

China Next Generation Internet Deployment and Green IT

Liu Dong
2009-08-26

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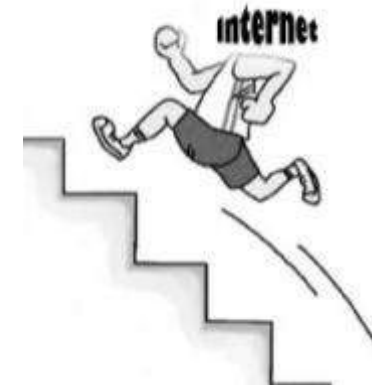
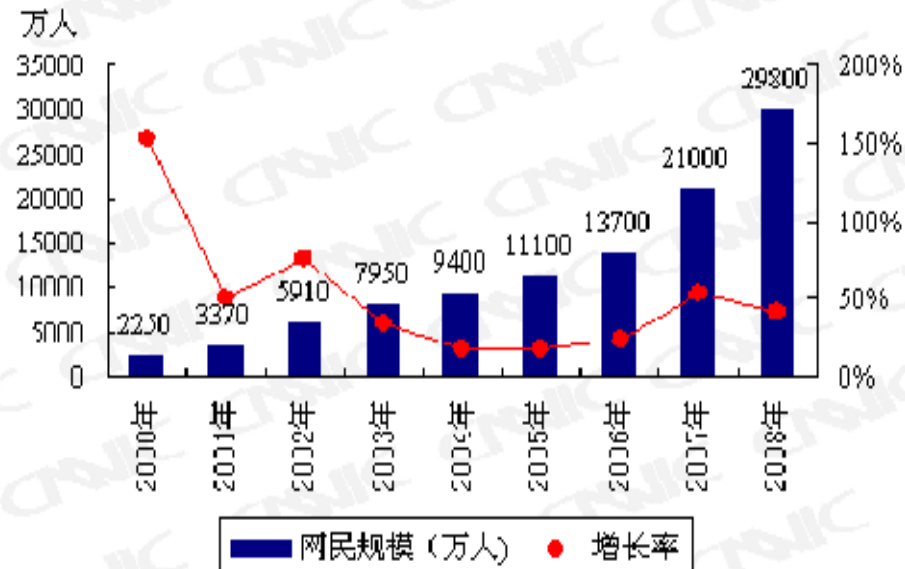
- ◆ China Internet Market and CNGI
- ◆ IPv6 Logo Activity
- ◆ BII Group IPv6 Application and Service
- ◆ Green IT in China



China Internet Market and CNGI

China Internet Market

Source: CNNIC, 2009.01



**China Internet Market
Increase Steeply**

- IPv4 Addresses: 181M, rise 34.0% than 2007
- IPv6 Addresses: 57 /32, BII Group 16 /32
- Exchange Points: 100G
- International Links: 640G, rise 73.6% than 2007
- Domain name: 16M, rise 41% than 2007

Internet Access		Proportion	Users (M)
Broadband Access		90.6%	270
Narrow band Access	Cell-phone	29.97%	117
	Others	12.72%	11

China Mobile Internet Market

Source: **MIIT**

- Mobile Phone User: 641M; and 30% using mobile internet
- 3 major operators direct Investment in 2 years: 280B RMB (41B\$)
- Potential mobile Internet user in 2 years: 200M

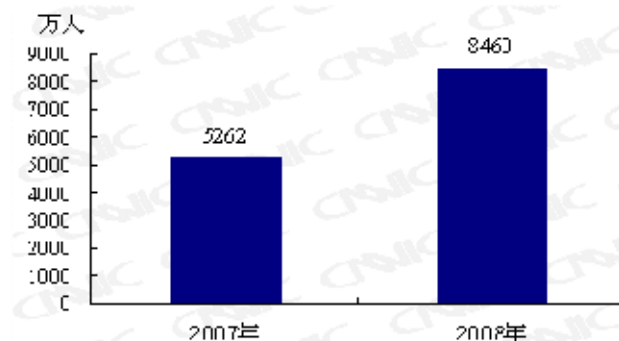
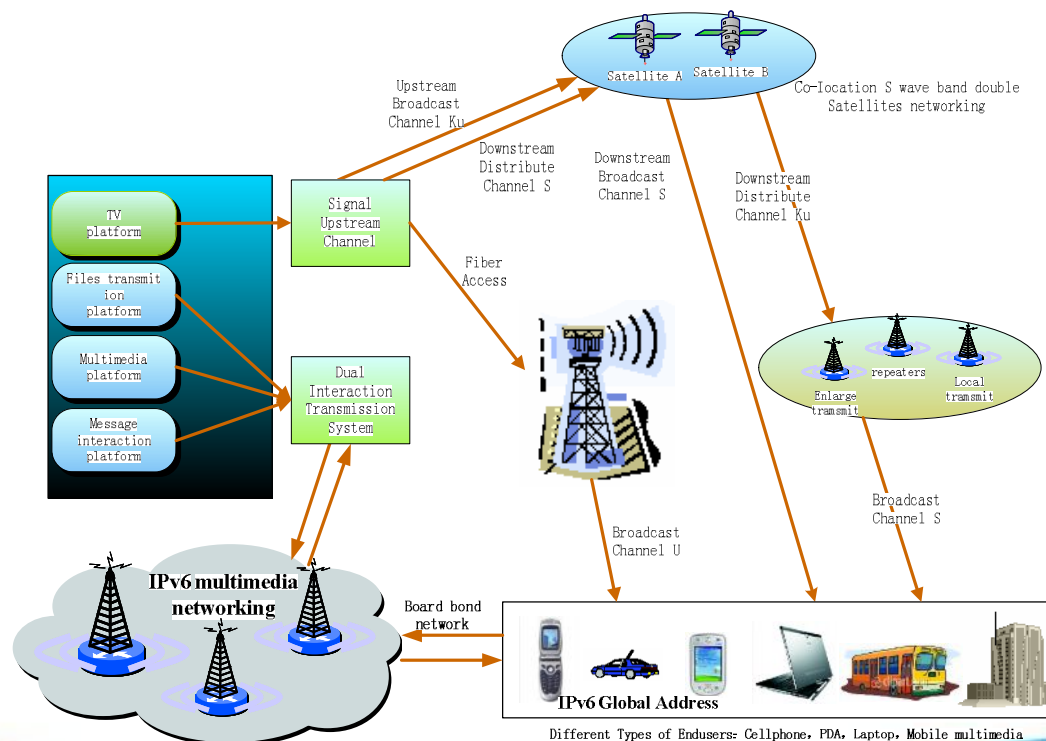


