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SCF

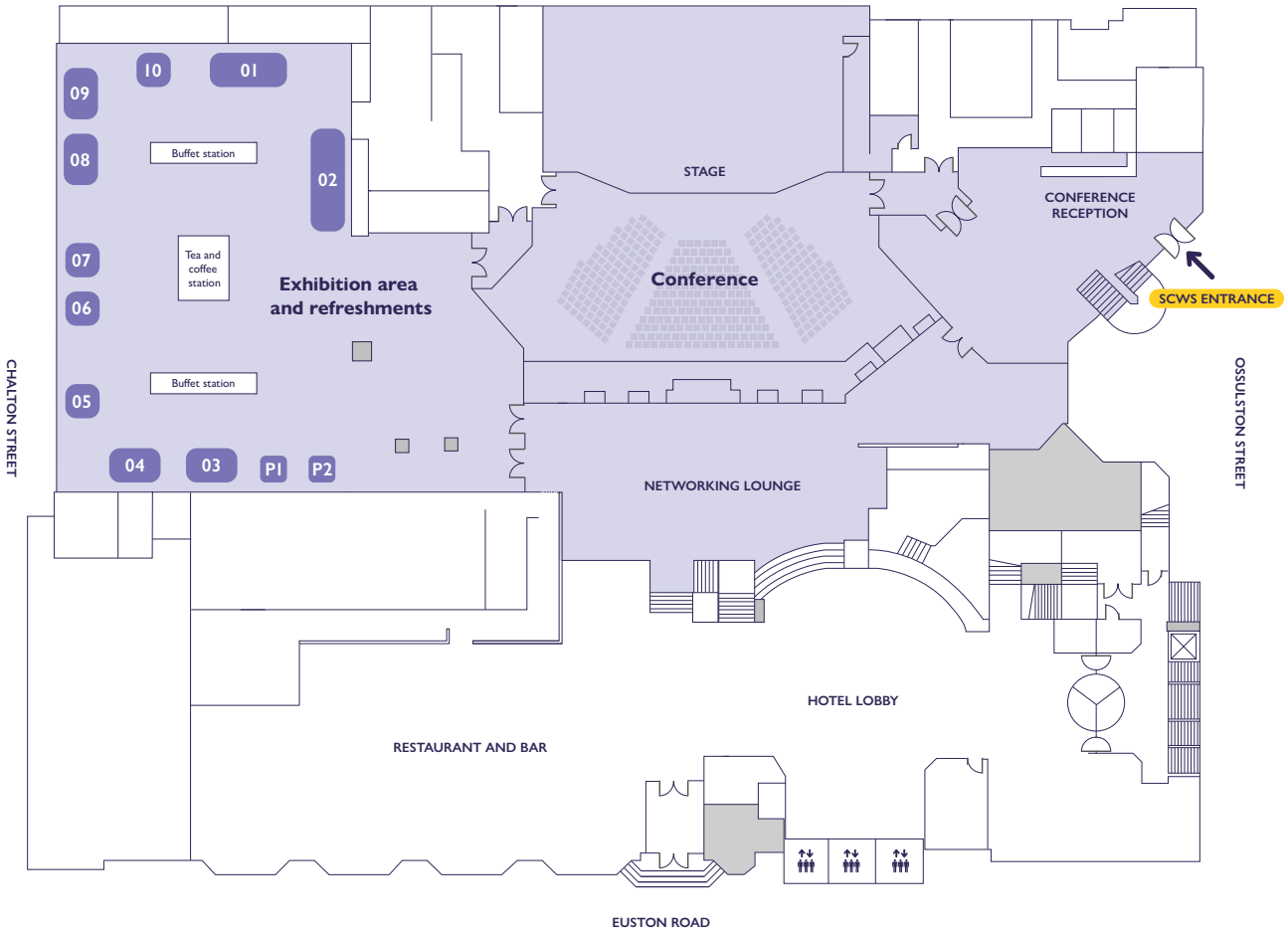
SMALLCELLS
WORLD SUMMIT
2026

Connectivity for people and places

2-3 JUNE 2026 LONDON

smallcells.world/agenda

Floorplan PULLMAN LONDON ST PANCRAS



Exhibitor booths

01 SCF

04 JOINER

07 CableFree Wireless Excellence

10 NETCS

02 ANDREW an Amphenol company

05 Ranplan WIRELESS

08 SOLiD

P1 streetwave

03 AIRSPAN

06 VERGEWAVE

09 CORNING | Adtran | openreach OSA Mobile

P2 ATAYA

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THANKS TO OUR EXHIBITORS, SPONSORS AND SUPPORTERS

Agenda at a glance

Our two-day agenda is based around seven main sessions. Each will explore different perspectives on a common theme, followed by a panel debate. The conference includes an invitation-only local authority briefing and a workshop in collaboration with the UK JOTS Forum.

Tuesday 2 June

09:00	WELCOME	**Introduction to the conference**	0h 15min
09:15	SESSION 1	**The expanding small cells ecosystem – an industry in growth**	1h 40min
10:25	PANEL	**Best-case or worst-case?** The critical decisions shaping small cell deployment through 2030	0h 30min
10:55	BREAK	**Coffee break and networking** SPONSORED BY Ontix	0h 20min
11:15	SESSION 2	**Connectivity blueprints for public places – from planning to reality**	1h 10min
11:55	PANEL	**Public-private partnerships:** Lessons from local authority deployment	0h 30min
12:25	LUNCH	**Lunch break and networking**	1h 00min
13:25	SESSION 3	**Next generation networks for venues – the new wave of connectivity for demand**	2h 05min
13:55	PANEL	**Digital infrastructure for smart venues and extended indoor/outdoor coverage**	0h 30min
15:00	PANEL	**The stadiums connectivity blueprint:** Lessons for large-scale wireless deployments	0h 30min
15:30	BREAK	**Coffee break and networking**	0h 20min
15:50	SESSION 4	**Open networks and sharing frameworks – are we nearly there?**	1h 35min
15:50	PANEL	**Cloud-native, AI-driven, multi-tenant:** The new blueprint for Open RAN neutral hosts at scale	0h 30min
16:40	PANEL	**The Open RAN and open source ecosystem discussion** with OpenAirInterface and SCF	0h 40min
17:25	RECEPTION	**SCWS networking and drinks reception**	0h 50min
18:15	AWARDS	**SCF Mobile Network Awards 2026** Ceremony and reception open to all SCWS delegates	1h 15min

IMPORTANT NOTE: **Agenda uses British Summer Time (BST) – GMT+1**

Wednesday 3 June

08:00	WORKSHOP	**Local authority connectivity:** Breakfast briefing INVITATION-ONLY	2h 00min
10:00	SESSION 5	**Future networks: sustainable, scalable, adaptable**	1h 20min
10:40	PANEL	**Emerging technologies for future networks:** AI RAN, NTN and 6G	0h 40min
11:20	BREAK	**Coffee break and networking**	0h 20min
11:40	SESSION 6	**Private and mission-critical networks**	1h 30min
12:00	PANEL	**Creating and maturing an industry de facto standard:** Lessons from FAPI	0h 40min
12:40	PANEL	**Public vs. private vs. hybrid?** Models for industry sector networks	0h 40min
13:20	LUNCH	**Lunch break and networking**	0h 50min
13:20	WORKSHOP	**Globalizing network sharing frameworks –** in collaboration with the UK JOTS Forum INVITATION-ONLY	1h 20min
14:40	SESSION 7	**Public and private networks – achieving reliable coverage through better policy and technology considerations**	1h 00min
15:00	PANEL	**Spectrum for indoor and outdoor small network deployments:** Influencing the global standards and regulatory ecosystem	0h 30min

Information correct at the time of going to press. Access the full agenda via the event app, or scan the QR code to view the website

ANDREW
an Amphenol company

Stadiums and Beyond: Why In-Building Wireless Is Going All-Digital

At ANDREW, an Amphenol company, we're seeing a clear inflection point in how in-building wireless networks are designed. This isn't about incremental improvement—it's a fundamental architectural shift.

As 5G matures and we look ahead to 6G, the limitations of traditional indoor systems are becoming harder to ignore. For those of us focused on delivering scalable, future-ready connectivity, the direction is clear: networks must become more open, more software-driven, and fully digital.

"Stadiums offer a powerful lens into this transformation."

