全球6G技术大会
GLOBAL 6G CONFERENCE

创新预见6G未来 Better Together Better Future

架构让6G不同
Architecture makes a difference for 6G

ZTE 中兴通讯
Dr. Xie Feng 谢峰

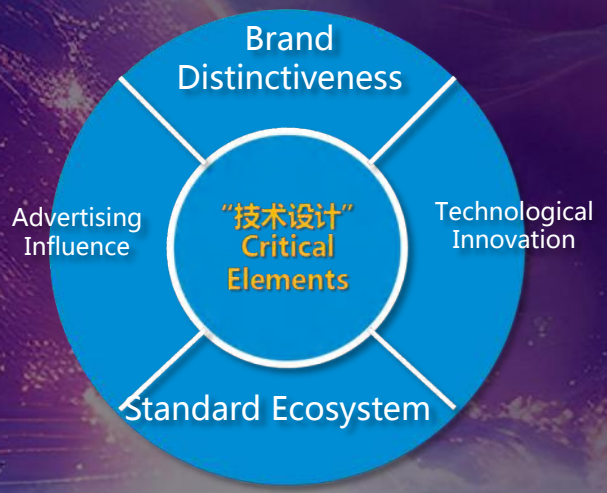
全球6G技术大会
GLOBAL 6G CONFERENCE

6G各阶段的生态价值要素

Ecological Value Elements for each phase of 6G

创新预见6G未来 Better Together Better Future

技术设计 Technical Design



产品方案 Product Solution

商业生态 Bussiness Ecosystem

6G新使命：绿色 至简； 智能 普惠； 生态 一体

6G New Mission：Green, Intelligent, Ecosystem

全球6G技术大会
GLOBAL 6G CONFERENCE

创新预见6G未来 Better Together Better Future

创新技术 innovative technology + 创新方案 innovative solution + 创新生态 innovative ecosystem

Meta-cell元小区

- 成本降低 Cost reduction
- 下行/上行吞吐量提升 boost of downlink and uplink throughput
- 节能 energy efficiency and saving
- 频谱使用率提升 Spectrum efficiency improvement
- 上行覆盖增强 uplink coverage enhancement

+ AI内生 AI Native

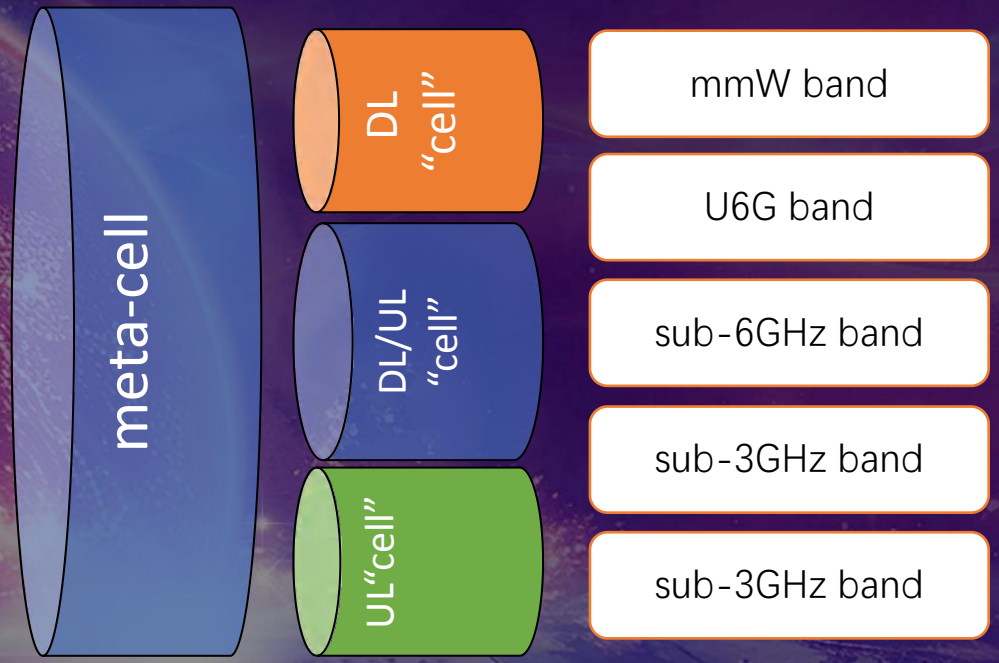
- 行业适配 Industry adaptation
- 极致定制化 Extreme customization
- 自我进化 Self-evolution
- 规模复制 Scale replication

