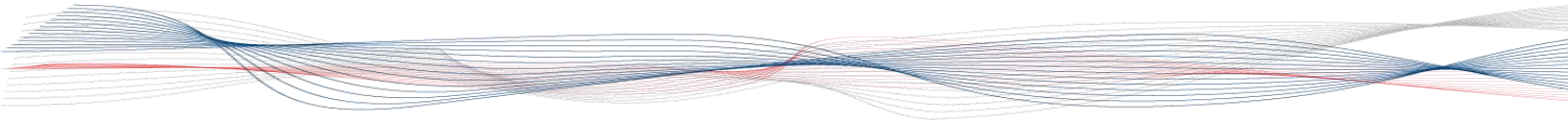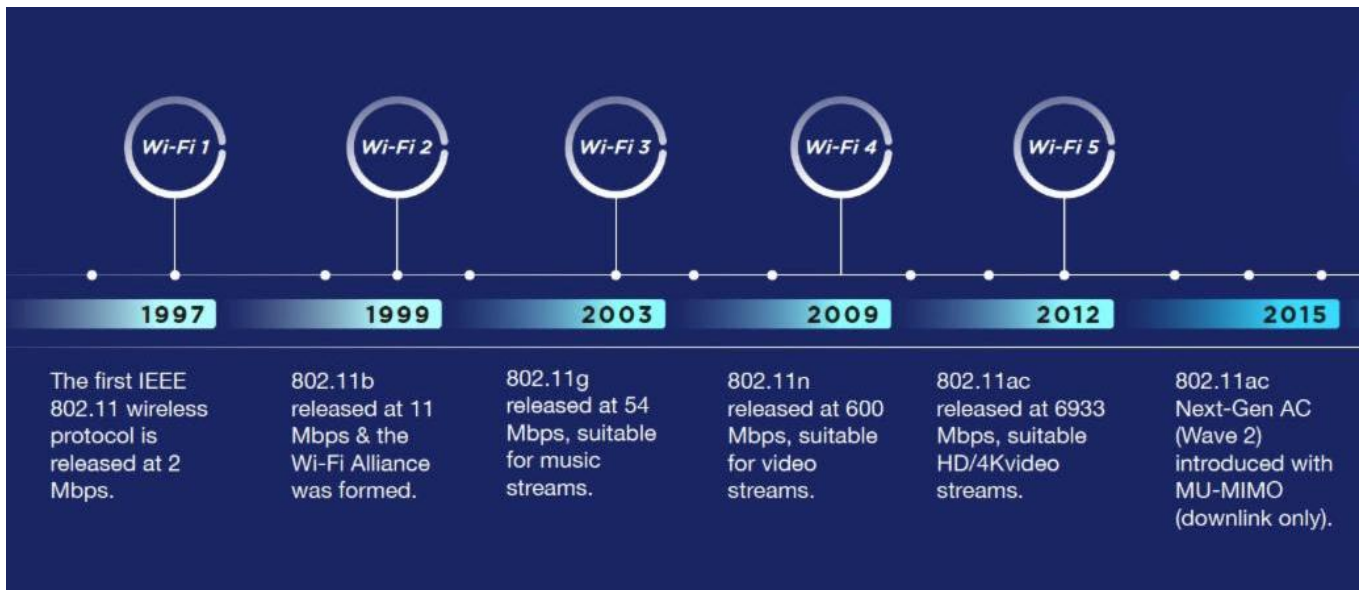**EION WIRELESS**

