Next-Gen Robotics Infrastructure:

Real-Time Intelligence

via 5G and Cloud

Phuchong Charoensuk
Enterprise Product Marketing Manager, AIS

AIS Business
Your Trusted Smart Digital Partner

Thematic Framework for
Next-Gen Robotics

Hardware - Precision Mechanical Parts	
Drive Systems (Motors, Reduction Gears, Actuators, Effectors)	**Semiconductors & Chips** (AI, Communication, Embedded)
Sensors (Vision, Motion, Force/Torque, Tactile, Environmental, Safety Systems)	

Software - Robotic Intelligence		
Machine Learning	**Machine Vision**	**Gesture Control**
Industrial Software	**Conversational Platforms**	

Source: Global Data , AIS

Industry 4.0: Realtime Intelligence Applications

Industry Use Cases

- Productivity and Quality Improvement
- Supply Chain Management
- Remote Operation and Maintenance
- Automated Factory
- Workforce Safety
- ESG & Sustainability

Advanced Digital Technology

IoT Smart Sensor

5G and Cloud Computing

Machine Vision

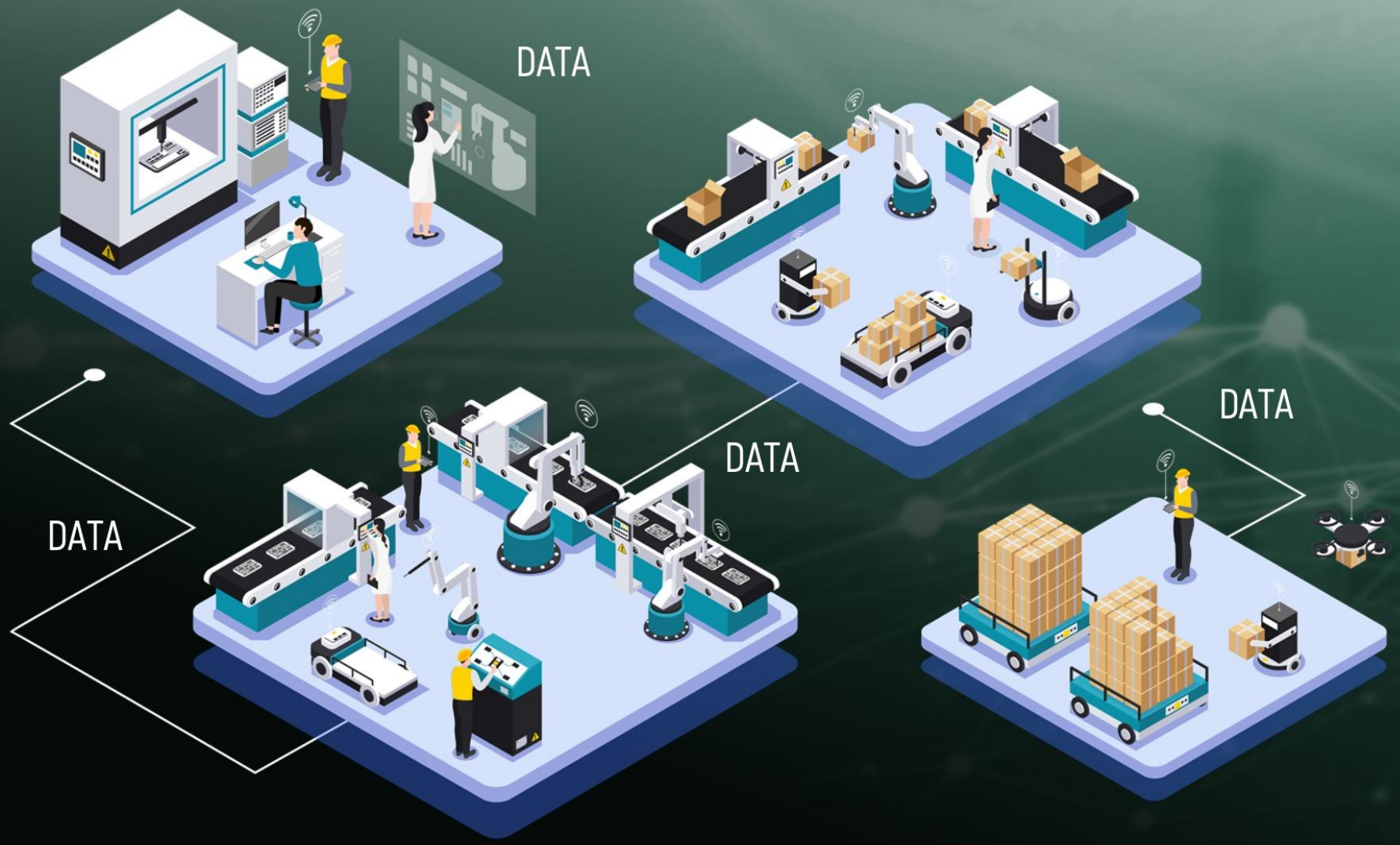
Robotics

Augmented / Mixed Reality

Digital Twin

Artificial Intelligence

Realtime Intelligence Applications = Connected Factory



The Foundation of Realtime Intelligence

Sensors &
Thing Devices

Connectivity

Computing &
Platform

AI & Data
Analytics

Application &
Virtualization

Asia Mobile Awards 2024 AMO 亚洲移动大奖

Best Mobile Technology Breakthrough in Asia 2024

Midea AIS 中国联通 China unicom HUAWEI

Midea – 5G Connected Factory

- 5G Dedicated Private Network
- 5G AI Inspection / Operating Room
- 5G AGV
- 5G Robotic Arm