+ 联盟网络Co-NET

- 灵活交易 Flexible transactions
- 权益保障 Rights protection
- 安全可信 Trustworthy and Security
- 网络自主 Network autonomy

高价值场景：UL一张网+DL一张网

High-value scenario: An independent UL network and an independent DL network



上行一张网+下行一张网

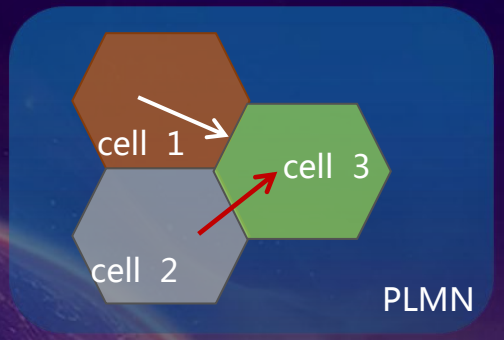
An independent UL net and an independent DL network

- 组网方案(Solution)：使用中低频段（sub-3GHz）进行上行组网，使用中高频段（U6G，mmW）进行下行组网。网络向 上行一张网+下行一张网方向演进。sub-3Ghz for UL network，mmW（and possibly U6G） for DL network。
- 价值(Value)：频谱和资源利用率；上行覆盖；大上行容量；降成本;节能；可靠性；时延；高频更好用；天地一体； spectrum and resource efficiency; uplink coverage； uplink capacity; cost reduction； energy saving；reliability； latency； easy to use mmW； space-ground integration

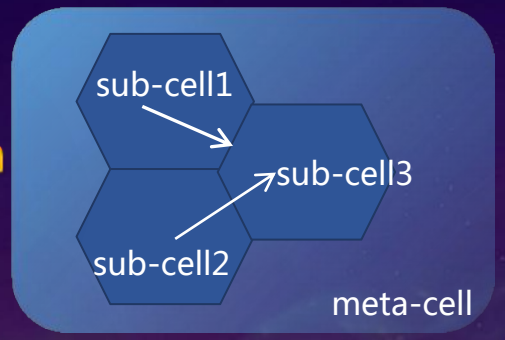
无线蜂窝网络从传统上下行一张网向 上行一张网+下行一张网方向演进

from a traditional single network with coupled uplink and downlink to a new architecture with an independent uplink（IUL）network and an independent downlink（IDL）network.

