China Telecom’s View on Automotive Connected Service and Capabilities
Trend and Opportunities

Positioning and Capabilities

Practice and Prospects
Development Trend of Telematics Service

Technology
- Mobile clouding service
- Mobile phone integrated portal
- HMI

Service
- TSP is just beginning
- LBS
- Integrating Offline Resource Service

Market
- Monopoly of foreign technology
- Access mechanism
- Aftermarket will be developed more rapidly.
Opportunities of Telecom Operators in Industrial Chain

In the market of factory installation, the automotive factories must respond to the demands of car owners, so they naturally become the integrator of the whole industrial chain to lead the development of industrial chain currently.

Operator currently stays in an indispensible but passive position of the industrial chain.
Trend and Opportunities

Positioning and Capabilities

Practice and Prospects
Positioning of China Telecom’s Telematics Industry

- TSP and third-party service platform

Intelligent channel platform
- Traffic allocation
- Sensing integration
- Service management
- Remote number burning

TAP platform
- Capability opening
- Access management
- Billing authentication
- Cooperation management

CP/SP capability
- Music
- Traffic
- POI
- Booking
- Video
- Stocks

- Intelligent Channel
- Vehicle Lifecycle Operating
- Content Integration

CDMA network
Automotive terminal
### Intelligent Channel

- **APN Classification**
- **Segmentation**
- **Activation/Inactivation**
- **Content Charging**

#### Security
- **Identify and control the traffic by url, IP address, and port**

<table>
<thead>
<tr>
<th>Telematics service</th>
<th>Transmission content</th>
<th>Recommended transmission means</th>
<th>Recommended channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accident emergency assistance</td>
<td>Vehicle location, accident alarm</td>
<td>DOV</td>
<td></td>
</tr>
<tr>
<td>Failure assistance</td>
<td>Vehicle condition and location</td>
<td>DOV</td>
<td></td>
</tr>
<tr>
<td>Anti-theft tracking</td>
<td>Vehicle location and control</td>
<td>CDMA 1X/EVDO</td>
<td>APN1</td>
</tr>
<tr>
<td>Simple vehicle diagnosis</td>
<td>Vehicle condition information</td>
<td>DOV</td>
<td></td>
</tr>
<tr>
<td>Vehicle status monitoring</td>
<td>Regularly obtaining vehicle data information</td>
<td>CDMA 1X/EVDO</td>
<td></td>
</tr>
<tr>
<td>Vehicle control</td>
<td>Vehicle control information</td>
<td>DOV、SMS</td>
<td>APN2</td>
</tr>
</tbody>
</table>

#### Convenience
- **Artificial navigation**
- **Real-time traffics**
- **Map update**

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Artificial navigation</td>
<td>Destination location</td>
<td>Voice, SMS</td>
</tr>
<tr>
<td>Real-time traffics</td>
<td>Real-time traffic data</td>
<td>CDMA 1X/EVDO</td>
</tr>
<tr>
<td>Map update</td>
<td>Map and POI data</td>
<td>EVDO</td>
</tr>
</tbody>
</table>

#### Entertainment
- **News/Weather/Stocks**
- **Online music/video**
- **WIFI service**

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</thead>
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<tr>
<td>News/Weather/Stocks</td>
<td>Information data</td>
<td>EVDO</td>
</tr>
<tr>
<td>Online music/video</td>
<td>Streaming media data</td>
<td>EVDO</td>
</tr>
<tr>
<td>WIFI service</td>
<td>Information data</td>
<td>EVDO</td>
</tr>
</tbody>
</table>
Vehicle Lifecycle Operating

**Traditional code number and UIM card management**

- The UIM card data of common mobile phones only includes three statuses of inactive, active and disassembled in HLR, which can’t be reused after disassembled.

**Charging**

- For the current UIM card management means, the charging will be started from service enabling to disabling.

**Telematics business requirements**

- The life cycle of in-vehicle UIM card is very complicated, including production, test, sales, using, disabling, transferring, scrapping, etc.

**UIM card life cycle management**

**Number life cycle management**

**Key Features**

- **OTA**
  - Sending SMS in a specified format from personnel of automotive factory/4S store

- **Processes of production, test, sales, using, disabling, transferring, scrapping, etc.**
Content Integration

- TAP platform, integrates the CT’s and external resource.
- Reducing the costs and complexity of TSP

Vehicle business agency

Maintenance

- Auto offline service

Customized service of images, texts, audios and videos

Traffic Live Video Monitoring
Trend and Opportunities

Positioning and Capabilities

Practice and Prospects
China Telecom’s Telematics Business Practice

- On August 8th, 2012, President Wang Xiaochu of the Group Company and Hanzheng, Mayor of Shanghai City, together with the president of group company Wang Xiaochu launched the “Shanghai Base for China Telecom’s Telematics”.
- 8 industrial application bases for service within the whole network are built, and Shanghai and Nanjing become the first bases for transportation industry.
- IT industrial management genes are introduced to gradually improve the company operation system for the bases.

<table>
<thead>
<tr>
<th>Region</th>
<th>Before market</th>
<th>After market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai</td>
<td>GM, Saicmaxus</td>
<td></td>
</tr>
<tr>
<td>Beijing</td>
<td>Benz, Hyundai, Toyota</td>
<td></td>
</tr>
<tr>
<td>Hubei</td>
<td>HawTai Motor</td>
<td>Navigation, information entertainment, safety and vehicle diagnosis service.</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>BYD</td>
<td>Navigation, safety/security, information service.</td>
</tr>
<tr>
<td>Jiangsu</td>
<td>Chang'an Mazda</td>
<td>Navigation, information</td>
</tr>
<tr>
<td>Jilin</td>
<td>FAW</td>
<td></td>
</tr>
<tr>
<td>Anhui</td>
<td>JAC Motors</td>
<td></td>
</tr>
<tr>
<td>Shandong</td>
<td></td>
<td>Navigation, information</td>
</tr>
<tr>
<td>Fujian</td>
<td>Soueast-Motor</td>
<td>Voice identification, navigation, real-time traffics, safety diagnosis</td>
</tr>
</tbody>
</table>

China Telecom has operated more than 80% of the total Telematics service users of domestic automotive factories.
Establish interactive bridge between mobile phones and vehicles by using Telecom operator’s charging channel, application impact channel and service integration capability for Smartphone.

- **Charging channel for Smartphone**
- **Application implant channel for Smartphone**
- **Mobile Internet service integration capability**

- Share the communication network of mobile phones with the vehicles
- Map the applications of mobile phones on the vehicles
- Integrate the in-vehicle application software service
- Miracast based on WIFI Display
- HSML
- *USB-based pure software solution
- *MHL+BT
Trend 2: Mobile signaling based big data applications have bright future.

 Telecom operators have large amount of status information data for mobile terminals.

 Use the big-data information assets of mobile signaling, to strengthen the integrated platform capability.

 Express Way

 - Feasibility
   - Slight inter-cell interference on express way
   - Focused cell coverage
   - Single-sample collected
   - Easy to correct the gathered samples

 - Application scenario
   - Traffic data gathering is the first step for intelligent transportation construction
   - Proactive push based on individual location information

 Big data era

 Industrial applications
Thanks