Overview of BeiDou/GPS Applied in Road Transportation

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1、Current status of vehicle monitoring system

2、The usage of BD/GPS in vehicle monitoring system

3、The future of the high precision GNSS applied in vehicle monitoring system

Overview of Chinese Road Transportation

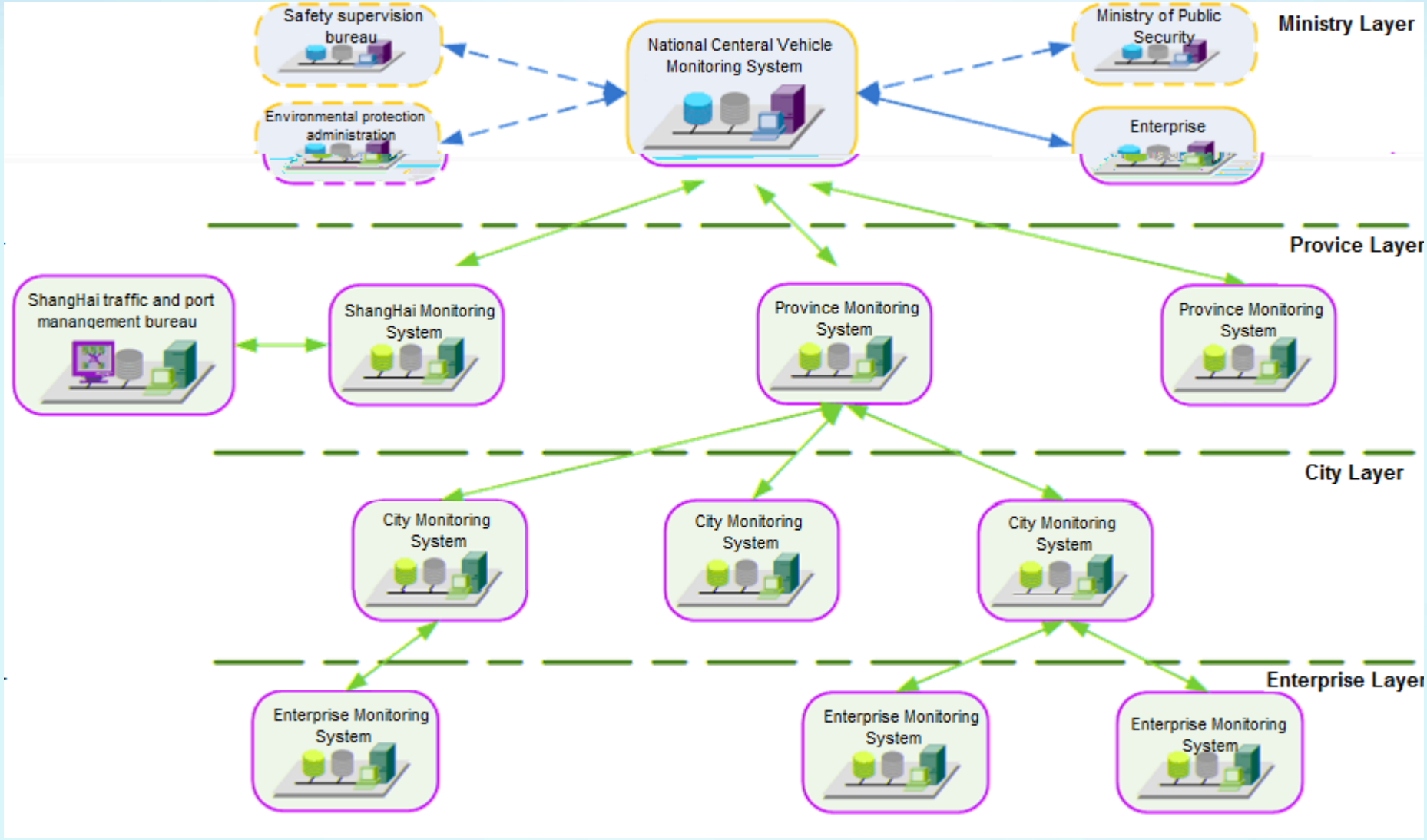
Status of road transportation in 2011:

- Vehicles: **219** millions
- Commercial vehicles: **12,637,500**vehicles, which includes **630,500** dangerous goods transport vehicles, and **268,300** large-scale passenger buses.
- Traffic mileages: **4,106,400**km
- Volume of passenger traffic: **332,862,000,000** times
- Volume of freight : **28,201,000,000** tons

Data source: Ministry of Transport of the People's Republic of China, Analysis report of road and river transportation in 2011.

http://www.mot.gov.cn/zizhan/siju/guihuasi/tongjixinxi/niandubaogao/201204/t20120425_1231653.html

Vehicles Monitoring System



Vehicle Position Monitoring

- There are **1.5 million** vehicles in the central control system. All the dangerous or important vehicles are monitored by the system nationwide.

NetworkStatus

Basic Information	
Platform Numbers:	31
Total Vehicles:	1403114
Online Vehicles:	370211
Dangerous Vehicles Information	
Total Vehicles:	492623
Total Online Vehicles Per Day:	197291
Online Vehicles:	148064

Functionality of vehicle monitoring system

Vehicle monitoring function

Real-time vehicle position monitoring
Route recording
Over-speed alarm
Emergency alarm
Time-out parking alarm
Violate route alarm
Route planning
Electronic fence

Road transportation management

Over-speed punish
Route management
Accident investigation
Data analysis

Transport enterprise management

Track vehicles
Schedule vehicles
Route management
Track cargo
……

Consumer indirect benefit

Better traffic safety service
Faster logistics service
Better navigation service
……

Consumer Service:

Real-time traffic service
Transportation service
Traffic safety service
Logistics search service
……

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Key transportation monitoring demonstration system

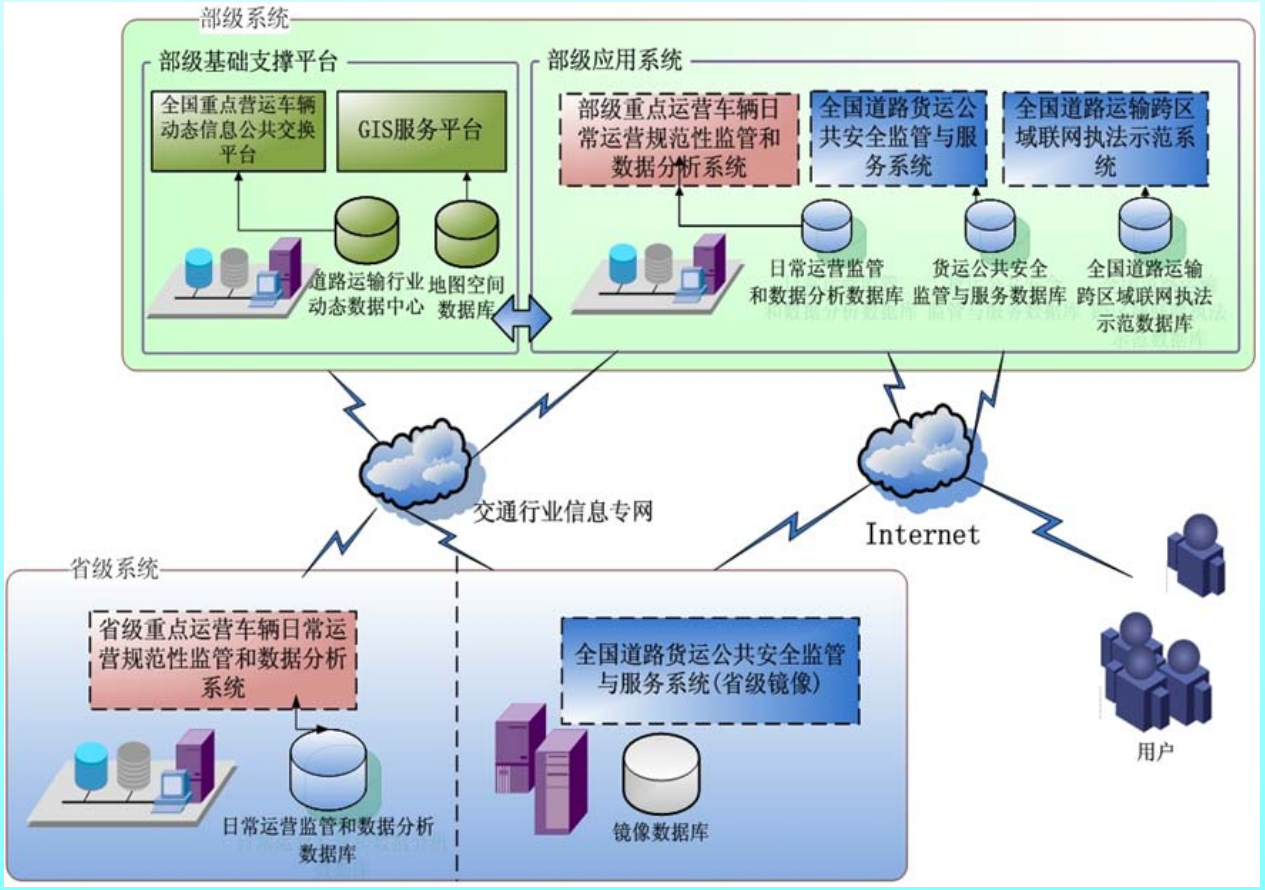
- The Ministry of Transport of the People's Republic of China initiated BD/GPS application demonstration project "Key transportation monitoring demonstration system" on 24/10/2011.