Meta-cell：面向确定性体验的分布式和高中低频一体化组网



TRP poolization



5G cell native support single-TRP only

6G meta-cell native support multi-TRP，for NTN and UDN

carrier poolization

native support of multi-band multi-carrier convergence

UL/DL decoupling

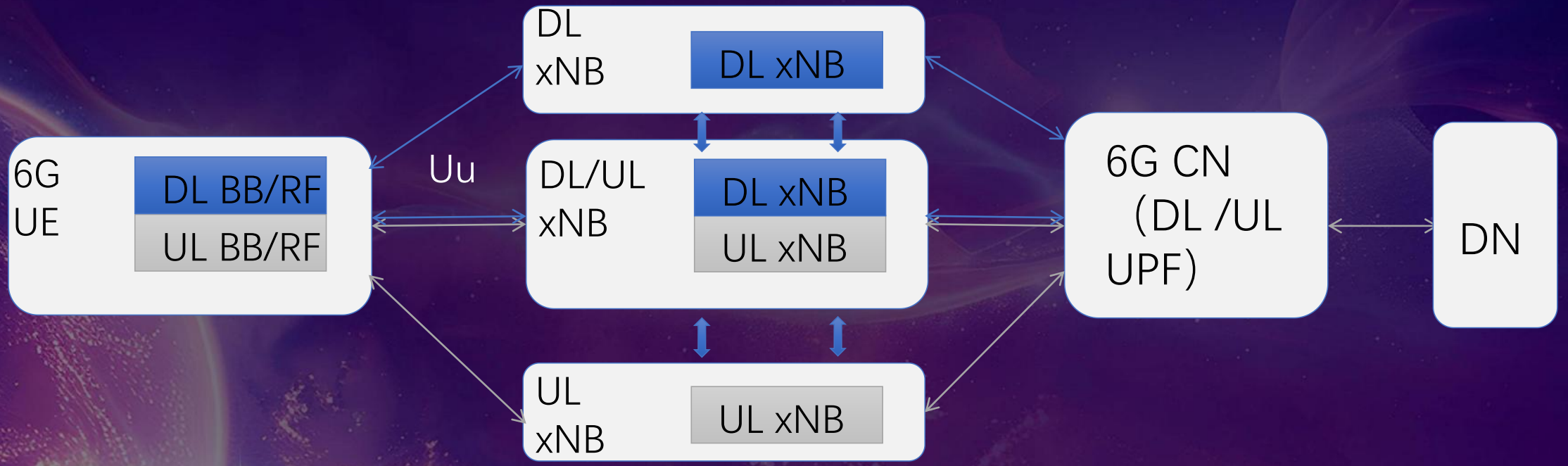
native support UL/DL decoupling

Meta-cell

- native support multi-TRP
- native support multi-band multi-carrier
- native support UL/DL decoupling
- **elastic，compact，higher performance，low carbon footprint**

from cell to 6G meta-cell，enabling area-specific and scenario-specific networking，for multi-band convergence、on-demand orchestratable RAN

6G独立上行和独立下行逻辑架构
independent UL and independent DL logical architecture



上下行解耦的空口演进 驱动 上下行解耦的至简架构演进

decoupling of UL/DL air Interface promotes a new lean architecture supporting DL TRP/xNB and UL TRP/xNB

6G智能内生价值路径
6G AI Native Value Path

智能内生价值路径
=自我进化*规模复制+AIaaS
AI Native Level
=Self-evolution*Scale replication + AIaaS

智能内生演进路径：
三个维度相互独立，可独立演进。
AI Native Evolution Path:
Three dimensions are mutually independent and can evolve independently.

自我进化=自学习*自适应
Self-evolution=Self-Learning * Self-Adaptation

- **应用闭环->孪生仿真->模型验证->设计态协同**
  Closed-Loop --> Twin Simulation --> Model Verification --> Design Time Collaboration
- **预置策略的强化学习->策略自进化的强化学习**
  Pre-set Strategies RL--> Self-evolving Strategies RL

