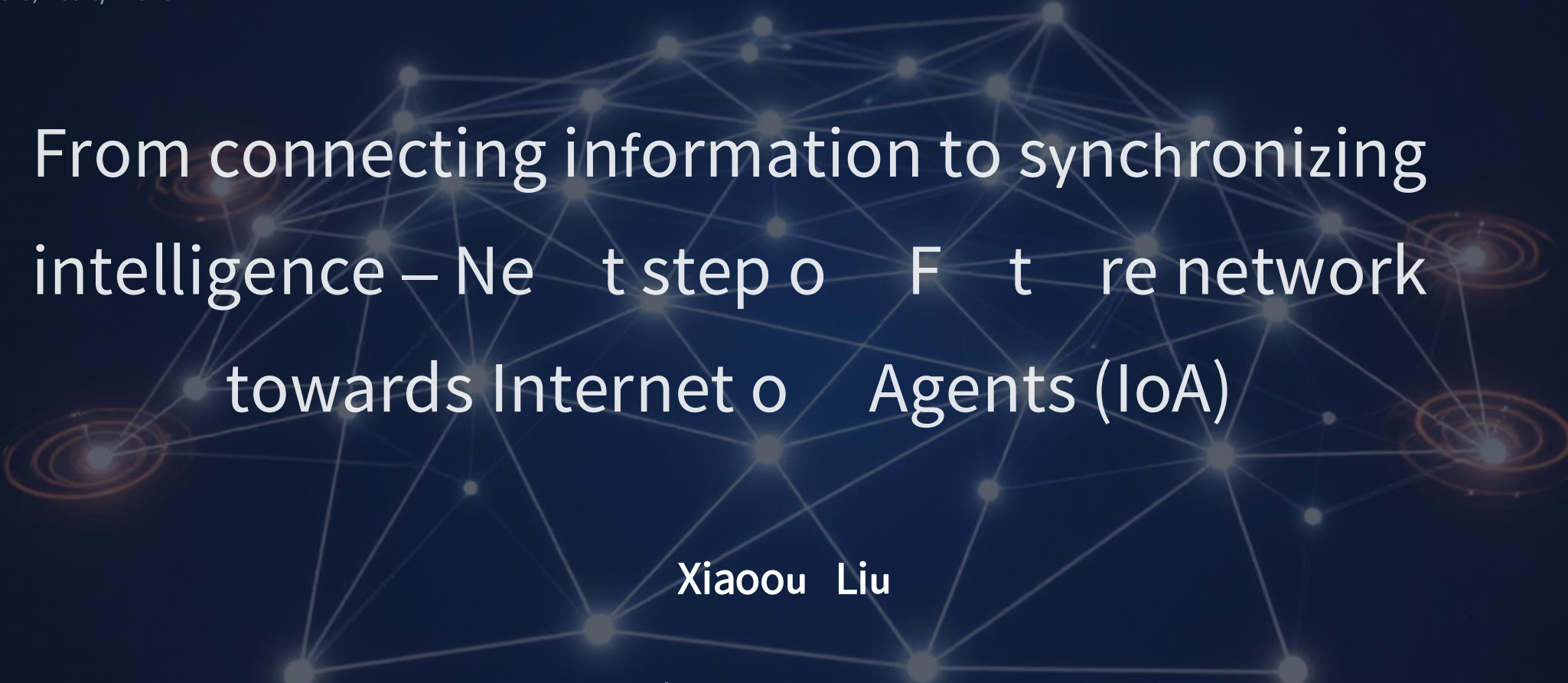




From connecting information to synchronizing intelligence – Next step of Future network towards Internet of Agents (IoA)

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Speaker



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AI & Communication Network Develop with a common root

[Common Root] Shannon Information Theory (1948) × Probability Theory

Communication $P(y|x)$ VS **AI** $P(w_n|w_1 \dots w_{n-1})$

Given the observed information, perform optimal conditional probabilistic inference on the unknown variables



AI

► 1990s **Statistic Language model**

Shannon Information Theory directly guided n-gram language model design, modeling language using conditional probability $P(w|\text{context})$

► 2017 **Transformer → LLM**

Self-attention mechanism optimizes long-range conditional probability modeling; billion-scale parameters give rise to emergent reasoning and comprehension capabilities

► 2024+ **AI Agent**

Autonomously plans, invokes tools, and performs multi-step reasoning in uncertain environments to accomplish complex tasks

