PS2 – Network Gaming

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Overview

- Online Gaming

- Network Middleware

- SCE-RT

- Conclusion

Online Gaming – Why?

- Traditional multi-player games:
  - Split-screen, direct connection, LAN-based.
  - Players must be physically close.
  - Shared hardware or mobile hardware.

- Online gaming:
  - Players can be geographically separated.
  - Each player must have their own local hardware.
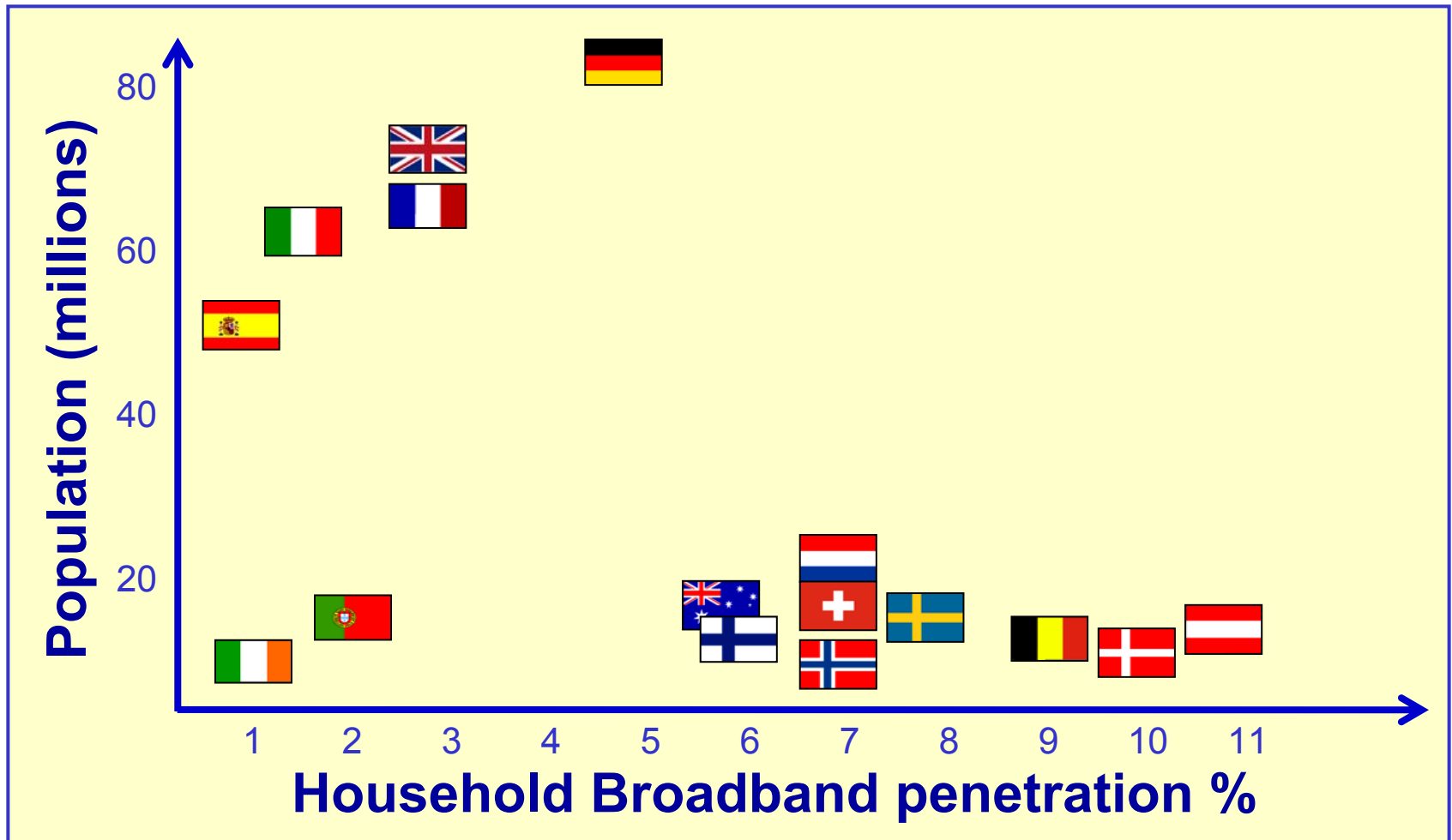 - Single-setup.

