Internet ITS

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Internet ITS Consortium (IIC)

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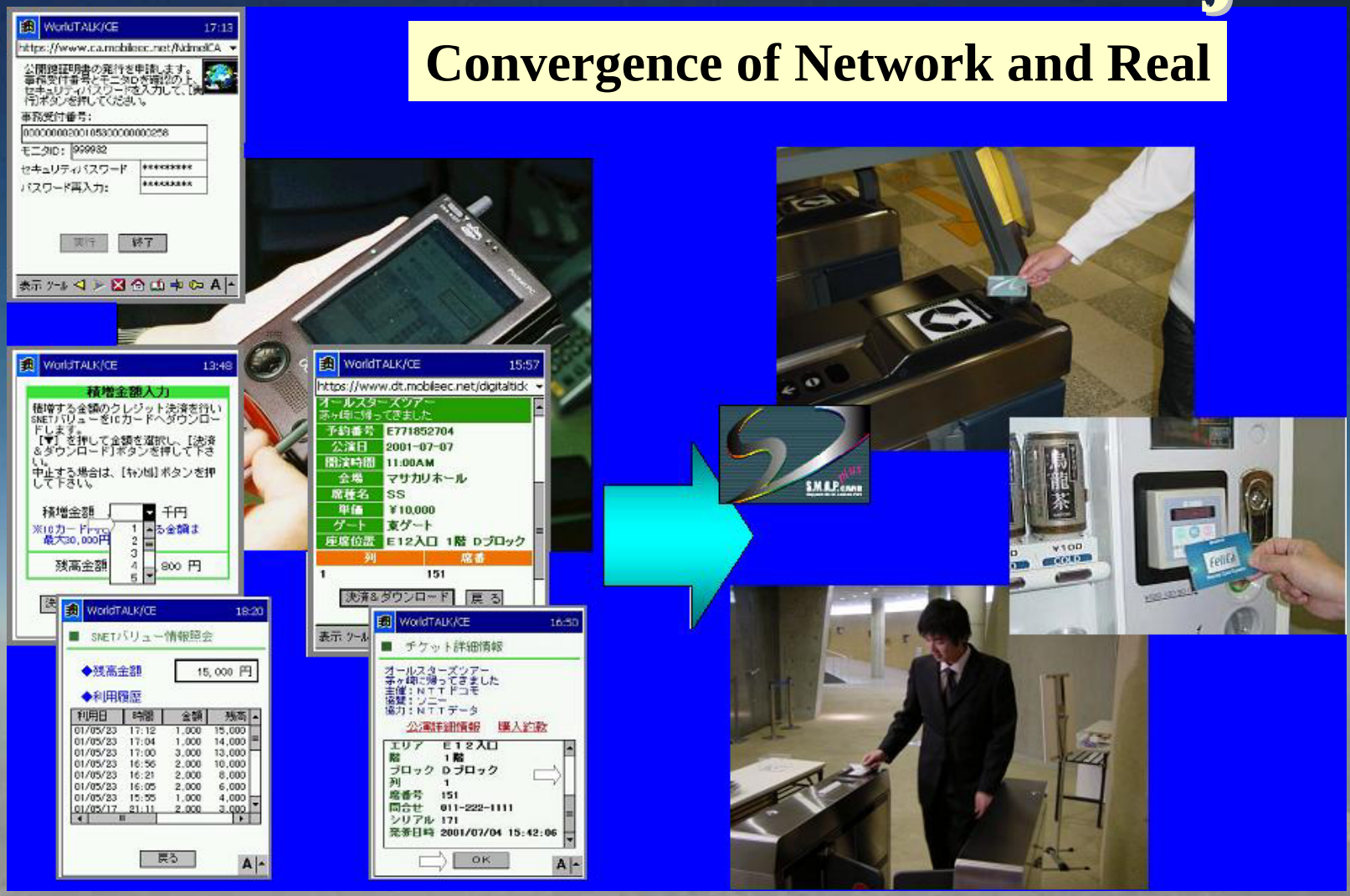
1. Introduction