► 2025+ **Multi-Agent collaboration network**

Inter-agent interaction: transmitting high-level strategic intent, rather than raw data or instruction sequences



Communication network

► 1948 **Level A — Technology Layer (Shannon Channel Coding)**

Accurate transmission of symbol bits, maximizing channel capacity; 4G/5G operates at this layer, now approaching maturity

► 2019+ **Introduce AI into Communication Network (JSCC)**

End-to-end neural network optimization, breaking the limits of symbol transmission; sequential semantic feature transmission with graceful degradation capability

► 2022+ **Level B — Semantic COmmunication (Current point)**

Large models serve as shared semantic knowledge bases; transmitting semantic features rather than raw bits, breaking through Shannon's statistical entropy bound

► 2026+ **Level C — Intent Native Network (6G Final Goal)**

Native reconstruction of network architecture, multiple access, and protocols; transmitting minimal intent, with semantics triggering behavior and decisions, utility reaching directly to the goal layer

Convergence Point: Agent-to-Agent Intent Interaction

AI Explosion towards Agents: The IoA(Internet of Agent) Era Arrives

2025+



Internet of Agents

Agent -to-Agent

the network evolves from transparent pipeline to inference infrastructure

Intelligent Infrastructure

2010s



Internet of Things

Human-to-apps

the network has become the distribution center of massive information

Connecting Information

1990s



Internet

Human-to-Human

the network has become a digital bridge for human communication

Connecting People

\$45B Market Size

Global AI Agent Market Scale by 2030

Source: Deloitte Analysis

15% Decisions

Work Decisions via Autonomous Agents (2028)

Source: Gartner Strategic Predictions

+103% Token Growth

Token Consumption Growth (Post-OpenClaw)

Source: OpenRouter Real-time Stats

2026 Milestone

Year One of Token-based Business Model

Agent will be the new Network Citizen

Agentic AI will Drive Both Quantitative and Qualitative Changes in Cloud-network Convergence Infrastructure

Quantitative Change

Traffic Scale

East-west traffic → North-South traffic

Connection Density

connected objects reach **100 billion**

Extreme Latency

Multi-agent collaborative reasoning requires

end-to-end delay **<50ms**

Multi-modal Concurrency

Vision/speech/..... multimodal dataa

The amount of data in a single interaction by **5-8 X**

Qualitative Change

Entity Transition

passive
data
forwarding
routes

autonomous
decision-
making
execution
entities

Paradigm Shift

GUI/API
based
interaction

Intent and
Goal based
interaction

Role Transition

transparent
Pipe

AI-Native
Infrastructure

Semantic Traffic

IP/URL

Convey
Intent

The Core Propositions for Future Networks: from standardization Perspective

AI Agent for Network



AI Agent-based Network Autonomy

Predictive maintenance and intention-driven autonomous operation and maintenance



Network Agent

The network nodes (base stations, routers) are evolving into AI agents themselves to achieve autonomous cooperation

Network for AI Agent



Networking for AI Agents

The network natiently supports the interconnection communication and cooperative routing of massive heterogeneous AI agents

