



HELMHOLTZ

| GEMEINSCHAFT

'Device Address Redirection' as a tool in the TINE control system

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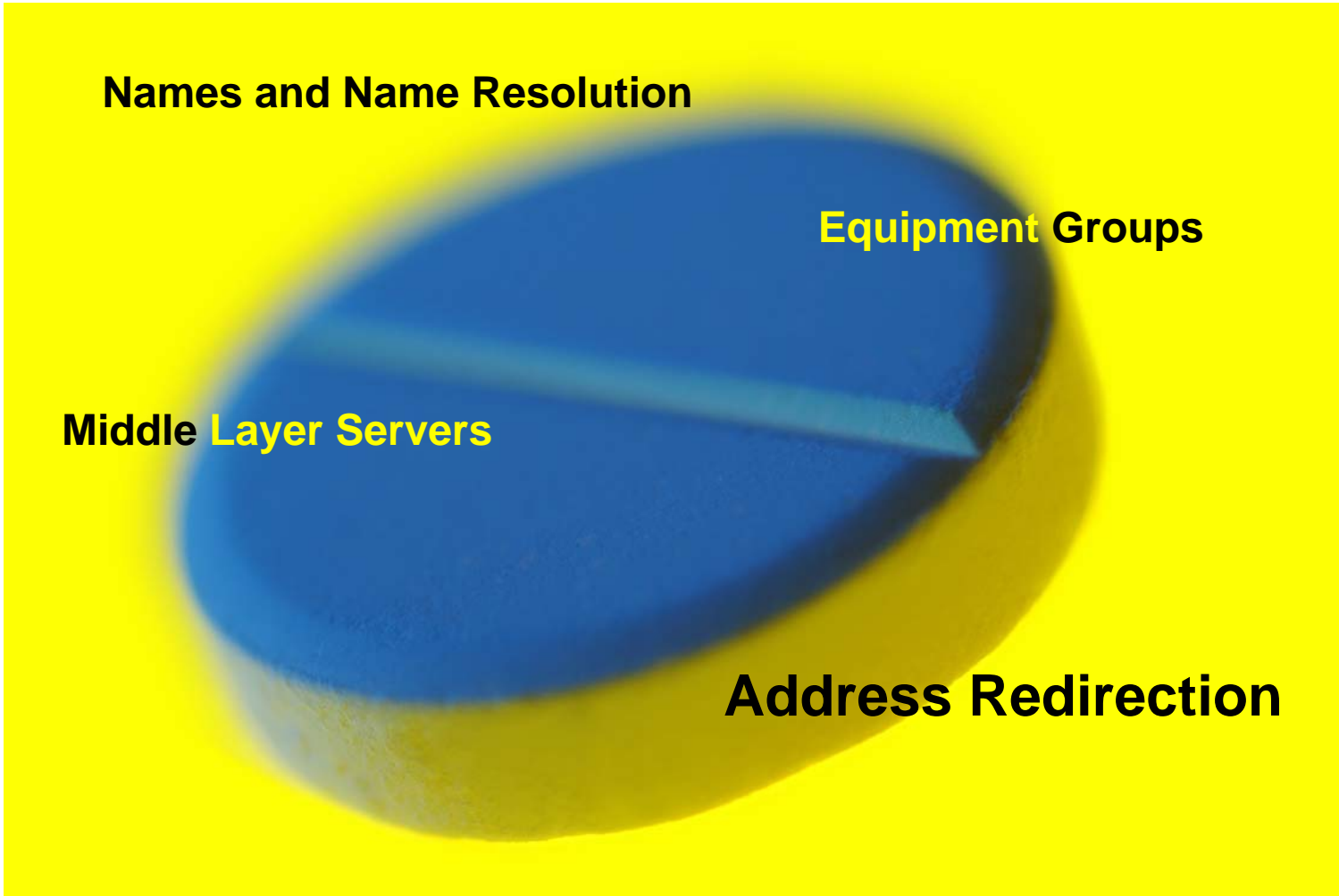
Active Ingredients

Names and Name Resolution

Equipment Groups

Middle Layer Servers

Address Redirection



Control System Naming

XYZ/PQR/QZ157-W

No hierarchical structure matches all needs

- ❑ Computer (server) –oriented (~ TINE)
easy, but doesn't match accelerator structure
- ❑ Wild-card –oriented ?
***barbaric**, freezes in one view of system*
- ❑ Accelerator functionality –oriented ?
requires sophisticated name resolution