1.1 Mobile e-Commerce Pj ‘2001

Convergence of Network and Real

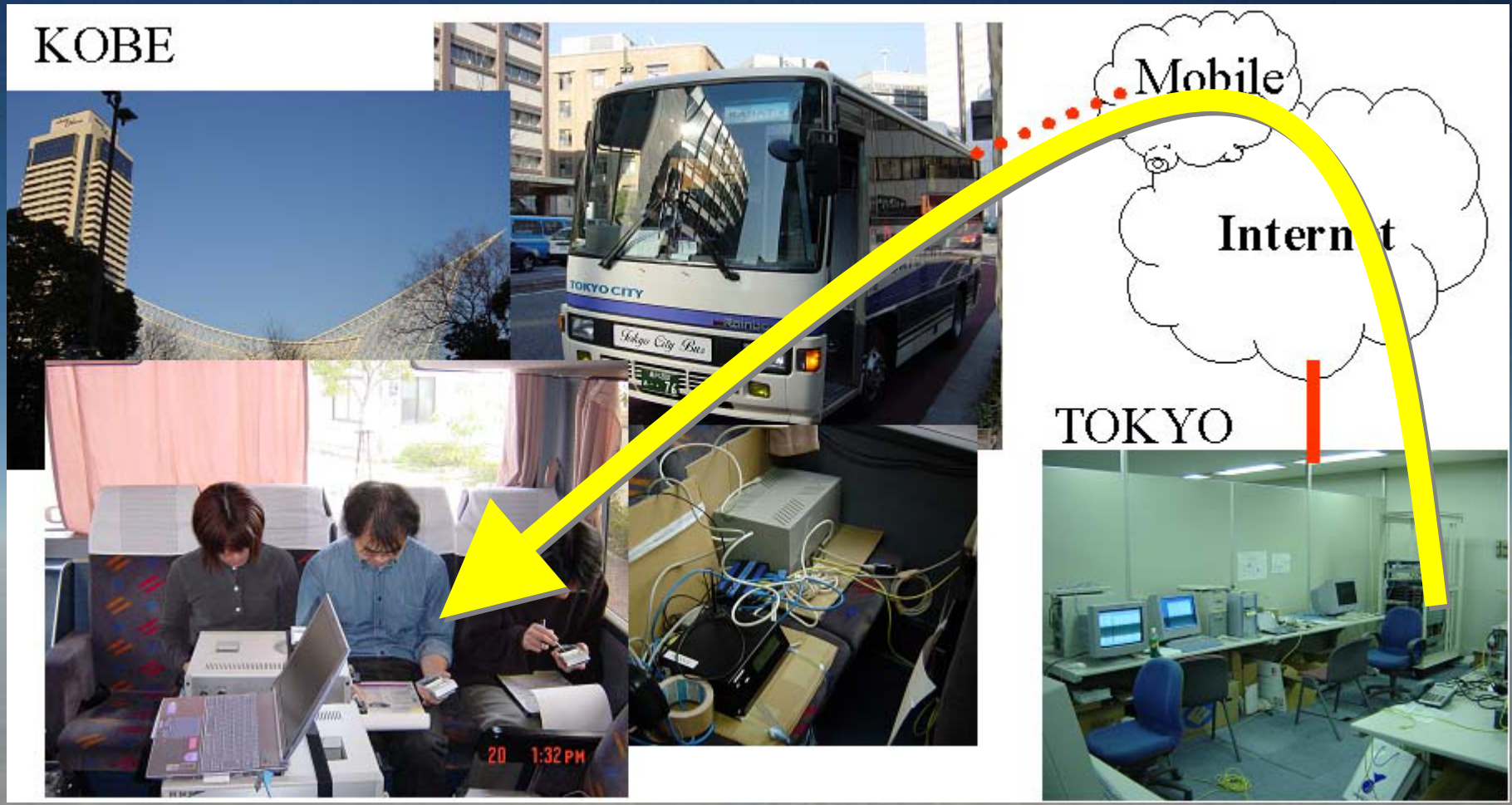


Tatsuo ITABASHI, et al. “Development of a New E-Commerce System Using Contactless IC Card and Personal Data Assistant (PDA) Terminal", **PTC2002**, January 2002

1.2 KARAT

‘2002

Location Aware Preference Matching & Asynchronous PUSH



Tatsuo ITABASHI. “Internet Based Personalized Services for Public Transportation”, **VTC2003**, October 2003

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1.3 Mobile Directory System

FOMA

MDR: FeliCa + Linux PC
PDR, SDR, CA: Linux PC
Application: Windows XP
Wireless: 802.11a + FOMA

Autonomous Data Management for Scalability and Privacy Protection

MDR SDR Display R/W

Tatsuo ITABASHI. "IMPLEMENTATION of the PRIVACY AWARE PERSONALIZED SERVICES for the VEHICLES", **ITS2004**, October 2004

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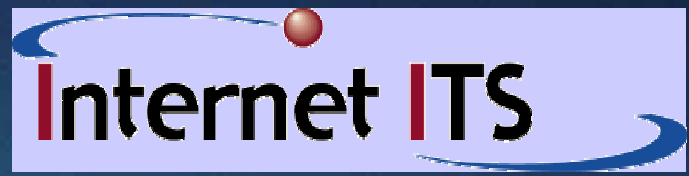
2. IIC

