

Hitachi Inspires IPv6 Deployment

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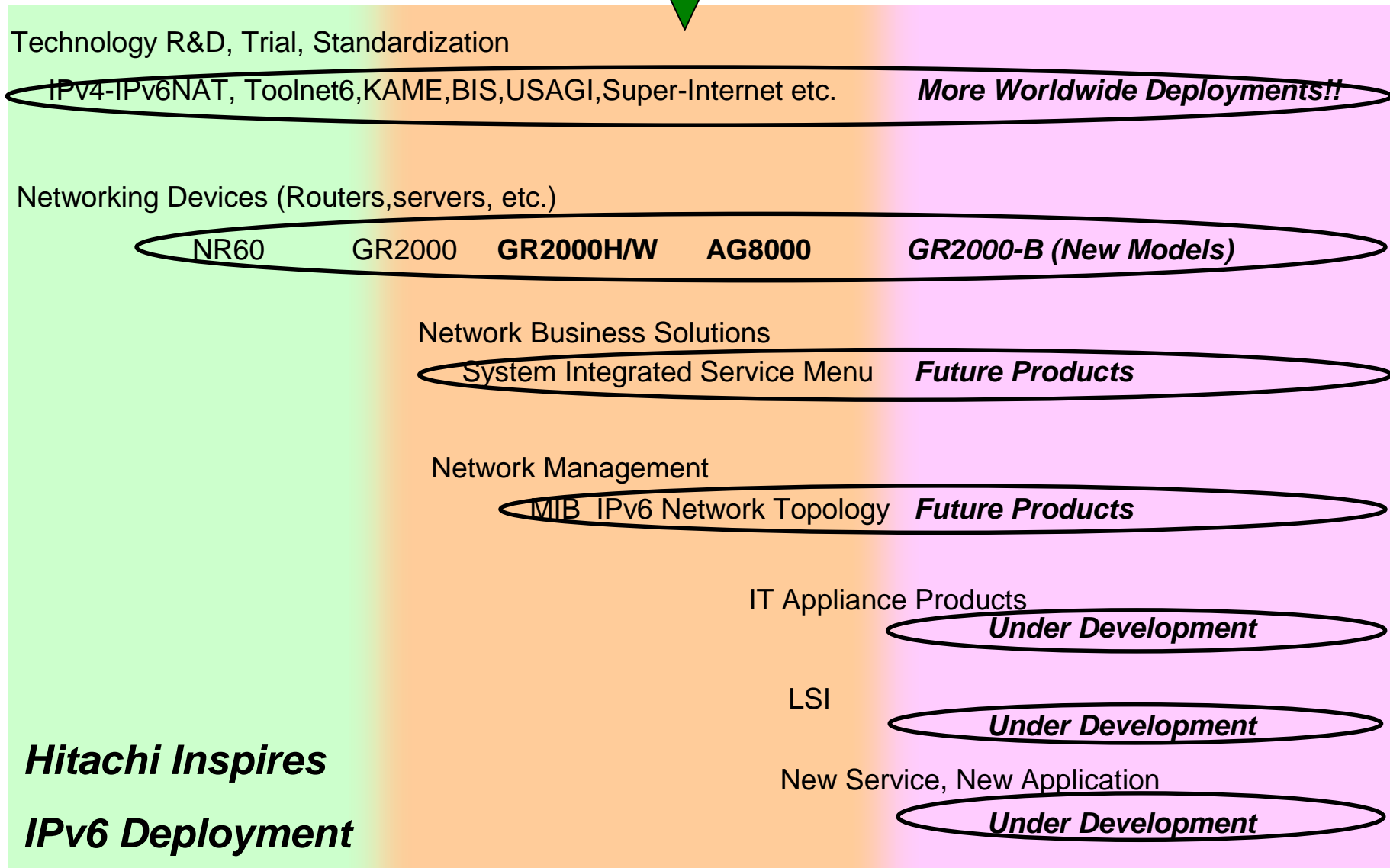
Hitachi, Ltd.



