



# CXv4, a Modular Control System

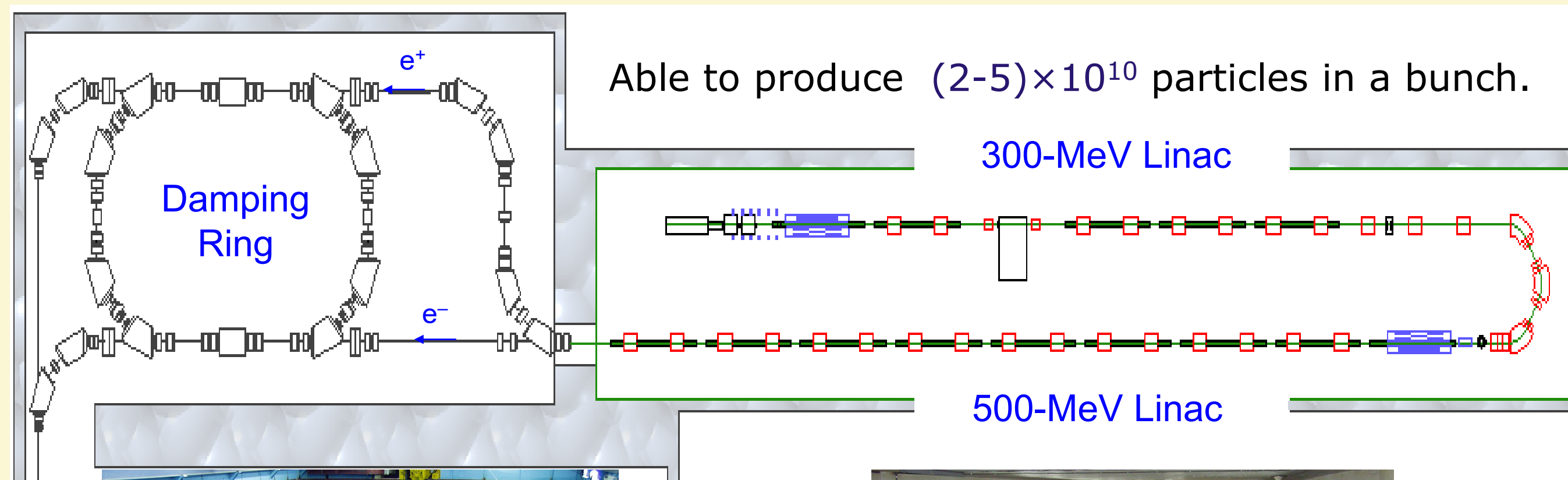


**Dmitry Bolkhovityanov, Fedor Emanov, Pavel Cheblakov**  
*Budker Institute of Nuclear Physics, Novosibirsk, Russia*

## CX

- Developed in BINP since late 1990s
- Runs on Linux and \*NIX
- Supported hardware includes CAMAC, PCI/cPCI, VME, CAN, RS485
- Used at VEPP-5, LIA-2 and several smaller facilities