图 1: 2007-2008手机上网网民规模对比

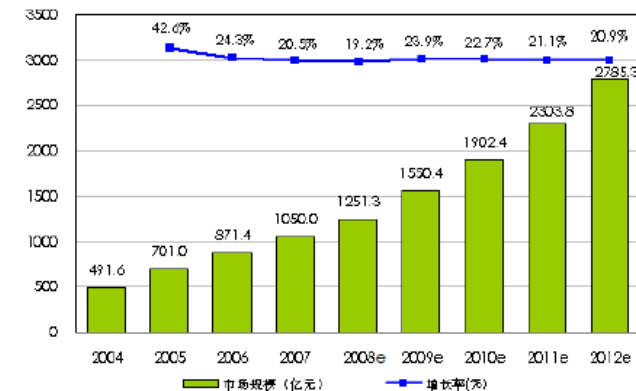


图 2: 2004-2012移动增值市场规模

How China Promote IPv6---CNGI

2007年10月8日胡锦涛主席重要批示：确实需从战略高度重视下一代互联网发展。

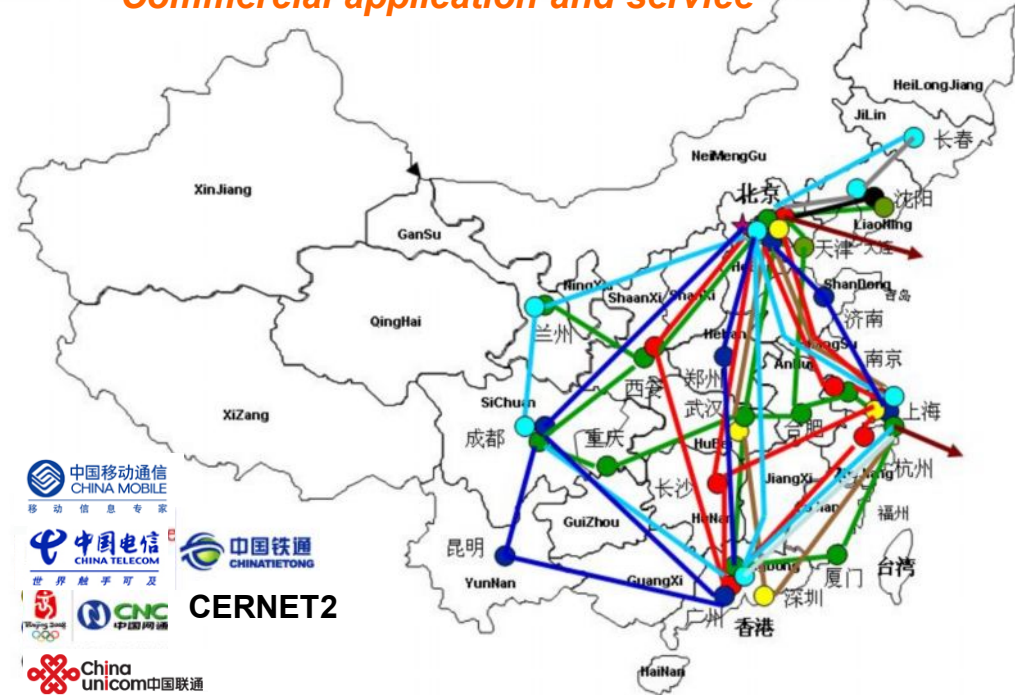
- A biggest IPv6 Infrastructure project in worldwide. Over 40 cities, national wide, >2.5G backbone
- A joined project initiated by 8 Ministries:
 - NDRC (National Development and Reform Commission)
 - MOST (Ministry of Science and Technology)
 - MII (Ministry of Information Industry)
 - SCIO (The State Council Informatization Office)
 - MOE (Ministry of Education)
 - CAS (China Academy of Science)
 - CAE (Chinese Academy of Engineering)
 - NNSFC (National Natural Science Foundation of China)
- Initial Budget 1.4billion RMB (-2005)

