Monetize IPX with Multimedia interconnection

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May 16th , 2013
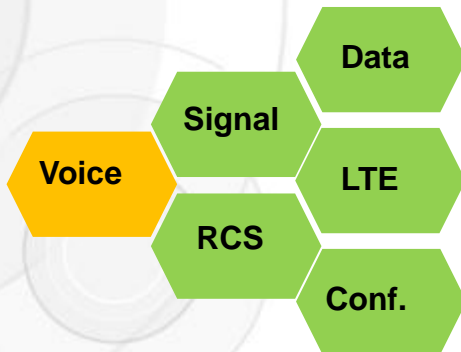
HUAWEI TECHNOLOGIES CO., LTD.

Strengthen & Broaden your business
--Huawei keynote in 3th i3 forum

Strengthen interconnection business

Broaden with new business models

Interconnection requirements

- Secure legacy voice revenue
- New services interconnection

Data
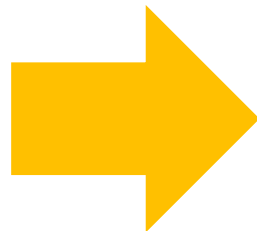
Signal

Voice

LTE

RCS

Conf.

New model requirements

- More wholesale services, even your own subs
- IT tech., All IP BB infrastructure facilitate hosted service model
- ICT & OTT enable fast innovation

OTT

Service

MN0

Interconnection

FNO
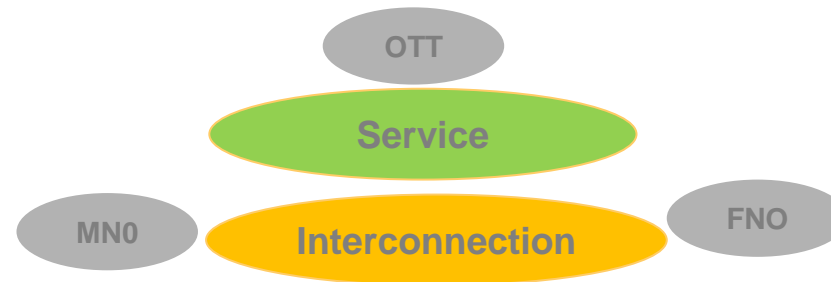
The moving industry bring new business opportunity to IPX

Better monetize your IPX asset with:

| Diameter routing for LTE roaming | HDVC interworking | RCS/RCSe hubbing |

Traditional service over IPX

- Messaging hubbing services
- Voice termination service
- GRX based data roaming
- SS7 and IP signaling routing

IPX

MBB

FBB

joyn

HUAWEI

LTE roaming: an immediate need

Important Revenue Resource

- Mobile data roamers to generate over $35bn in 2017, representing 40% of roaming revenues.
- Western Europe will be the highest proportion of the global mobile data roaming revenue.
- LTE data roaming will be the next growth driver.

