

```

elif operation == "mirror":
    mirror_mod.use_x = False
    mirror_mod.use_y = False
    mirror_mod.use_z = True

```

```

mirror_ob.select = 1
modifier_ob.select = 1
bpy.context.scene.objects.active = modifier_ob
print("Selected" + str(modifier_ob)) # modifier ob is the active
mirror_ob.select = 0

```

# IPLOOK NETWORKS CO., LTD.

2023.08

**01** Company profile

**02** Product lines

**03** Solutions

**04** Advantages





# 01

## Company profile

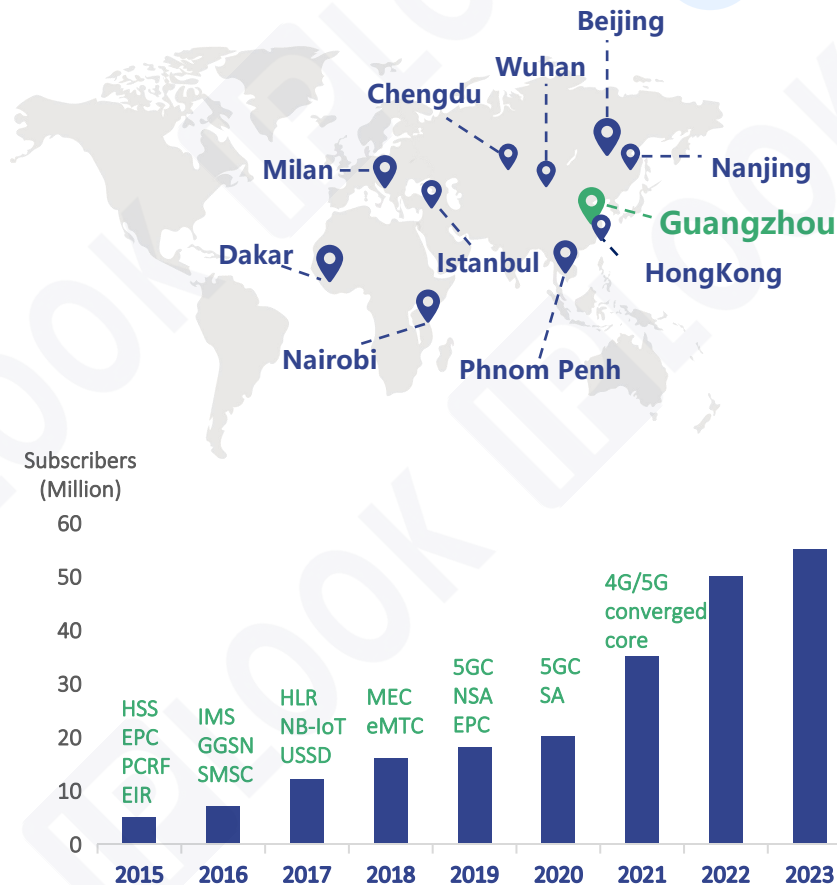
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# Brief Introduction

IPLOOK

- **IPLOOK**, a global leader of **end-to-end mobile core solutions**
- **Over 12 years** professional experience in telecom
- **200+ employees** with over 70% are R&D or technical engineers
- Full stack of **3G/4G/5G/IMS core networks**
- Customized solutions for **MNO, WISP, MVNO, Private Networks**
- **50M+** subscribers covering over 50 countries
- **500+** commercial deployments globally in Africa, West Europe, North America, Southeast Asia, Middle East etc.
- **24×7 hotline and online support**





02

Product lines

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# Product lines

IPLOOK

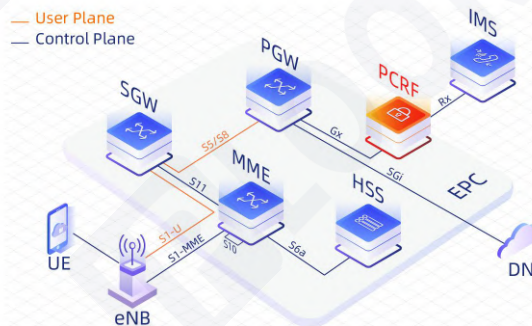
## 3G Core

HLR/GGSN/STP/SMSC/USSD Gateway



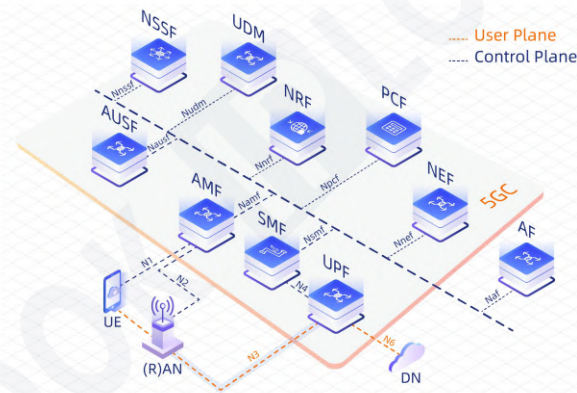
## 4G Core(EPC)