These venues bring together the most demanding requirements in one place—tens of thousands of users, multiple operators, diverse spectrum, and highly dynamic traffic. Fans expect seamless, real-time experiences, from streaming and mobile engagement to new services like in-seat ordering and betting. Performance isn't optional.

What's important is that these conditions are no longer unique to stadiums. We now see similar demands emerging across airports, transit systems, campuses, and large enterprises. In many ways, stadiums are simply ahead of the curve.

That's where traditional DAS begins to fall short. Built on analog RF distribution, these systems introduce layers of complexity—multiple hardware components, rigid capacity models, and limited visibility into network performance.

They've served the industry well, but they weren't designed for the level of flexibility and intelligence now required.

The shift we're driving is toward all-digital DAS. By replacing analog with end-to-end digital signal transport and integrating directly with the RAN through standards like CPRI and O-RAN, we unlock a more agile and scalable architecture. Networks become easier to manage, simpler to evolve, and far more adaptable to changing demand.

This also lays the groundwork for AI-driven RAN. With continuous telemetry and real-time control, operators can move toward closed-loop optimization—dynamically adjusting capacity, improving efficiency, and reducing energy consumption.

Just as importantly, it changes the economics of neutral host. Onboarding operators through software instead of hardware reduces complexity and enables more flexible, demand-driven resource allocation.

We're already seeing these benefits proven at stadium scale. The opportunity now is to extend them across every environment where reliable, high-performance indoor connectivity matters. The future of in-building wireless isn't just digital—it's intelligent, open, and fully integrated into the broader RAN.

UPENDRA PINGLE
GM, Indoor Cellular Networks
ANDREW, an Amphenol company

Welcome to Small Cells World Summit 2026

PRABHAKAR CHITRAPU CHAIR, SCF

It hardly seems possible that another year has passed since I was writing a welcome message for SCWS 2025. After our change of venue was such a huge success in 2025, I am delighted to welcome you back to the Pullman, St Pancras, in the heart of London for what is set to be another fantastic Small Cells World Summit.

The industry has certainly seen some challenges over the past 12 months, but as our latest market forecast figures suggest, there is growing opportunity in the small cells market with an increasing range of verticals requiring mobile connectivity – from healthcare, hospitality, factory automation, transportation hubs, education and stadiums, to mission critical and disaster relief. Additionally, small cells are being increasingly deployed to provide coverage and capacity in mobile network (rural) dark-spots and (urban) hot-zones respectively and local administrative authorities are taking proactive steps to promote friendly regulatory environments as well. What is interesting too is the diverse range of deployers, from traditional MNOs, through to neutral hosts, towercos, and even enterprises themselves.

SCWS will deep dive into these with speakers representing all types of companies, such as MNOs, connectivity users (such as Enterprises/Private-Network-Operators and Municipalities), OEMs, component vendors, as well as regional and local regulators and policy-makers. They will discuss and debate how to capitalise on the opportunities, and how to lower barriers to achieve wide-spread roll-out of small cells – from technology to delivering connectivity, to the policy and regulation that enables and fosters deployment.

I am delighted that we bring together such a diverse audience from around the world here in London. This provides a rich range of perspectives and examples of how different markets are tackling the similar challenges. I think you will also like and benefit from our first local authority breakfast briefing, which was born out of the fruitful conversations at last year's SCWS that turned into the SCF's Local Authority Connectivity Group. The purpose of this working group is to create a bridge between local authorities and the mobile industry to capture requirements and work collaboratively to speed the roll-out of better connectivity in cities and towns. This is already proving to be a very successful framework and process.

Across Small Cell Forum, our members continue to drive the critical areas shaping development of small cell networks – one key area being our FAPI and nFAPI interface specifications, which will feed into the open source work of global organizations. We will discussing this topic at the end of day 1 in a special panel session with members who are invested in Open RAN/Open Source projects, including Nvidia, Radisys, Airspan, Northeastern University (Boston, US), OpenAirInterface and SCF.

I hope you enjoy the conference and gain key insights through our stage and workshop content. I also urge you to make the most of the networking opportunities in our fantastic exhibition area and drinks reception before and after the SCF Mobile Network Awards. Please do drop by the SCF stand or catch myself or one of the SCF team while you are here – we'd be pleased to have a coffee and chat with you. Looking forward to meeting you.

EXCLUSIVE

SCF market forecast survey highlights

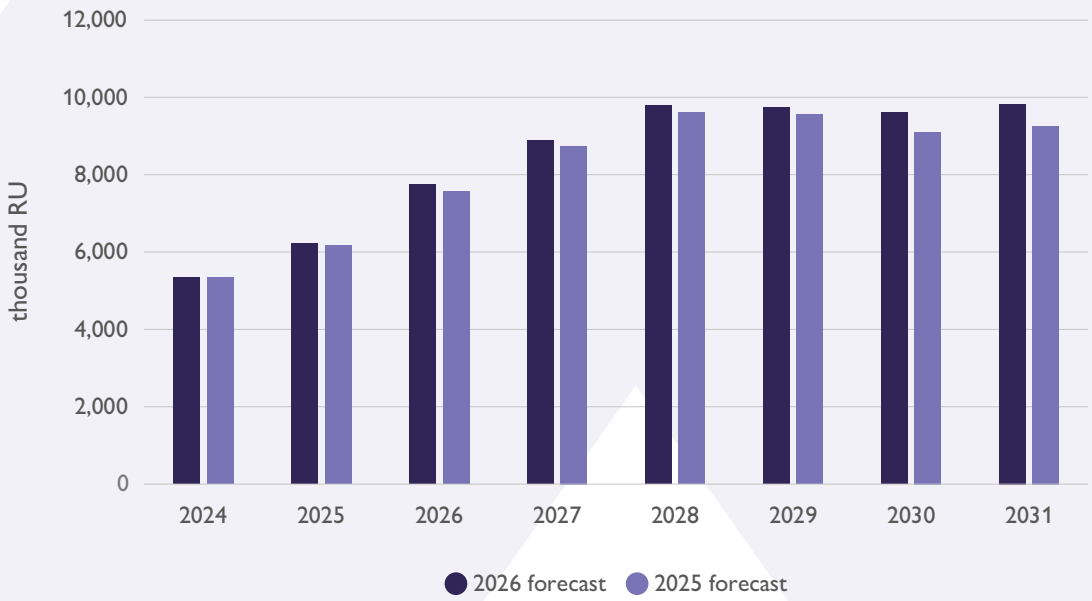
Every year, Small Cell Forum conducts a unique and exclusive survey of operators and other organizations that are deploying, or planning, small cell networks. The results of the survey help to shape policy by improving understanding of deployers' drivers and challenges, and they also provide a very important input to the annual SCF market status report and forecast.

In this year's survey, which was conducted in the first quarter of 2026, there were 103 respondents, all senior executives from deployers of mobile infrastructure including MNOs, private networks operators (PNOs), specialist systems integrators, infrastructure investment funds, and neutral hosts.

The full survey results and forecast will be published in future, but we are providing some key highlights exclusively for attendees at Small Cells World Summit 2026, as many of the findings and predictions particularly resonate with key themes of the conference. As well as highlights of this year's deployment forecast, there are insights into the forces that are driving or impeding small cell growth. And we have selected some preliminary results and some clear trends that relate to key themes of this year's SCWS conference:

- Public connectivity, including cities, transportation networks and hubs
- Open and shared systems with AI
- Private enterprise network trends – hybrid, neutral host and edge
- Future technology evolutions including 6G and non-terrestrial network (NTN) integration

Note all data points are taken from the new SCF deployer survey, conducted in December 2025 to February 2026, and the new SCF market forecast. The forecast will be published in full in the SCF market status report in July.



Market context and forecast

Every year we examine and adjust our forecast assumptions based on market-specific factors, such as new technologies, and broader macro-economic and geopolitical conditions. Two years, ago, those macro trends were the main reason why we reduced our forecasts for small cell unit deployments compared to the 2023 forecast. If anything economic and geopolitical pressures have worsened since 2024, but the industry, and particularly key infrastructure investors such as operators and infra funds, have steadily factored in these challenges into their own plans.

This has led to some changes in thinking, with many operators in the survey reporting that they are less focused than in 2022-23 on visionary architectures, and more focused on achieving very resilient infrastructure that can be monetised in multiple ways. Such changes have, in many scenarios, led to a renewed investment in small cell networks, despite economic caution, and we have generally seen a modest uptick in our expectations for unit deployments compared to the 2025 forecast.