E-LINK Rapid 6.0
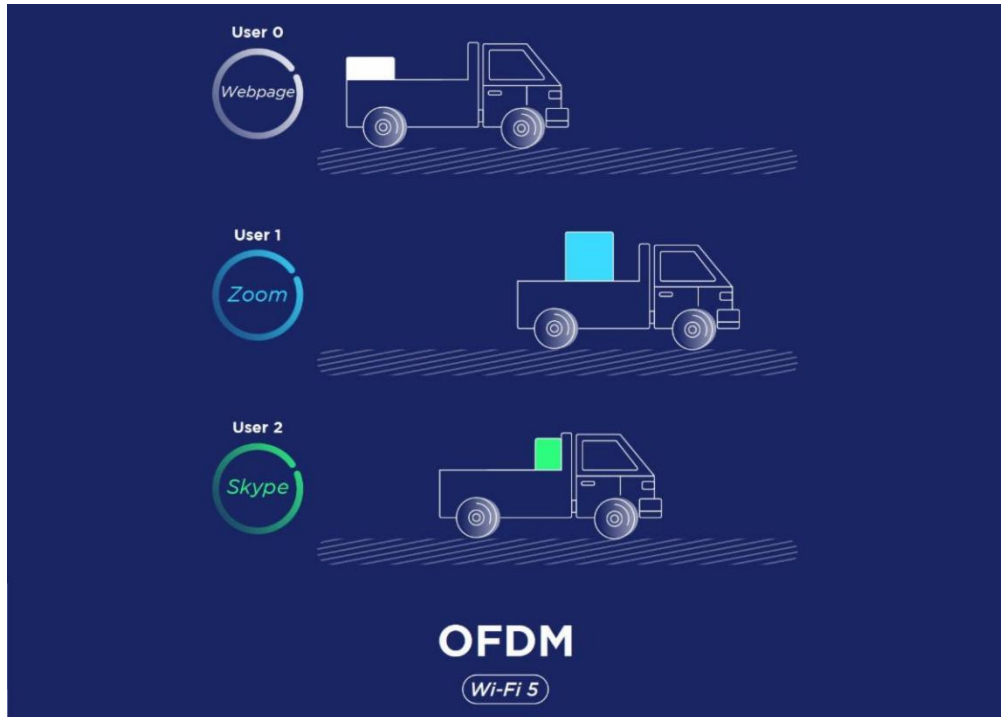# Smart Business Applications

INTRODUCTION

E-LINK Rapid 6.0 is an 802.11ac Wave 2.0 dual-band high power industrial use outdoor Access Point, with a high throughput of 1200 Mbps (2.4 GHz 300 Mbps, 5.8 GHz 900 Mbps). The Gigabit WAN port and high data rate enable a high density of user access concurrently to enjoy seamless streaming of high bandwidth-intensive applications. E-LINK Rapid 6.0 provides great communication efficiency, by complying with Wave 2.0 technology, 64 QAM modulation and by supporting Spatial Streams MU-MIMO (Multi-User Multiple-Input Multiple-Output), specific device per timeframe, regardless of data type and size. See below on each time slot a single user is being served.

Wi-Fi 1	Wi-Fi 2	Wi-Fi 3	Wi-Fi 4	Wi-Fi 5	
1997	1999	2003	2009	2012	2015
The first IEEE 802.11 wireless protocol is released at 2 Mbps.	802.11b released at 11 Mbps & the Wi-Fi Alliance was formed.	802.11g released at 54 Mbps, suitable for music streams.	802.11n released at 600 Mbps, suitable for video streams.	802.11ac released at 6933 Mbps, suitable HD/4Kvideo streams.	802.11ac Next-Gen AC (Wave 2) introduced with MU-MIMO (downlink only).

WI-FI 5 - ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING (OFDM)

In the Wi-Fi 5 (also known as the 802.11ac protocol), wireless data packets are separated into specific time frames and transmitted using OFDMA for data transfer to different network devices. An OFDMA data packet contains data for different devices but delivers data to one

MU-MIMO, BEAMFORMING, BAND-STEERING

Along with OFDMA, E-Link Rapid 6 has another very significant technological enhancement, known as MU-MIMO, to further reduce network latency and significantly increase wireless network bandwidth. The earlier version is SU-MIMO* (Single User Multiple Input Multiple Output), only allowed communication with multiple devices in consecutive order, or one at a time. E-Link Rapid 6 with MU-MIMO, uses multiple spatial streams for simultaneous communication with multiple devices. Though both (MU-MIMO and OFDMA) are very similar in concept, do not confuse MU-MIMO with OFDMA. OFDMA enables multi-user access by subdividing a data packet, while MU-MIMO transmits to multiple devices (or groups of devices) simultaneously via multiple antennas using different wireless signals (2.4 GHz & 5 GHz spatial streams). Beamforming and band-steering improve the overall performance of service delivery and spectral performance.

