

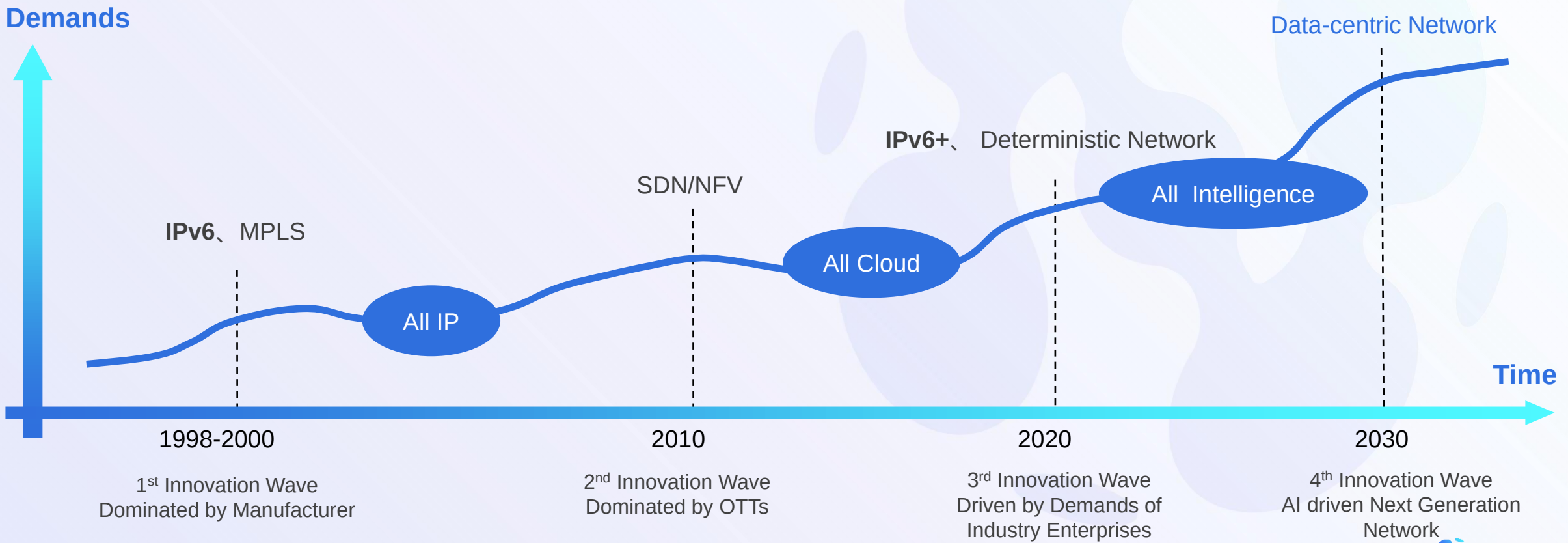
# Evolution from IPv6 to Next-Gen Network

Network Innovation and Development Alliance  
May. 2025



# The Arrival of the Intelligent Era Drives the Internet into a New Stage

| Technological Innovation Driven                                                           | Application Demand Driven                                                                     | Strategic Demand Driven                                                                 |                                                                |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Dominated by traditional manufacturing enterprises<br>Standardized Traditional Technology | OTTs join the industrial ecosystem<br>Open Source Promotes New Vitality of Network Technology | Driven by the demand of industrial and other industries<br>Openness and Differentiation | Driven by AI technology & industry<br>Flat, Smart, Green, Safe |



# Challenges in 4 Scenarios Defines the Next Generation Network

## Computing Connection

500x

Global computing power growth in 2030

## Intelligence Connection

Over 1 billion

AI terminals and assistants

## Data Connection

CNY 2 billion

Data transaction amount of Beijing International Data Exchange

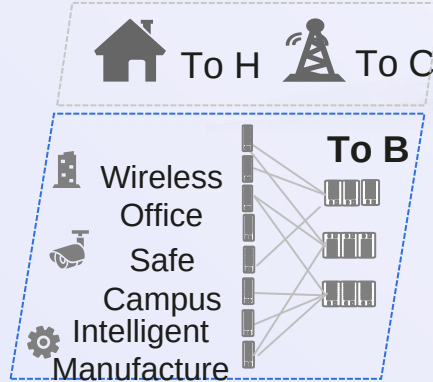
## Airspace Connection

20000+

Num. of Satellites

### ① Connecting to Computing:

Entry-Computing/Inter-Computing/In-Computing  
Fragmented computing, distributed collaboration, ultra-long -distance training, million card cluster