Nevertheless, mobile operators continue to be capex-sensitive and this has created some movement of the investment in small cell networks away from MNOs and towards other deployers or funders such as neutral hosts.

Overall, however, we are predicting a 9.1% compound annual growth rate (CAGR) for small cell unit deployments between 2024 and 2031, which will reach 9.8 million unit shipments in 2031. Our 2025 forecast only went to 2030, but had we extended it to 2031 with the same assumptions, the CAGR would have been 8.2%, so considerably less than we are now anticipating.

Figure 1 shows the comparison between SCF's 2025 and 2026 forecasts. Note that all forecasts, unless otherwise stated, refer to deployment of new or upgraded small cells by radio unit numbers (an RU in the case of a disaggregated RAN; node of a distributed antenna system; or an all-in-one cell. Passive DAS and WiFi are not included).

We have extended the forecast to 2031 this year but when we look at 2030, last year's end point, we have increased our expected figure for new deployments and upgrades from 9.1 million to 9.6 million units, with a further rise to 9.8 million in 2031. That amounts to cumulative shipments of 67.2 million units across the period from 2024. In summary, we are expecting to see over 6 million more units deployed between 2024 and 2030 than we predicted a year ago, though the upside will be weighted towards the later years of the period. This is where the biggest difference between the two years' forecasts is seen as we are expecting a less significant pre-6G hiatus or 'waiting period' in 2030-2031 than formerly assumed. That is because there will be a very long tail of 5G deployments as part of key trends such as urban densification and build-out of small cell networks in non-telecoms infrastructure systems such as energy utilities.

FIGURE 1.
Total new or upgraded small cell deployments (radio units) 2024-2031 – comparison of 2025 and 2026 forecasts

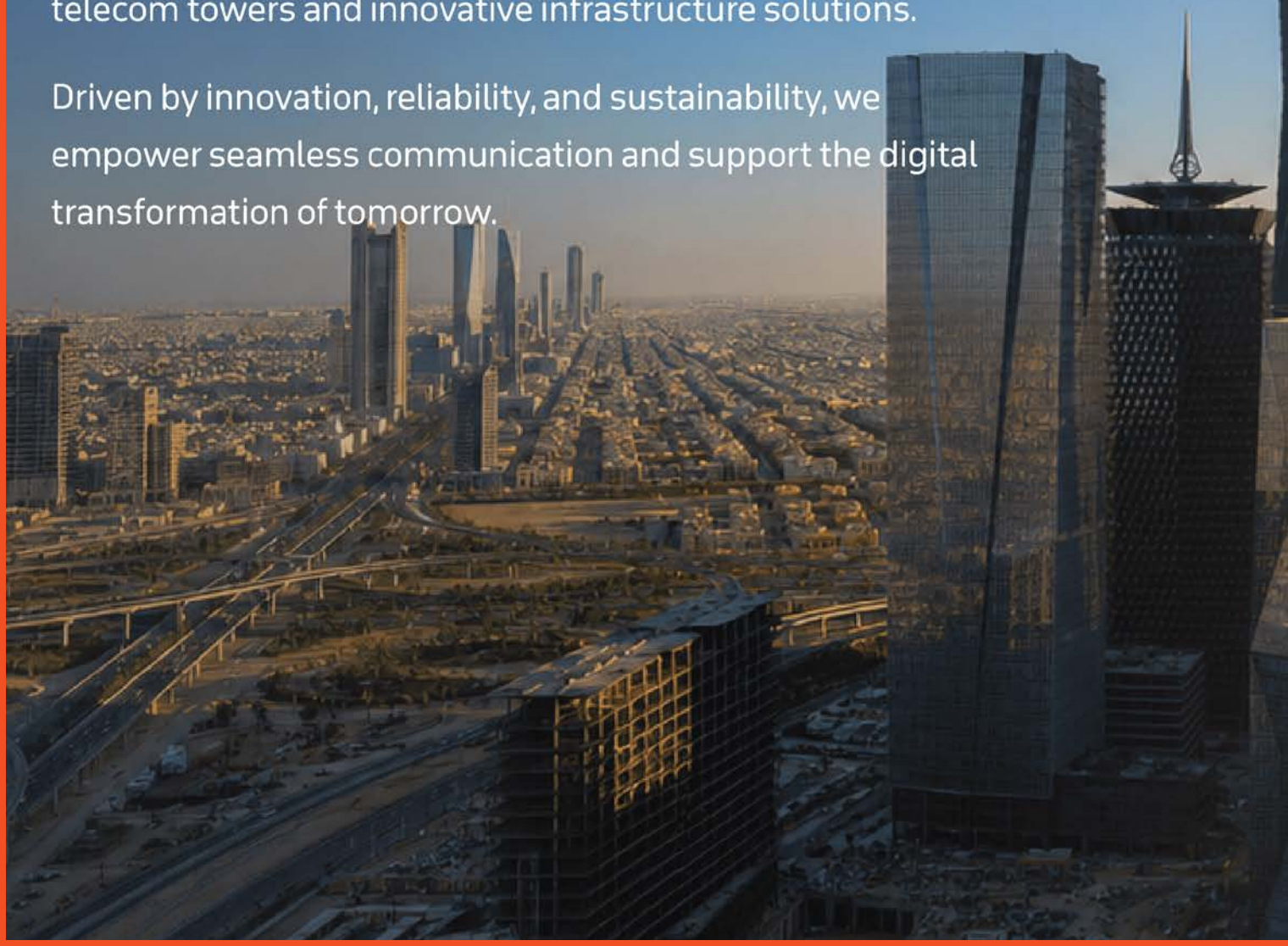
Continues on page 13

TAWAL

FOUNDATION OF LIMITLESS POSSIBILITIES

TAWAL is the leading digital infrastructure company in Saudi Arabia, Enabling smarter connectivity through advanced telecom towers and innovative infrastructure solutions.

Driven by innovation, reliability, and sustainability, we empower seamless communication and support the digital transformation of tomorrow.



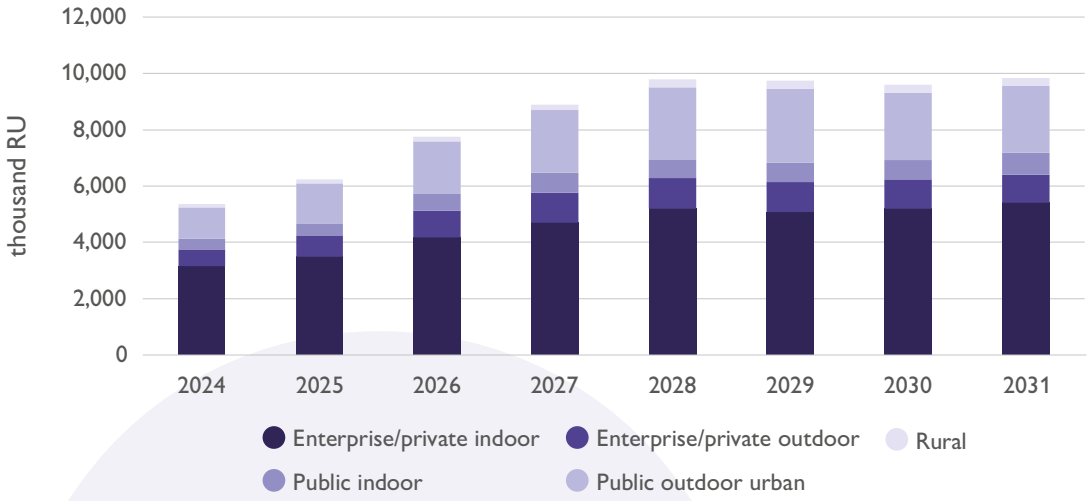


FIGURE 2.
Total new or upgraded small cell deployments, global, 2024-2031, by environment

Figure 2 shows how the small cell deployments will be split between different operating environments. We have split the forecasts between both indoor/outdoor, and public/private networks. Public networks are defined as those that are open to any subscribers of an MNO or other operator, while private networks are those that are dedicated to a particular enterprise or organization. Later sections will examine the growing importance of hybrid networks that combine element of both.

As the graph shows, the largest share of deployments throughout the period will be in enterprise or private indoor networks, which accounted for 59% of the radio units or integrated cells deployed in 2024. This percentage will fall slightly, to 55%, by 2031, reflecting some shift of the balance of deployment towards the public urban environment, a trend that will gather pace throughout this forecast period.