2.1 Overview

Founded in October 29, 2002

110 Members as of today



Objectives of Activities

The Internet ITS Consortium is acting to accomplish the following 3 objectives:

- **To create a development scenario for the social infrastructure of Internet ITS**
- **To develop, popularize and standardize Internet ITS technology**
- **To incubate new business**

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http://www.internetits.org/

2.2 Members

Total 110 Members

- **13 Executive Members**
- **19 Regular Members**
- **68 Supporting Members**
- **10 Special Members (Universities)**

http://www.internetits.org/

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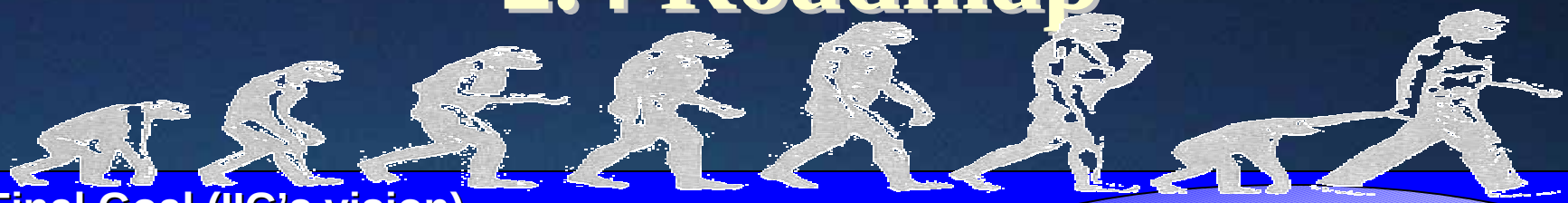
2.3 Historical – Internet Car

・慶應大学、トヨタ、デンソー、NECの共同研究体制による実証実験実施。
・首都圏での一般ドライバ、名古屋での事業車両（タクシー）向けサービスの実証。
・1500台以上の車両を使った、大規模なフィールド実証実験。

2.4 Roadmap



Final Goal (IIC's vision)

- Open connection based on an Internet data infrastructure with IPv6, for safety, comfort and convenience

Business Preparation

Implementation

User Oriented ITS

Business

Business

Business

Business

Business

Business

Final Events

JUMP (ready to go)

Pilot Model

2005/10

PF Specs ver 2

STEP (anywhere)

Official Tour (TT8)

HOP (always-on)

Test bench

FY03 Demo

ITS World Congress 2004

Specifications for Common Business Implementation

2004/10

PF Specs ver 1

FY01 Demo

IIC Establishment

Basic Specifications for Network

~2002/3

2002/10

2003/12

PF：Platform

From Seeds Oriented ITS to the User Oriented one

Internet ITS

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2.5 ITS World Congress 2004

Port Messe NAGOYA

255 Exhibits
(industry-government-academia)

10/18-24, 23,24 in public
Total 68,000 participants (5days)

Congress events consistent with the main theme "Introduction of Japan's Cutting edge ITS"

http://www.itswc2004.jp/outline/online.html

- **Hands-on experience**
- **Citizen participation**

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2.6 Technical Tour #8

A Tour Bus and 3 Demo cars for 12 applications given by Road side and Network based service providers.

Tour Bus

Demo Car

3. SIG

3.1 Roadmap

Final Goal (IIC's vision)

- **Open connection based on an Internet data infrastructure with IPv6, for safety, comfort and convenience**