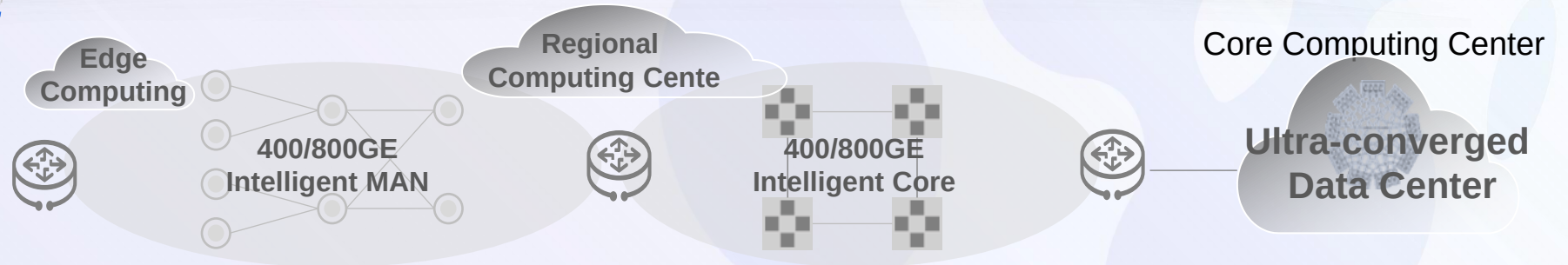


### ② Connecting to Intelligence:

AI+ Human/Family/Enterprise/Car

Virtual digital humans, embodied intelligent robots, office metaverse, intelligent travelling

## New Brain of Internet



### ④ Connecting to Satellites:

Satellite interconnection, air ground integration , eVTOL

### ③ Connecting to Data:

Data Circulation Supervision  
Trusted data circulation, high-speed data network



# 4 Key Technologies shape Next Generation Network

## Ultra-broadband Connections

### Campus Network

10GE + WiFi7

+

Hyper-converged short-range wireless

### WAN Network

800GE

+

Elastic and non-destructive

### Data Center Network

800GE/1.6TE

+

New Ethernet

## IPv6 enhance Protocol Extensions

### Connecting to Computing

IPv6 enhance  
0 loss

### Connecting to Data

IPv6 enhance APN data  
identity

### Connecting to Intelligence

IPv6 enhance APN application  
identity

### Connecting to Airspace

IPv6 enhance Time-varying  
routing

## New Intelligent Network

### New Intelligence of the Devices

AI Main control boards

AI line cards

AI GPU cards

### New Brain of the Network

Multi-dimensional and high-precision network digital twin

Synergy on different  
size network model

## New Security Mechanisms

### Intrinsic Security of the Devices

Device self-protection and  
service resilience protection

### The Whole Trusted Network

Post-quantum cryptography,  
quantum-secure networks

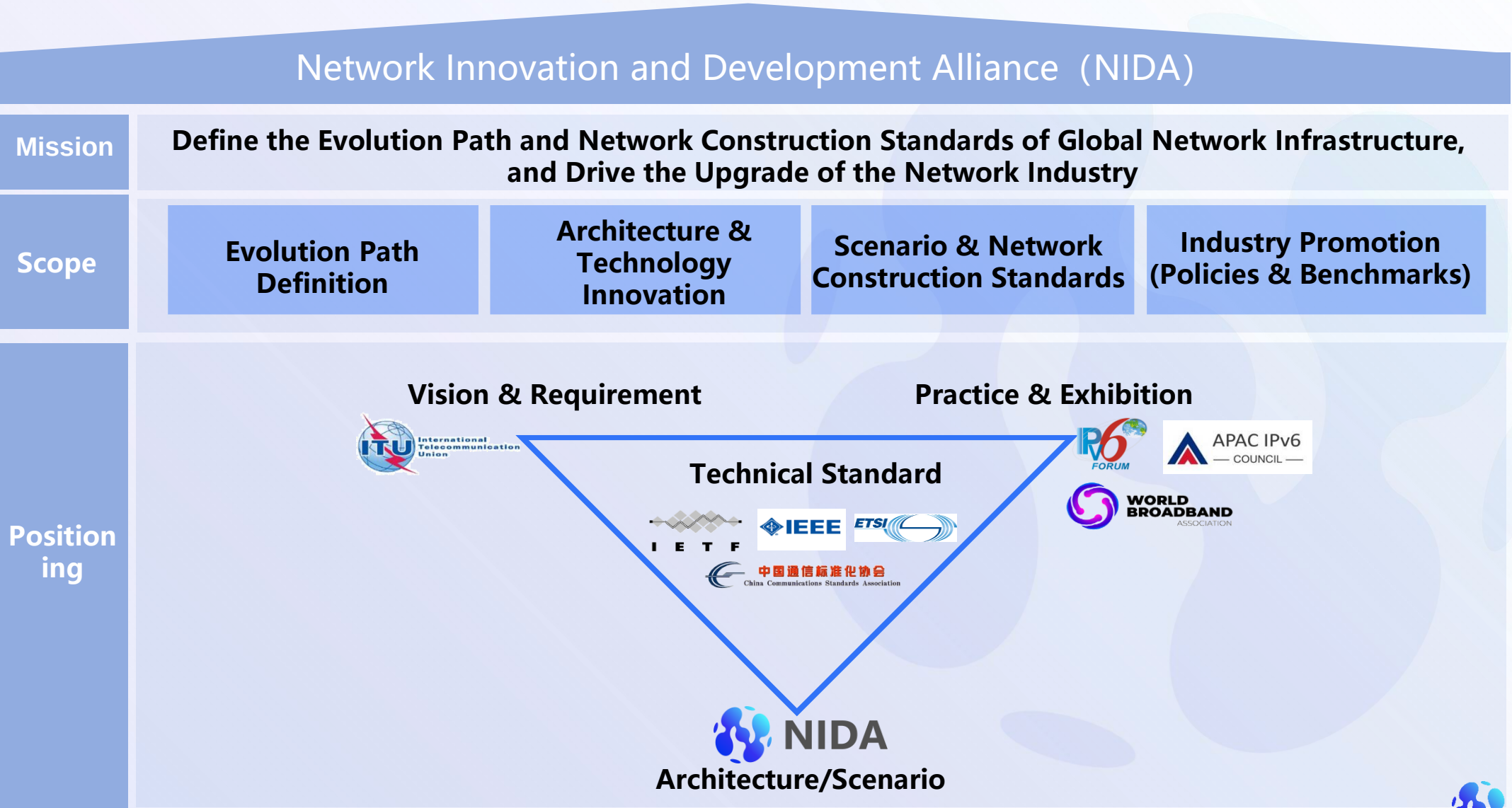
### Cloud-network-edge-end Integrated Security