Public outdoor cells will amount to 24% of the total in 2031 in unit terms, up from 21%, though they will represent a higher percentage of equipment and software revenues because they generally have higher average prices and complexity. Forecasts and breakdowns of the investment in small cell networks will be included in the full SCF forecast and market report, to be published this summer.

Public indoor small cells are expected to account for a bigger part of the market than previously expected, at about 8% of units, and they will achieve the same CAGR as the larger outdoor public segment, at just over 11%. The highest growth, though in a smaller segment, will be in rural and remote small cells (public or private) which will grow at CAGR of 15%, though they will only amount to 3% of the total market by units in 2031, and about 5% of the value.

Drivers and barriers to small cell deployment

These forecasts represent our median or 'most probable' forecast but of course, changes in the industry or the wider world can alter assumptions and outcomes. In the full SCF market report, we will present some best and worst-case scenarios. The survey of deployers is valuable for insights into the main drivers of build-out and the main barriers that investors and operators perceive. If the ecosystem is able to prioritise systems and services that support the most important drivers, and is able to take action rapidly to lower the barriers, the forecast may improve and move closer to the best-case scenario. Of course, if important new capabilities or business models are delayed, or barriers take longer than we currently expect to come down, the real outcome may be closer to the worst case.

A key aspect of SCF's work is to coordinate and lead the cross-ecosystem work to lower barriers and enable the industry to outperform the forecast. But this is a moving target, since new barriers may emerge once earlier ones are lowered, so it is also interesting to compare the survey results year-on-year. In the survey, respondents are first asked for a list of all their important barriers and drivers. We compile a list of the 10 that appear most often and the respondents then pick the 3 that are most important to their business case.

In this year's survey, some of the issues that have persistently slowed small cell deployment in many markets are falling lower down the ratings. Challenges relating to site access/cost for outdoor networks fell out of the top 5 last year and as in 2025, fewer than 10% of operators and other deployers now rate these as a top-3 barrier, which suggests that many years of effort to address site challenges are bearing fruit.

In 2026, there are some differences of emphasis compared to 2025. The most-cited barrier relates to monetisation, rather than operational complexity, which topped the table a year ago but is now in third position. In 2026, the second most-cited barrier was the immaturity of AI/automation for small cell networks, which shows operators thinking ahead to new levels of automation and operational efficiency, even if they are frustrated by the wait for fully mature tools. By contrast, in 2025, the second barrier was the far more traditional 'infrastructure TCO', which fell to fourth place this year.

In 2025, the impatience was for mature open platforms, but this was less prominent in the 2026 responses, presumably because there is better visibility of open platforms on the horizon, since the survey does not indicate any reduced operator interest in open networks.

Two barriers are new to the top 10 this year – uncertainty about 6G, which some deployers say will make it hard to make good timing decisions about technologies towards the end of the decade; and a belief that spectrum shortages are abating, and so there may be less requirement for small cells if operators can refarm and aggregate their macro network spectrum. Last year, the spectrum-related barrier was the opposite – that deployers felt there was inadequate spectrum available that was optimal for, or reserved for, small cells. The other factor that did not appear in this year's top 10 was concern about the relationship with WiFi, and whether small cells had a role when WiFi was installed, reflecting progress in both industries working on synergies rather than competition.

Meanwhile, this year we also asked respondents to indicate the top 3 business opportunities that would drive their investment in small cell networks.

TOP 10 BARRIERS TO DEPLOYMENT 2026

1	Lack of clear monetisation	14%	▲
2	Immature automation/AI	14%	*
3	Operational complexity	13%	▼
4	Infra TCO	12%	▼
5	Require risk and reward sharing and MNO cooperation	10%	▼
6	Site issues	9%	▼
7	Uncertainty about 6G	8%	*
8	Scalability	7%	▼
9	Slow progress in open systems	7%	▼
10	Spectrum shortage abating	6%	*

TOP 10 BARRIERS TO DEPLOYMENT 2025

1	Operational complexity	16%
2	Infra TCO	14%
3	Immature automation	14%
4	Require risk and reward sharing and MNO cooperation	12%
5	Lack of clear monetisation	11%
6	Slow progress in open systems	9%
7	Scalability	9%
8	Site issues	8%
9	Relationship with WiFi	4%
10	Lack of spectrum	3%

FIGURE 3A AND 3B.
Top 10 barriers to deploying small cells at scale 2026 and 2025 survey (all deployer types)[1]

Continues on page 17

1 *Respondents to the survey were asked to name all the factors that would constrain or delay their deployments between now and 2031. We then provided a list of the 10 most-cited barriers and they chose the 3 most significant.*

Powering the future of shared digital infrastructure

ACES is a leading neutral host provider enabling next-generation digital infrastructure across Saudi Arabia and beyond. We design and deploy scalable, future-ready connectivity solutions that empower operators, enterprises, and smart cities.

With a strong focus on Open RAN, network sharing, and cost-efficient deployment models, ACES simplifies complexity while maximizing performance, coverage, and return on investment—**driven by ACES R&D, which leads innovation in next-generation radio technologies and shareable network solutions.**

ACES – NH Projects

With international presence, in 10 years ACES has NIAL-80M users, SDB-15M users and MMRCL-625M users annually

Shareable 5G small cell product

An advanced indoor radio unit with internal antenna

- Supports multiple carriers in N78 (3500-3800 MHz)
- 500mW output power per antenna branch
- Integrated omni antennas to support 4x4 MIMO
- 300 MHz instantaneous bandwidth (IBW)

As Figure 4 shows, there is less consensus across the ecosystem about this than there is about barriers, reflecting the diverse sectors and services that can be served by small cell networks. 40% of the responses related to opportunities outside the top 10 (respondents chose 3 each). Among the 10 most-cited drivers, hybrid public/private networks for enterprises were placed in the top 3 by 39% of respondents, followed by private enterprise networks (34%). This shows that 25% of the total responses were related to enterprise networks, and an additional 28% cited enterprise AI services.

However, the drivers are diverse. The third-placed opportunity, cloud/AI operation, is more internally focused on deployer efficiencies and quality of service, and was selected by 30% of respondents, while the fifth-placed, on 26%, was consumer-centric, XR services.

It is notable how resilient, mission-critical infrastructure has rising prominence when the small cell ecosystem discusses its most promising commercial drivers. This is because geopolitics and economic uncertainty have focused minds on resilience, but also because small cell technologies are becoming increasingly robust and well-suited to business-critical communications for enterprise (cited by 25% of respondents) as well as specific robust environments such as smart cities, venues, railways and roads – all featured heavily in this year's conference agenda.

Public connectivity and outdoor networks

The rising demand from users and service providers in these infrastructure-heavy segments – transportation, venues, cities etc. – is responsible for a rise in outdoor and public or hybrid small cell networks, as we saw in the forecast by environment.

Figure 5 shows the significant growth in deployments of outdoor equipment until the end of 2029, when there will be some reduction as operators come to the end of 5G projects (though as noted, this will be a smaller reduction than previously anticipated). At the peak in 2029, there will be 3.7 million units deployed in outdoor, urban and public environments and many of these will be part of the growing scale of smart city projects round the world, as well as increasing criticality of connectivity to transportation networks and hubs such as railways and stations, or ports and airports.

Cities, transportation and venues such as stadiums all have complex, and distinct, ecosystems, and so there is not a single operation and business model that suits every scenario equally. Although the biggest number of outdoor and public cells will be deployed and run by MNOs or private network operators acting alone, this will fall as a percentage as the efficiencies of shared models become obvious. Some shared networks will be a result of shared roll-outs by two or more MNOs, but the biggest growth will be in neutral host platforms to support public and/or private outdoor connectivity.

Neutral hosts will deploy over 1.5 million cells in this environment in 2031 and by then will account for 46% of the total.