-- *Juniper Research*

Users' Satisfaction

Ubiquity – anywhere, anytime

New/more services

Higher speed

Maturing Ecosystem

Global wholesaler started LTE signaling exchange business

Deutsche Telekom · iBasis a KPN company · AICENT

Accelerating DRA deployment to fuel the LTE roaming service rollout on Y2013

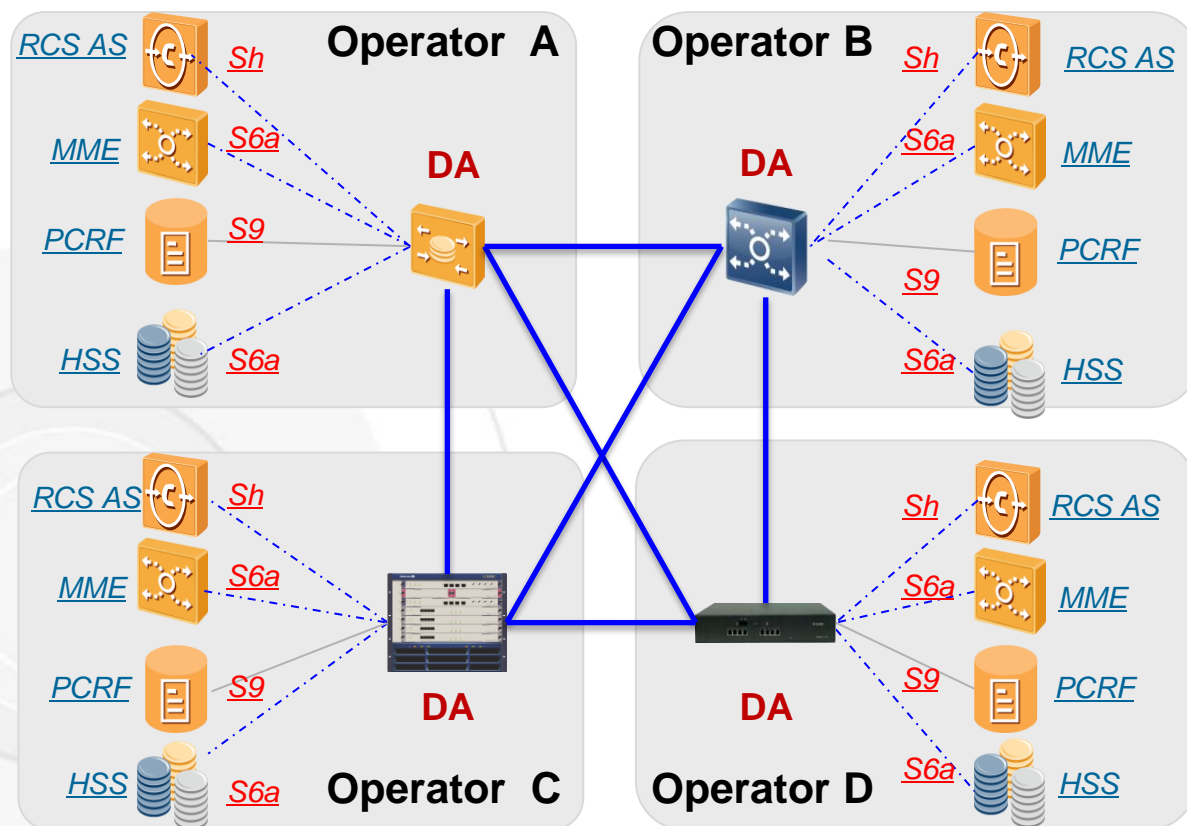TELEKOM AUSTRIA GROUP · 中国移动通信 CHINA MOBILE 移动信息专家 · KDDI · 3

Fast increased LTE devices paved the way for global LTE roaming.