WORLD ECONOMIC FORUM

World Economic Forum Recognizes 12 New Sites Driving Holistic Transformation in Manufacturing

Midea®

Global Lighthouse Network 2025

Geneva, Switzerland, 16 September 2025 – The World Economic Forum welcomes today 12 new innovative industrial sites to the Global Lighthouse Network, bringing the total to 201 leading production facilities and value chains. These sites leverage digital technologies at scale to deliver outstanding results in productivity, supply-chain resilience, talent, sustainability and customer centricity.






Digital Infrastructure

Foundation of Next-Gen Robotics

High Bandwidth & Low Latency

Supporting real-time and control signals

Coverage & Mobility

Supporting moving robots (indoor/outdoor/handover)

Reliability & Efficiency

Stable operations with minimal maintenance

Security & Compliance

Protecting data and meeting industry standards

Network Requirements for Industrial Applications

Use Case	Availability	Latency	Jitter	Payload Size	# of Devices	Coverage / Service Area
Motion Control Machine tools, robotic arms, packaging lines	> 99.9999%	0.5 – 1 ms	< 50 µs	20 – 50 bytes	20 – 100	10 – 100 m (factory floor)
Robotics (Collaborative / Industrial) Welding robots, assembly robots	> 99.9999%	1 – 5 ms	< 100 µs	40 – 250 bytes	~50 – 100	< 1 km^2
Machine Vision (Quality Inspection) High-res video inspection	> 99.999%	10 – 20 ms	< 1 ms	1 – 10 Mbit per stream	10 – 50	< 1 km^2
Autonomous Mobile Robots (AMR/AGV) Logistics, warehouse robots	> 99.999%	1 – 10 ms	< 100 µs	40 – 250 bytes	Up to 100 per cell	< 1 km^2
Process Automation SCADA, sensors, monitoring	> 99.99%	> 50 ms	< 10 ms	Varies	Up to 10,000 per km^2	Wide area coverage

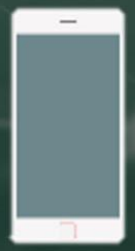
Source: ITU, GSMA

5G Network Slicing

Enables virtual end-to-end networks tailored to application requirements

4G

Network



4G networks do not enable the range of services that the future requires.

