Zyxel WLAN / WiFi

präsentiert von:

Norbert Roller

Channel Director DACH

1. Praxis Tips aus Survey + Debugging
2. WLAN Controller versus Nebula Cloud Management(*)
3. Vorteile von WiFi 7 / 802.11be
4. Welchen AP für welche Anwendung
5. Roadmap 1HJ/2025

JUST CONNECT
Powered by Zyxel Nebula

1. Best Practice

- SSID – Weniger ist mehr
- 80/160/320MHz Bandbreite nur in Sonderfällen
- 5GHz ab Kanal 100 wenn irgendwie möglich
- Empfangsqualität entscheidet über die AP-Qualität >-100dBm)

- WiFi Survey -35dBm bis maximal -60dBm
- Perfekte Position ?!
- Mesh oder Kabel
- 6GHz optimal für Sonderfälle.
- 2,5Gbps Port’s
- Limited Lifetime

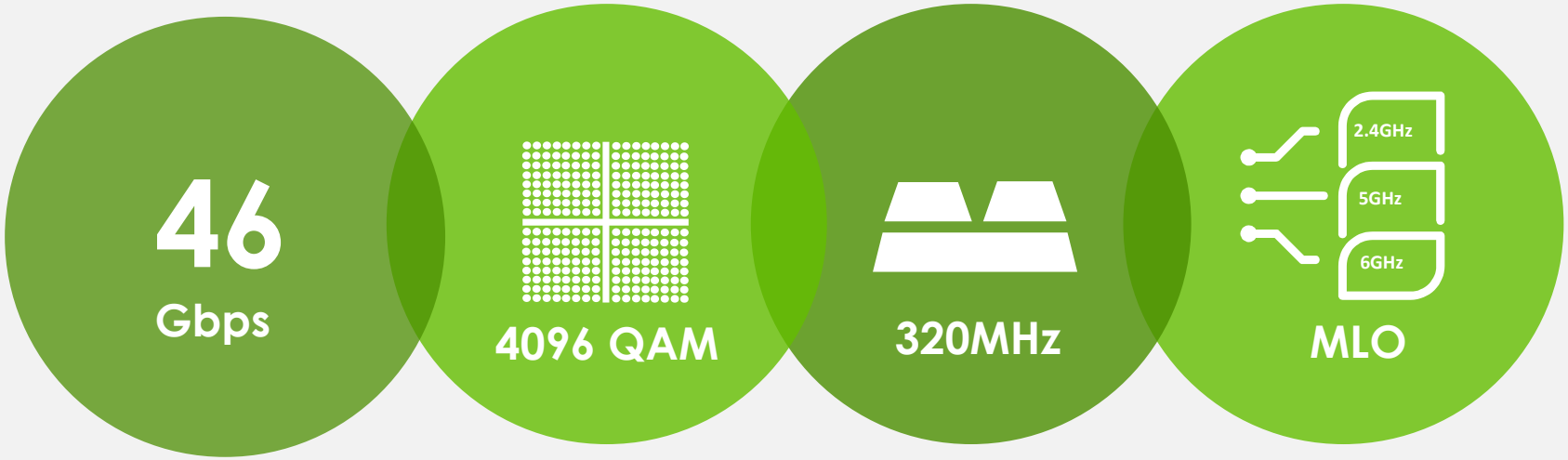
3. Vorteile von

WiFi 7 (802.11be)

im Vergleich zu

WiFi 6 (802.11ax)

Wireless WiFi 7



5x Schneller.

WiFi 7 bietet Geschwindigkeiten von bis zu 46 Gbps(16 räumliche Streams).

20% Höher Datendurchsatz.

20%ige Erhöhung der Datenrate durch die Einführung von 4096 QAM. 10 bis 12 Bits pro Symbol erzielen eine höheren Datenraten

2x Bandbreite.

