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COMPANY BRIEF 2017

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# Overview

Based on top-level ICT technology and industry insight,  
Uangel innovates user experience in mobile life and creates customer value.

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Foundation	July 1999
CEO	Jy-Weon Ryu
Capital	USD 5.5M
Headquarter	Seongnam-si, Gyeonggi-do, Korea
Overseas Offices	Indonesia, Thailand, Brazil
Employees	197 (HQ)
Business Areas	Mobile Network (4G/5G) Internet of Things Service Platform Edutech

# Major History

## 1999 - 2003

Global market development based on success in domestic market

Foundation (1999)

Listed on KOSPI (2003)

Supplied WIN and SMSC to SKT

Supplied wireless internet systems to SKT

Started mobile content ASP business in SKT (Stock, Ring-tone)

Entered overseas market : Mongolia (2001)

Expanded overseas market : Vietnam, Taiwan, Israel

## 2004 - 2009

Overseas market expansion and new business model enhancement

Started managed service in overseas market

- RBT ASP contract with DTAC in Thailand (2004)

Accelerated overseas market expansion

- America : USA, Mexico, Brazil

- Europe/Russia : Italy, Ukraine, Russia

- Asia : Indonesia, Malaysia

Supplied next generation core network systems

- KT : I-SCP(OCS)

- SKT : OCS, IP-based SMSC

## 2010 - 2016

New strategic business construction and product portfolio diversification

Business diversification (2010 ~)

- Started smart learning business

- Started IoT business : won four types of national projects

- Started smartphone Apps business

- Supplied Fintech solution : IBK bank

Supplied 4G and convergence solution

- 4G network solutions : Telkomsel (IND)

- LTE Broadcasting / PS-LTE : KT, SKT, Jio

- Convergence Billing : UNITEL (MNG)

# Business Area

## MOBILE NETWORK

Develops intelligent mobile network solutions and BSS/OSS solutions according to mobile use pattern

- Unified IMS
- Next generation IN (Intelligent Network)
- Convergence Billing
- Diameter message routing
- LTE broadcasting
- Unified messaging

## INTERNET OF THINGS (IoT)

Develops open IoT platforms and various IoT services based on international standard

- Smart Factory : Machinery and quality inspection
- Smart City : Utilities Mgmt., Location tracking
- Smart Energy : Electric vehicle charging & service
- Smart Networking : MTC-IWF, SCEF



Various  
Portfolio

## SERVICE PLATFORM

Develops service platforms to provide innovative experience to users and new value to enterprises

- Smart value added service platform
- Smart work service platform
- Smart customer management and marketing platform
- Smart finance service platform

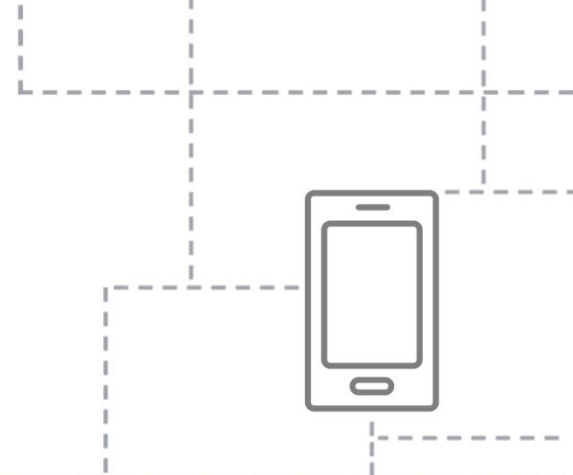
## EDUCTECH

Develops and operate Edutech solution and service for kids

- ToMoKIDS : Play & learning service at home
- ToMoNOTE : Smart teaching service at preschool
- ToMoRING : Smart communication service between teachers and parents

# MOBILE NETWORK( I )

Mobile network solutions based on latest global ICT international standards



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## IMS

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- **Unified IMS** : virtualized H/W-based Integrated IMS solution  
(Including CSCF, TAS, MRF, MGCF, IBCF S/W)

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## NGIN

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- **OCS** : real-time charging solution
- **IMS-GWF/SCP** : IN(Intelligent Network) service solution
- **MRF/IP** : controls media resources

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## Signaling Controller

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- **DSC** : diameter message routing solution  
(DRA, DEA, IWF functionalities support)

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## Policy & Charging

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- **PCC** : real-time data policy and charging solution (consisting of PCRF and data OCS)

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## BSS/OSS

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- **CBS** : convergence billing system
- **Compact CCBS** : small capacity customer care and billing system