5G will not only faster, but it will also be more flexible

5G

Network

Mobile Broadband

Massive to Machine

Reliable Low Latency

eMBB Slicing

mMTC Slicing

uRLLC Slicing

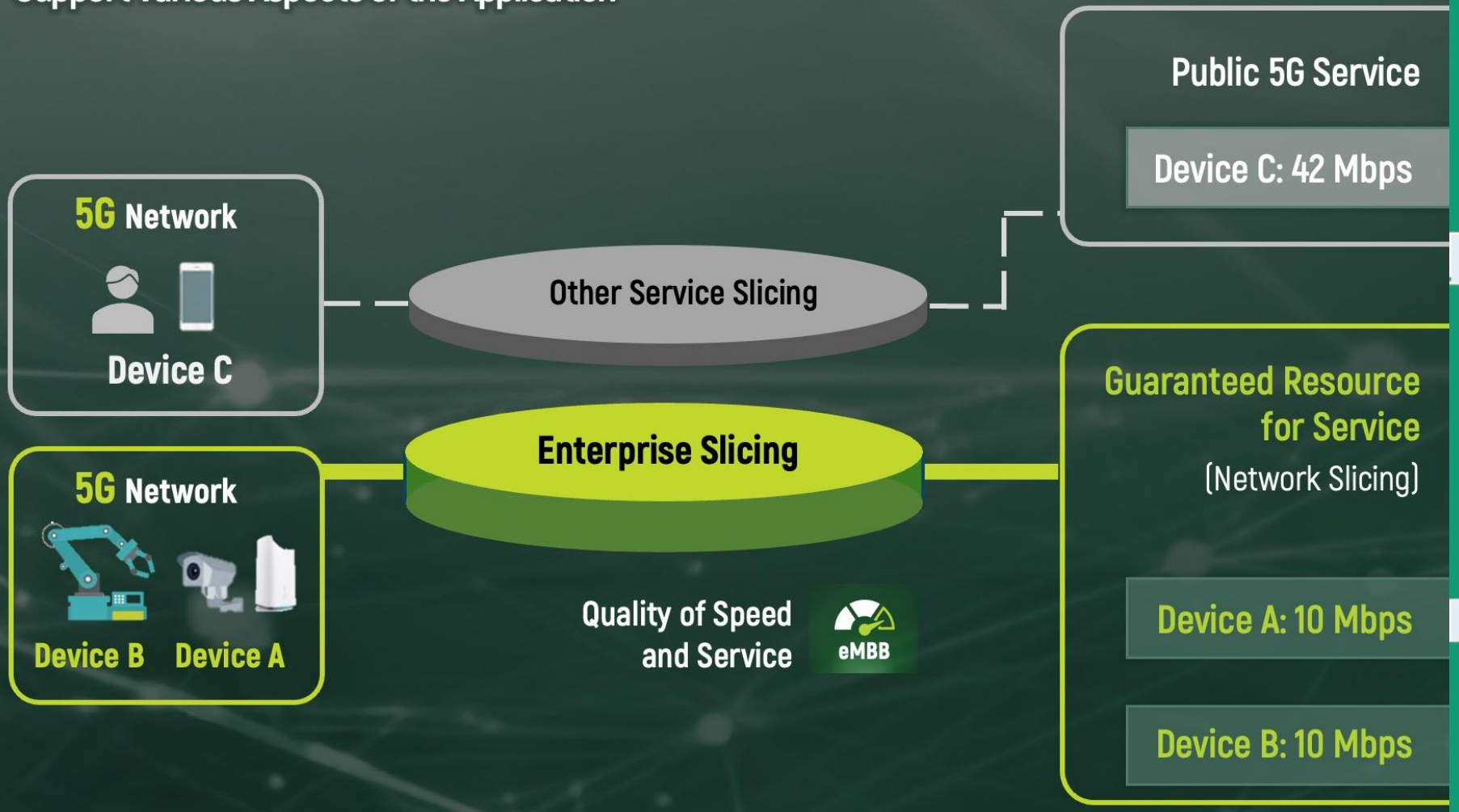
Communication
Entertainment
Internet

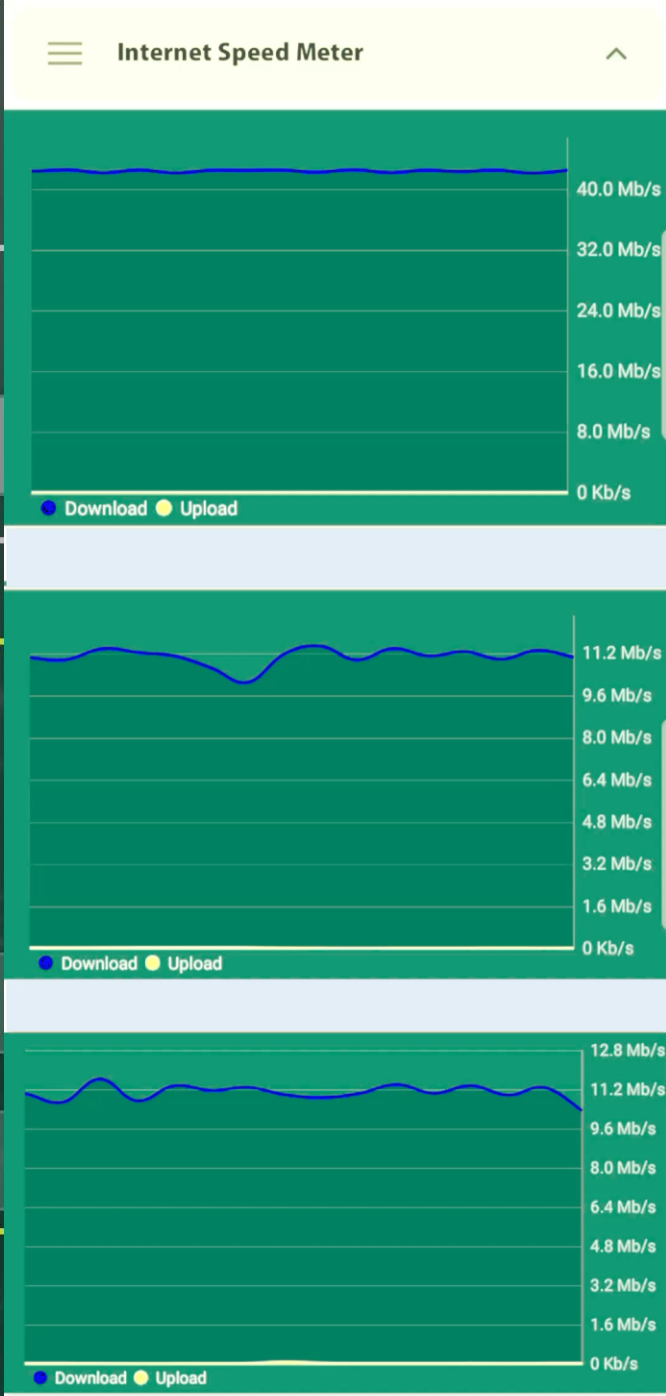
Retail
Shipping
Manufacturing