User Oriented ITS

Business Business Business Business Business Business

Business Preparation

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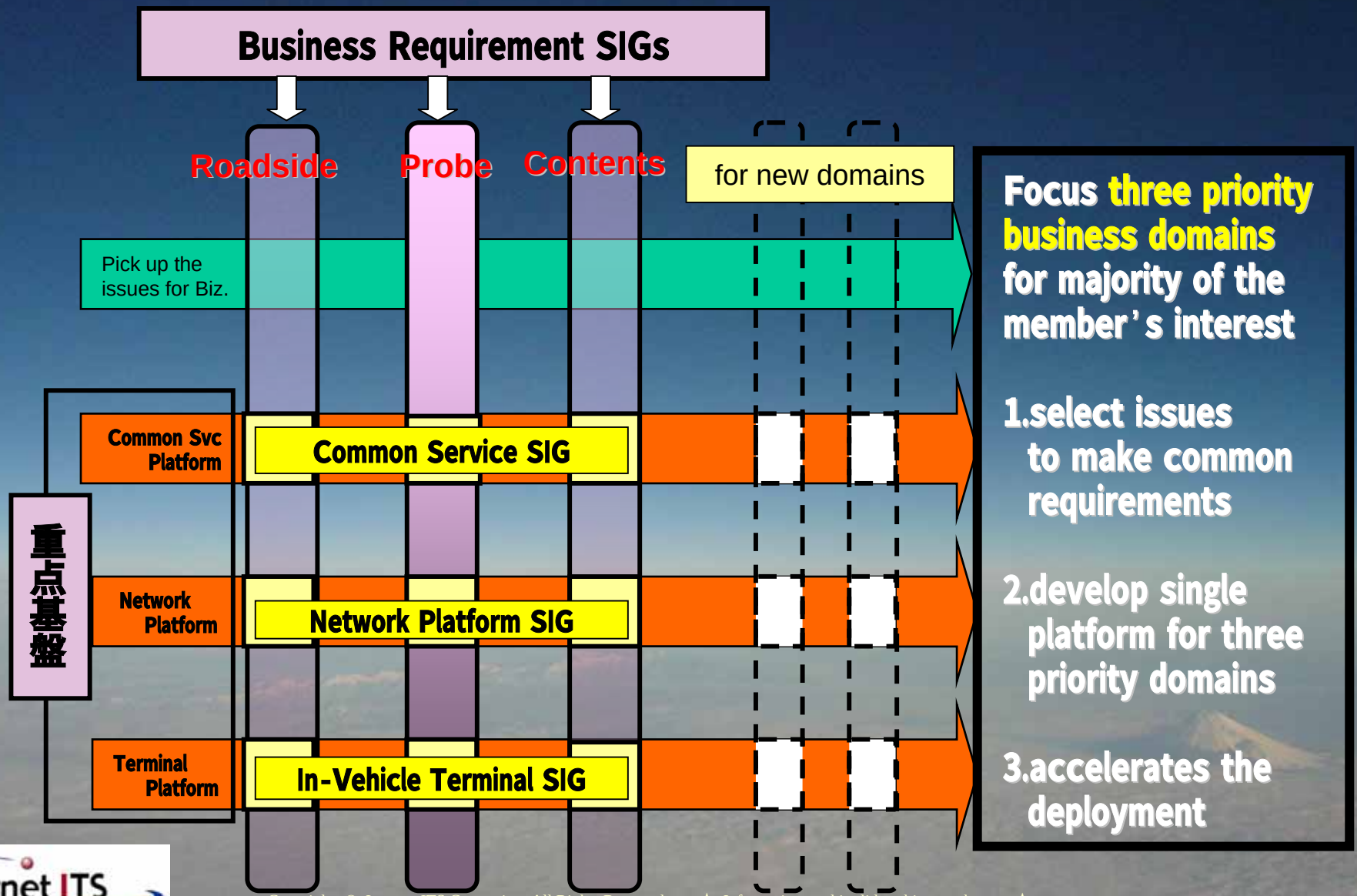
3.2 SIG Structure



3.3 Business Requirements SIG

- **Roadside SIG (SS, Parking, Pit …)**
  - **To provide LBS and other loyalty programs**
- **Contents SIG (Map, Personal Navi …)**
  - **To extend seamless services to the inside of the car**
- **Probe SIG**
  - **Collection and effective utilization of the probe data**