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Overview of Hitachi's IPv6 Development Efforts

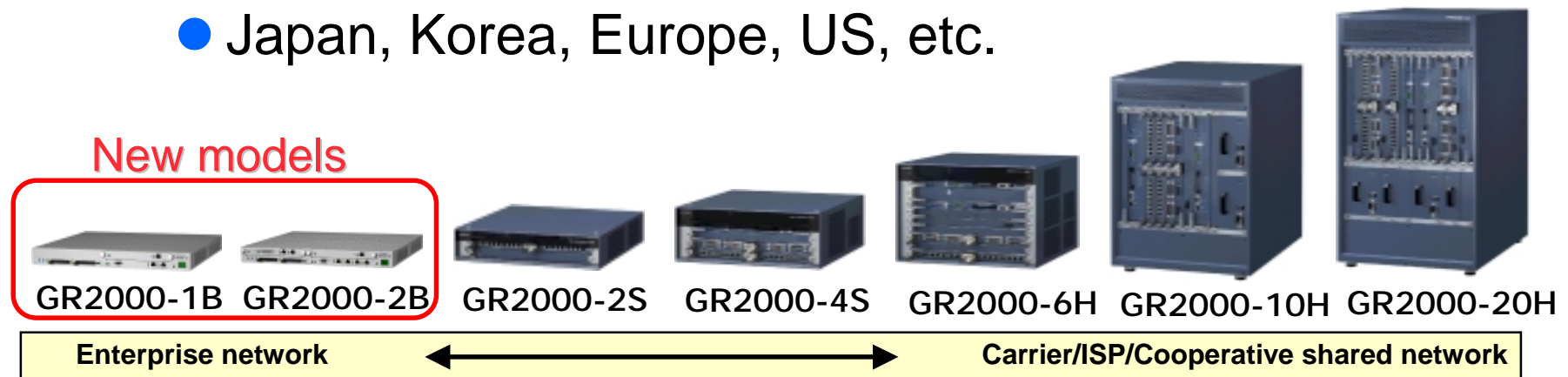


Hitachi IPv6 Accomplishments

- A Founding Member of IPv6 Forum.
- Continuous IETF Leadership and Contributions (RFC2767 BIS).
- A Member of KAME Project and USAGI project.
 - <http://www.kame.net>
 - <http://www.linux-ipv6.org>
- 6 + Years Experience in IPv6 Router Development.
- Selected as the IPv6 platform for the Euro6IX Network.
- Deployed the World's First Commercial IPv6 Network, Linking Seven Major Cities in Europe.
- Released the World's First Commercial IPv6 Protocol Translation Router, "NR60", debuted in Asia.
- Awarded 'Best of Show' at the Network + Interop (N+I) 2000, in Tokyo.
 - External router for IPv6 connectivity
 - Interoperability Testing (UNH, Tahi Project, ETSI).
 - <http://www.tahi.org>
- "Toolnet6" - Free Hitachi Software.
 - Driver software for IPv6 Support - Windows 98/NT

Hitachi GR2000 IPv6 Gigabit Routers

- IPv6 supported across all platforms
- Production-ready Hardware-based IPv6 at wire speeds
- Up to OC-48 speeds for carrier solutions
- Wide range of LAN options for Enterprise solutions
- Shipping Worldwide
 - Japan, Korea, Europe, US, etc.



*1 All models except GR2000-2S support hardware-based IPv6 network.

GR2000 IPv6 Key Features

- Hardware-based IPv4/IPv6 Dual Stack Router
 - Ensures for a smooth transition to IPv6
 - Allows IPv4 and IPv6 to run within the same box
 - Preserves and maximizes investment costs

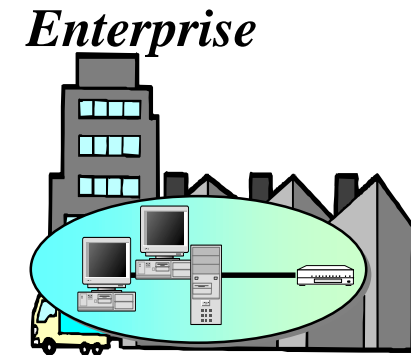
- Hardware-based technologies to meet key business requirements for increased bandwidth, high performance and emerging applications
 - Sophisticated QoS mechanisms
 - DiffServ
 - MPLS (VPNs)
 - IP Multicast
 - IP Filtering

