduce SA5G rollout costs. By utilising signalling interworking between 4G and 5G networks, as provided by Squire Technologies' Sigla platform, operators can save money and provide reliable coverage and connectivity to customers.



Average monthly use	2016	2017	2018	2019	2020	2022 (£)	2 year Δ	5 year Δ
Data (GB)	1.2	1.6	2.2	2.9	3.9	6.0	52%	266%
Minutes	159	162	170	168	198	177	-11%	9%
SMS	96	83	78	68	51	40	-22%	-52%

Source: Ofcom / Teligen, Strategy Analytics.

Awasr

OMAN

Awasr selects Squire Technologies to implement International Gateway system

Squire Technologies is happy to announce a new partnership with Awasr, a specialized high-speed broadband internet service and voice provider catering to corporations and individuals in Oman. The partnership will update Awasr's systems to the International Gateway (IGW) standard.

In recent years, the Sultanate of Oman has experienced big developments in its information and communications technology status. In December 2023, the country ranked 34 globally for mobile internet speed and 81 for fixed broadband. The high rank may be due to increasing competition between Internet Service Providers (ISP), and the National Broadband Strategy, part of Oman's long-term Vision 2040 plan.

The Vision 2040 plan seeks to improve the ICT infrastructure, e-government services, and the nation's technical capabilities.

Awasr, a leading ISP in Oman, has made it a goal to enable Omanis to connect quickly to the information that will improve their lives. Recently, Oman's Telecommunications Regulatory Authority granted the business an IGW license, transforming Awasr's operations.

The IGW license enables Awasr to send and receive international traffic directly, facilitated by Squire Technologies' proven carrier-grade Sigla platform. The project will simplify Awasr's systems, improving connectivity and security for the ISP, and enable them to cut out third-party telecoms operators.

"To benefit from the International Gateway license, we needed a solution to support incoming and outgoing voice traffic, and we found the perfect solution with Squire Technologies' Sigla platform. It is wonderful to be working with this industry-leading company."

Saleh Al Khaldi, IGW Consultant at Awasr

"Awasr's International Gateway license will improve connectivity for citizens across Oman, and we're thrilled to be working with them on this project."

Srikanth Rajarao, Sales Manager at Squire Technologies

iMobility

SOUTH AFRICA

iMobility and Squire Technologies spearhead South Africa's 5G surge

With the help of Squire Technologies' agile 5G IWF (Interworking Function), iMobility is ready to upend South Africa's (SA) telecoms market with new 5G wholesale service offers. The project paves the way for fresh mobile virtual network operator (MVNO) entrants as the country embraces a 5G future.

In recent years, the deployment of fixed wireless 5G by several mobile network operators (MNOs) has set the stage for telecoms market diversification. Private networks, edge and cloud services, and software-defined infrastructure services are some 5G opportunities emerging MVNOs can use to make a market impact.

To better understand the transformation that the South African telecoms market is experiencing, we spoke to data network expert Nazeer Adam, founder of iMobility.

How is the South African telecoms market embracing 5G, and how does iMobility's strategy fit into the picture?

"Initially, 5G benefits and revenue will come from manufacturing and the business sector, using services like private networks and network slicing. You can see the telecoms industry heading this way, and we're glad to be spearheading the movement in SA.

"Recently, as the 5G race speeds up, more operators are investing in 5G services. Similarly, we've partnered exclusively with Mthinte Communications which has a spectrum sharing agreement with RAIN for 5G services. Mthinte is one of the few operators granted 5G spectrum by the regulator. So, we're thrilled to have an exclusive go-to-market partnership with them to do sales, technical and marketing. It gives us access to RAIN's RAN network with our own PLMN and business-led network, enabling us to compete against the MNO's.

"Contact centre solutions remain a core area for us, but the data space is where we see the potential for exponential growth. I ran data networks long before forming iMobility, so it's a bit of a coming home for me, and we're excited about what we can do in this sphere.

"Initially, we're focusing on data packages. However, as 5G IoT and bot technology develop, we'll also seek to introduce products in those areas."

Like many African countries, South Africa faces many challenges, such as high rates of poverty, rolling power outages, and unreliable infrastructure. How does this new iMobility product contribute to solutions for these problems?

"There isn't a lot anyone can do about rolling power outages. We have contingency plans to counteract them, but just about everyone is affected. However, regarding infrastructure and poverty we're seeking to make a difference.

"Poverty is the biggest issue, and unemployment is a major contributing factor. SA is one of the most unequal countries in the world, and an unfavourable business climate is hampering economic growth and job creation. Distributing 5G data packages will enable businesses to transform their operations through enhanced connectivity, stimulating job creation. It's an alternative to expensive, cumbersome fibre connections with sporadic coverage that take ages to deploy.