MME/HSS/SGW/PGW/PCRF/DRA



## 5G Core(5GC)

AMF/UDM/AUSF/UPF/SMF/PCF/NEF/NRF/  
NSSF/LMF/N3IWF



NFV deployment



Support X86 server  
& Cloud



High availability  
Easy scaling



Interop with multi-  
vendor eNodeBs



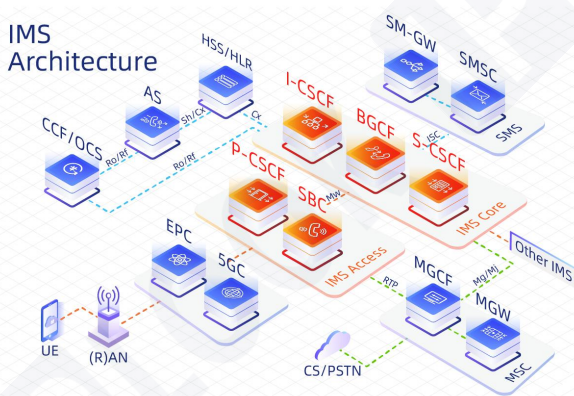
Converged 3G/4G/5G  
core network

# Product lines

IPLOOK

## IMS(VoLTE/VoNR)

AS, I/S/P-CSCF, BGCF, SBC/MGW



## MCX System

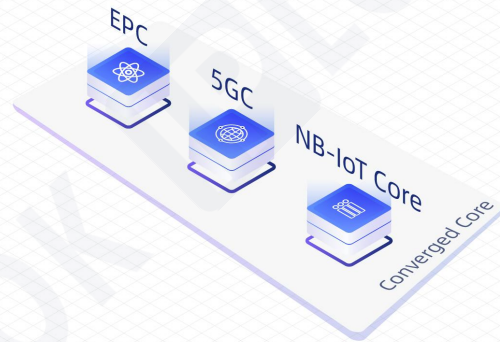
Setup over IMS, converged dispatch functions

### MCPTT Architecture



## NB-IoT Core

For smart cities, like metering, sharing bicycle, asset's location etc.



NFV deployment



Support X86 server  
& Cloud



High availability  
Easy scaling



Interop with multi-  
vendor eNodeBs



Easy to integrate





# 03

## Solutions

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## End-to-End 4G/5G Converged Solution

- ▶ A Turn-Key 4G/5G Wireless Solution: Radios + Core Network(4G/5G Data + VoLTE or VoNR) + BSS/OSS Systems + CPEs
- ▶ Fully virtualized EPC/5GC on X86 COTS hardware and Cloud
- ▶ Multi-vendor radios supported, 3rd Party application supported
- ▶ Processing scalability supporting 1,000 to 1,000,000 subscribers

