Toward a Human-Centered Broadband Network Society

## *Hiromi Wasai*

NTT

NTT

What can we expect from IT technology?

What is the direction of IT technology innovation?

We want to give all individuals contented lives

(with a wealth of knowledge, more disposable time, a variety of opportunities,

and a sustainable global environment).

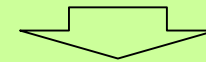**Development of the Internet**

We can access knowledge & information in the world and send our own message to the world.
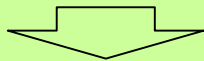
It has brought a lot of convenience and expanded the way of communications.

Now, we are in the broadband world.

- Information searches
- Video streaming, VoD
- 3D games
- Content exchange
- Data transmission
- Shopping, banking

Convenience has been improved.
But some concerns still remain.
Is everything ok?

Creating a full-scale resonant communication environment using optics

- Real and natural communication environment using video and other modes of communication that the narrowband environment could not handle

- Environment that allows for safe, reliable, and simple connection to general public and enables information sharing, regardless of user environment consisting of terminal clusters or various access methods

Economy in time   Disposable time will be increased

**Conquering barrier of distance
Range of activities will be expanded**

**Minimizing gaps between countries and generations
Reality sharing and knowledge sharing**

NTT

Impact of resonant communication environment

Interactive communication and collaboration using high-quality images through optical networks

Time	Distance	Gaps

Real-time visual communication function

- Creation of new community that transcends regions and generations
- Real exchanges by high-quality visual communication
- High-quality and multipoint live video distribution
- Creation of new opportunities for remote medical care and lifelong education
- Knowledge sharing by teleworking and other face-to-face exchanges

High-quality and multipoint visual communication/collaboration function

- Collaborative product planning with customers
- R&D and product development in collaboration with other companies
- Marketing enhancing the customer contact
- Improvement of productive process by monitoring production sites
- Creation of new channels to domestic and foreign customers

Helping to solve social problems

Cope with low birthrate and aging population Create job opportunities	Provide diverse educational opportunities	Cut back on energy and reduce the burden on the environment	Promote crime prevention, preventive medical care, and nursing care

Problems of the current IP-based network

The following problems are getting worse ...

Security

Growing threats of computer viruses, cyber-terrorism, information leakage, etc.

Rapid increase in the number of full-time-network-connected PCs.

End-to-end service management

Network infrastructure consisting of disorderly connected accesses, backbones, and servers.

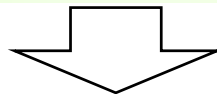No manager can control services end-to-end.

Quality-of-service control

No mechanism of bandwidth and QoS management for realtime streaming services.

Usability

Daily emerging applications followed by endless updates

Complicated user-settings for network service to start.

Flat-rate service tariff

No incentives to control traffic explosion

Demand for new network architecture

NTT

Requirements for the next-generation network

Improvements in capacity, cost, connectivity of transport network

plus

Network features to make end-to-end connections safe, smart, & simple

Safe
Enhanced network functions to make end-to-end connections more safe and reliable, such as authentication, authorization, and privacy management