MOST-CITED DRIVERS FOR SMALL CELL DEPLOYMENT

1	Enterprise hybrid networks	39
2	Enterprise private networks	34
3	Cloud/AI operations	30
4	Enterprise AI services	28
5	XR consumer experiences	26
6	Business-critical communications	25
7	Smart city networks	24
8	Venue networks	20
9	Rail and road networks	19
10	Wholesale and NaaS	15
	Other	40
	TOTAL	300

FIGURE 4.
Commercial drivers for small cell deployment (respondents chose their top 3 business opportunities)

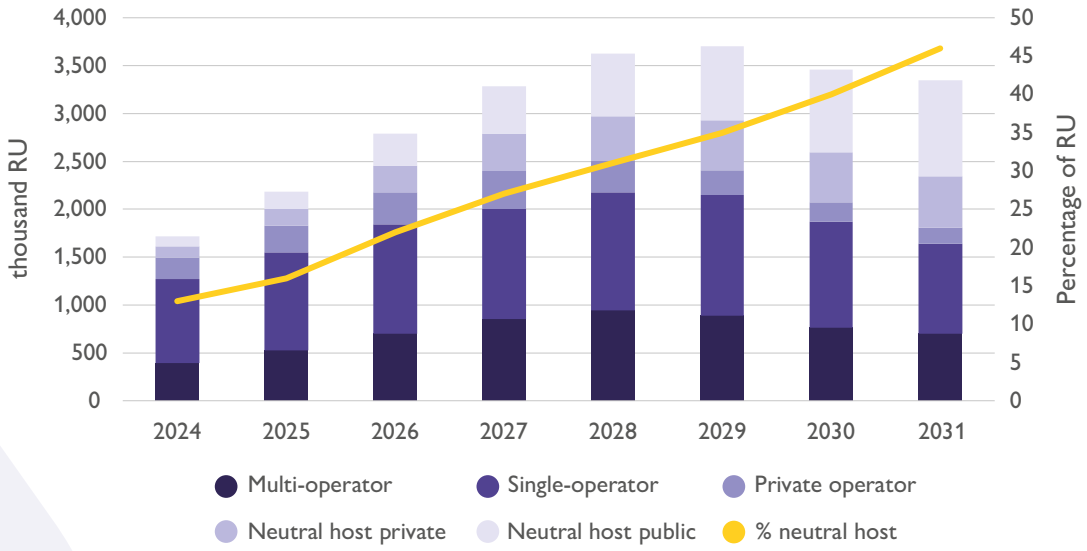


FIGURE 5.
New and upgraded outdoor small cell deployments, global, by business model 2024-2031

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SCF MOBILE NETWORK
AWARDS
2026

For over a decade the SCF Mobile Network Awards has been recognizing the very best deployments, innovations, and new use case in the small cells and wireless connectivity industries. Independently judged by leading analysts and journalists and organized by Small Cell Forum, the SCF Awards are upheld as the Oscars of the wireless industry.

The Awards are open to the whole industry – not just SCF members – and will be celebrated at the ceremony held during Small Cells World Summit 2026.

SCF MOBILE NETWORK AWARDS
SHORTLIST

EXCELLENCE IN COMMERCIAL DEPLOYMENT BY A SERVICE PROVIDER

Airspan
Small cells inside the reactor: enabling 24/7 robotic nuclear-waste removal with private 5G

Antevia and Spry Fox Networks
Private 5G deployment at Bath Rugby Club

Druid Software
Druid Software for Ireland's new first responders network

OUTSTANDING SOFTWARE AND SERVICES, PRODUCTS OR TECHNOLOGY

Antevia Networks
Antevia Networks 5G shift-changing the economics of private networks

ITRI, Pegatron and NTTE
Mobility-aware QoS assurance in private networks

Jio Platforms
Jio 5G cloud-native small cell (AI-optimized)

OUTSTANDING HARDWARE AND COMPONENTS, PRODUCTS OR TECHNOLOGY

CableFree
CableFree integrated smart small cell platform: the scalable, flexible, and futureproof foundation for next-generation wireless excellence

Nokia
Nokia Kolibri all-in-one small cells: built to simplify and redefine 5G densification. Proven to perform

XCOM RAN by Globalstar
Private wireless reimagined: XCOM RAN unlocks private 5G globally with a new approach

OUTSTANDING CONTRIBUTION TO OPEN PLATFORMS AND ARCHITECTURES

Corning, Adtran and Openreach
OSA Mobile from Openreach, supported by Adtran and Corning

Jio Platforms
Jio small cells

Radisys
Closing the Open RAN gap: from architecture to real-world scale

OUTSTANDING CONTRIBUTION TO EMERGING TECHNOLOGIES

ANDREW®, an Amphenol company
ANDREW CleanBeam™ metaLens: precision beamforming for high capacity and street level small cell networks

Brunel University of London, Eurescom, Université de Versailles Saint-Quentin-en-Yvelines, RunEL and Oledcomm
Optic 6G cell free networks

ITRI
Intent-based network management – transforming network operations with Agentic AI

OUTSTANDING PROGRESS IN ENABLING NEUTRAL HOST AND MULTI-OPERATOR BUSINESS MODELS

ACES, Saudi Ministry of Communications and Information Technology (MCIT), Mobily and Mavenir
Cost-efficient neutral host O-RAN 4G/5G small cell at KAFD

ANDREW®, an Amphenol company
World's first DAS deployment with 100% direct digital connectivity to three leading RAN vendors – connecting all US operators in a live stadium

Nokia and PROSE
Nokia and PROSE enable new revenue models with O-RAN-compliant neutral hosting indoor solution

JUDGES' CHOICE

BT-EE
Transforming indoor connectivity with BT's neutral host model

Jio Platforms
Jio 5G cloud-native small cell (AI-optimized)

MOSO Networks, Khasm Labs, Druid Software and Eino
From patchwork to predictable: port of Tacoma's 2,400-acre private 5G breakthrough

Stadium and sports venue connectivity

DOWNLOAD NOW

Stadiums are the ultimate high density demand use case – tens of thousands of people all trying to connect their devices simultaneously.

In our latest industry paper, Stadium and sports venue connectivity, we explore:

- Commercial opportunities of improving connectivity for operational staff and the public
- Connectivity options and deployment methods available: from small cells to DAS, private networks and neutral host models
- Advantages and limitations of each, and whether hybrid networks are the path to success

Emerging technologies – the growth of Open RAN and AI control

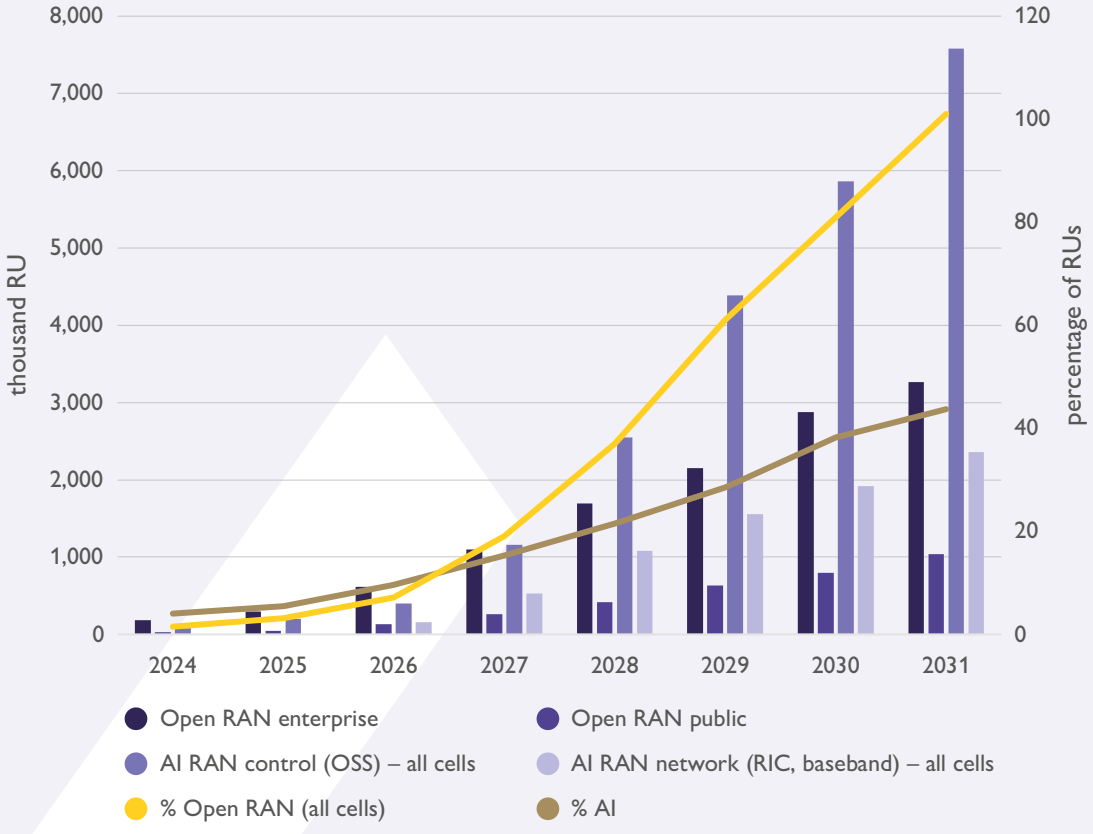
As we saw in the survey respondents' views on barriers to small cell deployment, RAN AI has replaced Open RAN as the new technology for which they are most impatient. Like open networks, AI control of the RAN is seen as an important way to reduce costs, increase automation and interoperability, and so improve the overall small cell network economics. Immaturity of small cell Open RAN is not perceived as a barrier to the same extent as in the past showing that technologies are evolving and operators are deploying open networks successfully. In 2024, as Figure 6 shows, 225,000 Open RAN small cell units were deployed, mainly in enterprise networks, compared to only 80,000 small cells that were managed by AI, either in the OSS/ orchestration layer or in the RAN control/ real-time RIC functions – hence why the operators are now impatient to scale up AI-enabled roll-outs.