Automotive
Medical
Infrastructure

Prioritized Network Resources

Support Various Aspects of the Application





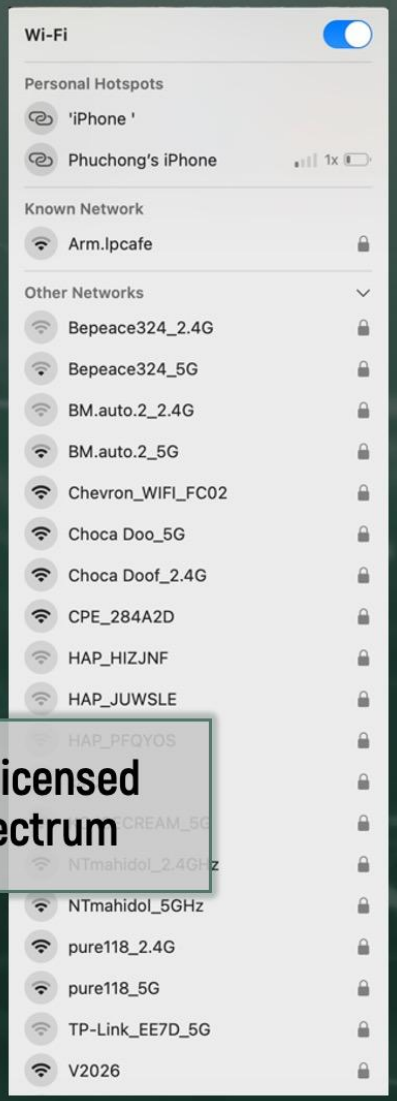
5G vs. Wi-Fi


WiFi
5G
2.4G
WiFi

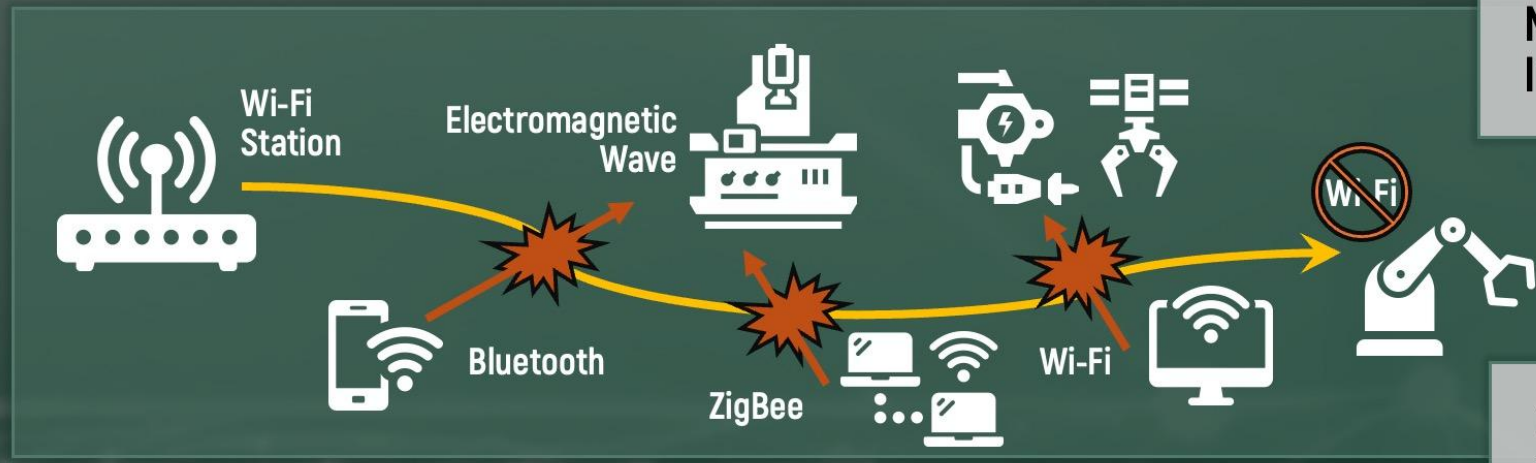

12:01
Wi-Fi
เครือข่ายที่พบสัญญาณ
TH_Wi-Fi_...NBTC-2.4G
DIRECT-T...-02msVN
TH_Wi-Fi...NBTC-5G
5G