Smart
Network functions encouraging creation of new applications, such as bandwidth/QoS control and user-access-environment management
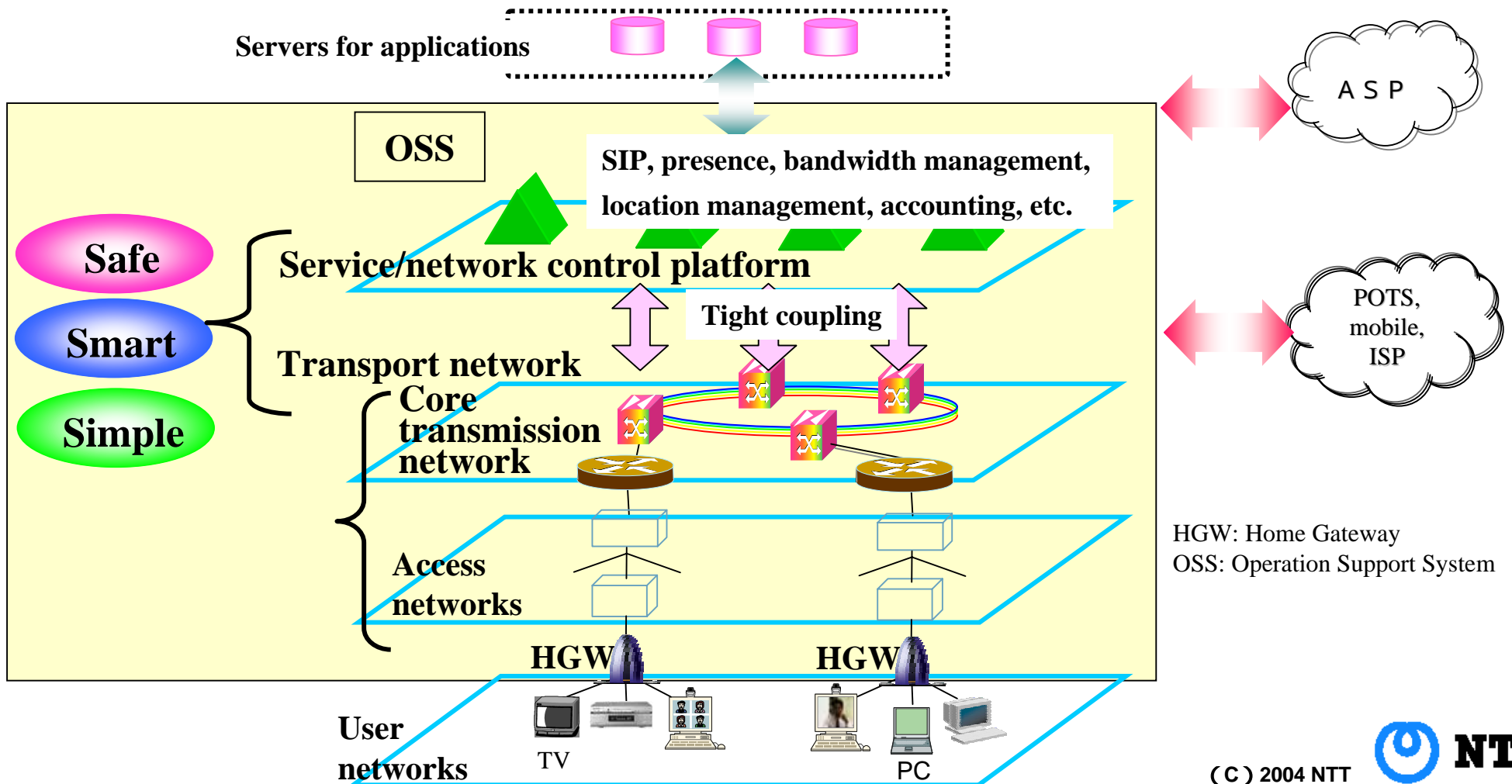
Simple
Simple interface to various network functions, and automatic updates of user network configuration

NTT

Next-generation network architecture
for the resonant communication environment

A managed-IP network architecture, where the network service/control platform and transport network are tightly coupled, is required for **safe, smart, and simple** end-to-end connections.

Servers for applications

OSS

SIP, presence, bandwidth management, location management, accounting, etc.

Safe

Smart

Simple

Service/network control platform

Tight coupling

Transport network

Core transmission network

POTS, mobile, ISP

Access networks

HGW: Home Gateway
OSS: Operation Support System

HGW   HGW

User networks

TV   PC

NTT

Conclusion

- **Human-to-human resonant communication using broadband networks is very important to bring an affluent society to people in the world.**

- **As players in the IP technology arena, we must take action to solve problems associated with the Internet.**

- **To globally promote the human-centered network society, we want to cooperate and build closer relationships with communication-related industries in the world.**

NTT