GSA confirms 666 LTE user devices launched at Feb 2013
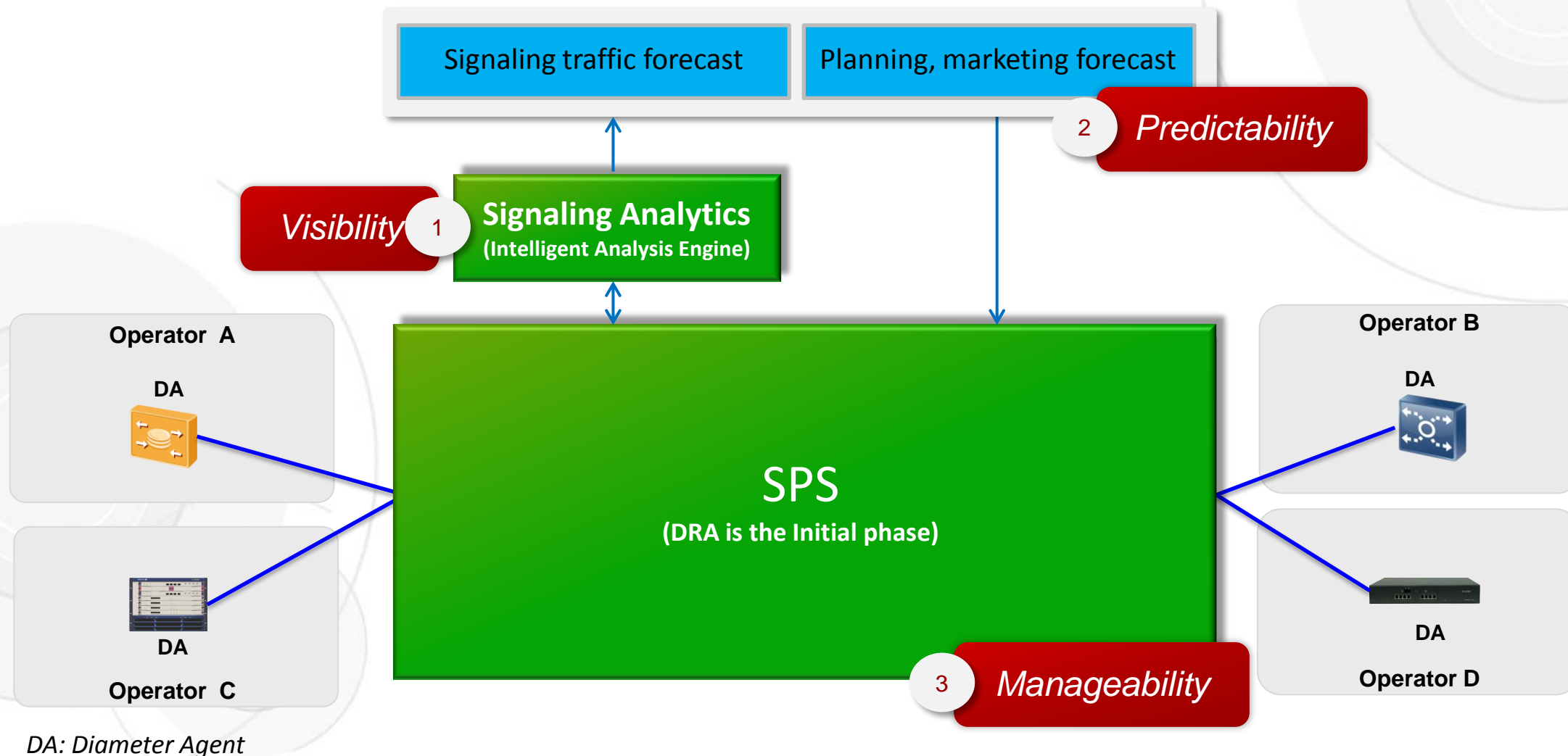
DRA

LTE roaming challenges: MESH is a mess!

Needs from MNO

- Minimize the cost of building roaming connections

- Simplified topology

- Provides mediation between diameter implementations

- Facilitate interworking with 2G/3G networks

Made it easy with DRA Hub for LTE signaling exchange

Signaling traffic forecast

Planning, marketing forecast

2 *Predictability*

Visibility **1** **Signaling Analytics**
(Intelligent Analysis Engine)

Operator A

DA

Operator B

DA

SPS
(DRA is the Initial phase)

DA

Operator C

3 *Manageability*

DA

Operator D

DA: Diameter Agent

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DRA

Up-sell to your existing SS7 signaling exchange customers

New offer — LTE Signaling exchange

Tradition — GPRS data exchange

Voice/SMS Signaling exchange

Interconnect Shipment Forecast

M TPS

SP Interconnect

2013 2014 2015 2016 2017 Year
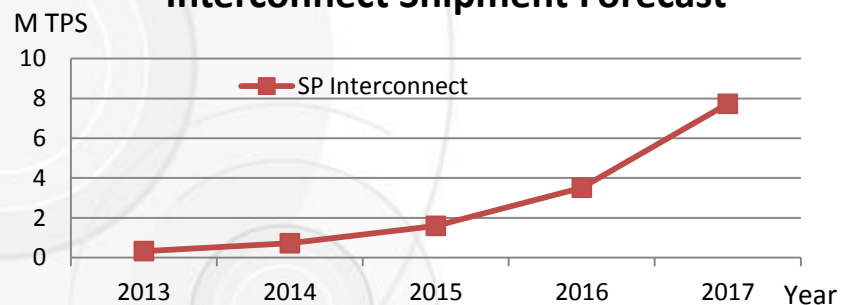
Comment: From Huawei Business department