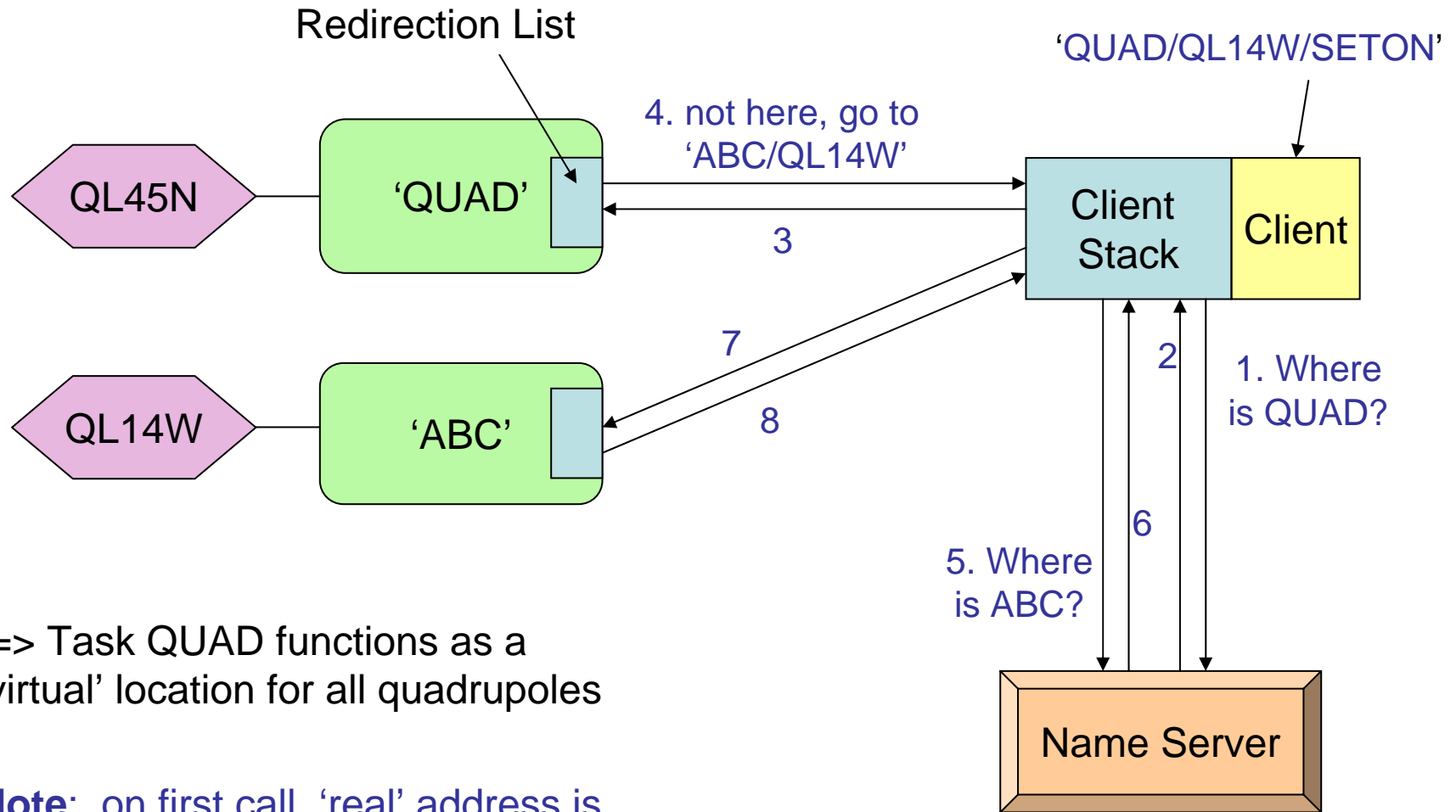
Equipment Groups

for large distributed control systems

(from my experience with ~1400 asst. Magnet PS)

- ❑ Need versatile, overlapping groups for different accelerator activities (**flexibility**)
- ❑ Groups should be defined and encapsulated below the console client level (**middle layer**)
- ❑ Need to implement *some* groups as client/server devices with their own methods (**'business logic'**)

'Device Address Redirection'



=> Task QUAD functions as a 'virtual' location for all quadrupoles

Note: on first call, 'real' address is cached in client, no more bounces

Current Uses

- ❑ Redirect device **property** requests (e.g. history requests go to archive server)
- ❑ Create virtual servers with lists of devices distributed across 'real' servers. A special '**Group Name Server**' has been implemented.
- ❑ For FLASH linac, a '**Half-Virtual Server**' provides a **single point of access** for magnet PS devices and PS groups distributed over multiple servers.

Some Comments

- ❑ Is Redirection a **Terrific Feature**, or a **Kludge**?

For a large distributed system, complete **centralization** of the name resolution can become quite complicated (dynamic registration, permutations), and **encapsulation** of information at a lower level may be a cleaner solution

- ❑ Trying to load too much functionality into control system names is asking for trouble. It is better to have flexible mechanisms for grouping devices as needed.
- ❑ Use middle layer groups to encapsulate business logic and protect your console clients from low level details
(but this has limited relation to redirection!)