

## HGC's major yet unseen role in delivering 5G service to Hong Kong users HGC 環電於香港 5G 服務擔當重要角色

### HGC Global Communications Limited

#### 環球全域電訊有限公司

HGC is playing a major role in developing Hong Kong's unfolding era of 5G mobile communications, while assisting the territory's ambition to become a world-class smart city.

Running an extensive optical-fibre network places HGC at the centre of harnessing 5G and other technologies, such as artificial intelligence and the Internet of Things, to transform everyday life for Hong Kong citizens and businesses.

HGC helped mobile network operators connect their customers via 2G, 3G, 4G and 4.5G – and today plays an indispensable role in Hong Kong's 5G development.

HGC 環電於香港邁進 5G 流動通訊時代中擔當重要的角色，協助香港成為世界級智慧城市。HGC 環電的廣闊光纖網絡，可配合 5G 技術及人工智能和物聯網等概念，改變香港市民的日常生活和企業的工作模式。

過去，HGC 環電一直協助流動網絡營辦商向其客戶提供 2G、3G、4G 及 4.5G 服務；今天，HGC 環電亦是香港 5G 發展當中不可或缺的一員。



### Laying the foundation for 5G development locally

Each of Hong Kong's main mobile players runs thousands of base stations all over the territory and all of them are connected to core network equipment and to the Internet world by HGC's fibre network. In fact, HGC's local fiber network homepass reaches more than 90% of the population.

A vital yet unseen element of mobile service is the terrestrial "backhaul" network. This connects handset signals received by base stations to all the land-based equipment and Internet access required to make today's highly-sophisticated mobile experience possible. HGC provides backhaul for most of Hong Kong's leading mobile service providers, gaining a leading addressable market share.

### HGC 環電奠定本地 5G 發展的根基

香港各大流動網絡營辦商分別運營著數以千計、遍佈香港每個角落的基站。HGC 環電的本地光纖網絡覆蓋超過 90% 人口，並為大部分的流動網絡營辦商提供「回程路線」(Backhaul)，在市場上佔了領先的份額。回程路線是流動服務中鮮為人知而且重要一環，它將基站接收到的流動裝置信號傳送到核心網絡設備，再接入互聯網世界，從而將錯綜複雜的網絡連接轉換為切實可享用的流動服務體驗。

HGC 環電本地營運商業務總經理葉文浩表示：「要發揮 5G 技術的特性，HGC 環電需相應加強回程路線功能。舉例說，5G 網絡的速度大約比 4G 快 10 倍，因此，HGC 環電已將流動網絡營辦商的基站之間的互通光纖網絡升級，速度由 1GBps 提升至 10GBps，彷如透過『加寬的管道』來進行通訊和傳送內容。」

**Kelvin Yip, General Manager of Local Carrier Business, HGC** expressed, “The extraordinary capabilities of 5G technology have required HGC to uplift its backhaul service. For example, 5G speed is calculated at around 10 to 20 times faster than 4G, so HGC’s fibre-based connectivity between base stations and land-based operations has been upgraded from 1GBps to 10GBps – which could be imagined as a much “fatter pipe” through which to carry communications and content.

HGC’s involvement in Hong Kong’s migration to 5G began some years ago when it joined with mobile operators to plan where their base stations – which create “cells” of coverage – should be located throughout the territory. They had to be installed close to HGC’s fibre network to minimise the time taken between a signal leaving a mobile handset and the response in terms of data or voice. This is known as latency – and the lower, the better!

### 5G features and applications

Main 5G features are high speed, low latency and ultra-high density of connections. HGC optimises super low latency made possible by 5G because its fibre network boasts round-trip latency of less than 2 milliseconds. This means the time taken for a packet of data to complete a round trip on HGC’s backhaul network is under two-thousandths of a second.

This is the kind of ultra-low latency required by the myriad lifestyle-enhancing and mission-critical applications emerging from 5G technology such as autonomous driving, remote robotic surgery and immersive mobile gaming to name just a few.

Businesses of all types are expected to benefit from 5G, which has been described as the key to unlock the fourth industrial revolution known as “Industry 4.0”. In fact, this new technology is expected to enable creation of products never before imagined.

The 5G era will give rise to a complex technology ecosystem to serve virtually every aspect of everyday life and leave 4G technology in the shade. For example, average 4G download speed experienced by users is around 25Mbps, compared with 5G’s 400Mbps. And 5G can support about 1 million devices per square kilometre compared with 4G’s 4,000.

Meanwhile, Hong Kong’s Internet of Things (IoT) capability – by which computing devices in everyday objects send/receive data – is enabled by HGC’s fibre connectivity between the many “small cells” required by IoT technology. These smaller-scale base stations of limited range also serve to provide high-quality mobile connectivity inside buildings, which 5G radio spectrum has difficulty penetrating.