Global wholesalers already started LTE signaling exchange business
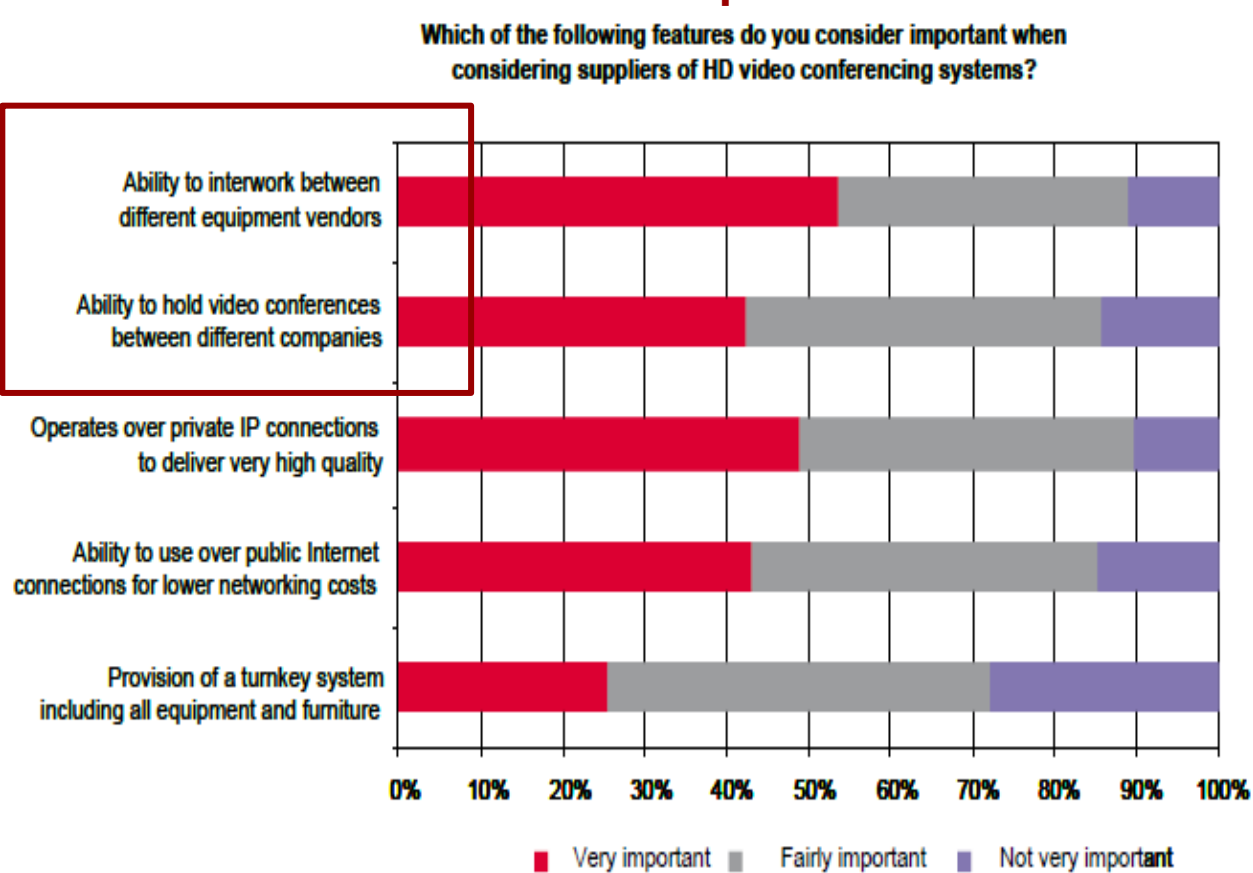

LTE roaming requirement is there

Video Conferencing is changing from CLOSE to OPEN

Video conference is undoubtable opportunity

- Wainhouse: Carrier hosting conf revenue: $9.6bn in 2016

From intra to inter-enterprise

Which of the following features do you consider important when considering suppliers of HD video conferencing systems?

