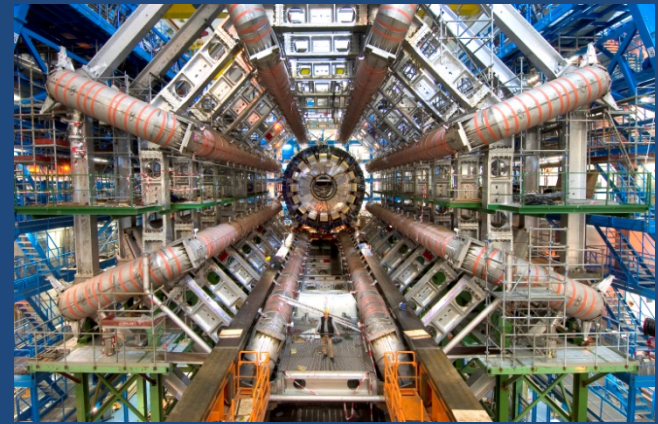
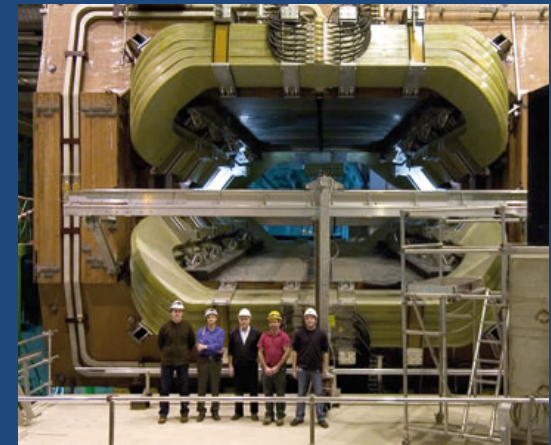
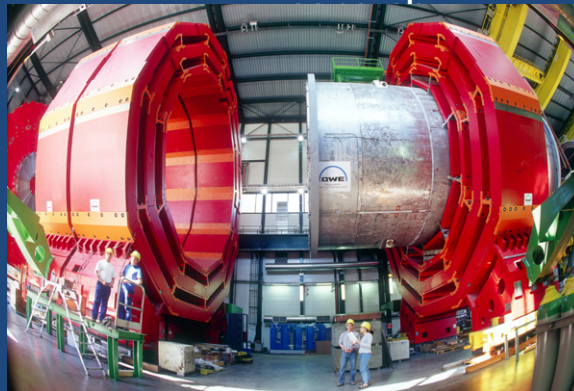
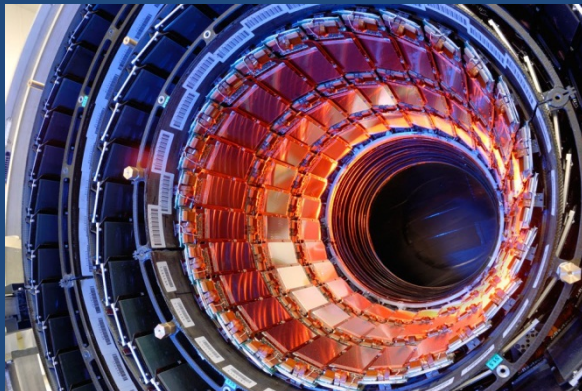




European Organization for Particle Physics

The coolest place on earth



Middleware Proxy:

a request-driven messaging broker
for high volume data distribution

Wojciech.Sliwinski@cern.ch



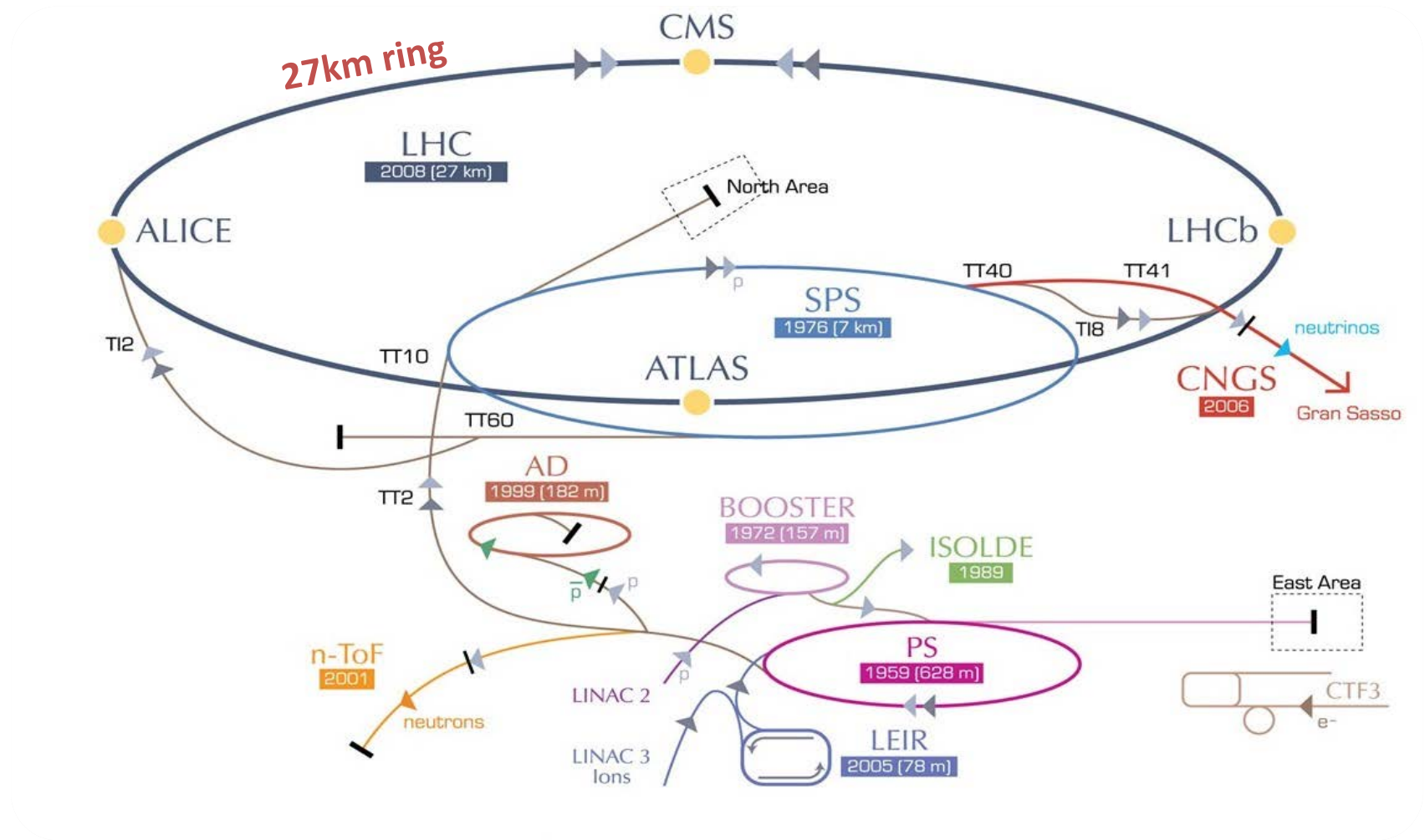
About the Speaker

- Member of CERN's Beams Department, Controls Group
 - Responsible for the Controls Middleware project
 - Communication Infrastructure
 - Role-Based Access Control
 - C++ & Java developer for > 10 years
-