Online Gaming: PC's

- PC Online Gaming
  - Mainstream for a few years.
  - Users more technical and internet savvy.
  - Users used to regular updates, bugs, patches.
  - Lots of help and documentation.
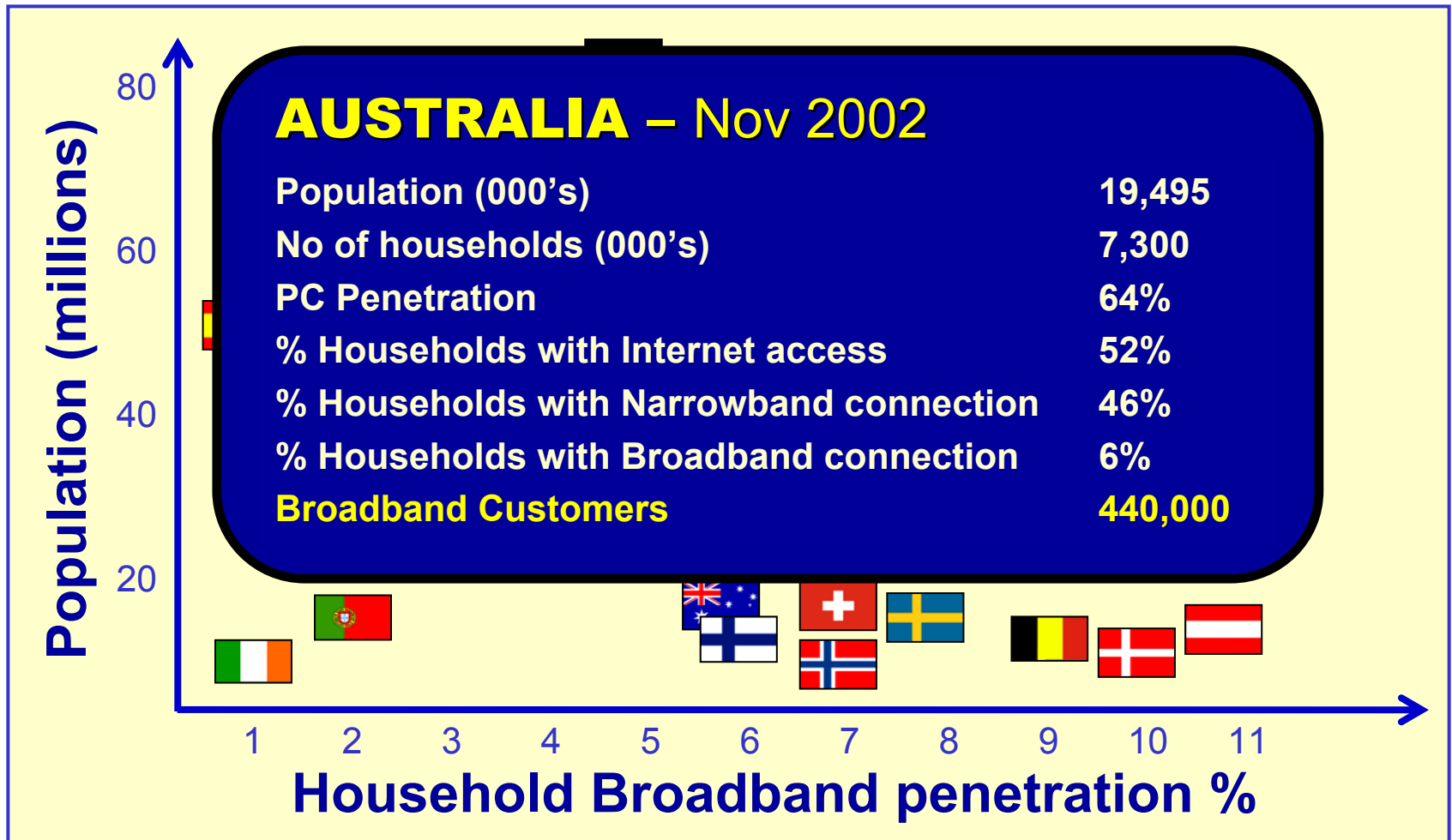 - Existing online communities.

Online Gaming: Consoles

- Console Online Gaming