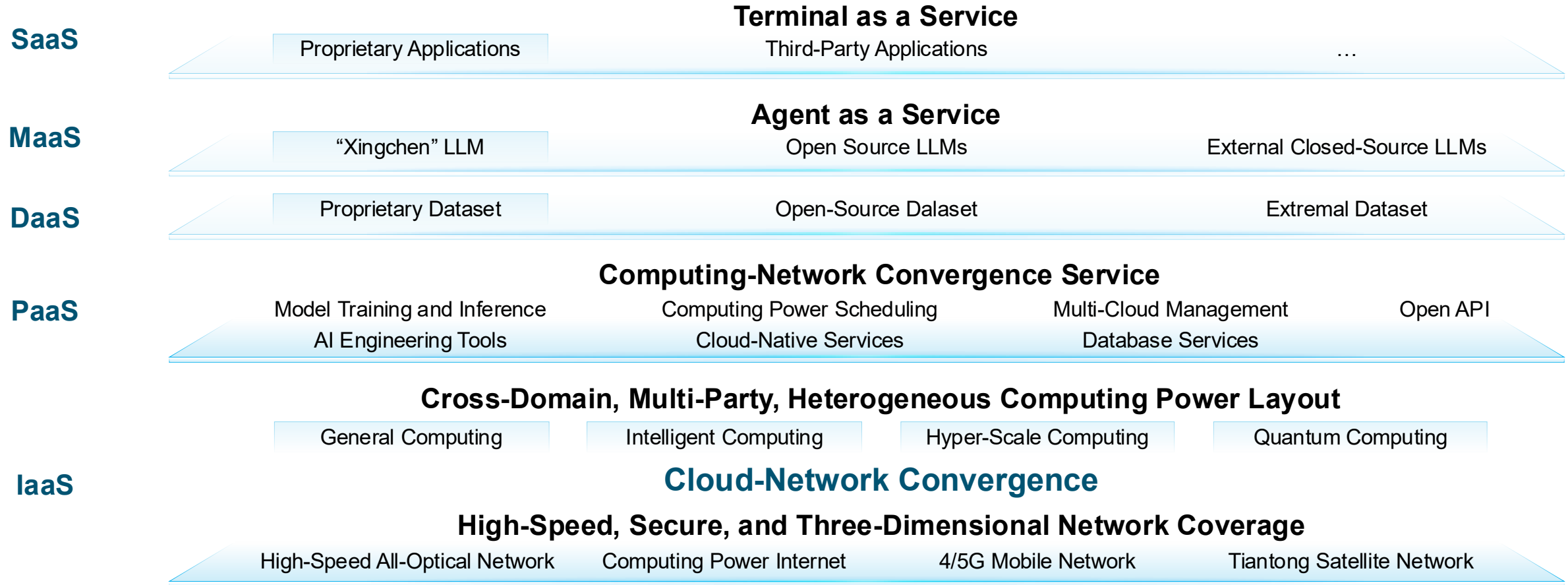


Network for supporting AI Agent

Providing network and computing resource to support the development, management, collaboration of AI Agents

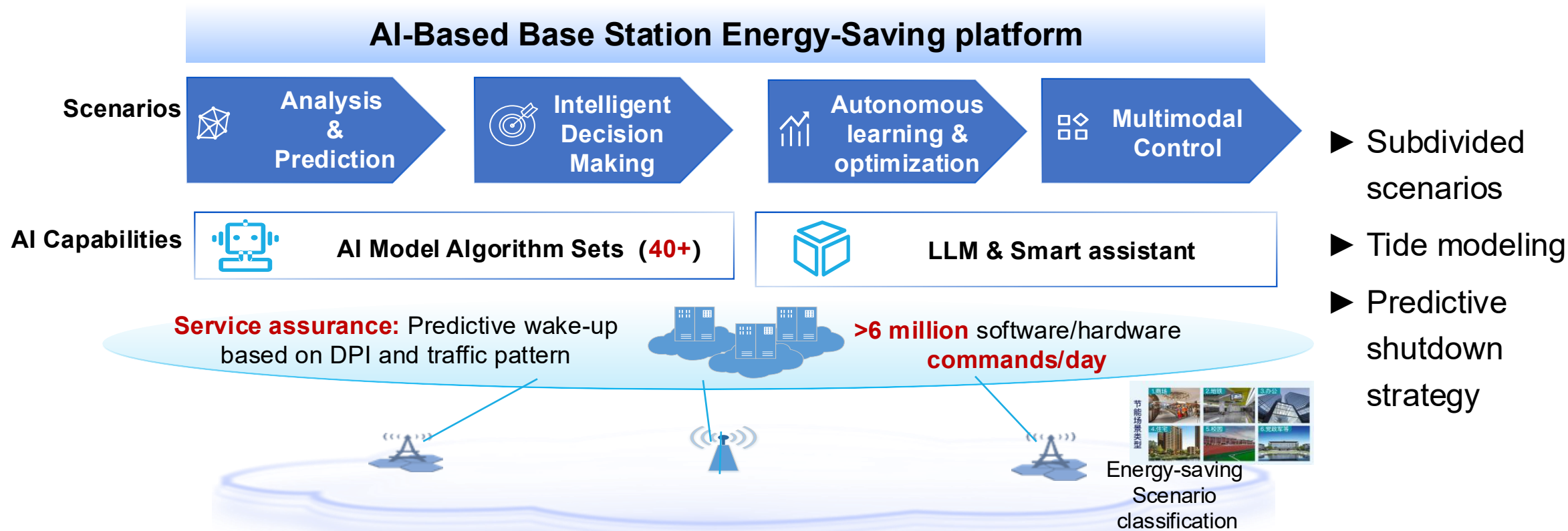
China Telecom is Building “XiRang” AI Infrastructure