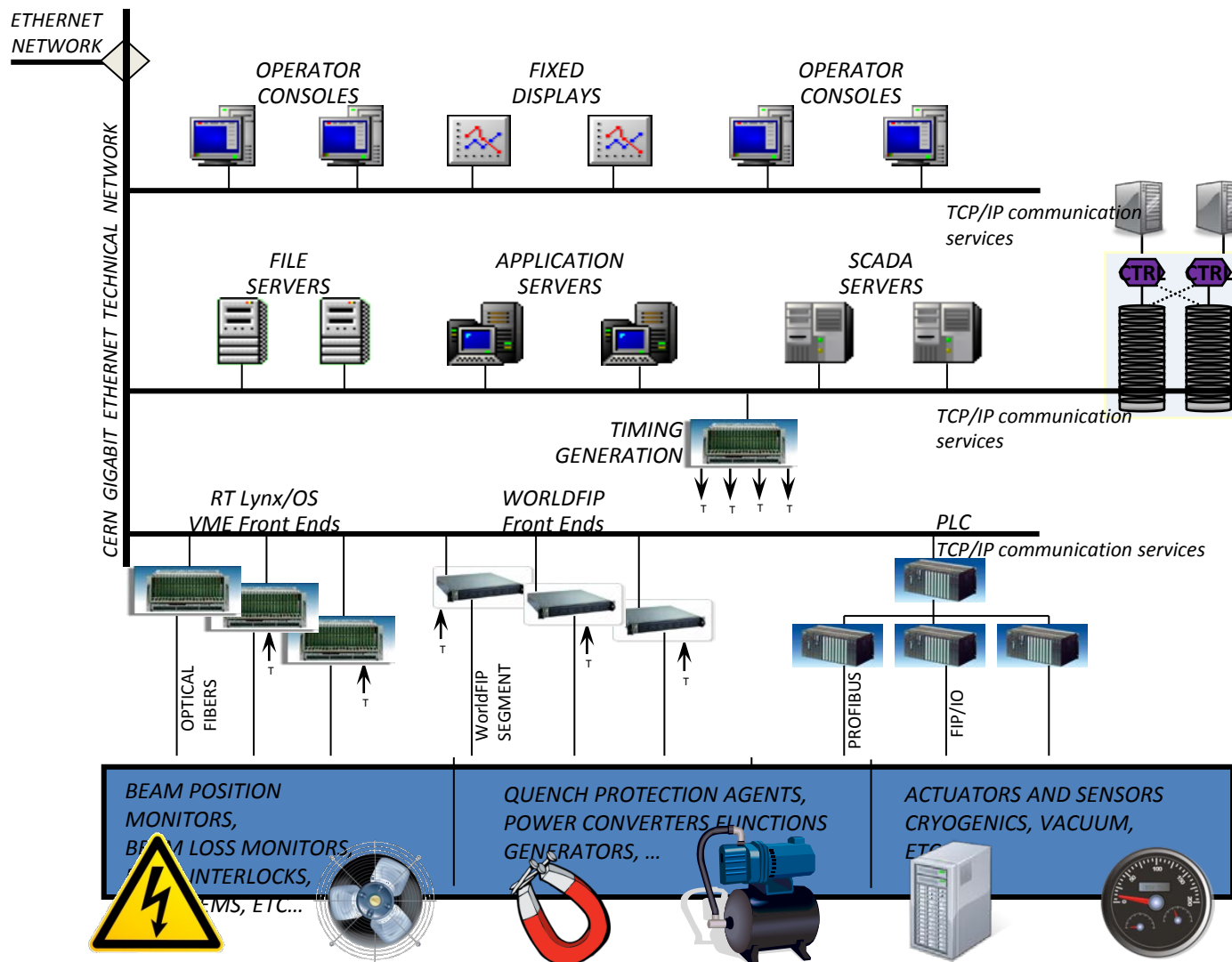


Wojciech.Sliwinski@cern.ch

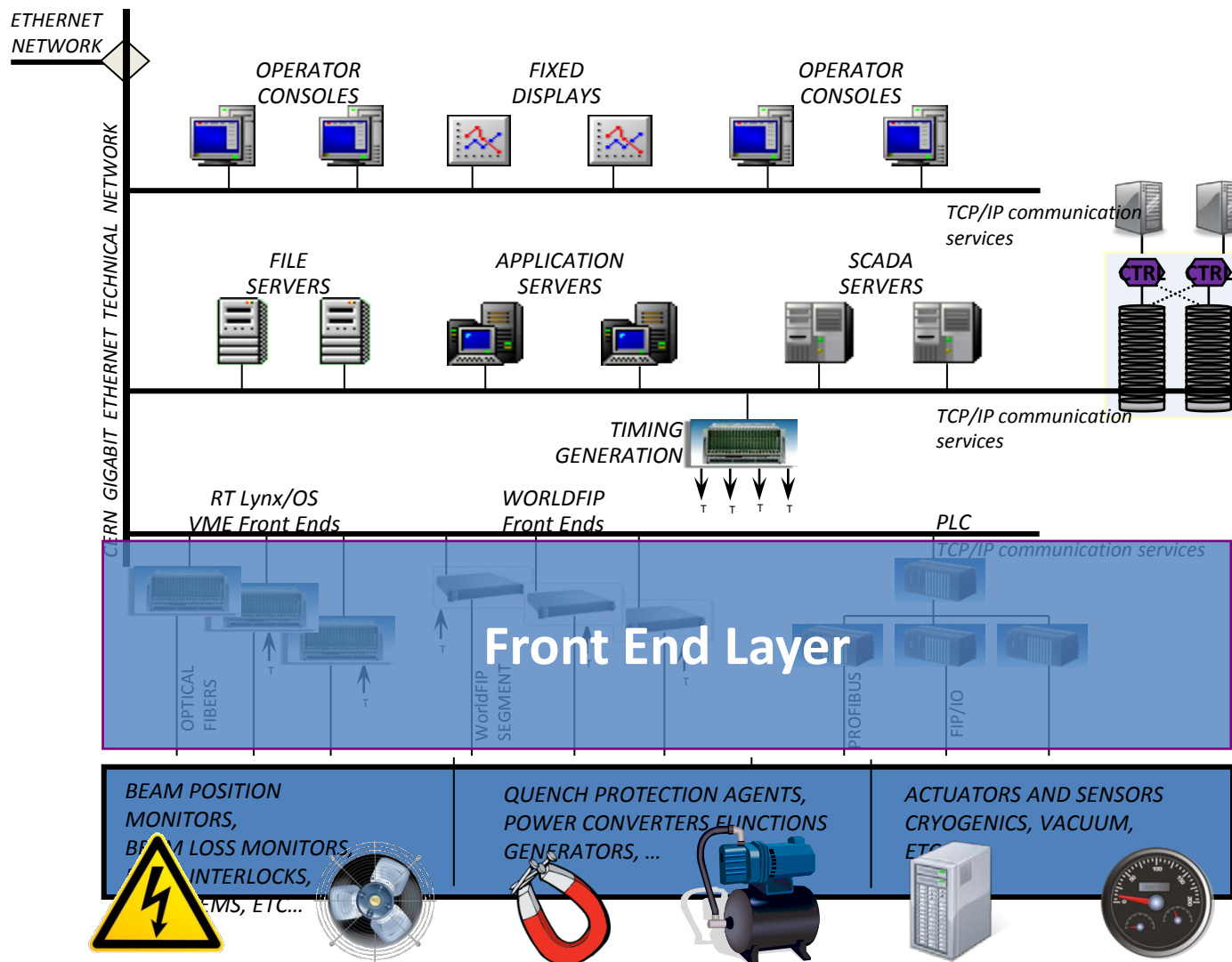
CERN – Where it all started ...