  - Some earlier narrowband efforts.
  - Users non-technical, haven't used internet.
  - Users expect Plug-and-Play.
  - No patches or updates, titles (mostly) bug-free.
  - Not part of online community.
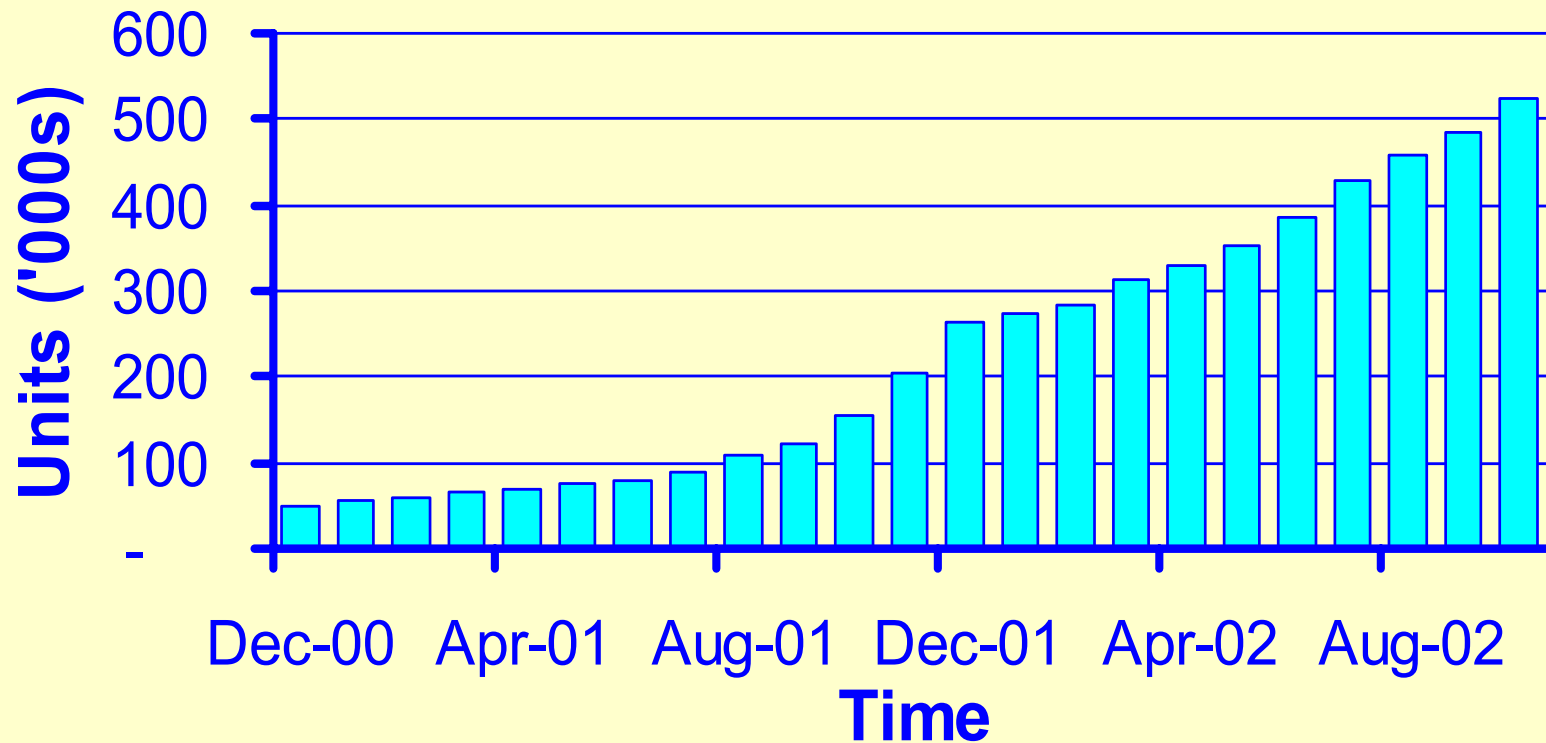
Broadband Statistics
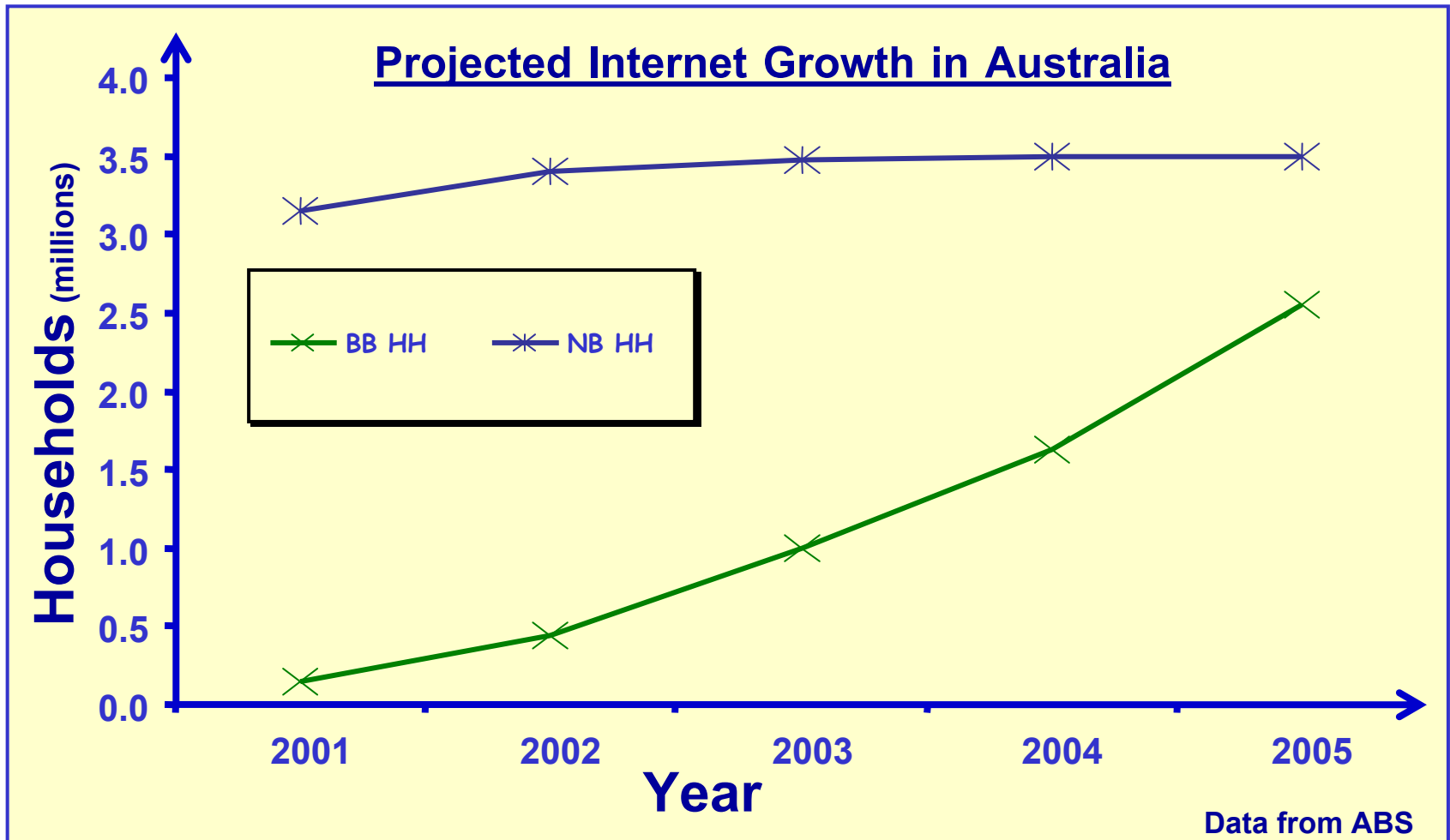
Broadband Statistics (cont.)