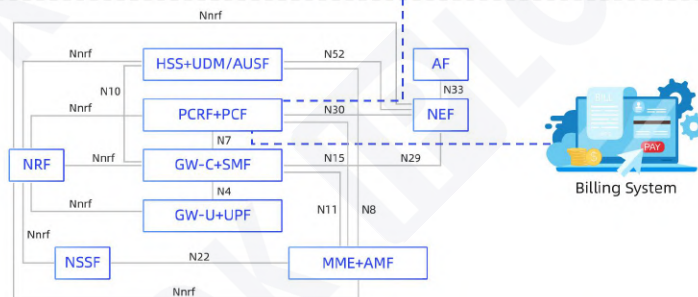
### Cloud Platform



### MCPTT System



### 4G/5G Converged Core Network



### MEC



### Radio

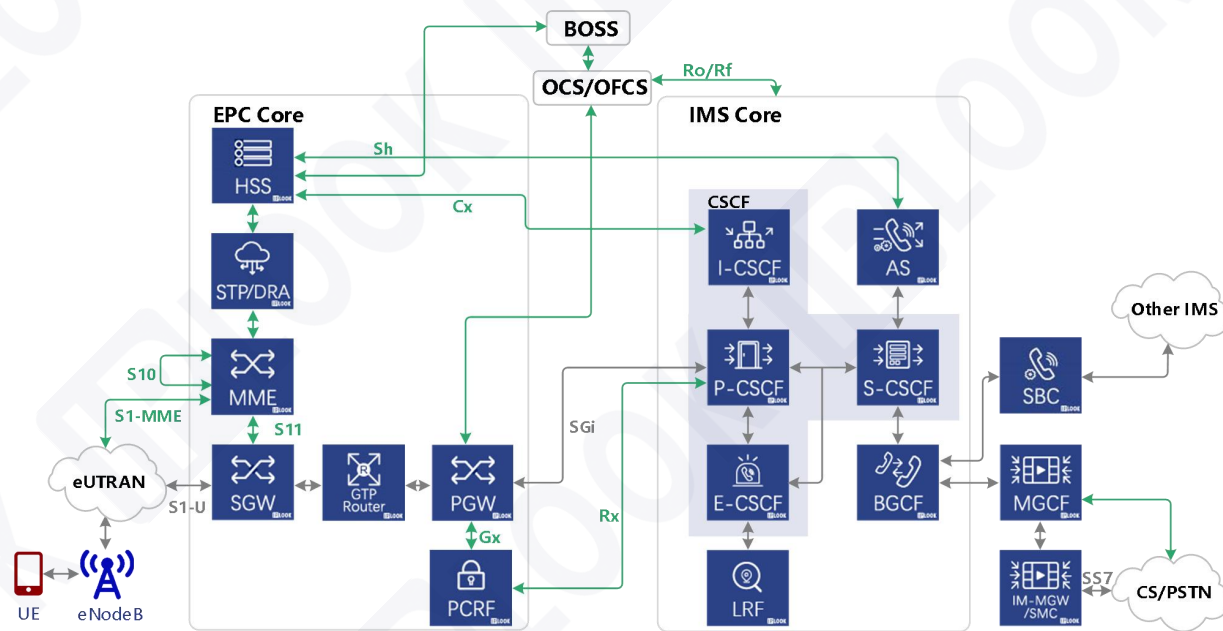


### Terminal



## Solution for MNO

- Replace existing 2G&3G sites by 4G sites.
- Upgrade the traditional 2G&3G core network to NFV core network.
- Upgrade the OSS/BSS to new system with OCS.
- Our new core network is 5G ready platform. It would be upgraded to support 5G NR smoothly.



## Solution for MVNO

IPLOOK enables MVNOs to become **Light MVNO**(with HSS/HLR,BOSS), **Full MVNO**(with more like, STP, DRA, GTP- Router, PGW/GGSN, PCRF, SMSC/USSD) and **MOCN operator**(with more like MME, SGW, SGSN, MSC).

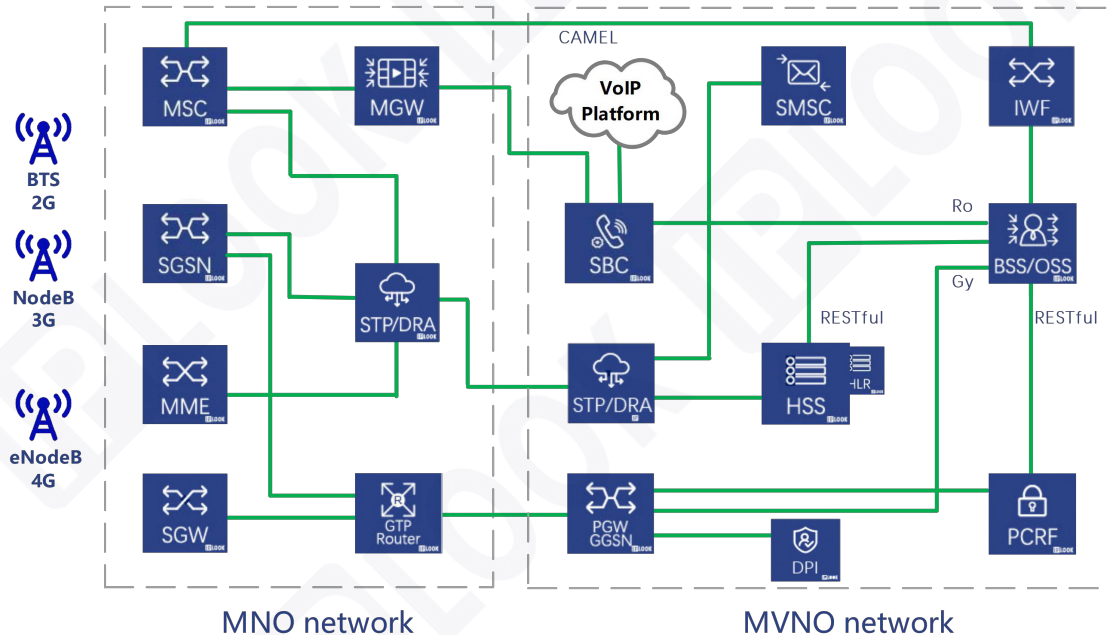
### Application scenario:

International roaming for tourists & M2M

### Key benefits:

Field-proven proposal for MVNO

Lower CAPEX & OPEX





## Solution for WISP

Fixed wireless access over LTE for data service instead of FTTX, LAN or ADSL.

