SMCT Channel Service Technology

(SMCT : Space Mobility Communication Service)
Introduction
M2M SMCT Channel Technology

Data Insertion into Silence Section of Voice Channel and Data Transmission Service
(Telecommunication consists of Voice Activity 42.5% + Silence 47.5%)
M2M SMCT Channel Technology

The Best Communication Solution for M2M Service in Real Time

Bandwidth:
Max 1,200 Bytes/sec (9.6 Kbps)

SMCT Channel System

Mobile Network Center

Data

IP?

Tel. No: 913-478-1234

SMCT Channel

1:N

Terminal

Terminal

913-478-1235

913-478-1300

SMCT Channel

913-478-1300

SMCT Channel

The Best Communication Solution for M2M Service in Real Time
M2M SMCT Channel Technology

Service Architecture

- Terminal
- Mobile Modem
- Mobile Network
- SMCT Switch
- Service Server
- IP Network

Data Processing Module

Voice Codec

User Data

Voice and Data Insertion/Separation

Data

Voice Channel

SMCT (Voice + Data)

User Data

Data Processing Module
Problem and Solution
Problems 1 (SMS Paging)

Real time not guaranteed due to delays or failures in paging.
Solution 1

Remote Device

CDMA Modem

Phone Number

Voice Calling

SMCT Data Transmission

Realtime Access Guarantee
Problem 2 (Additional Equipment)

Additional COST and Inconvenience

Modem Pool (Equipment, Operation & Maintenance, Modem Lines)

Remote Device (CDMA Modem) → Mobile Network

P2P connections

IP ?

Node N

Regular Report

Center (Server)

Node A

Node N

Node B

Node C

Node D

Modem Pool Systems
Solution 2

Intelligent Platform (Cost Efficiency)

1: N Access

Tel No.: 913-373-6235
Tel No.: 913-373-6236
Tel No.: 913-373-6237
Tel No.: 913-373-6238
Tel No.: 913-373-6237

SMCT Call (Data Pull/Push)

Switch System

IP
Characteristics
Characteristics of SMCT Channel

- **Mobile**
- **M2M**
- **SMCT**

- IP Address Not Required In Paging Terminal
- Access multiple terminals simultaneously and Data Transmission / Receiving
- Compatible with Standard CDMA/GSM/WCDMA Circuit Network
- Same level of QoS equivalent to Voice Call due to connection using SMCT Channel
## Comparison: SMS+Packet vs SMCT Channel

<table>
<thead>
<tr>
<th>Items</th>
<th>SMS URL Access</th>
<th>Packet Networking</th>
<th>SMCT Channel</th>
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</thead>
<tbody>
<tr>
<td>Connections &amp; Time</td>
<td>Failures &amp; Delay in Connection</td>
<td>Connection Failures &amp; Disconnection(5~10%)</td>
<td>Always Real-time Connection</td>
</tr>
<tr>
<td>Max Bandwidth</td>
<td>600bps / 1,000bps</td>
<td>2Mbps</td>
<td>9,600bps</td>
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<tr>
<td>Transmission Delay</td>
<td>Various Delays</td>
<td>Real Time</td>
<td>Real Time</td>
</tr>
<tr>
<td>Voice Support</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Server → Terminal Connection</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Terminal → Terminal Connection</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Applications
Through SMCT Channel connection, A most appropriate car will be assigned shortly.

Order Info Dispatch to the Cars near the Caller (SMCT Channel)
Taxi Assignment Confirmation or Cancellation
Taxi Assignment

- 2.5 times faster Taxi Assignment than SMS.
- Reduction of Call Center Operation Cost.

Two Step Taxi Assignment
- Service depends on SMS delivery quality
- Missing & Delay issue

One Step Taxi Assignment
- Accurate Process within a short time
- No Missing or Delay

SMS Method
- Location Report
  - Pre-assignment (SMS)
  - Data Access
  - Assignment
  - Possibility of Delay or Missing
  - 20~30 Sec

SMCT Method
- Location Report
  - Call Receipt
  - Terminal Connection (Voice Channel) / Assignment
  - 6 Sec
  - One-shot Call
Remote Elevator Control

Best Wireless M2M Data Service for Urgent Settings Change And Emergency Rescue in Real Time

Terminal Access Control in Real Time

Mobile network

SMCT Channel (Data + Voice)

Console (Raw Data Mode Service)
Remote Metering System for Korea Electric Power Corp (Current)

Connection failures or disconnection of Modem-Server

Low Reliability in Collecting Data

Cost: Modem Pool Operation, Phone line cost to fill the missing data
SMCT Channel instead of P2P modems will eliminate modem pool operation & maintenance cost and modem line fee, and also improve management efficiency and field staffs’ convenience.
Summary of SMCT Channel Service

1. IP Address Not Required In Paging Terminal
2. Access multiple terminals simultaneously and Data Transmission / Receiving
3. M2M Service for Emergency Control and Remote Monitoring requiring Speed, Accuracy and Cost Efficiency
4. Compatible with Standard CDMA/ GSM/WCDMA Circuit Network