AUSTRALIA – Nov 2002

Population (000's)	19,495
No of households (000's)	7,300
PC Penetration	64%
% Households with Internet access	52%
% Households with Narrowband connection	46%
% Households with Broadband connection	6%
Broadband Customers	440,000

Population (millions)

80
60
40
20

1 2 3 4 5 6 7 8 9 10 11

Household Broadband penetration %

Broadband Statistics (cont.)

Australia - PS2 Installed Base

Broadband Statistics (cont.)

Projected Internet Growth in Australia

Chart: Households (millions) vs Year, with two series — BB HH and NB HH.

Data from ABS

Online Gaming – Why now?

- Broadband penetration and uptake has reached threshold levels, and is accelerating.

- Technology approaching consumer level ease-of-use.

- PS2 network infrastructure and middleware is maturing.
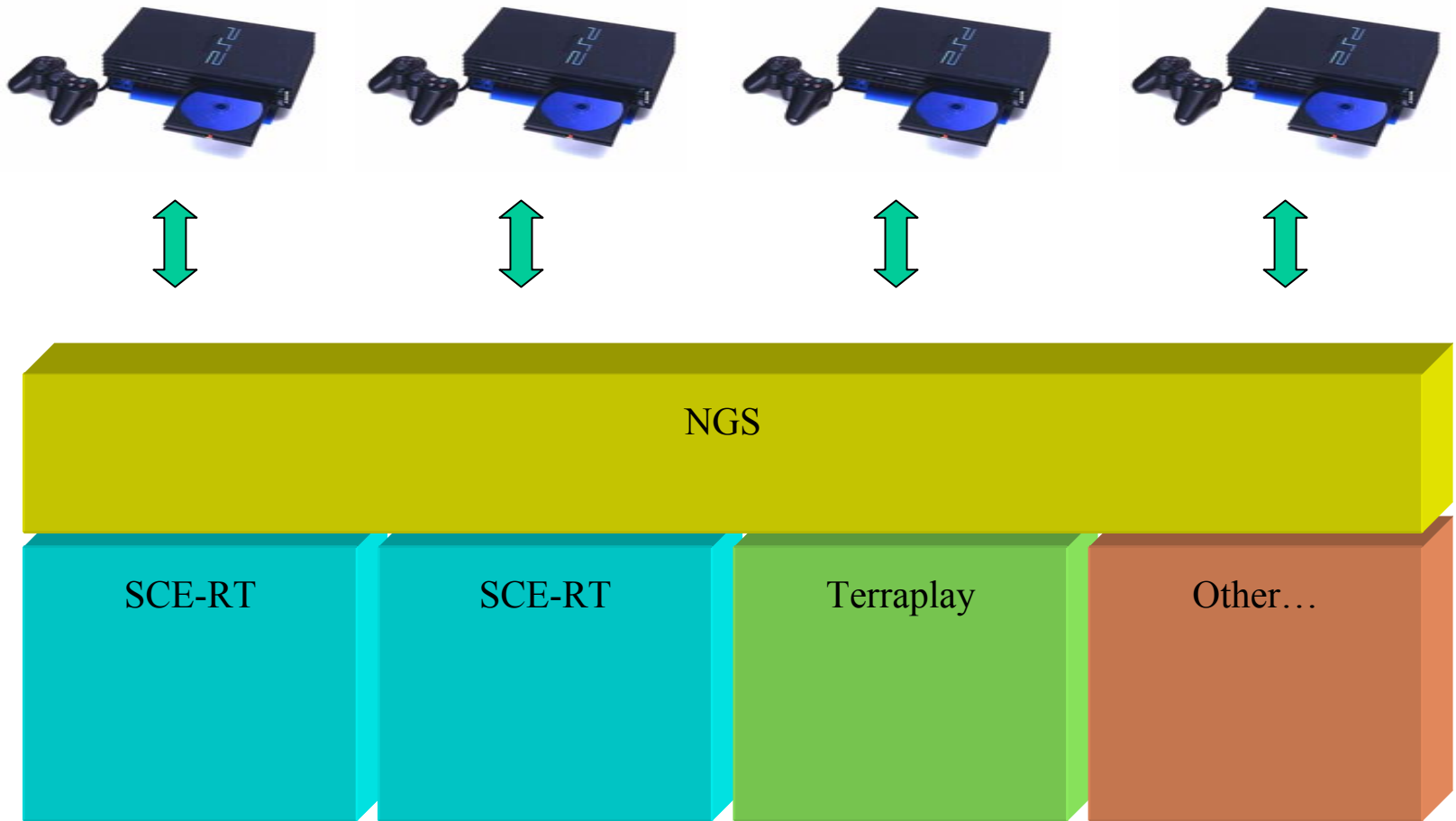
SCE Online Strategy

- In Japan: Broadband + HDD.

- In the US: Broadband + Narrowband, HDD when titles available.

- In the PAL territories: Broadband, HDD when titles available.

- Titles must support the Broadband Unit.

- Titles can support additional devices, eg. USB modems.

SCE Online Strategy (cont.)

- Security through DNAS technology.

- Support many technologies.

- Provide 3rd party <u>options</u> for hosting.

- Develop Network Gaming Service (NGS)
  - Single-ID.
  - Ties together compliant titles.
  - Supports variety of middleware.

- Freedom for developers and publishers.

Network Gaming Service

SCE Online Strategy (cont.)

- Online trials have commenced.

- Public trials starting Q1 2003.

- Service goes live Q2 2003.

- Phased rollout:
  - commences in the UK.
  - then Germany, France, Spain, and Australia / NZ.
  - then rest of PAL territories.

- Network Adaptor will launch with SOCOM and USB headset.

Network Gaming Middleware

- Set of libraries (API's) and servers to support online gaming.

- Insulates games developers from the complexities of network programming.

- Commoditises deployment infrastructure – ready to go generic servers.

- Aim is to provide relatively fast and simple tools for internet-enabled gaming.

- Emphasis is on the game, not the network.

   **The network is the means to an end.**

Alternatives

- Low –level TCP/IP stacks
  - SCEI
  - SN-Systems

- High-level network gaming 'middleware'
  - Gamespy – Lobby functionality.
  - NGS – Lobby functionality.
  - Quazal – Game Server only.
  - SCE-RT – Lobby + Game Server
  - Sega's SNAP – Lobby + Game Server
  - Terraplay – Game Server only.

SCE-RT

- Fairly comprehensive middleware solution.
- Provides Game Server and Lobby funtionality.
- Lobby (Medius):
  - Account management, Chat, Buddy-lists, Clans, Ladders, NAT resolution, Game creation.
- Game Server (DME):
  - Client-server, Client-hosted Server, Integrated Server, Peer-to-Peer.

