Introduction of ATF Control Software

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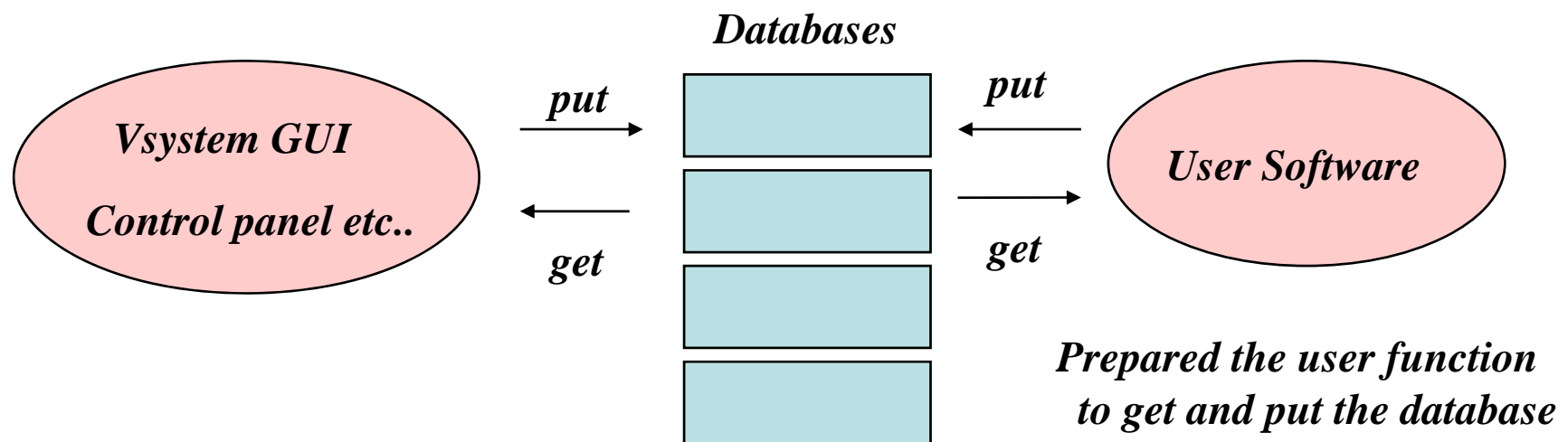*2008 / 6 /19*
ATF2 Software mini-workshop
LAL, Orsay

Introduction of Vsystem database
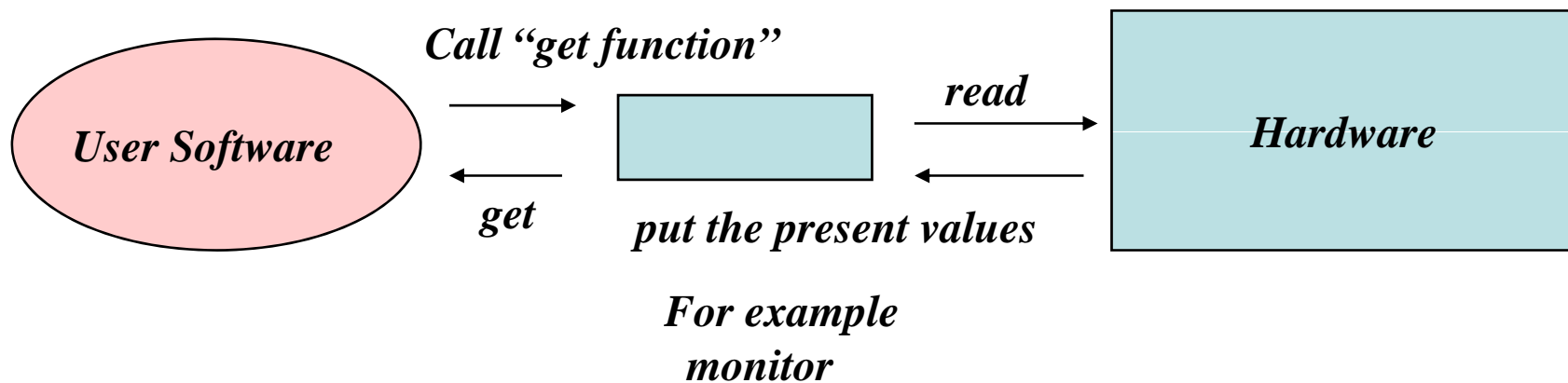
Vsystem prepare several type of database.