Purpose of the project: promote GNSS terminal device

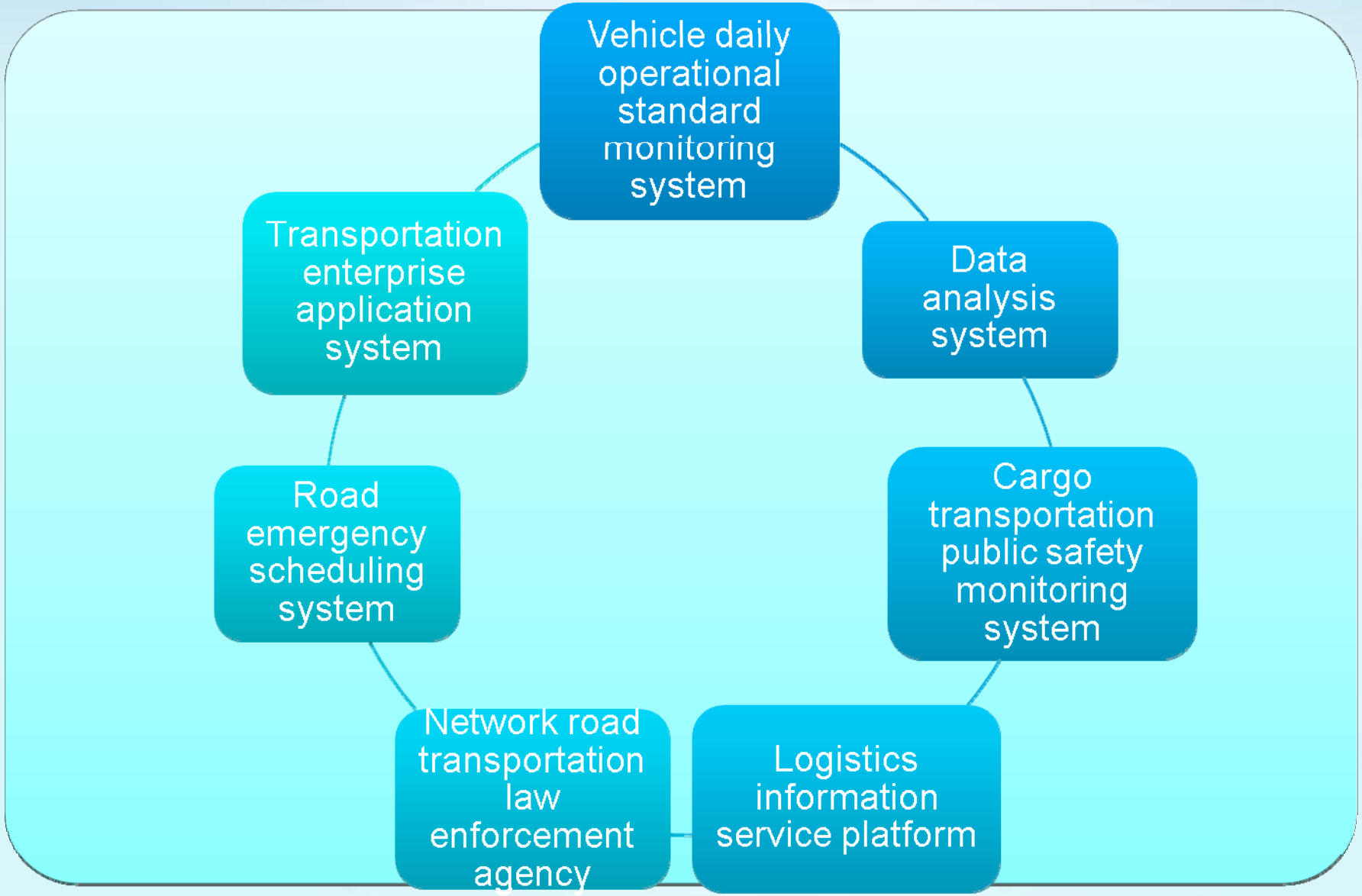
- The demonstration project will install 80 thousand BD/GPS terminal devices to vehicles and 2 thousand BD/GPS Law enforcement terminals to foster the BD/GPS market.