2003—2008

- **CNGI demonstration project**
- **Key technologies**

2008—2010

- **IPv6 backbone upgrade, access and applications**
- **Commercial application and service**



CNGI 2

- **Fundamental:** Largest IPv6 infrastructure project. Over 40 cities, National wide, >2.5G backbone.
- **Key technologies and human resource:** SAVA/SAVI, Softwire, IVI etc.
- [2008 CNGI Project Middle Review](#);



- CNGI must be listed as national strategy;
- CNGI is the largest pure IPv6 network in the world;
- International cooperation is the key point of CNGI deployment;
- Build a innovation system for China NGI ecosystem;



National Development and Reform Commission (NDRC) People's Republic of China, Zhang Xiaoqiang

CNGI Roadmap



Government Oriented NGI IPv6 Commercialize

State Council of China

- A stimulus package estimated at 4 trillion RMB (570 B\$) will be spent in 2 years (before end of 2010) to finance programs in 10 major areas, including NGI IPv6 field. -Feb. 2009

- A special budget at 460B RMB (68B\$) will be spend to technology upgrading, including NGI IPv6 field. -May. 2009

NDRC - CNGI & IPv6

- CNGI project from 2005 established national wide IPv6 network, 1st IPv6 enabled Olympic and hundreds test-bed.

- Government support focus on 3 fields:
 - 1) All major operators support IPv6 service fully
 - 2) Key technology R&D
 - 3) Global standard making
 -Aug. 2008

MOST- NGI & IPv6

- In “National plan framework at mid & long term science and technology development” NGI IPv6 became one of the 7 priority subjects.

- Because the rich result at 11th 5 years national plan, will continue support NGI IPv6 during 12th 5 years national plan.

China is ready to become one of the leading countries in **IPv6 Commercialize**



IPv6 Logo Activities



IPv6 Ready Logo Program

- The number of approved Golden IPv6 Ready Logo products around the world is over 274 growing very fast in the last year.
- The silver Logo approved products remain on a steady increase and has reached a total of 382 products from vendors worldwide.
- With the development of IPv6 deployment and next generation internet, more and more equipments or vendors need IPv6 Ready Logo.

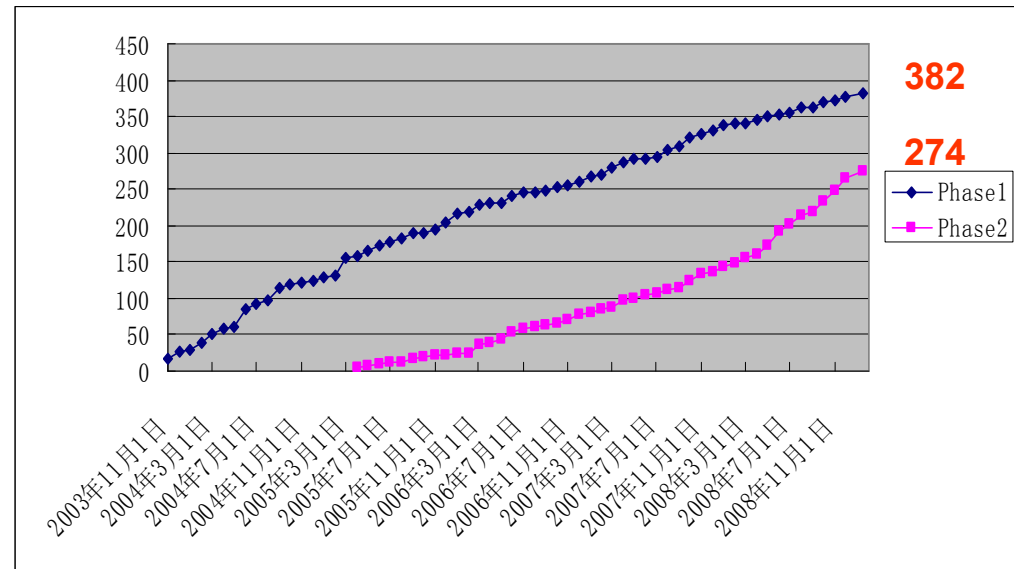


Fig. 1. Total number of Golden IPv6 Ready Logo approved products



IPv6 Enabled Program (1)



- Position: Under IPv6 Forum, www.ipv6forum.com/ipv6_enabled;
- Committee: v6eSG, Chairperson --- Liu Dong@BII Group;
- Coverage: WWW, ISP etc;