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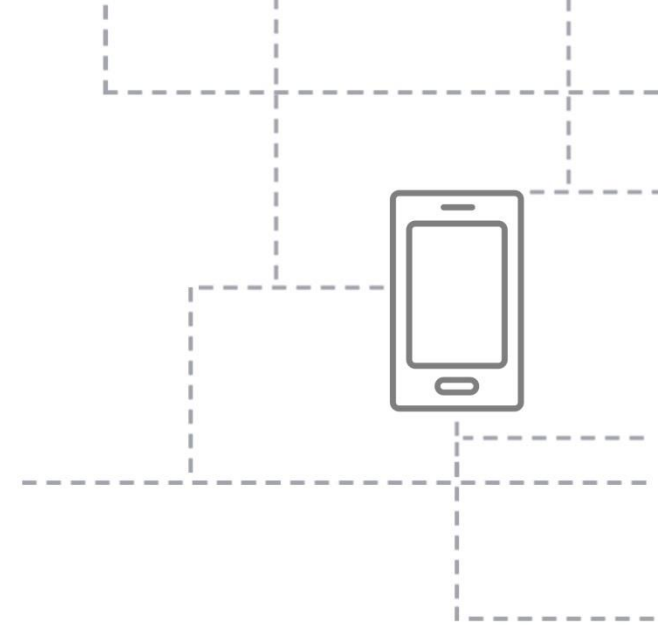
## LTE Broadcasting

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- **eMBMS** : LTE broadcast solution  
(consisting of MBMS G/W and BM-SC)

# MOBILE NETWORK( II )

Mobile core network solutions for next generation mobile service such as VoLTE, LTE broadcast, etc.



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## PS-LTE

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- **eMBMS for PS-LTE** : group communication solution for public safety communication network (consisting of MBMS G/W, BM-SC and GCS G/W)

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## Messaging

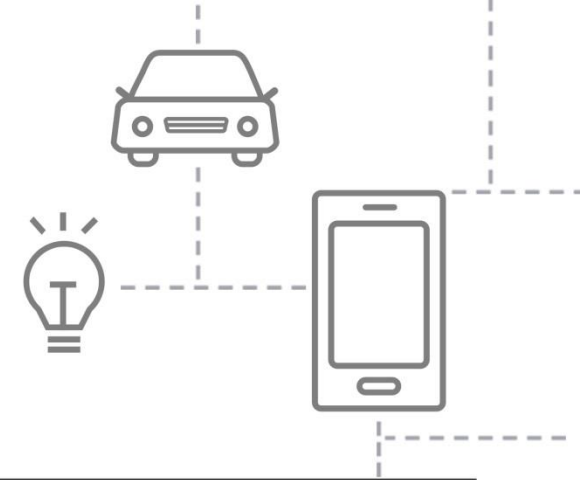
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- **Unified Messaging** : integrated messaging solution (SMS, MMS and cell broadcast messaging support)
- **IP-SMSC** : SMS messages delivery in IP network
- **IP-SM-GW** : interworking SMS message solution between 2G/3G and 4G(LTE/IMS)
- **CBSC** : Cell broadcasting solution (bulk messages delivery in cell, region and national area support)



# INTERNET OF THINGS(IoT)

IoT services in various industrial fields and open IoT platforms



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## Smart Factory

- **Open IIoT Platform** : international standards-based industrial IoT platform (oneM2M OPC-UA)
- **Quality Inspection Solution** : products and machinery inspection service

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## Smart Energy

- **Electric Vehicle Charging Service Platform** : supplies electronic vehicle charging service and infrastructure management

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## Smart City

- **Utility Management Solution** : management and control of street utilities (e.g. streetlights, distribution box and sensors, etc.)
- **LPWA-based Service Platform** : data collection and analysis platform with LoRa connection
- **Safety & Tracking Solution** : location tracking of person and asset via in-door positioning tech

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## Smart Networking

- **MTC-IWF** : Interworking solution between mobile network and IoT application servers
- **SCEF** : supports non-IP (based on CIoT) low-power data communication and exposes network capability to 3rd parties



# SERVICE PLATFORM

Service platforms to provide innovative user experience and new added value



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## RBT Service

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- **Customized RBT service platform**
- Supports various products e.g. music, Ad, self-made announcement

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## Enterprise SNS

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- **Enterprise cooperation tool** for new enterprise work environment
- Supports enterprise-oriented service, e.g. organization chart interworking and powerful security

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## Enterprise Messaging

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- **SMS, MMS, Push message delivery** support
- Various user channels : web, PC client
- Supports API for commercial DB and Excel files

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## Convergence Marketing

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- **Fixed-Mobile convergence CRM & Marketing**
- Caller ID display, address-book management, marketing message delivery, etc.