Security agents, Next-gen SASE, EDR

### Trusted Data Elements

Identifiable data, visible data ,  
and manageable data

# NIDA: Drive the Industry Upgrade by Network Architecture Innovation



# Research Areas of NIDA Working Groups

## ① Network Evolution Working Group

Study the iterative evolution of next generation network architecture and key technologies.

Computing  
Connection

Ultra-broadband  
Connections

Intelligence  
Connection

IPv6+ Protocol  
Extensions

Data  
Connection

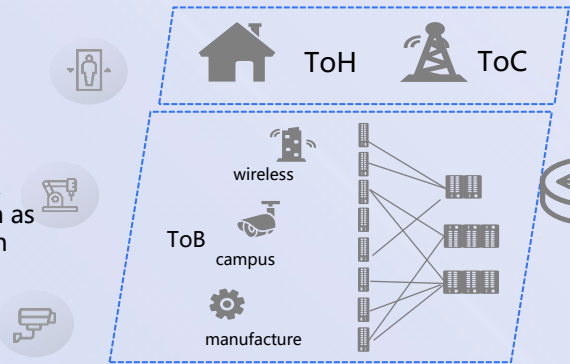
New Intelligent  
Network

Airspace  
Connection

New Security  
Mechanisms

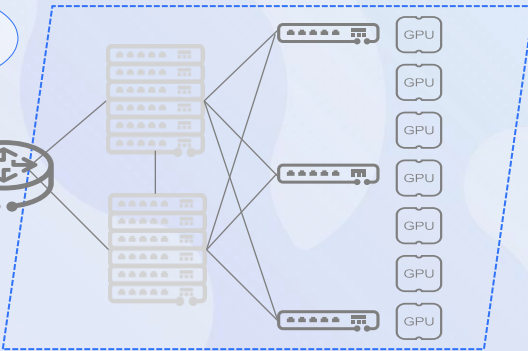
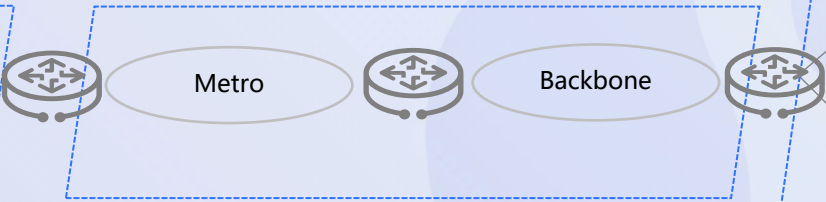
## Industry committee

Research on the network  
solution of industry, such as  
education, financial, health



## ② Network Intelligence Working Group

Study the scenarios and technical requirements of ADN



## ③ Campus Network Working Group

Research on experience-based construction standards for Campus Network  
QoE: Identification system for identifying users, services, and applications.

## ④ Data Center Network Working Group

RoCE evolution: Efficient scheduling based on the  
general Ethernet ecosystem

## ⑤ Security Working Group

Research on the network security, such as sase, Encrypt, zero trust network



# Thank you!

Define the evolution path and network construction standards of global Internet infrastructure, and drive the upgrade of the data communication industry.

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