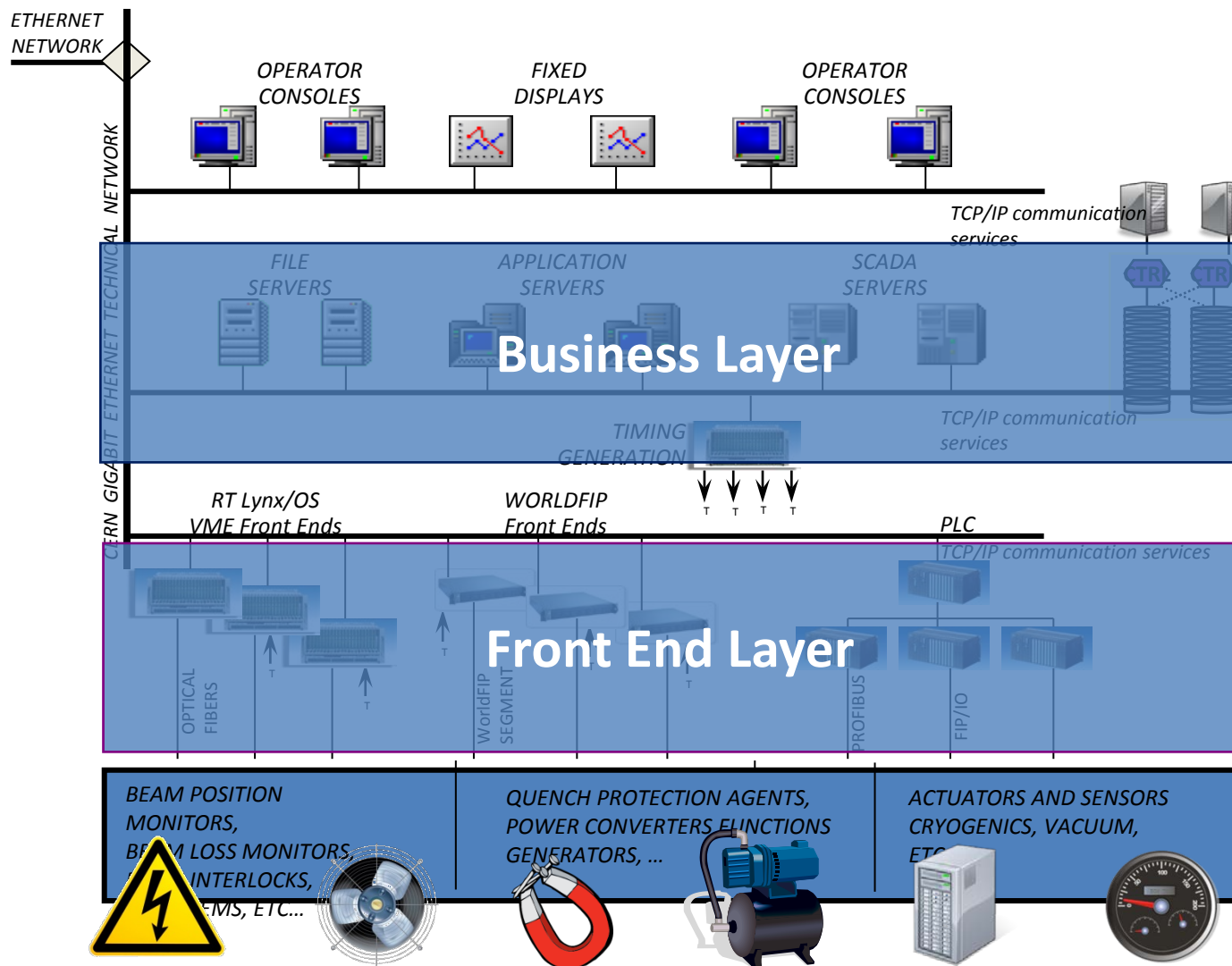
Controls Software Architecture



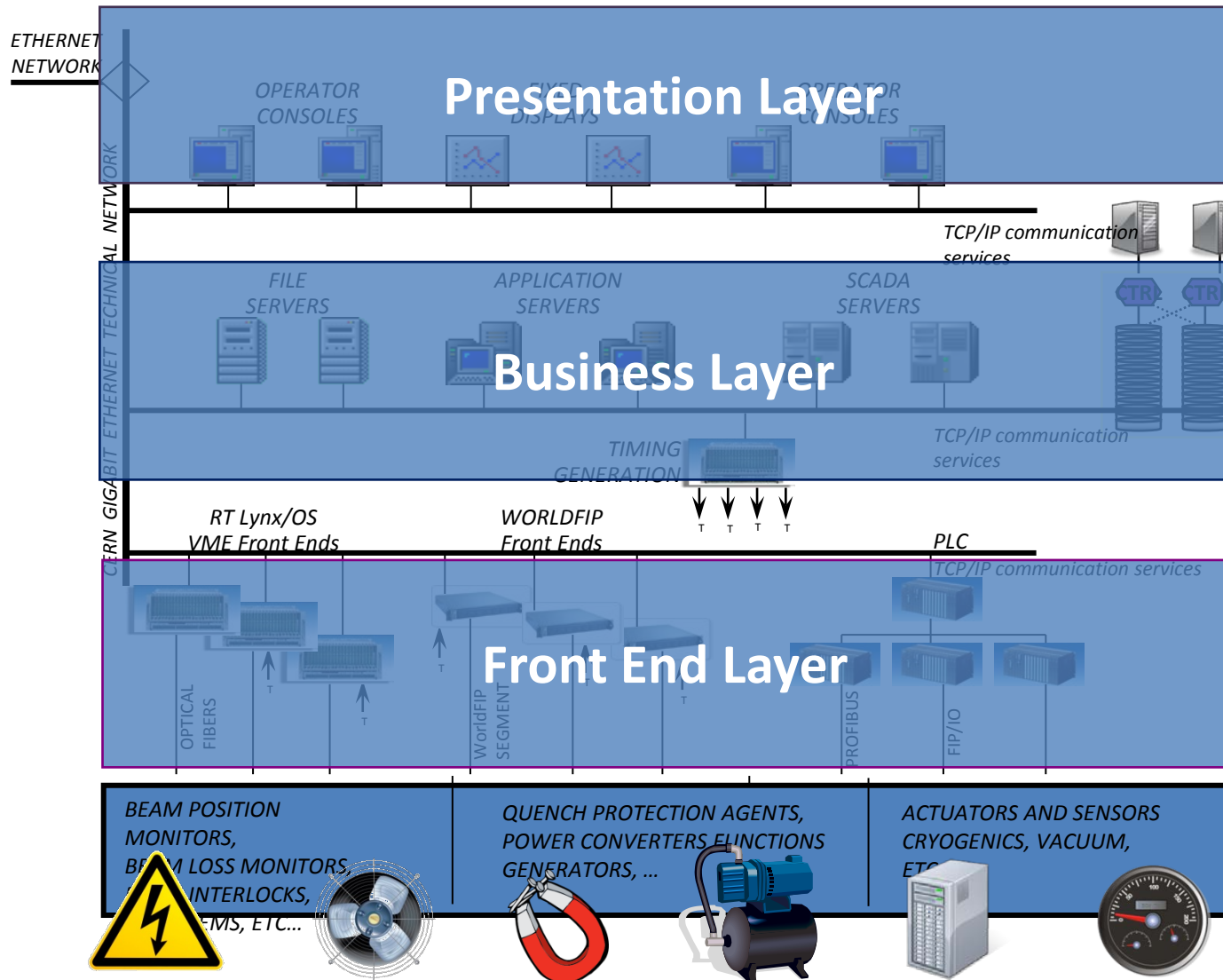
Controls Software Architecture



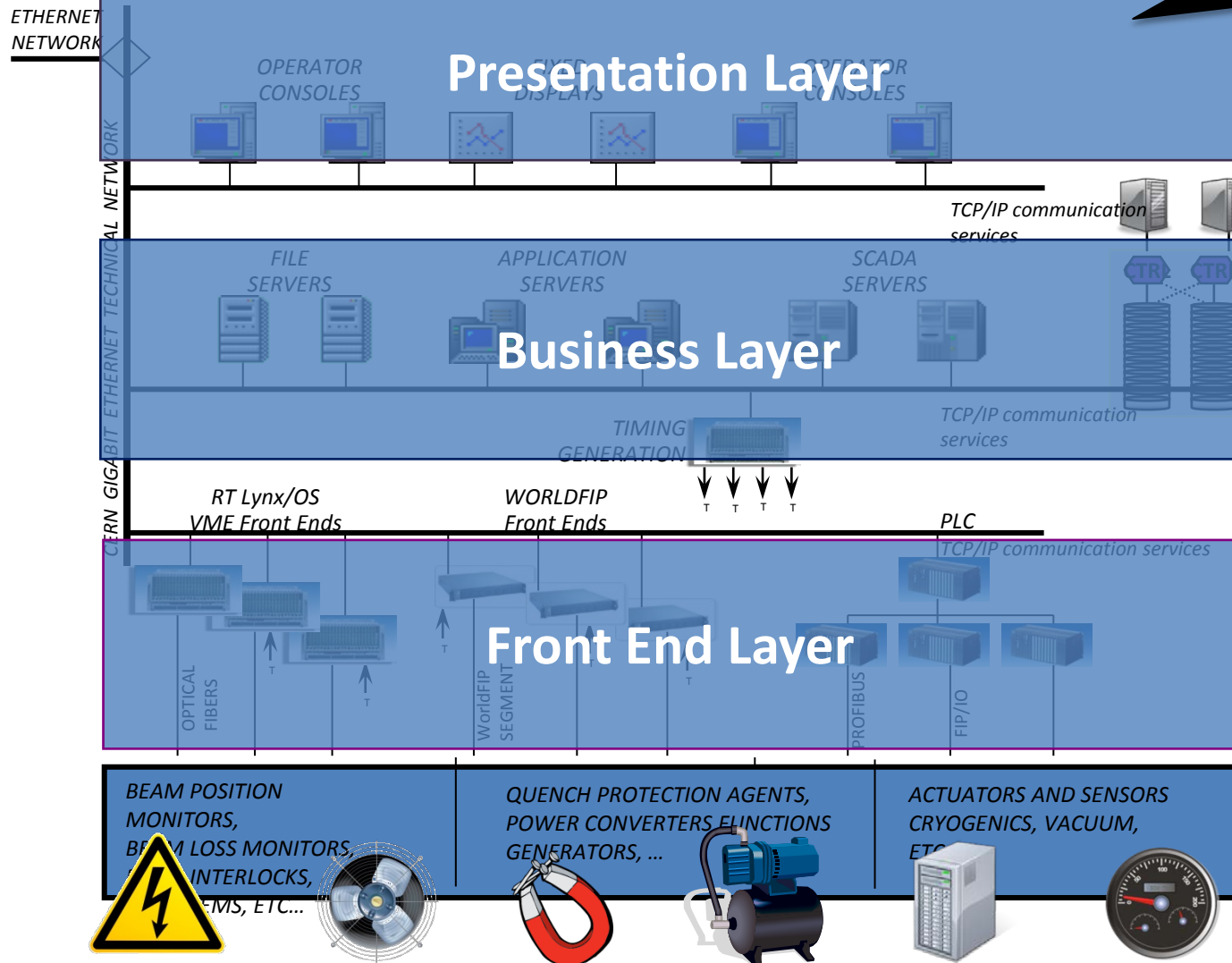
Controls Software Architecture



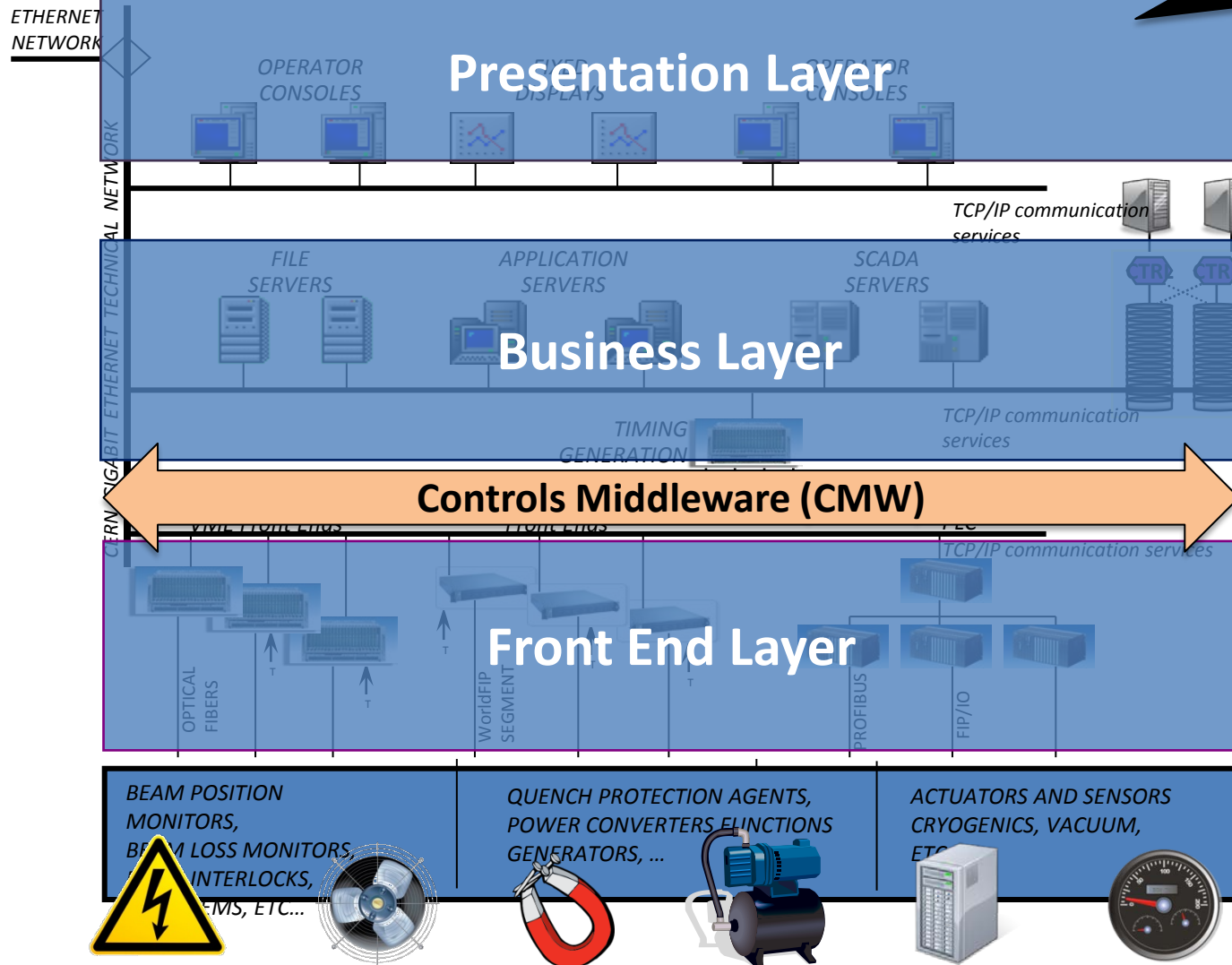
Controls Software Architecture



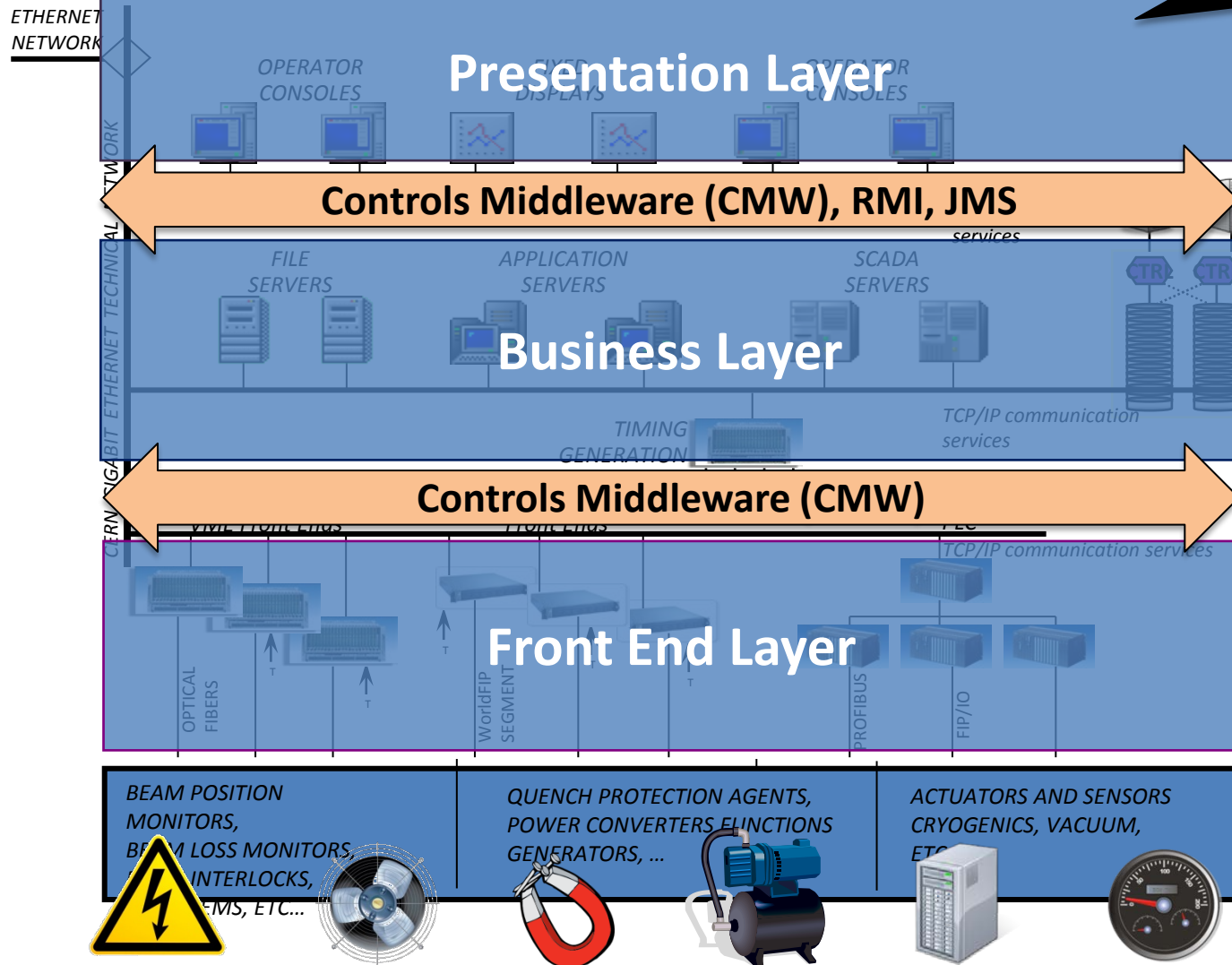
Controls Software Architecture



