

Trådløs IBI

Proprietære løsninger

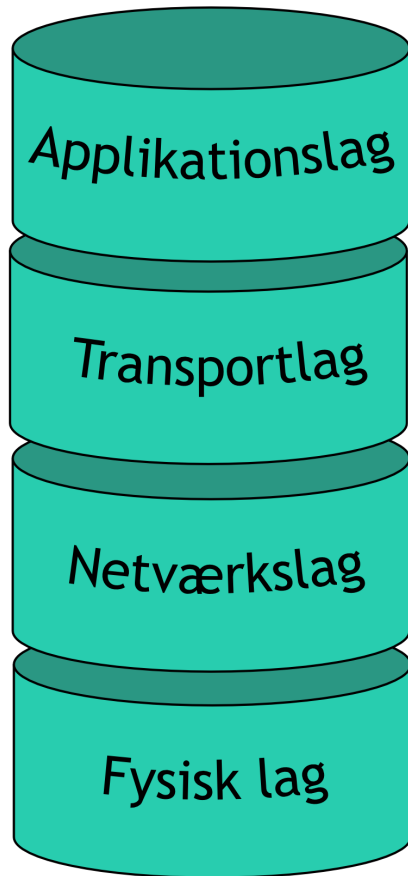
- Ecosystem der er lukket for andre producenter



Proprietære løsninger



Protokol



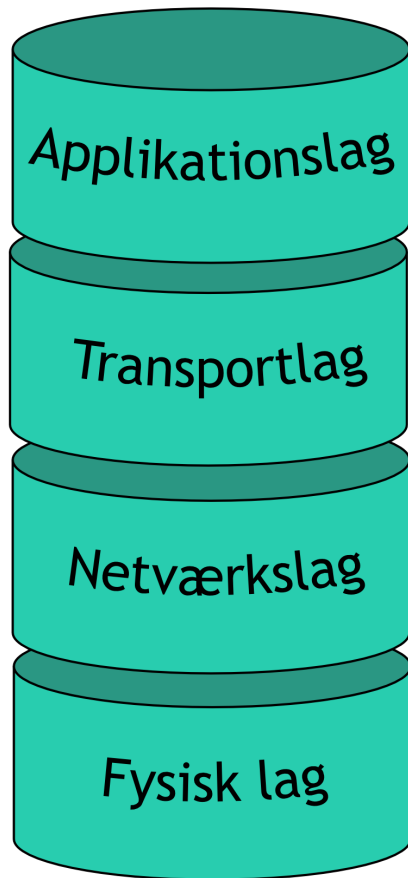
Hvordan læses
beskeden?

Hvordan bliver
beskeden sendt?

Hvor skal beskeden
sendes til?

Hvad bliver der
kommunikeret på?