"The coming 5G industrial boom could reduce poverty by degrees, but only if businesses are ready to take advantage of the opportunities. Right now, they aren't. So, we're focusing on helping with digital transformations through our 5G network. "We're not going to solve poverty and the infrastructure problem in one go, but we're doing our part."

How do iMobility's 5G data packages support businesses?

"Mostly, data packages across the telecoms market are for individual subscribers, and there's not much catering for small and medium-sized enterprises (SMEs). There are numerous ways to sell our 5G data offers, and it's up to our Partners how they want to do it, but we want to deliver a better service for SMEs. Through a more reliable service enabling high throughputs for real time applications, we hope to boost the development of SMEs in several sectors, such as education, blue light services, manufacturing and more.

"Despite the increased use of fibre across the country, the remaining gaps need the wireless connectivity of 5G. Delivery of our 5G data packages takes a fraction of the time it takes to deliver fibre connections. While customers are waiting for a ditch to be dug for fibre, hoping it will reach

them, our product is already good to go, stretching across 1,600 5G base stations in metro regions, and our coverage is increasing rapidly.

What steps have you had to take to get yourself into this position where you can offer 5G data packages so much sooner than other operators?

"The challenge is that many licensees are not 5G ready. Some don't support the 5G Charging Function (CHF) and Diameter protocols, meaning we needed to integrate our systems with those that are two generations old.

"Squire Technologies solved this problem with their innovative 5G IWF. The forward and backwards compatibility of the IWF allows us to connect our 5G CHF with multi-generation legacy systems using Diameter or Radius protocols. Thus, operators with older systems can benefit from 5G packages through our real-time billing facility and craft their own 5G offers for customers, whether capped, uncapped, or fair usage offers.

It sounds like the 5G SVI-IWF will enable iMobility to scale up rapidly, is that correct?

"Yes. Getting data out to customers rapidly is a strategic goal. Squire Technologies' 5G IWF gives us the agility we need as we can integrate with practically any licensee or partner.

What's in the future for iMobility?

"In the future, we hope to implement external, onsite CPUs that guarantee superior service quality. It will be like mounting an antenna outside your house or business, creating a far more stable and faster connection.

"Right now, we are pleased with Squire Technologies for delivering this leading 5G IWF. I have known the team at Squire Technologies for their excellent work on previous projects, and we were delighted that they could satisfy our unique technical requirements at a competitive price for this 5G project. I am sure our partnership will create a positive change for businesses and individuals in South Africa."

Nazeer Adam, Founder of IMobility

Squire Technologies at the forefront of combating digital crime

Squire Technologies have been involved in a ground-breaking project to investigate future methods of combating call spoofing. Researchers at the University of Warwick sought out the expertise of the Squire Technologies team to aid their investigations.

With our first-rate knowledge of STIR/SHAKEN and other types of fraud prevention, Squire Technologies was happy to contribute.

Scam calls and robocalls plague our society, and criminals are constantly creating new ways of committing crimes. Squire Technologies is proud to be at the forefront of efforts to combat digital crimes, working with partners to develop new solutions.

To download the academic paper, scan the QR code below:

Vodafone

FRENCH POLYNESIA

Vodafone and Squire Technologies' roaming partnership excels in South Pacific

For over a decade, Vodafone French Polynesia (FP) and Squire Technologies have connected visitors and citizens of French Polynesia with the rest of the world. The remote South Pacific paradise is a bucket list destination for many travellers, and thanks to outstanding roaming services, its beauty is shared worldwide every day.

Today, instant commentary on experiences is crucial for travellers and could be pivotal to French Polynesia's post-Covid-19 tourism industry. Vodafone FP supports the tourist industry using a flexible international roaming solution and a reliable mobile infrastructure. Doing so allows island visitors to share their heavenly experience with the rest of the world.

The partnership between Vodafone FP and Squire Technologies came about in 2013. The newly launched Vodafone FP discovered an interconnect issue with an onward carrier and needed a quick solution with future functionality and compatibility.

Mobile networks are all unique mixes of signal transfer points (STPs), controllers, routing agents, and gateways, often creating headaches during network upgrades. Delays happen when big vendors like Hauwei, Nokia or Ericsson try to deploy their standardised products into these convoluted core networks. Similarly, problems can emerge when deploying new features into these standardised big vendor products and can lead to lock-in for mobile network operators (MNOs).

A big vendor supplied the previous roaming solution in Vodafone FP's network. It lacked flexibility and limited the potential for international roaming and Vodafone FP's ability to adapt to market changes.