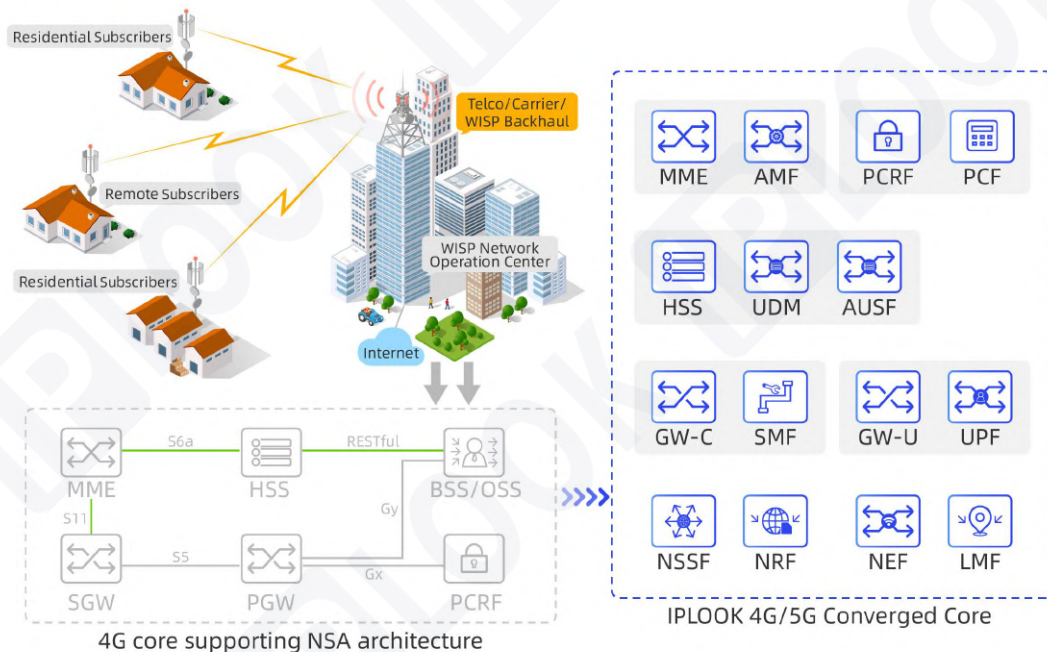
### Application scenario:

Remote country; Home internet services

### Key benefits:

Multi-vendor's eNodeBs supported

Multi charging mode: RADIUS, OCS, CG



## Solution for Private Networks

### Application scenario:

Private network for mines communication, police communication, power grid etc.

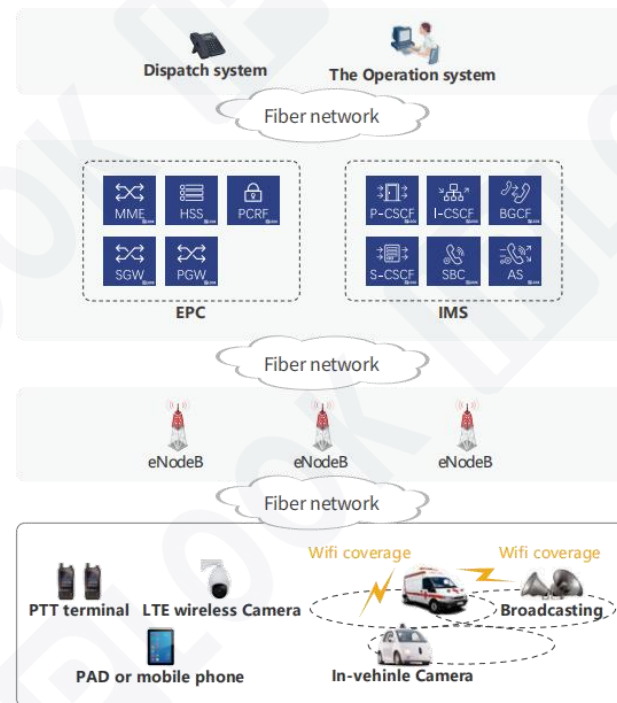
### Services:

Data, VoLTE, VoNR, MCPTT, SMS

### Key benefits:

Rich industrial network experiences

Better customization capability



The end-to-end solution for Police or Mining

## Solution for islands

### Application scenario:

LTE network designed for islands

### Services:

Data, VoLTE, CSFB, SMS

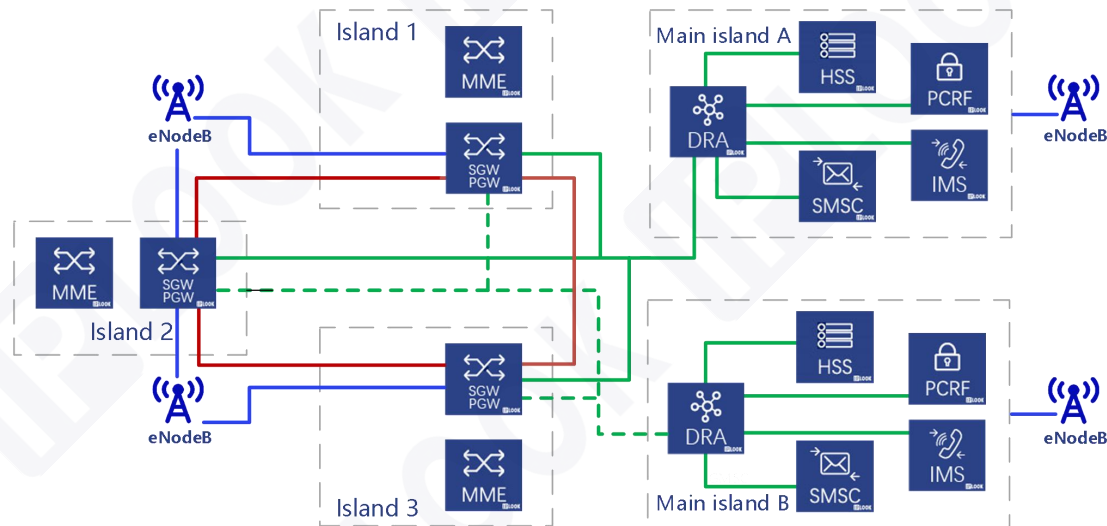
### Key benefits:

High-quality network services with long latency transmission environment

Swift rollout of the new-built 4G network

1+1 standby mode

Resource sharing



LTE deployment designed for islands



## Solution for NB-IoT

### Application scenario:

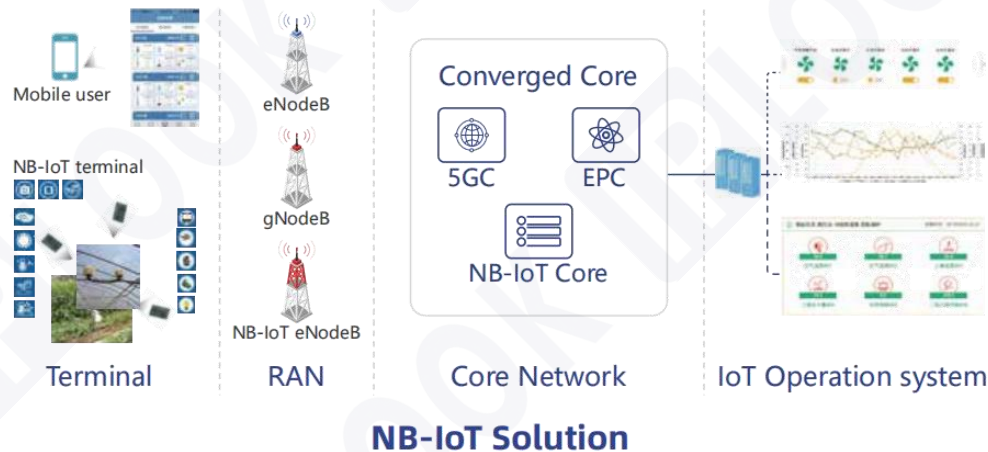
The NB-IoT core for both operator and private networks. With the solution, the IoT terminals or sensors can be some power saving NB-IoT or eMTC devices.

### Services:

Small amount data transfer

### Key benefits:

CAPEX-saving solution with lite eNB and core converged LTE and IoT core





# 04

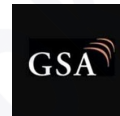
## Advantages

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# Certificates

- ▶ 4G/5G full **core network** elements **access certificate** in China
- ▶ **CMMI-3** and **ISO9001** certificates
- ▶ 80+ software copyrights and 200+ patents in core network field
- ▶ An official member of **3GPP**, **GSMA**, **GSA**, **CCA**, **CCSA** organization

IPLOOK







## Worldwide use cases

IPLOOK has accumulated **500+ commercial deployment** in the last 10 years. With **open interfaces**, its 3GPP- compliant 3G/4G/5G core network could be easily integrated with legacy network.



## The full stack core network

It has 3G, 4G and 5G full core network to ensure a **smooth upgrade**. With its open architecture, IPLOOK's core network supports multi-vendor bases stations and CPEs.



## Tailor-made solution

IPLOOK provides all size scalable networks with **pay-as-you-go model** to satisfy various requirements of operators and enterprises. Onsite services and 7\*24 support are included.