- Ability to interwork between different equipment vendors
- Ability to hold video conferences between different companies
- Operates over private IP connections to deliver very high quality
- Ability to use over public Internet connections for lower networking costs
- Provision of a turnkey system including all equipment and furniture

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

■ Very important   ■ Fairly important   ■ Not very important

* OVUM's survey on top 600 companies worldwide

The reality is not that simple: there are lots of fragmentation

Different than just signaling or media or standards

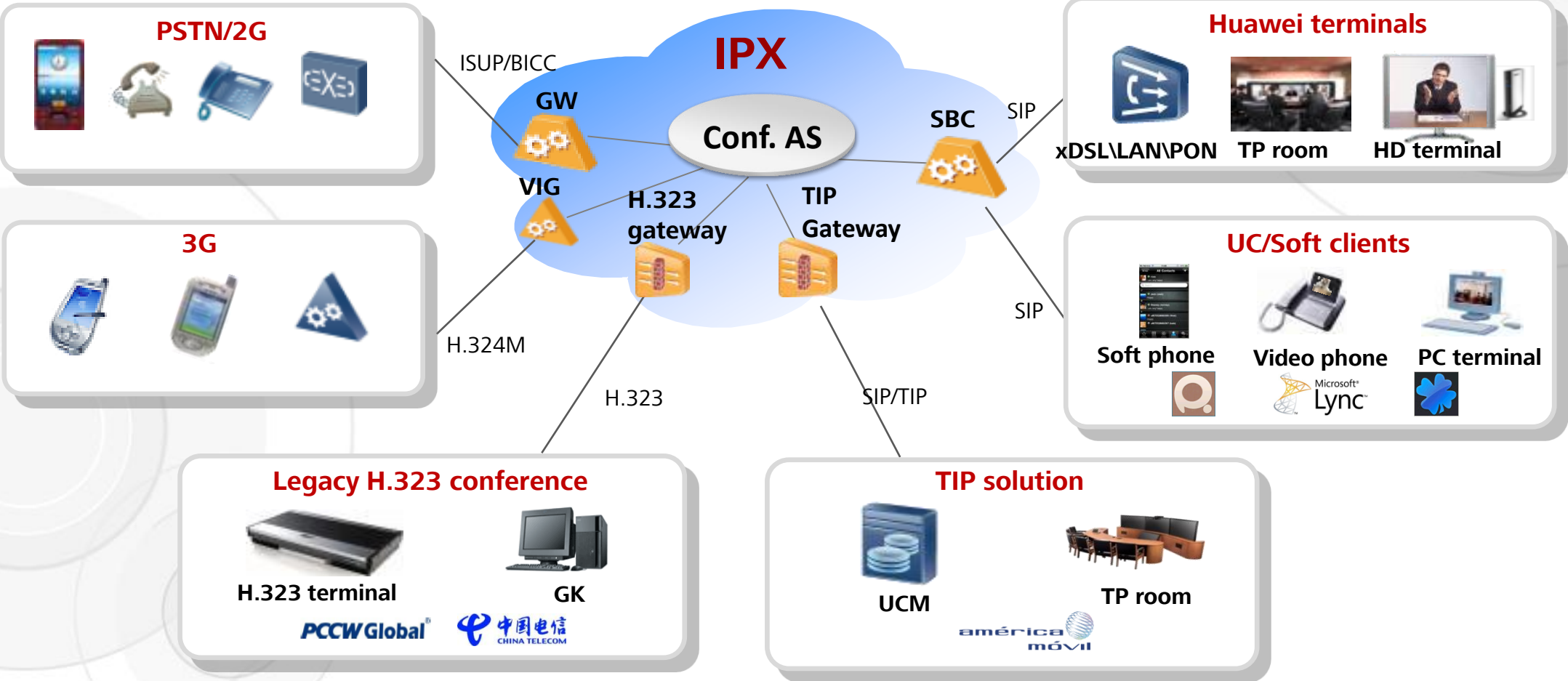| 1 | IMS/SIP based conference |
2	H.323 solution
3	Vendor specific TP solution
4	UC / Web Conference
5	3G video call