Press Conference in Beijing in April 15th

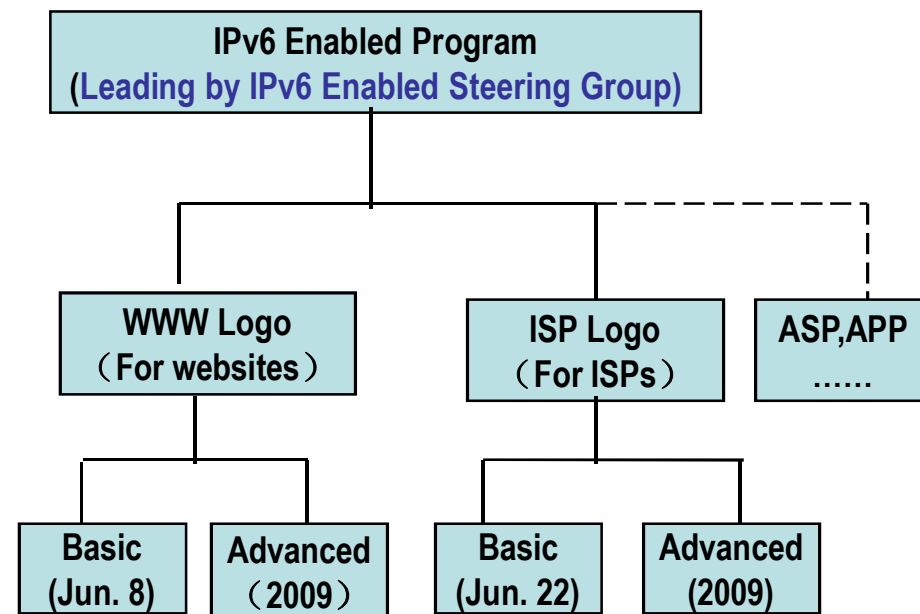


The launch of the IPv6 WWW & ISP Logo program is another strategic milestone to signal that good integration of IPv6 in web sites and at ISPs should be sustained to build the New Internet infrastructure

- IPv6 WWW Enabled
 - Start Time: June 8th
 - Logos: 200 applications
- IPv6 ISP Enabled
 - Start Time: June 22nd
 - Logos: 22 applications



IPv6 Enabled Program (2)



This program is a good step in the right direction. IPv6 needs to be integrated in all web sites;
IPv6 needs to be integrated and offered as a service by all ISPs to sustain Internet growth and by the same token drive end-to-end innovation;



BII Group IPv6 Application and Service

Intelligent Sensor & Control Service

The sole technical provider of Beijing 2008 Olympics IPv4/IPv6 surveillance system, world first IPv6 service deployed in 48 official Olympic stadiums.



Field Information

Analyze

Action & Monitoring

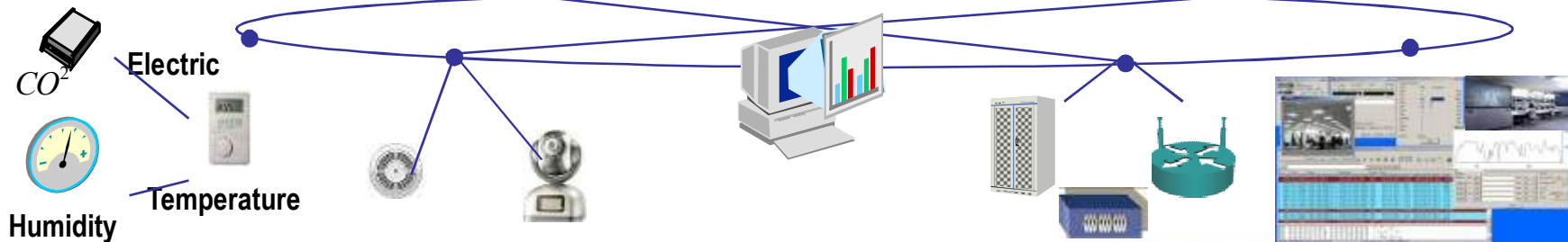
- IPv6 Networking
- Sensor
- Interoperable

- Controller
- Authentication
- Wireless

- CO2 emissions
- Analyze
- Intelligent linkage

- IPv6 Internet
- Automatic
- interoperability

- Information sharing
- Agent service



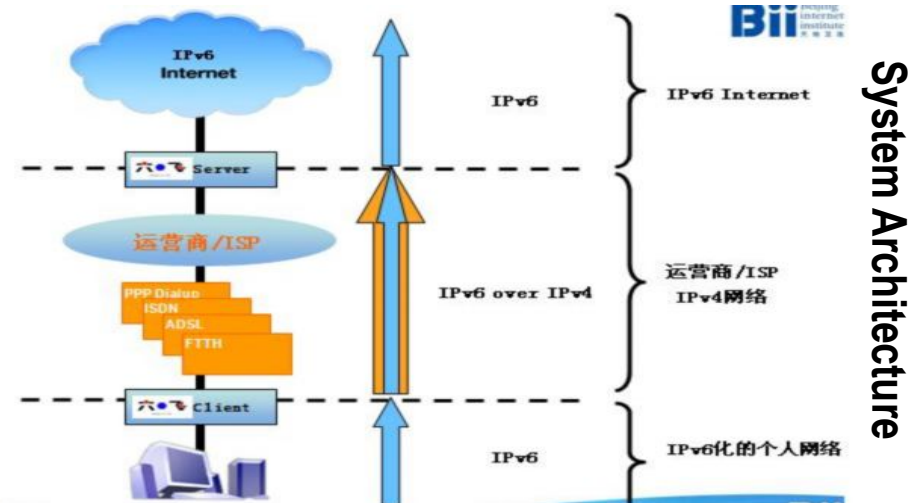
IPv4/IPv6 Transition Technology

Internet IPv4 client can use our transition software to get a IPv6 address, then go to the IPv6 Internet.