However, as early as 2027, the numbers of AI-managed cells will exceed those supporting Open RAN specifications (though there will be considerable overlap, as the full SCF market report will explore). By the end of 2027, 19% of newly deployed small cells will feature AI control at one or both layers, compared to 15% supporting Open RAN. By 2031, 77% of new small cells will be controlled to some extent by AI in the OSS layer, and 24% (almost entirely a subset) in the RAN control layer. Meanwhile, 51% of new enterprise small cells will support Open RAN, and 33% of public cells.

Private and enterprise small cells and the revival of edge

As in the outdoor environment, there are many different segments and ecosystems that can be supported by small cells, so a variety of different deployment and operating models is important to provide the optimal experience for each application. The increasing diversity of these business models in recent years has been a major reason for the growth in enterprise small cells, and as strongly encouraged by SCF's work, the neutral host model has become significant in improving the economic efficiencies of indoor and enterprise roll-outs, as well as outdoor networks.

FIGURE 6.
New and upgraded deployments of small cells that support AI RAN control and/or Open RAN (the chart does not show the overlap between the AI and Open RAN categories)



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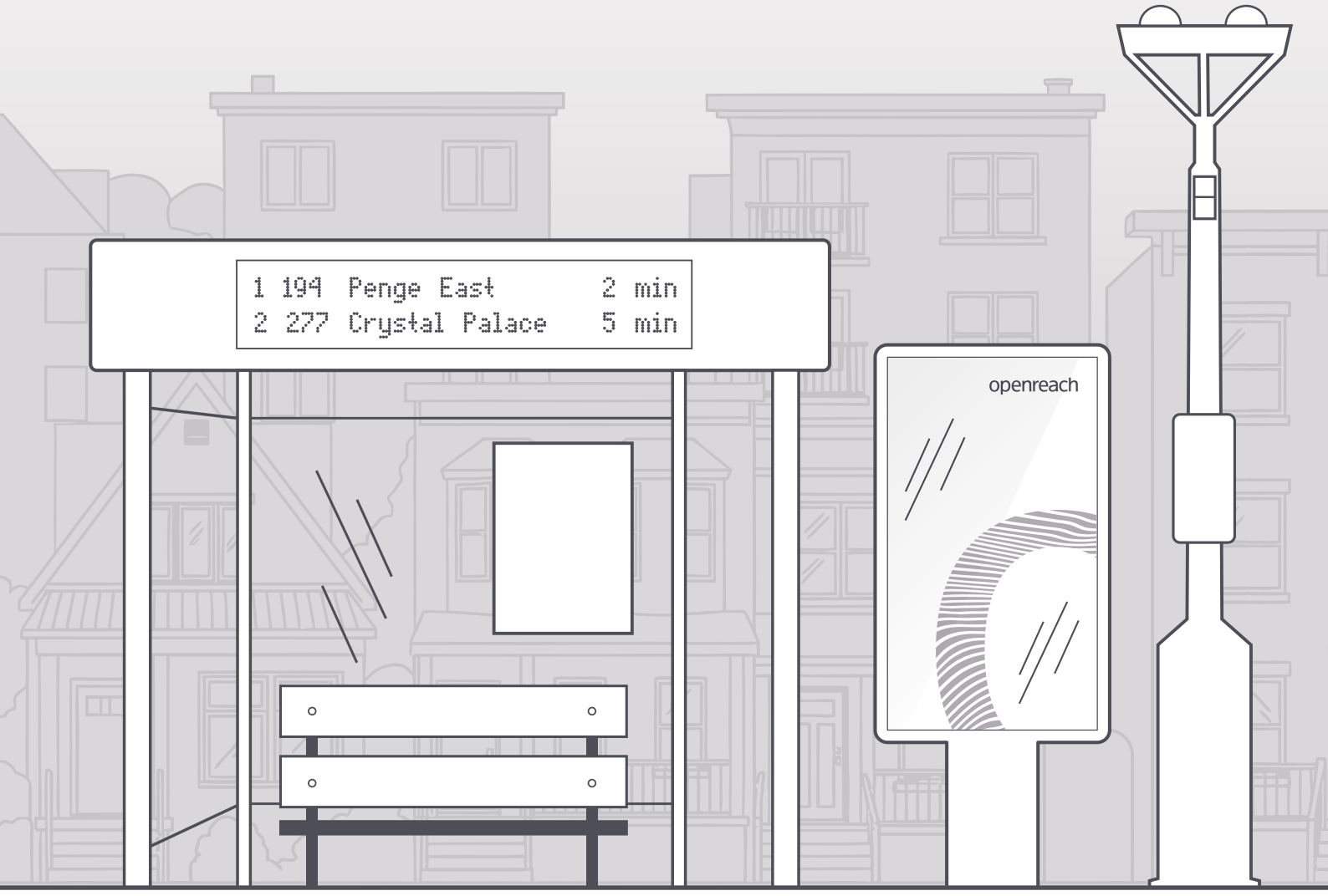
OSA Mobile

Connected infrastructure, reimagined: Enabling smarter streets



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Demand for connectivity is increasing. Deploying it can be challenging. SCF is here to help.

Whether you are a neutral host provider, mobile network operator, vendor, systems integrator, hyperscaler or infrastructure provider, together we can better navigate the complexities of our sector.

SCF is unlocking opportunities and overcoming challenges in:

In-building and enterprise solutions

Neutral hosting and sharing frameworks

Open standards development

Global regulation and policy

6G evolution, AI RAN and non-terrestrial networks

Local authority deployments

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WHY JOIN SCF?

SCF exists to help you collaboratively tackle the big issues facing our sector, to capitalise on growth opportunities, provide networking opportunities and knowledge sharing on a global scale.

Here's why you should join today:

1. **Drive the industry forward together** – actively collaborate with industry peers across a range of technical, regulatory and commercial strategic initiatives.

2. **Grow your business** – unparalleled access to global markets from Europe to North America, Asia and the Middle East.

3. **Find trusted partners** – work alongside established players and small innovators, identify commonalities and potentials for collaboration.

4. **Boost your organization's profile** – whether you're trying to raise awareness or shift perceptions, our global marketing platform and events program can assist you on your journey.

5. **Enhance your career** – build your knowledge, extend your personal network and establish global relationships with all aspects of our industry.

As Figure 7 indicates, there will be a sharp rise in neutral host enterprise networks until the end of 2028, and for the later years of the forecast, neutral hosts will account for a fairly steady share of total cells, at around 28%.

The market has seen a reduction in the number of enterprise and private small cells that are deployed and run by the enterprise itself, or its vertical-specific integrator, and there has also been a decline in the impact of hyperscalers which has affected our forecast compared to previous years. Vendors that provide cloud-based private network services remain significant but the biggest groups deploying and operating networks, after the neutral hosts, will be the private network operators – which may include dedicated PNO divisions within telcos – and hybrid networks.

The growth of hybrid networks, as an alternative to purely private or public enterprise systems, is a notable feature of the current market and we have increased our estimate of the growth of hybrid networks in the forecast period. These projects are usually deployed by several partners, though led by an MNO since there must be access to the public RAN and MNO spectrum. Hybrids provide enterprises with the flexibility to combine access to public, outdoor and macro communications with the privacy and control of a private network. By 2031, we expect 20% of enterprise small cells to be in hybrid networks, up from 11% in 2024.