规模复制=设计模式*工程模式
Scale replication=Design Patterns * Engineering Patterns

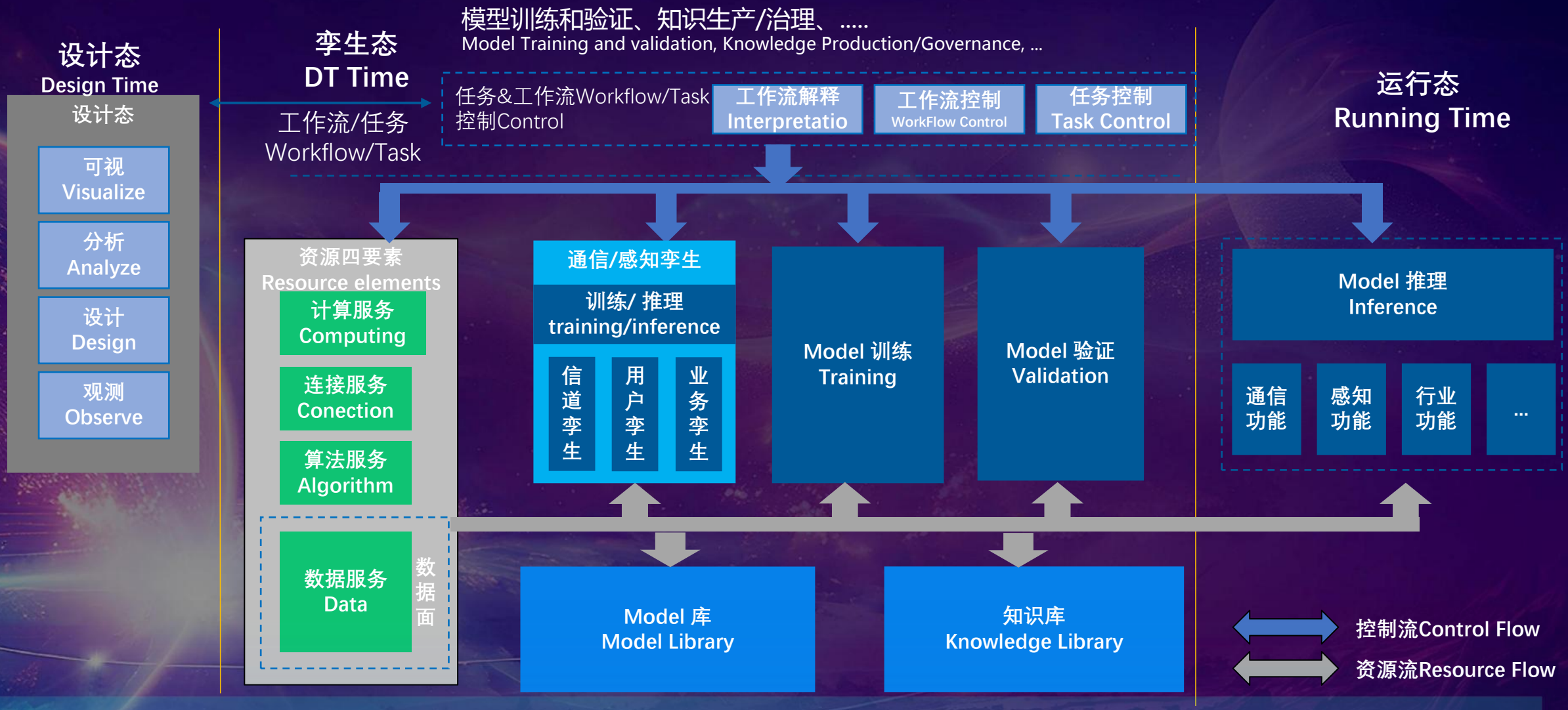
- **引入设计态-->设计态自动化-->设计态智能化**
  Design Time --> Design Time Automation --> Design Time Intelligence
- **引入工程模式->工程自动化-->工程智能化**
  Engineering Patterns --> Engineering Automation --> Engineering Intelligence

AIaaS=用户类型*服务类型
AIaaS=User Type * Service Type

- **系统内部用户->扩展系统外部用户**
  Internal System Users -> Extended External System Users
- **AI资源服务->AI集成服务**
  AI Resource Services -> AI Integrated Services

智能内生致力于解决定制化碎片化和规模复制的挑战
AI native targeted to address the challenges from the conflict between customization , fragmentation and large-scale replication

