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Broadband IPv6 Solutions from Hitachi

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VP Worldwide Sales & Marketing

Hitachi Internetworking

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Global IPv6 Summit

Madrid, May 2003

Full Array of Broadband IPv6 Products

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Full Array of Broadband IPv6 Products

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► Broadband Routers

Full Array of Broadband IPv6 Products

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- **Broadband Routers**
- **Broadband Access Servers**

Full Array of Broadband IPv6 Products

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- **Broadband Routers**
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- **Broadband Address Translators**

Full Array of Broadband IPv6 Products

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- **Broadband Routers**
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- **Broadband Address Translators**
- **Broadband Network Management**

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Hitachi Broadband Routers

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Hitachi Broadband Routers

GR2000

Comprehensive Product Family

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Comprehensive Product Family

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► 8 * Platforms

- ❑ 1 * Common Architecture, 1 * Operating System

Comprehensive Product Family

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- **8 * Platforms**
  - 1 * Common Architecture, 1 * Operating System
- **High Speed Hardware Processing**
  - IPv4/v6 Routing, QoS Control, Filtering, Multicast, MPLS, VPN, IP Sec

Comprehensive Product Family

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- **Failure-Proof Architecture**
  - High reliability components, Resilience, Redundancy.

Comprehensive Product Family

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► 8 * Platforms

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► High Speed Hardware Processing

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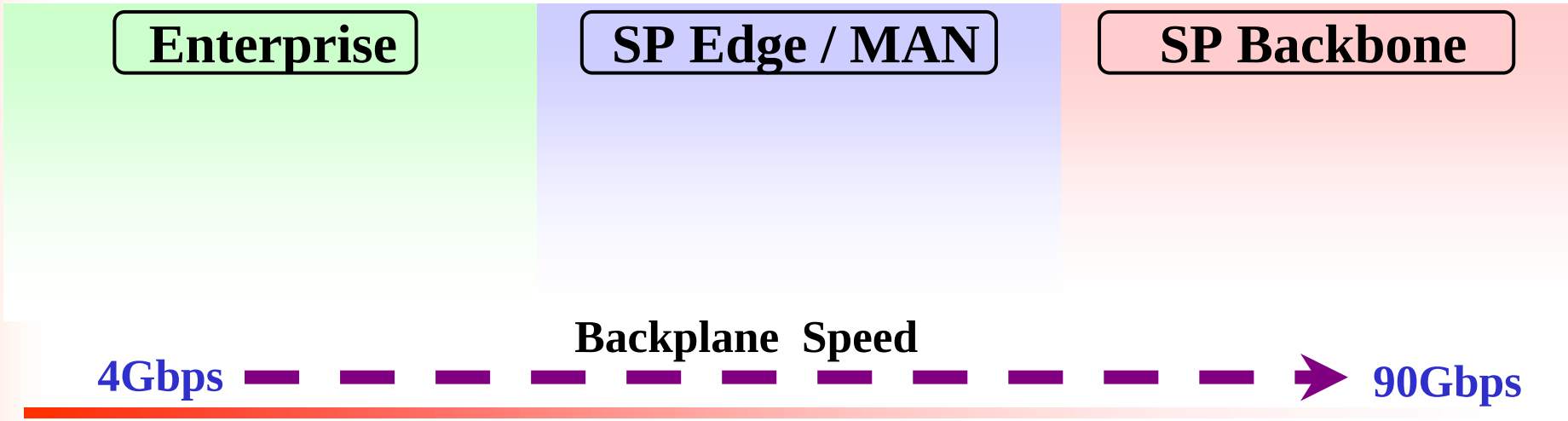

Starting a Commercial IPv6 Service

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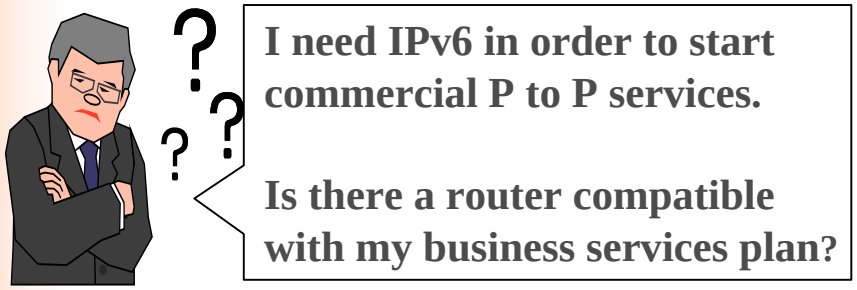

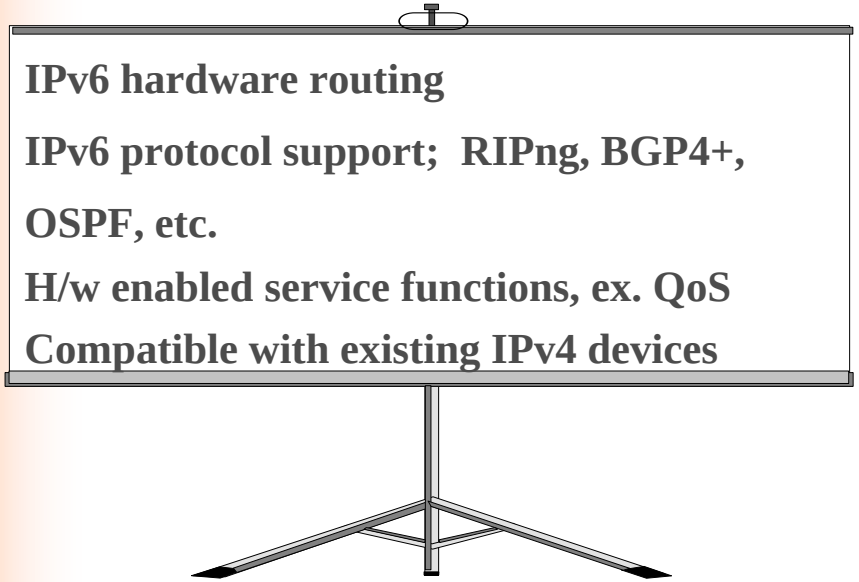

Starting a Commercial IPv6 Service

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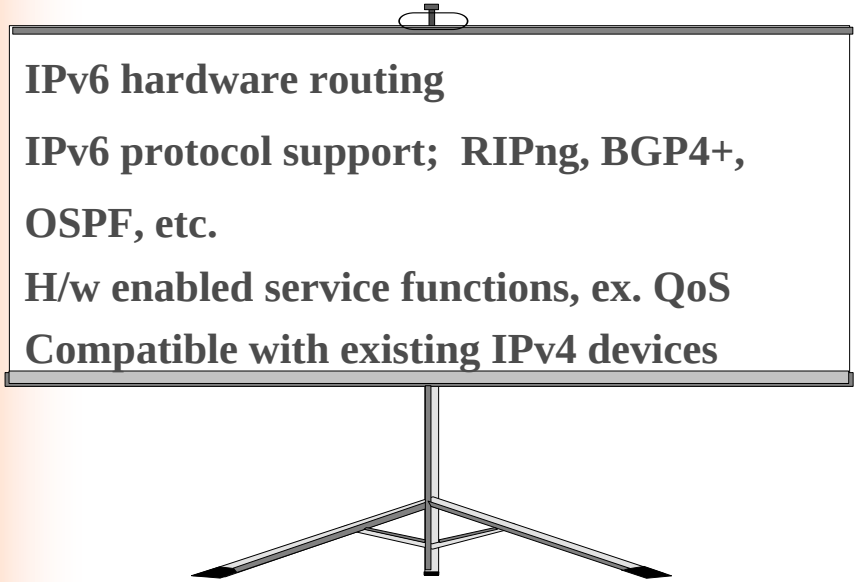
I need IPv6 in order to start commercial P to P services.

Is there a router compatible with my business services plan?

Using Hitachi's GR2000-B



Starting a Commercial IPv6 Service

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I need IPv6 in order to start commercial P to P services.

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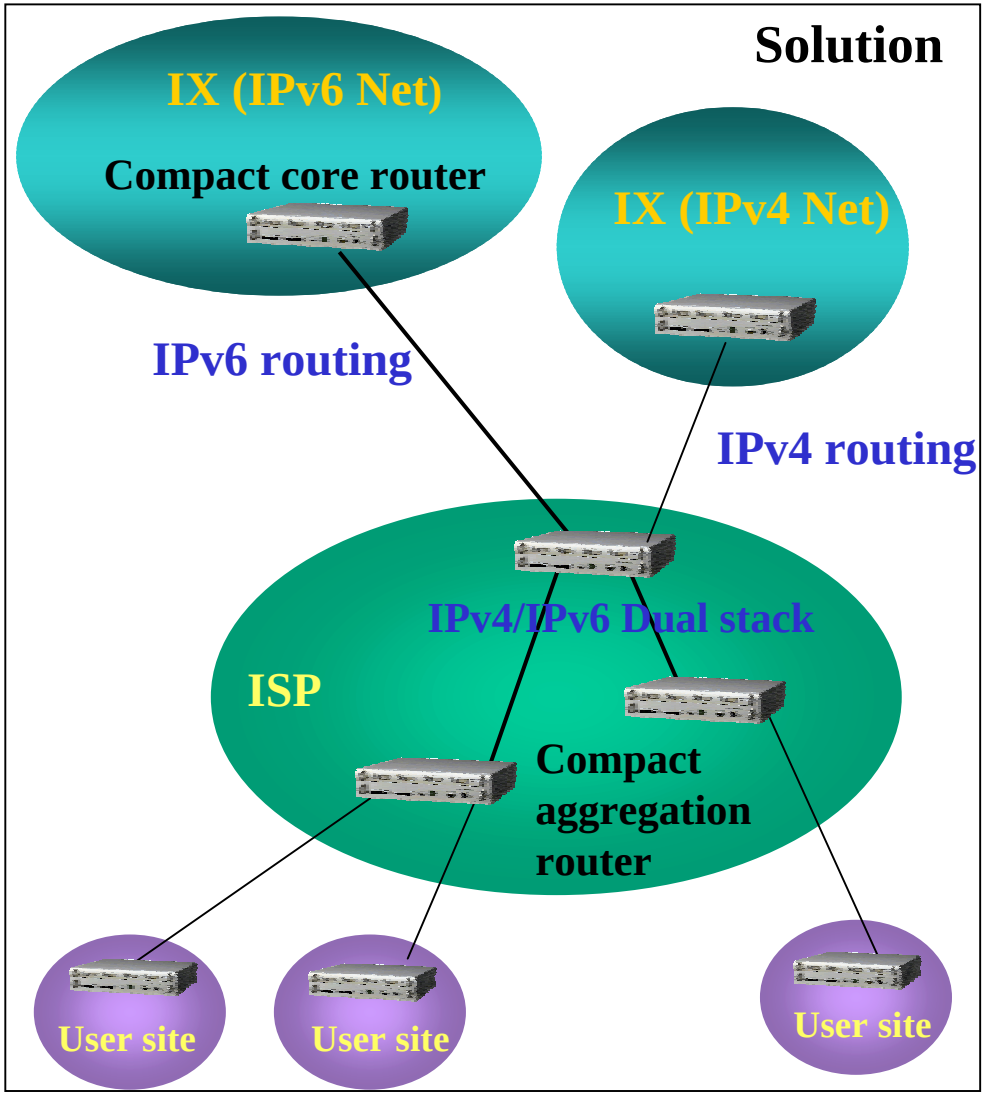
Using Hitachi's GR2000-B

- IPv6 hardware routing
- IPv6 protocol support; RIPng, BGP4+, OSPF, etc.
- H/w enabled service functions, ex. QoS
- Compatible with existing IPv4 devices



Details of the Network Configuration

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IPv4/IPv6 dual stack
IPv6 hardware routing
BGP4+, OSPF

GE & 155 Mbps ATM
in a single compact device

Bandwidth control using
virtual leased lines(256VLL)

Details of the Network Configuration

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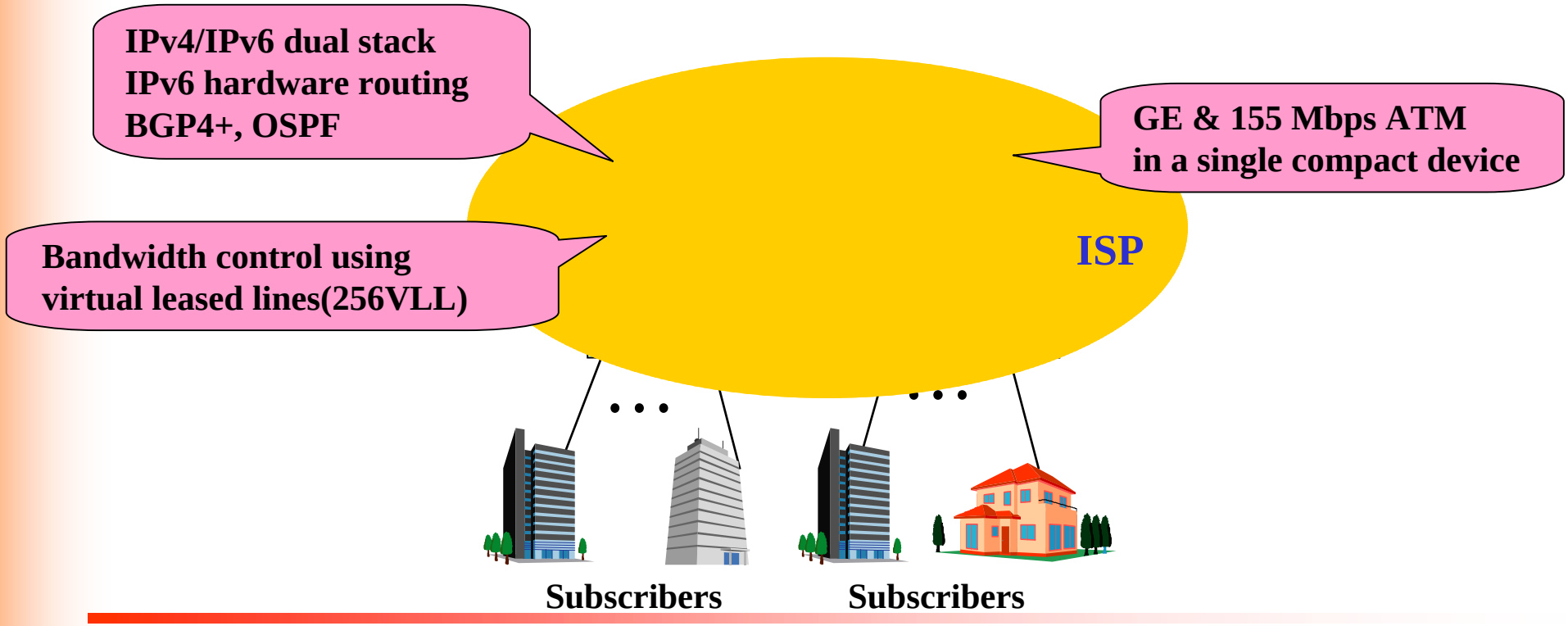