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## Fintech Solution

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- **All-in-One smart banking platform**
- Supports deposit/saving, loans/funds, bancassurance, video contact center service, etc.

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## Non face-to-face identification

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- **Real-name authentication via smartphone without visiting a bank**
- Supports video call and ID card recognition, etc.

## Products & Solutions

# EDUTECH

EduTech service for kids by combining interactive multimedia contents with smart devices



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### ToMo KIDS

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- Mom's homeschooling service for kids
- + 10,000 play & learn contents and VODs
- Developed many killer contents, e.g. Pororo Korean alphabet, EBS Yaho Korean alphabet, Disney etc.

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### ToMo NOTE

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- Preschool Integrated Teaching Materials with Smart Learning
- 2016 Korean No.1 EduTech preschool materials
- Provides necessary contents required in preschools : interactive digital contents, activity workbooks, teaching & operational materials
- + 4,000 digital contents, +26,000 other contents

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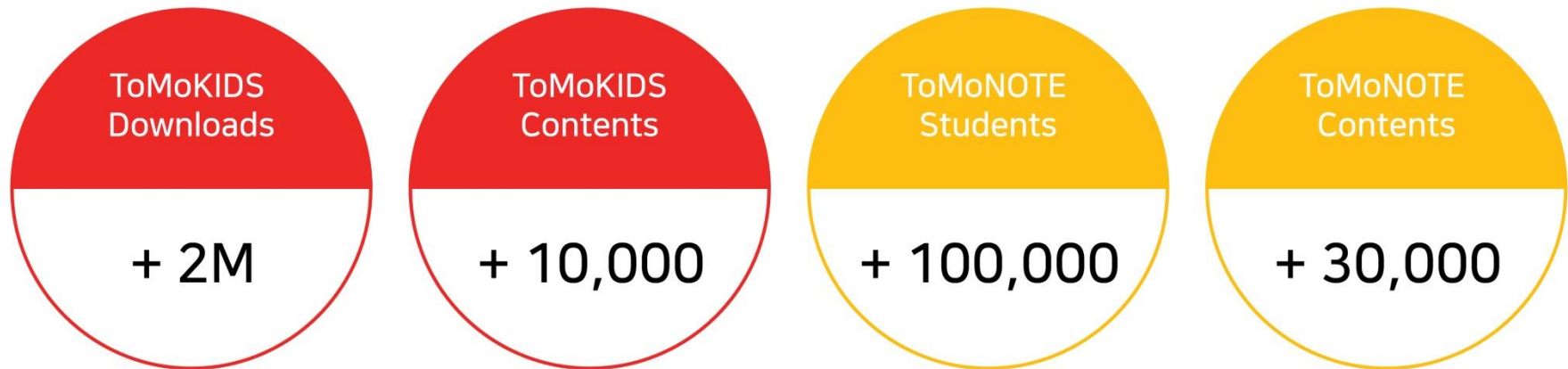
### ToMo RING

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- Smart Communication channel between teachers and parents
- Smart note support : notice, album, medical request etc.
- Homeschooling support : sharing class digital contents to parents

# Edutech Business Status

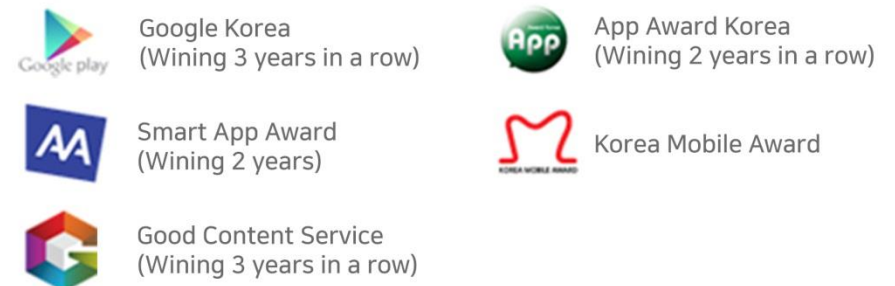
Korean No.1 Edutech Brand  
for kids in B2C and B2B