SCE-RT Physical Architecture
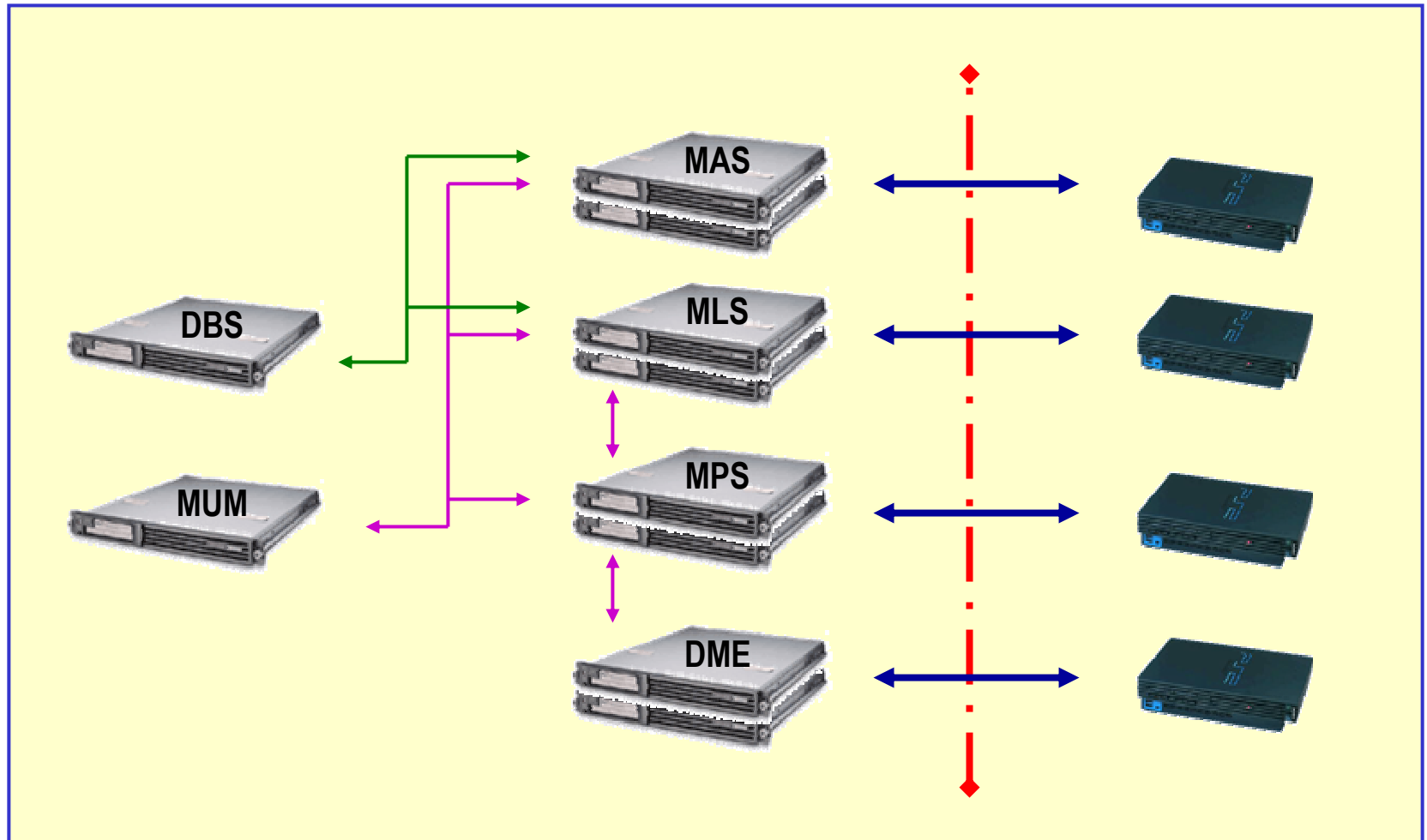
MUM

- Medius Universe Manager.

- One MUM per Universe.

- All MAS, MLS, and MPS report to the MUM.

- Central information exchange for all Medius Servers.

DBS

- Oracle Database Server.

- Accessed by MAS, MLS.

- Stores:
  - Account information
  - Game statistics
  - Buddy-lists
  - Ladders

MAS

- Medius Authentication Server.

- Logs in and authenticates clients.

- Account Maintenance:
  - Create / Delete / Edit accounts
  - Not in PAL Territories – move to centralised account management rather than ad-hoc.

- Forwards on to an MLS.

MLS

- Medius Lobby Server
- Lobby functionality
  - Chat Channels
  - Buddy Lists
  - Ladders
  - Clans
- Forward on to DME Game servers.
- About 2,000 simultaneous users.

DME Game Server

- Distributed Memory Engine Server.

- Serves game 'worlds' via TCP (UDP coming in December release).

- Can be standalone (unauthenticated) or part of a SCE-RT universe (authenticated).

- Distributes network objects and updates between connected clients.

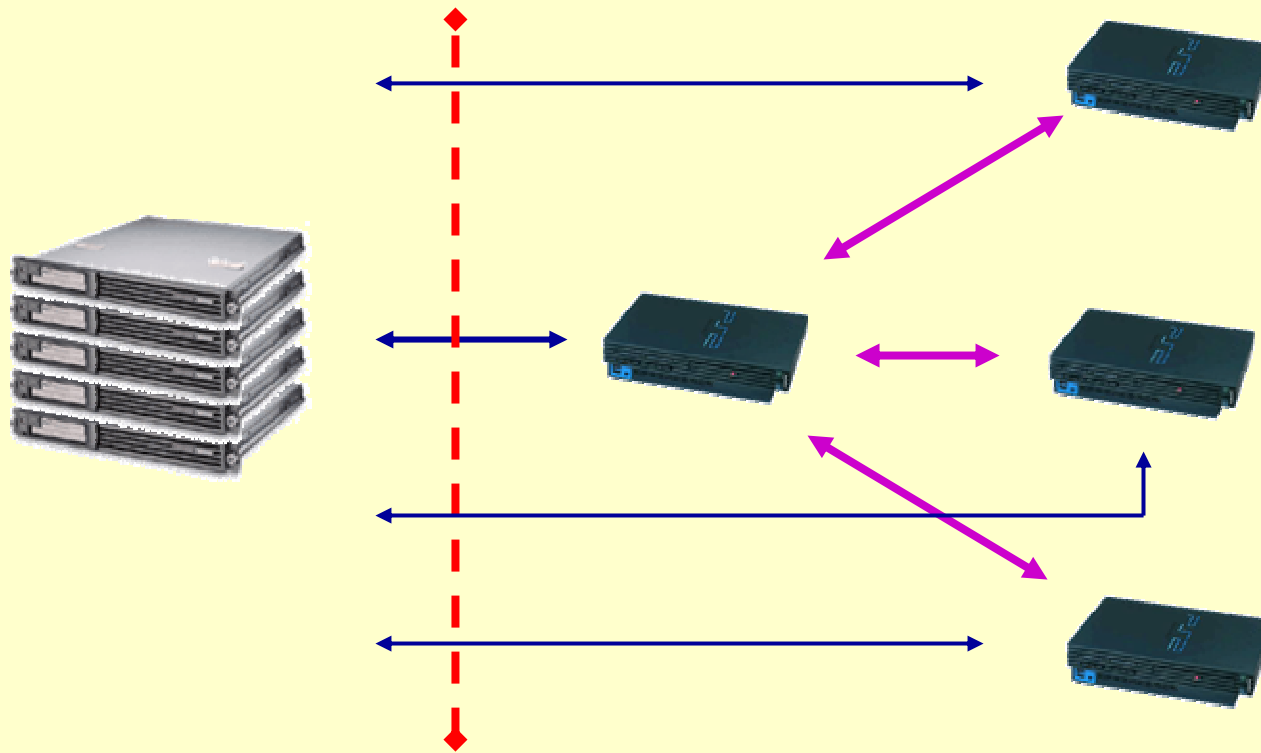- About 1,000 simultaneous users.