## Save CAPEX & OPEX

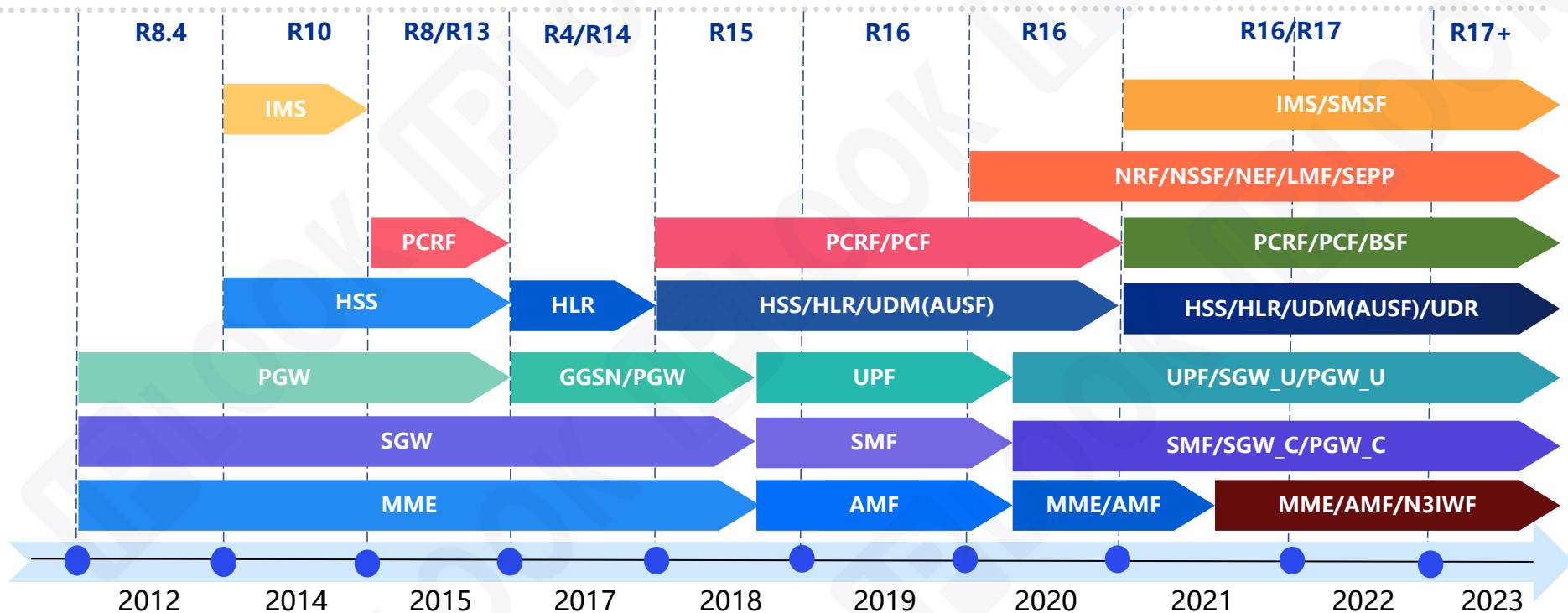
With the compact deployment and virtualized deployment, our **NFV-based** core network software is scalable, flexible, easy to deploy and manage at a low cost.

