

MWC Shanghai 2025

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5G-A实现全场景物联，加速奔向万物智联新时代

5G-A Powers All-Scenario IoT, Turbocharging a New AIoT Era for All

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构建万物互联的智能世界



蜂窝物联网高速发展，万物互联助力行业数字化

Cellular IoT Is Growing Explosively, Powering Sweeping Digitalization in Industries

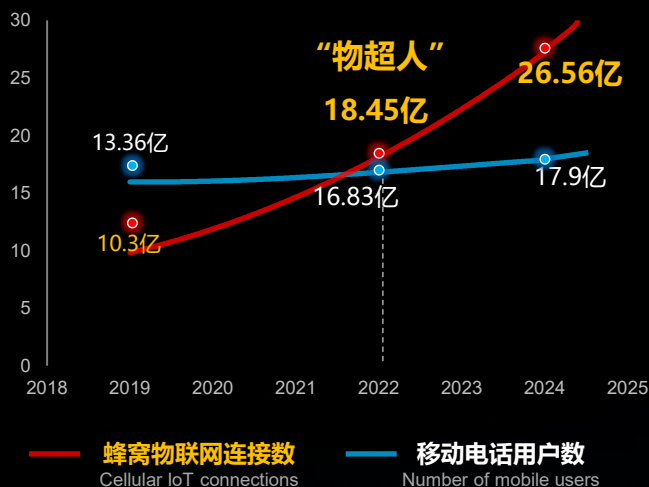
中国：物联已超人联，5年增3倍

Cellar IoT: 3x increase in 5 years

蜂窝物联网连接数呈指数级增长

Exponential growth of cellular IoT connections

中国/China



全球生态繁荣，模组成本持续下降

Thriving ecosystem with decreasing module costs

蜂窝物联网芯模端生态极大繁荣

Thriving ecosystem of cellular IoT from chips to devices



蜂窝物联网模组成本持续下探

Cellular IoT modules are more and more affordable



万物互联，实现数字普惠

Full connectivity to promote digital inclusion



2000万
共享单车
20M shared bikes

-80%
车辆丢失率
loss rate



~100万
5G工业终端
~1M 5GtoB devices

+30%
港口周转效率
Logistics efficiency
@宁波港/Ningbo Port



~1亿
智能水表
~100M smart water meters

-50%
供水故障
Water supply faults
@重庆水务/Chongqing

Source: Huawei MI

蜂窝物联网与AI深度融合实现万物智联，加速全社会数智化

Cellular IoT Is Deeply Integrating with AI to Accelerate Intelligent, Digital Transformation Across Society

更多物联对象，助力个人生活智慧化

Smart life: enhanced personal experience

智能网联汽车

Intelligent connected vehicles



轻轻两下 快乐出发

1.06 亿公里 智能辅助驾驶

106M km intelligent assisted drive

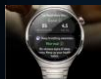
1.8万次 智能泊车

18,000 intelligent parking

*乾崮智驾五一期间

更多连接

智能穿戴设备



AI手表/眼镜/耳机...

AI watch, glasses, headsets...

十亿级 连接空间

具身智能



老人关怀/家庭清洁...

Elderly care, house cleaning...

