

6G AI-Native and AI-Empowered RAN

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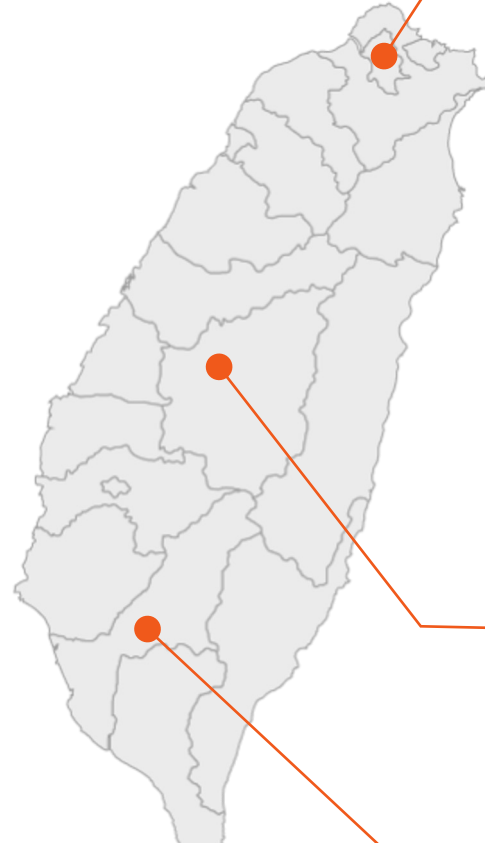
財團法人資訊工業策進會
INSTITUTE FOR INFORMATION INDUSTRY

Started	1979
Employees	1700 +
Departments	STI, DTRI, MIC, CSTI, DEI, STLI
Chairman	Dr. Chih-Kung Lee
President	Dr. CH Cho
Executive VP	Dr. Ren-Dar Yang Dr. Po-Jen Hsiao

Numerous 5G Technologies

- 5G Small Cell (L2 & L3)
- 5G SBA Core Network
- 5G TSN Technology
- 5G URLLC Technology
- 5G NB-IoT Satellite Comm.

Institute for Information Industry



Taipei

Technology Building

- Headquarters
- Administrative unit
- Marketing Strategy Center

Technology Services Building

- STI: Software Technology Research Institute
- DTRI: Digital Transformation Research Institute
- CSTI: Cybersecurity Technology Institute

International Building

- MIC: Market Intelligence & Consulting Institute
- STLI: Science & Technology Law Institute

Taiwan Farmers' Association Building

- DEI: Digital Education Institute
- DTRI: Digital Transformation Research Institute – Local Creativity Service Northern District Centre

Nantou

MOEA Central Taiwan Innovation Park

- DTRI: Digital Transformation Research Institute – Local Creativity Service Central Centre

