

NETWORK SECURITY SYSTEM AND METHOD FOR RIBF CONTROL SYSTEM



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Outline of the ACC-LAN (Network system for RIBF control system)

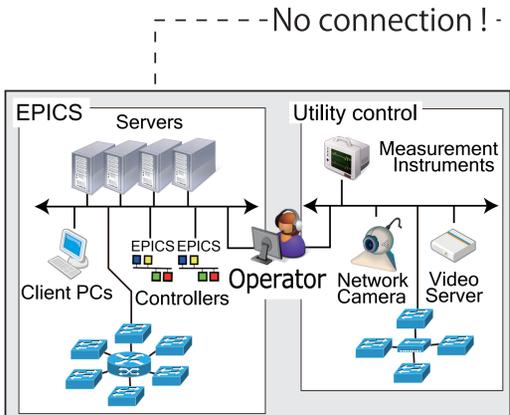
Characteristics of ACC-LAN

❑ **Perfectly closed network system** for ensuring security

❑ Of course, **No connection** with other network. So

❑ **Problems**

- ❑ Accelerator staff members **can not monitor the Accelerator status from the office.**
- ❑ RIBF beam users **request wide variety of information** for accelerators.
- ❑ When it is needed to fix security bugs, it is **difficult to update software.**
- ❑ It is not available to send **E-mail alert** automatically in serious trouble.

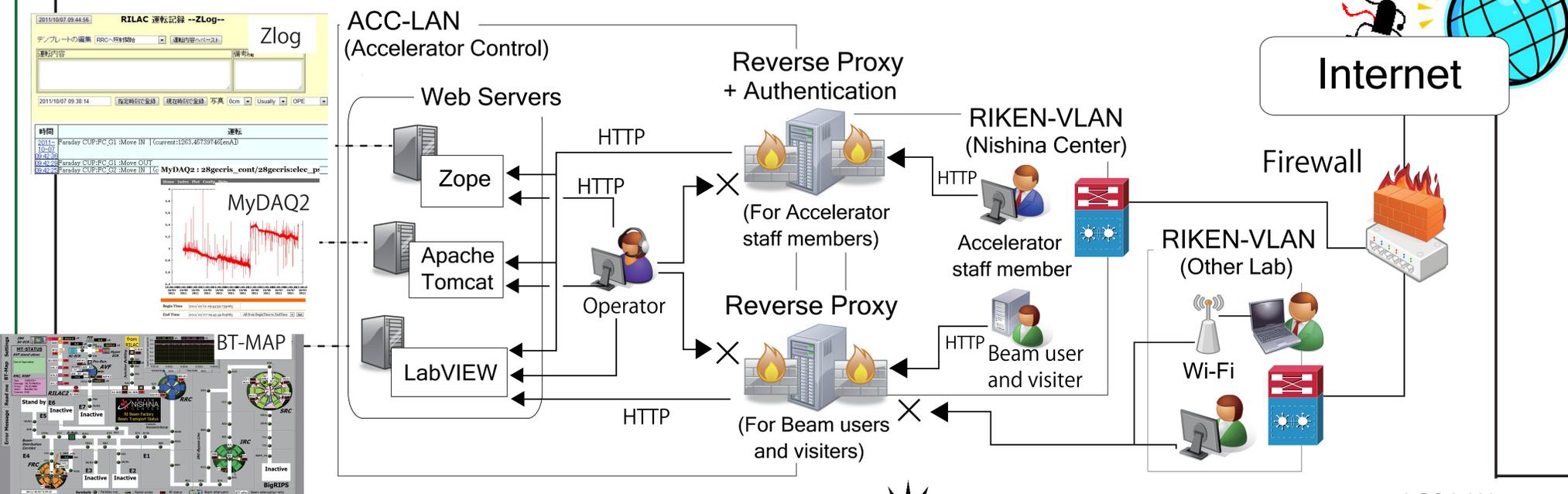


Next Best Policy

- ❑ **Communications to the Internet or RIKEN-VLAN from client PCs are strictly prohibited.**
- ❑ The information is provided by only **web communication via reverse proxy server.**
- ❑ The system opens only a minimum number of ports by the **firewall.**