## VEPP-5 Injection Complex

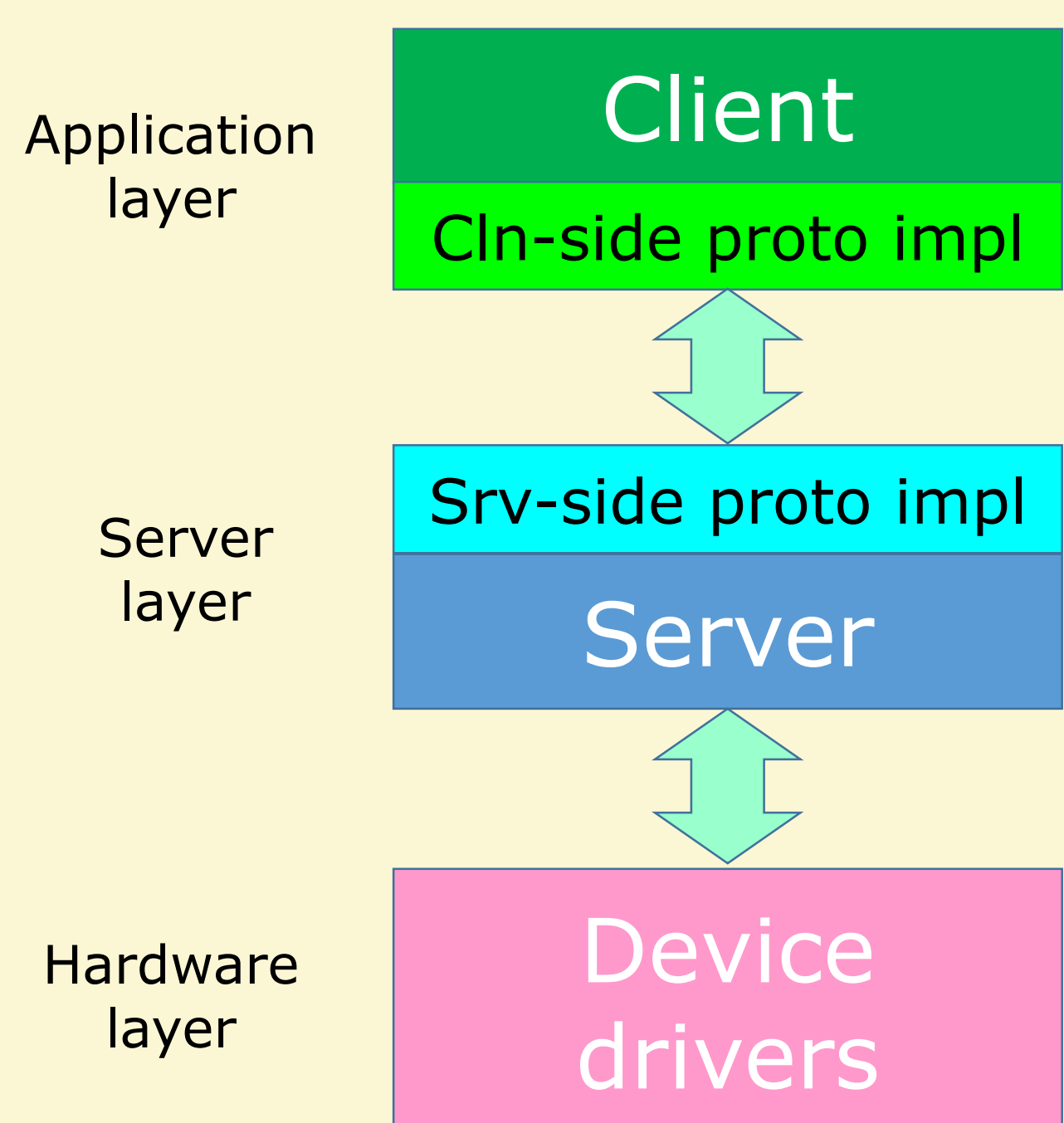


VEPP-5 will supply e+ and e- to BINP e+/e- colliders VEPP-4 and VEPP-2000. Thus, communication with their diverse control systems is required in CX. **HOW?**