亿级 连接空间

更多物联场景，推动行业数智化转型

Industry digitalization: higher production efficiency

智能制造

Intelligent manufacturing



逐步将格力的智能设备5G连接率做到了99%

+86% 生产效率

Production efficiency

零缺陷 年产1200万台空调

Zero defects

更多连接

智慧仓储



自动化盘点

Automated inventory counting

百亿级 连接空间

智慧制造



物料跟踪/AI质检

Material tracking/AI quality inspection

百亿级 连接空间

突破物理边界，促进城市治理智能化

Smart city: enhanced urban governance

无人机电力巡检

Drone-based power grid inspection



+8x 巡检效率

Inspection efficiency

分钟级 → 秒级 故障响应

Minutes → seconds: fault response

更多连接

智慧停车



城市公共车位

Public parking lots

千万级 连接空间

智慧抄表



水/电/燃气

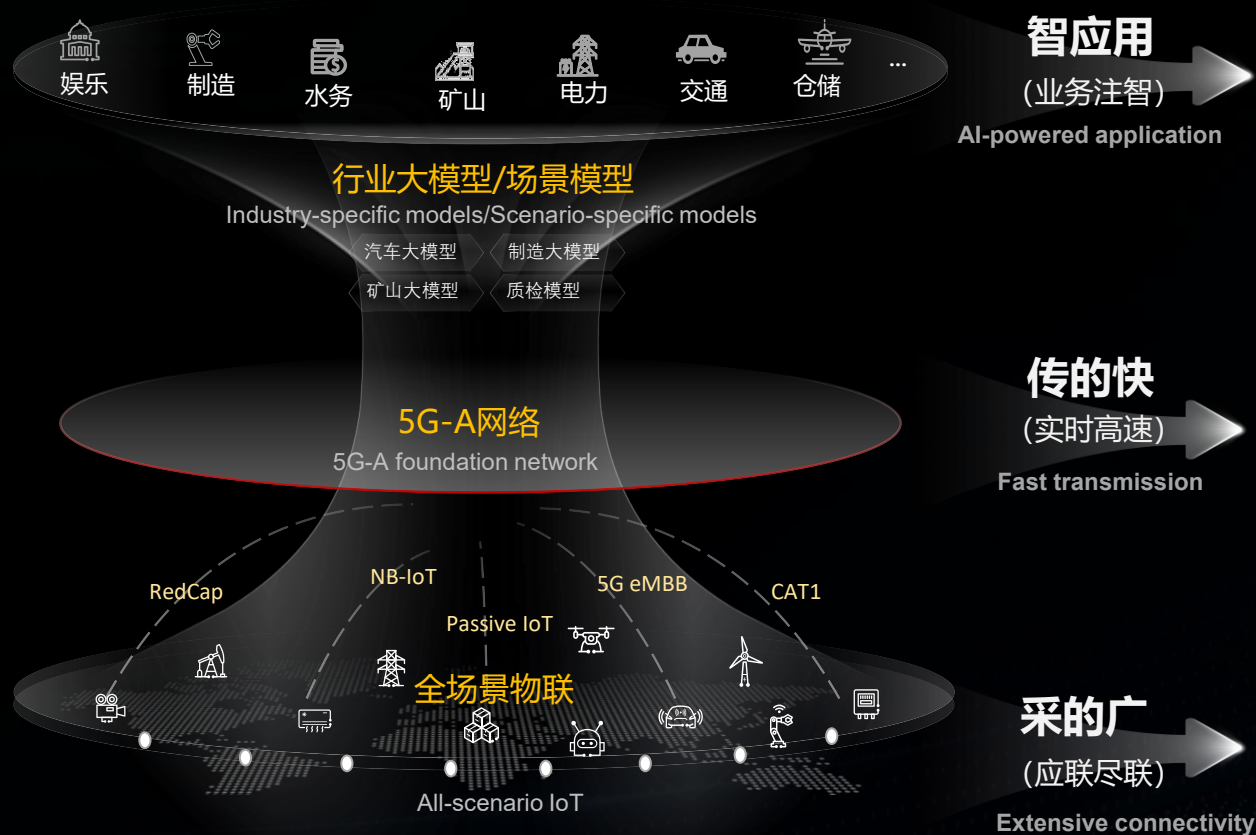
Water, electricity, gas meter

十亿级 连接空间

Source: Huawei MI

万物智联三要素：全场景物联、全超宽网络、全智能加持

Three Elements of AIoT: All-Scenario IoT, Super Ultra-broadband Networks, and Intelligent Applications



全智能加持，让所有应用可模型

AI models: adding intelligence to industry applications

AI商品质检

AI-powered quality inspection

电网智能化运维

Intelligent O&M for power grids

具身智能机器人

Embodied-AI robotics

资产智能化管理

Intelligent asset management

全超宽网络，让所有数据联云联算

Super ultra-broadband networks: linking all data to cloud + computing

千兆上行

Gigabit uplink

万兆下行

10Gbps downlink

超低时延

Ultra-low latency

超广覆盖

Ubiquitous coverage

全场景物联，让所有对象可连接

All-scenario IoT: expanding connections to all

5G eMBB

NB-IoT & LTE-M

5G轻量化技术

5G RedCap

蜂窝无源物联

Ambient IoT

Extensive Connectivity: All-scenario IoT, Expanding IoT Connections to All Scenarios

Extensive Connectivity: All-scenario IoT, Expanding IoT Connections to All Scenarios



采的广：5G轻量化技术实现成本性能双优，加速中高价值联接

Extensive Connectivity: 5G RedCap Balances Costs and Performance, Scaling Up Medium- to High-Value IoT Connections

网络全域覆盖

Ubiquitous network coverage

容量层：多载波按需部署

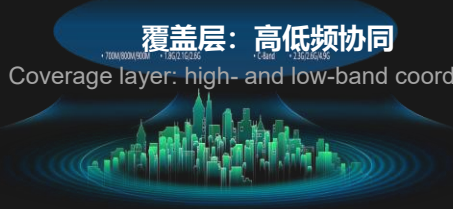
Capacity layer: multi-carriers on-demand