- binary, integer, real, …

Databases

Vsystem GUI

Control panel etc..

put

get

put

get

User Software

Prepared the user function to get and put the database
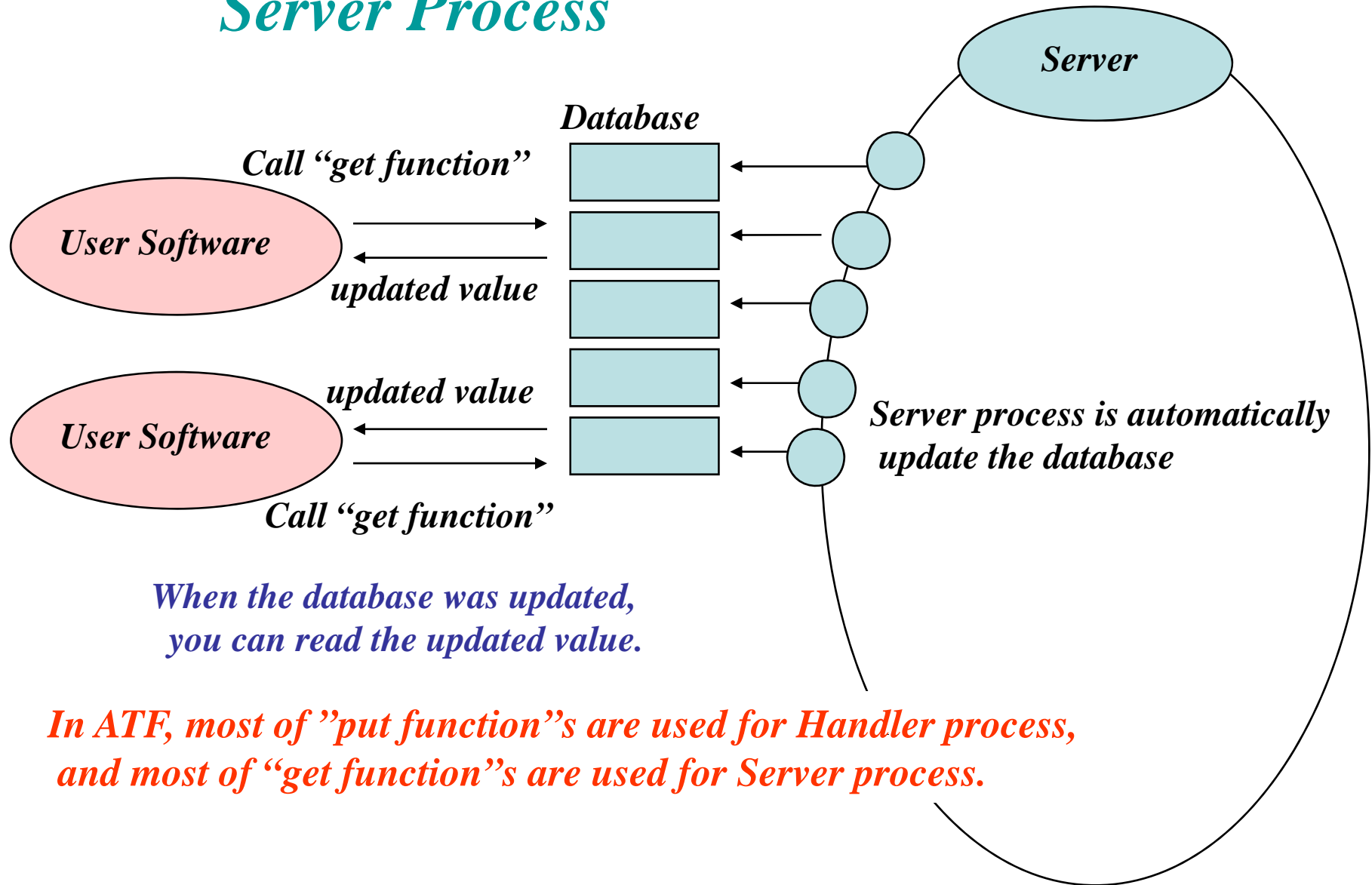
We can access to Vsystem database very easy with GUI and user software, and existing function (c program) in user software.