SCE-RT Game Type

Client Server

SCE-RT Servers
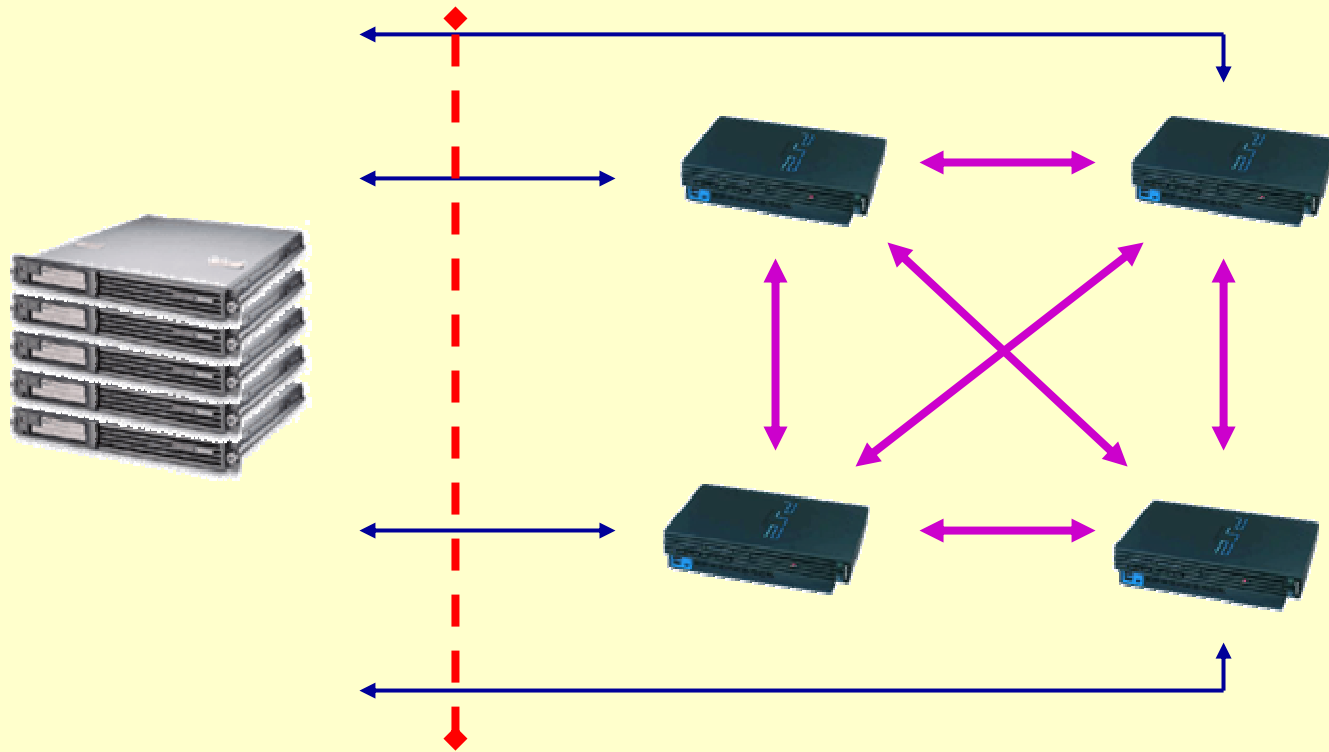
PS2 Clients
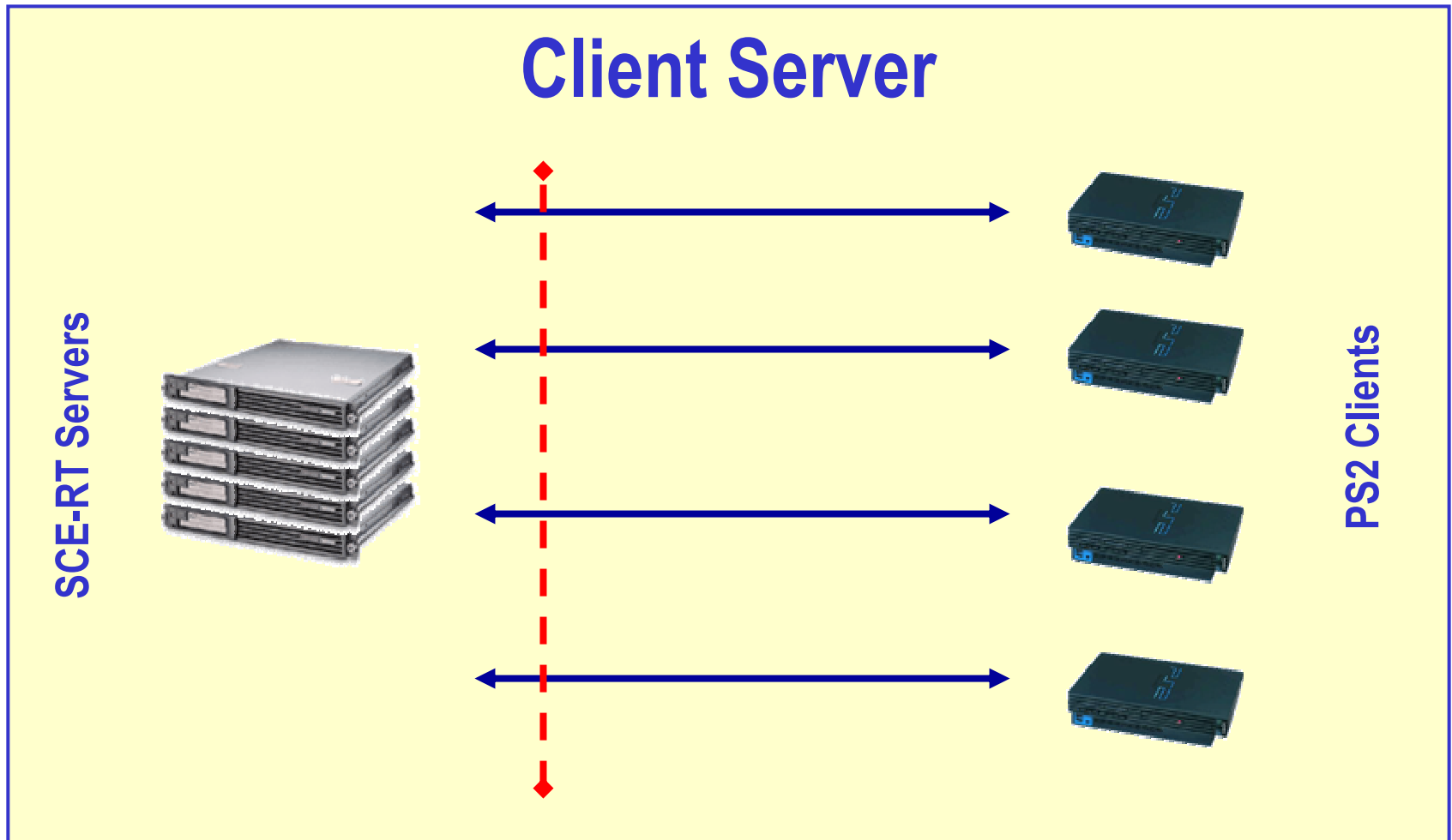
SCE-RT Game Type