Squire Technologies is a focused vendor that specialises in signalling solutions. While big vendors offer a variety of standardised products that take ages to deploy, Squire Technologies can deploy agile solutions in a fraction of the time.

To solve Vodafone FP's problem, Squire Technologies supplied an agile, scalable gateway with complex routing and high availability. The gateway solved the interconnect issue with Vodafone FP's onward carrier and opened the path to more options for the MNO. In 2014, Squire Technologies upgraded the gateway to a full STP, capable of SS7 to 4G LTE and IMS network interworking. It enables multi-network connectivity and routing and optimised Vodafone FP's core network, making it future-ready.

The project's success led the MNO to re-engage Squire Technologies in 2017, adding a Diameter Signalling Controller (DSC) with a Diameter Routing Agent (DRA) and a Diameter Edge Agent (DEA). The DSC maximises LTE and VoLTE coverage for customers, while the DRA reduces network complexity, and the DEA provides secure authentication, authorisation, and subscriber policy exchange.

Visitors now experience enhanced coverage for all but the most remote of the 121 islands of French Polynesia. The new Government of French Polynesia wants to boost tourism, and effective mobile roaming will be essential to its plans.

While Bora Bora has capped tourist numbers to limit ecological impacts of super cruise liners, the government aims to nearly triple annual tourists from 219,000 visitors in 2022 to 600,000 by 2033. That is a lot of extra mobile phone connections. Thankfully, Vodafone FP can manage the increased traffic thanks to flexibility and forward and backwards facing capabilities of the Sigla platform's functions.

vodafone Polynésie

It was refreshing to work with a team that were able to rapidly assimilate our requirements and advise on a deployment program that solved our immediate and longer term requirements."

Paul Desvignes, Mobile Core Network Manager at Vodafone French Polynesia

Telesur

SURINAME

Telesur takes a digital leap as Squire Technologies' interworking solution goes live in Suriname

Suriname has embraced a bright, digital future as Squire Technologies' Interworking Function (IWF) goes live at Telesur. A growing urban population adopting new mobile technologies has helped to shape this digital transformation.

Many Surinamese have multiple mobile phone contracts, evident in GSMA's Mobile Connectivity Index, which shows a 176% mobile connection rate. The high percentage contrasts with only 29% of spectrum allocation for mobile network operators (MNOs). However, Telesur has done a lot with that spectrum, running 2G, 3G, 4G and 5G networks, and they continue to innovate. Since 2014, the country has experienced huge improvements in reducing mobile network latency and increasing coverage. In 2020, GSMA scored Suriname 85% for mobile latency and 93% for network coverage.

Recently, Telesur took steps to make further upgrades to its core network, introducing a new Business Support System/Operational Support System (BSS/OSS). The BSS/OSS, part of their e-Suriname strategy, creates an e-services platform for customers, allowing Telesur to bring new offers to market quicker. The development will also support the population's increasing demand for digital technologies. However, multi-generation networks can make it hard to integrate new systems.

To help, Squire Technologies implemented its state-of-the-art IWF, part of the Sigla Platform, which seamlessly integrates the BSS/OSS with the multiple generations of Telesur's network infrastructure. The IWF provides forward and backward compatibility as signalling traverses multiple networks, with comprehensive protocol support for 5G Nchf/HTTP2 protocols, 4G/LTE Diameter, legacy 3G CAMEL, and more. It also provides resilience through redundancy, load sharing and balancing via sophisticated on-board routing.

Squire Technologies' efficient deployment of its IWF has enabled the MNO to progress with its digital engagement plans and improved its strategic position. Telesur can now transform its mobile services to a greater degree and enrich customer experiences. In particular, customers can take advantage of self-service options across all of Telesur's network generations. At the same time, Telesur can easily create new offers using their BSS/OSS and deliver them to their customers in record time.

"The impressive performance of Squire Technologies' Sigla Platform has provided the perfect support for our ongoing digital transformation. It was a unique project, with multiple stakeholders, and their team was impeccable, acting professionally and achieving a seamless deployment."

Mike Antonius, Chief Executive Officer at Telesur

SETAR

ARUBA

Aruba gets a network upgrade with a Signalling Platform from Squire Technologies

Remote working just got a bit sunnier. Aruba's leading technology, media, and telecoms provider is making it easier for locals and visitors to the island to have fast, secure, and reliable mobile connectivity. So, the remote working dream of listening to the ocean while you relax under a tropical sun and still meet your deadlines is becoming a reality.