To maximize the market and to reduce the total cost

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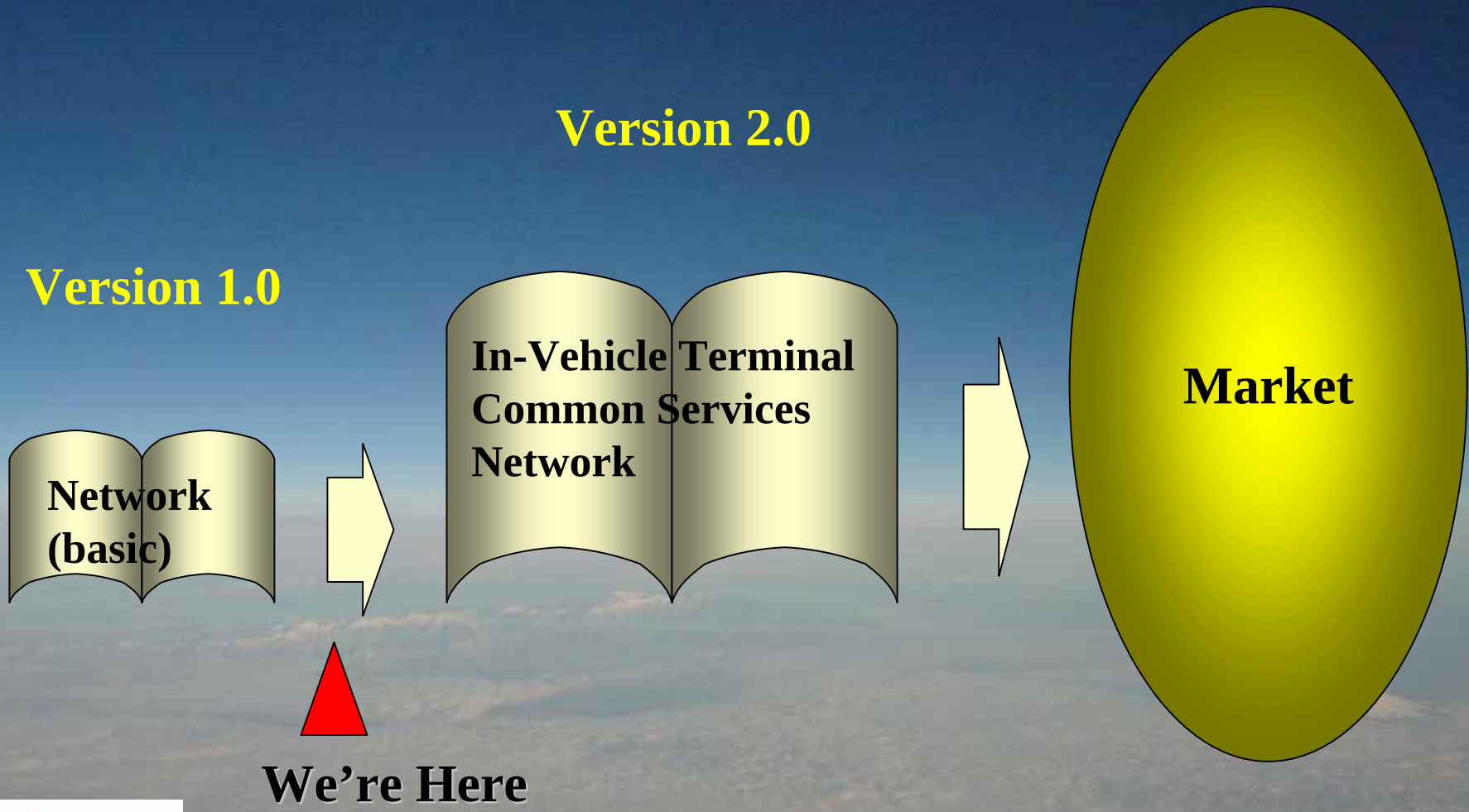
3.4 Technological Platform SIG

- **Terminal Platform SIG**
  - JAVA/OSGi based APIs to ensure secure activation of services, and security policy management
- **Common Services Platform SIG**
  - Common library functions for various applications
- **Network Platform SIG**
  - Unified network operation rules for all entities

To guarantee compatibilities and to reduce device cost

3.5 Specifications



4. NW Platform SIG

4.1 Goal

Private

Any Car

Same as my home

Any seat / position

Terminal Sales

Anytime

Close each other

Any Passenger

Commercial

TAXI

Rent a car

Welfare

Car Sales

Without carrying any terminal

Cellular

Wide Coverage

Seamless hand over

from/to

Increase Traffic

Cellular

No

Anytime

Anywhere

Location aware

AP

Roadside

Seamless

Hand over

Inter Connection

Afferiate

Area service

While moving

AP

Roadside

Maximize

Biz Chance

LBS

Self

Reduce cost

Internet

Terminal Sales

preparation

Home

From location

To location

Office

System Integration

System

Improvement

Contents

DRM

Maximize

biz Chance

Scalable

Services

Low Risk

Maximize

Biz Chance

Auth &

payment

Scale

merit

Internet ITS

High cost : ROI?

4.2 Current Issues

Not connected yet!

No unified authentication mechanism

Cellular

Each contract

High cost

Cellular

Low bandwidth

Difficult to localize

No interconnection

Home

High cost

Office

No linkage to mission-critical system

Security risk

Piracy

Contents

Need terminal

No major terminals

Isolated between inside and out

No connection between vehicles

High cost

AP

Difficult to deploy

Roadside

Internet

Complicated

Difficult to use

Dotetd service

(no scenario for deployment)

Difficult to recognize user's context

Services

High cost

Risk for privacy protections

Security risk

High cost

AP

Independent operations

Roadside

Auth & payment

Different methods

Disagreement against deployment

Abuse

Difficult to recognize availability

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4.3 Merits for Users, and Biz.