Wi-Fi in Manufacturing

Technical Problem

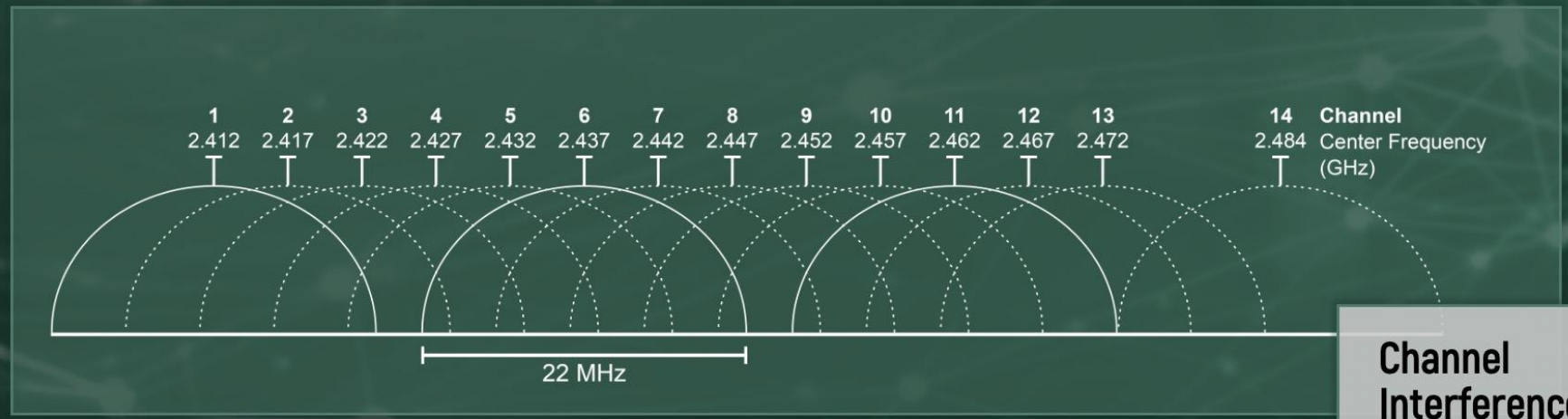


Unlicensed Spectrum



Noise Interference

CSMA/CA
MAC Protocol



Channel Interference

AIS 5G Private Network for Smart Manufacturing

Privacy
Local network, private resources, interdependently managed

Security
Cellular grade security, sensitive data stays on-premise

Optimized
Tailored performance for enterprise specific applications, e.g., low latency, QoS, network slicing