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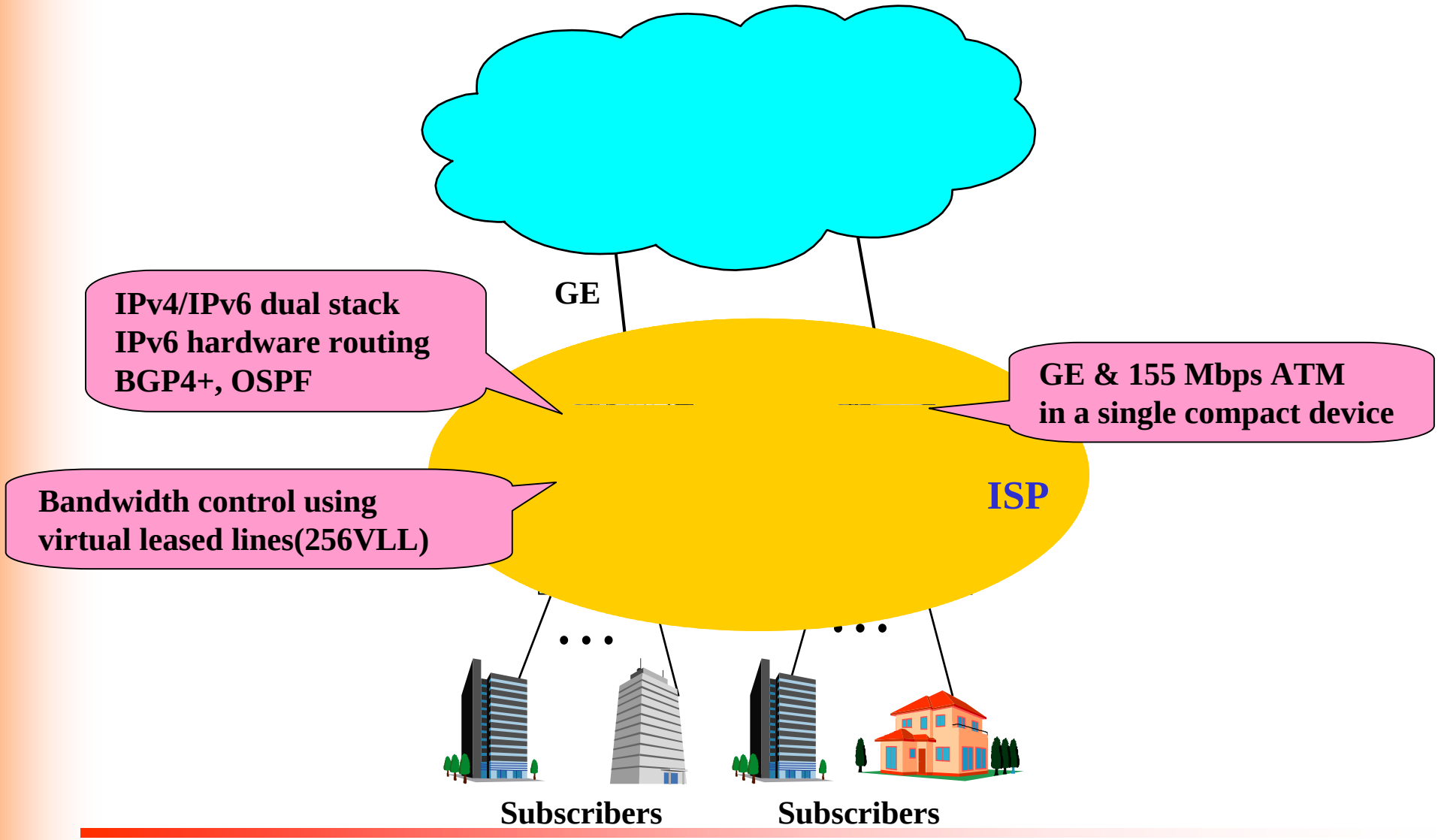

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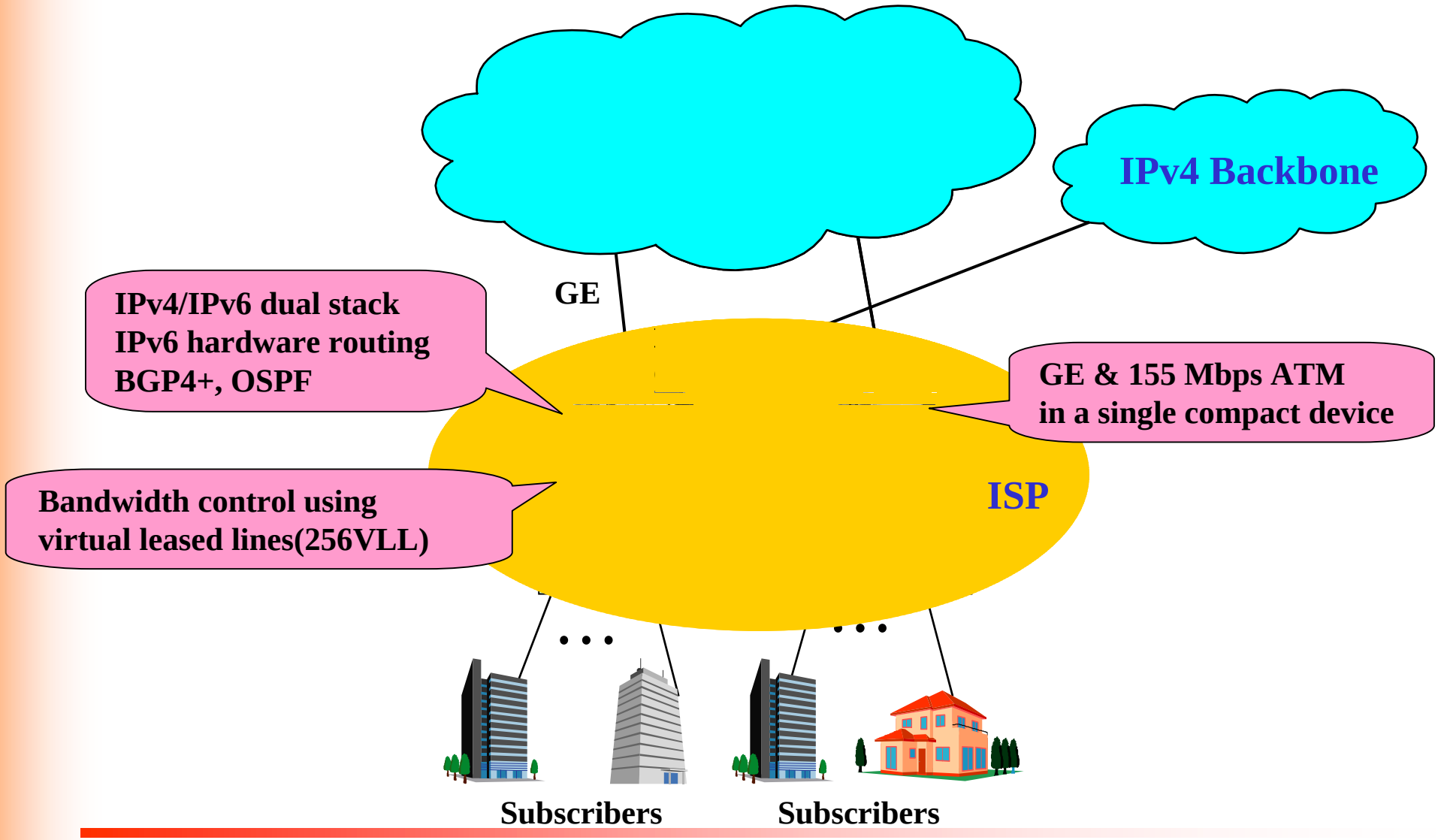

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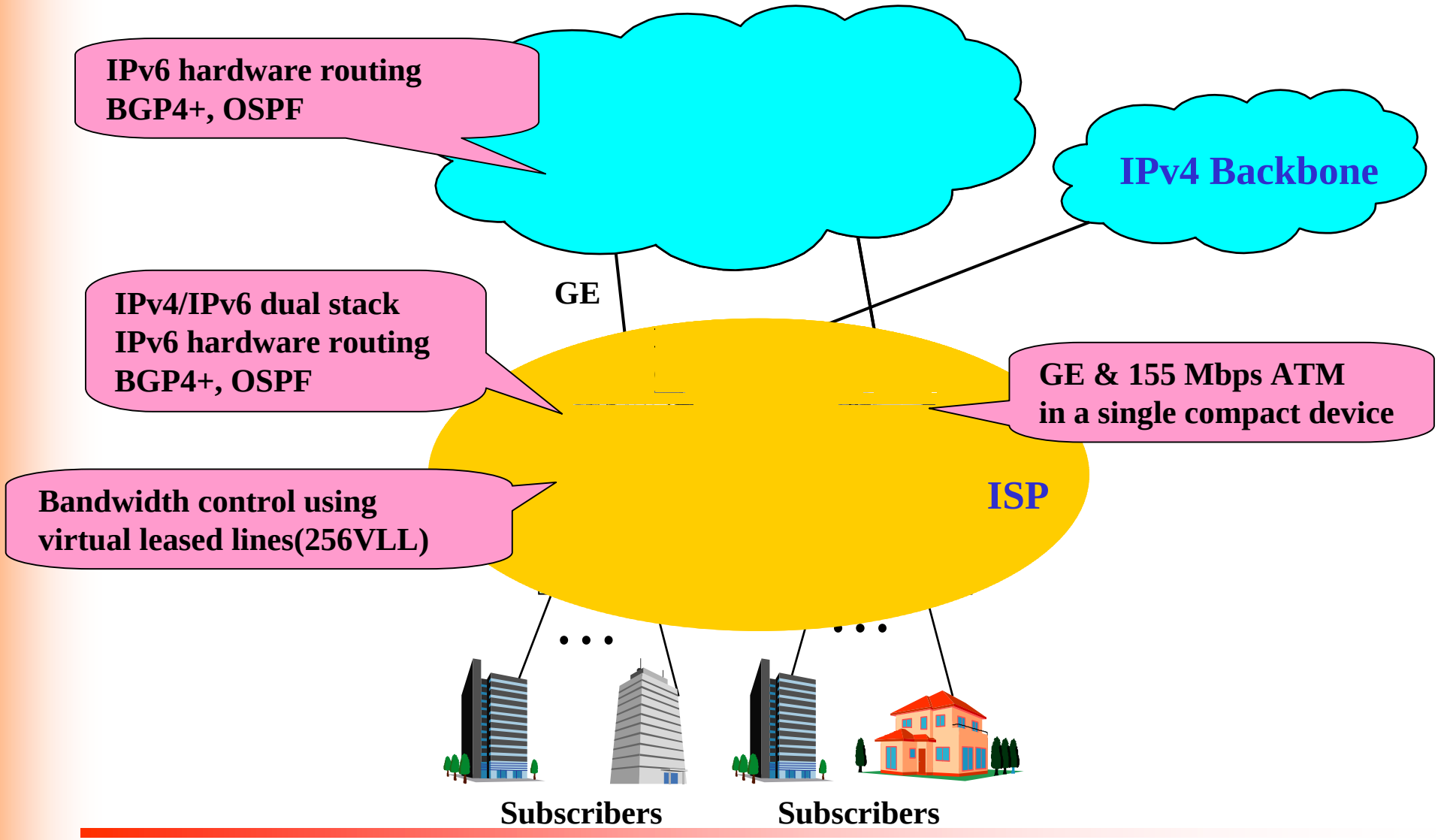

Commercial Deployment (Europe)