Controls Software Architecture



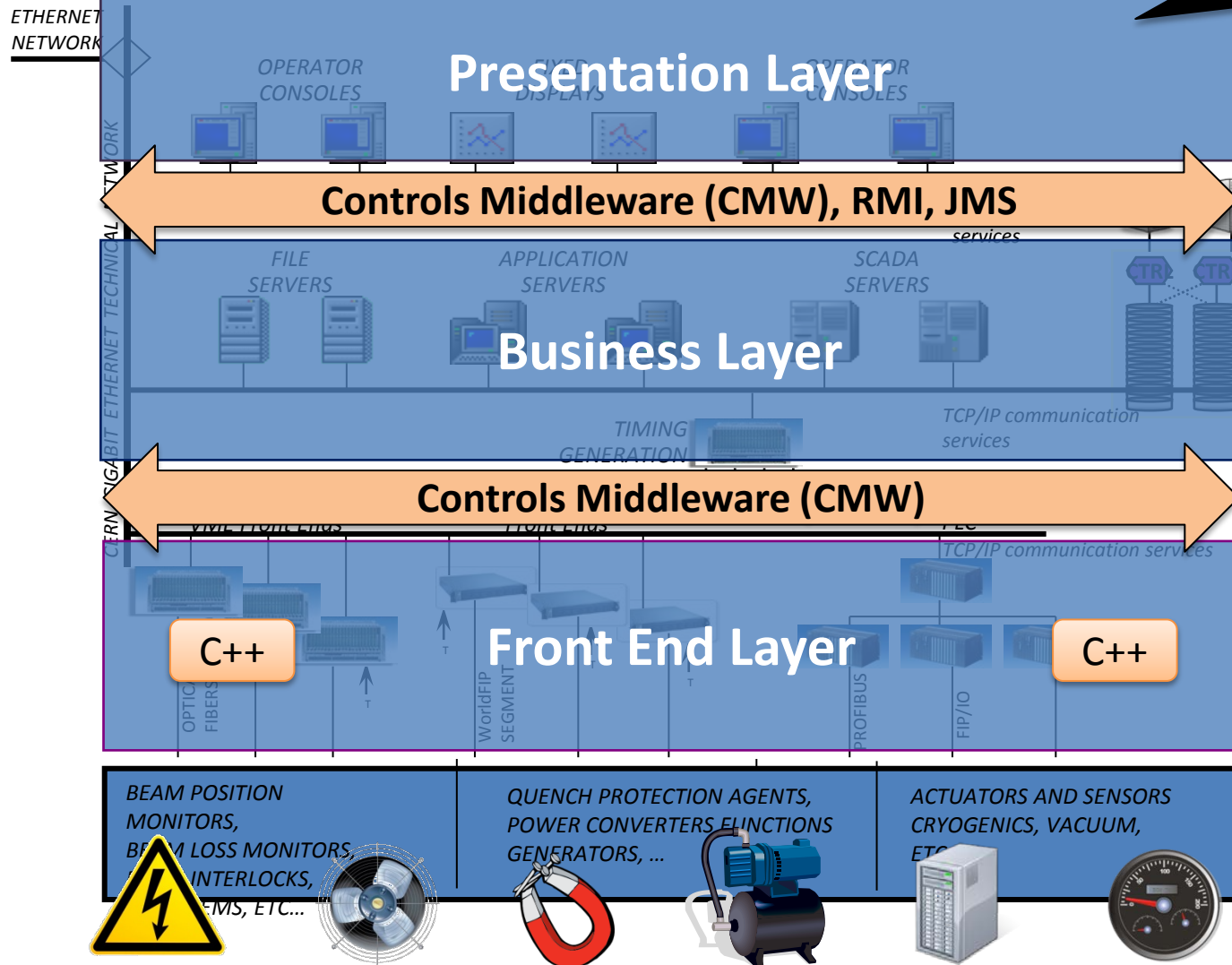
Controls Software Architecture



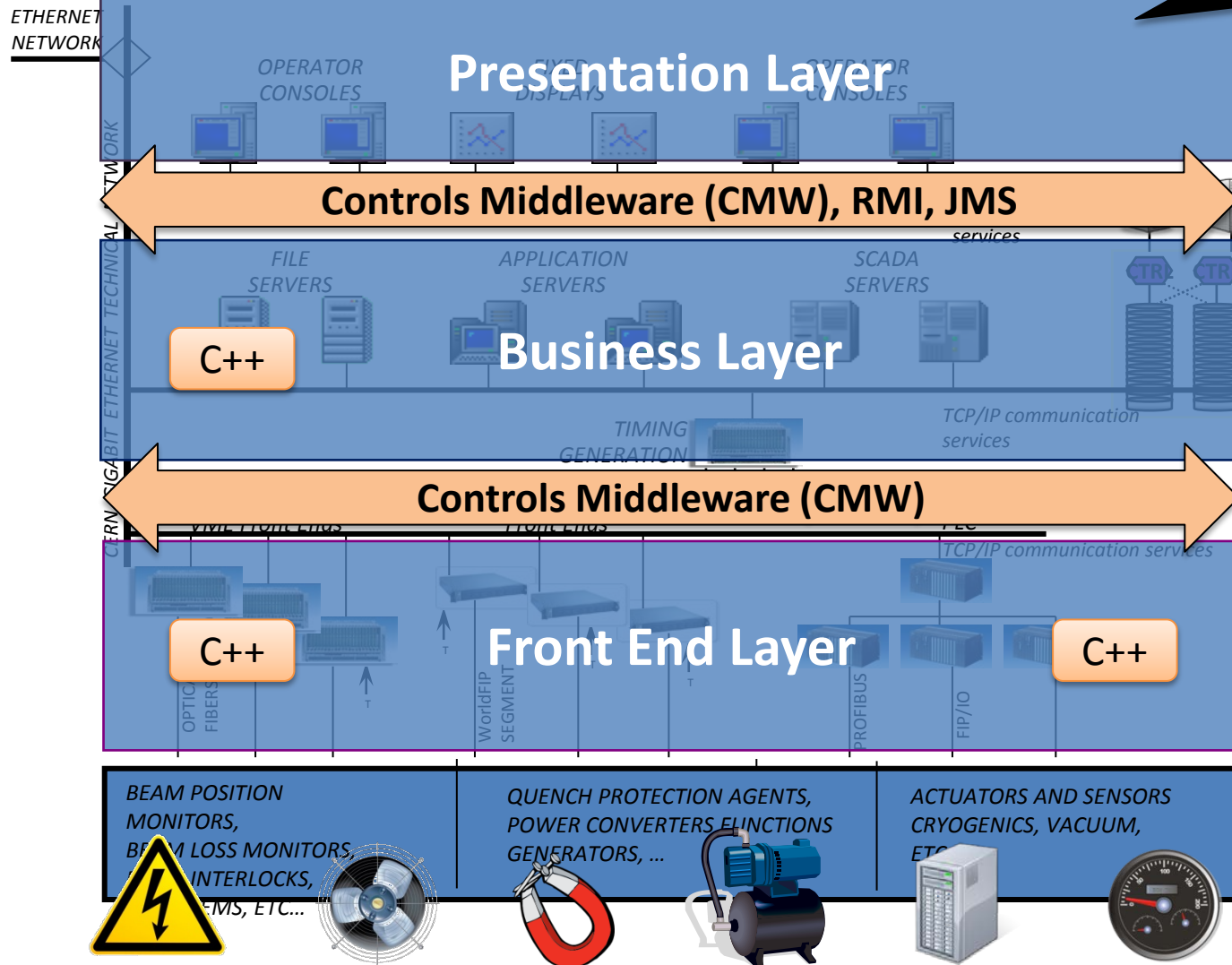
A photograph of a control room at CERN. Several operators are seated at a long desk with multiple computer monitors. The monitors display various data visualizations, including graphs and tables. A large CERN logo is visible on the wall in the background.