6G智能内生框架和三态
6G AI native Framework and Three types of Time

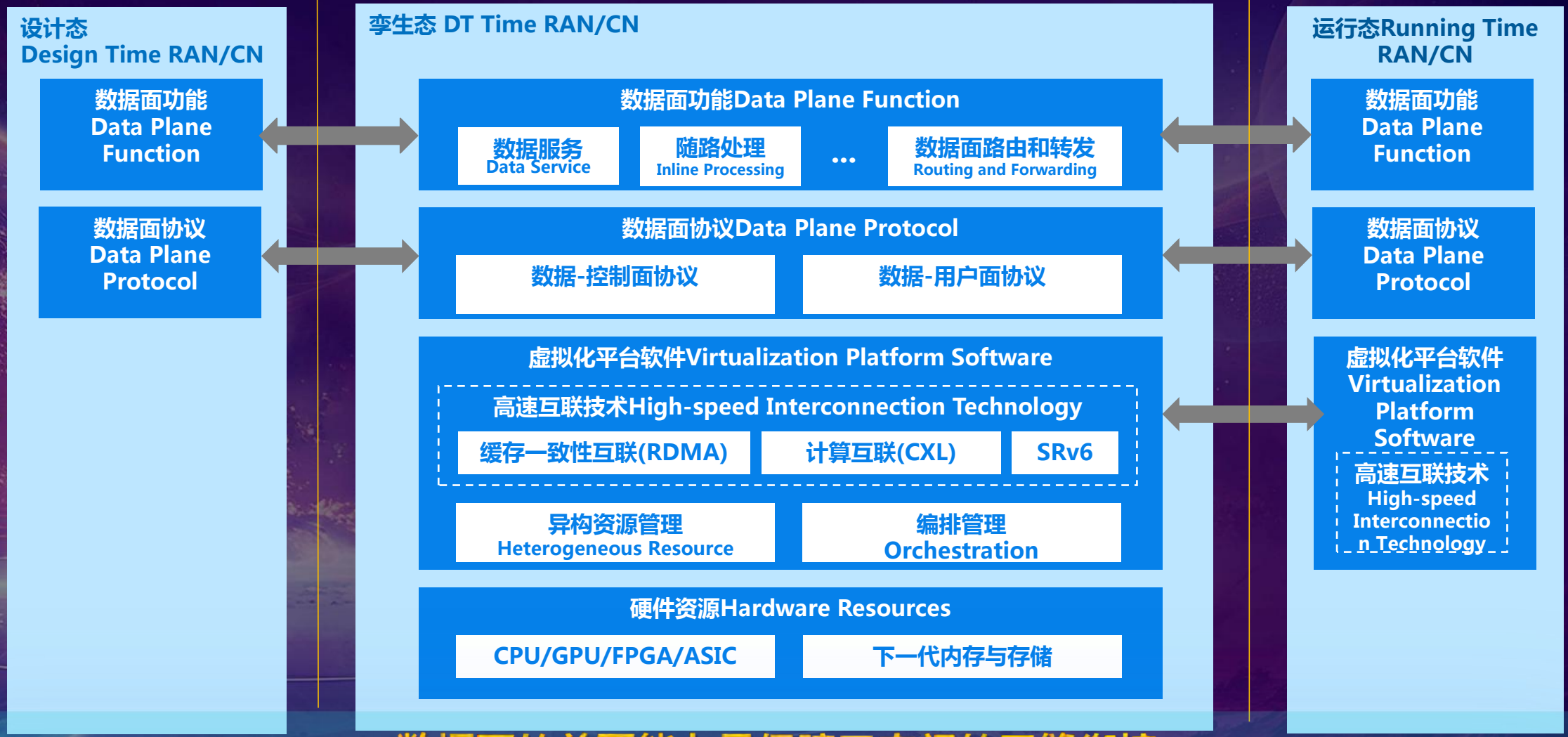


智能内生需要三态：设计态、孪生态和运行态以及它们的无缝衔接

AI native requires three phases including design time , DT time and running time , and seamless interworking among them