Client-hosted Server
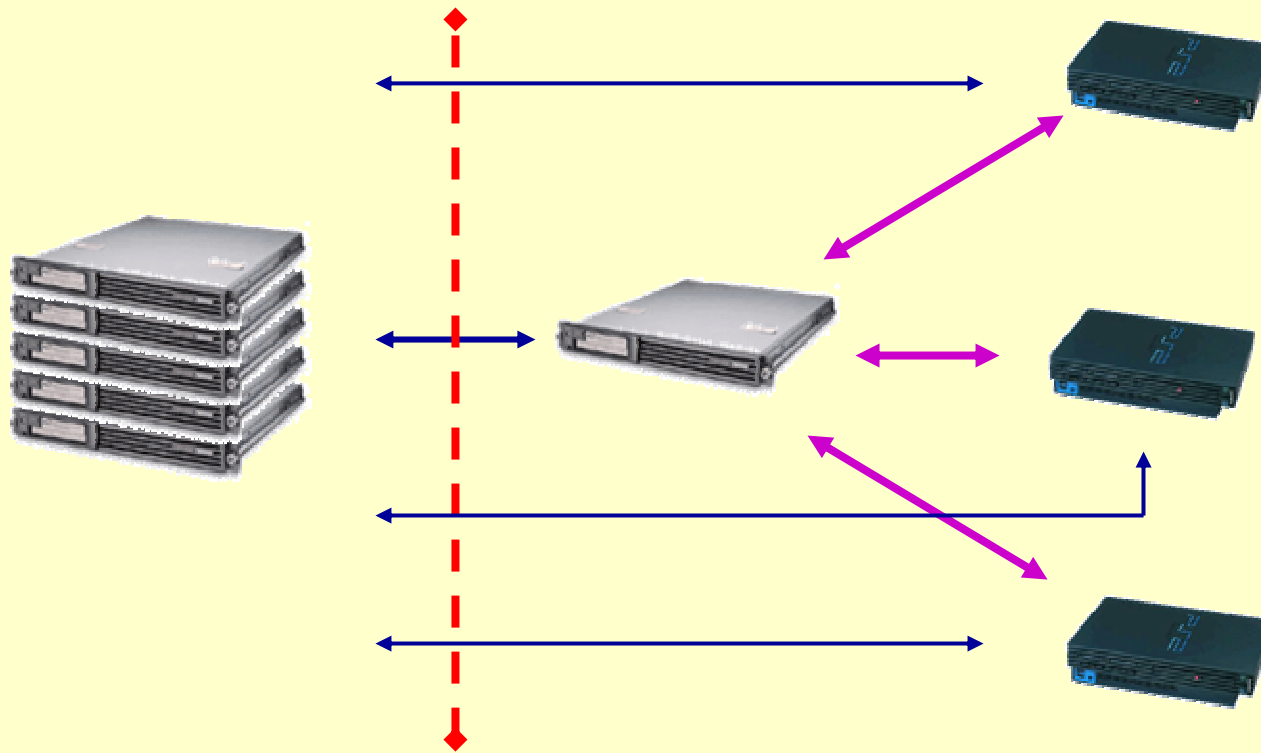
SCE-RT Game Type
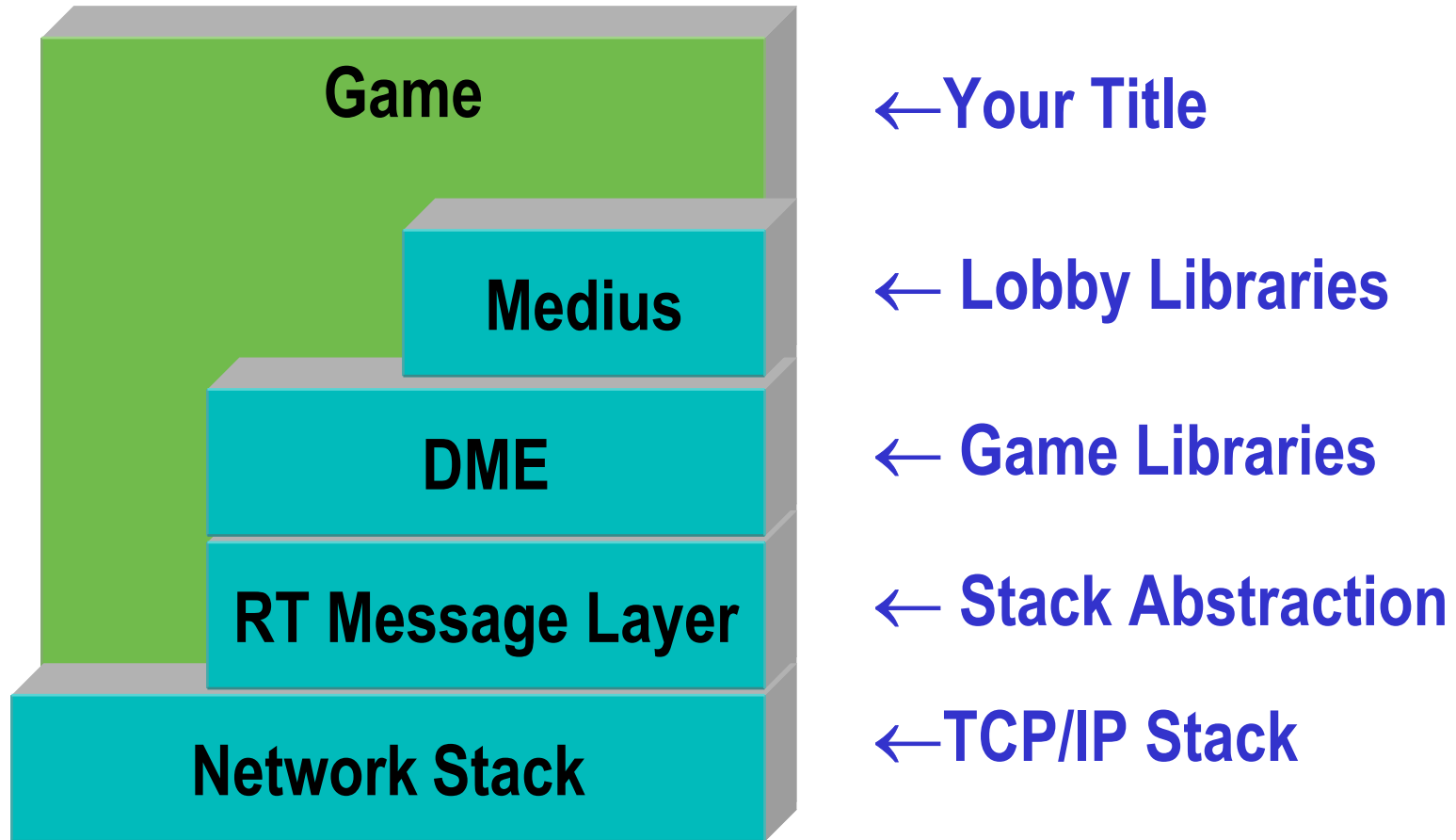