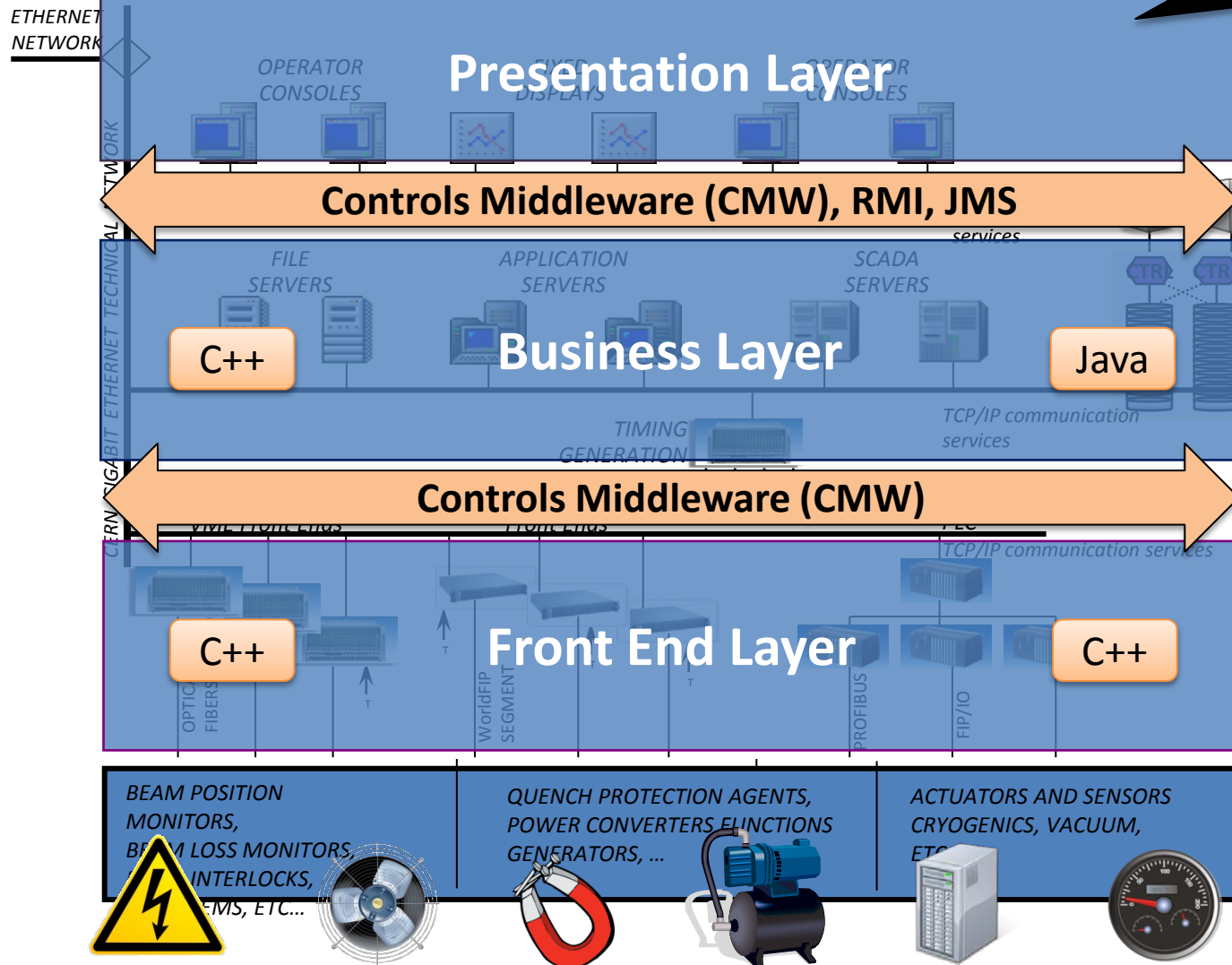
Controls Software Architecture



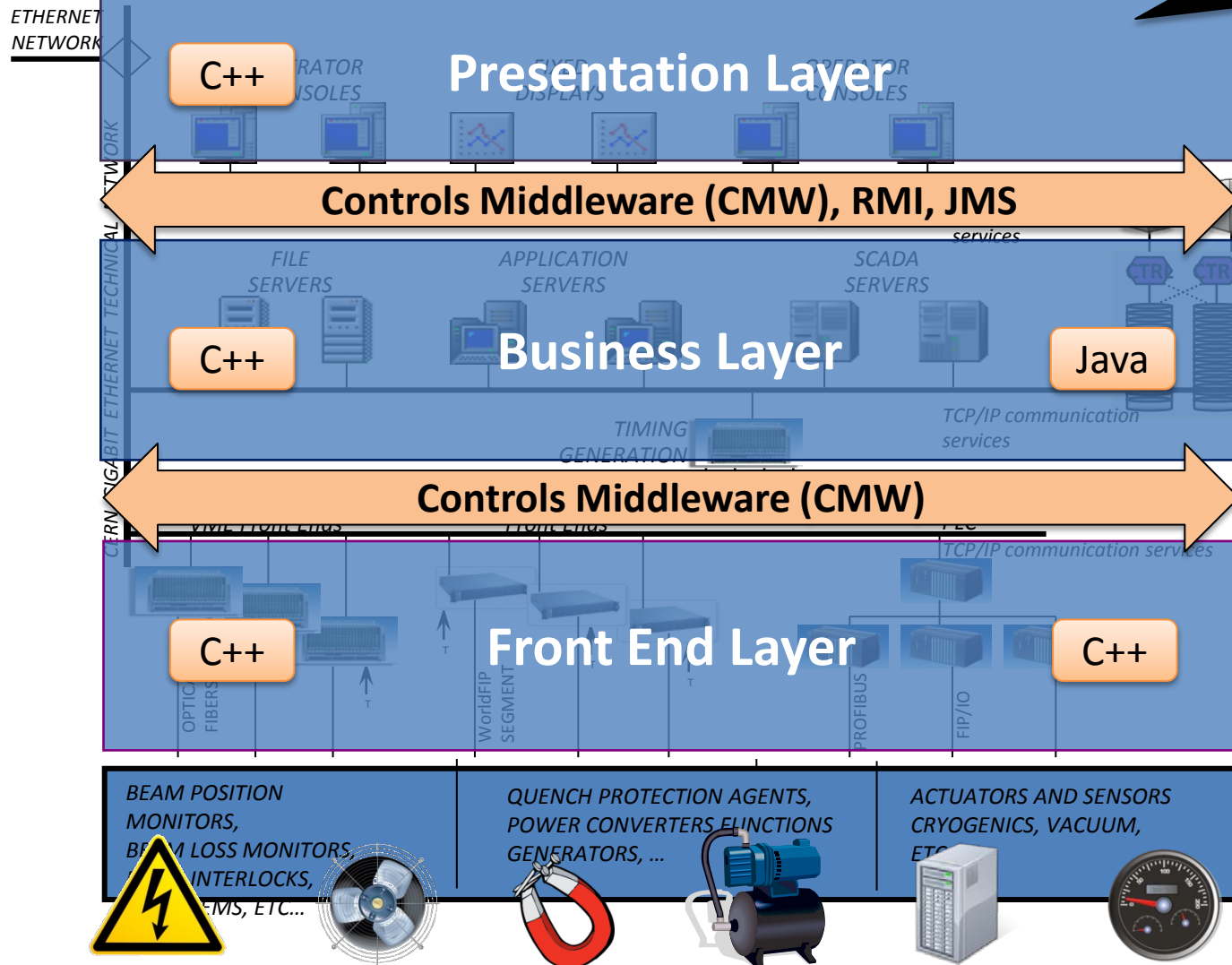
Controls Software Architecture



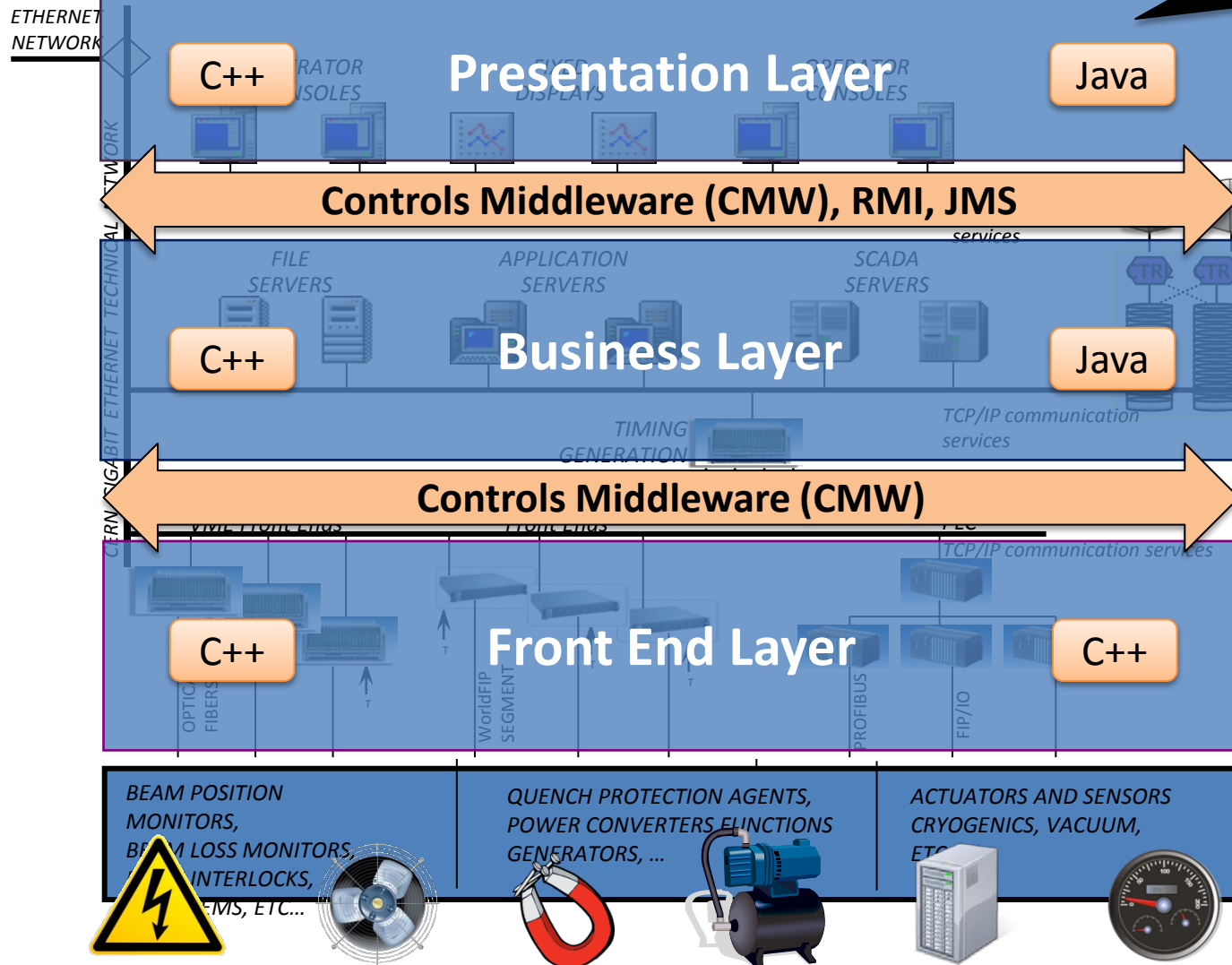
Controls Software Architecture



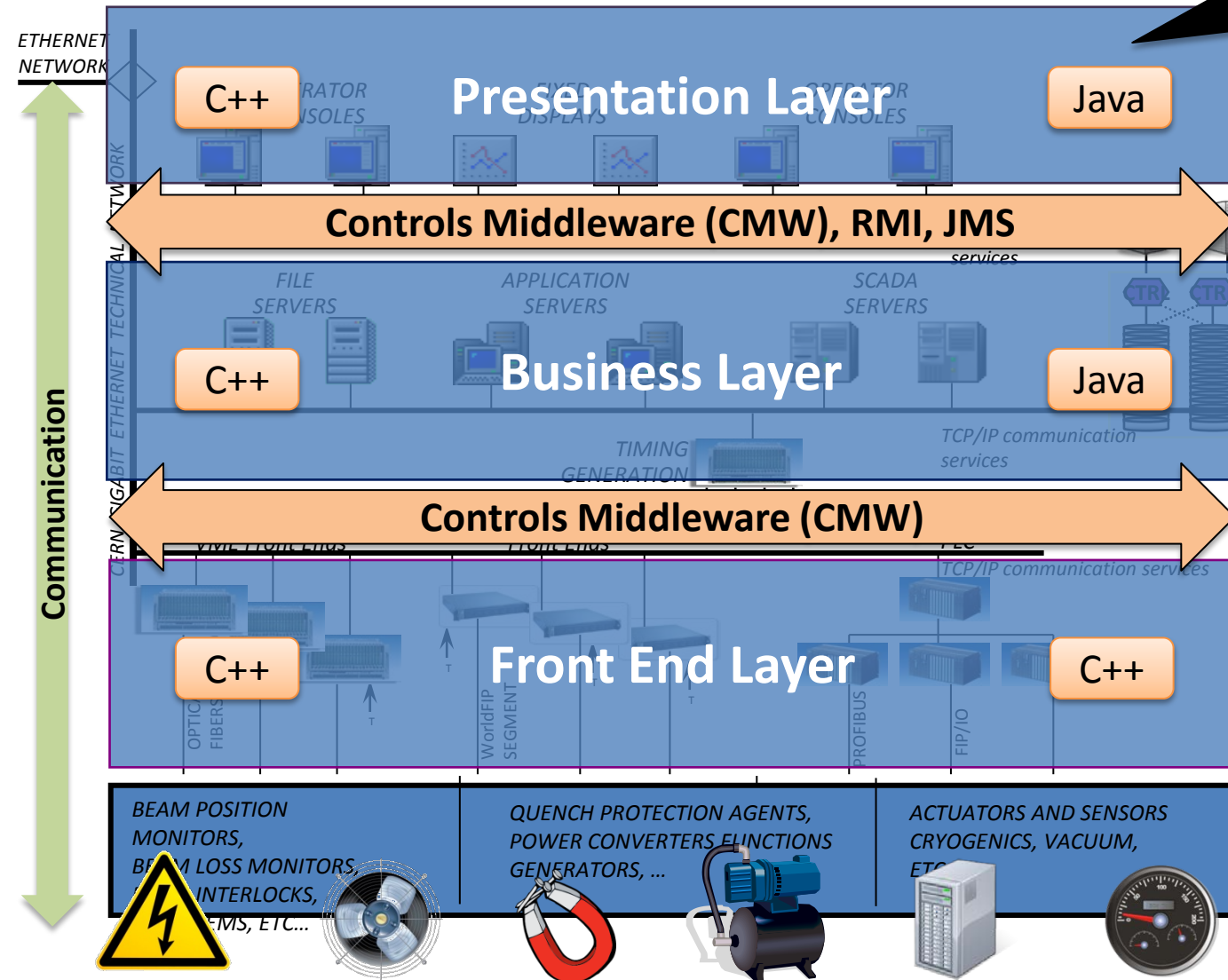
Controls Software Architecture



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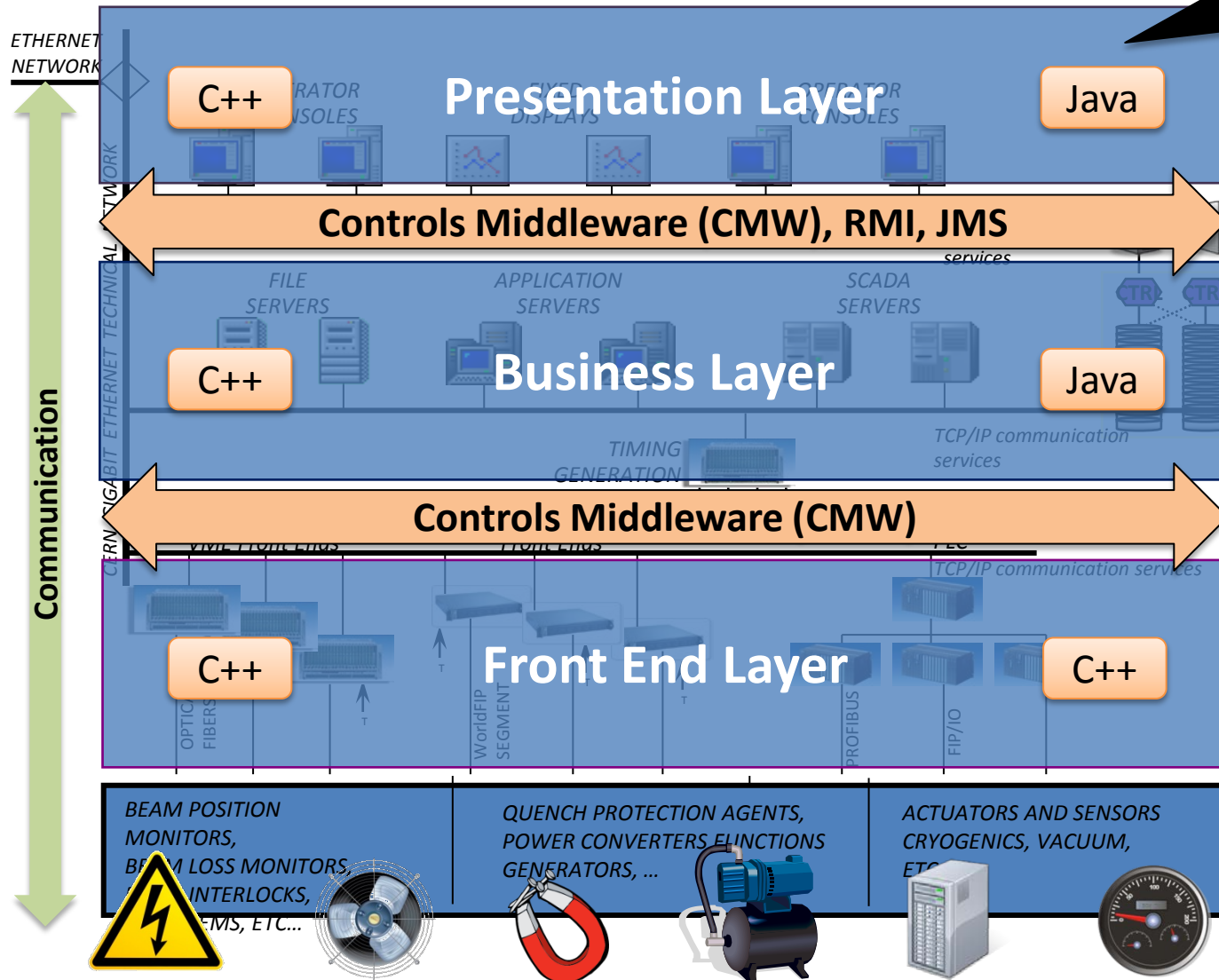
Controls Software Architecture