Kaohsiung

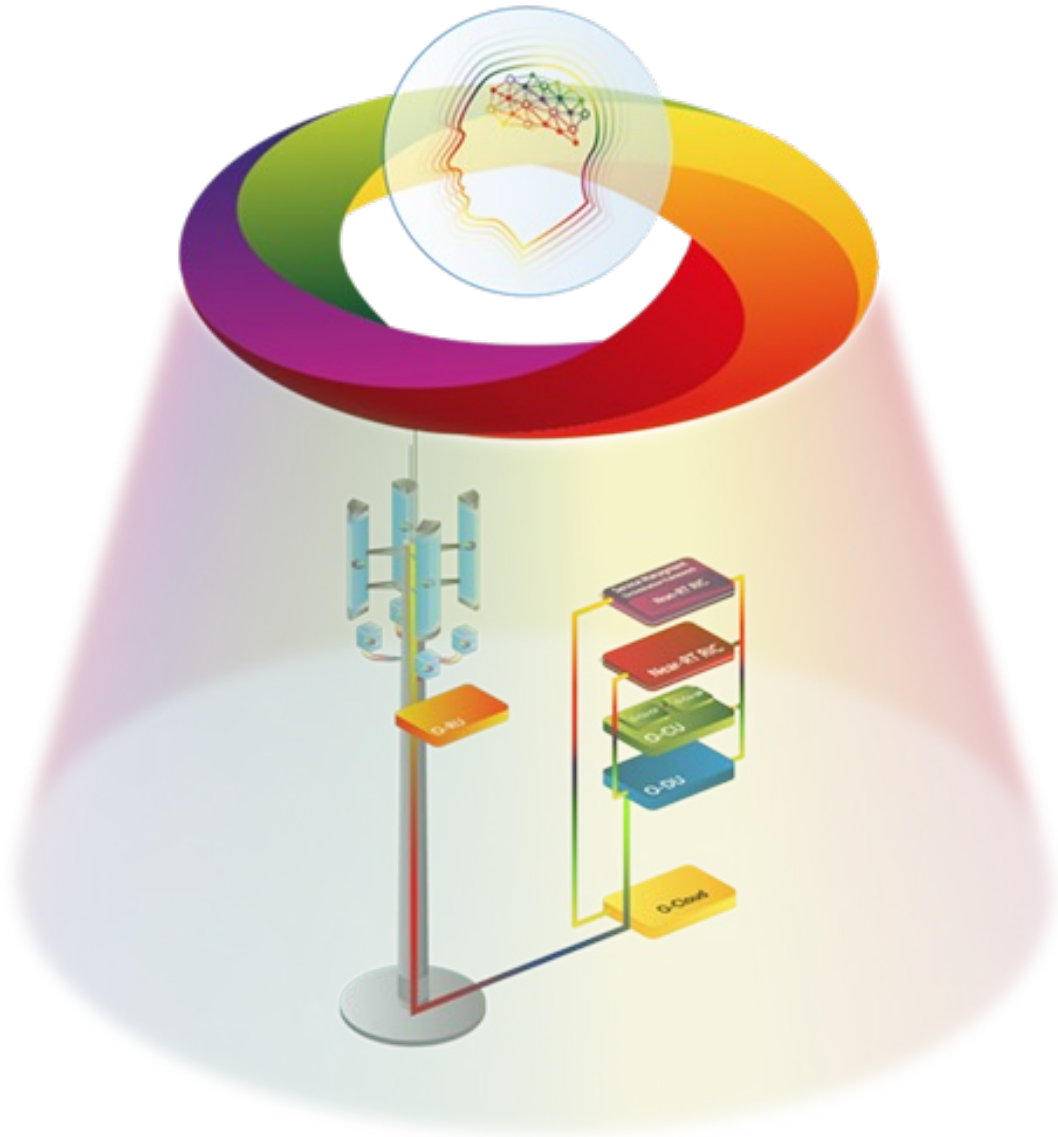
Kaohsiung Software Park

- DTRI: Digital Transformation Research Institute – Local Creativity Service Southern District Centre