Voice algorithms

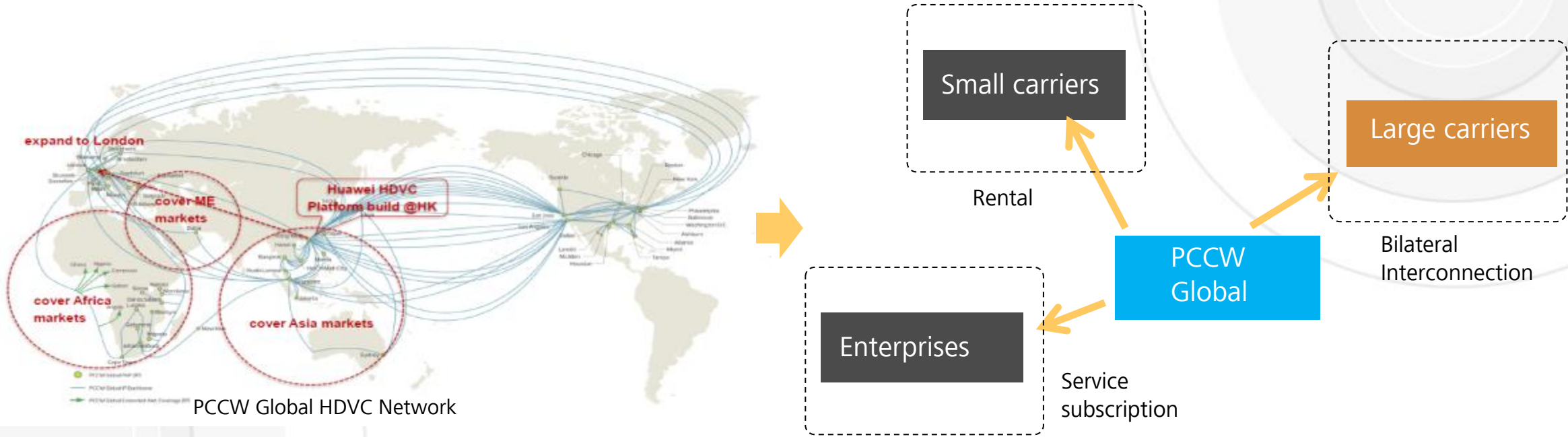| Codec	Spectrum	Notes
G.722	7 KHz	Best suited for H.323 and SIP, Better for interoperability
AAC-LD	8-96 KHz	Used for most high-end H.323 video conferencing
SILK	8-24 KHz	Skype . Most of the rest of the pack skipped this one
iSAC	16 or 32 kHz	GIPS in origin. Got open source by Google recently
AMR-WB	16KHz	The wideband voice codec of choice for VoLTE

Video algorithms

- Video Codec: H.261, H.263, H.264, MPEG4 ...
- Video Resolution: QCIF, CIF, 4CIF, 720P, 1080P
- Standard Organizations: 3GPP, ITU-T, IETF, GSMA/HDVC, CCSA

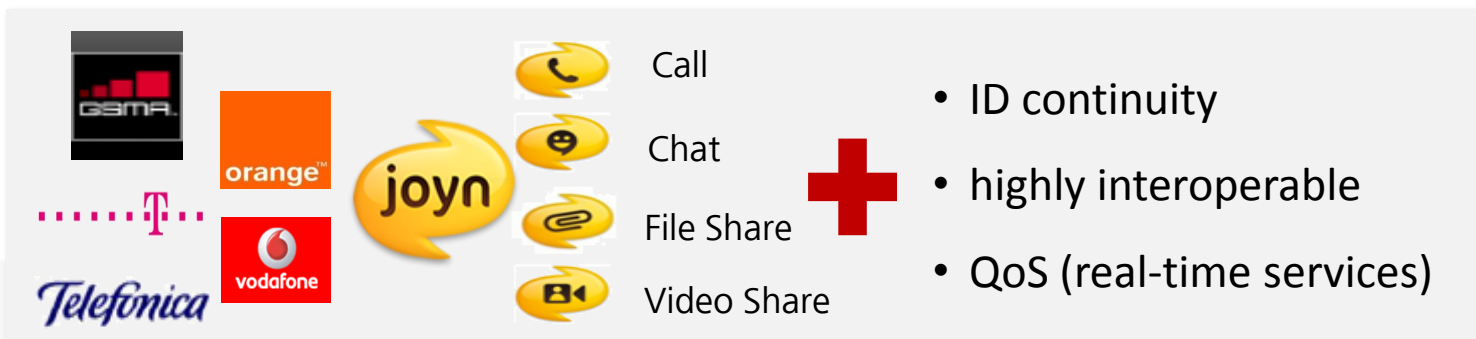# Introduce a HDVC hub to bridge all the fragmentation