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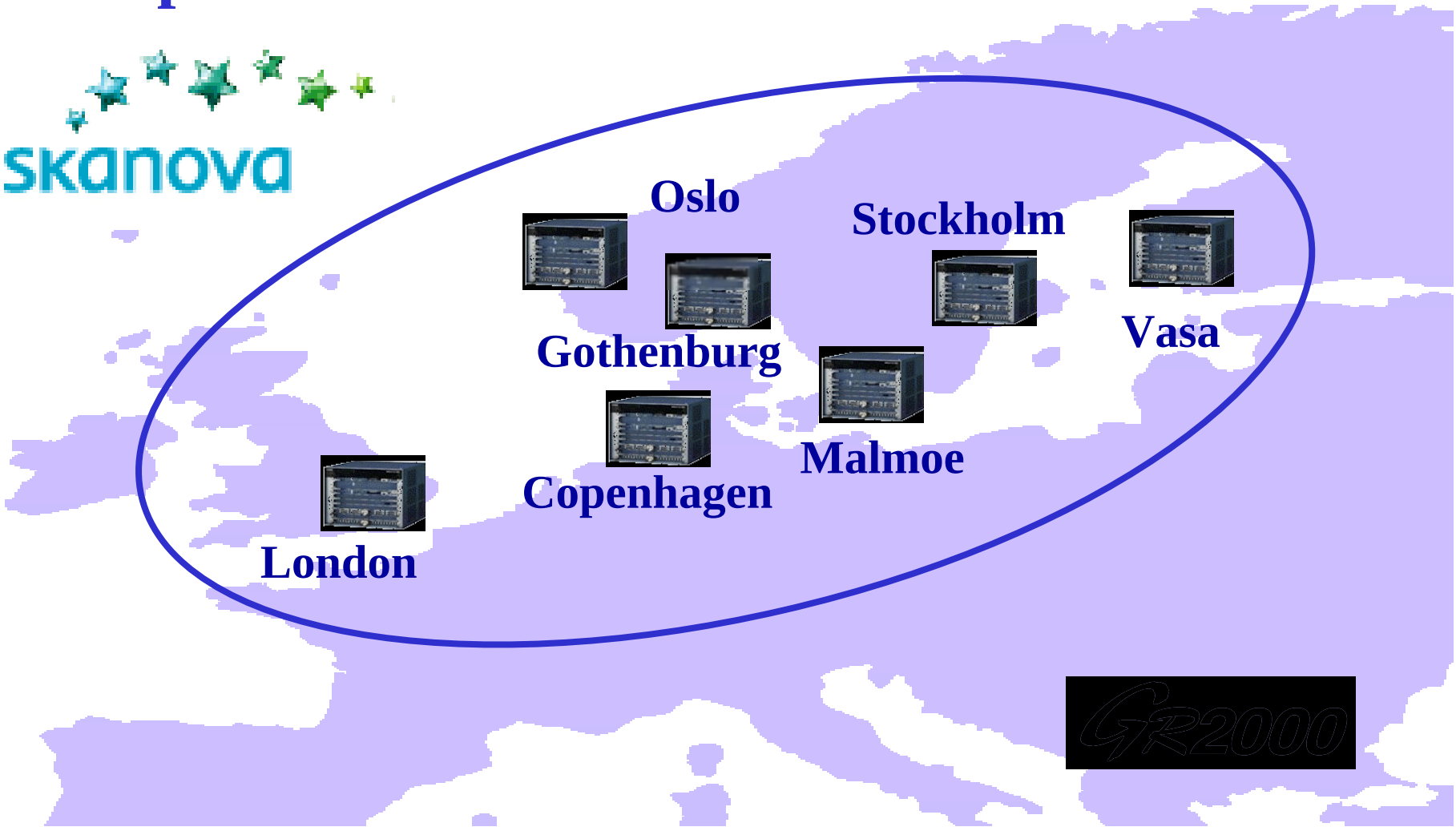
► 1St Operational Euro IPv6 Network Nov. 2001



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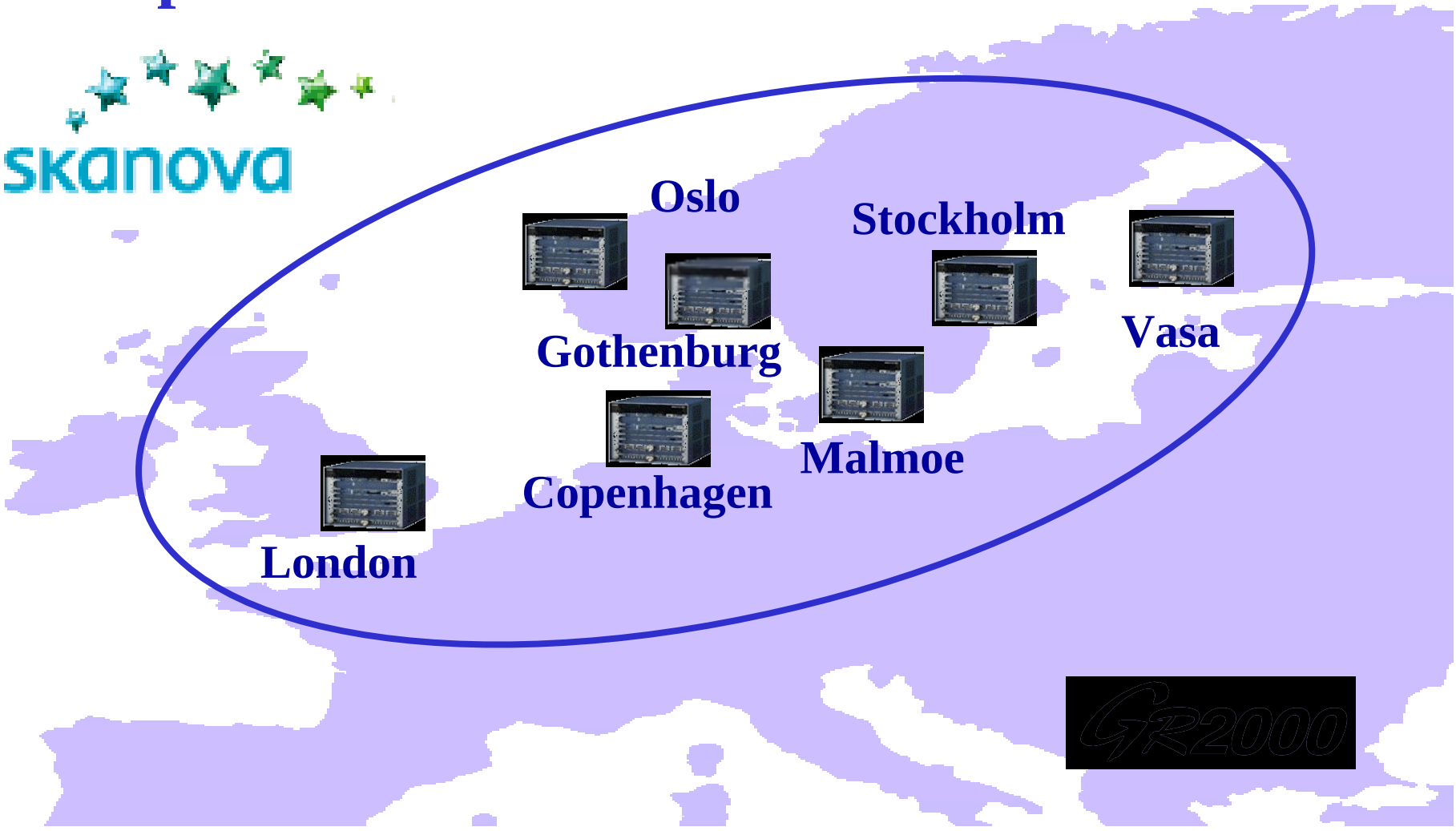

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Hitachi Broadband Access Servers

AG8100-B

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Hitachi Broadband Access Servers

AG8100-B

AG8100 BRAS Functional Overview

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AG8100 BRAS Functional Overview

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► Connect to Physical Layer Termination Devices

- ❑ DSLAM (ADSL), CMTS (CATV), etc.

AG8100 BRAS Functional Overview

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- **Connect to Physical Layer Termination Devices**
  - DSLAM (ADSL), CMTS (CATV), etc.
- **Customer Management**
  - Access request reception, Authentication, IP address assignment, Connection to ISP

AG8100 BRAS Functional Overview

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► Connect to Physical Layer Termination Devices

- ❑ DSLAM (ADSL), CMTS (CATV), etc.

► Customer Management

- ❑ Access request reception, Authentication, IP address assignment, Connection to ISP

► Traffic Management

- ❑ Aggregation, Routing, Tunneling, and Quality Control
- ❑ PPP Sessions = 16,384
- ❑ L2TP Tunnels = 1,024
- ❑ 802.1Q VLANs = 4,096 / Port
- ❑ VP / VC = 126 / 4094 per System

AG8100 BAS Features Overview

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AG8100 BAS Features Overview

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► High Performance

- ❑ 4Gbps (L2TP=2Gbps) - optimises bandwidth utilisation
- ❑ Dual Stack, State-of-the-art technology

AG8100 BAS Features Overview

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► High Performance

- ❑ 4Gbps (L2TP=2Gbps) - optimises bandwidth utilisation
- ❑ Dual Stack, State-of-the-art technology

► Speed & flexibility using Network Processors

- ❑ Two models,
  - Type 1: 16 * FE (T/TX) + 6 * GE (SX/LX)
  - Type 2: 16 * FE (T/TX) + 4 * GE (SX/LX) + 2 * ATM (OC-3)
- ❑ Compact size (2U)
- ❑ Industry standard CLI (Command Line Interface)

AG8100 BAS Features Overview

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- ❑ Compact size (2U)
- ❑ Industry standard CLI (Command Line Interface)

► Adv. capabilities for Content Delivery and VoIP

- ❑ IPv6 PPP for IPv6, DHCPv6 PD
- ❑ L2TP server redirect function for content delivery services

Commercial Deployment (Major Japanese Broadband Service Provider)

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Commercial Deployment (Major Japanese Broadband Service Provider)

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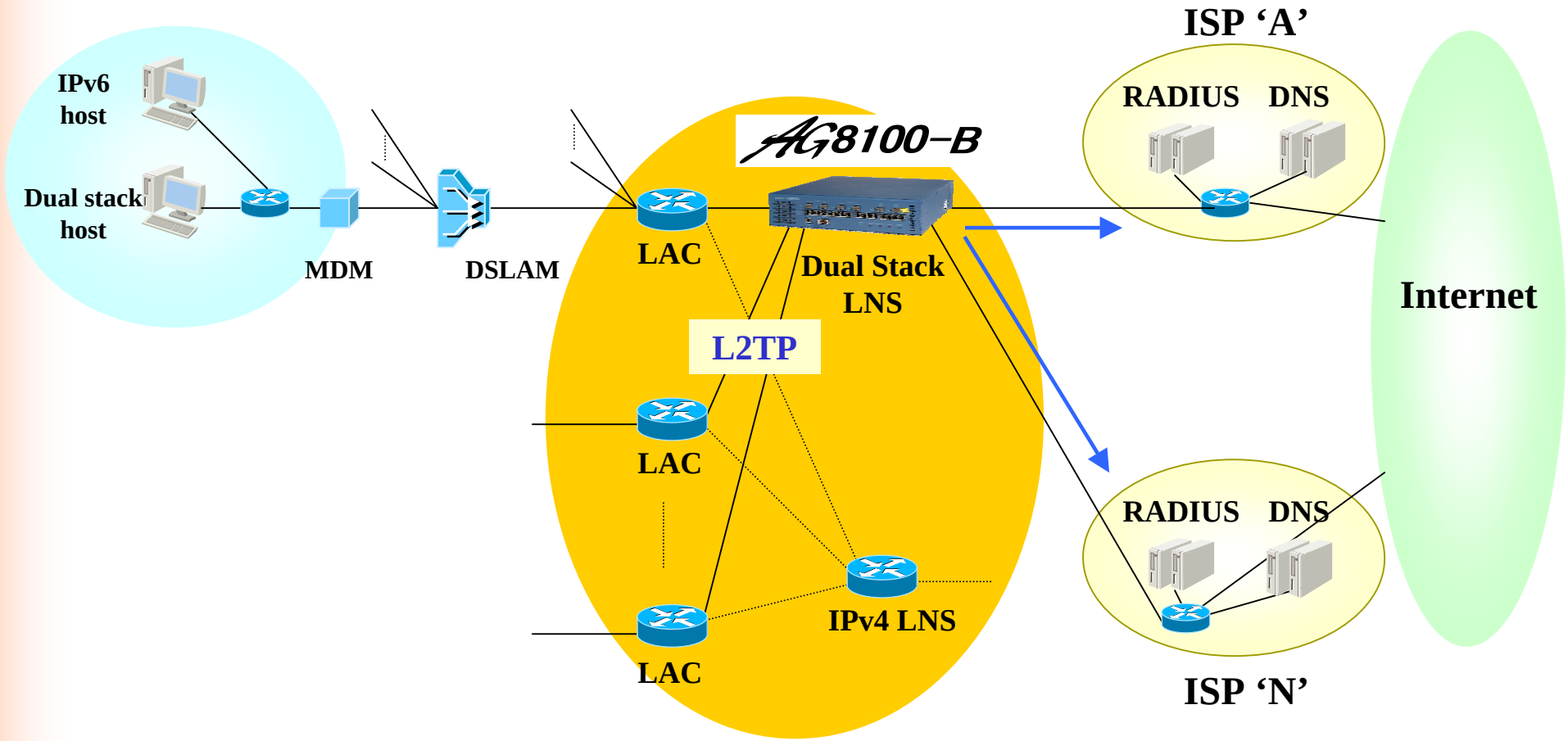

Commercial Deployment (Major Japanese Broadband Service Provider)