保障层：5G原生能力按需叠加

SLA layer: 5G native feature on-demand

覆盖层：高低频协同

Coverage layer: high- and low-band coordination



全国连续覆盖网络

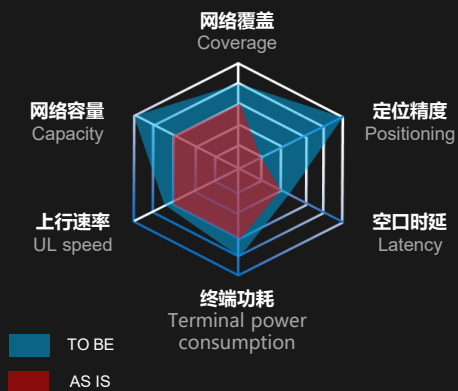
Nationwide ubiquitous coverage

5G RedCap实现全国县级以上城市规模覆盖，并向重点乡镇、农村延伸覆盖。

来源：中国工业和信息化部

技术多维突破

Holistic technology breakthroughs



+50%

体验速率

Perceived speed
(vs 4G CAT4)

-30%

终端功耗

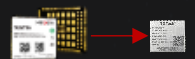
Terminal power consumption
(vs 4G CAT4)

生态融合发展

Converged ecosystem development

5G轻量化模组

5G RedCap modules



2T4R
100MHz

1T2R/1T1R
20MHz

5G Inside生态

5G Inside ecosystem



toC/toB/toH 融合终端
Converged terminals

\$15

5G轻量化模组

5G RedCap module

100+

5G轻量化终端

5G RedCap terminal

Source: Huawei MI

百亿级连接

10Bn connections



Source: Huawei MI

采的广：蜂窝无源物联拓展联接新场景，2026年开启商用

Extensive Connectivity: Ambient IoT Expands Connections, With Commercialization Scheduled from 2026

R19定义无源物联标准

Ambient IoT included in 3GPP R19



关键技术完成验证

Key technologies verified



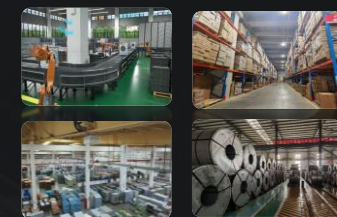
端到端产业链走向成熟

Maturing E2E ecosystem



千亿级连接

100Bn connections



- 智慧仓储 Warehousing
- 智能制造 Manufacturing
- 资产管理 Asset Mgmt.
- 智慧物流 Logistics tracking

Source: Huawei MI

传的快：5G-A全超宽网络，让所有数据联云联算

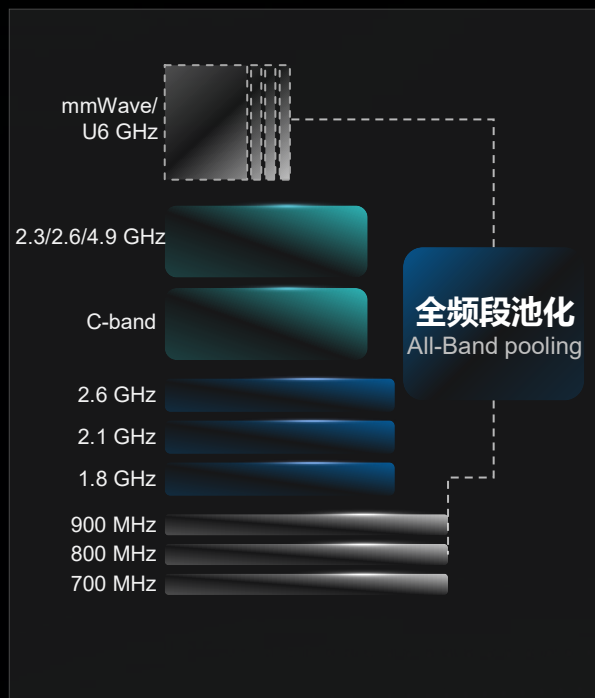
Fast Transmission: 5G-A Full-capability High-bandwidth network Connect All Data to Cloud & Computing

5G-A全能超宽网络，满足全场景物联高速率、大容量、广覆盖等多样化需求

5G-A full-capability high-bandwidth network provides high speeds, huge capacity, and wide coverage for all scenario