# Roadmap

| R4.2  | R5.2-R5.6  | R6.7   | R7.4   | R8.2  |
|---|--|--|--|---|
| <p>5GS/EPS interworking with N26</p> <p>EPS Fallback</p> <p>5GS/EPS Handover</p> <p>OMC Release</p> <p>Cloud 5GS Integration</p> <p>LEO Core</p> <ul style="list-style-type: none"><li>• GMS Trail</li></ul> <p>NEs</p> <ul style="list-style-type: none"><li>• MME/AMF</li><li>• HLR/HSS/UDM/AUSF</li><li>• EIR</li><li>• SGW/PGW/GGSN</li><li>• PCRF/PCF</li><li>• PGW_C/SMF</li><li>• PGW_U/UPF</li><li>• NRF</li><li>• NSSF</li><li>• IMS</li><li>• SBC</li></ul> | <p>5GS NEs</p> <ul style="list-style-type: none"><li>• UDR</li><li>• SEPP Release</li><li>• NEF Release</li><li>• UPF 100G Platform</li></ul> <p>IMS 5G Compliance</p> <ul style="list-style-type: none"><li>• N5 Interface</li><li>• Performance Enhancement</li></ul> <p>EPS Enhancement</p> <ul style="list-style-type: none"><li>• xGW 40G Platform</li><li>• GTP-Router 40G Platform</li></ul> <p>ARM Platform Adaption</p> <p>Fully CUPS Architecture</p> <p>LEO Core</p> <ul style="list-style-type: none"><li>• GMS Release</li></ul> <p>R17 Feature Compliance</p> <p>Misc</p> <ul style="list-style-type: none"><li>• MCPTT Trial</li></ul> <p>Simulation Platform</p> <p>Location Service Function</p> <p>NWDAF</p> | <ul style="list-style-type: none"><li>• TSN Release</li><li>• R17 Feature Compliance</li><li>• V2X Trial</li><li>• 5GC+AI Advanced Research</li></ul> <p>Space-Integrated-Ground Network Core</p> <ul style="list-style-type: none"><li>• GMS Enhancement</li></ul> <p>Adaptation to Cloud Platform</p> <ul style="list-style-type: none"><li>• VMware Cloud Platform</li><li>• AWS Cloud Platform</li><li>• ALI Cloud Platform</li><li>• General OpenStack Cloud platform</li></ul> <p>100Gbps Platform</p> <p>UDR Policy Integrating</p> | <ul style="list-style-type: none"><li>• TSN release</li><li>• V2X release</li><li>• 5G-Advanced LEO commercial</li></ul> <p>5GS</p> <ul style="list-style-type: none"><li>• Enhanced Network Slicing Functionality</li><li>• 5GC Location Services (Phase 3)</li><li>• MissionCritical and emergencies</li></ul> <p>IMS</p> <ul style="list-style-type: none"><li>• Implement session persistence and recovery for SIP sessions</li></ul> <p>LEO Core</p> <p>More flexible scenarios and models</p> <ul style="list-style-type: none"><li>• Edge computing</li><li>• Intelligence Algorithms</li><li>• More algorithm interfaces</li></ul> | <p>5GS</p> <ul style="list-style-type: none"><li>• Support for satellite access (Phase 3)</li><li>• Roaming Value-Added Services</li><li>• Support for Upper layer traffic steering, switching and split over dual 3GPP access</li></ul> <p>IMS</p> <ul style="list-style-type: none"><li>• e2 Interface to the TISPN NASS</li><li>• OMR/OMR</li><li>• Remote Activation of Call Forwarding</li></ul> <p>PLT</p> <ul style="list-style-type: none"><li>• NFV Acceleration Management</li><li>• SNMP Alarm Interface</li><li>• Software Reliability</li><li>• Data &amp; System Security</li></ul> |
| 2021  | 2022   | 2023   | 2024~2025  | 2026~2028   |