IPv6 Internet

CNGI, CERNET2, Internet 2, GEANT, APAN, GTRN, 6Bone, 6REN, WIDE, JGN, 6INIT, 6NET, Euro6IX, ANDROID, RENATER 2, AIRS++, Bermuda Skanova,

IPv4 Internet



IPv6 Web Site Service

- IPv6 End User ↔ IPv6 Web site
- Lifecycle for customers & web site

- *Security Issue*
- *Performance Issue*
- *Quality Issue*



Government Website

- Security
- Quality

Mirror Service

Business Website

- Performance
- Quality

Dual Stack Server

Personal Website

- Performance

Tunnel Service

BII Group IPv4/IPv6 transition platform

Global IPv6 backbone

Global IPv4 backbone

Transition technology

IPv6 Applications

□6Mobile

- Using IPv6 + 3G for Application
- Each application has a unique ipv6 address
- Each Mobile to be a server

□6Device

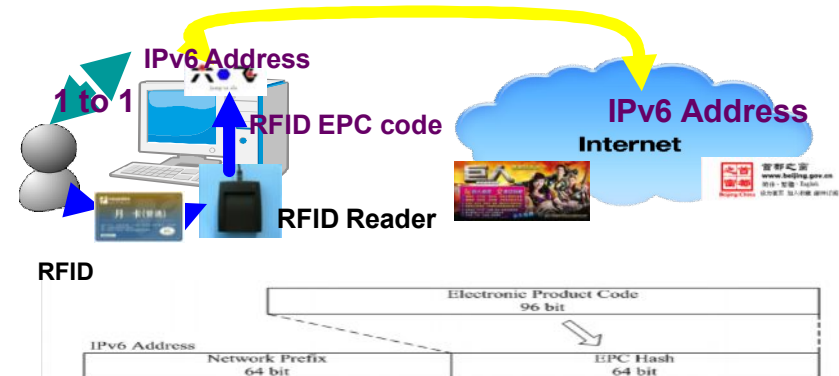
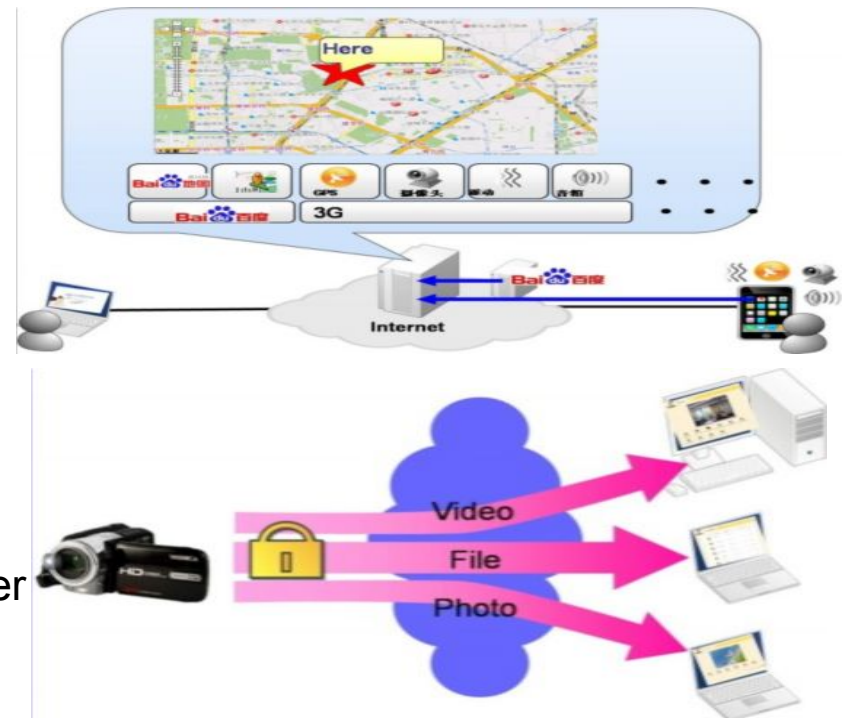
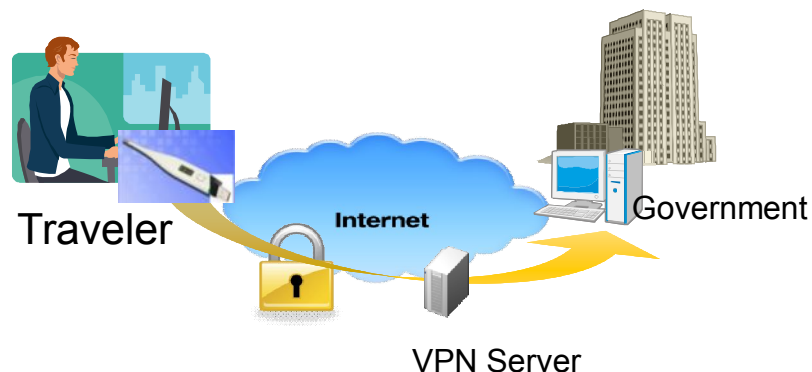
- Similar with 6 mobile
- Each device to be a server
- Information sharing synchronously