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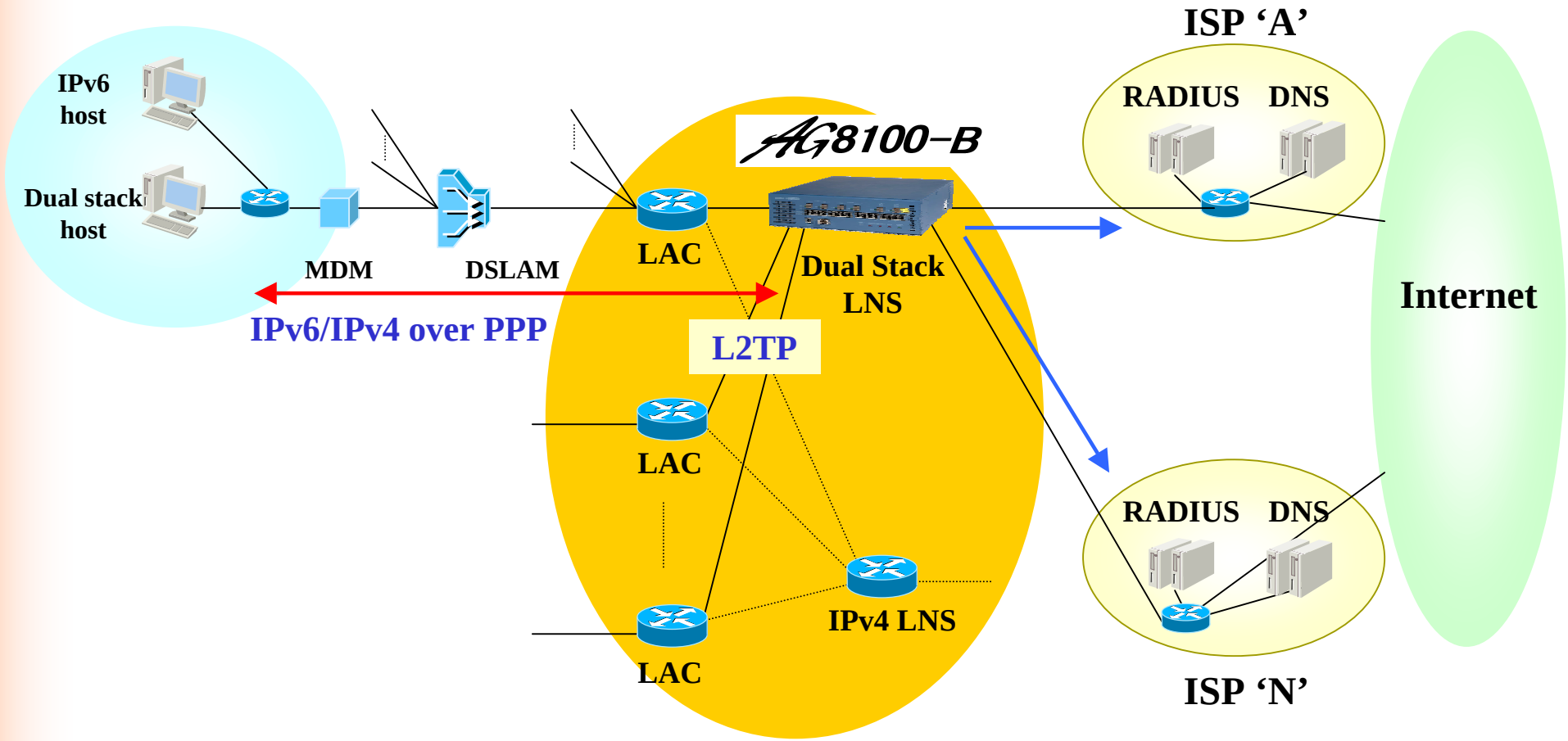

Commercial Deployment (Major Japanese Broadband Service Provider)

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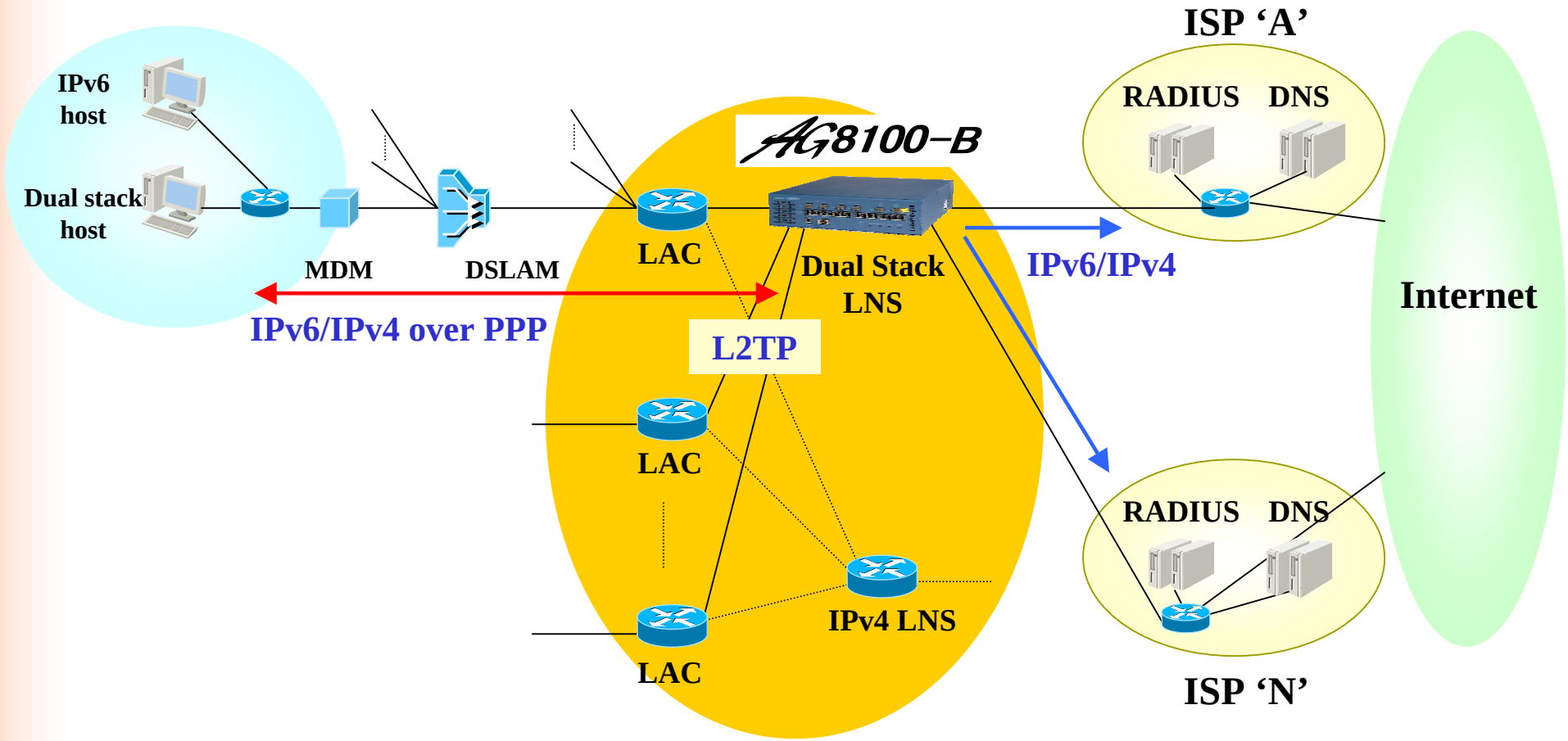

Customer Premise | Existing IPv4 access network | ISP network | Internet

Commercial Deployment (Major Japanese Broadband Service Provider)

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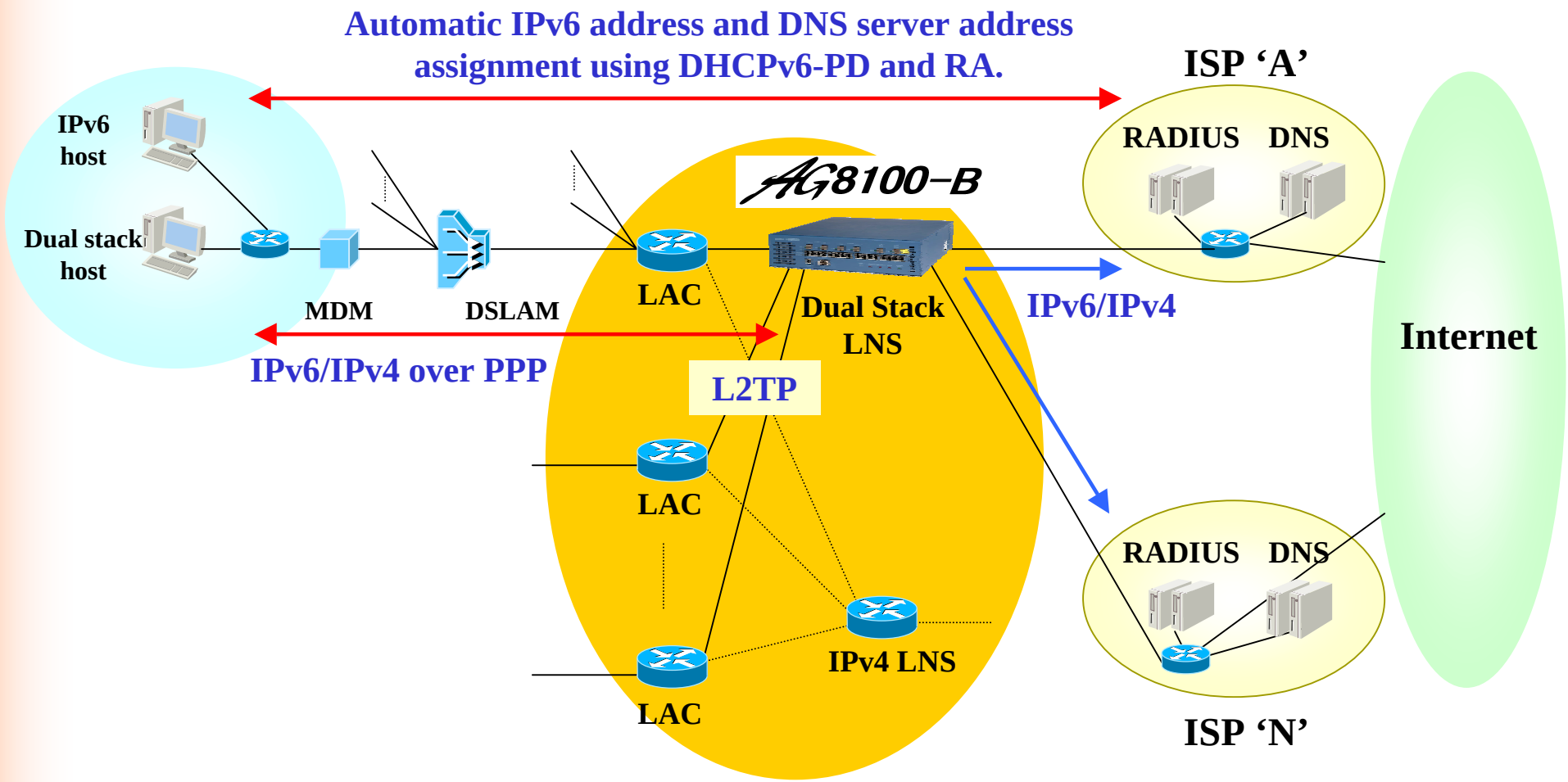

Commercial Deployment (Major Japanese Broadband Service Provider)

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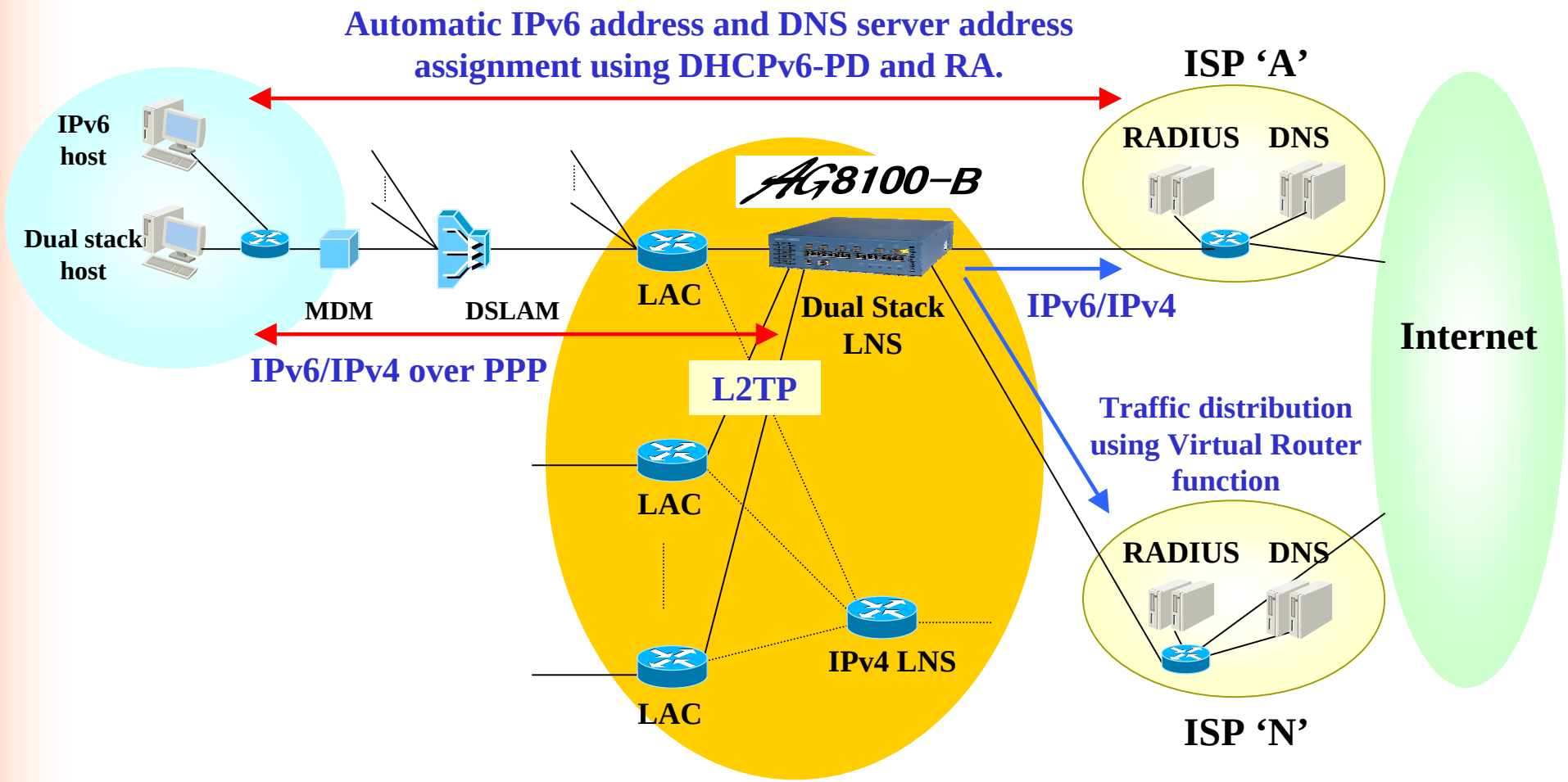