Keywords

- **Ubiquitous**
- **Seamless**
- **Comfortable**
- **Easy**
- **Safe**
- **Fun**

User Oriented

- Intuitive Merits
  - Any car/terminal
  - Any place
  - Same as my home
  - Follow me
  - Less expensive
  - Plug and play
  - Fast and stable
  - Time saving

Share the maximized market by cross industry

- Car Makers
- Comm. Careers
- Roadside Biz.
- Contents Biz.
- Terminal Vendors
- System Integrators

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4.4 Privacy and Security

- **Safety is the minimum requirements for everyone**
  - Users and service providers need to protect properties
  - Access providers also validates users for security order
- **Must be easy and seamless (, hopefully invisible)**
  - Collaborative rule is needed for the open market
- **User privacy is the upcoming hot issue**
- **Total maintenance cost is also very important**
  - Wireless and in-vehicle resources are less stable

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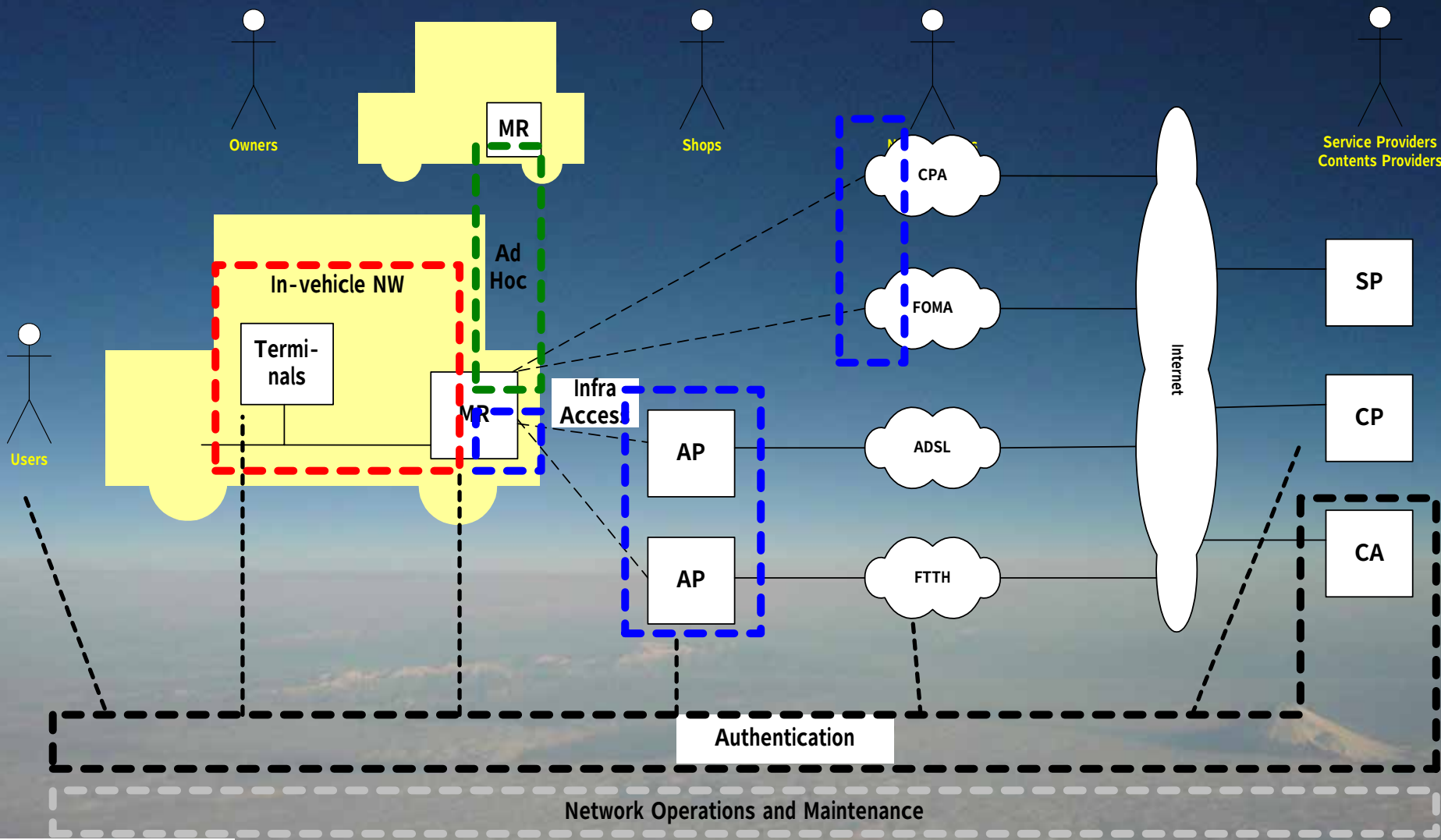
5. Approach

5.1 Five Activities



5.2 In Vehicle Network

NEMO based in-vehicle network (LAN)