- High Reliability
 - Specialized ASICs
 - Fully redundant, hot swappable component
 - Optical Technology
 - Advanced Software

GR2000 IPv6 Case Study (1)

ISID Large Scale Enterprise Network

- Information Services International (ISID) – Dentsu, Ltd.
 - <http://www.isid.co.jp/english/news/ipv6.html>
- Japan's first 5,000-machine company-wide network
- Using IPv4/IPv6 dual-stack technology
- Voice and video distributed to all 5,000 terminals over Gigabit Ethernet
- GR2000 Key Feature Requirements
 - IPv4/IPv6 Dual Stack
 - High Performance QoS



GR2000 IPv6 Case Study (2)

Skanova's IPv6 Network

- First Commercial IPv6 Network in Europe with Hardware-based IPv6 Routing
 - Stockholm, London, Oslo, Copenhagen, Malmoe, Gothenburg, Vasa
- IPv6 Requirements
 - Hardware-based IPv6 Gigabit Routing
 - Configured Tunnels for smooth transition to IPv6
- More Information
 - http://www.internetworking.hitachi.com/about/Skanova_Press_Release_Final.pdf



GR2000 B models

HITACHI
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■ IPv4/IPv6 Dual Stack Router for Broadband Networks

- ◆ Enterprise / Branch Office / CPE
- ◆ School



GR2000-1B

- Ethernet (10/100Mbps)x 2 ports (Pre-installed)
- 1-Option Slot



GR2000-2B

- Ethernet (10/100Mbps) x 4 ports (Pre-installed)
- 2-Option Slot

- Compact-sized Gigabit Router
 - ✓ Height: 1U size (44mm)

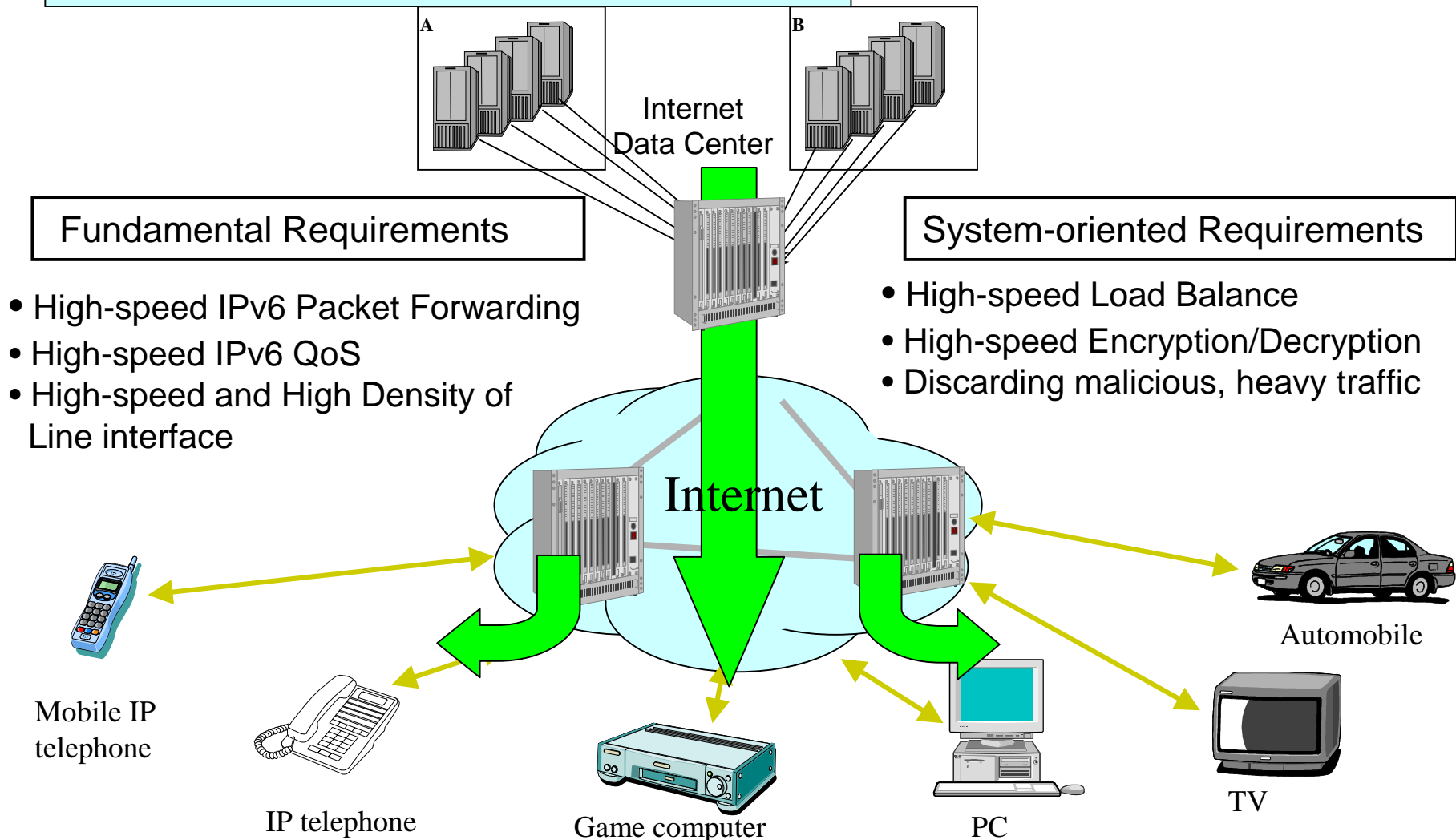
- High Performance
 - ✓ 1M Packet / sec
 - ✓ Hardware-Based IPv4/IPv6 Forwarding
 - ✓ Up to Gigabit and OC-3ATM speeds