# Product Release

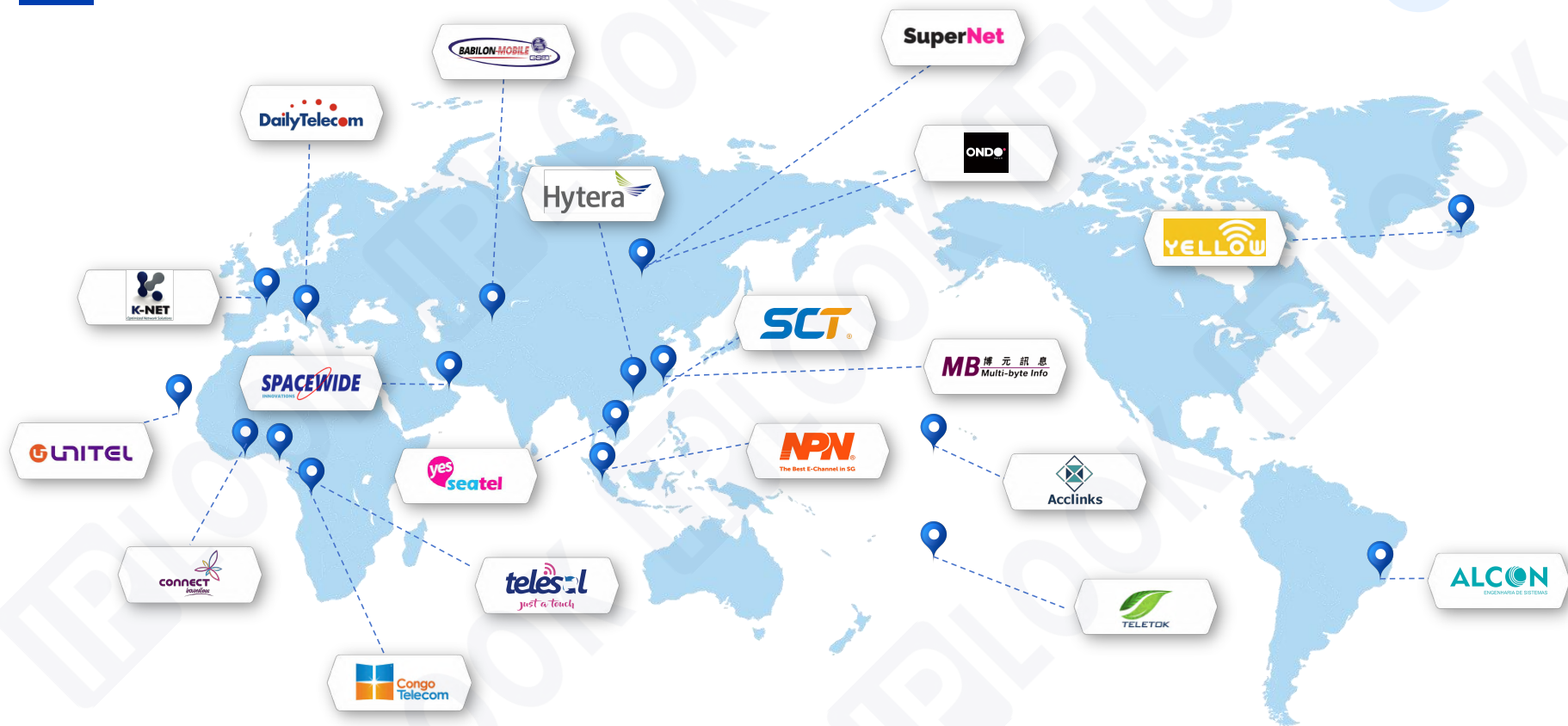
## 3GPP Release





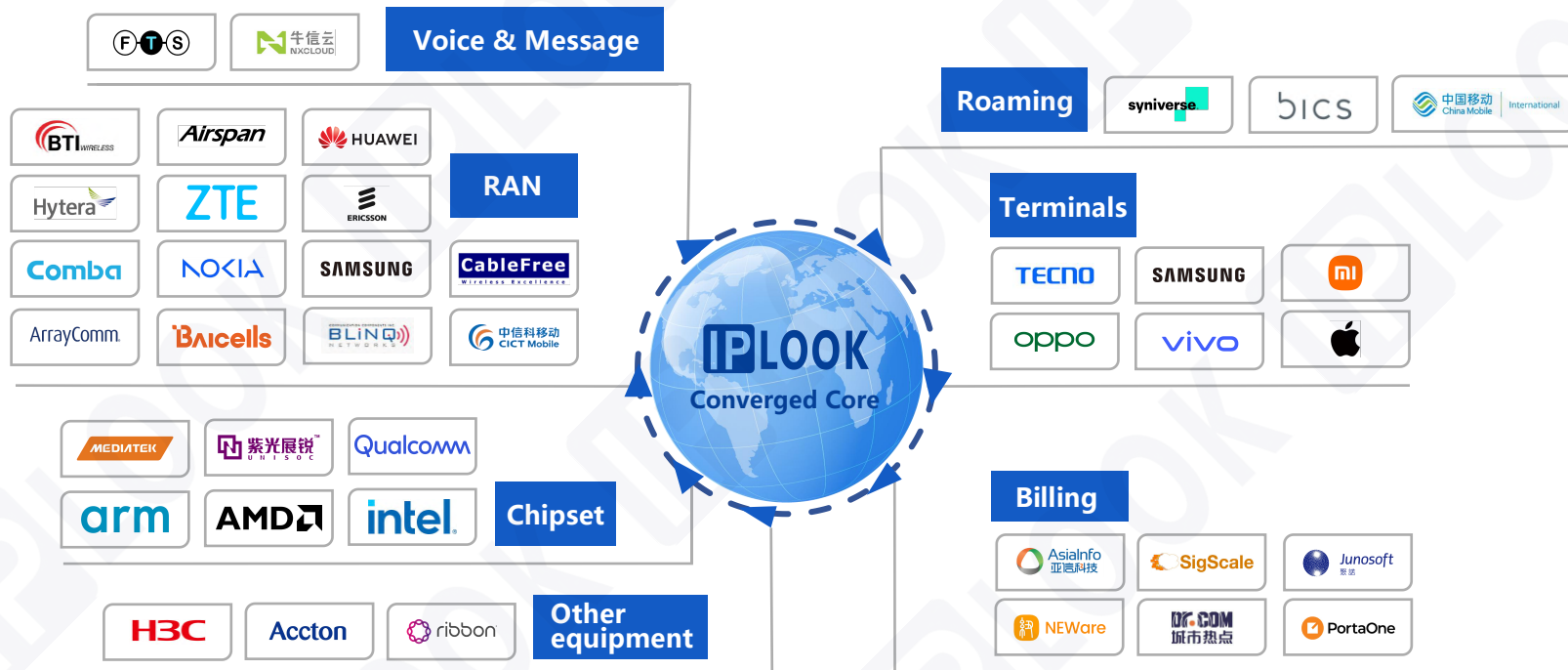
# Clients

IPLOOK



# Industry Ecosystem

IPLOOK



# THANK YOU



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