Handler Process

User Software

Call "put function" → [ ] *put* → **Hardware**

For example
the timing digital delay
the frequency of DR DF

User Software

Call "get function" → [ ] *read* → **Hardware**
← *get* ← [ ] ←

put the present values

For example
monitor
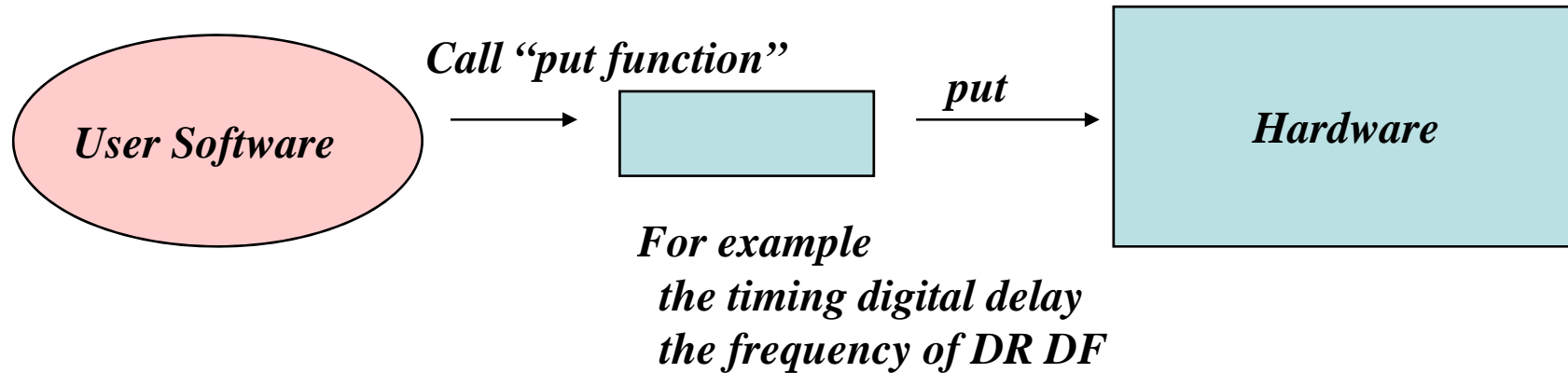
We can change the hardware parameter, or get the hardware information
only by accessing the database.

Server Process

Server

Database

Call "get function"

User Software

updated value

updated value

User Software

Call "get function"

Server process is automatically update the database

When the database was updated, you can read the updated value.