Global Offices

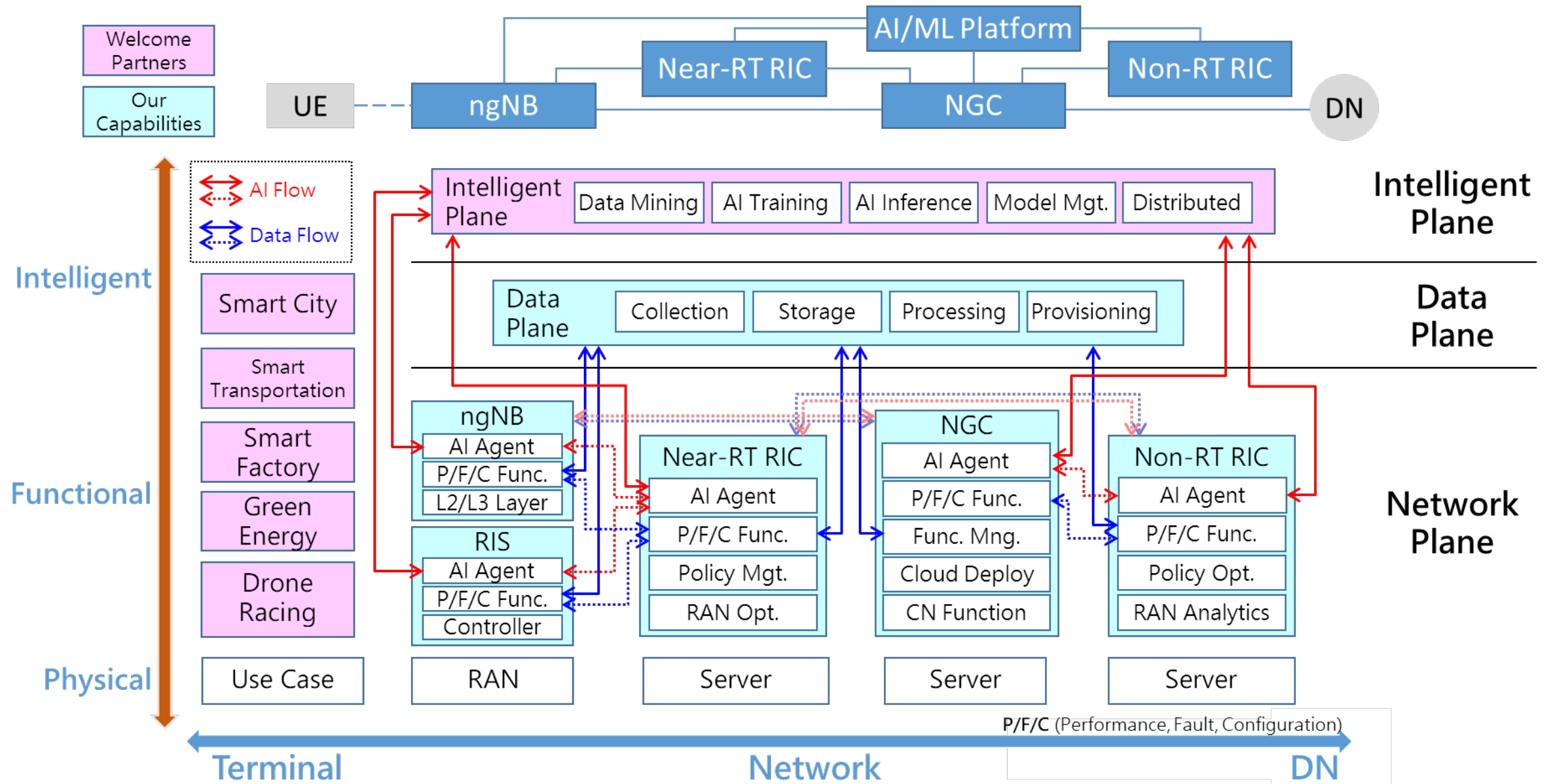
Japan-Tokyo,
India-Chennai,
Kuwait

III 6G AI-Native Prototype for RAN and RIS

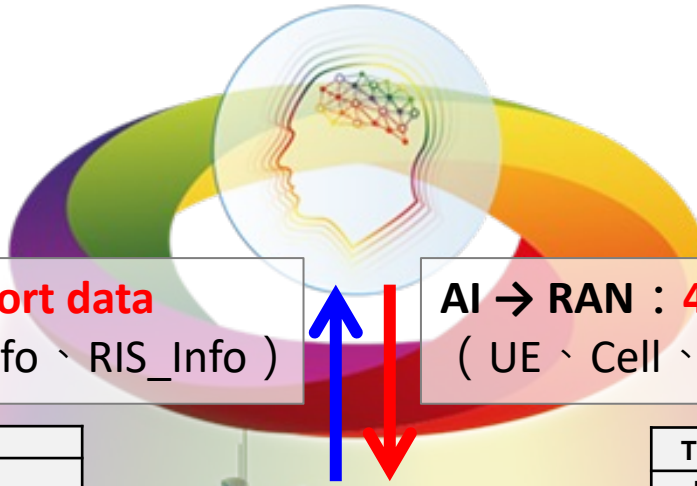
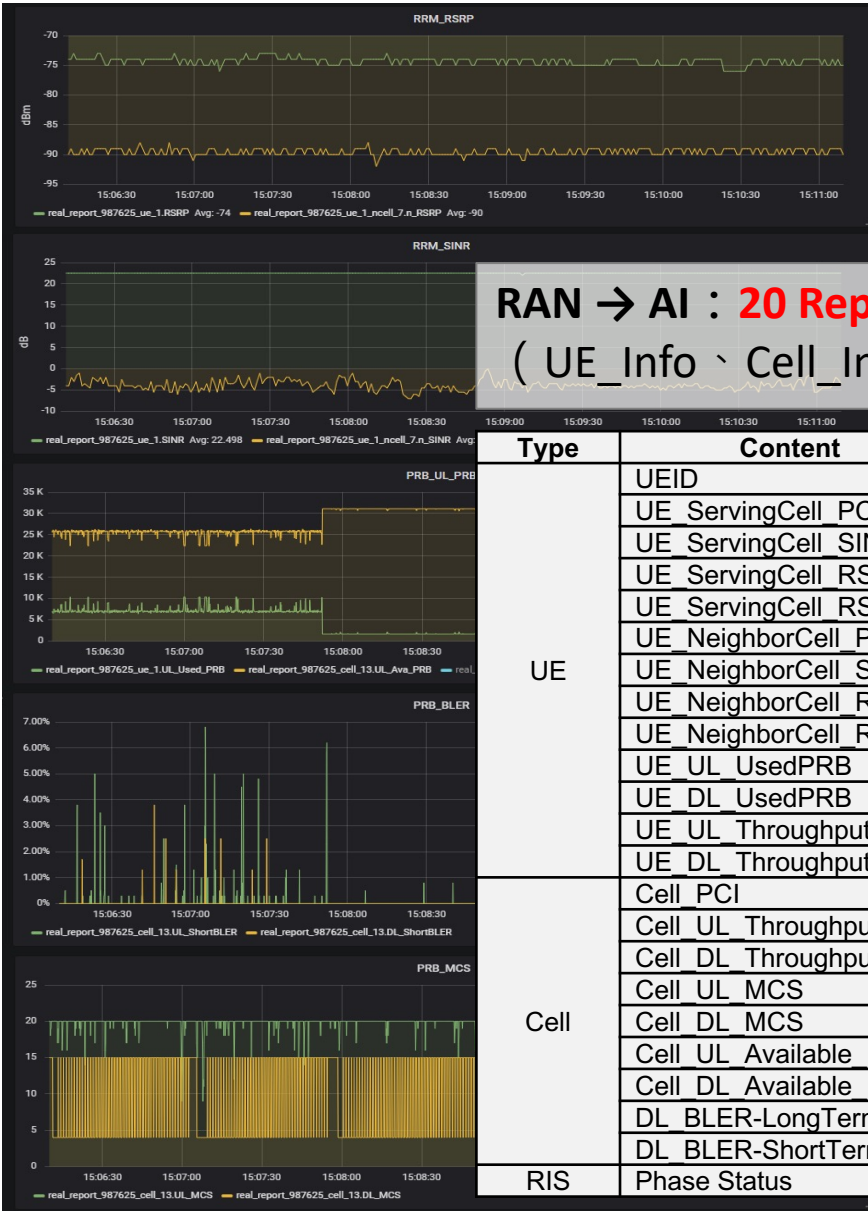


- **Enabling the Deep Integration and Intelligence of AI and Networking**
- **Support various features and functionalities**
- **Collaboration with Industry, Academia, and Research Institutions**
 - Accelerating AI Algorithm Development and Optimization
- **Establishing a Industrial Ecosystem**
 - Developing Domestic 6G AI-Native Autonomous Technologies
- **Participation in International Standards and International Organizations**
 - Synchronizing International 6G Architecture Development