Mit 320-MHz-Kanäle im 6-GHz-Band kann WiFi 7 die Bandbreite verdoppeln.

100% Geringere Latenzzeit.

Die Leistung wurde dank neuer Funktionen wie dem Multi-Link-Betrieb (MLO) erheblich verbessert.

- Kleinere Latenzzeit
- Höhere Kapazität
- 3 Frequenzen gleichzeitig

*Im Vergleich zu den älteren Standards

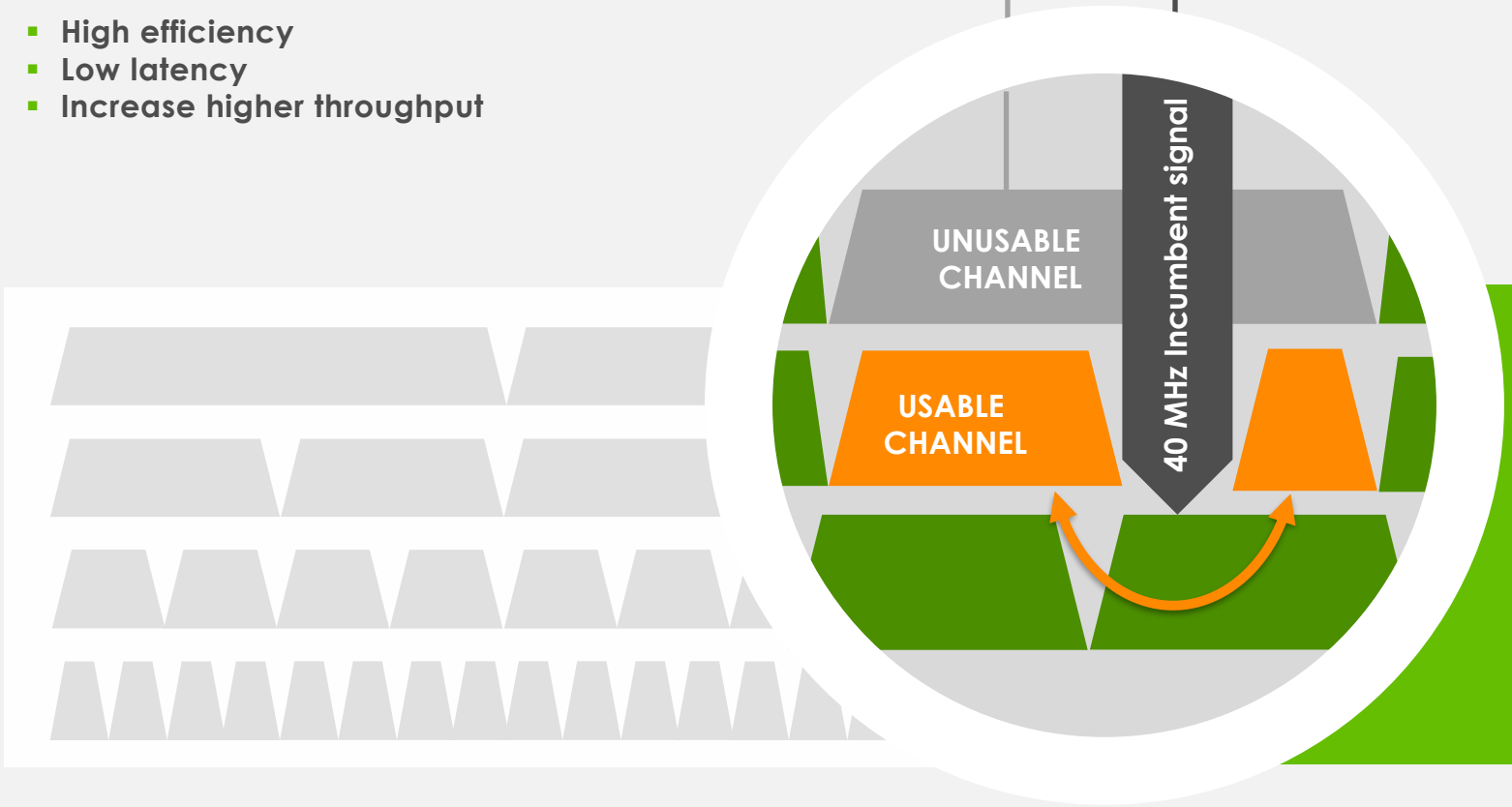
Multi-RU Puncturing

Multi-RU segments wide channel bandwidth into small units and enables "puncturing" of