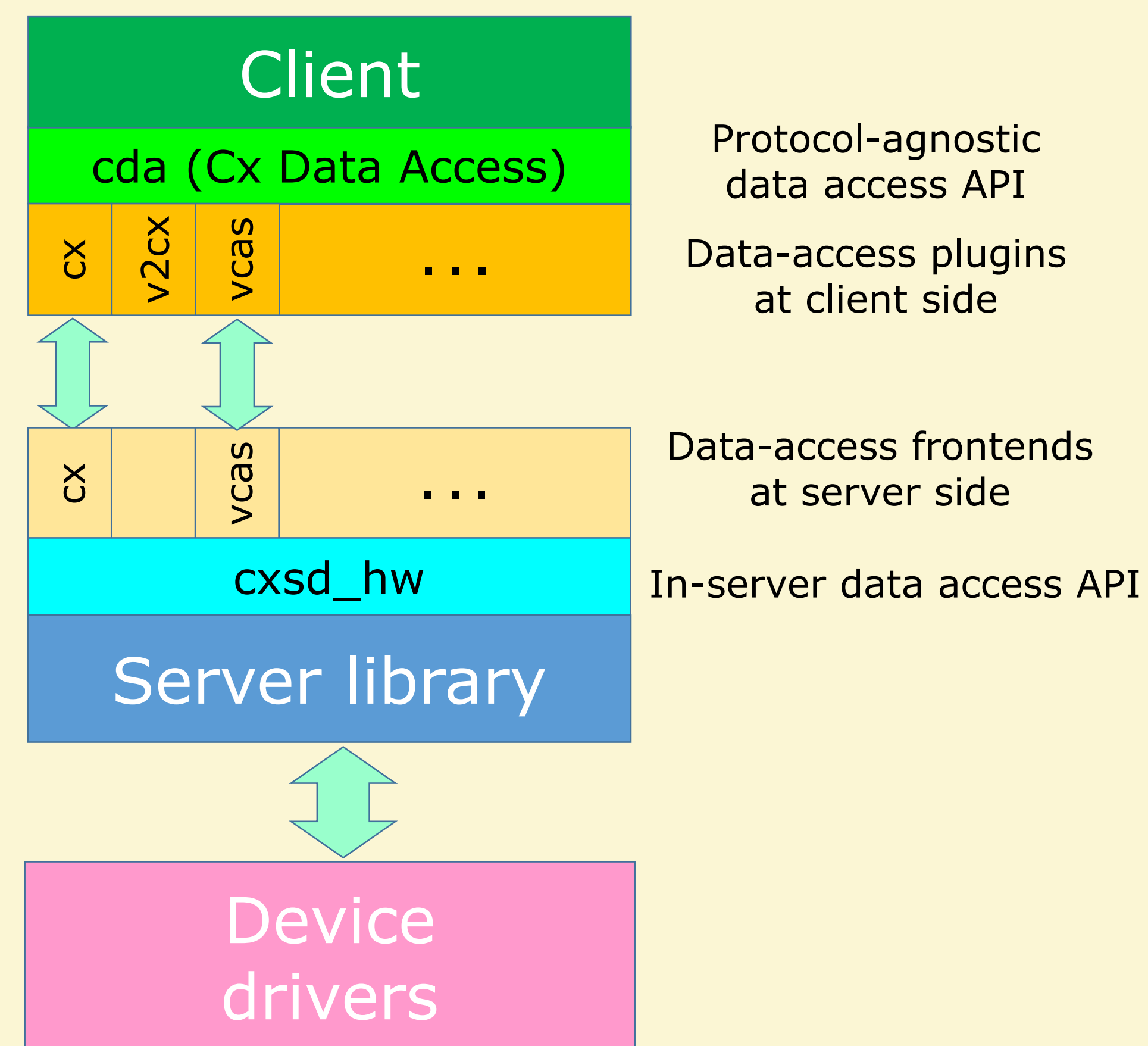
**Solution:** make *everything* modular.

- Drivers, network protocol implementation (at both client and server sides) are plugins.
- Server is a library.