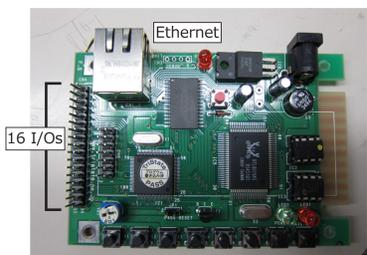
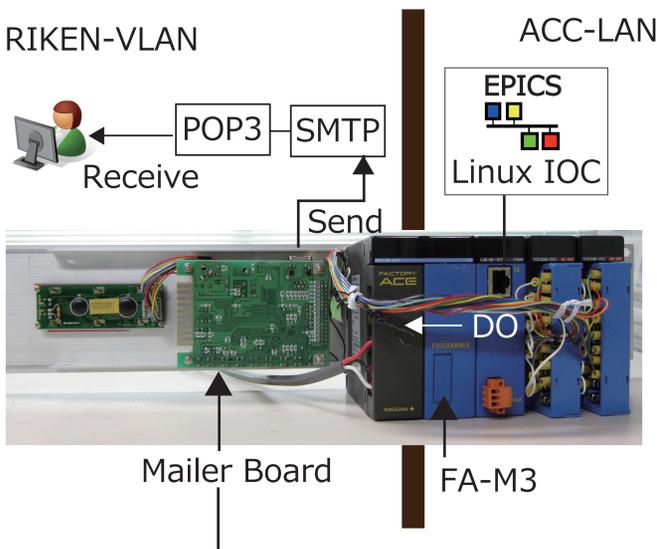
OUR WORK

Reverse Proxy System for WEB Communication

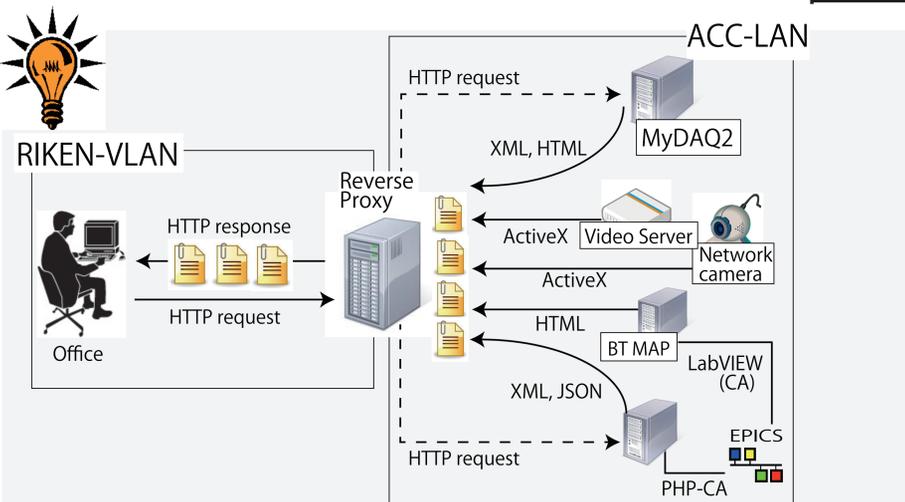


- ❑ Web Communication is a suitable to provide information for a lot of people.
- ❑ Squid for reverse proxy server and IPtables for firewall.
- ❑ Two reverse proxy servers
 - For accelerator staff members with an **authentication. (Single Sign-On)**
 - For RIBF beam users with **No authentication,** but access only some specific website.

E-mail Alert in closed network



E-mail auto sender embedded board



- ❑ **PVs are converted by the framework with XML and JSON.**
- We can develop EPICS clients running on the RIKEN-VLAN without channel access protocol.

- ❑ RIKEN-VLAN and ACC-LAN is separated completely.
- ❑ The system can send E-mails by using on-off control action of EPICS-based mechanical switches without a connection between the networks.