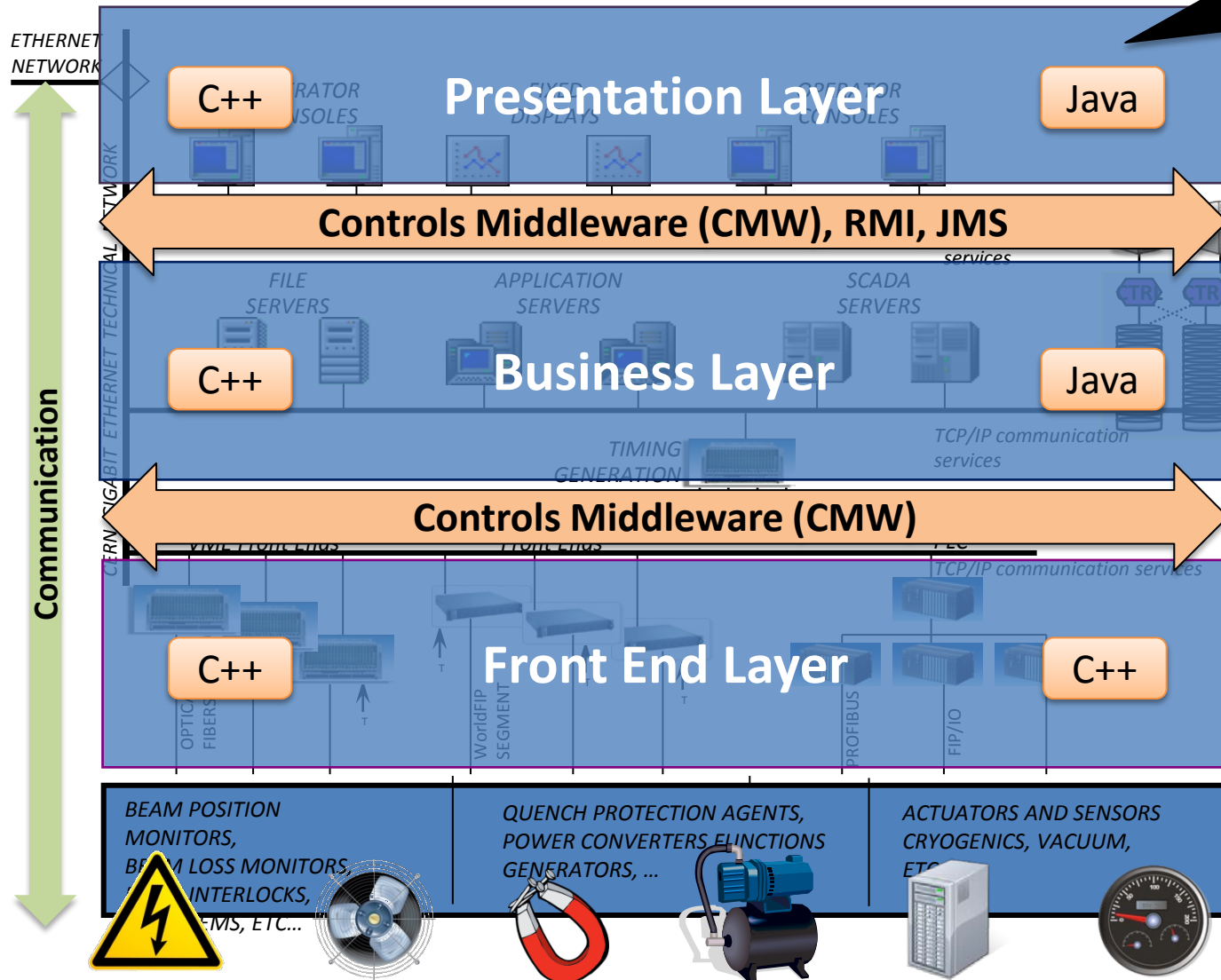
Controls Software Architecture



CMW Purpose:
Reliable and **scalable**
 transport of data
 between controls
 processes (Java & C++)



Controls Software Architecture



CMW Purpose:

Reliable and **scalable**
transport of data
between controls
processes (Java & C++)

- ✓ 4'000 CMW servers
- ✓ 85'000 devices
- ✓ 2'000'000 IO-points
- ✓ Based on CORBA