## Conventional 3-layer control system layout

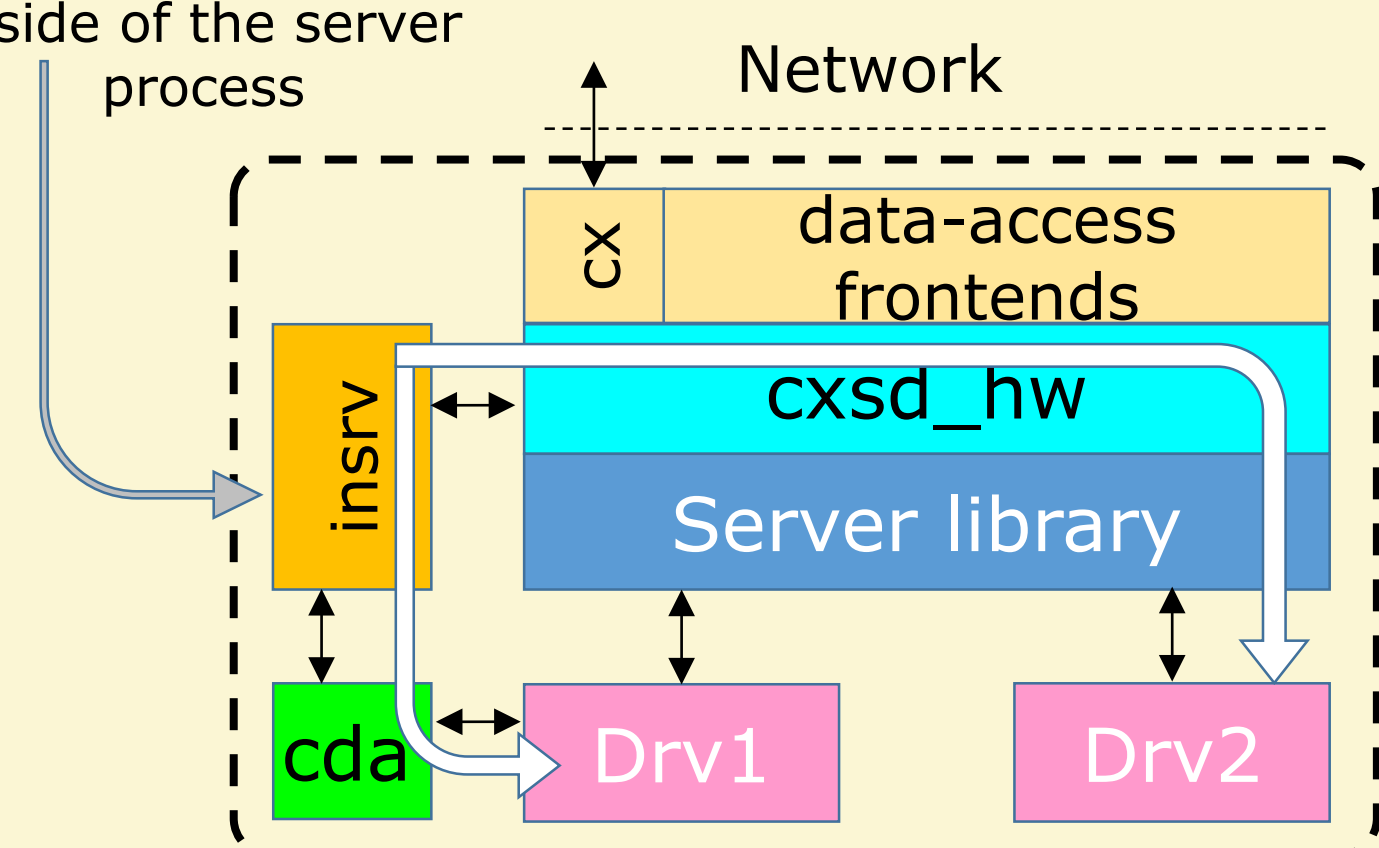


## CXv4 modular structure



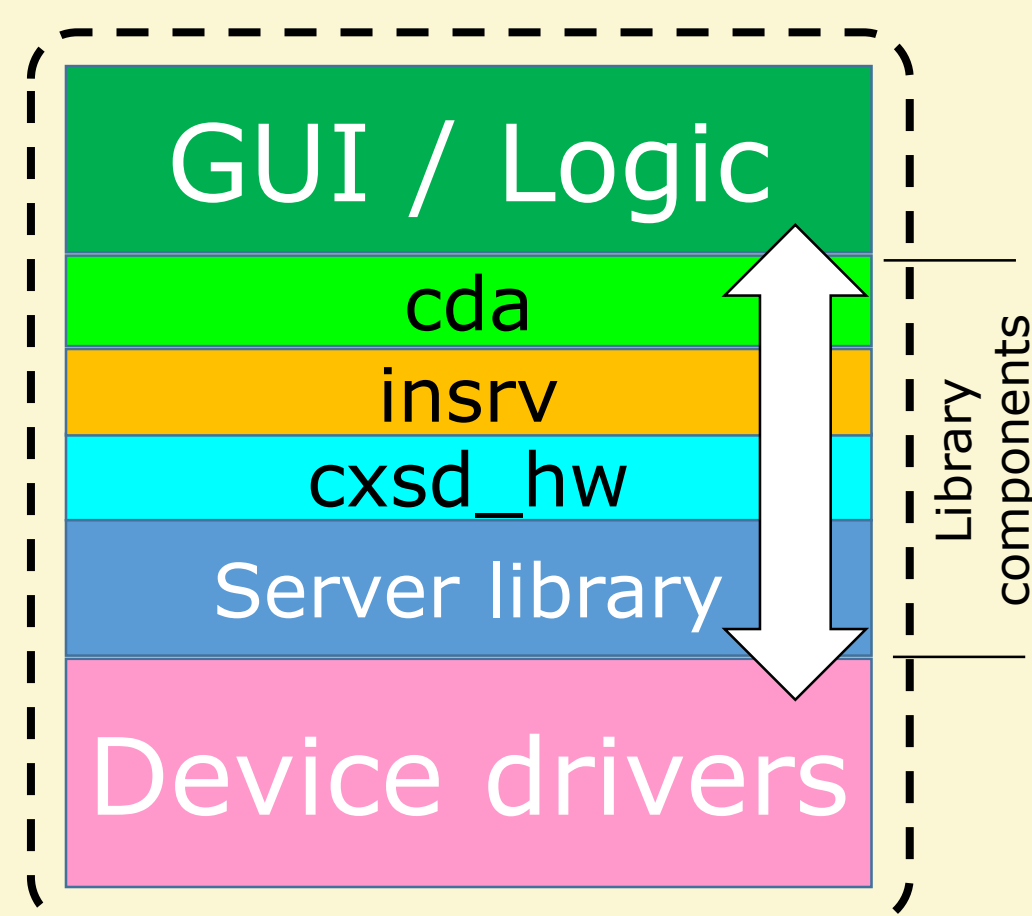
## Possible combinations of CX modules

"insrv" is a null-link plugin, providing CDA access to server's channels from inside of the server process