Gammel telefonkommunikation set som en protokol



Tale og sprog

300-3400Hz

PSTN

Kobber

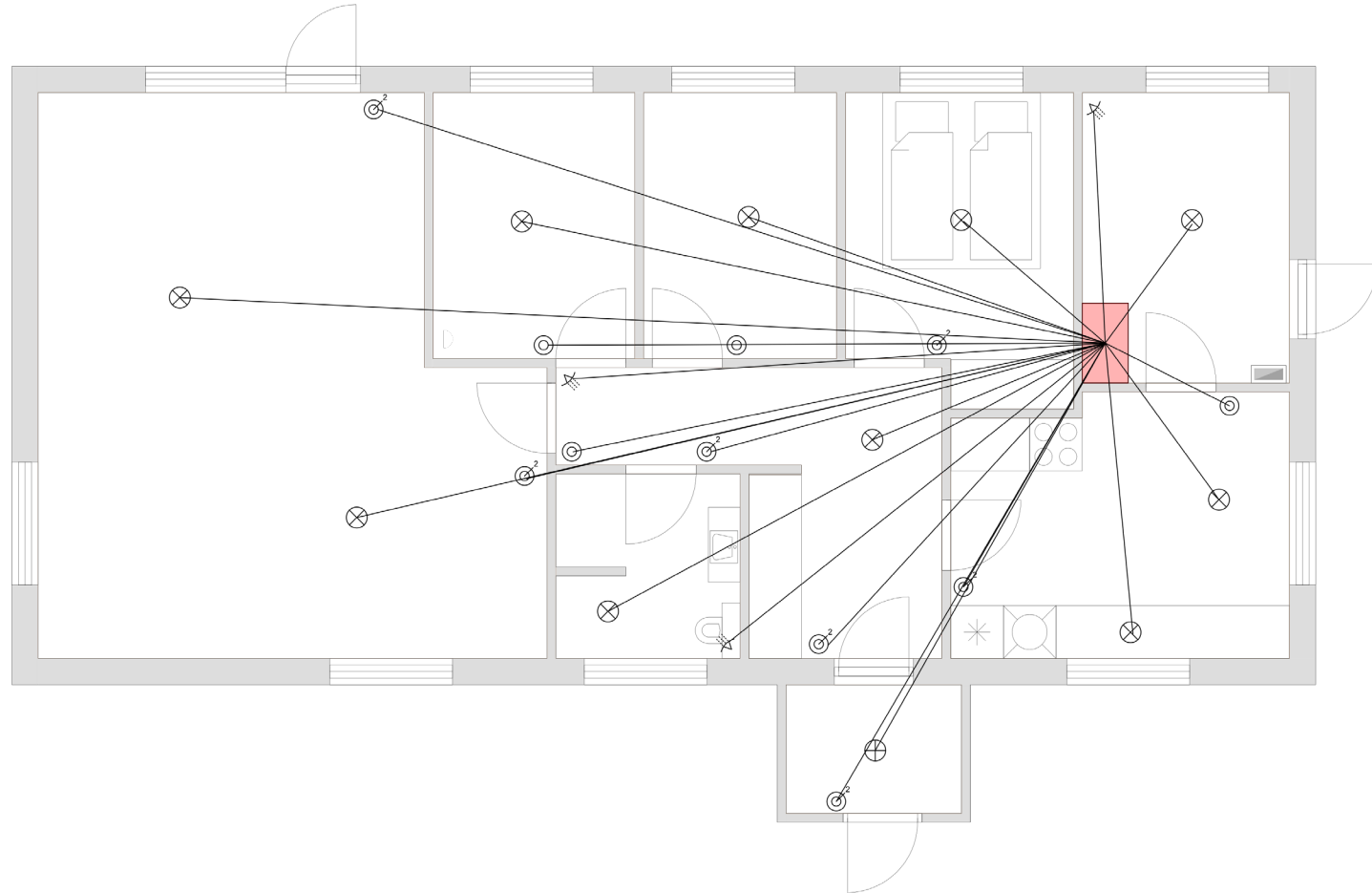


Åbne protokoller

- En løsning alle kan og må bruge
- Applikationslaget er standard eller certificeret
- Alle kan få adgang til protokol og udvikle produkter uden ekstra licens omkostning