the channels so it can be used without conflicting with an incumbent signal, particularly in the restricted parts of the 5 & 6 GHz bands.

- **High efficiency**
- **Low latency**
- **Increase higher throughput**

With legacy WiFi, the channel bandwidth is unusable because 40 MHz of wireless spectrum is designated for other use (e.g. radar)

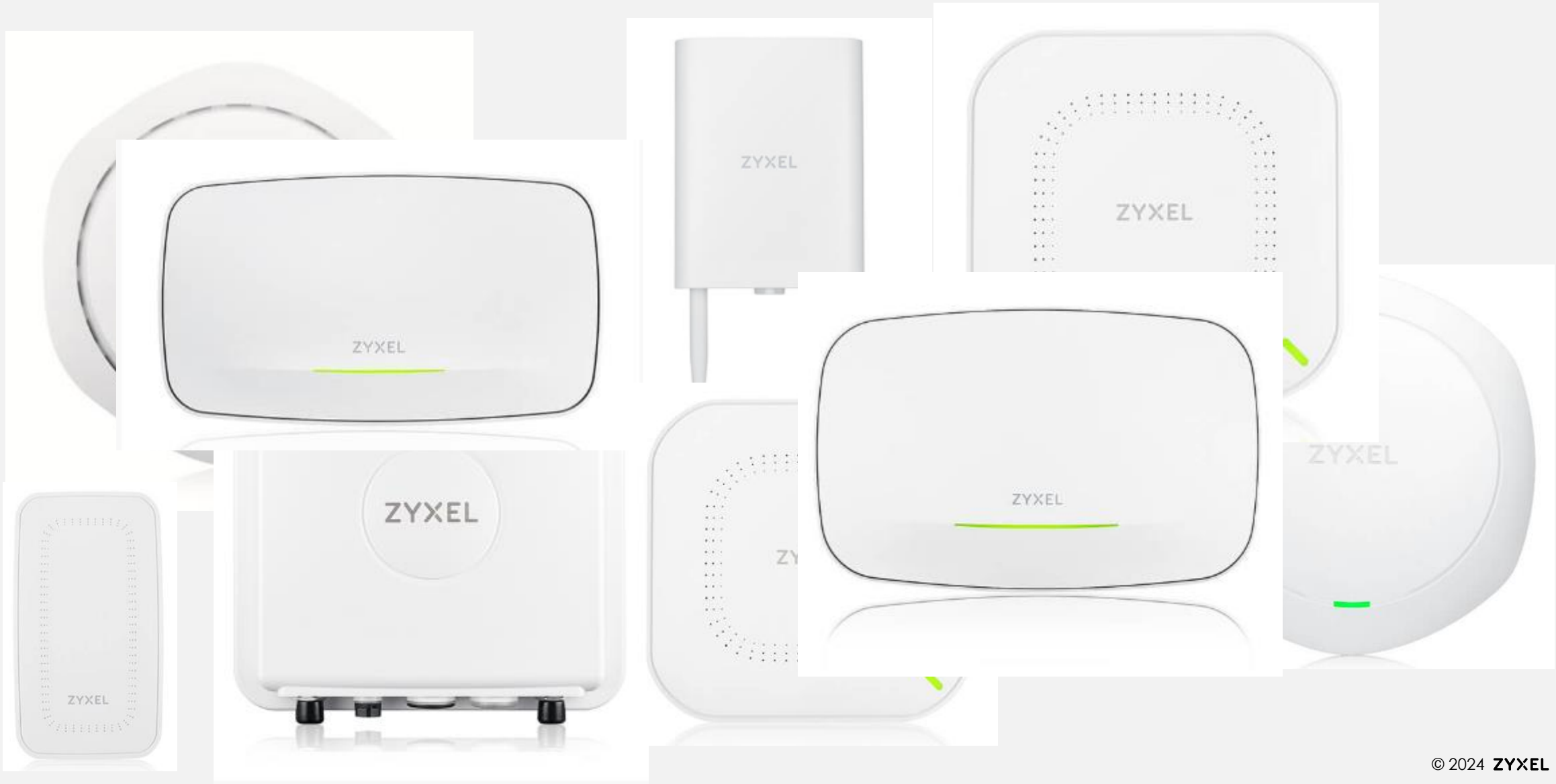
RU puncturing makes it possible to use the bandwidth's remaining 280 MHz