E-LINK RAPID 6 FOR SMART BUSINESS APPLICATIONS

Managing wireless networks for high-traffic locations such as corporate offices, schools, hotels and shopping centers can be very challenging, even for experienced IT managers and MSPs (Managed Service Providers). In this section, we briefly discuss network management concerns for these key business sectors.

SMART ENTERPRISE

In fast-paced corporate offices where agile working environments have been adopted, access to high-bandwidth services such as high-definition video streaming and cloud-based applications can happen anytime, anywhere. While E-Link Rapid 6 can alleviate many traffic-related network bottlenecks, an agile working environment will still need an agile form of network management to effectively minimize network congestion. Most enterprise networks will also require ample network security measures to protect sensitive company data from unauthorized access.

SMART EDUCATION

WiFi connectivity is a must-have for classrooms, and so are access permissions for the various types of users, curriculum, and locations across the campus. In addition to blocking access to unauthorized websites, network administrators should also have the ability to control every aspect of the network, such as activating specific network segments for targeted class sessions and disabling network access for empty classrooms to preserve network bandwidth and prevent unauthorized access.

In addition to smart phones, laptops, and tablets, E-Link Rapid 6 connects more devices in the classroom, including smart watches, gaming consoles, Kindle, Echo, scan markers, and even bandwidth-intensive interactive learning experiences such as AR/VR headsets.

For campus operations, E-Link Rapid 6 can link IoT sensors to fully automate Smart systems such as HVAC, lighting, security,

surveillance, and emergency response to significantly improve energy efficiency and enhance student safety.

SMART HOSPITALITY

When arriving at a hotel, one of the first things a guest is likely to ask for is the WiFi password. With so many guest devices accessing the wireless network relentlessly looking for the best local attractions, user account management is just as important as bandwidth allocation to keep them reliably connected with seamless handoffs when moving from their room to the downstairs bar, or even to the outdoor pool. For temporarily restricted network access, front desk attendants can print vouchers for non-resident guests, granting network access only within a limited time and usage speed to preserve bandwidth, ensuring high quality of service for paying resident guests. In addition to connecting IoT sensors to enable Smart systems such as for security, premise lighting, surveillance, POS, and customer service kiosks, E-Link Rapid 6 can enable hyper-personalized guest services through voice-activated virtual assistants to effortlessly set the alarm for the morning flight, order tickets for the opera, and even draw bath water at the specified temperature right before bath time. Beacon technology can also be implemented to provide proximity marketing. For example, guests passing by the hotel spa may receive text messages about discounts for facials.

SMART RETAILS / SMBS

Retail businesses often have multiple locations and individual network maintenance across remote sites will be very time-consuming and costly. Businesses should have an efficient centralized platform for remote network management to ensure services such as POS (Point of Sale) terminals, customer service kiosks, and captive portals remain operational to enhance the shoppng experience. Network downtime can incur significant losses as well as have a negative impact on customer loyalty.

Along with the arrival of E-Link Rapid 6, the user experience will be considerably improved across most business scenarios, and

each will have varying network infrastructures with different application needs. But one common requirement for business networks of any size, is the need for an effective management solution to achieve optimized network performance and reliability, which can only be accomplished through real-time monitoring and efficient maintenance with a centralized management platform.

RECOMMENDED PRODUCTS

EION PoE Switches

EION E-Link Gateway Controller 1000

EION Enterprise E-Link Rapid 6.0 WiFi AP