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Hitachi Broadband Address Translator

AG8100-T

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Hitachi Broadband Address Translator

AG8100-T

Address Translator Features

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Address Translator Features

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►IPv4/v6 bi-directional Address Translation

Address Translator Features

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- IPv4/v6 bi-directional Address Translation
- Address Translation for IPv4 Private Nets

Address Translator Features

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- **IPv4/v6 bi-directional Address Translation**
- **Address Translation for IPv4 Private Nets**
- **Address Resolution & Load Balancing via DNS**
  - Relaying of DNS query from v4 side to v6 side (& vice versa).
  - Auto generation of address translation entries
  - Auto allocation of addresses to different translators using DNS

Address Translator Features

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▶IPv4/v6 bi-directional Address Translation

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▶Address Resolution & Load Balancing via DNS

- ❑Relaying of DNS query from v4 side to v6 side (& vice versa).
- ❑Auto generation of address translation entries
- ❑Auto allocation of addresses to different translators using DNS

▶High speed Performance

- ❑ Based on Network Processor Architecture
- ❑ 2Gb/s throughput
- ❑ 16,384 Address translation entries
- ❑ < 128 VPNs (Virtual Translators)

Deployment Scenario #1

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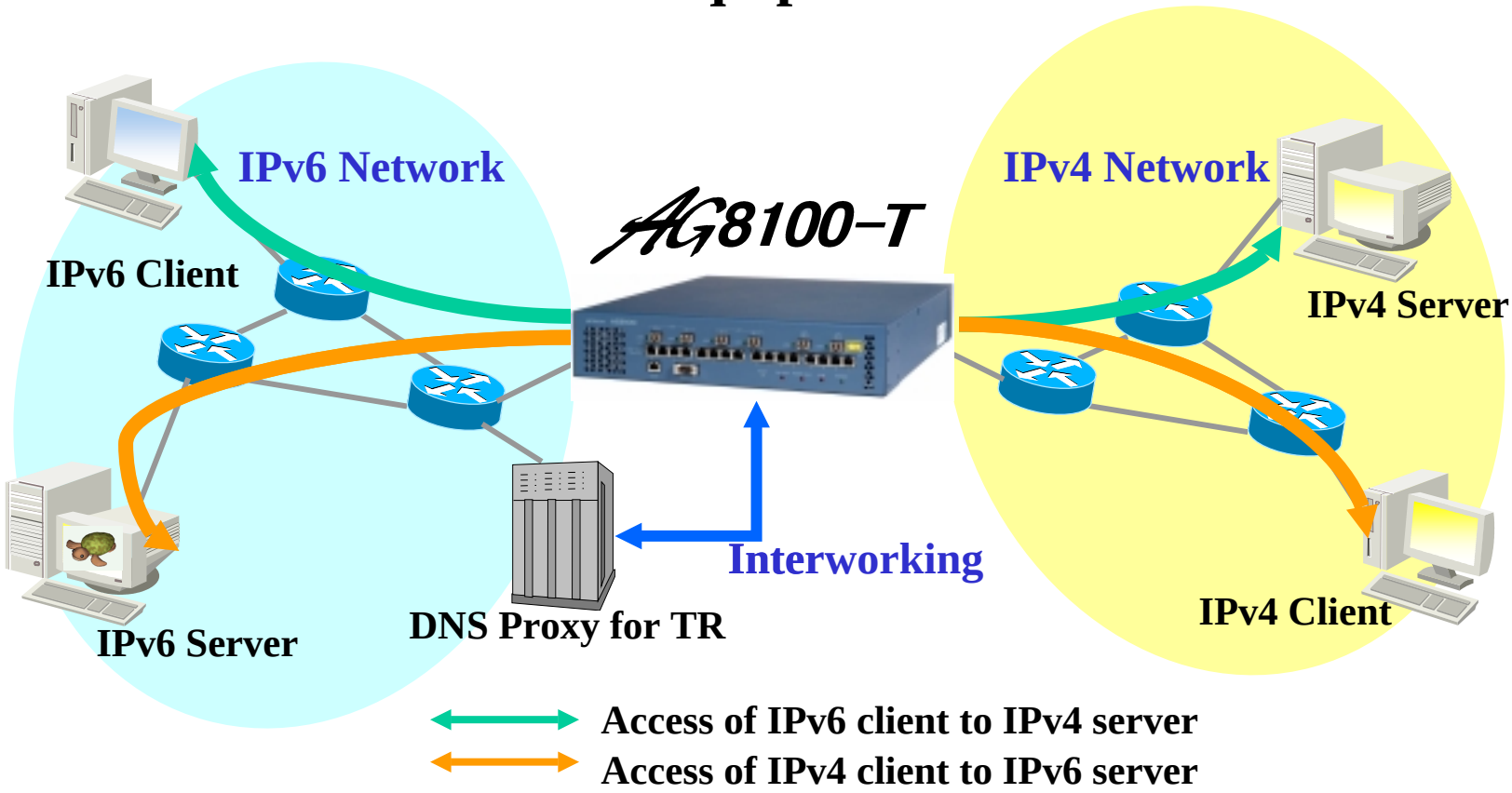
❑ Maintain access to IPv4 equipment from IPv6 network



Deployment Scenario #1

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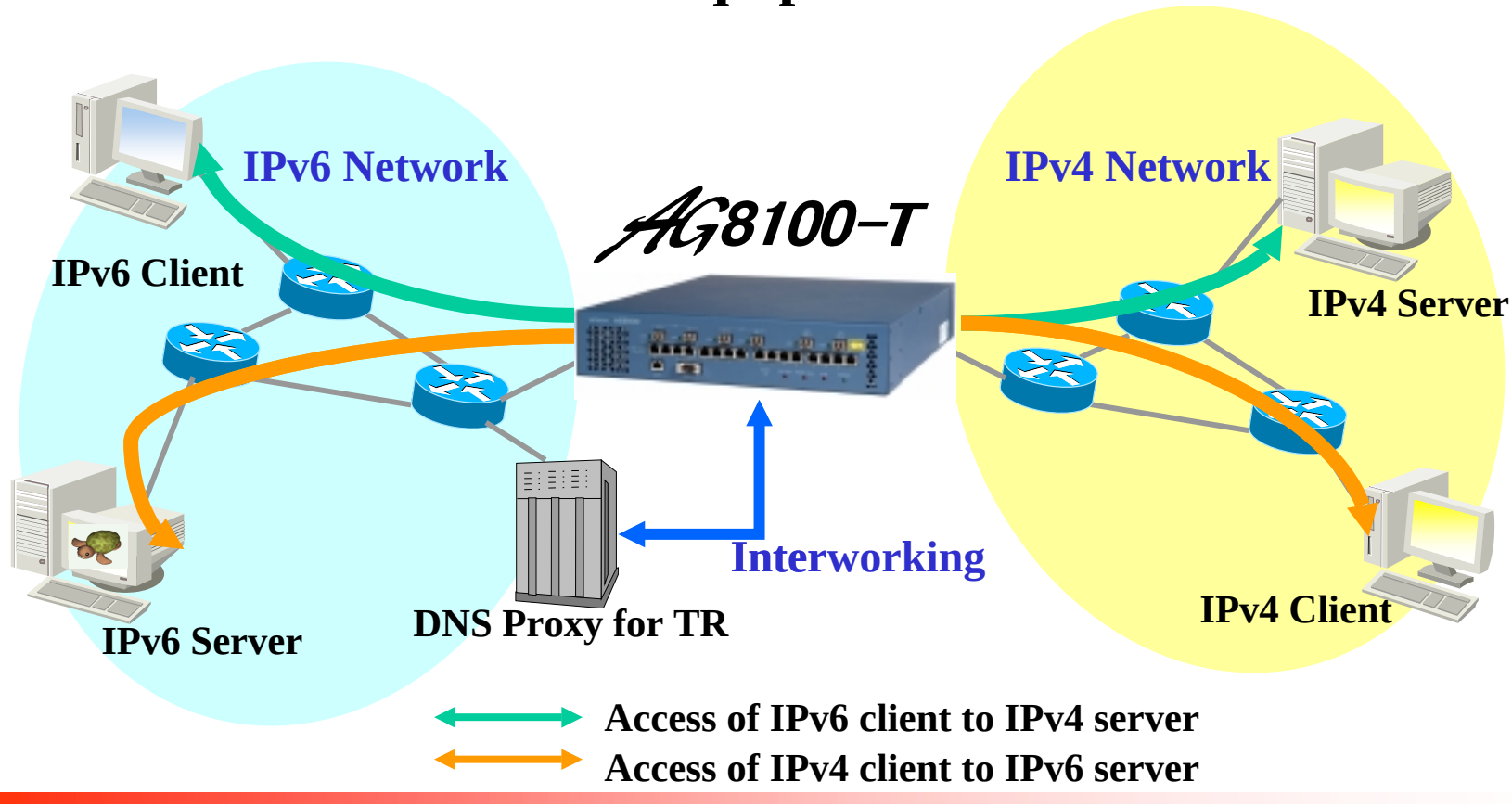
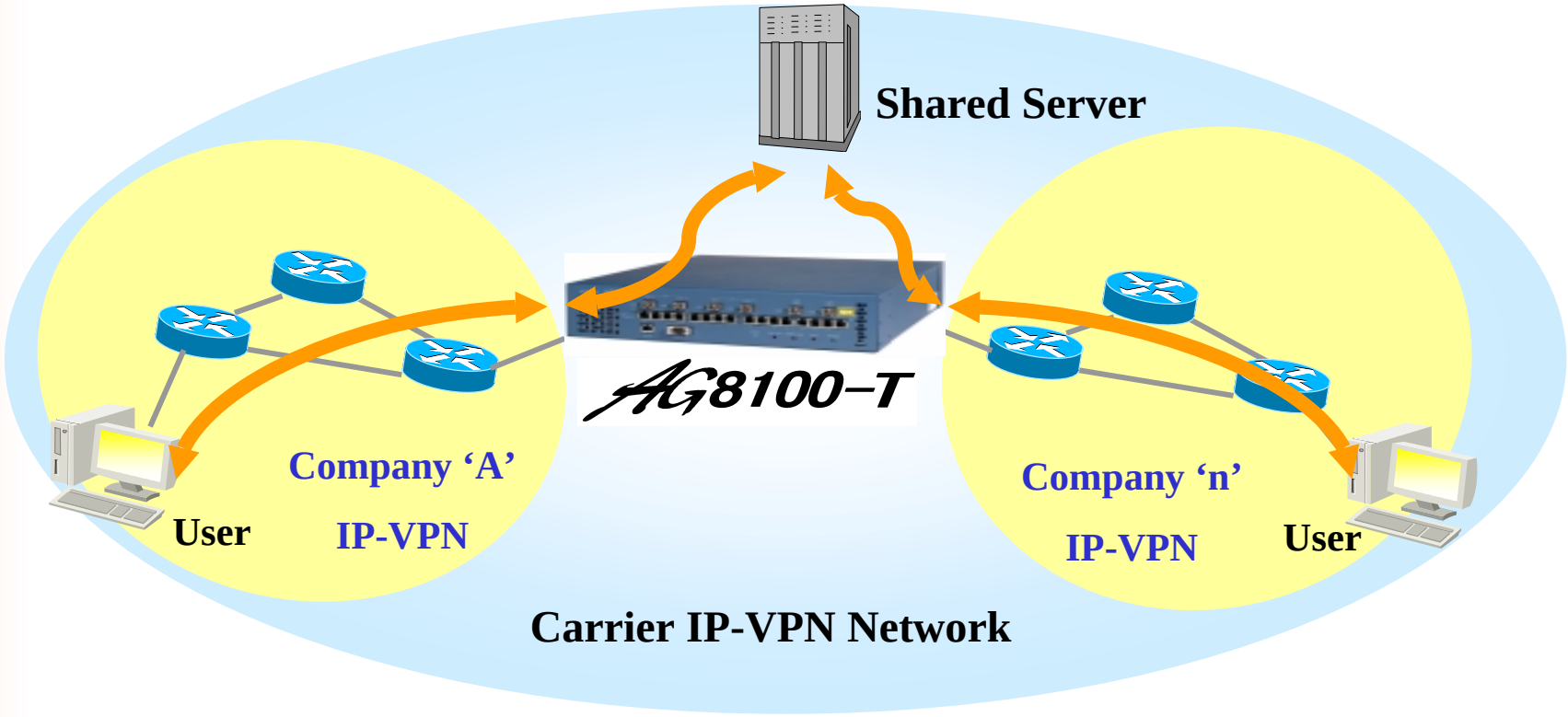
▶Connect existing IPv4 devices to IPv6 network