- **Interface Layer**
- **Address Allocation**
- **Name Resolution**
- **Resource Information Propagation**
- **Gateway and Firewall for vehicle devices**
- **Nested NEMO to support mobile terminals**

:

5.3 Infra Access Network

Seamless Internet Access provisioning over the heterogeneous infrastructure

- **Wide Area Network**
  - **Cellular, PHS …**
- **Wireless LAN Network**
  - **Select WiFi and other existing de Facto STD**
  - **Guidline for Roadside business players**
- **DSRC Network, Other media**

Must collaborate with ISO TC204/WG16.2

5.4 AdHoc Network

Coexistence of various AdHoc networks to share a single terminal and radio devices

- **Vehicle to vehicle / Vehicle to roadside**
  - **Resource Allocation**
  - **Service Discovery**
  - **Grouping**
  - **Multicast**
  - **Priority management**
  - **interference detection / avoidance**
  - **:**

5.5 Mobile Router

Hardware requirements of Mobile Router for NEMO, internet access and MANET, in order to ensure higher level compatibility among multi vendors / combinations

- Terminal operations (setup / boot / shutdown)
- Packet routing mechanism
- Inter-layer synchronization
- User configurability
- Network information propagation

:

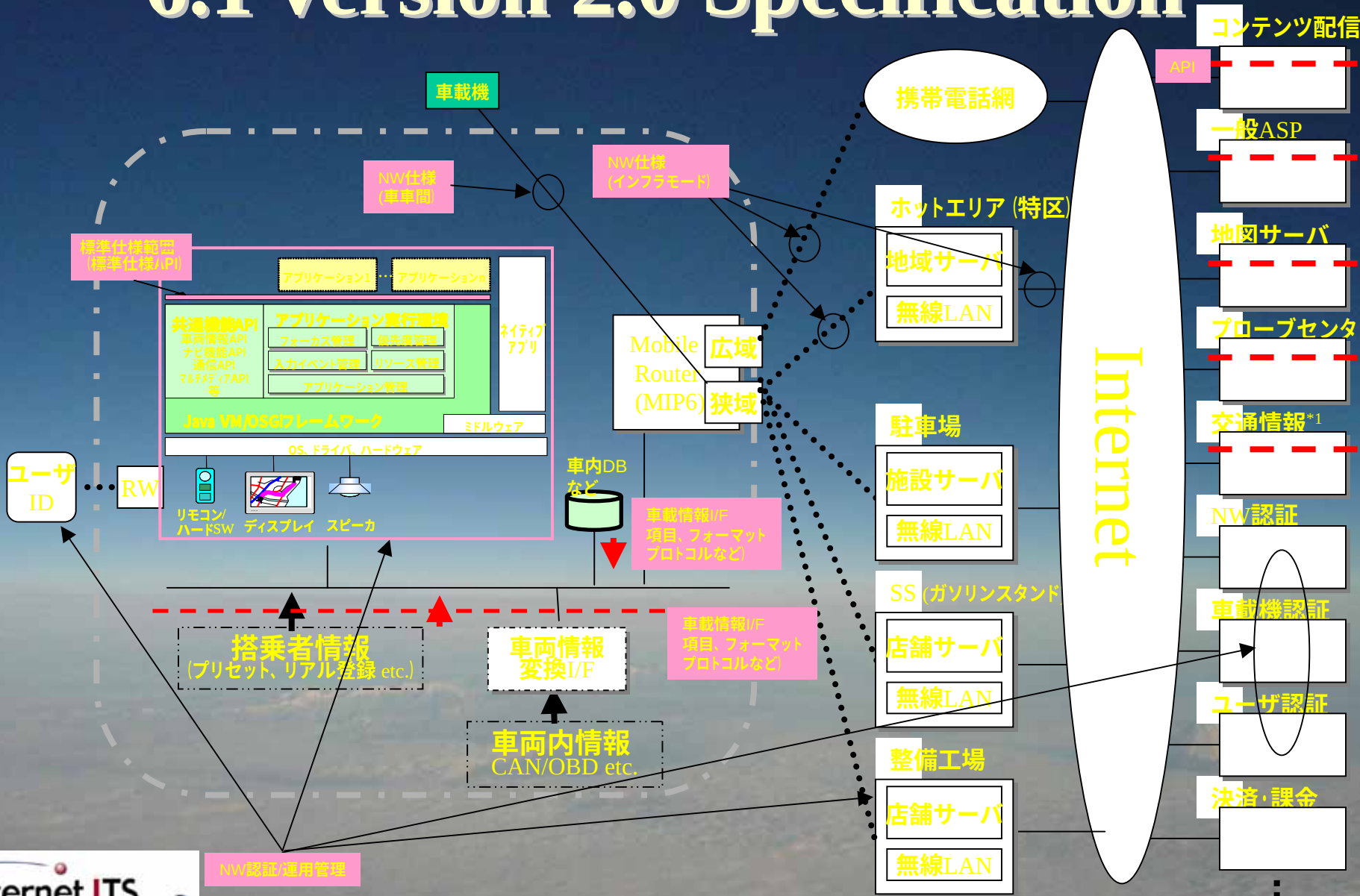
5.6 Authentication and Maintenance

Network operation guidelines for entire systems

- **Authentication**
  - Network access authentication
  - Network service access authentucation
- **Domain and service naming**
  - Seamless hand over
  - Service Discovery
- **Maintenance**
  - Trouble shooting
  - Statistic management
  - :