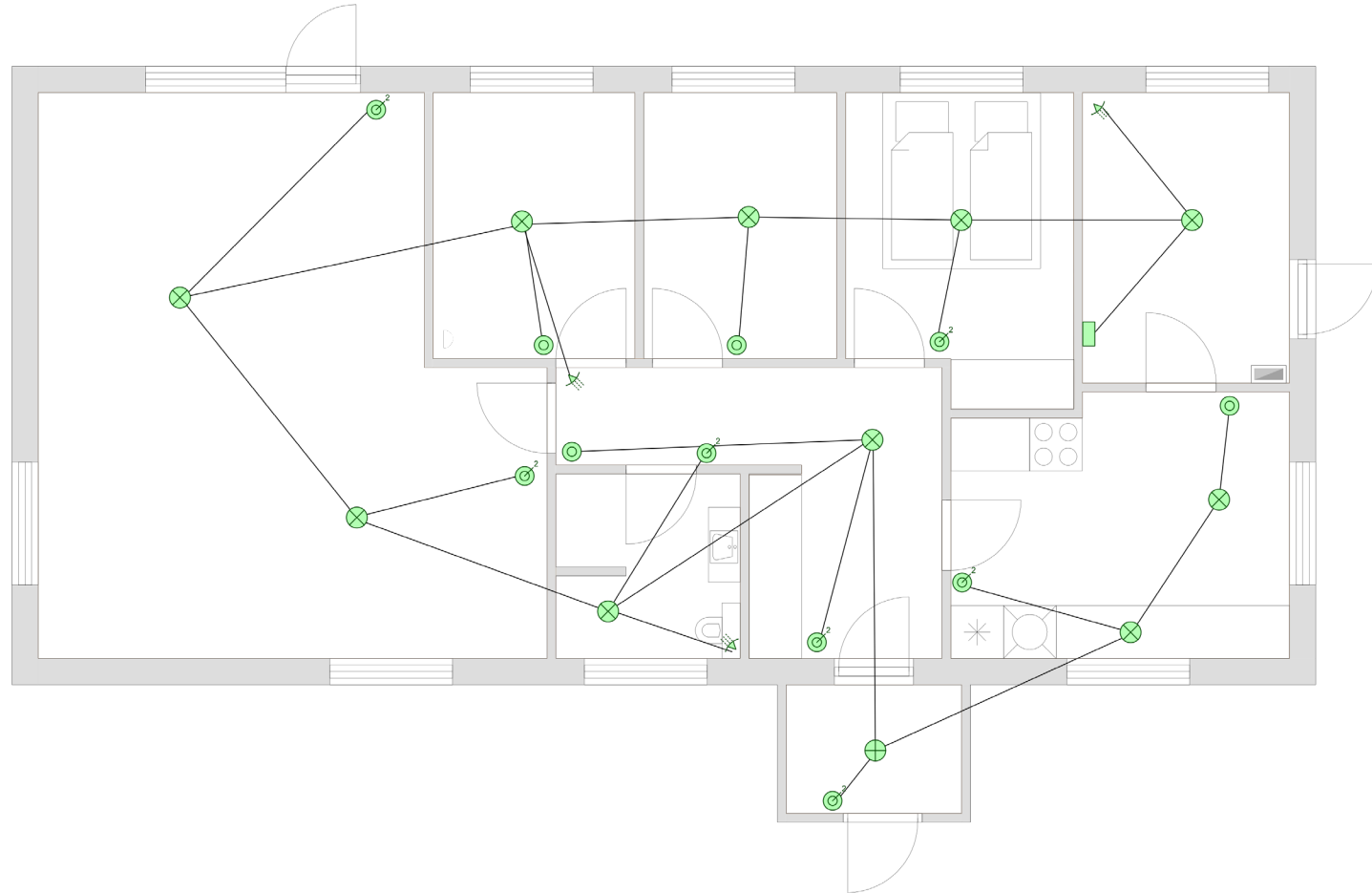
Centralt IBI

- IHC
- ???