Multi-RU (Resource Units)
Supports different combinations for channels of these bandwidths: 60 MHz, 120 MHz, 200 MHz, 240 MHz and 280 MHz

Puncturing
Supports incumbent signal channel bandwidth as narrow as 20 MHz

4. Welchen AP für welche Anwendung ?



Privatkunden AP‘s

NWA50AX
802.11ax WiFi 6
2x2 MU-MIMO
PoE+
1G LAN

NWA130BE
802.11be Wifi 7
2x2 MU-MIMO
PoE+
2 x 2.5G LAN

Outdoor oder Produktion / Lager

- 6GHz für den Außenbereich nicht verfügbar.
- Wind und Wetter **ungeschützt** ausgesetzt ?

NWA55AXE
802.11ax WiFi 6
2x2 MU-MIMO
IP55
PoE+
Wechselbare Antennen.

WAX655E
802.11ax Wifi6
4x4 +2x2
MU-MIMO
IP67
PoE+
externe Antennen

Hospitality / Firmen

Konferenz / Restaurant

WBE660S
802.11be Wifi 7
NebulaPro
4x4 + 4x4 +4x4
10GB
POE++
3-Mode

Zimmer / Gang

WBE530
802.11be Wifi 7
NebulaPro
2x2 + 2x2 + 2x2
MU-MIMO
2x 2.5G LAN
PoE+
3-Mode

WAX300
802.11ax Wifi 6
NebulaPro
2x2 MU-MIMO,
4x 1GbE Ports
3-Mode

5. Zyxel's WiFi 7 AP Portfolio 2024 / 1HJ 2025

Model	NWA110BE	NWA130BE	NWA210BE	WBE510D	WBE530	WBE630S	WBE660S
Product name	BE6500 WiFi 7 Dual-Radio NebulaFlex Access Point	BE11000 WiFi 7 Triple-Radio NebulaFlex Access Point	BE12300 WiFi 7 Dual-Radio NebulaFlex Access Point	BE6500 WiFi 7 Dual-Radio NebulaFlex Pro Access Point	BE11000 WiFi 7 Triple-Radio NebulaFlex Pro Access Point	BE12300 WiFi 7 Dual-Radio NebulaFlex Pro Access Point	BE22000 WiFi 7 Triple-Radio NebulaFlex Pro Access Point
Radio	**Dual-radio BandFlex**	**Tri-radio**	**Dual-radio BandFlex**	**Dual-radio BandFlex**	**Tri-radio**	**Dual-radio BandFlex**	**Tri-radio**
Management	Nebula Cloud-managed/ Standalone	Nebula Cloud-managed/ Standalone	Nebula Cloud-managed/ Standalone	Nebula Cloud-managed/ Controller-managed/ Standalone	Nebula Cloud-managed/ Controller-managed/ Standalone	Nebula Cloud-managed/ Controller-managed / Standalone	Nebula Cloud-managed/ Controller-managed/ Standalone
Speed	BE6500	BE11000	BE12300	BE6500	BE11000	BE12300	BE22000
Antenna Type	Internal Antenna	Internal Antenna	Internal Antenna	Dual-optimized Antenna	Internal Antenna	Smart Antenna	Smart Antenna