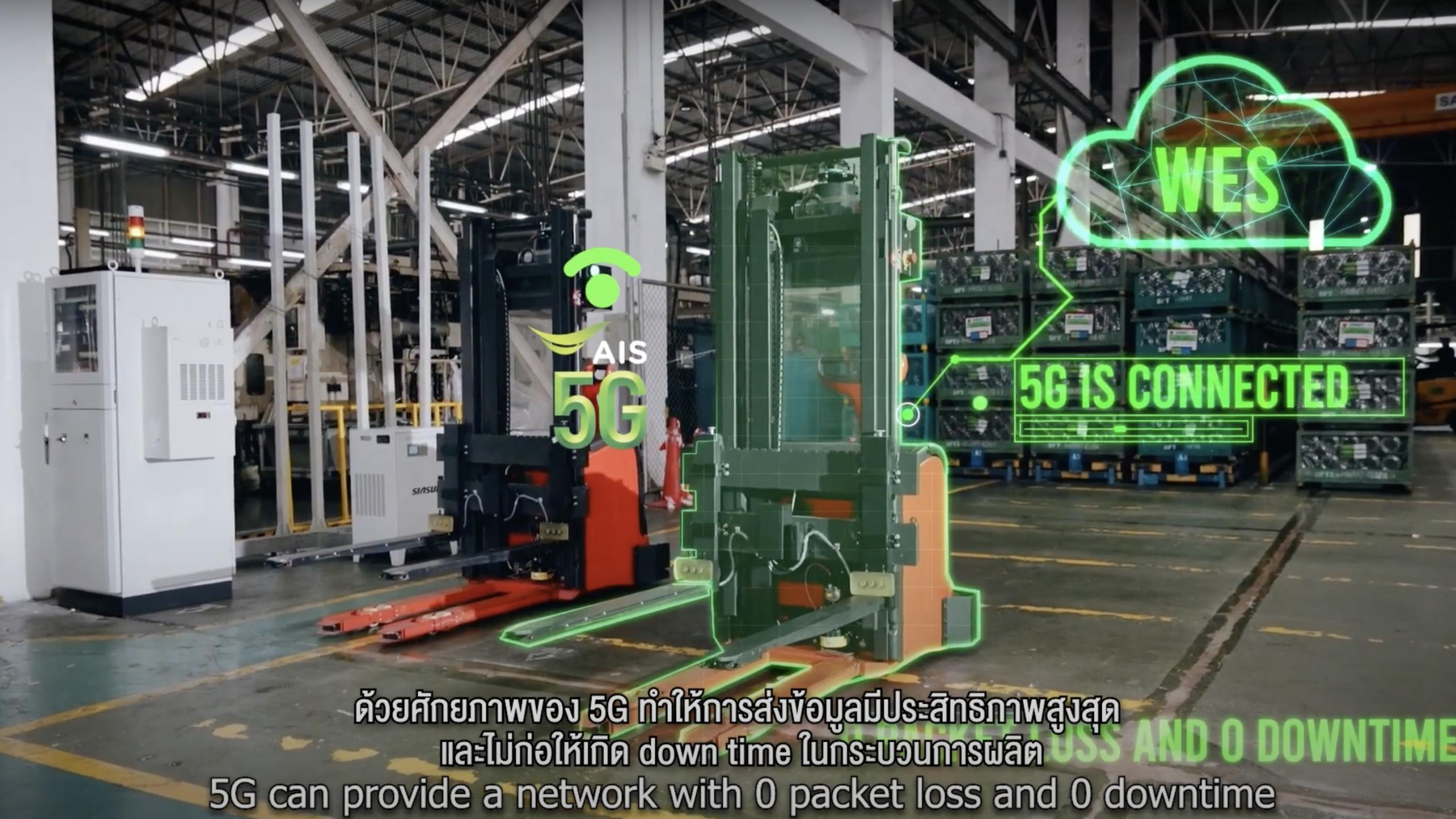
AIS 5G

Coverage, Capacity, and Mobility
Outdoor/indoor, high data speeds, seamless handovers, interference free

Reliability and Seamless Integration
Industrial grade reliability, latency and seamless integration with existing IT networks

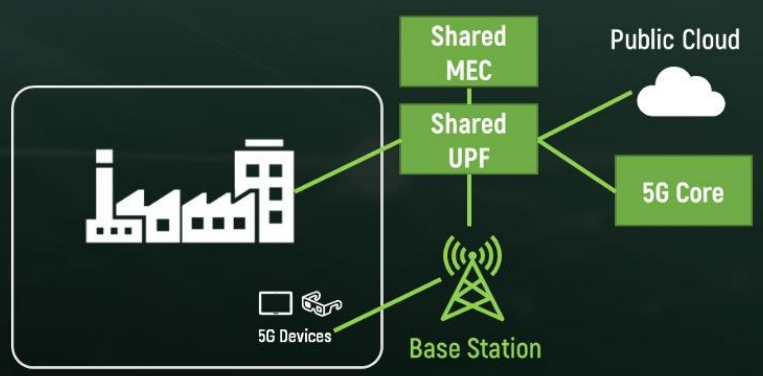
Effective Data Processing
Massive data transferring and local processing with MEC

Security and Compliance
Data localization, mobile grade security


WES
AIS
5G
5G IS CONNECTED
ด้วยศักยภาพของ 5G ทำให้การส่งข้อมูลมีประสิทธิภาพสูงสุด
และไม่ก่อให้เกิด down time ในกระบวนการผลิต
5G can provide a network with 0 packet loss and 0 downtime

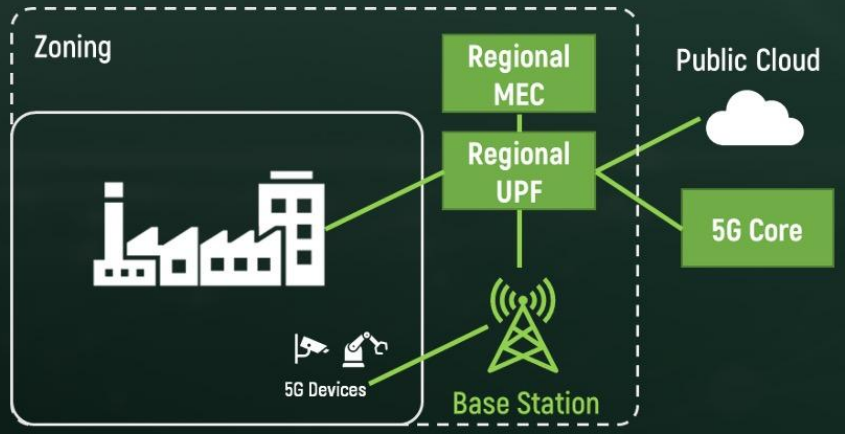
5G PRIVATE NETWORK

3 Grades of 5G Private Network



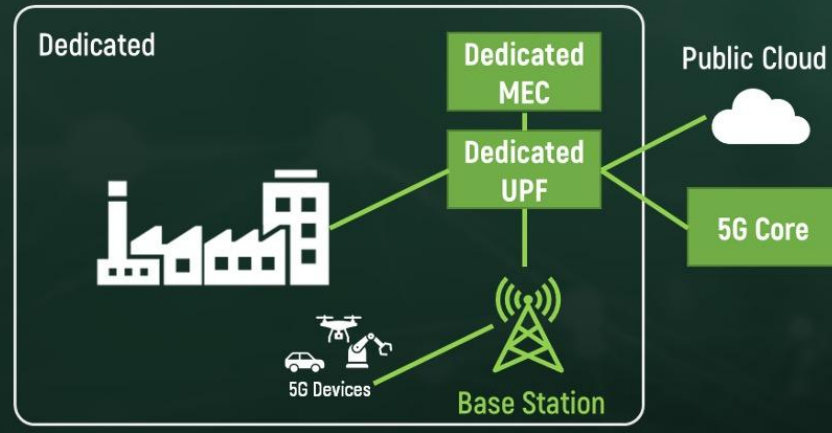
Private Network Type 1

Virtual Private Network
(Standard Grade)