6. FY 2005

6.1 version 2.0 Specification



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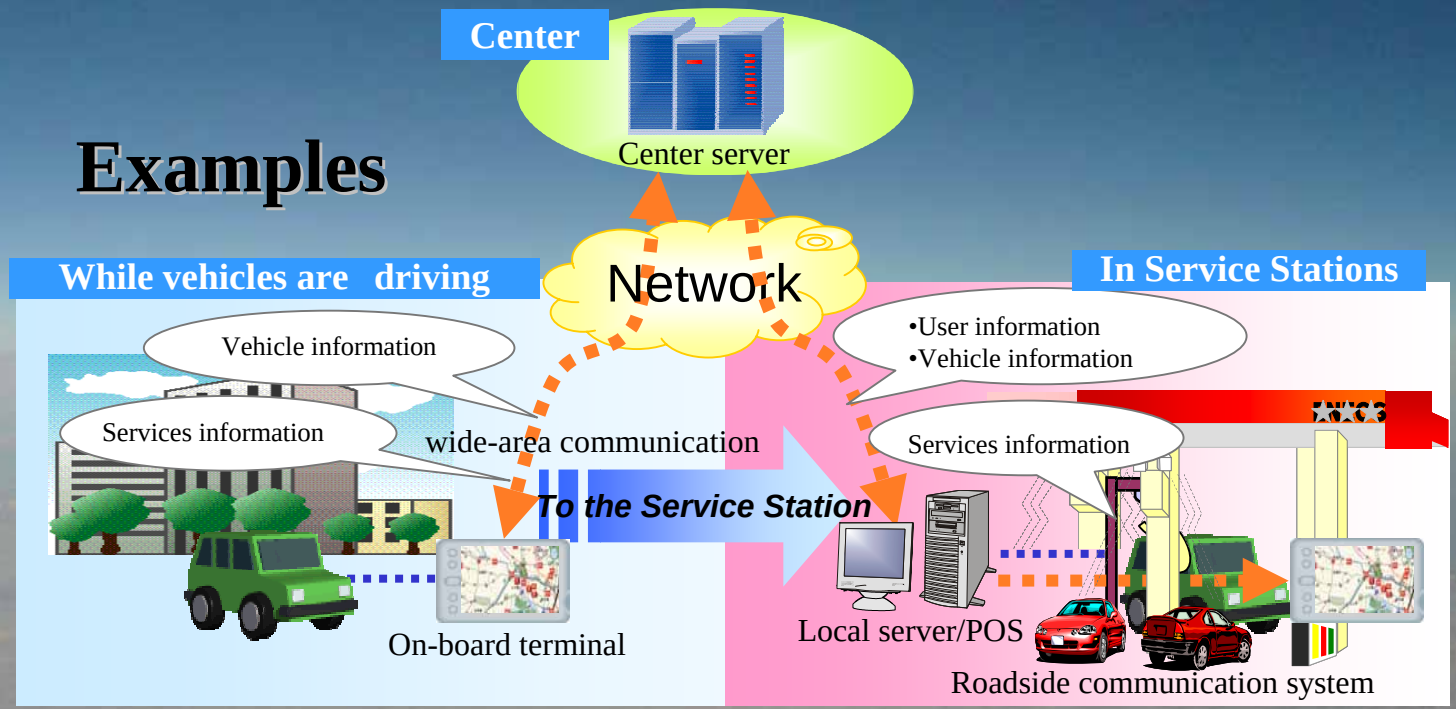
6.2 Evaluation Test

- **Validate both technical conformance and general versatility for business impl.**
- **Integrated scenario jointly defined by 6 SIGs**

Examples



6.3 Collaborations

- **International**
  - **IETF**
  - **ISO TC204/WG16**
  - **GST**
  - **VII**
- **Domestic**
  - **JARI**
  - **JAMA**
  - **JEITA**
  - **ARIB**
  - **:**

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Thank You

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Electronics Business Strategy Office
Global Hub
Sony Corporation

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http://www.internetits.org/

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