In ATF, most of "put function"s are used for Handler process, and most of "get function"s are used for Server process.
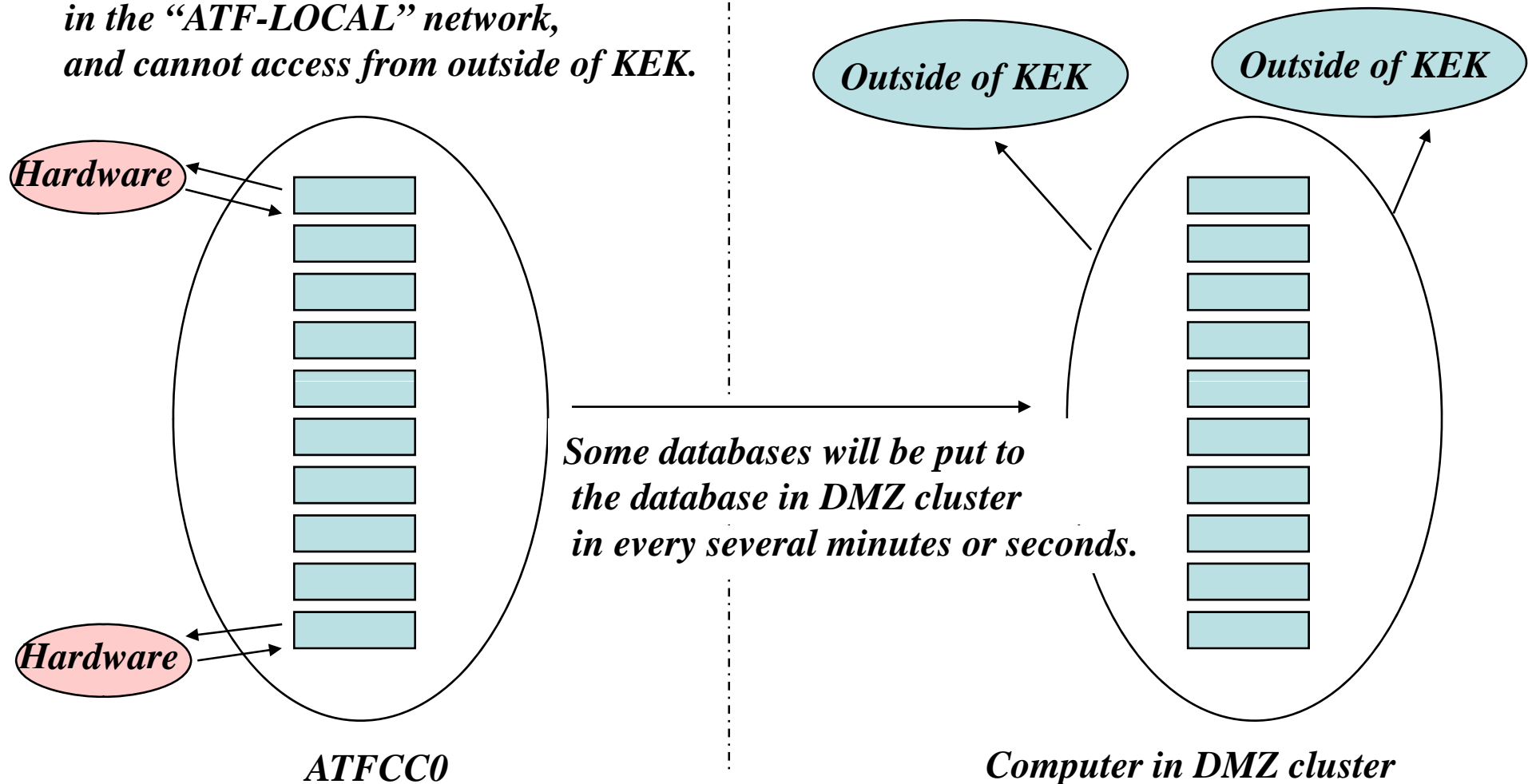
Database Access from outside of KEK

Each database of Vsystem has
a possibility of hardware access.

The Vsystem is operated
in the "ATF-LOCAL" network,
and cannot access from outside of KEK.

You can get the ATF operation infromation,
but you cannot access the ATF hardware
from outside of KEK.

Outside of KEK

Outside of KEK

Hardware

Hardware

Some databases will be put to
the database in DMZ cluster
in every several minutes or seconds.

ATFCC0

Computer in DMZ cluster

SAD program in ATF

1) Shift leader or other staff push the "SAD calculation button".

   - Make the "Present Setting File" (Magnet setting, beam position and so on)
     in ATFCC0 (Main ATF computer)

   - FTP or SCP the "Present Setting File" to SAD computer.

   - RSH the program (orbit correction, dispersion correction and so on)
     and make "New Setting File" in SAD computer.

   - FTP or SCP the "New Setting File" to ATFCC0, and put to the "File Database".

2) Shift leader or other staff push the "Set Button"
  and the new parameters are set to hardware.

Feedback program in ATF

  It is very important,
    to push the "start button" by shift leader or other staff,
    to record which feedback process is working.

Beam size measurement in ATF

The *beam size measurement* is *not automatic program* in ATF.

For example; Wire Scanner Measurement
  - We spend many time to find the wire, and to fix the scanning range and so on.
  - Once we find the scanning condition, the measurement is very short time.
  - When the optics was, however, changed, we must find the wire,
    and fix the scanning range, because the beam size and position was changed.

  In present,

    Beam size was measured with Vsystem GUI,
     and *the emittance and Twiss parameters are calculated*
     by offline analysis (SAD, MAD, Flight Simulators …) .

How to integrate the beam size measurement (wire scanners, carbon wire, laser wire ...)
 is one of the key issue to "flight simulator" or other online program,
 especially for the feedback and in the iteration of the beam size tuning.