Another important trend in the enterprise market is the revival of industry in edge compute. This was a very high profile topic in the 2010s, offering the prospect of locating virtualised small cell basebands, private or local packet cores, plus enterprise or operator applications, all on the same highly distributed cloud infrastructure. However, the virtualization of RANs progressed less quickly than many had expected, and the business case for investing in very distributed edge was not always clear to operators. That has changed with the intensifying focus on AI, and the need to conduct inferencing and run AI control close to the enterprise application and the cell. Amid a general revival of interest and investment in edge across the cloud/AI ecosystem, the small cell market will feel the impact, and see new opportunities for operator efficiencies and new revenue streams, where network, operational and enterprise functions can all be collocated.

FIGURE 7.
New and upgraded deployments of enterprise small cells, global, by deployment model 2024-2031

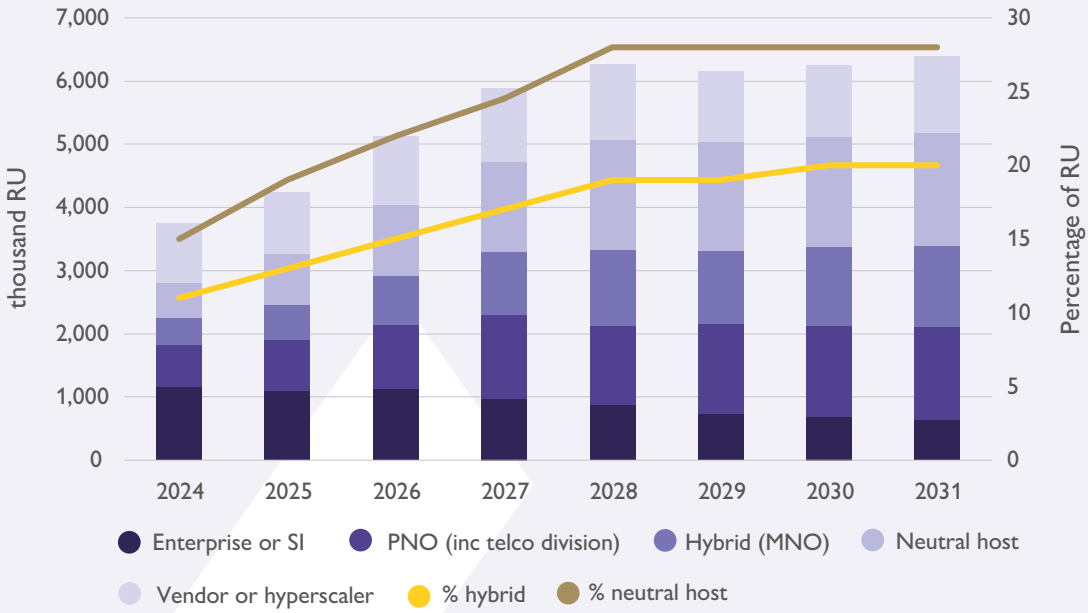


Figure 8 shows our forecast for the rise in deployment of enterprise small cells that are collocated with edge compute, either with virtualized RAN functions running on the edge node, or a physical small cell sitting close to an edge node and providing it with connectivity.

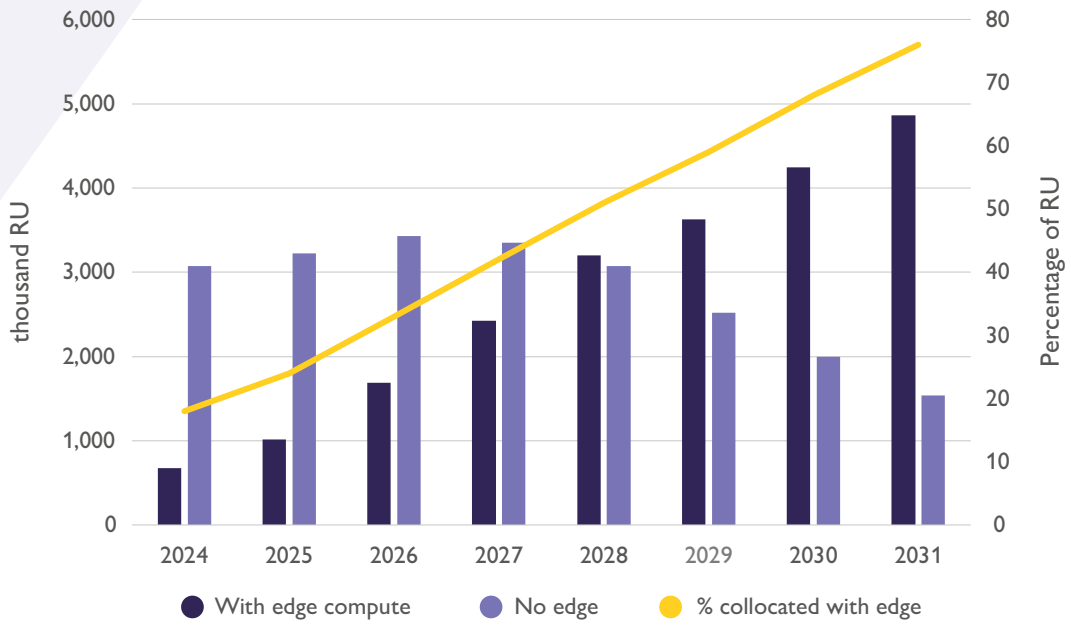
New small cells deployed with edge compute will grow at a CAGR of 30% between 2024 and 2031 to reach almost 5 million units, or 76% of new enterprise radio units deployed, at the end of the forecast period.

Looking ahead – future networks, AI and 6G

Much of any successful conference, like the SCF itself, must focus on addressing challenges and opportunities in the short to medium term, but it is also important to look at the technologies that may be emerging on the horizon, and the impact they may have on service models, and on user experiences and applications. Visibility of the next generation of networks can help operators to future-proof current investments and business models and define clear roadmaps for network performance and emerging revenue streams.

Whether '6G' will be an evolution of 5G or something radically different remains to be seen, but there is broad consensus that it will feature embedded AI, and possibly be fully AI-native, in order to achieve new levels of automation, agility, intelligence and user experience within mobile networks. In some regards, it will certainly be an evolution of 5G, since 3GPP has already set out the roadmap for Release 20 of its standards, which will be a crossover between 5G-Advanced and 6G. On the menu for Release 20 are several key capabilities that have started to be developed in 5G networks, such as non-terrestrial network (NTN) interworking, AI control, ultra-precise positioning and convergence between sensors and communications. All these, and more, will be important to 6G small cells, whatever the final standards and wider platforms look like.

FIGURE 8.
New and upgraded deployments of enterprise small cells collocated with edge compute, global, 2024-2031



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Join the Local Authority Connectivity Group

The SCF Local Authority Connectivity Group is bridging a gap between local authorities and the wireless industry.

Key priorities:

- Case studies and best practice deployment frameworks
- Small cell guide for local authorities
- Resources for local authorities
- Content planning for local authority engagement
- Government lobbying

If you are a wireless connectivity company or local authority that would like to get involved find out more and register your interest.

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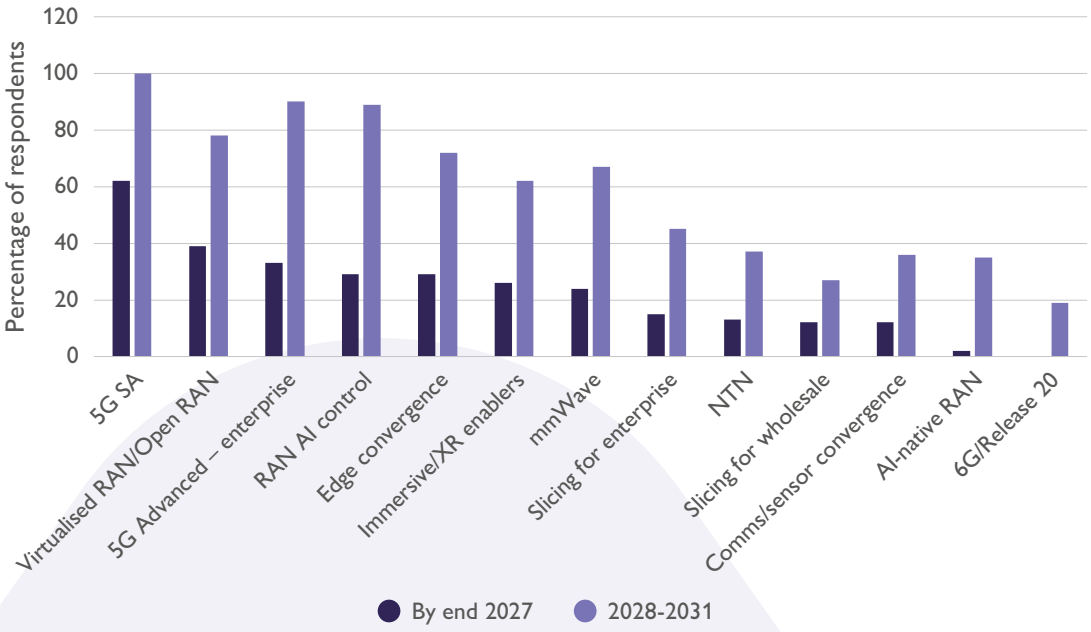