CMW - Controls Middleware

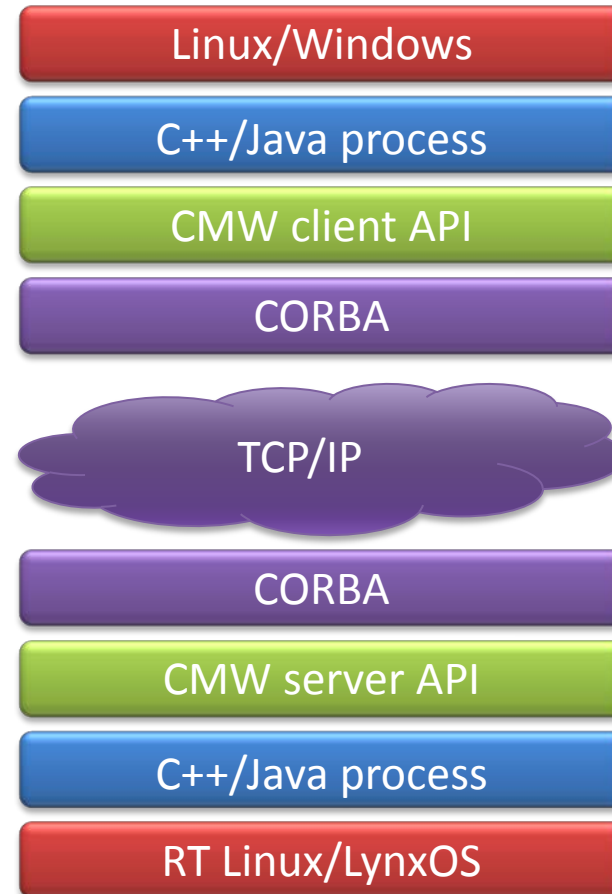


CMW - Controls Middleware

- Core **communication** layer
- Collection of software **components & services**
- Operations: **Get, Set, Subscribe**
- Widely deployed for **all CERN accelerators**
- **Exportable:** used also in GSI (Germany)

CMW - Controls Middleware

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Good design => good product



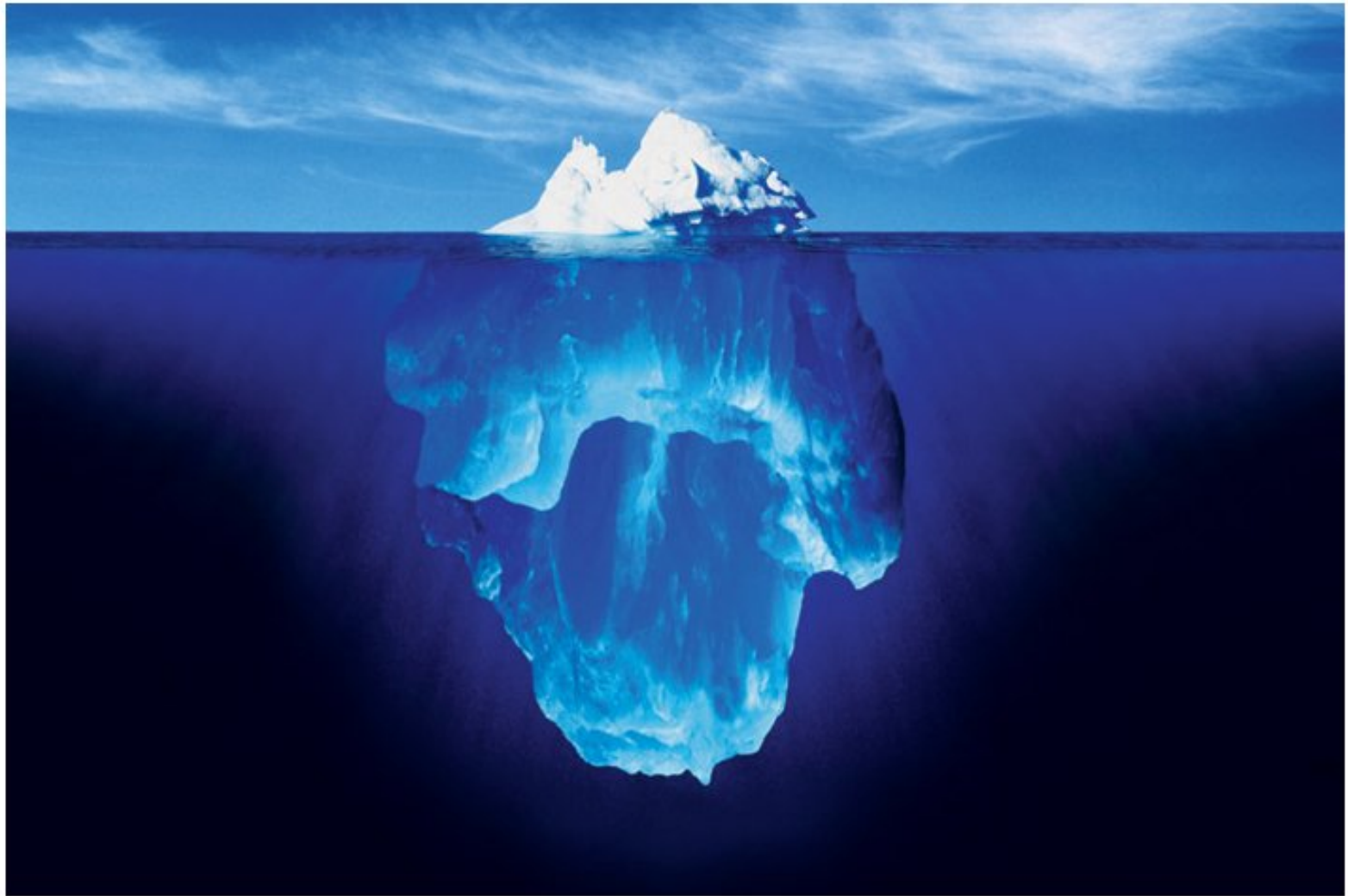
Good design => good product

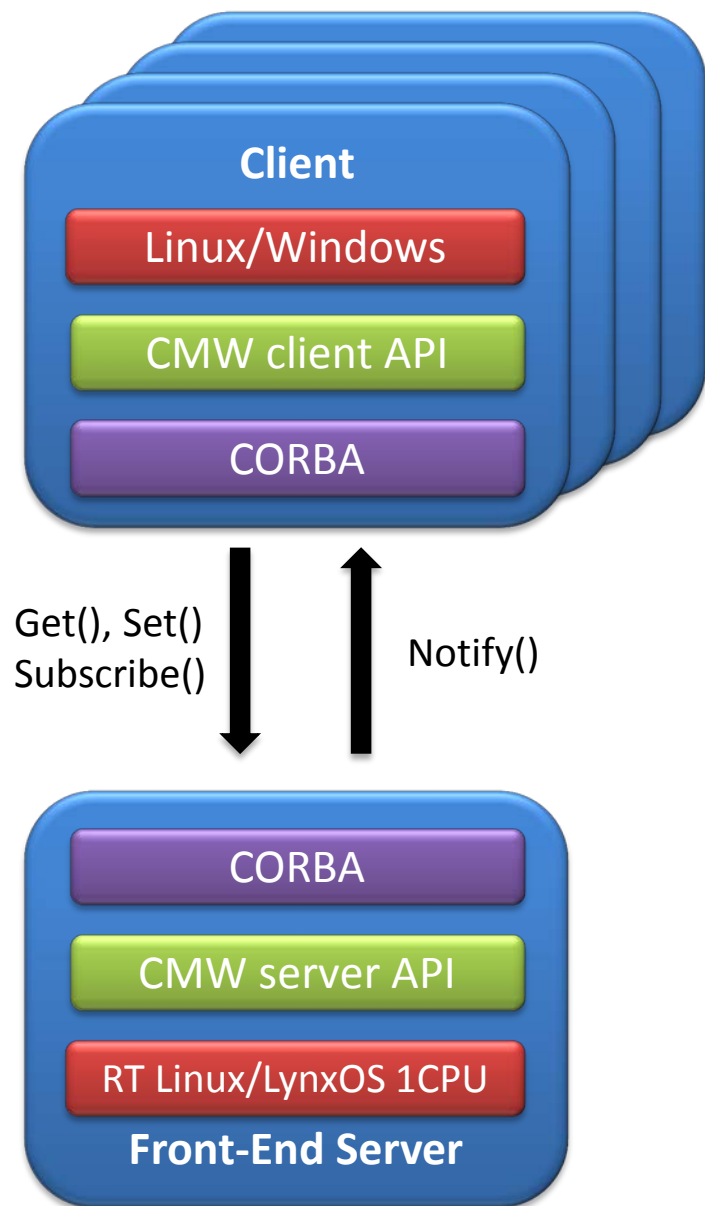


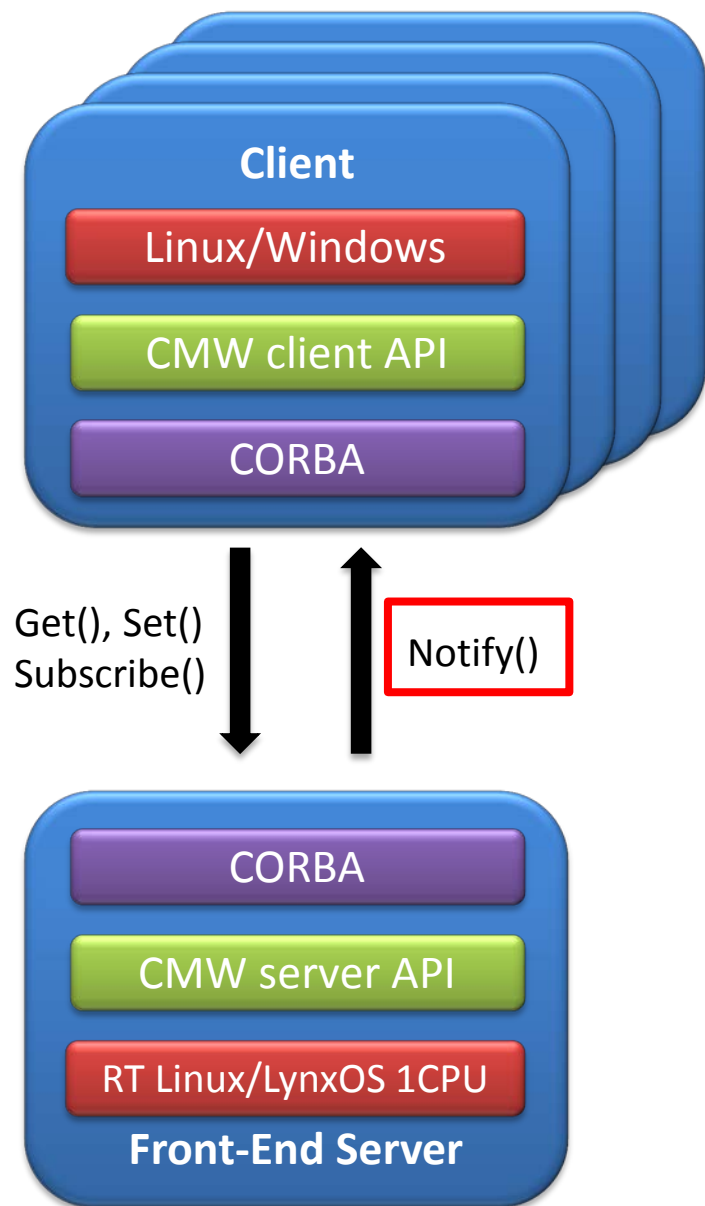
... but reality is often different ...