支持6G三态的数据面框架

6G Data Plane Framework for 6G three types of Times



数据面的首要能力是保障三态间的无缝衔接

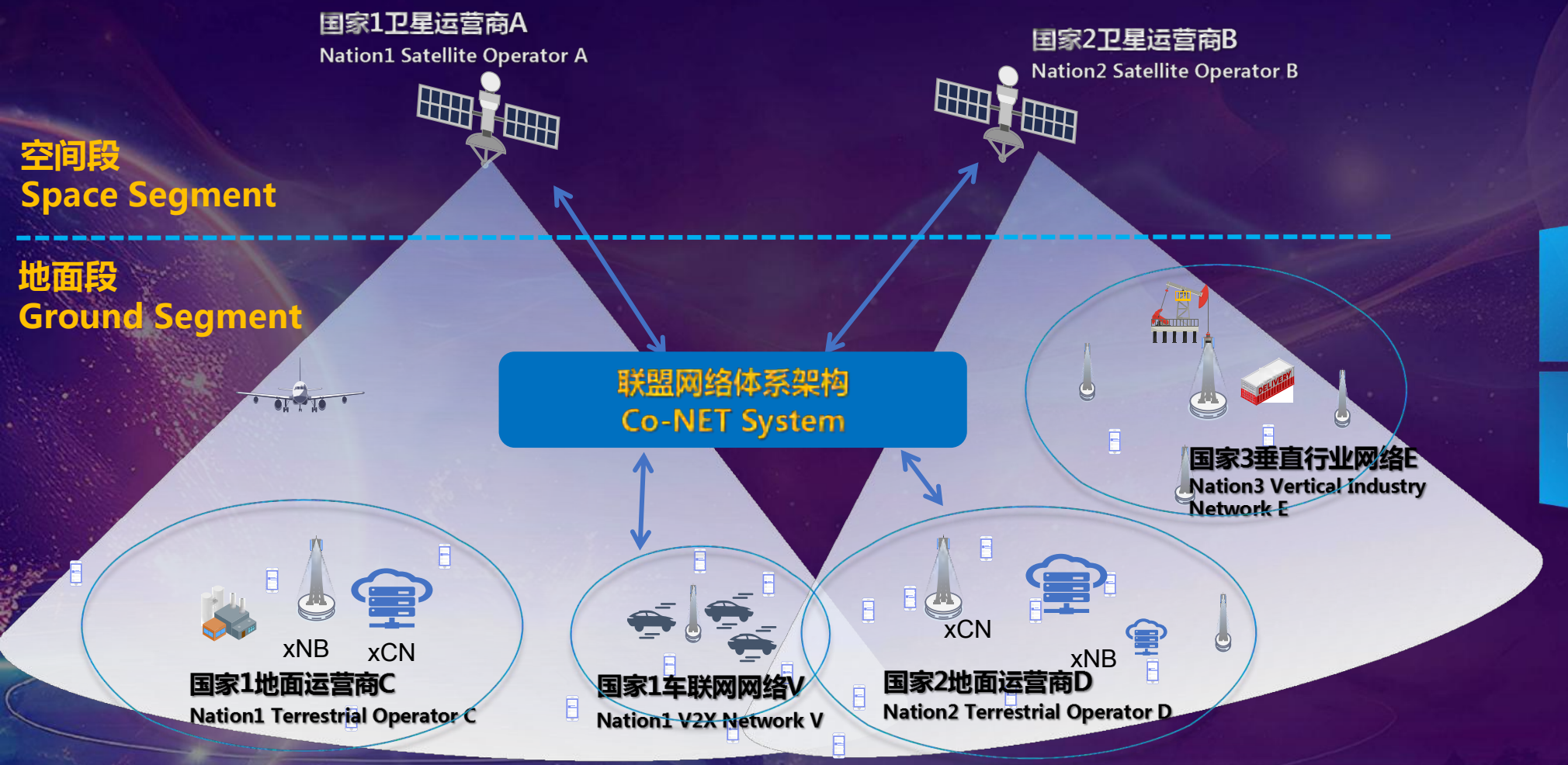
The prioritized capability of data plane is to support the seamless interworking among design time , DT time and running time

全球6G技术大会
GLOBAL 6G CONFERENCE

全球星地一体组网新范式：联盟网络

A New Paradigm for Global Integrated Satellite-Terrestrial Networking:Co-NET

创新预见6G未来 Better Together Better Future



联盟网络价值
Values of Co-NET

- 平台经济 Platform Economy
- 共享经济 Sharing Economy
- 泛在普惠 Ubiquitous beneficial
- 可信安全 Trustworthy &Security

联盟网络指由多个（分布式自治的）主体网络间（在多方共识信任的基础上）相互连接所形成的跨域、跨国、跨行业生态的网络系统，从而使各网络主体间可进行资源和服务的灵活共享和交易。

Co-NET(Consortium Network) is a cross-industry ecological network system formed by the interconnection of multiple (distributed and autonomous) owner networks through specific protocols (such as service registration and discovery), based on multi-party consensus. This system enables flexible sharing and trading of resources and services among various types of network owners.