□6Healthy

- IPv6 thermometer
- IPv6 address combined with Passport number

□6ID

- IPv6 + RFID
- IPv6 address combined with ID number





Green IT in China

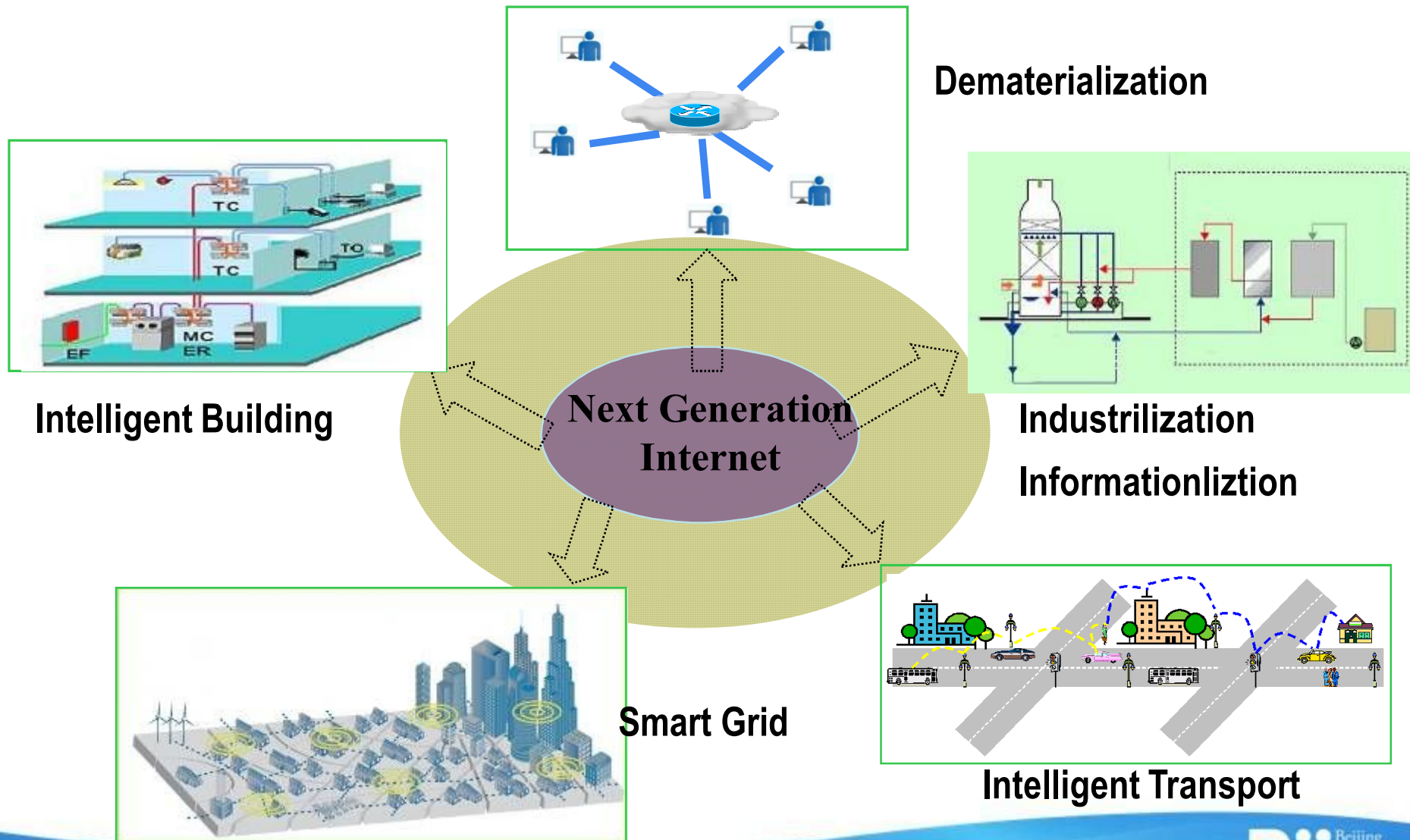


Why Green IT Using IPv6

- **China huge market in building**
- Till 2025, 5 billion m² road, 5 million buildings, 400 billion m² of building to be built.
- **Huge potential of energy saving**
- Energy consumption in buildings occupies 1/3 of total social energy consumption. Energy efficiency is less than one-third of developed countries, and large improvements need to be made.
- **Government continuous financial support**
- **Construction of two-oriented society;**
- **Investment for the energy-saving reached 210 billion.**
- **Till 2020, 1.5 trillion investment in energy-saving buildings ;**
- **President Hu Jintao stressed energy saving and reduction.**



Fields that IPv6 Could Influence



Green IPv6 Global Standard

- Global Standard



- The first global Green IT standard
- Chair: Liu Dong
- Kickoff in Beijing and regular WG meeting



- Membership

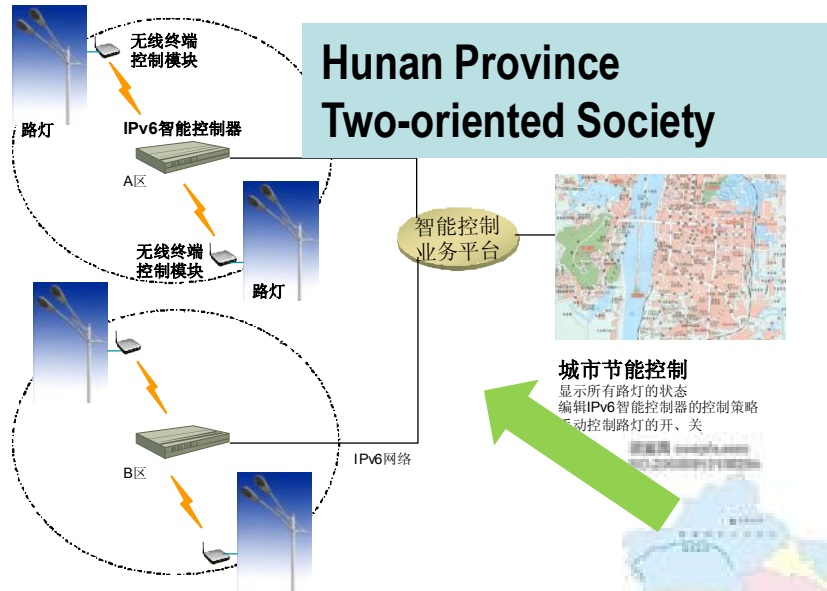
- Academic Organization: Tsinghua University, Beihang University
- Enterprise: Intel, China Telecom