III 6G AI-Native Prototype for RAN and RIS



III 6G AI-Native Prototype for RAN and RIS

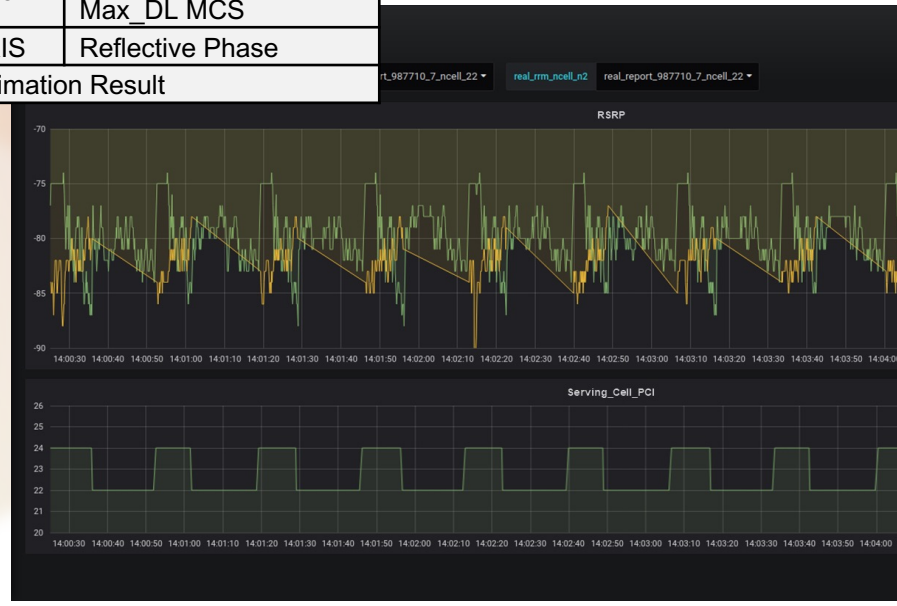
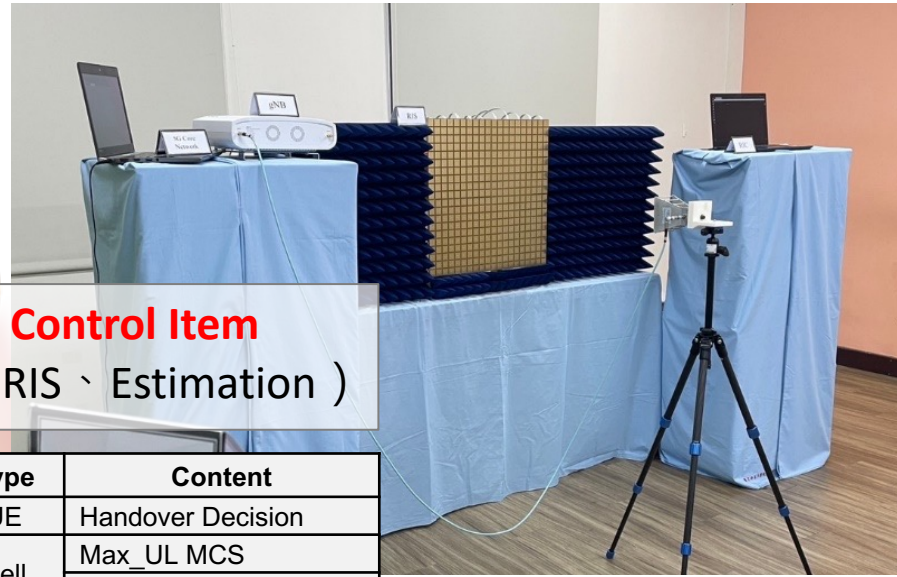


RAN → AI : 20 Report data
(UE_Info 、 Cell_Info 、 RIS_Info)

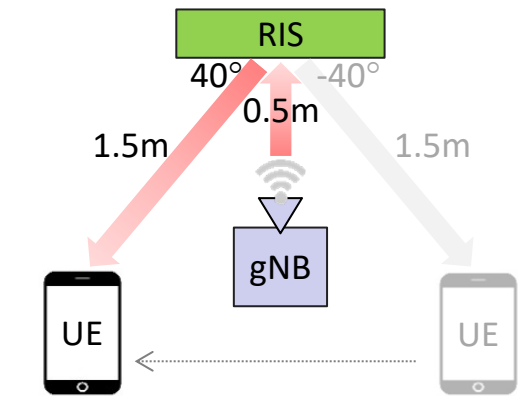
AI → RAN : 4 Control Item
(UE 、 Cell 、 RIS 、 Estimation)

Type	Content
UE	UEID
	UE_ServingCell_PCI
	UE_ServingCell_SINR
	UE_ServingCell_RSRP
	UE_ServingCell_RSRQ
	UE_NeighborCell_PCI
	UE_NeighborCell_SINR
	UE_NeighborCell_RSRP
	UE_NeighborCell_RSRQ
	UE_UL_UsedPRB
	UE_DL_UsedPRB
	UE_UL_Throughput
	UE_DL_Throughput
	Cell
Cell_UL_Throughput	
Cell_DL_Throughput	
Cell_UL_MCS	
Cell_DL_MCS	
Cell_UL_Available_PRB	
Cell_DL_Available_PRB	
RIS	DL_BLER-LongTerm
	DL_BLER-ShortTerm
Phase Status	