On a resident-to-tourist ratio, the island is the world's fifth most popular travel destination. In the decade leading up to 2019, Aruba experienced a 36% growth in tourist numbers. The number of tourists increased from 10 per resident in 2010 to nearly 19 per resident in 2019. Travel disruption due to COVID-19 caused an inevitable drop in tourism in 2020, but since then, numbers have shot back up to 98% of what they were in 2019.

The increase in tourist numbers has raised mobile network traffic volumes, and the country's largest telecoms operator has had to adapt. Having the fastest fixed and mobile networks is central to the company's goal of boosting businesses and society on the island, and using the latest technology is essential for that goal.

Residents and visitors will receive superior island telecommunications thanks to a Signalling Infrastructure upgrade, moving from Time Division Multiplexing (TDM) legacy STPs to the full, IP-based Signalling Platform – Sigla. The legacy TDM method of breaking up data and transferring it sequentially over a dedicated line before reassembling it at the other end slows down connection speeds as data is sent one piece at a time. The IP methods of packet switching data transfer is faster and more reliable as data is sent all at once and reassembled all at once.

Squire Technologies teamed up with a Latin American partner to deliver the project, combining their knowledge of regional needs with Squire Technologies' flexible Signalling Platform.

The project has resulted in core network optimisation, providing faster, more reliable, and more secure connectivity for people across the island, even when mobile subscriber numbers increase.

Sigla is Squire Technologies' mature, proven, carrier-grade Signalling Platform and it is deployed in numerous Telecom Operator networks worldwide. It fully supports SS7 networks and next-generation SIGTRAN whilst offering future-proof integration with tomorrow's DIAMETER & HTTP/2 based 4G & 5G networks.

"Latin America's has adopted a mobile first attitude that will support the region's efforts to keep up with the technological advancements of more developed regions. We're delighted to be able to help by improving the network in Aruba, so the operator can deliver the best service to its customers, no matter where they are on the island."

Ben Teversham, Sales Manager at Squire Technologies

Awards

Squire Technologies achieves national recognition for its global impact within the telecommunications industry

The global success of Squire Technologies' products and services has been recognised by the UK Department for Business and Trade. Out of many competitive entries from across the UK, Squire Technologies was selected as one of just three businesses to be Highly Commended in the Digital category, in the first-ever Made In The UK, Sold To The World Awards.

'Made in the UK, Sold to the World' is an initiative launched by the government in 2021 to inspire economic growth through global trade. The campaign celebrates the international trading achievements of businesses that boost the UK through exports that support jobs, pay good wages, and drive economic growth.

The UK Department for Business and Trade's commendation of Squire Technologies is a testament to the achievements that the company has made since 2001, working with operators across the world to build and support today's amazing global telecommunications networks. Global exports and international collaboration are central to the company's business strategy. Key aspects in the deliberations of the judges were the nature of our global partner network and team distribution, and our products being trusted and used by customers in 150+ countries.

Due to the high quality of all the entries, the selection process was difficult for the expert panel of judges, and we are delighted that the excellence of Squire Technologies' products shone through.

The outcome of the competition reaffirms the quality of the products and services Squire Technologies gives to its customers and the impact that it has on people around the world. The specialist signaling technologies created by Squire Technologies enable billions of commercial and social communications to take place every day, helping people to stay connected and communicate effectively.

The telecoms space is continually evolving, and operators need bespoke solutions to overcome multi-generation network challenges. The knowledge we draw from our global network of partners and the expertise we've developed by solving unique problems for operators have enabled us to launch future-proof solutions like our Sigla platform and Mirus messaging platform.

Recognition

Global Data identifies Squire Technologies as a global force in 5G signalling

The international research and analysis company, Global Data, has identified Squire Technologies as a disruptive supplier in the 5G signalling landscape. Recognised as a company to watch in its independent report, 'In Focus: 5G Signaling', Squire Technologies is deemed to be a global force, challenging the status quo, and embracing innovation within the telecommunications industry.

The report stresses the need for signalling controls that enable forwards and backwards compatibility between 2G, 3G, 4G and 5G. The market analysis report, titled '5G Signalling', provides insights on what effect the emergence of standalone 5G (SA5G) will have on signalling providers and highlights how Squire Technologies is positioned to meet the demands of those future developments.

As more subscribers use more data, signalling providers will need to support HTTP/2 and the centralised signalling traffic of SA5G's service communication proxy to prevent network overloads. This complexity means that network operators require up-to-date signalling platforms if they want to improve network efficiency.

The report lists some essential criteria signalling providers must adopt to continue to compete. Providers will have to deliver multi-standard signalling control platforms that support unified control, enable low-latency communications through distributed deployment at the edge, and offer security functionality like firewalls and real-time analysis of network fraud, abuse and denial-of-service attacks.