- Hardware-based Features
 - ✓ IPv4/IPv6 Routing
 - ✓ IPv4/IPv6 Multicast
 - ✓ QoS/DiffServ
 - ✓ RIP(ng), OSPF(v2,v3), BGP4(+)

First Release : April, 2002 (Japan)

Emerging Applications for IPv6 Services

IPv6 Multicast Service

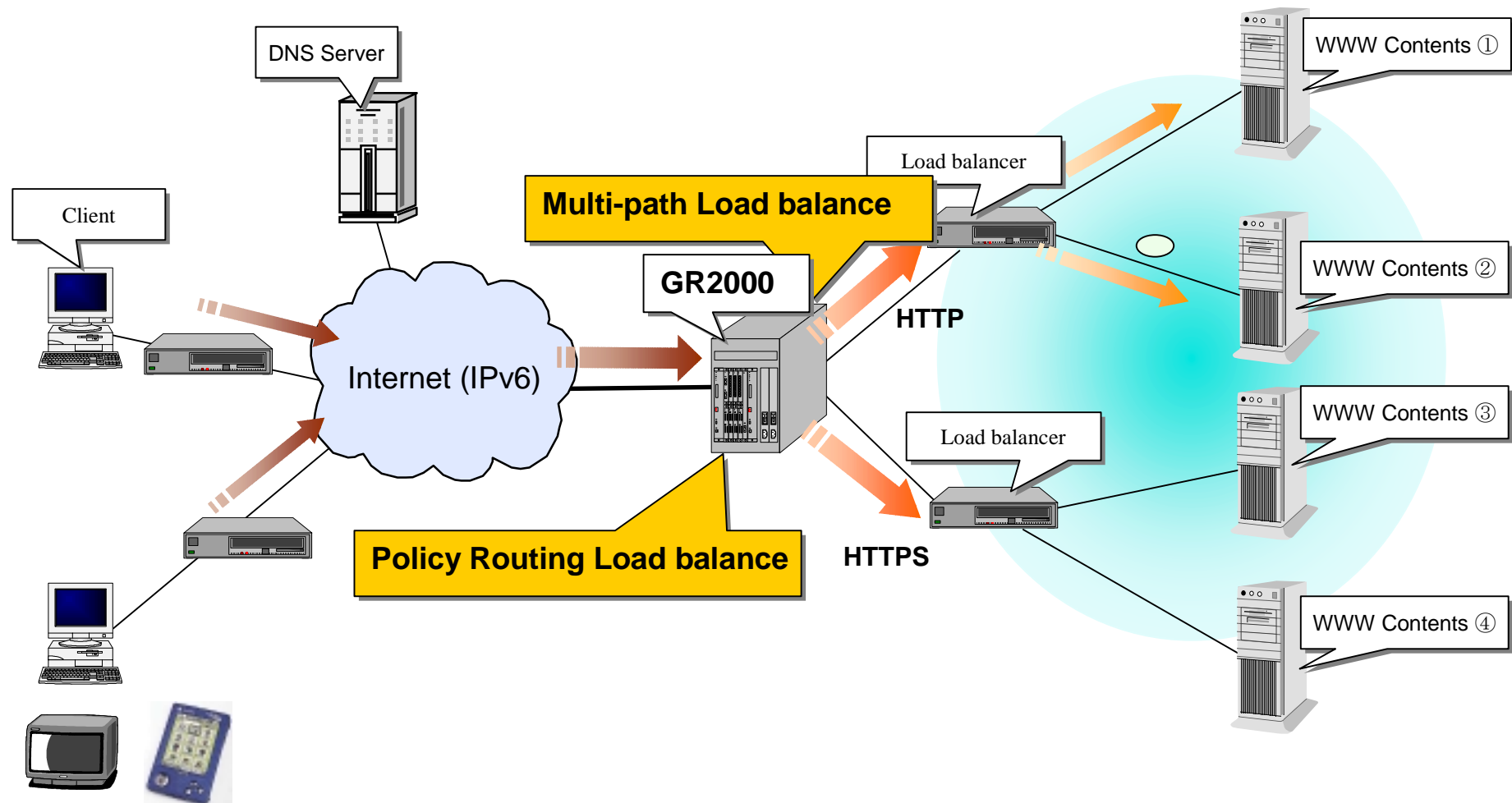


IPv6 Multicast Services

- New Broadband Applications for IPv4/IPv6 Multicast Services
 - Video/TV Conferencing
 - Distance Learning (Remote)
 - Stock Information Service
 - Software Update Service
 - Streaming Contents Delivery
 - Motion Picture Distribution (B to B)
 - Supply Chain Management (B to B)
- GR2000 supports Hardware-based IPv6 Multicast

