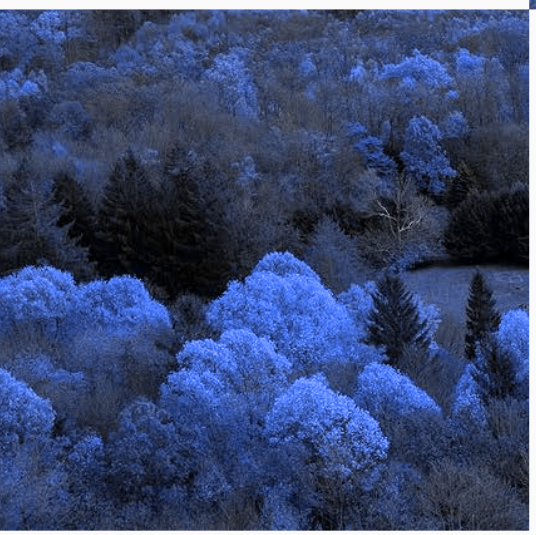
THE RISING TIDE OF DIGITAL PLATFORMS IN 2022

Written by Fergal Lawlor, CEO, Alpha Wireless



> “As the global economy embarks on a strong recovery post-pandemic, the transition to digital platforms is gathering speed.

With the acceleration of video streaming services, advent of employers adapting to a remote workforce, and proliferation of video conference meetings as the new normal for the foreseeable future, an urban structural transformation will emerge, spreading population centers and work to smaller cities, peripheral suburbs and rural areas. Trillions of dollars are now being invested in connecting this new society through digital infrastructure. This, in turn, is driving needed change in telecom infrastructure, further accelerating the 5G expansion for 2022.

#1: A NEW DAWN FOR PRIVATE NETWORKS

Growing adoption of commercial 5G networks is opening the door to a host of new business opportunities. Chief among these is the ability to leverage the security, increased speed, lower latency and scalability of 5G to build both public as well as private networks tailored to novel business cases that were not previously viable. Digital transformation, internet of things (IoT) and smart factories all require 5G capabilities for industrial operations and mission-critical wireless connectivity.

Translated into the consumer field, this includes innovations such as automatic guided vehicles (AGVs), augmented reality (AR), collaborative mobile robots, self-driving vehicles and much more.

Legacy 4G technology simply was not able to support these requirements, and as regulators have opened spectrum for private enterprise 5G, utilities are now exploring the use of multiple frequency bands to deploy private networks for advancement of critical infrastructure and public safety. As more spectrum bands are allocated to private and public enterprises, the adoption cycle can restart and the importance of private networks will further increase, fueling growth throughout the telecom sector. Furthermore, with the expansion of spectrum options, we are seeing an explosion in the number of wireless internet service providers (WISPs) building new or expanded networks to help resolve broadband gaps globally.

#2: SPANNING THE DIGITAL DIVIDE

In terms of mobile network planning, the low hanging fruit in 2021 was to upgrade standard macro towers to 5G.

> “As we look to 2022, however, there is a significant focus on bridging the digital divide by connecting rural communities in North America and Europe. Coverage needs to be densified at a faster pace, while at the same time operators must take into account changing regulations around tower deployment. This requires new innovative approaches.

In order to accelerate deployments and improve coverage closer to the subscriber, we can expect to see more tri-sector antennas deployed on public rights of ways. This approach not only streamlines planning and zoning by reducing the number of antennas needed per site, it also allows two operators to co-locate more easily. Moreover, tri-sector antennas provide a fast and affordable way to bring mobile coverage to rural areas due to their ease and versatility of installation.

#3: ELIMINATING THE NOT-SPOTS

Despite all the excitement around the promise of 5G technology, service providers cannot reap the full benefits of new services if subscribers don’t have seamless coverage and optimum quality of experience. In order to build coverage to reach the ‘not-spots’ in their networks, operators are moving on from sharing towers and infrastructure on their own sites to sharing infrastructure through a neutral host. This trend will continue to ramp up in 2022 as more subscribers embrace 5G, requiring ubiquitous coverage across the network, including challenging locations such as in the subway, inside buildings, and throughout rural communities.

Additionally, the neutral host setup addresses economic challenges in times of rising connectivity demands, making it commercially viable to quickly build out coverage, either stand-alone or in partnership with landlords or transport providers.

Working with neutral hosts, subscribers can stay connected regardless of which mobile service provider they use. Companies such as Cellnex, Crowncastle, Freshwave, WIG and more are all increasing their footprint, building out sites with at least two operators sharing the costs. This approach also helps reduce CapEx budgets for mobile operators who have already invested heavily in acquiring spectrum licenses.

#4: HIDING IN PLAIN SIGHT

Building out seamless 4G/5G coverage requires significant densification of network topology. Yet, even as subscribers and business customers clamor for more coverage and capacity, many viable cell site locations have been seemingly out of reach for network operators and neutral hosts. This is because traditional macro sites with multiple, large panel antennas are often deemed too unsightly to receive approval from local municipalities and the communities they serve. Building out small cells to effectively provide sufficient reach and capacity to fill in the coverage holes can be a lengthy process. Not to mention that this would be a much more costly approach to offering widespread coverage, particularly in suburban neighborhoods and rural communities.

ABOUT ALPHA WIRELESS

A leader in antenna technologies, Alpha Wireless helps mobile and fixed wireless service providers maximize coverage, capacity and cost-efficiency. With more than 1.5 million antennas installed to date, Alpha Wireless offers a full range of solutions, including the broadest portfolio of 3.5 GHz antennas. Based in Ireland with offices in Australia and the U.S., Alpha Wireless antennas have been deployed in more than 50 countries.

In order to speed the process of building out macro cell sites to resolve coverage challenges, a growing number of network operators are adopting integrated antenna solutions that are more aesthetically pleasing and offer a smaller footprint, facilitating the process of securing necessary permits. For example, operators are deploying compact integrated solutions such as canister antennas and tri-sector solutions that offer multiband support in a slim profile. This type of versatile, unobtrusive antenna design can be mounted on poles and rooftops, or integrated with municipal infrastructure such as streetlights, bringing coverage and capacity closer to subscribers. Moreover, this type of solution is being increasingly adopted by neutral hosts that can offer shared sites to multiple network operators; an arrangement that is especially enticing to greenfield operators that do not have an installed base of legacy infrastructure. As a result, we expect to see interest in site concealment and integrated antenna solutions continue to ramp up in 2022.

BY FERGAL LAWLOR

Fergal Lawlor is the CEO of Alpha Wireless, which he founded in 2007. He is an Antenna Design Engineer with 30 years of experience in the telecommunications industry and extensive experience in base station antenna designs. Fergal holds a number of antenna related patents and is recognized as a leading innovator in the CBRS/3.5 GHz space.