Private Network Type 2

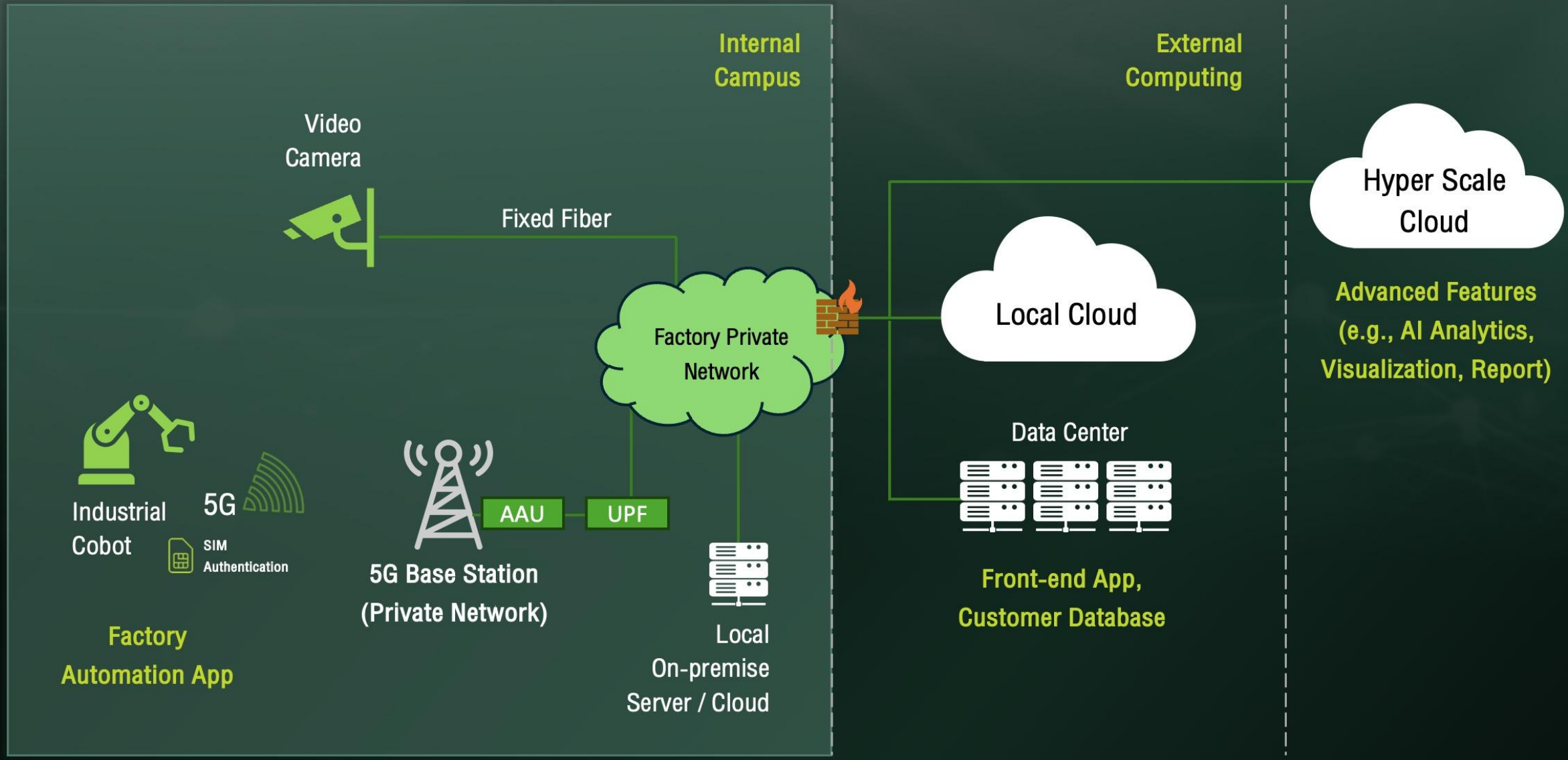
Zoning Virtual Private Network
(Premium Grade)



Private Network Type 3

Dedicated Private Network
(Exclusive Grade)