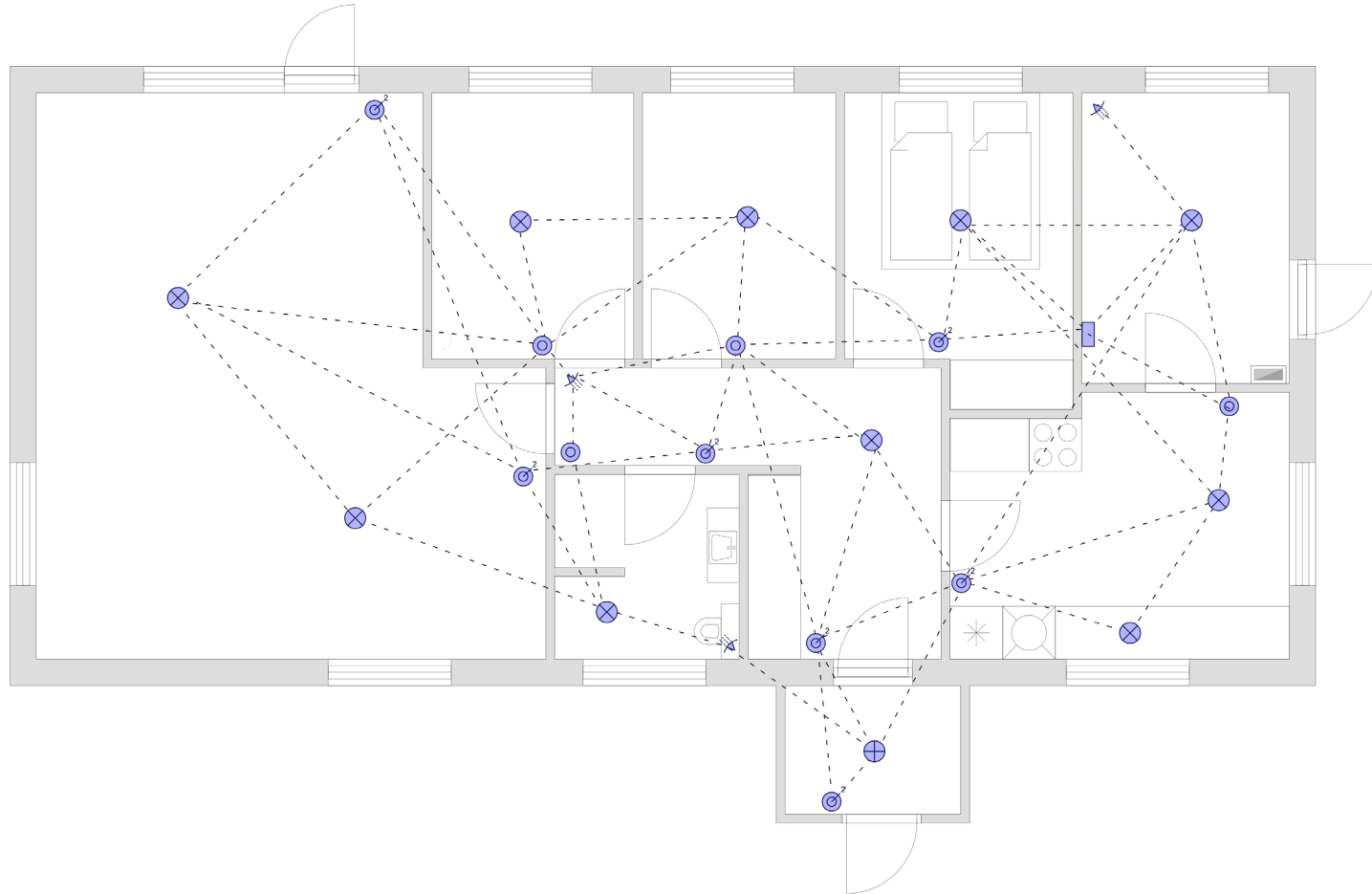
Decentralt IBI

- KNX
- LON-works



Trådløst IBI via MESH

- W-wave
- ZigBee
- Thread



Z-wave



- Opstod i 1999 af det danske firma Zensys
- Fælles specifikation i 2005
- AES-128 kryptering
- Hård certificeringsprocess
 - Medlemskab af Z-wave alliancen
 - 1000 chips til udvikling
 - Produktet skal testes og godkendes af alliancen

Enheds adresser	232
Topologi	MESH
Frekvens	868MHz*
Rækkevidde	30-40m
Hastighed	100kbit/s

*Forskellige frekvenser i forskellige verdensdele

ZigBee



- Opstod i 1990
- Fælles specifikation i 2004
- Version 3.0 i 1015
- AES-128 kryptering
- Mulighed for proprietære løsninger
 - Phillips HUE
 - IKEA Trådfri
 - LK Wiser

Enheds adresser	65.000
Topologi	MESH*
Frekvens	2,4GHz**
Rækkevidde	10-20m
Hastighed	250kbit/s

*Oftest

**I Europa kan det være 868GHz, men er det næsten aldrig

Thread



- IPv6
- IP-adresering
- 2021
- Samme antenne som ZigBee (multiprotokol)
- Router-enheder kan skifte til at være end-device

Enheds adresser	32Router og 511End device pr. router
Topologi	MESH med Bo
Frekvens	2,4GHz
Rækkevidde	10-20m
Hastighed	250kbit/s

WiFi



- IP adressering
- Har brug for Access point

Enheds adresser	---
Topologi	Star*
Frekvens	2,4GHz eller 5GHz
Rækkevidde	10-20m eller 5-10m
Hastighed	600kbit/s eller 1300kbit/s

*Nogle enheder kan repete, andre kan lave et SUB-net til intern kommunikation

Bluetooth



- Mest brugt til andet elektronik
- Bliver brugt til parring af enheder

Enheds adresser	---
Topologi	Pear to pear eller Mesh
Frekvens	2,4GHz
Rækkevidde	10-20m
Hastighed	1-3Mbit/s

Matter

- Ikke en protokol
- Ens ablikationslag
- Version 1.0 annonceret i 2021
- MANGE medlemmer



Matter 1.0



Matter fremtidig support



For flere informationer

- Besøg SILICON LABS på www.silabs.com/wireless

Wireless Connectivity

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Developing connected products isn't easy. Timelines are tight. Embedded security skills and technology are scarce. Reuse of hardware and software is a challenge. And finding a truly robust, integrated solution is tough. We're here to help.

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With our scalable, and securely upgradeable architecture for end nodes and gateways, we make it possible to meet stringent government regulations and secure your connected product throughout its lifecycle. Take advantage of our expertise in mesh technology and multiprotocol coexistence to deliver advanced, secure wireless solutions for the IoT.

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	Bluetooth Mesh	Bluetooth LE	Proprietary	Thread	Wi-Fi	Wi-SUN	Zigbee	Z-Wave
Maturity	Est. 2017	Est. 2010	Varies depending on customer	Est. 2015	Est. 1997	Est. 2011	Est. 2003	Est. 2003
Topology Support	Managed Mesh flooding	Point-to-point Star Broadcast	Subject to protocol design	Mesh routing with border routers	Star Point-to-point	Self-healing mesh	Mesh routing	Mesh Star
Native IP Addressing	×	×	Varies on protocol	✓	✓	✓	×	×
Multiprotocol*		Zigbee Proprietary	Bluetooth	Bluetooth Zigbee			Bluetooth Thread	
Featured Product	EFR32BG21	EFR32BG22	EFR32FG23	EFR32MG24	WFM200 RS9116	EFR32FG12	EFR32MG24	ZGM230S

*Multiprotocol options are limited to specific devices based on Family, Flash, and RAM sizes

ANY
QUESTIONS
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