HGC 環電早於多年前開始參與香港的 5G 發展，聯同流動網絡營辦商，計劃將基站分佈整個香港——打造一個高密度的「蜂巢式」網絡。基站須安裝在 HGC 環電的光纖網絡附近，以儘量縮短流動裝置發出信號與數據之間的時間。這就是所謂的時延，當然是越短越好！



*Kelvin Yip, General Manager of Local Carrier Business, HGC*  
HGC 環電本地營運商業務總經理葉文浩

### 5G 特性及應用

5G 具備「高速」、「低時延」及「廣連接」的特性。HGC 環電的光纖網絡可助 5G 展現其特性，而且實現超低時延，成功將時延降至低於 2 毫秒 (Milliseconds) 往返。這意味著，「數據包」在不到千分之二秒的時間就可以完成 HGC 環電回程路線中的一次往返。

5G 技術衍生出大量改善生活模式及處理關鍵任務的應用程式，例如無人駕駛汽車系統、遙距機械人手術及沉浸式手機遊戲體驗等等，都必須配以超低時延操作。

5G 被稱為第四次工業革命（即工業 4.0）的鑰匙，可惠及各行各業，亦有望可創造出前所未見的產品及應用程式。

5G 時代將構建一個複雜的技術生態系統，並應用於日常生活的不同層面。例如，4G 的平均速度為 25Mbps，而 5G 將達到 400Mbps。5G 在每平方公里可支援多達 100 萬個連線裝置，而 4G 只有 4,000 個。

### Wi-Fi 6 offers an alternative to 5G connectivity

While 5G is the preferred choice for territory-wide mobility and applications, the new generation Wi-Fi 6 standard comes with similar technical specifications and offers a comparable capability, so provides another option for deployment of smart applications and IoT.

HGC delivers Wi-Fi 6 managed solution and managed services to organisations seeking to establish high-quality, yet cost-effective, wireless access network connectivity integrated with various enterprise management tools.

The digital era enables companies from any industry to expand and capture opportunities by connecting mission-critical IoT devices and applications via a wireless access network. This is especially important when running public Internet access and industrial IoT operations in enclosed or specific areas of a diverse environment.

Wi-Fi 6 delivers far more capacity and supports many more simultaneous users and devices than any previous generation of Wi-Fi technology. It can be used in conjunction with the latest generation of smart devices, sensors, access points and routers – as well as customized software and applications – to create comprehensive IoT and other smart solutions.

A distinct advantage is Wi-Fi 6 operates in an unlicensed frequency band, thereby allowing an organisation quite some freedom in terms of designing, implementing and even owning an entire solution.

As a fully-fledged telecoms operator offering one-stop infrastructure-based ICT solutions, HGC believes 5G and Wi-Fi 6 complement one another to create wireless access networks suitable to satisfy a vastness of requirements in diverse circumstances.

HGC is embracing 5G wholeheartedly in order to help Hong Kong reap maximum benefit from the technology. ●

與此同時，香港的物聯網 (IoT) 性能也將得到大大的提升。IoT 透過日常裝置中的計算裝置發送及接收數據，而 HGC 環電的光纖網絡可連接 IoT 技術所需的大量小型基站。透過這些規模較小及範圍有限的「基站」，可在 5G 無線電頻譜難以覆蓋的大廈內提供優質的網絡連接。

### 提供 Wi-Fi 6 作為 5G 通訊技術的替代選擇

5G 一般被市場作為覆蓋全港的流動網絡及應用程式的通訊技術，而新一代的 Wi-Fi 6 標準則提供與之可比的技術規格及同等的功能，成為能提供應用程式及物聯網 (IoT) 的另一選擇。

HGC 環電提供 Wi-Fi 6 的解決方案及托管服務，讓企業享受優質且具成本效益的無線連接網絡及多元化的企業管理工具，一舉多得。

置身數碼世代，各大企業可透過無線連接網絡，連接至關鍵性任務型物聯網的設備及應用程式，助其開拓及抓緊廣大商機。這項技術對於營運公共互聯網連接及在不同環境包括封閉或特定區域操作工業物聯網尤其重要。

Wi-Fi 6 遠勝過往任何一代 Wi-Fi 技術，它能夠為更多使用者和設備同時提供服務和支援，且能與最新一代的智能設備、感應器、存取點及路由器配合使用，還有針對制定的軟件和應用程式，從而創建全方位的物聯網及其他智能解決方案。Wi-Fi 6 適用於牌照申請豁免的無線頻段，這是其一獨特優勢，給予企業很大的自由度去制定、安裝營運甚或擁有一套完整的解決方案。

HGC 環電為領先的電訊固網營辦商，提供以基礎設施為本的一站式 ICT 解決方案，並深信 5G 通訊技術能與 Wi-Fi 6 相輔相成，建構可滿足不同要求及情況的無線連接網絡。

HGC 環電將捉緊 5G 帶來的機遇，助香港縱享科技福利！ ●