PSTN/2G

ISUP/BICC

GW

VIG

IPX

Conf. AS

SBC

SIP

Huawei terminals

xDSL\LAN\PON   TP room   HD terminal

3G

H.323 gateway

TIP Gateway

H.324M

H.323

SIP/TIP

SIP

UC/Soft clients

Soft phone   Video phone   PC terminal

Microsoft® Lync™

Legacy H.323 conference

H.323 terminal   GK

PCCW Global   中国电信 CHINA TELECOM

TIP solution

UCM   TP room

américa móvil

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PCCW Global's global HDVC center practice

PCCW Global

PCCW Global HDVC Network

Small carriers

Rental

Large carriers

Bilateral Interconnection

PCCW Global

Enterprises

Service subscription

- **Challenges:** PCCW global has mature and worldwide MPLS network, an seek new products with proportional usage based revenue

- **Solution:** Deploy HD Video Conference network to connect different customers and partners, and finally establish a global HD video exchange ecosystem, retail conference and video calls services to small carriers, enterprises and interconnect with large carriers

- **Benefits:** Develop usage based revenues over the global MPLS network and seize the global video market opportunity

Global interoperability is RCS/RCSe success factor
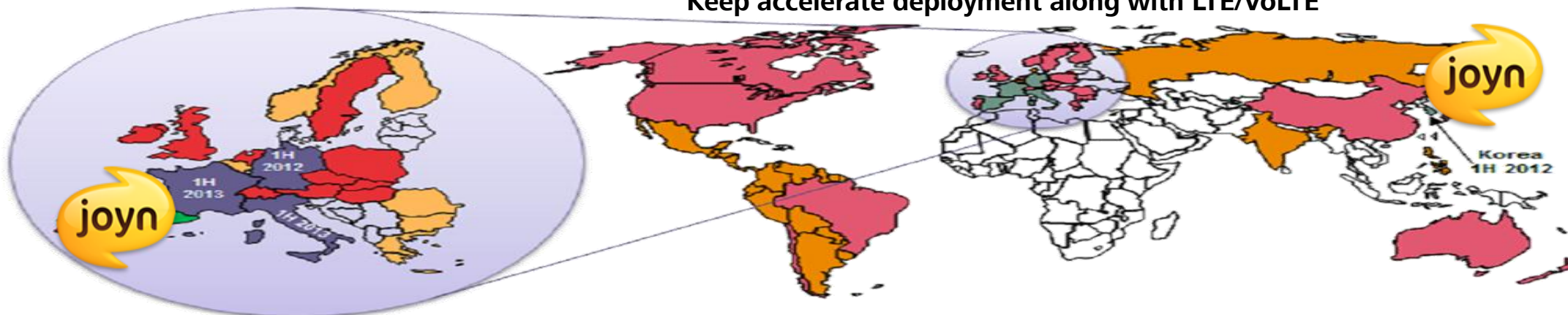
Telecom communication world

Internet-based (OTT) communication world

Call

Chat

File Share

Video Share

- ID continuity
- highly interoperable
- QoS (real-time services)
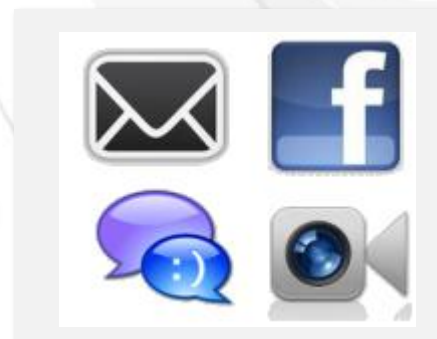
VS.