全球6G技术大会
GLOBAL 6G CONFERENCE

行业一体组网新范式：联盟网络

A New Paradigm for Cross-Industry Networking:Co-NET

创新预见6G未来 Better Together Better Future

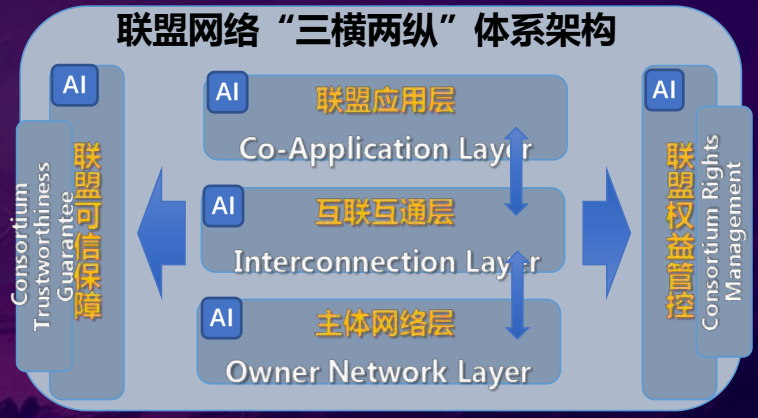
典型联盟应用
Typical Co-Apps

- **频谱、算力等资源租借**
  Leasing of Spectrum, Computing Power, and other Resources
- **数据、模型等资产共享和交易**
  Sharing and trading of Data, Models as assets
- **跨主体接入切换等漫游服务**
  Roaming Services Cross Different Network Owners
- **可信安全、权益保障等服务**
  Trustworthy, Security, Rights Protection Services

设计理念Design Principles

- 网络自主Network Autonomy
- 服务关系灵活化Flexibility of Service Relationship
- 分布式协同和共享Distributed Collaboration and Sharing
- 多方可信与安全隐私Multi-party Trustworthiness and Security Privacy
- 智能化自动运行Intelligently Automatic Operation

Co-NET system architecture



关键技术Key Technologies

- 自主数字身份Autonomous Digital Identity
- 分布式服务管理Distributed Service Management
- 权益管理Rights Management
- 多方共识可信Multi-Party Consensus Based Trustworthiness
- AI赋能联盟网络自智AI Empowered Network Intelligence

联盟网络产业生态建设
Co-NET Industrial Ecological Construction

6G 网络架构及关键技术(1.2)国家课题成果展示
6G Network architecture and key technology Project Demo(PoC)

依托于国家课题研究，形成多篇专利、论文等研究成果，并通过第三方测试及演示平台完成数项关键技术能力验证，形成支撑联盟网络设计的基础。

Drawing upon the research and achievements of the national project, several key technological capabilities are verified through third-party testing and simulation platforms. This work has established a theoretical foundation that supports the design and development of Co-NET.

FuTURE论坛白皮书发布
FuTURE Forum White Paper Release

在国家课题研究成果基础上，联合更多生态伙伴对联盟网络的新生态理念、典型场景及应用、设计理念、体系架构及关键技术进行设计探讨，并以白皮书形式发布。

Collaborate with numerous partners to delve into the design and discussion of Co-NET's novel ecological concepts, typical scenarios and applications, design philosophy, system architecture, and key technologies.

共同建设联盟网络合作生态、共筑6G新生态
Jointly building Co-NET cooperation ecosystem

下一步欢迎更多ICT业界、工业界及学术界等生态伙伴加入到联盟网络的生态中，不断完善联盟网络的业务和技术体系，推动联盟网络不断向成熟演变。

More partners from the ICT industry, industrial sector and academic circles are cordially invited to participate in the Co-NET ecosystem, working together to continuously enhance the business and technological framework of Co-NET and fostering its maturation process.

小结
Summary

- 使命 Missions：绿色极简Green，智能普惠 Intelligent，生态一体 Ecosystem
- 挑战 Challenges：同时实现更高KPI更低成本更绿色simultaneously higher KPI and energy efficiency with lower cost，同时实现碎片化的极致定制和规模复制，simultaneously fragmented extreme customization and scale replication，同时实现自主和可交易生态 simultaneously autonomy and tradable ecosystem
- 关键架构创新 Essential Architectural Innovations：
  - Meta-cell元小区
  - AI Native
  - Co-NET联盟网络


李东霏
邀请你加入星球，一起学习
ICT百科知识库
星主：李东霏
620+
成员数量
2900+
内容数量
874
运营天数
日更800天+，打造全网最大最全的通信与信息领域的知识文库！目前已有近4000主题，约20000份文档。
...
知识星球
微信扫码加入星球


2024 创新预见 6G未来
Better Together
Better Future
全球6G技术大会
GLOBAL 6G CONFERENCE
To enable connectivity and
trust everywhere - ZTE