- ❑ Enable smooth migration to IPv6 environment
- ❑ Maintain access to IPv4 equipment from IPv6 network



Deployment Scenario #2



Deployment Scenario #2

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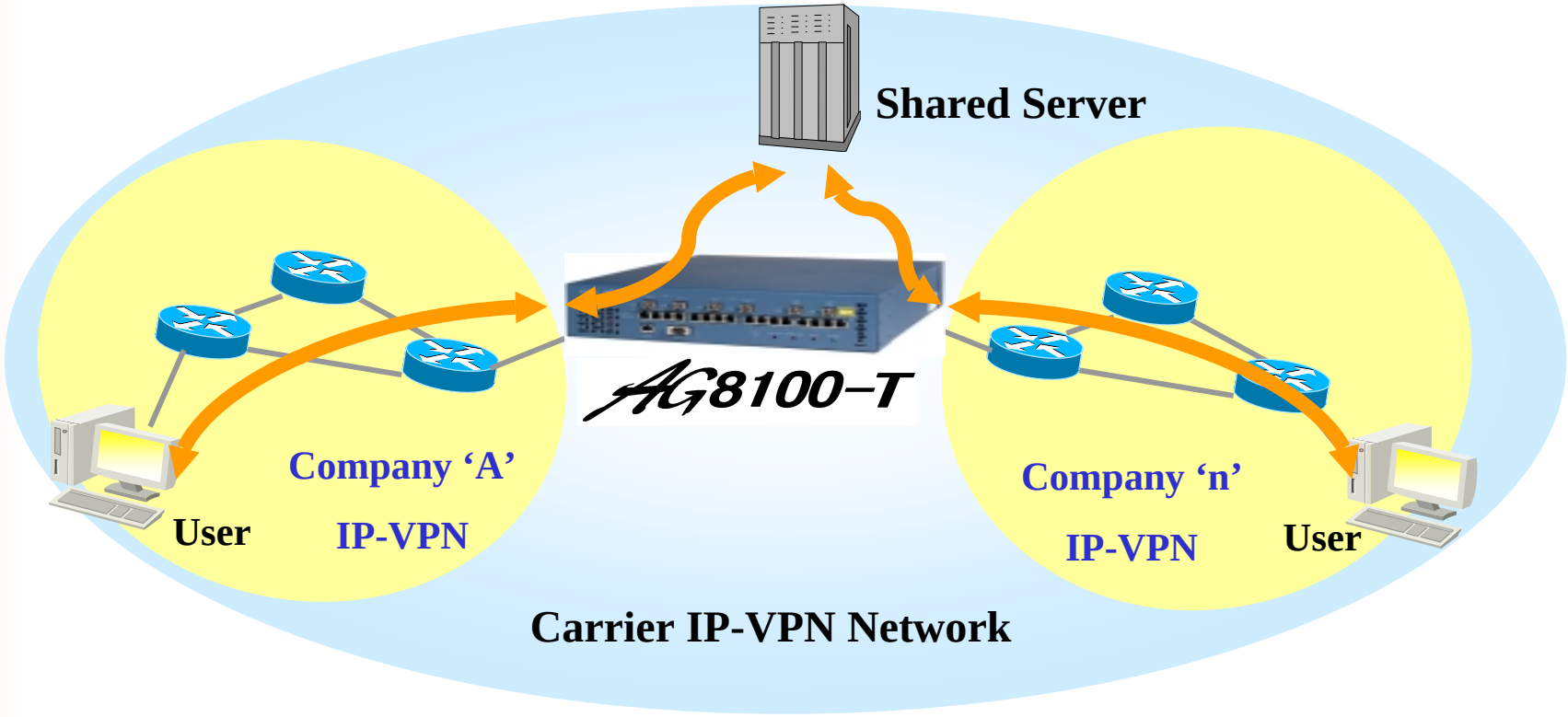
► Address Translation between multiple IP-VPNs



Deployment Scenario #2

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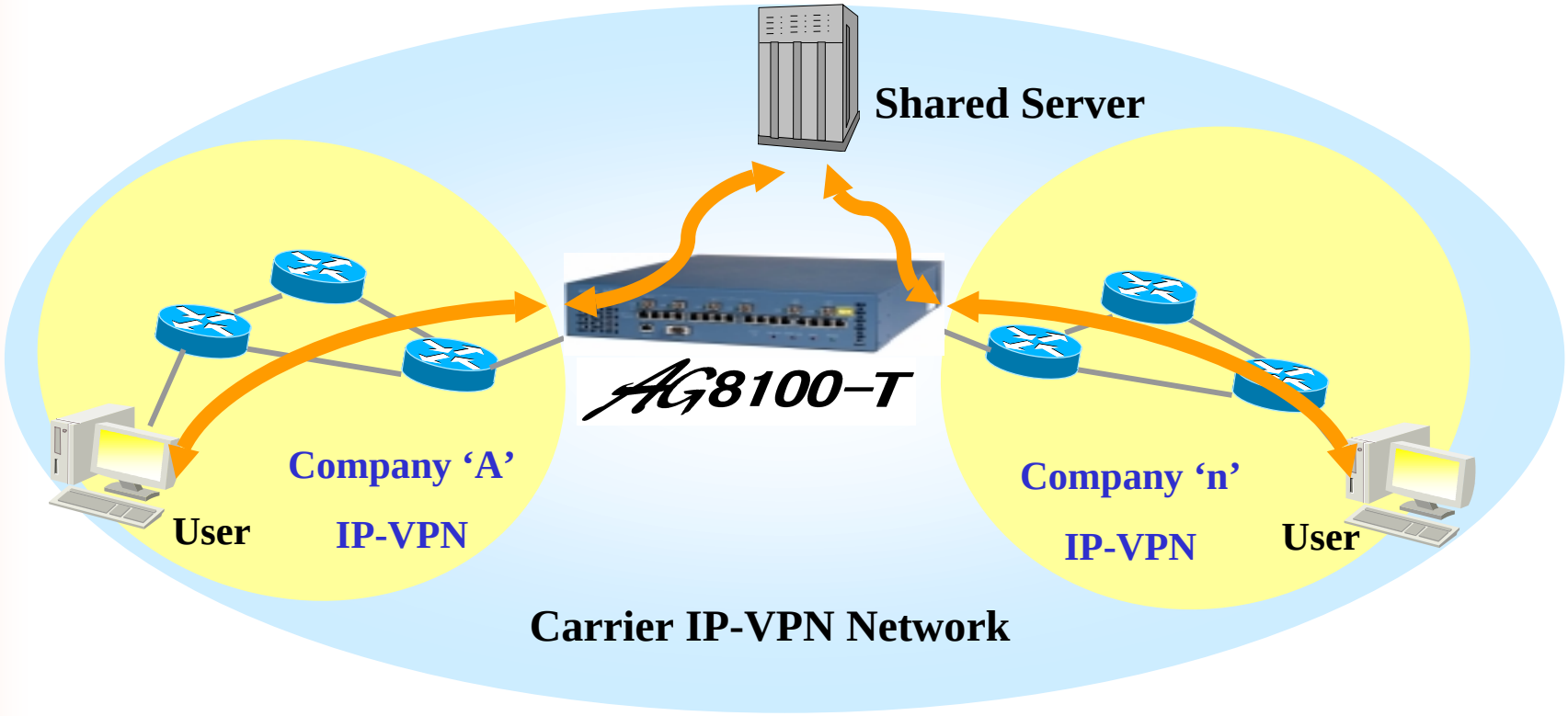
- Address Translation between multiple IP-VPNs
- Access shared resources from multiple IP-VPNs



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Hitachi Broadband Network Management

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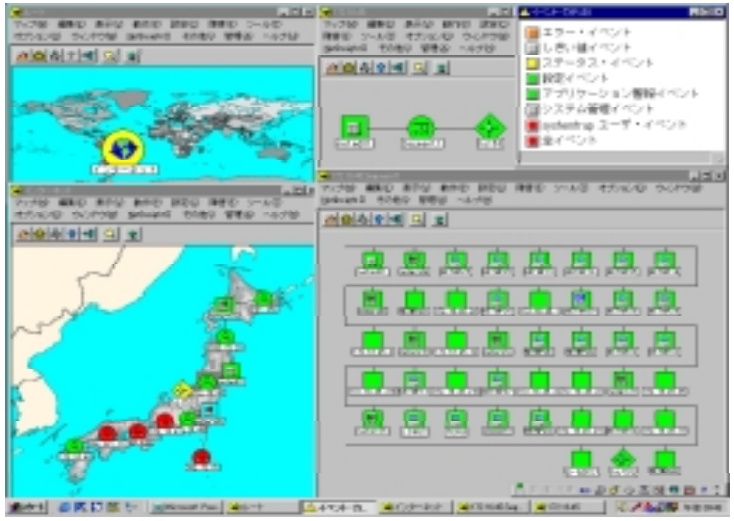

JP1 VERSION 6i

Infrastructure Management

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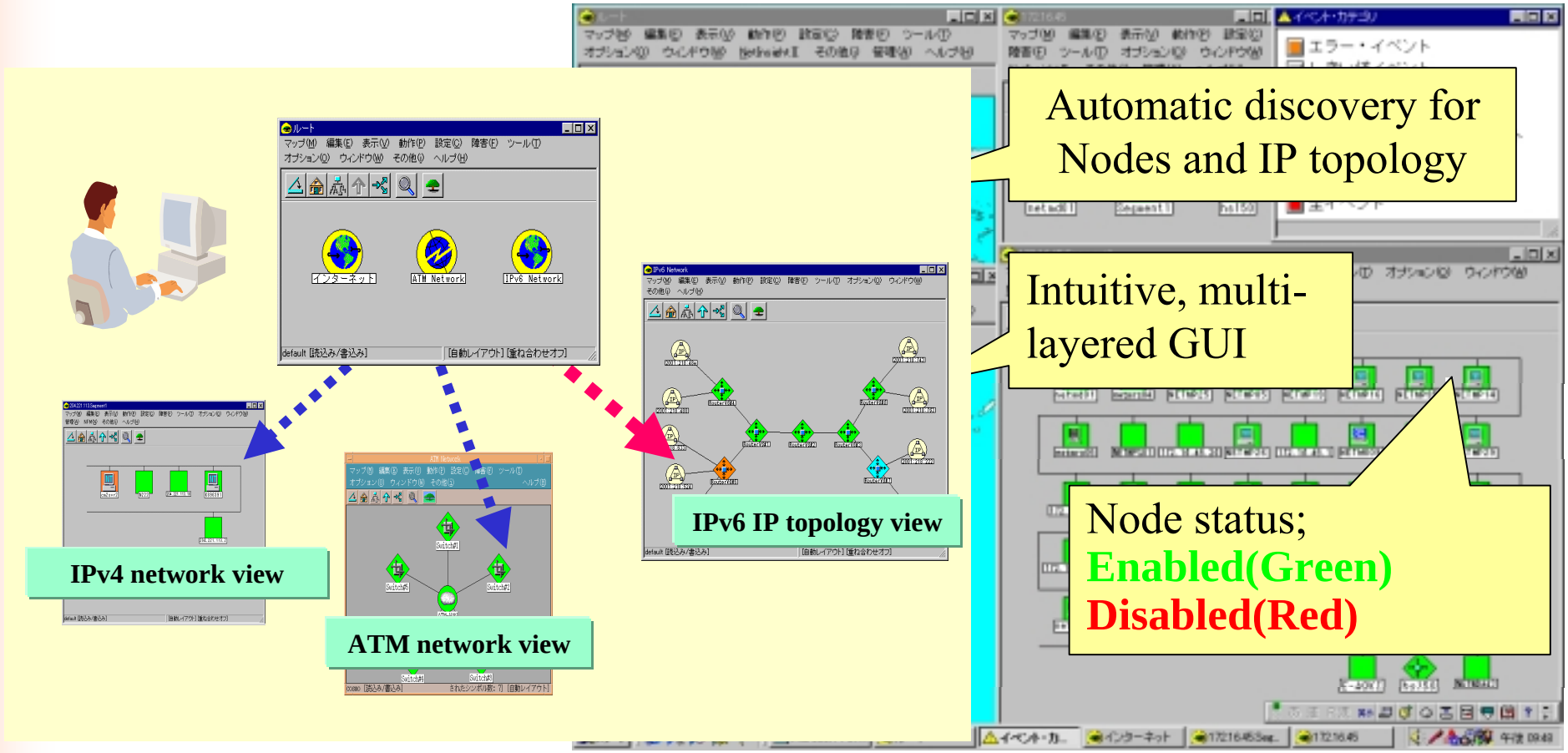