Purpose of the project: Improve road transportation service and management

- Build the vehicle monitoring system, improve the road transportation service and management.



Transportation service and management system

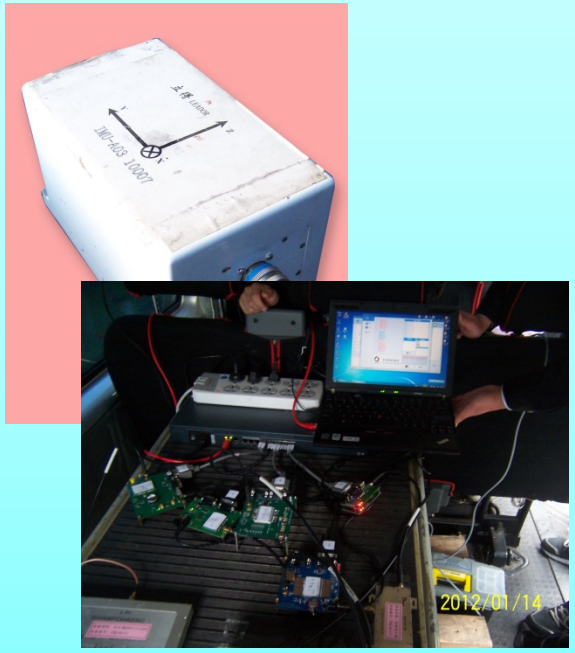


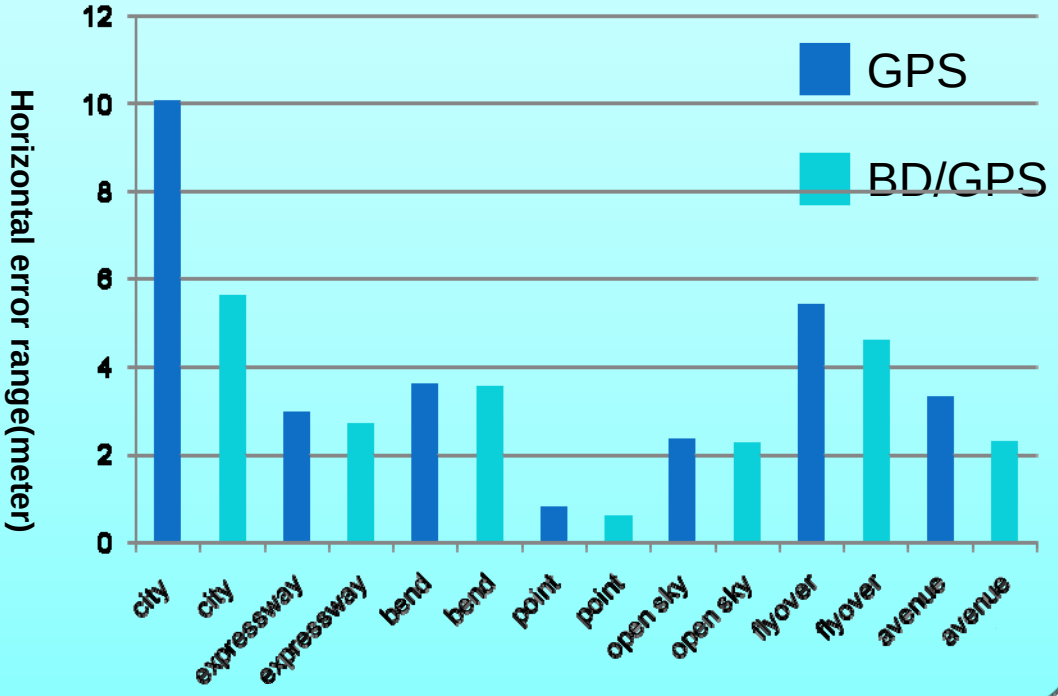
BD/GPS terminal assessment

- Feasibility Assessment: 59 testing terminal devices were installed on the vehicles from Oct. 2011. Each device include 4 BD/GPS modules and 1 GPS module was operated under long-term, real, and complicated environment. Based on the testing result, **the BD/GPS module are available**.

BD/GPS terminal assessment

- **Horizontal accuracy assessment:** Jan/2012, The result of the accuracy comparation testing between BD/GPS and GPS under 7 scenes at GuangZhou shows that the BD/GPS is a little better than GPS, especially in the urban canyon area.





Current project status

Terminal device testing and system design are finished, the project will be finished in 2013, it will achieve the following items：

- ✓Foster and improve the BD/GPS terminal devices in vehicle commercial market
- ✓Improve the quality of the terminal device
- ✓Enrich the service and functionality of the monitoring system
- ✓Data mining the vehicle position data

Standardize and improve the Policy

- **Standardize the vehicle monitoring terminal device**

JT/T 794—2011 Specification of satellite position system for road transport vehicles

JT/T 808—2011 Specification and data format of end device satellite position system for road transport vehicles

JT/T 809—2011 Specification of satellite position system for the monitoring system

- **Plan and Policy**