Scalable Web Center System

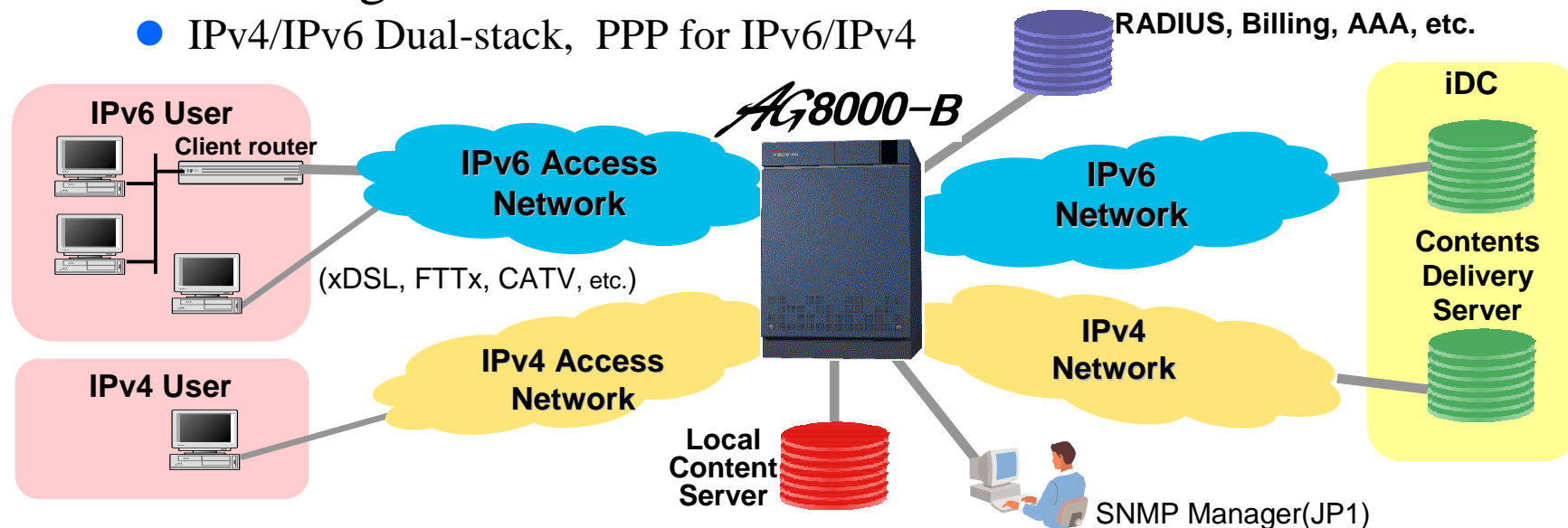
Hierarchical Load Balance System



IPv6 Access Gateway “AG8000”

AG8000-B : Broadband Access Server

- AG8000-B enables IPv6 services to the Internet Access Network and Service Providers
 - xDSL, FTTx, CATV, etc.
- Smooth Migration Path to IPv6
 - IPv4/IPv6 Dual-stack, PPP for IPv6/IPv4



New Model:



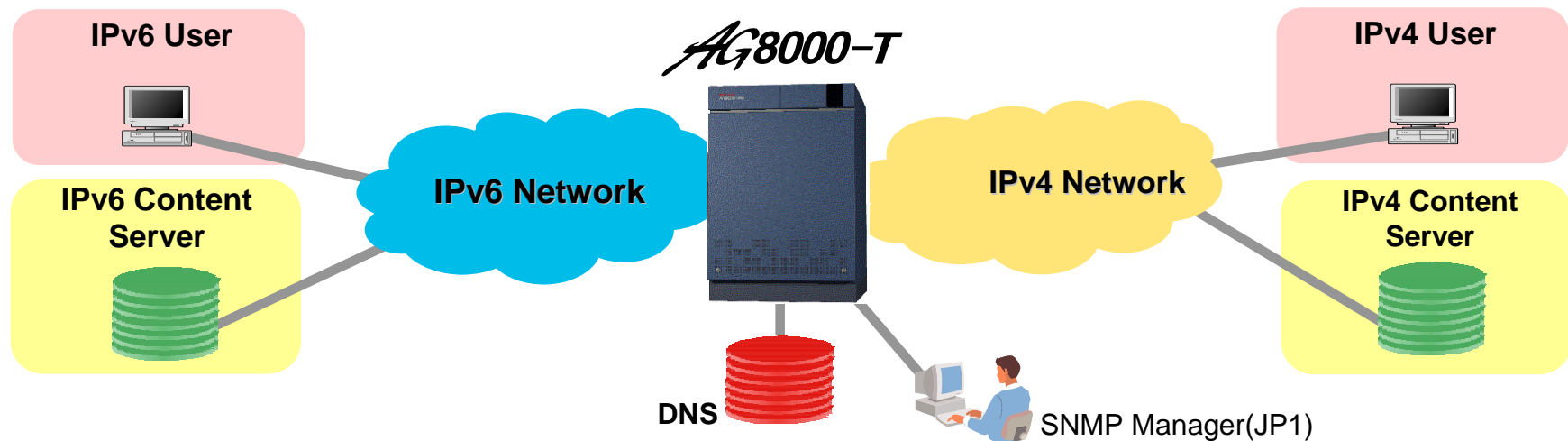
AG8100-B

Compact version of AG8000-B

IPv6 Access Gateway “AG8000”

AG8000-T : Broadband Address Translator

- AG8000-T enables interconnection of IPv4 and IPv6 Networks
- Smooth Migration Path to IPv6
 - IPv6/IPv4 Address Translation
 - IPv4 Masquerade



New Model:



AG8100-T

Compact type of AG8000-T

Current IPv6 Activities: *Europe and Japan*

■ Euro6IX

- Hitachi is a key sponsor of Euro6IX.
- Hitachi's technology will power Euro6IX network.