全频段演进到5G/5G-A

All bands to 5G/5G-A

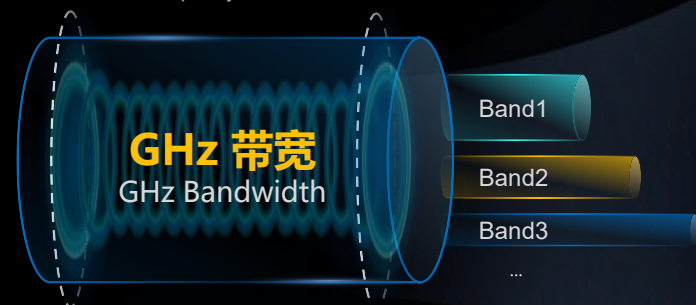


eMBB和IoT一张网

IoT shares networks with eMBB

网络弹性容量、资源统一分配、业务统一调度

Elastic capacity, unified resource allocation and service scheduling



SUL

MBSC

FSA

ELAA

上行联合接收

多载波CA

.....

上行千兆、下行万兆

关键技术：SUL、MBSC、ELAA等

容量

Capacity

大容量、高速率满足差异化物联需求

Huge capacity and high speed for differentiated service

4ms@99.99%

关键技术：毫米波大带宽、低时延等

时延

Latency

低时延高可靠，满足工业场景物联需求

Low latency and high reliability for industrial scenarios

-30% RedCap vs CAT4

关键技术：eDRX非连续接收、按需唤醒等

功耗

Power consumption

满足物联省电、长续航需求

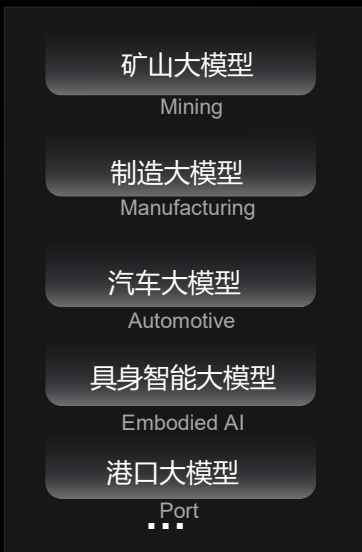
Low-power IoT connections with a long batter life

智应用：全智能加持，让所有应用可模型化

Intelligent Applications: Industry-Specific Models Add Intelligence to Industry Applications

行业大模型数量快速增长

Rapid growth of industry-specific models



- 30+行业大模型
30+ industry-specific models
- 400+的行业AI成功实践
400+ AI success stories in industries

Source: Huawei MI

智慧矿山：1个矿山大模型，覆盖矿山8大业务场景、100+小模型

Smart Mining: 1 mining-specific model for 8 main services, involving 100+ scenario-specific models



模型从可用到好用

高质量且大规模的行业数据是关键

High-quality, hyperscale data is key to improving industry-specific models

行业从数字化到数智化

基于自身的场景数据训练专属大模型是关键

Training a dedicated model based on your own scenario data is a key to add intelligence to digital industries

同心聚力，共赢千亿智联新机遇

Collaborate to Capture the Opportunities of 100B AIoT Connections

加速奔向 万物智联新时代

Racing towards a new era of AIoT



持续丰富产业生态

Industry ecosystem diversification



终端生态多样化及规模化

Diversified device ecosystem & scalable deployment

持续突破网络能力瓶颈

Network capability breakthroughs

大上行能力

Gigabit uplink

超低时延

Ultra-low latency

超低功耗

Ultra-low power consumption

高精度定位

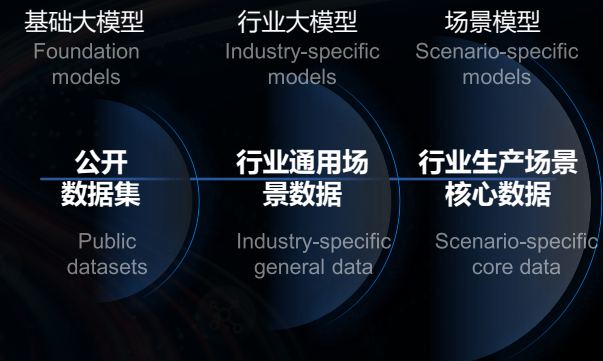
High-precision positioning

5G-A一网多维，突破能力边界

One versatile 5G-A network for various new capabilities

持续完善行业智能化应用

Intelligent application thriving



打破信息孤岛，连接核心生产数据

Streamlining core production data to enable smarter services

Thank you.



HUAWEI