Infrastructure Management

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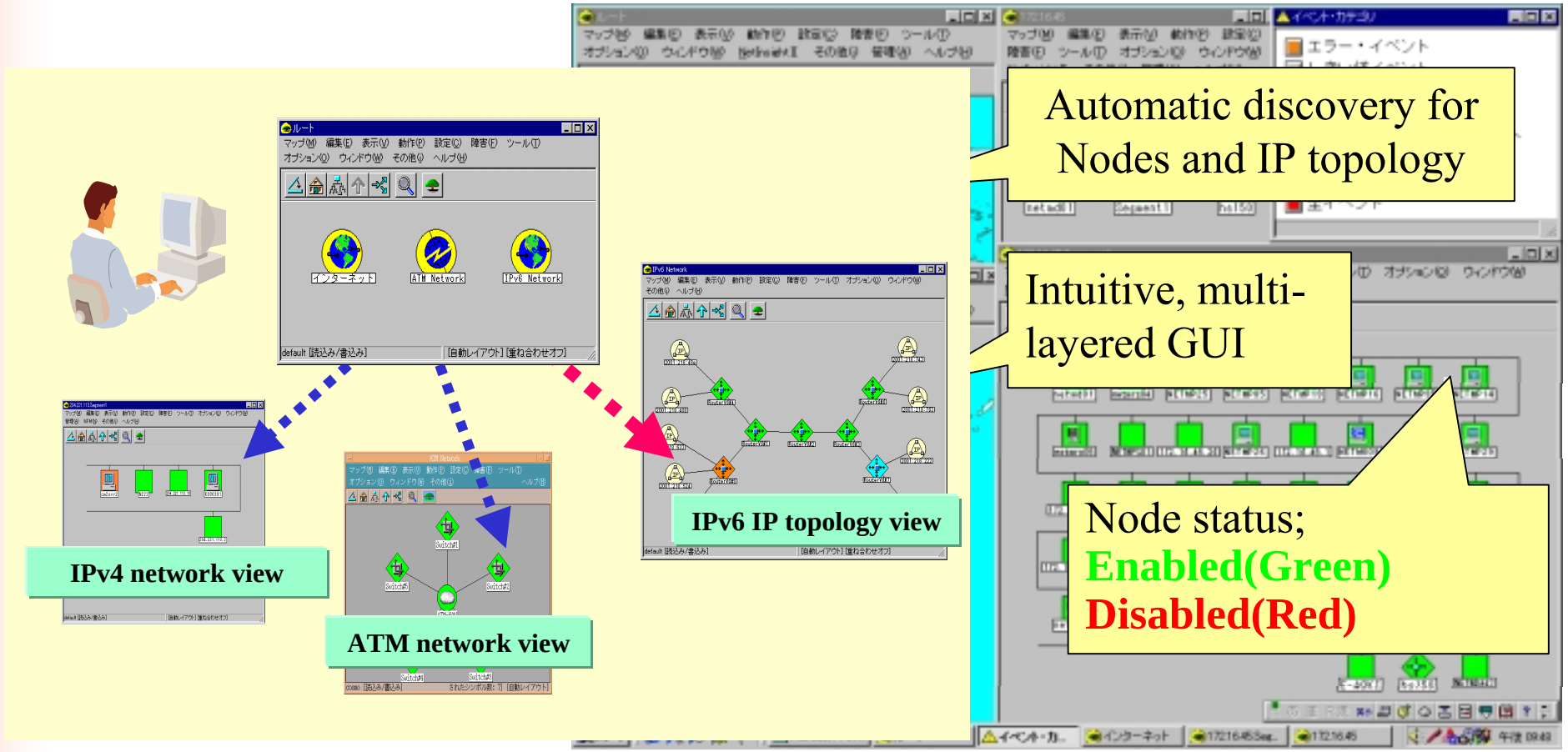
►Network device and network link management



Infrastructure Management

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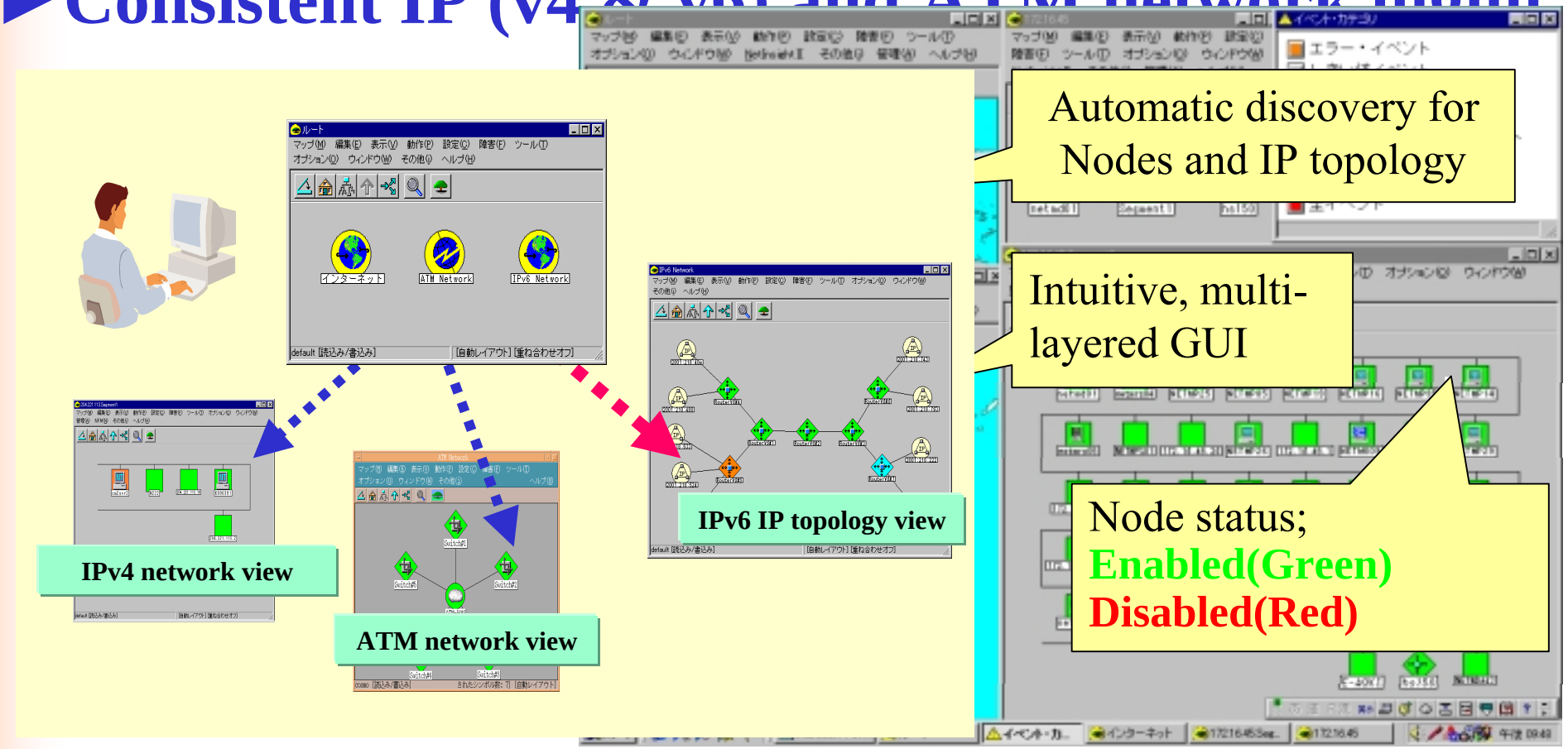
- Network device and network link management
- Consistent IP (v4 & v6) and ATM network mgmt



Element Management

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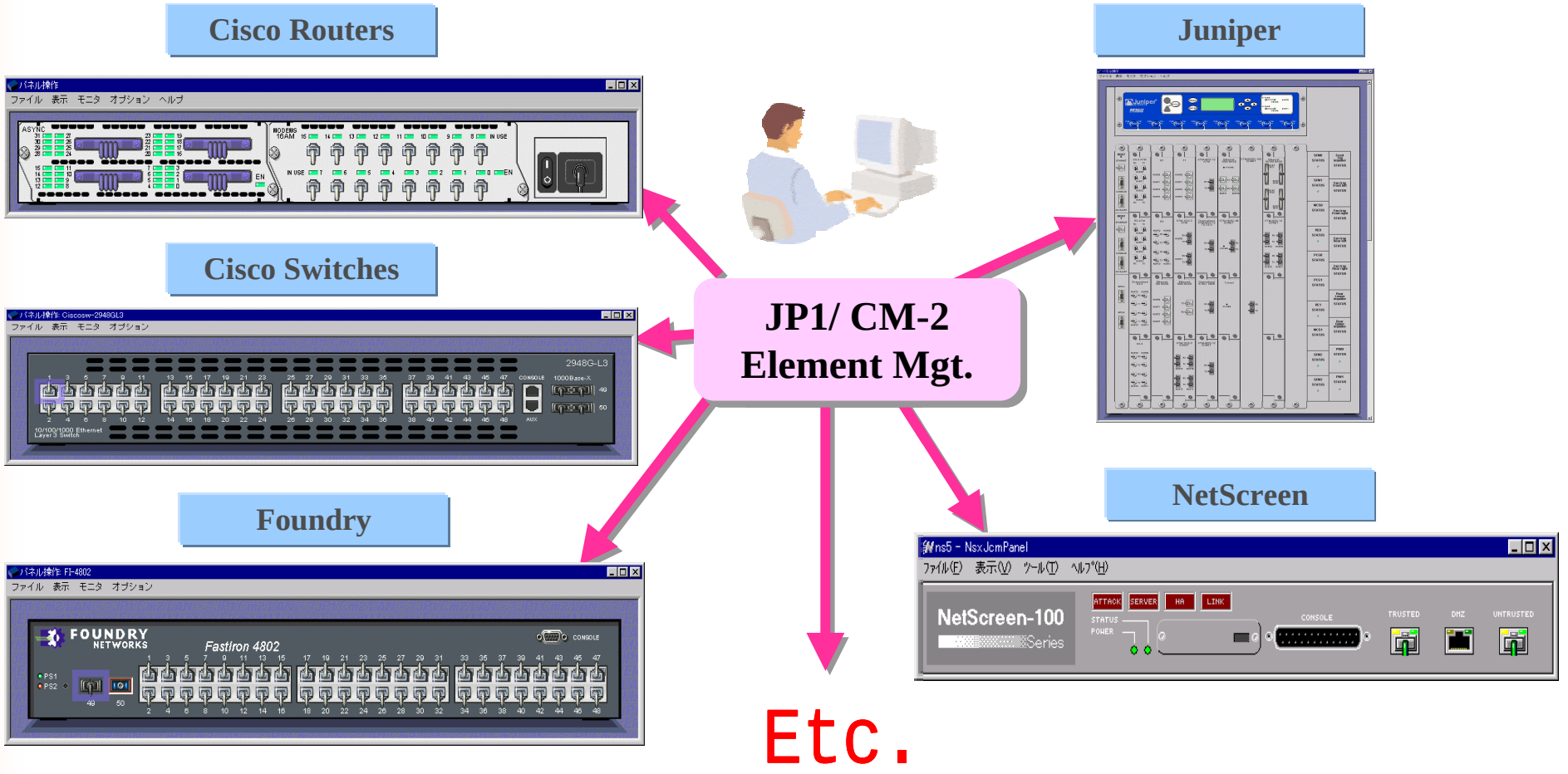

Element Management

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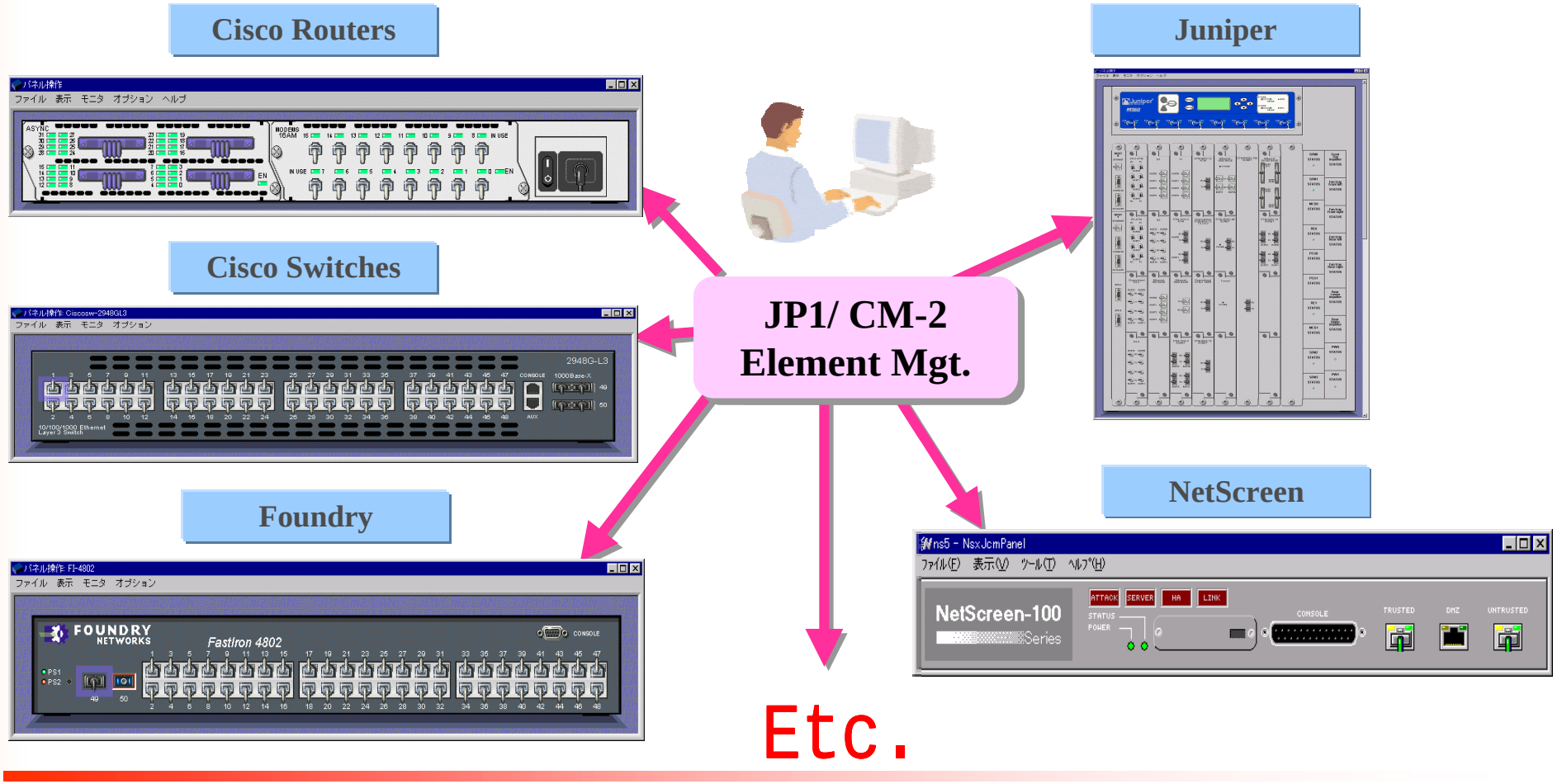
►Multi-vendor SNMP device mgmt. (IPv4 & IPv6)