5-in-1 Intelligent Capability: Computing, Platform, Data, Model, Application



AI Agent for Network——From AI-powered to AI native(1/3)

Nationwide network-level intelligent BS energy-saving platform with 40+ original AI model algorithms



Average 5G energy saving efficiency: >16%

Electricity savings: 700 million KWh/year

AI Agent for Network——From AI-powered to AI native(2/3)

➤ AI for Network: Intent-driven network autonomy

Decision

Intent-driven & Auto Orchestration

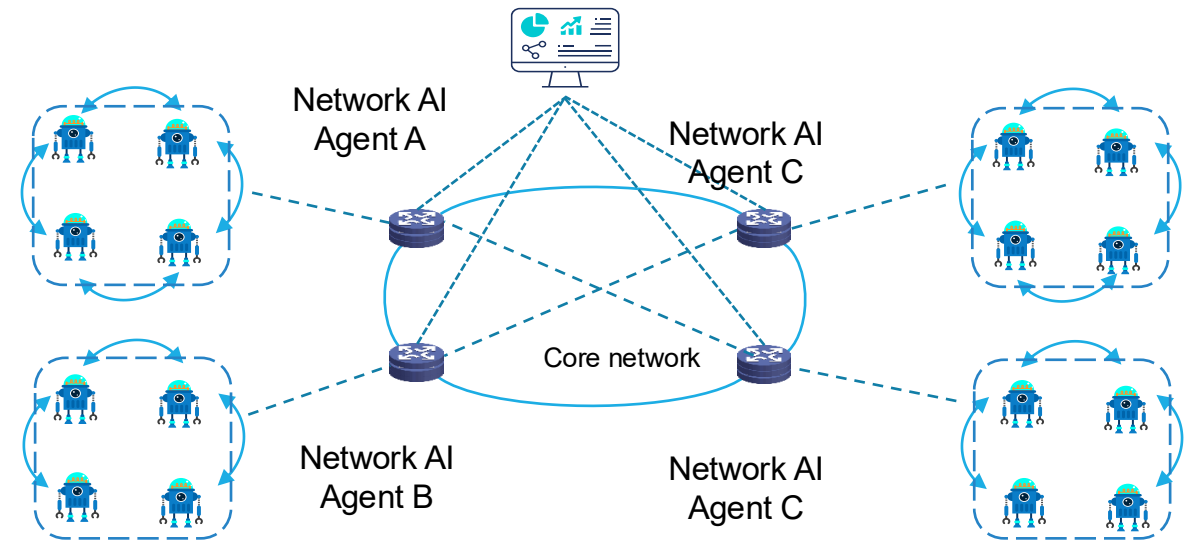
Analysis

Fault Prediction & Root Cause Analysis

Perception

Real-time Traffic & Topology Awareness

➤ Network Agent: Intelligent capabilities sink to the edge



Traditional NE

Rule-based

Centralized Control

Passive Execution

Network Agent

LLM-driven