Integrated Server

SCE-RT Game Type

Peer-to-Peer

SCE-RT Client Logon (cont.)
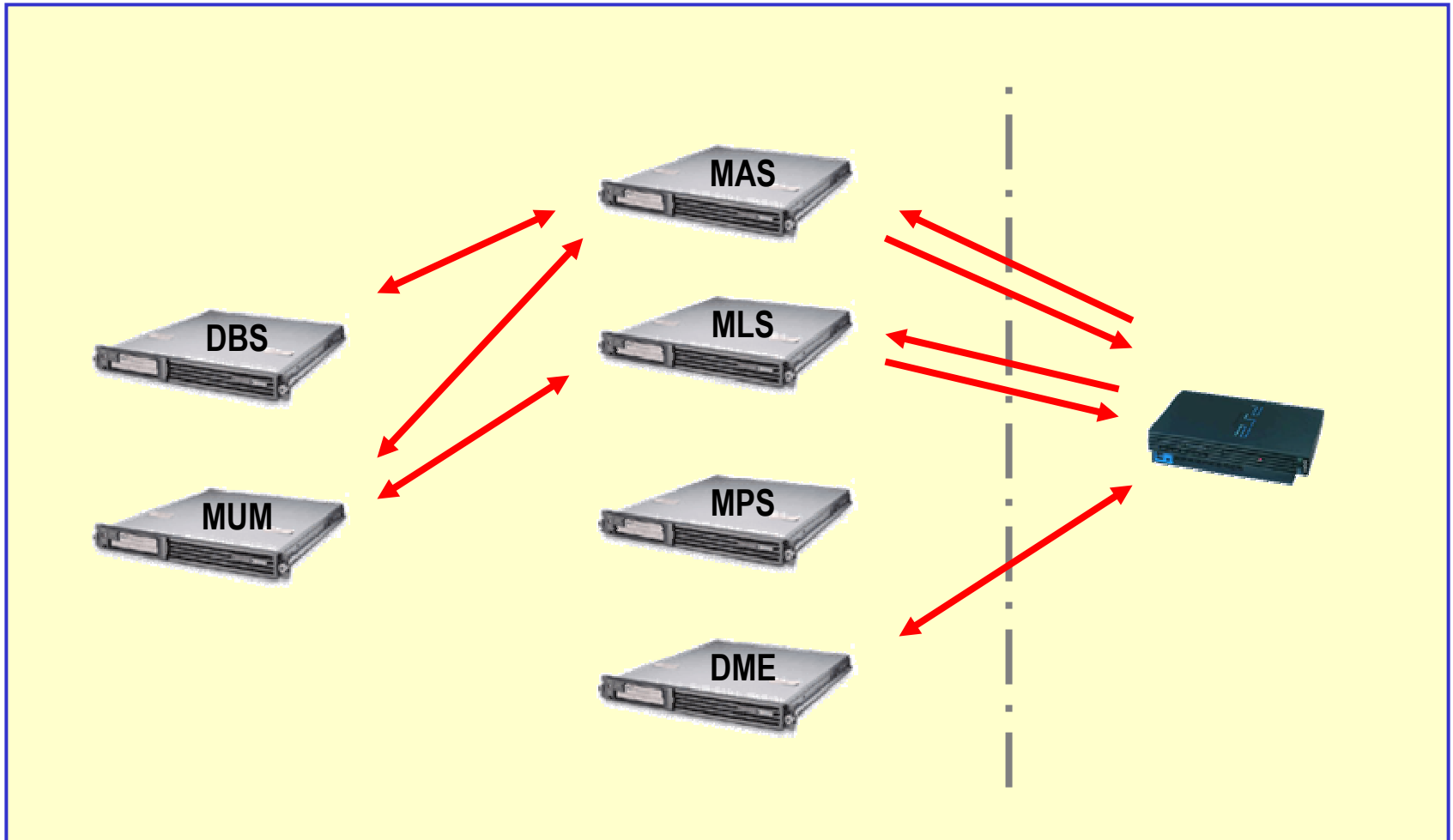
SCE-RT Logical Architecture

Game	← **Your Title**
Medius	← **Lobby Libraries**
DME	← **Game Libraries**
RT Message Layer	← **Stack Abstraction**
Network Stack	← **TCP/IP Stack**

SCE-RT API Overview

- 'C' based API.

- Medius API is state-machine.

- Most requests are non-blocking calls.

- Results returned via pre-registered callback functions.

- In general, cannot perform requests from within callbacks.

- NetUpdate() actually triggers network traffic and calls any pending callback functions.

SCE-RT API Overview (cont.)

- DME API based on network objects.

- Objects dynamically registered.

- Objects and object fields can have independent update schedules.

- All objects checked for update during NetUpdate() call.

SCE-RT: Benefits

- Feature rich functionality.

- API's are quick for games developers to pick up and use.

- Good correlation between network objects and game objects.

- SCE owned:
  - Influence further development.
  - Free for all licensees.

Conclusion

- ## PS2 Online Gaming
  - Staggered launches in Europe starting in Q2 2003
    - Australia in second phase.
  - Open System!

- ## SCE-RT
  - Comprehensive and free online gaming platform.

- ## Let's make it happen:
  - Benefits for producers, content providers, telco's, and the players.

It's all about the gaming!

More Information

- Questions?

- Meet Us:
  - SCEE Booth Exhibition Stand #9