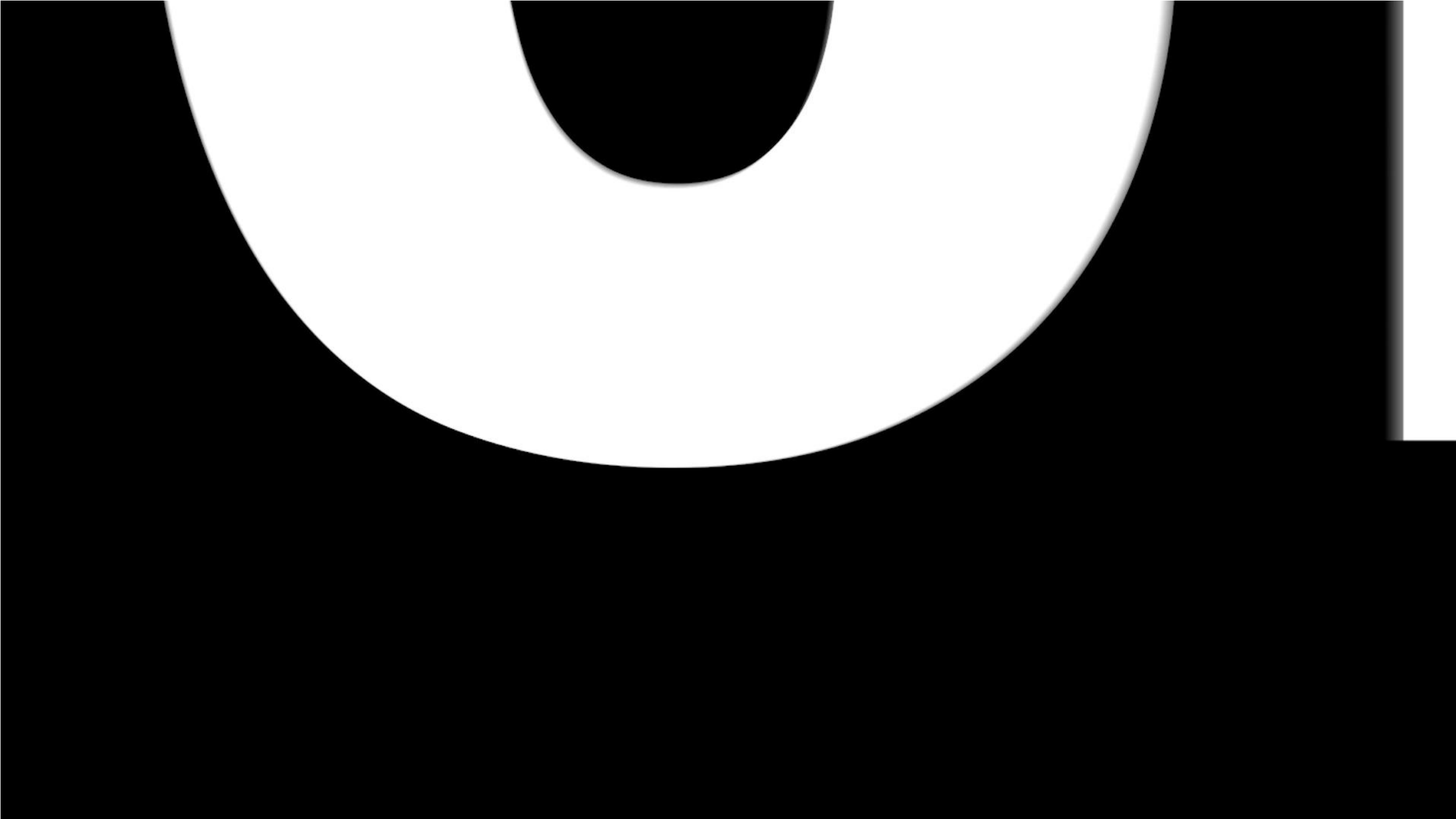
Network Design for Realtime Intelligence Applications



AIS Cloud

Powered by Oracle Cloud Infrastructure

THAI HYPERSCALE CLOUD



AIS 5G Testbeds for Smart Manufacturing

SMC a member of EECi ARIPOLIS NECTEC

AIS EVOLUTION EXPERIENCE CENTER depa

TGI Thai-German Institute สถาบันไทย-เยอรมัน

Wangchan Valley


Thailand Digital Valley


Thai-German Institute

AIS Business

Your Trusted Smart Digital Partner

Empowering Thai Business Competitiveness Through

5 DIGITAL CAPABILITIES

Mission

Empowering Lives and Businesses with Trusted Connectivity, Digital Innovations, and Exceptional Experiences.

Core Value

Comprehensive Products & Services

Best Customer Experience

Trusted Professionals

Ecosystem & Partnership

5G Ecosystem

Co-creating digital evolution by Next-Gen network, platform, and partnership

Intelligent Network and Cloud

Connecting and computing on complete infrastructures for a variety of businesses

AI and Data Analytics

Generating insights and opportunities by valuable data with cutting-edge technologies

Digital Platform and APIs

Collaborating over comprehensive communication and information interoperability

Industry Transformation

Transforming businesses in strategic verticals toward sustainable nation

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