RCS/RCSe subscriber expected to reach 15m in 2013
Keep accelerate deployment along with LTE/VoLTE
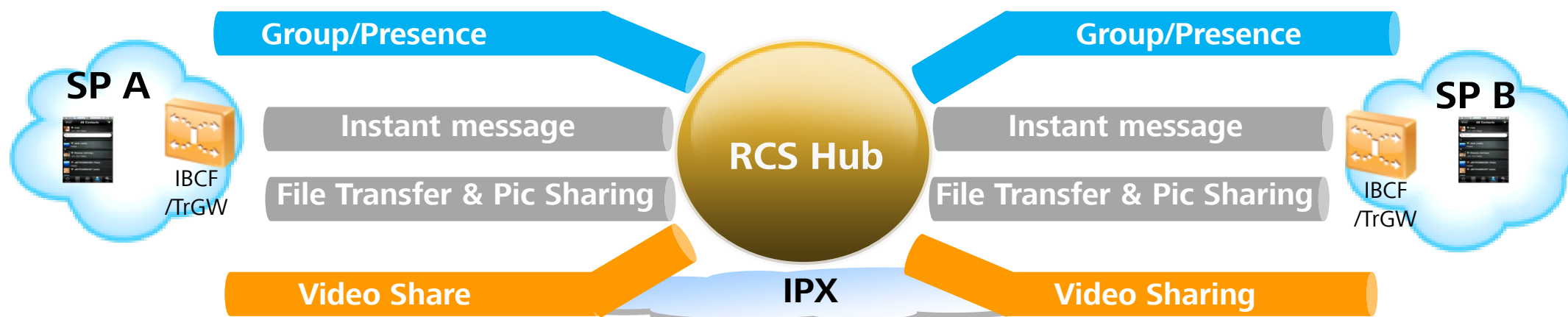
1H 2012

1H 2013

Korea
1H 2012

Require IOT in a given country today to have IOT across all nations tomorrow

Build up RCS hub to support all RCS features interworking

SP sign one contact with RCS hub and solve all the interoperability issues with other SPs

MSRP: Message Session Relay Protocol

SP A

IBCF /TrGW

Group/Presence

Instant message

File Transfer & Pic Sharing

RCS Hub

Group/Presence

Instant message

File Transfer & Pic Sharing

SP B

IBCF /TrGW

Video Share

IPX

Video Sharing

- **IMS interconnect** (subscribe, capability discovery, routing policy, http interface should be supported)
- **Instant message, File Transfer & Pic Sharing** must support **MSRP** protocol in signal plane and media plane
- **RCS Services** billing may be different with traditional voice call and SMS service

Global interoperability is an RCS/RCSe success factor

lesson for RCS - interoperability is the key reason for the success of their IMS-based IM services in South Korea.

[Growth of IM *After Interoperability*]

SKT traffic volumes only

Traffic — Users

Launch of InteroperableIM service (March, 2009)
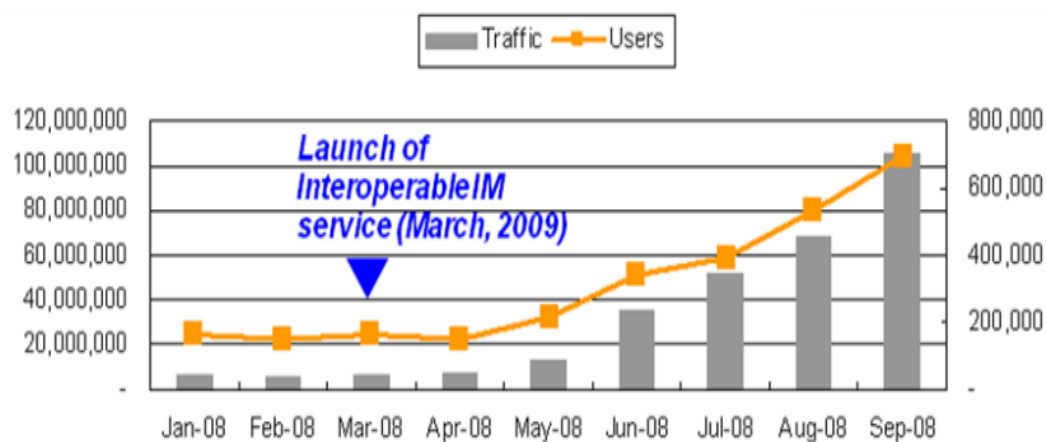
150,000 unique users / month
5,200,000 traffic / month

720,000 unique users / month
110,000,000 traffic / month

- Source: South Korean Case Study

Remain the communication provider

RCS is the gateway to innovation, bringing you the opportunity to re-invigorate and expand core product and services built upon the unique operator propositions of:

- Ubiquity
- Global interoperability
- QoS assurance
- Security and Privacy management

--source from GMSA

IPX plays important role in RCS/RCSe industry chain for global interoperability

Thank you

www.huawei.com