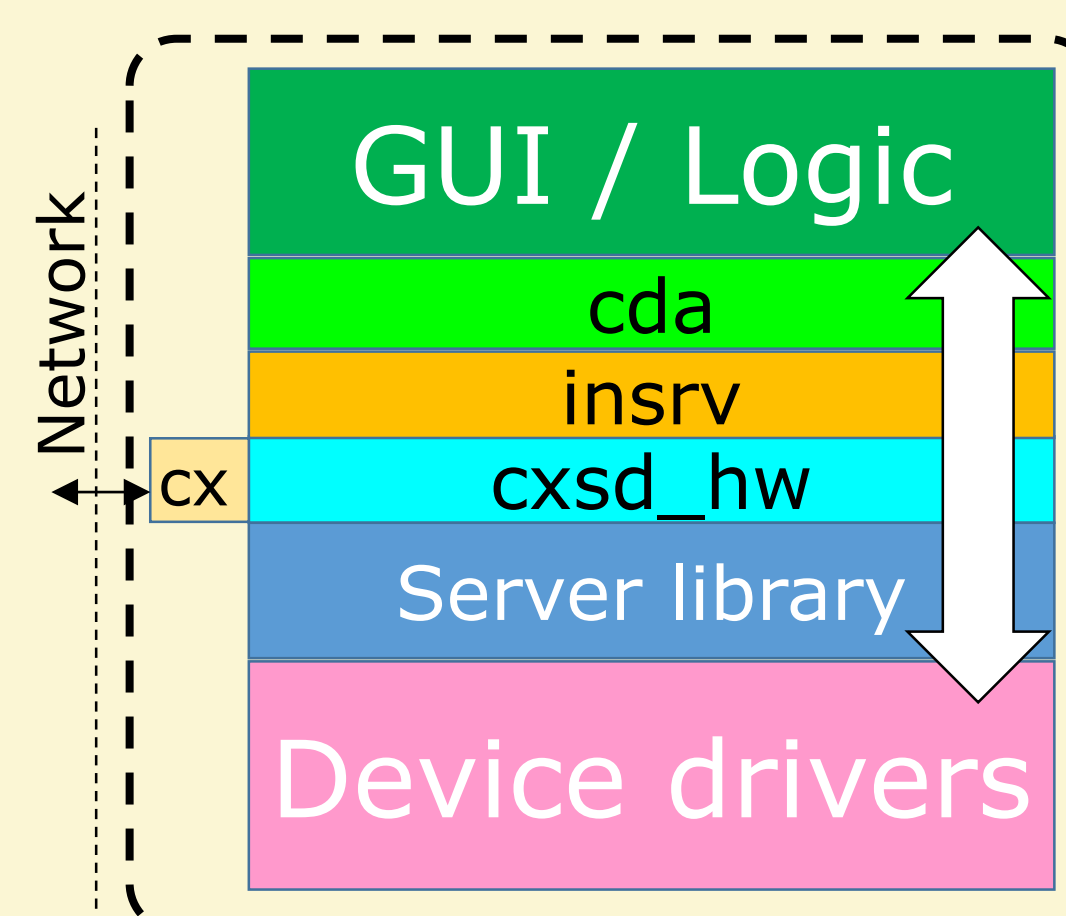


Drivers can access channels from neighbor drivers like clients.

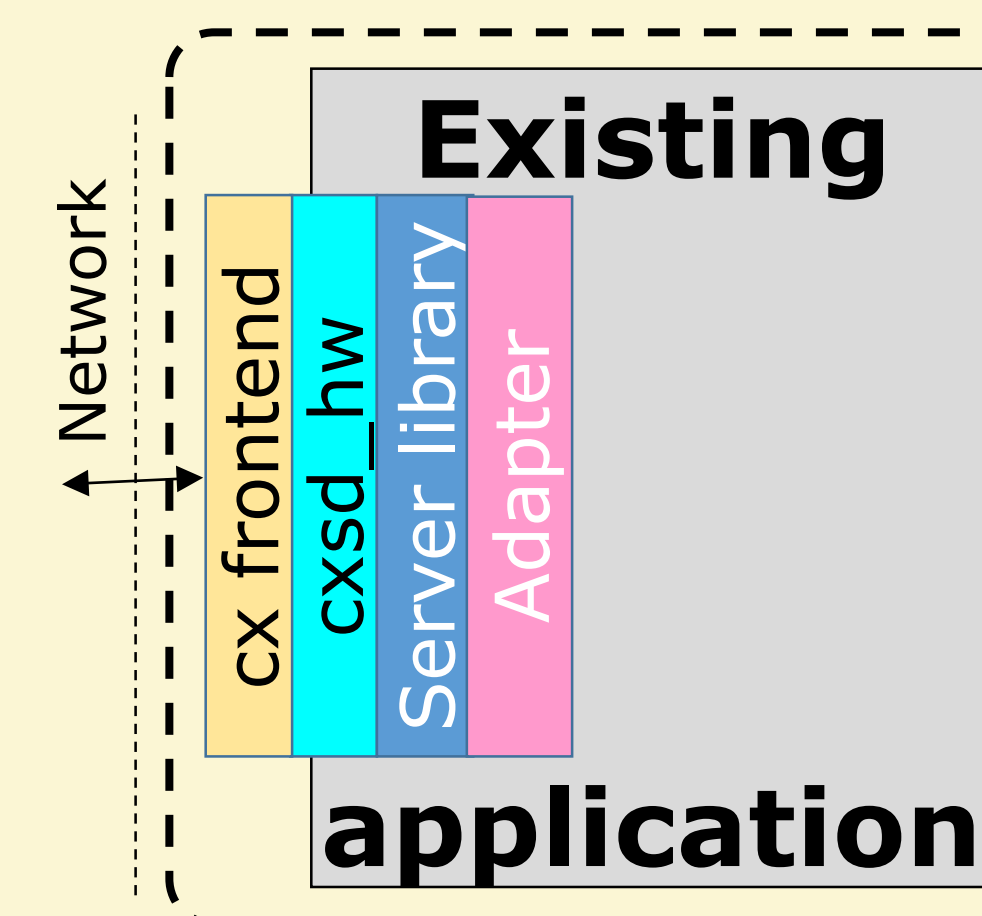
Unified API for local and remote.



GUI+server+drivers combined into a single simple application with no network



GUI+server+drivers combined into a single simple application with remote access



Network-access-enabled existing application