Squire Technologies' products meet all these criteria and more. Sigla, the company's unified signalling platform, brings together routing, interworking, and mediation across multi-generation networks, along with security features, and versatile deployment options.

The continual evolution of telecoms technology means that network operators rely on the insights of trustworthy organisations like Global Data to prepare for the future. It's clear from the information provided by Global Data and other experts that SA5G will play an essential role in the coming industrial revolution.

So, if economies want to thrive in this new age, network operators must find ways to deliver the SA5G infrastructure while maintaining their existing networks. Though managing and maintaining a multi-generation network is complicated, the report shows how Squire Technologies' future-proof products and services are ideal for the upgrades operators need.

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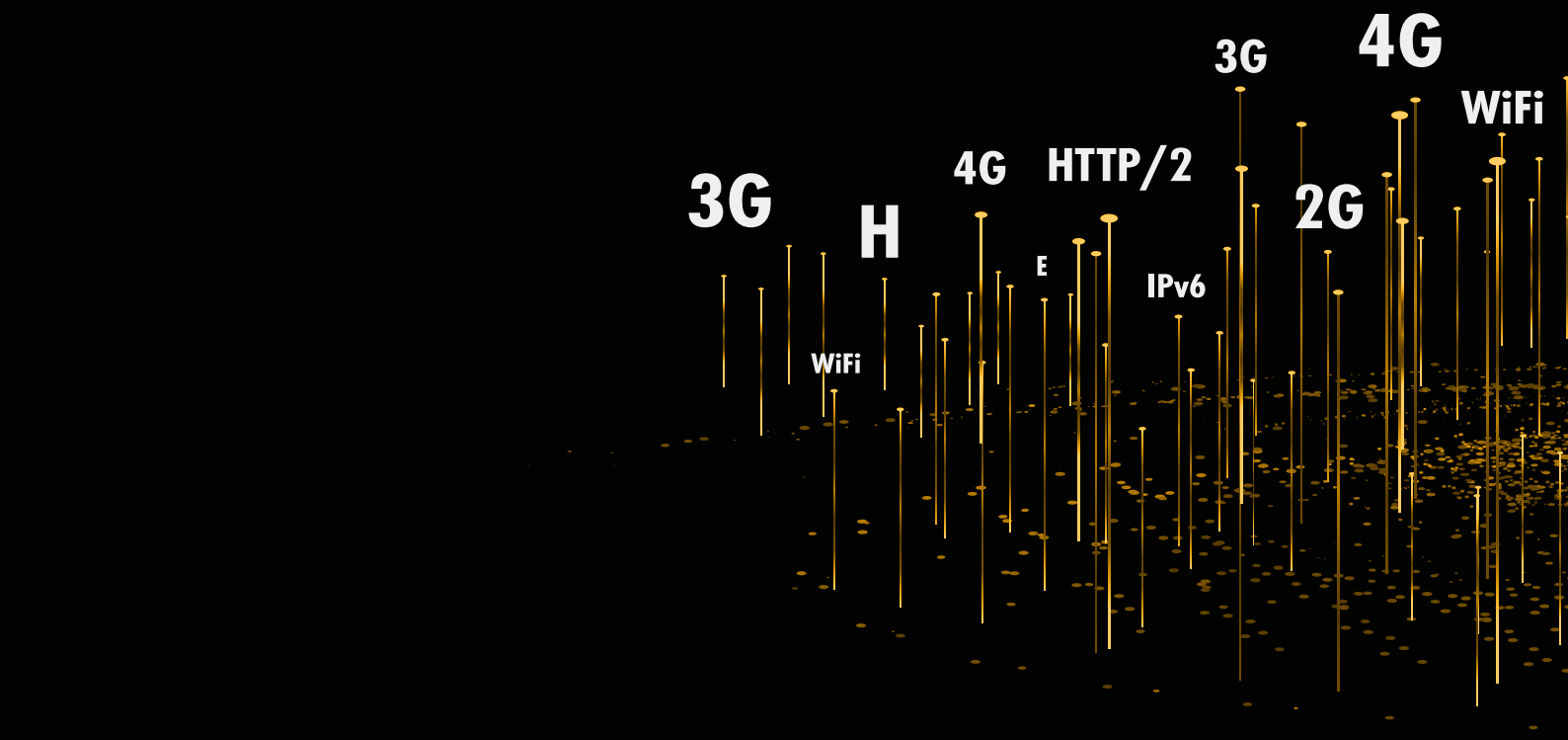

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