- Industry Alliance

- Global Green IT Forum

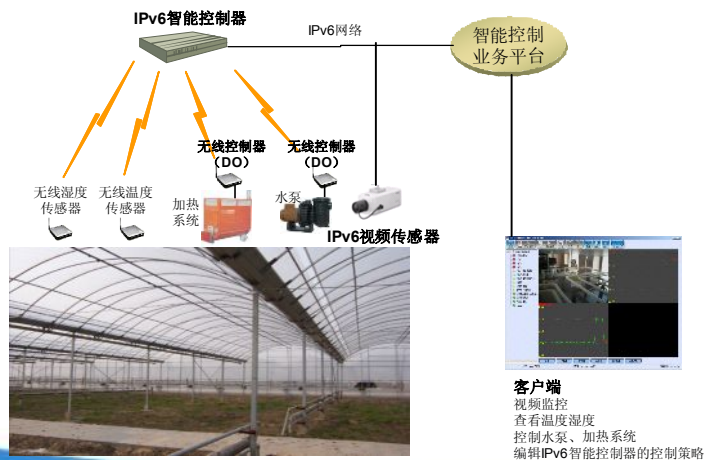


Demonstration and Pilot Projects

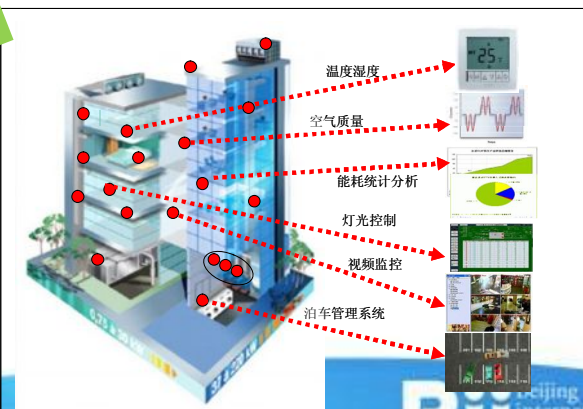


城市节能控制
显示所有路灯的状态
编辑IPv6智能控制器的控制策略
手动控制路灯的开、关

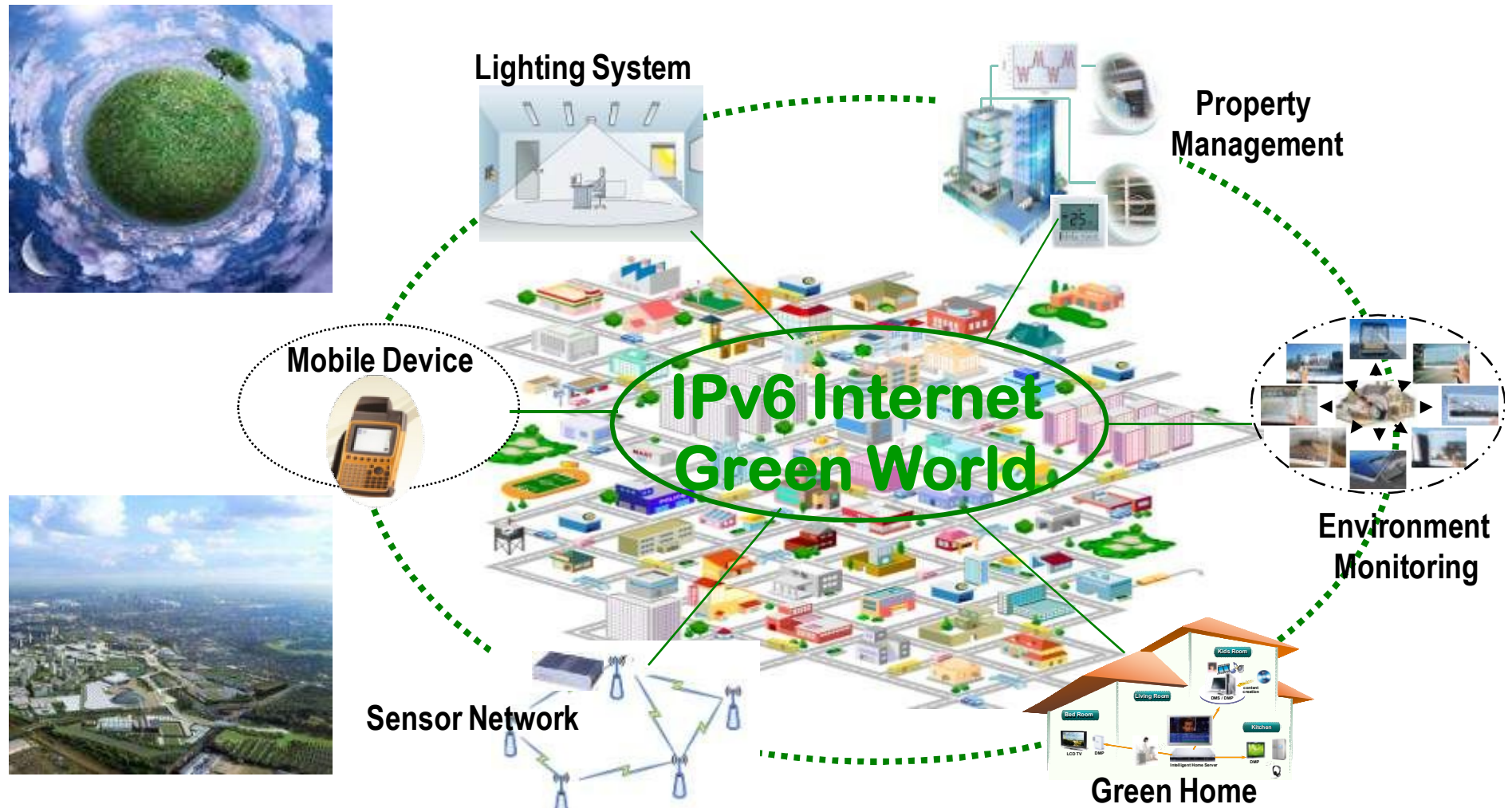
Tsinghua University FIT Building



Zhongguancun Software Park



IPv6 Green World



Provide environment monitoring and energy consumption management mechanisms to energy saving and secure, comfort and convenient living environment making.

Conclusion

- *Industrialization Upgrade*
 - *Government re-organization will speed up the industrialization upgrade process*
 - *Leverage IPv6-enabled Next-Gen Internet to build intelligent infrastructures*
 - *Construct “Green Society”, promote Energy Conservation and Emission Reduction concept*
- *New Internet Economy*
 - *2008 Olympics has dramatically accelerated the maturity of IPv6 application and service*
 - *China believes that IPv6 is the key to meet the demand of its fast-growing internet economy*
 - *As the world largest internet user country, China will become the one of the engines and flagships to new internet economy*
- *China is resolutely to become an innovative center, we already have good foundations, look forward to more co-operations with the world.*



Back up slides



Appendix: Liu Dong's Profile



- Enterprise Position
 - 1995, Founder of China first internet institute, BII (Beijing Internet Institute), CEO and President
 - 1999, Fonder of BII Group Holdings, CEO and President of BII Group
- Industry and Academic Positions
 - From 2001, Co-founder and Board, China Internet Society
 - Chair and director, Mobile Internet & Wireless City Committee
 - From 2001, Advisor, ICANN Government Advisory Community of MII (Ministry of Information Industry)
 - From 2003, Board & Fellow of IPv6 Forum, Chair of China IPv6 Council
 - From 2005, Chair and President, Beijing Ubiquitous Society