Distributed Autonomous

Active Collaboration

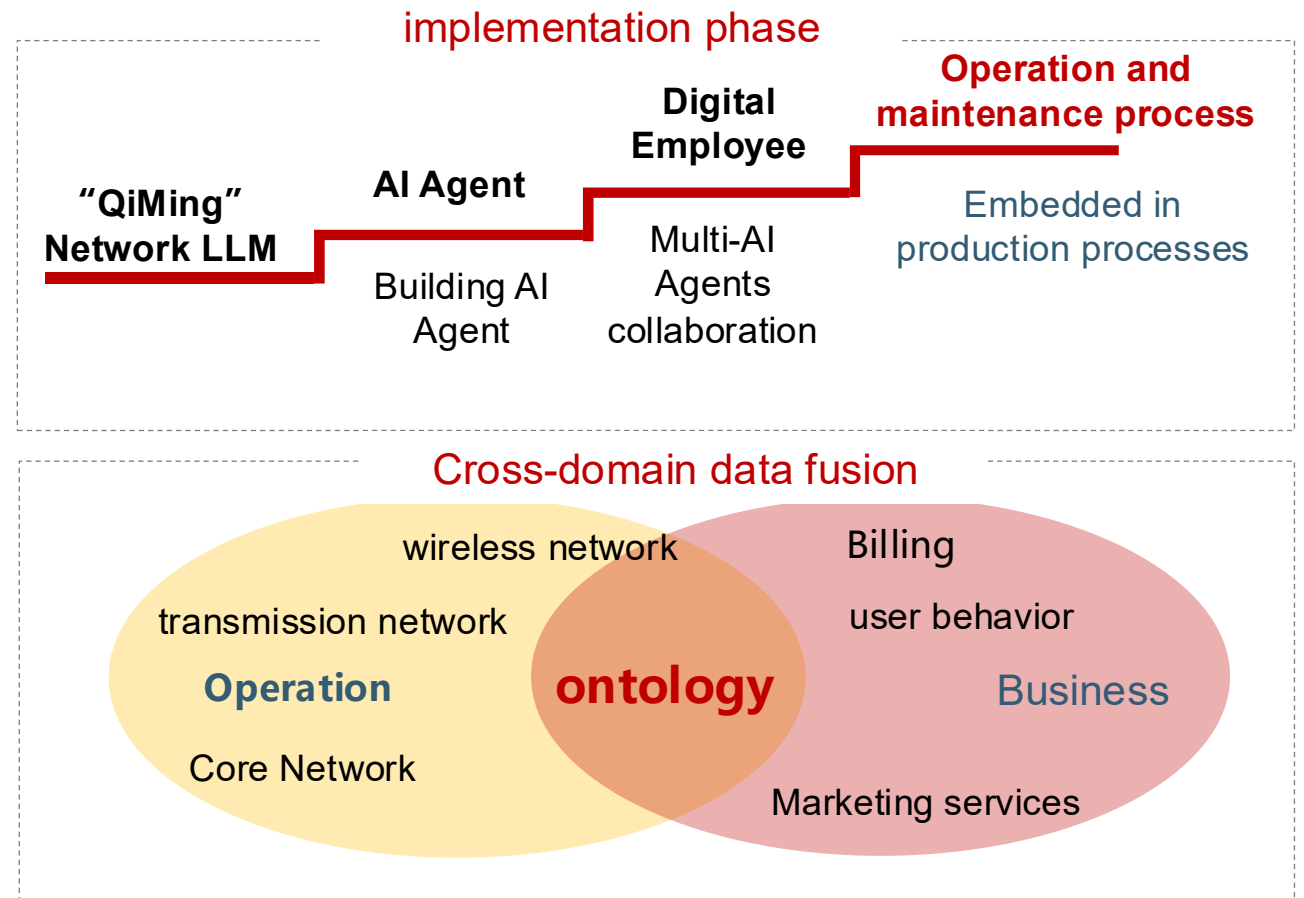
AI Agent for Network——From AI-powered to AI native(3/3)

- China Telecom's "QiMing" network LLM powers is evolving from single AI Agent to Digital Employee with multi-agent collaboration embedded in production workflows.

Digital Employees
981 in **23** Categories

Network Fault Resolution Efficiency
↑**30%**

Duration of Comprehensive Maintenance
Fault Resolution
↓**14%**



Network for AI Agent—— towards AI Agent network (1/2)

Network Connectivity

The New Metropolitan Area Network
>80 Million Users

50G PON Broadband Access Network
10Gbps Home Access

Intergration
intelligence

Computing Power

DC → AIDC

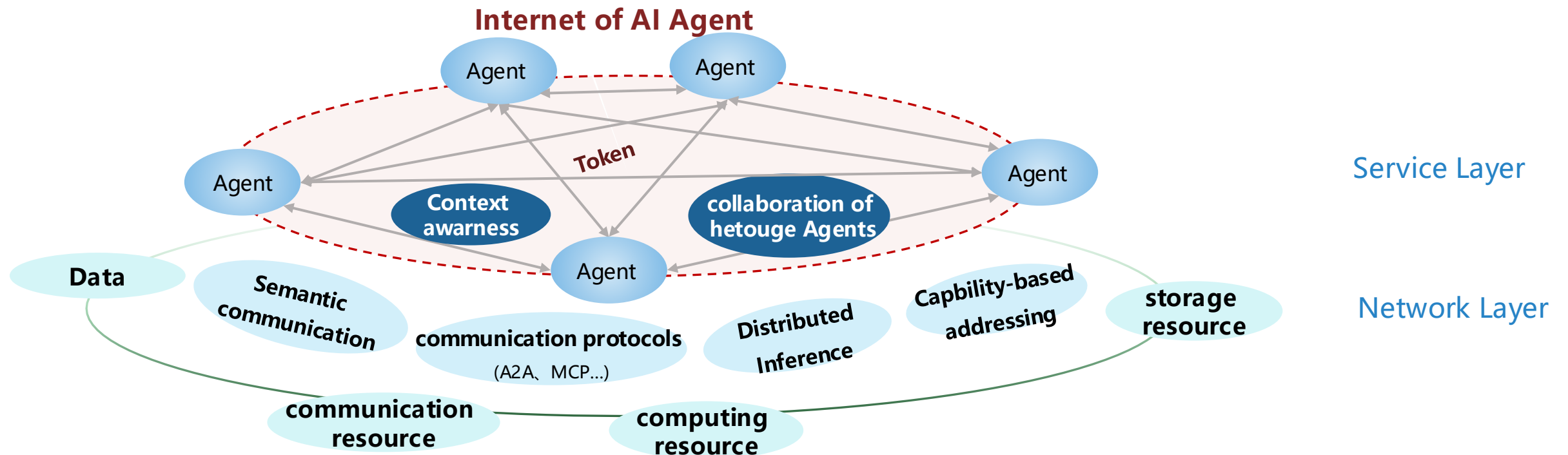
General-purpose computing → Intelligent Computing