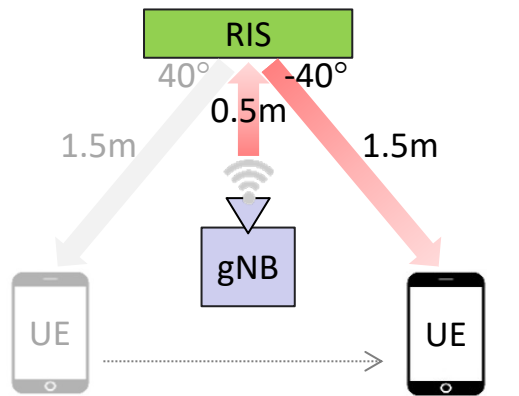
Type	Content
UE	Handover Decision
Cell	Max_UL_MCS
	Max_DL_MCS
RIS	Reflective Phase
Estimation Result	



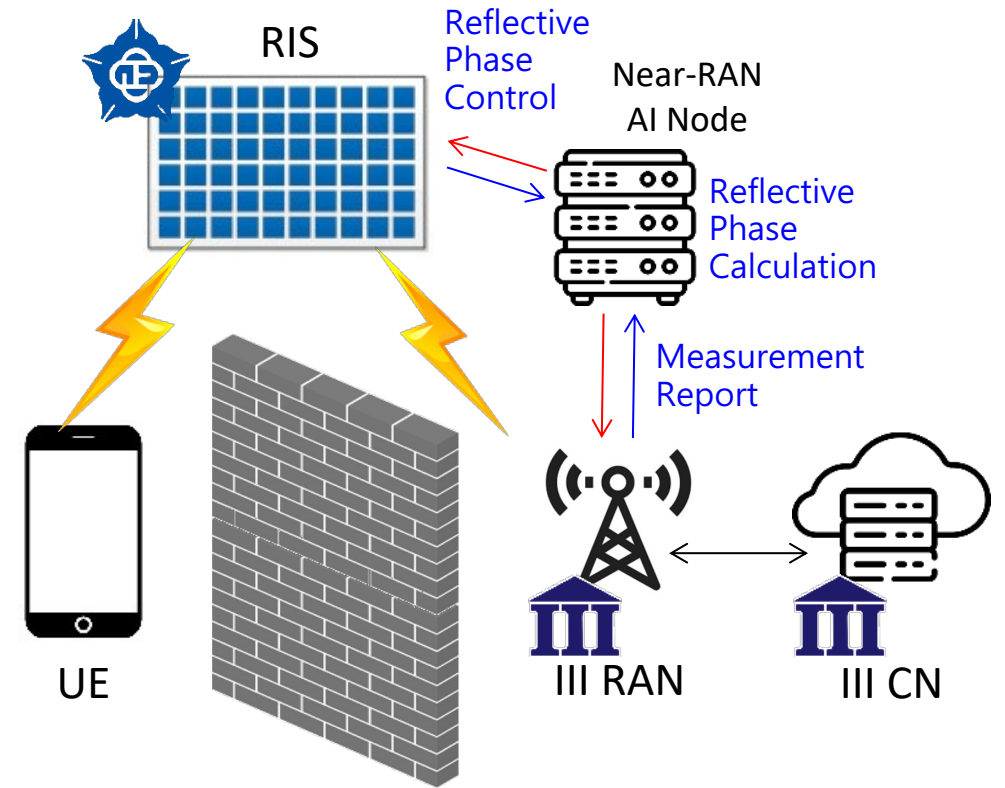
III 6G AI-Native Prototype for RAN and RIS



4.8GHz	RSRP
Before	-82 dBm
After	-73 dBm



4.8GHz	RSRP
Before	-85 dBm
After	-75 dBm



III Looking for International Collaboration

- **Our capabilities**

- AI-Native Framework : Deep integration of AI and Networking
- Real-time data acquisition and control for base stations and RIS platforms
- Data lifecycle management :
 - Data Acquisition, Storage, Mining, Analysis, Management, Provisioning
- AI/ML Lifecycle Management :
 - AI/ML Training, Testing, Inference, Prediction, Management, Deployment

- **We welcome partners**

- AI/ML algorithms / frameworks
- Verification environments
- Application scenarios / Field Trials



6G Stream B

- Architecture
- Wireless Communications
- AI/ML for Smart Networks and Services

- **Establishing a Industrial Ecosystem**

- Developing Domestic 6G AI-Native Autonomous Technologies
- Accelerating AI Algorithm Development and Optimization

Welcome to Collaboration

Accelerating AI-Native 6G Development and Optimization



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