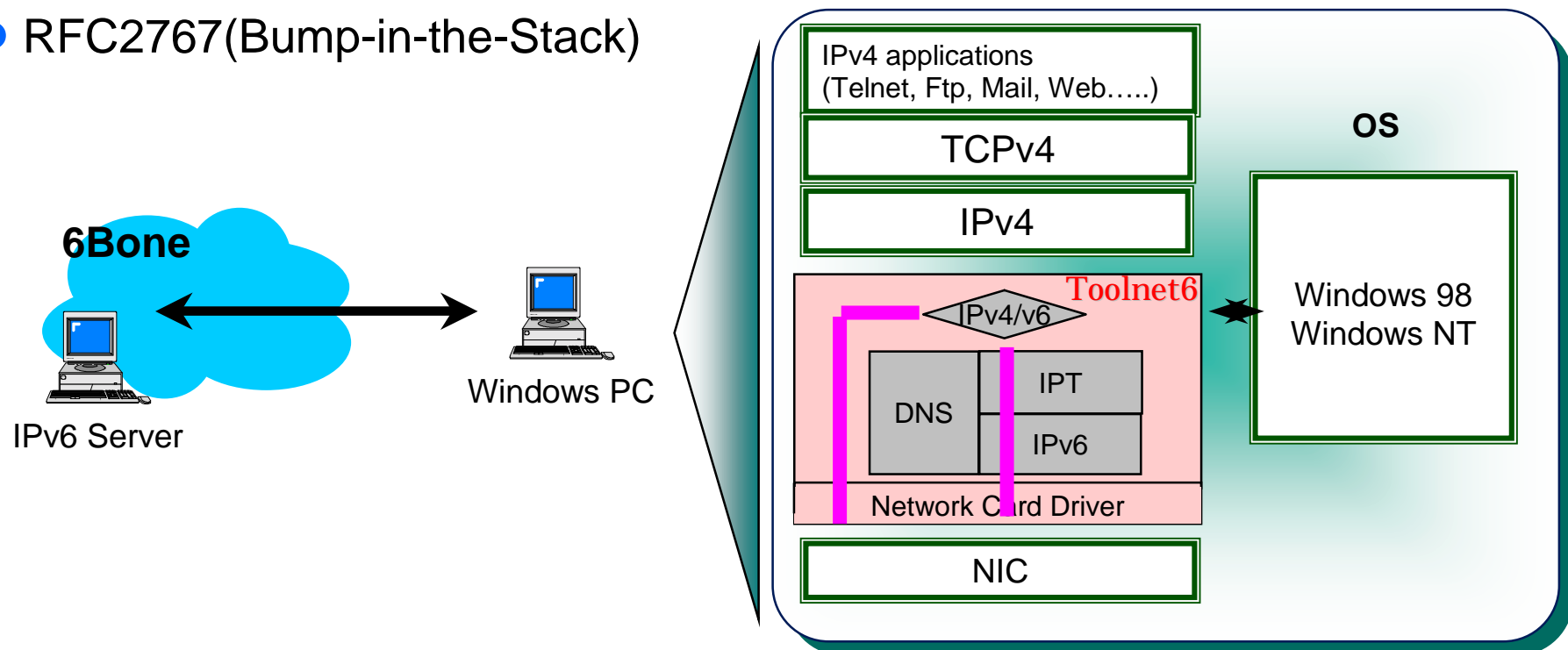
■ IPv6 Promotion Council

- Hitachi is a board member of IPv6 Promotion Council in Japan
- http://www.v6pc.jp/index_e.html

Toolnet6 Download Report (1)

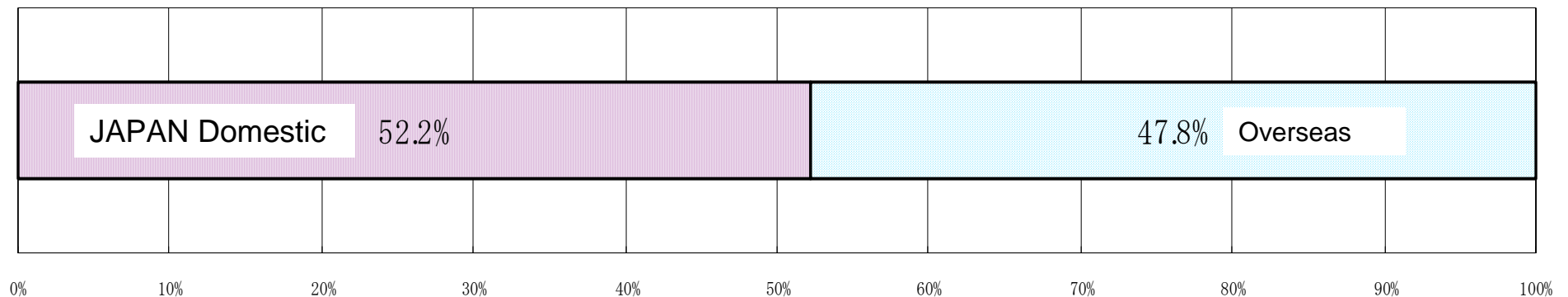
What is Toolnet6 ?