Proprietary + Accessed Intelligent Computing
87 EFLOPS

Computing
Storage Transmission

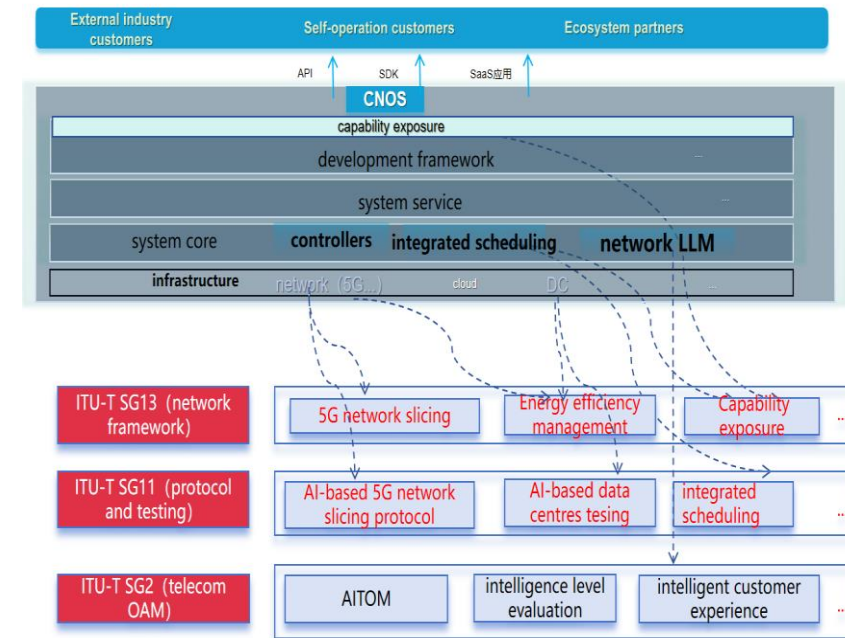
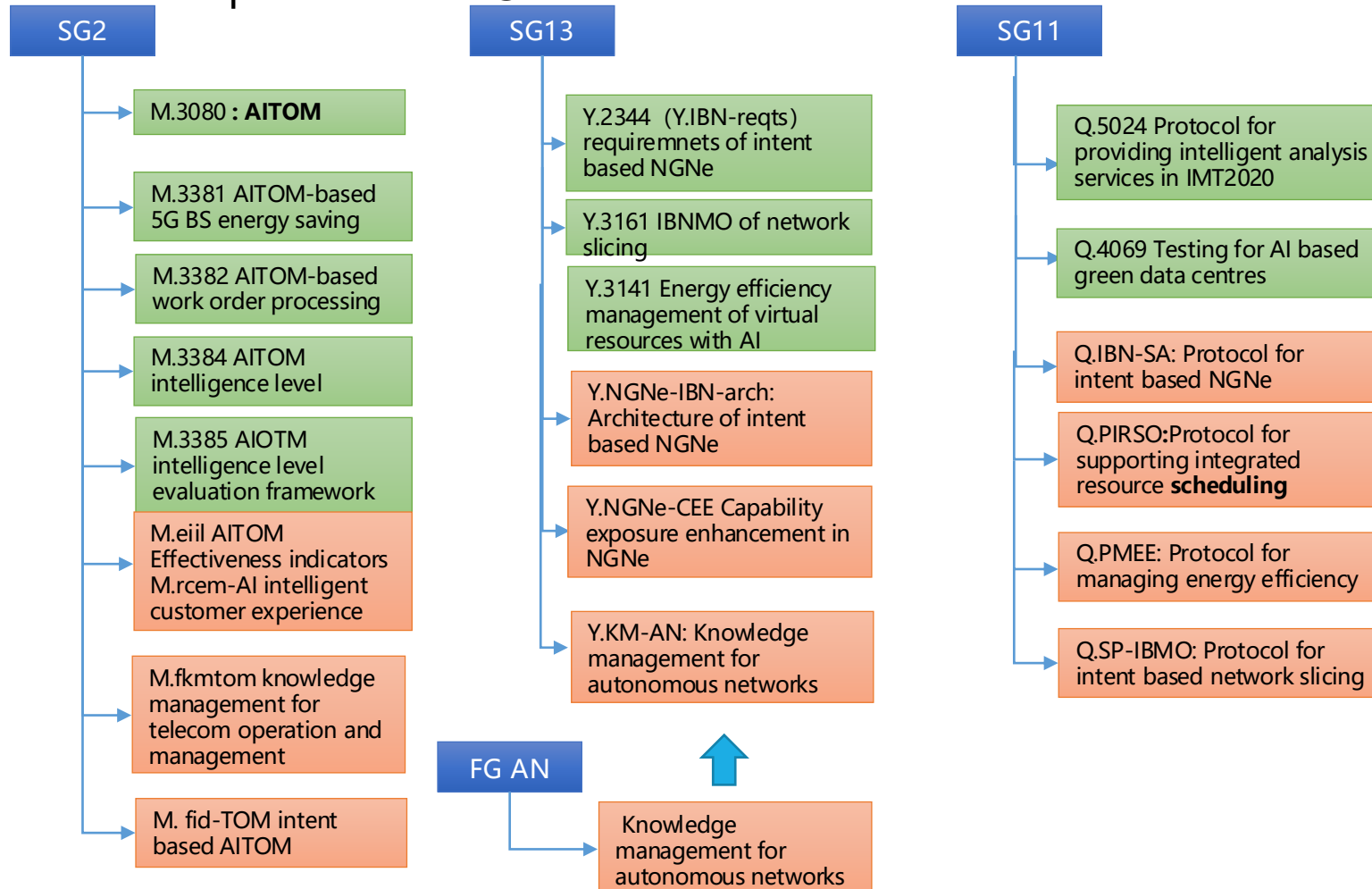
Network for AI Agent—towards AI Agent network (2/2)