 - From 2005, Founder & Chair, Z-Park NGI (Next Generation Internet) industry Alliance
 - From 2005, Member of Expert Working Group, China Next Generation Internet Project (CNGI Project)
 - From 2005, Director of WiMAX Forum China Office
 - From 2006, Director of WiMedia Alliance China Region
 - From 2008, Chair of China Mobile Internet Forum
 - From 2008, Chair of Wireless City Forum
 - From 2001, Deputy General Director and fellow, BII-BUPT (Beijing University of Post Telecom) NGI R&D Lab
 - From 2004, Member of Expert Consultative Committee, "Digital Signature Law" Committee, State Council Law Office, "Telecommunication Law" Committee of State Council Law Office Member, Asia Broadband Forum
- Professional Awards and Honors
 - April 2004, "IPv6 Internet Pioneer", granted by Dr. Vint Cerf on behalf of IPv6 Forum
 - 2005, "Top 100 Elite", granted by SINA.COM (China largest Portal)
 - March 2007, Lead BII Group win "Z-Park Innovative Enterprise Top 100", granted by Beijing Municipal Government, China Science and Technology Ministry, China Academy of Science
 - December 2007, Lead BII Group win "First Grade Award" for IPv6-Based Video Surveillance R&D and Olympics Innovation Application Project. Granted by China Communications Society of MII
 - 2008 Nov., awarded as "**Pioneer in Technology-empowered Olympics**" by Beijing 2008 Olympics Committee.

Z-Park NGI (Next Generation Internet) Industry Alliance

Beijing



Beijing
2005年

Set up at Feb. 28,
2005. Over 60
members, including:
Lenovo,
ChinaTelecom,
ChinaUnioncom etc.

China
2009年

Set up National NGI
Industry Alliance
based on the
experiences in Z-
Park NGI industry
Alliance, 200
members

World
2010年

Cooperate with world
wide in 2-3 years, good
relationship with global
organizations, absorb
famous MNC join it

27

我国下一代互联网发展战略



2009年5月
温家宝总理
考察CNGI成果



2008年10月
刘延东委员
视察产业联盟



2009年4月，万钢部长在中芬ICT战略大会上表示，科技部在推动IPv6与下一代互联网研发与应用方面，取得了一系列重大进展，建成了全球规模最大的IPv6互联网。