MIMO	2x2+4x4	2x2+2x2+2x2	2x2+4x4	2x2+4x4	2x2+2x2+2x2	2x2+4x4	4x4+4x4+4x4
Streams	2+2	2+2+2	2+4	2+2	2+2+2	2+4	4+4+4
Ports	2.5GbE	2.5GbE+2.5GbE	2.5GbE+2.5GbE	2.5GbE	2.5GbE+2.5GbE	2.5GbE+2.5GbE	10GbE+1GbE
Power	• PoE (802.3at): power draw 21.5 W • DC input : USB PD 15 VDC 2A (Type C)	• PoE (802.3at): power draw 24 W • DC input : 12 VDC 2A	• PoE (802.3at): power draw 21.5 W • DC input : USB PD 15 VDC 2A (Type C)	• PoE (802.3at): power draw 21.5 W • DC input: USB PD 15 VDC 2A (Type C)	• PoE (802.3at): power draw 24 W • DC input : 12 VDC 2A	• PoE (802.3at): power draw 21.5 W • DC input : USB PD 15 VDC 2A (Type C)	• PoE (802.3bt): power draw 41 W • DC input : USB PD 15 VDC 3A (Type C)
Dimensions	250 x 160 x 47 mm	250 x 160 x 47 mm	250 x 160 x 47 mm	250 x 160 x 47 mm	250 x 160 x 47 mm	250 x 160 x 47 mm	310 x 178 x 56 mm
ETA	Oct, 2024	Released	Oct, 2024	Q1, 2025	Released	Q1, 2025	Released

Vielen Dank

JUST CONNECT
Powered by Zyxel Nebula

CONNECT high-density locations.

Leverage from the WiFi 7 Standard for faster and reliable connectivity:

- ✓ Provide greater density support / alleviate WiFi overcrowding
- ✓ Reduce WiFi spectrum congestion
- ✓ Provide cyber security

High-density.

NEBULA**FLEX**

2.5G mGig

NWA210BE

- WiFi 7 BE12300 (12.3Gbps)
- 1 x 2.5G Uplink
- 1 x 2.5G LAN

NEBULA**FLEX**

2.5G mGig

NWA110BE

- WiFi 7 BE6500 (6.5Gbps)
- 1 x 2.5G Uplink

NEBULA**FLEX**

2.5G mGig

XMG1915-10EP/18EP

- 8/16 X 2.5G mGig
- 2 X10G SFP+
- 130W/180W PoE++

60W PoE++

NEBULA**FLEX PRO**

2.5G mGig

USG FLEX 200H

- 5 Gbps SPI throughput
- 2 x Multi-Gig(2.5G)
- 6 x 1G

5 Gbps

CONNECT high-bandwidth applications.

High-bandwidth applications such as video streaming and production, broadcasting, online gaming, and VR/AR, gain advantages:

- ✓ Deliver incredible speeds
- ✓ Reduce latency
- ✓ Enhance the user experience

High-bandwidth.

NEBULA**FLEX**

2.5G mGig

NWA210BE

- WiFi 7 BE12300 (12.3Gbps)
- 1 x 2.5G Uplink
- 1 x 2.5G LAN

NEBULA**FLEX**

2.5G mGig

NWA110BE

- WiFi 7 BE6500 (6.5Gbps)
- 1 x 2.5G Uplink

NEBULA**FLEX**

2.5G mGig

XMG1915-10EP/18EP

- 8/16 X 2.5G mGig
- 2 X10G SFP+
- 130W/180W PoE++

60W PoE++