## PARTNERS

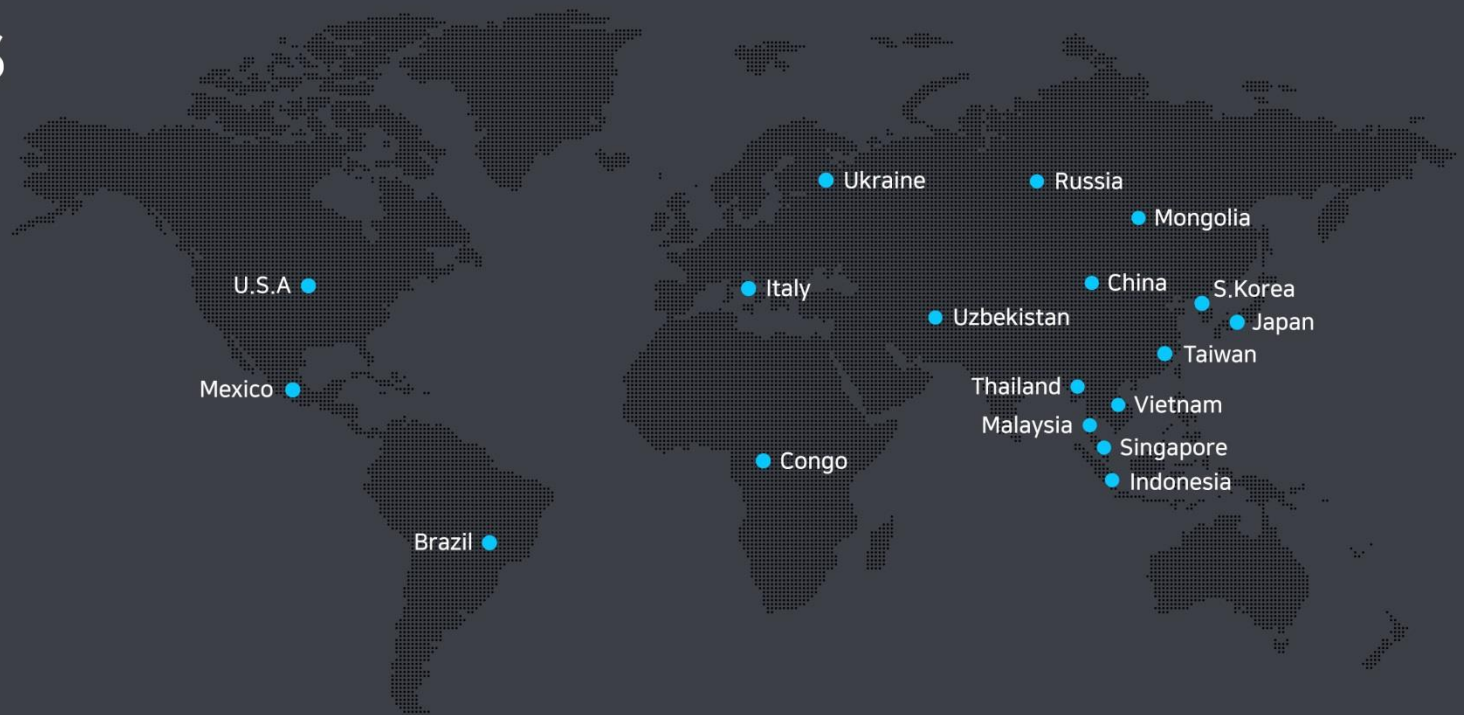


## AWARDS



# Customers

30+ mobile operators  
in 18 countries



## Abbreviation

AS	Application Server	LoRa	Long Range radio
BM-SC	Broadcast/Multicast-Service Center	LPWA	Low Power & Wide Area
CBS	Convergence Billing System	LTE	Long Term Evolution
CBSC	Cell Broadcast Service Center	LTE-M	LTE-M2M(Machine-to-Machine
CCBS	Customer Care & Billing System	MBMS G/W	MBMS Gateway
CloT	Cellular IoT	MGCF	Media Gateway Control Function
CSCF	Call Session Control Function	MRF	Media Resource Function
DEA	Diameter Edge Agent	MTC-IWF	Machine-Type Communication-Inter-Working Function
DRA	Diameter Routing Agent	NGIN	Next Generation Intelligent Network
DSC	Diameter Signaling Control	OCS	Online Charging System
eMBMS	evolved Multimedia Broadcast/ Multicast Service	OPC-UA	OPC Unified Architecture (Smart factory comm. protocols)
GCS G/W	Group Communication Service Gateway	PCC	Policy and Charging Control
IMS-GWF	IMS-Gateway Function	PCRF	Policy and Charging Rules Function
IBCF	Interconnection Boarder Control Function	PS-LTE	Public Safety-LTE
IIoT	Industrial IoT	RBT	Ring-Back Tone service
IMS	IP Multimedia Subsystem	SCEF	Service Capability Exposure Function
IoT	Internet of Things	SCP	Service Control Point
IP	Intelligent Peripheral	TAS	Telephony Application Server
IP-SM-GW	IP-Short Message-Gateway	VoLTE	Voice over LTE
IWF	Inter-Working Function		

# THANKS

[www.uangel.com](http://www.uangel.com)