FIGURE 9.
Intention to start commercial deployment of selected technologies in small cells in 2026-2027, and in 2028-2031 (percentage of deployers surveyed)

Figure 9 shows the results when we asked the survey of small cell deployers to think about the technologies they would consider commercially important to deploy in the short term (1-2 years) and the longer term (up to end of 2031). There were 13 technologies that were considered important by at least 20% of the panel, some already reaching maturity though in a relatively early stage of roll-out in small cells; some emerging or even 6G-specific.

Predictably, the main areas of short term investment are in established technologies such as 5G Standalone and vRAN/open RAN. Deployment of 5G SA has finally gathered pace in the past year and over 60% of small cell deployers will support it in new systems that they roll out in 2026 or 2027, while all respondents expect to have it installed by the end of 2031. Similarly, virtualised and Open RAN has grown more slowly than many expected, but is starting to gain momentum, and almost 40% expect to deploy it in the next 2 years, and almost 80% to have done so by the end of 2031.

The next-placed technologies in terms of near-term support all reflect the themes that this report, and the conference, are highlighting:

- the growing importance of enterprise revenues to operators, which will drive deployment of 5G-Advanced, since many of its capabilities are very enterprise-centric
- the high hopes that AI control may dramatically improve the levels of automation and intelligence in dense networks
- and the revived focus on edge computing and its potential for small cell and 5G convergence

Other emerging technologies remain immature in terms of proven ROI or revenue potential, such as dynamic slicing, fully AI-native networks, and of course 6G, but all of these are of interest to a larger percentage of deployers than last year. About one-third of respondents expect to have started to deploy various forms of slicing by 2031 and even regarding the as-yet undefined 6G, 19% believe they will have started to implement this by 2031.

On the journey to the next generation of networks and business models, it will be critical to build on the foundations laid in the 2020s, and the collective work done across the ecosystem and coordinated by SCF. The results of that work will be on show at this year's conference and exhibition, as well as some clear vision of how small cells can evolve to support an even broader range of industries and monetizable applications in future. ■

Exhibitor listing

AIRSPAN

Headquartered in Plano, Texas, Airspan Networks is a US-based provider of wireless network solutions focused on carrier-grade 5G and advanced connectivity. Airspan's portfolio includes in-building, outdoor, and air-to-ground solutions, featuring DAS, Open RAN, and small cells for public and private networks. Airspan supports operators, enterprises, and service providers with scalable wireless solutions designed to improve coverage, capacity, and deployment efficiency.

airspan.com | marketing@airspan.com

CableFree
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CableFree: Wireless Excellence is an Oxford/UK-based designer and manufacturer of advanced 4G and 5G infrastructure, leading innovation in private wireless networks worldwide. With a 30-year track record, CableFree delivers high-performance, secure solutions spanning radio access, core, and high capacity backhaul. Ranked among Europe's top radio vendors, its technology powers mission-critical deployments in over 90 countries, enabling operators, enterprises, and governments to build resilient, future-ready connectivity.

cablefree.net | info@cablefree.net

ANDREW®
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ANDREW drives the evolution of wireless technology. Since 1937, we have innovated relentlessly to enable more capable and seamless connectivity both outdoors and indoors. Collaborating closely with our customers, we continue to enhance the simplicity, efficiency and sustainability of our solutions. Our global team is passionate about pushing the industry forward and creating a better connected future for all. Explore our offerings at andrew.com.

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JOINER

JOINER is the UK's only open, national scale 6G and future networks experimentation platform, bringing together 15+ world-leading universities and labs in one vibrant ecosystem. It's where researchers and innovators come to experiment, innovate and collaborate and closes the gap between the lab and the market, exploiting research and testing at scale in real-world conditions. It offers robust capabilities in hybrid cloud, AI-ready edge computing, spectrum experimentation, non-terrestrial (NTN) emulators, and secure networking. And it is open to all.

joiner.org.uk | joiner-project@bristol.ac.uk

ATAYA

Ataya is redefining enterprise connectivity with a unified Private 5G, Wi-Fi and edge AI platform designed for rapid deployment and simplified operations. Ataya's cloud-native Chorus architecture combines secure Private 5G, local edge compute, Zero Trust security and AI orchestration into a single platform for industrial, logistics and mission-critical environments. Ataya enables MSPs, enterprises and integrators to deploy scalable, low-latency AI-driven applications faster, with lower complexity and significantly reduced total cost of ownership.

ataya.io | sales@ataya.io

NETCS

Net Coverage Solutions (NetCS), founded in 2004, is a leading UK telecoms infrastructure provider specialising in mobile coverage solutions for in-building and outdoor environments. Trusted by all UK mobile network operators, NetCS delivers site acquisition, design, build, and maintenance services. The company has extensive experience in heritage and complex environments through partnerships with the Church of England and Canal & River Trust, and has developed NETRAN, a scalable neutral host solution for rural mobile coverage.

netcs.co.uk | enquiries@netcs.co.uk

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OSA Mobile

Openreach has recently launched OSA Mobile, the latest innovative addition to its Optical Spectrum Access (OSA) portfolio. Enabled by Adtran and Corning, OSA Mobile is focused on small cell deployments and is engineered for robust yet efficient and high precision Layer 1 transport. It's the first national managed access fibre service to enable UK-wide small cell access transport availability for both Ethernet and Common Public Radio Interface traffic.

openreach.co.uk/cpportal/products/optical

barry.perkins@openreach.co.uk

SOLiD

From world-renowned shopping destinations and iconic stadiums to bustling metro systems, hospitals, and office buildings, SOLiD's advanced Distributed Antenna Systems deliver seamless, reliable connectivity where it matters most – ensuring people stay connected in even the most challenging environments.

solideu.com | taehyeon.eom@solideu.com

Ranplan WIRELESS

Ranplan Wireless enables wireless connectivity providers to design, optimize, and simulate in-building and urban outdoor networks with precision. Our open platform streamlines planning by importing floorplans, geographical data, and 3D building models, while automation and 3D ray-tracing simulations accelerate workflows and improve accuracy. By helping teams identify issues early and optimize network performance, Ranplan enables faster, more cost-effective deployments – ensuring

ranplanwireless.com | info@ranplanwireless.com

streetwave

Streetwave is an independent mobile network measurement company delivering highly accurate, real-world mobile network performance intelligence. Using proprietary measurement technology, Streetwave maps signal strength and user experience at address-level granularity across the UK, supporting operators, regulators, infrastructure providers and public bodies. Its analytics platform enables better small cell deployment, network optimisation and investment decisions, driving improved connectivity outcomes through trusted, objective data insights.

streetwave.co | info@streetwave.co

SCF

SCF is the world's leading advocacy and standards development organization dedicated to driving sustainable digital transformation through agile, scalable, shared communications infrastructure. We unite a diverse ecosystem, representing the interests of MNOs, neutral hosts, private network operators, OEMs and enterprises Together, we develop technical standards and regulatory guidelines, collaborating with governments, regulators, and policymakers to navigate the complexities of our sector, supporting digital transformation by promoting global best practice.

smallcellforum.org | memberservices@smallcellforum.org

VERGEWAVE

Vergewave is a European RAN manufacturer and brand of IT Partners Telco Sp. z o.o., delivering Private 5G Network solutions for utilities, Industry 4.0, smart cities, transportation, and mission-critical environments. We design and bring to market unique 5G RAN devices and systems, including integrated 5G Network-in-a-Box solutions and Small Cell RUs, providing secure, high-performance, scalable wireless infrastructure while supporting European digital sovereignty.

vergewave.com | hello@vergewave.com

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dates for SCWS 2027 will be announced soon

See you in 2027

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