- Software Tool For Existing Windows® Applications over IPv6.
- Enhancement For Network Interface Card Driver Software
- Free distribution from Hitachi home page
 - ◆ <http://www.hitachi.co.jp/Prod/comp/network/pexv6-e.htm>
- RFC2767(Bump-in-the-Stack)

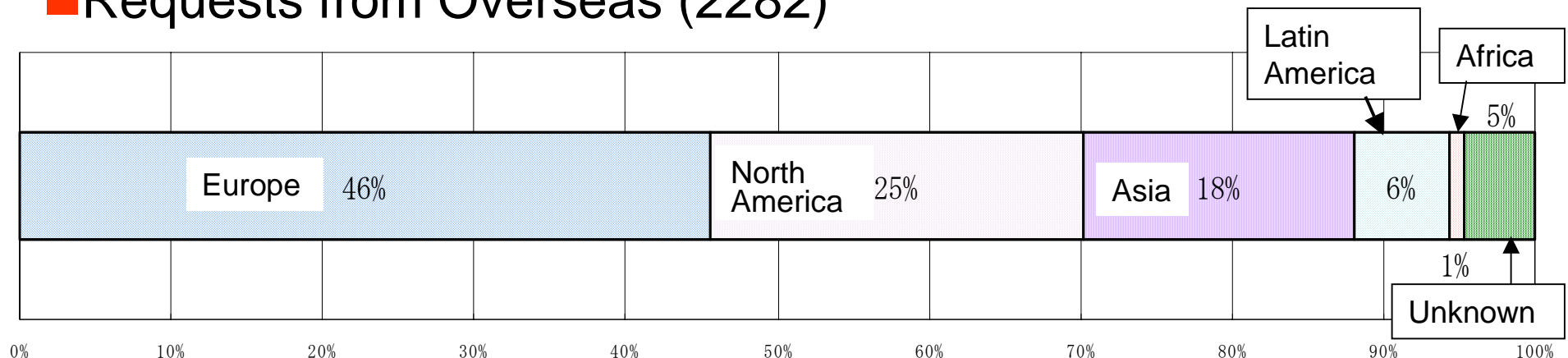


Toolnet6 Download Report (2)

- From August 1998 to August 2001
- Total Amount of Download Requests : 4373
 - Excludes Duplicate or Invalid Requests



■ Requests from Overseas (2282)



Toolnet6 Download Report (3)

■ Japan (1087)

■ Europe (1041)

- Strong Demand for IPv6 due to shortage of IP addresses and Wireless (2G/3G) networks

- *Italy (193)*
- *Germany (127)*
- *UK (121)*
- *France (101)*
- *Holland (76)*
- *Poland (63)*
- *Spain (49)*
- *Sweden (41)*
- *Finland (41)*
- *Slovenia (27)*

■ U.S. (488)

- Demand for IPv6 will increase as worldwide Carriers deploy IPv6 services

Conclusion

- HITACHI is actively involved with many IPv6 trials and has received very positive feedback
- HITACHI provides a wide range of hardware-based IPv6 products for new and emerging markets
 - GR2000 Gigabit Router series
 - Introduction of Gigabit Router “GR2000 B models”
 - First Enterprise router in its class to offer IPv4/IPv6 wire-speed performance
 - Access gateway “AG8000” series
- HITACHI continues to be the world leader in providing IPv6 offerings and network solutions

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Thank you!

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