As we enter the era of the Internet of Agents — where by 2035, connected nodes will reach hundreds of billions and IoA-driven traffic will be 13 times today's levels — existing protocols are fundamentally incapable of supporting semantic understanding, context awareness, and intent-driven coordination among heterogeneous agents.



China Telecom network AI: ITU-T Standardization

In ITU-T, China Telecom's layout of AN standards from the mandate of each SG, ex, develop AI-related Recommendations focusing on telecom operation and management in SG2, and AI-enabled networks in SG13 as well as procotols in SG11.

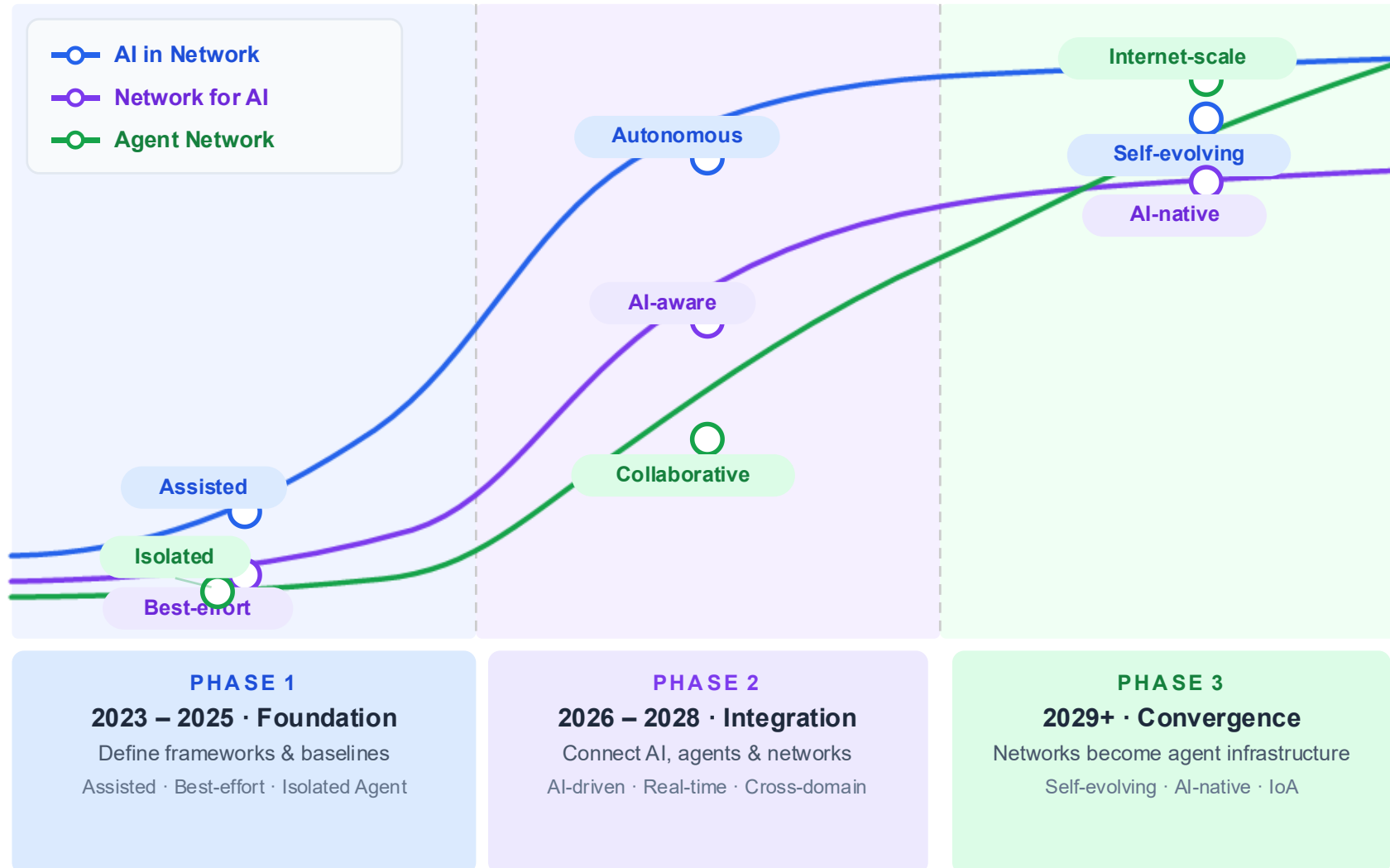


AI & Future Networks Standards Portfolio of China Telecom in SG13

AI Agent in Cloud	Y.aiaS-reqts AaaS / AI Agent as a Service (Under development) Y.AMLM-reqts Adaptation of ML Model Requirements (Under development) Y.3531-rev (Under development) Machine learning as a service (Under development) Y.MLaaS-arch Machine Learning as a Service Architecture (Under development)
AI for Network (Network Autonomy & Intelligence)	AN { Y.3061 Architecture Framework (Published 12/2023) Y.3062 Trustworthiness Evaluation (Published 02/2025) Y.3063 Effectiveness Measurement (Published 12/2025) Y.3064 Knowledge Management (Published 12/2025) Y.ICI-AN-reqts Intelligent Controller Interaction (Under development) Y.AINLB-req-fra AI/ML-based network load balancing in future networks (Under development) Y.AIEE-GN AI-based energy efficiency management for green infrastructure (Under development)
Network Agent / AI Agent in Future Networks	YSTR.CTNe Next Generation Network Evolution towards 2030 (Under development) Y.terms-AIAN: Term and definitions of AI Agent in future network
Network for AI (QoS, Semantic Communication)	Suppl. 94 to ITU-T Y.2300-series Network for supporting LLM distributed learning Y.NICE-ANMT NICE for access network to support model training (Under development) Y.Sup.IBN-nsa-fr intent-based network (Under development) YSTR.CTNe Next Generation Network Evolution towards 2030 (Under development) YSTR.SIC-DLT semantic information communication of NGNe (Under development)
Networking for AI Agents	YSTR.NGNe-AC NGNe to support AI agent communication(Under development) YSTR. NAC-roadmap Networking for AI Agent collaboration- standardization status and roadmap (Under development)

AI & Future Networks Standardization Roadmap

From connecting information to synchronizing intelligence



AI FOR GOOD / workshop

Geneva, July 2026



Tanks or listening

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