Policy Creation & Management

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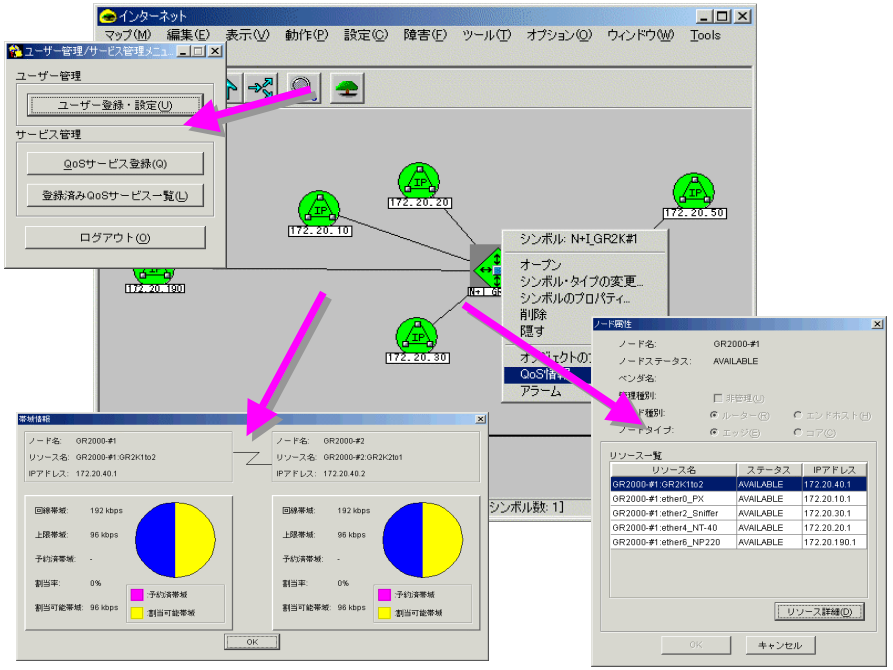

Policy Creation & Management

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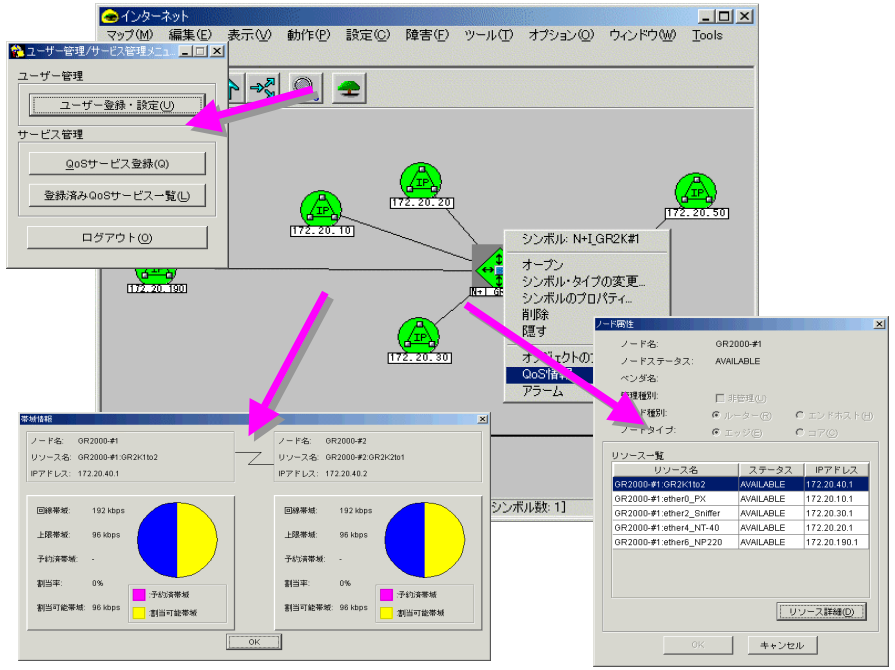
▶Transparent service policy deployment

- ❑ Point & Click policy creation / service deployment
- ❑ User / Application level policies defined via wizards
- ❑ Ex. Large scale network QoS via diffServe



Network Analysis & Monitoring

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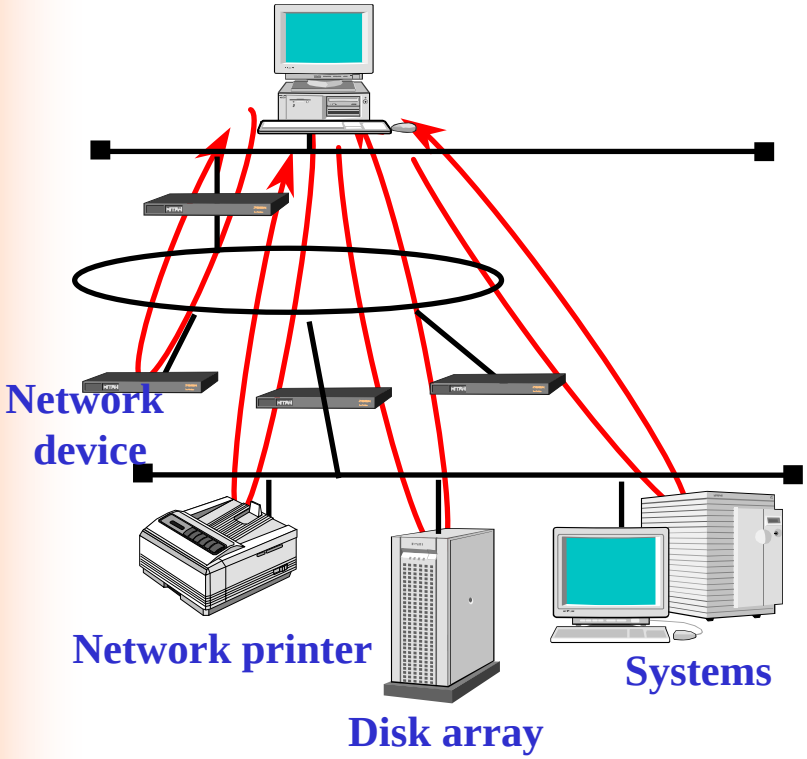

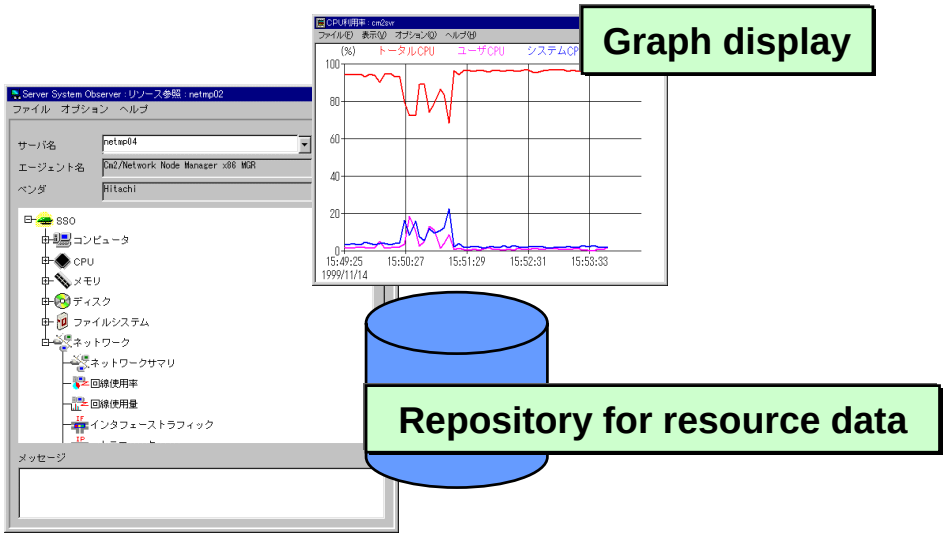

Network Analysis & Monitoring

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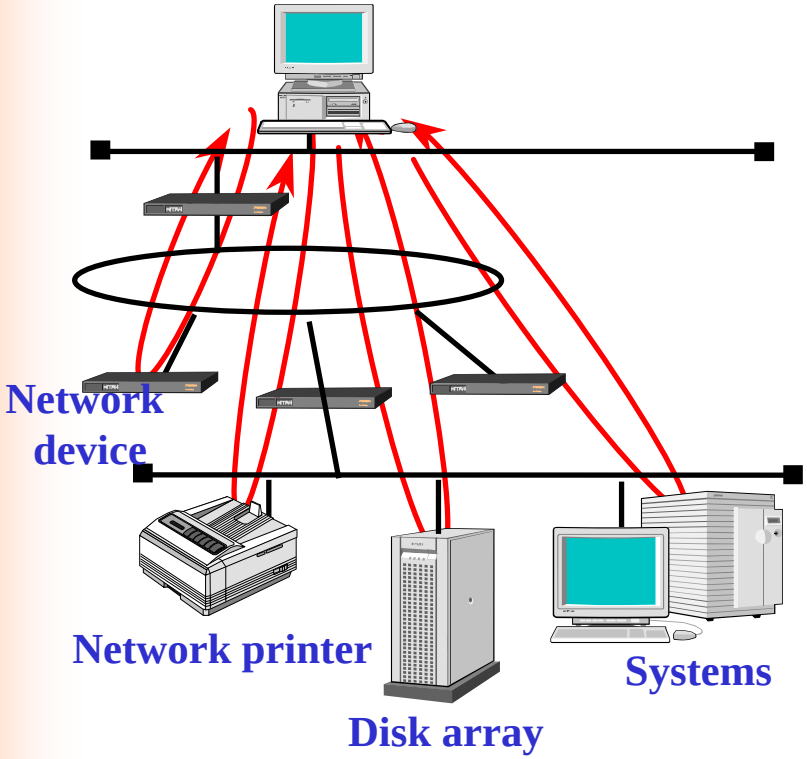
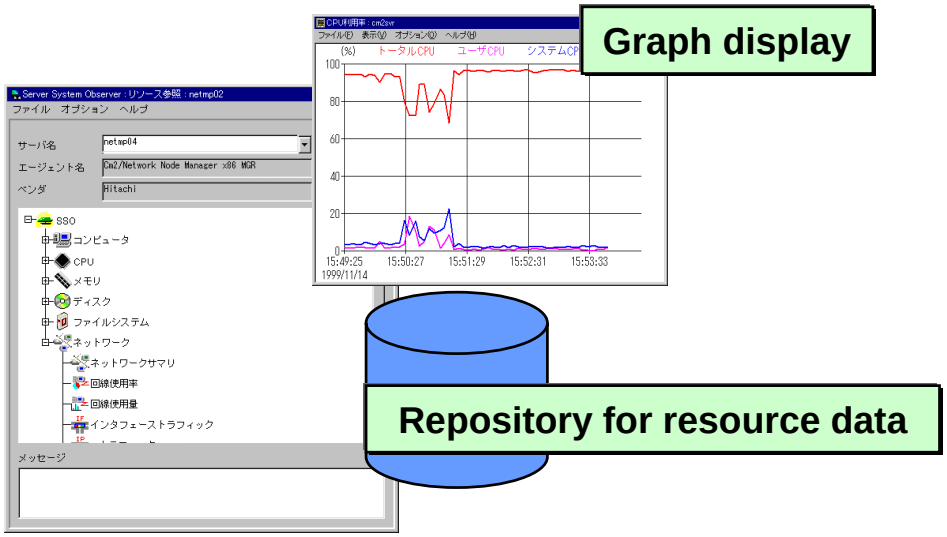
▶Real time performance monitoring

- ❑ Network resources - devices, topology, policies, traffic
- ❑ IT resources – processing, storage and printing





Summary

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Summary

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- **Extensive range of Service Rich BB Solutions.**

Summary

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- **Dual-Stack throughout the portfolio.**

Summary

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Thank You