Heavy truck left factory must install the monitoring device

All the dangerous or important carrier vehicles should install the monitoring device by 2015

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Future Requirement: Monitoring fine-granularity driving behavior

- Satellite navigation monitoring system can prevent the accident in some extent. But the current system can only monitor the route and speed, it can not monitor the detail of the driving behavior.

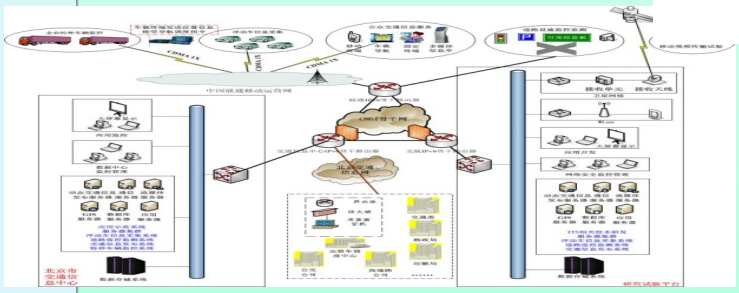
Future Requirement: Navigation ability under extreme condition

Vehicle navigation termial is widely in the market, and its main functionality is still route planning, it is almost useless under extreme weather and other emergencies.

Develop the application of high precision GNSS

Terminal Base

- Implement high precision navigation
- Unify communication and navigation
- Merge the navigation information and the vehicle information



System base

- Build high precision digital map
- Build land-based GNSS enhance system with high resolution, low cost, and stable running
- Build real-time information broadcasting system and vehicle monitoring system based on high precision position system.

Conclusion:

- Significant benefit from satellite navigation system used in road transportation
- The usage of BD/GPS in road transportation area will formulate the market and increase the benefit, promote the vehicle monitoring system to the public
- High precision GNSS will bring a significant change in road transportation area, and will ensure public transportation's safety.

Thank you for your attention!

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