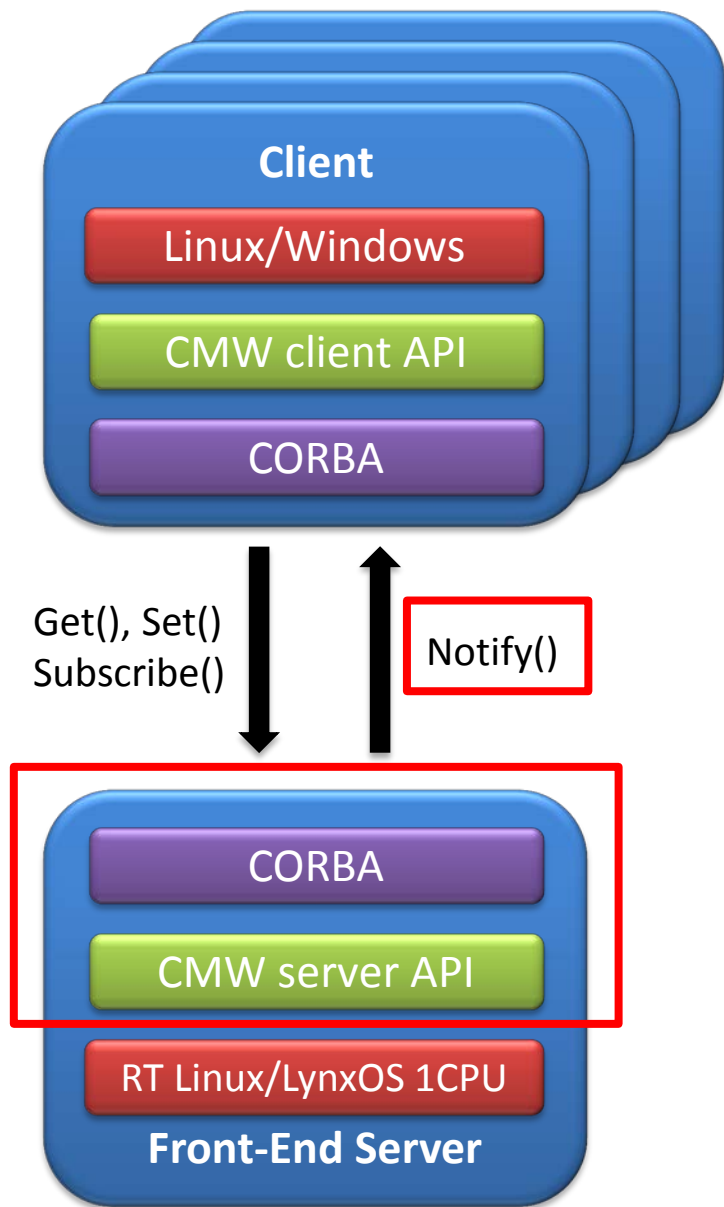


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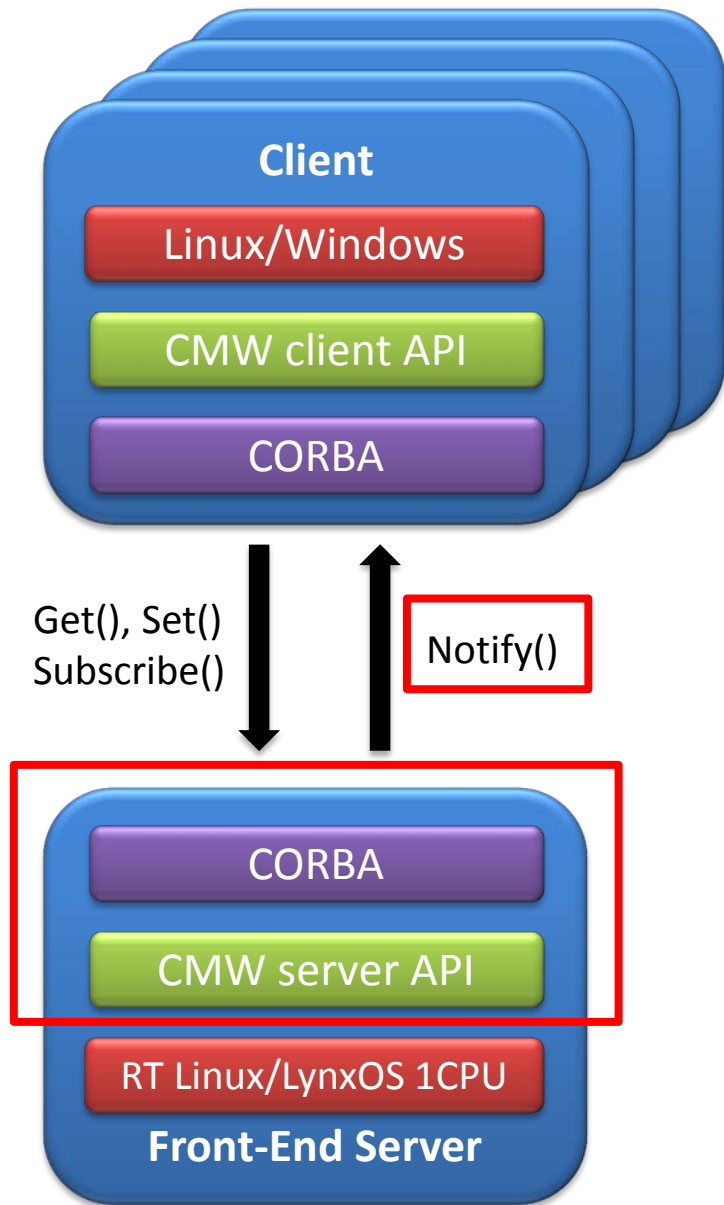


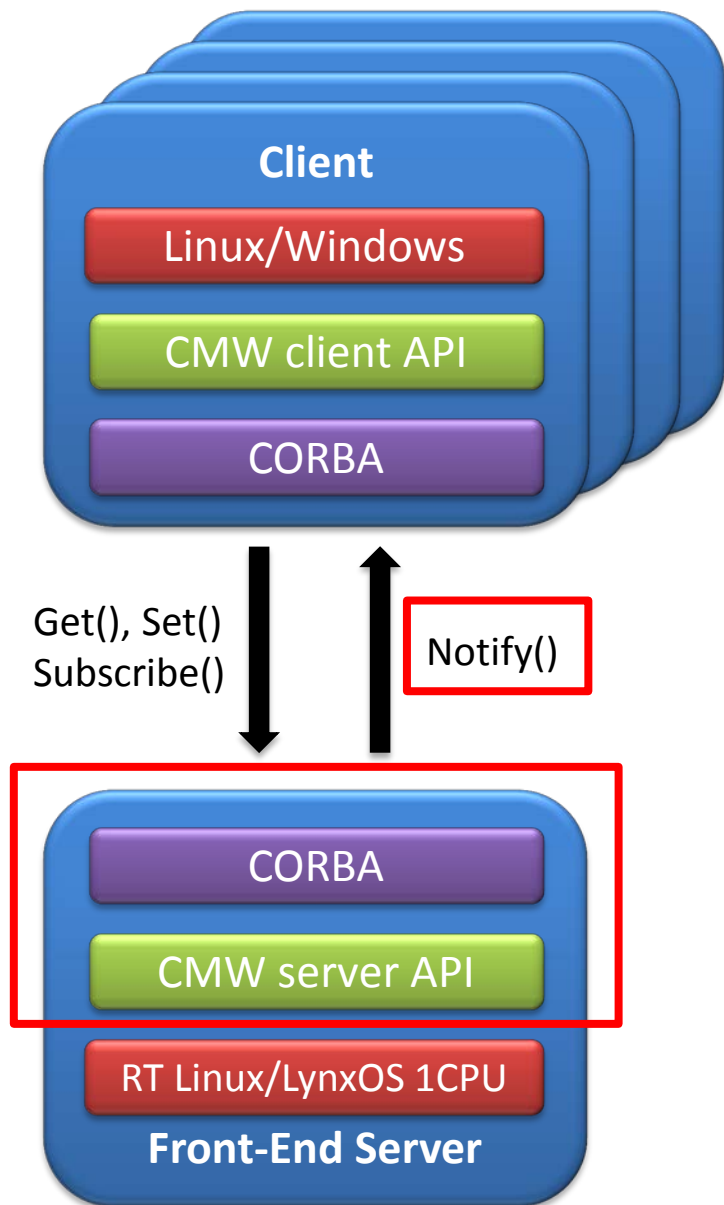






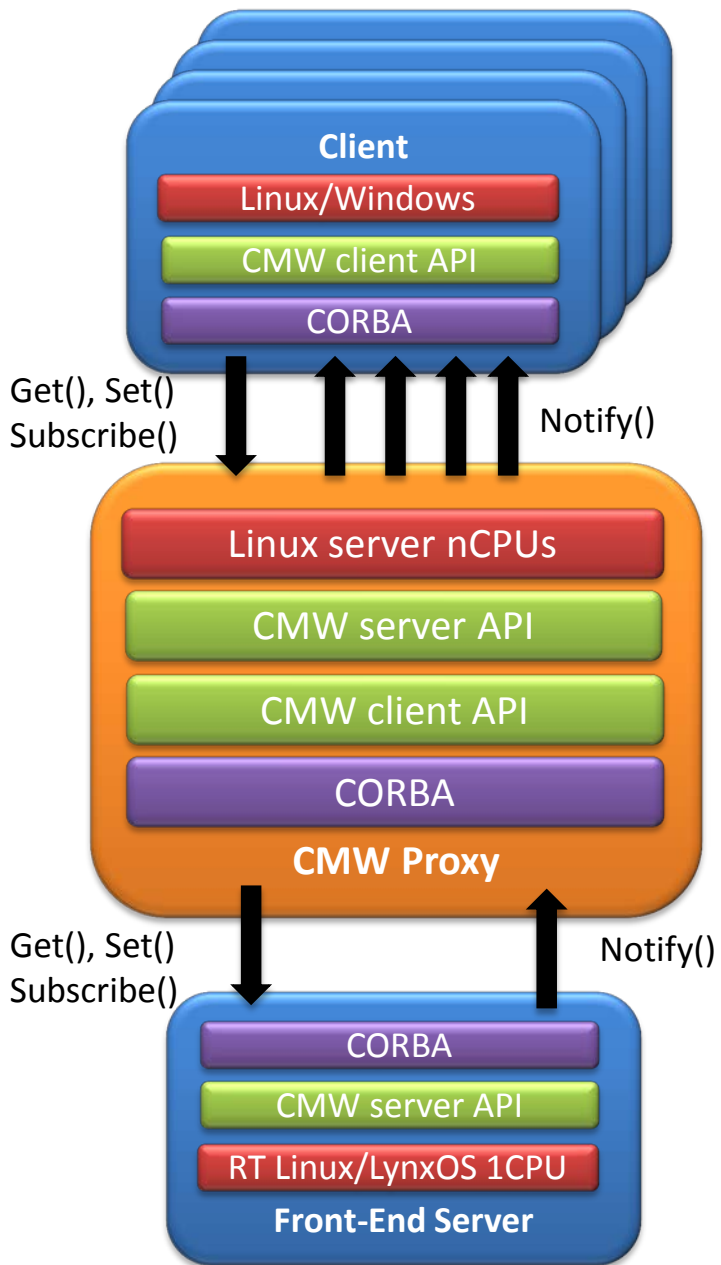
Performance Issue



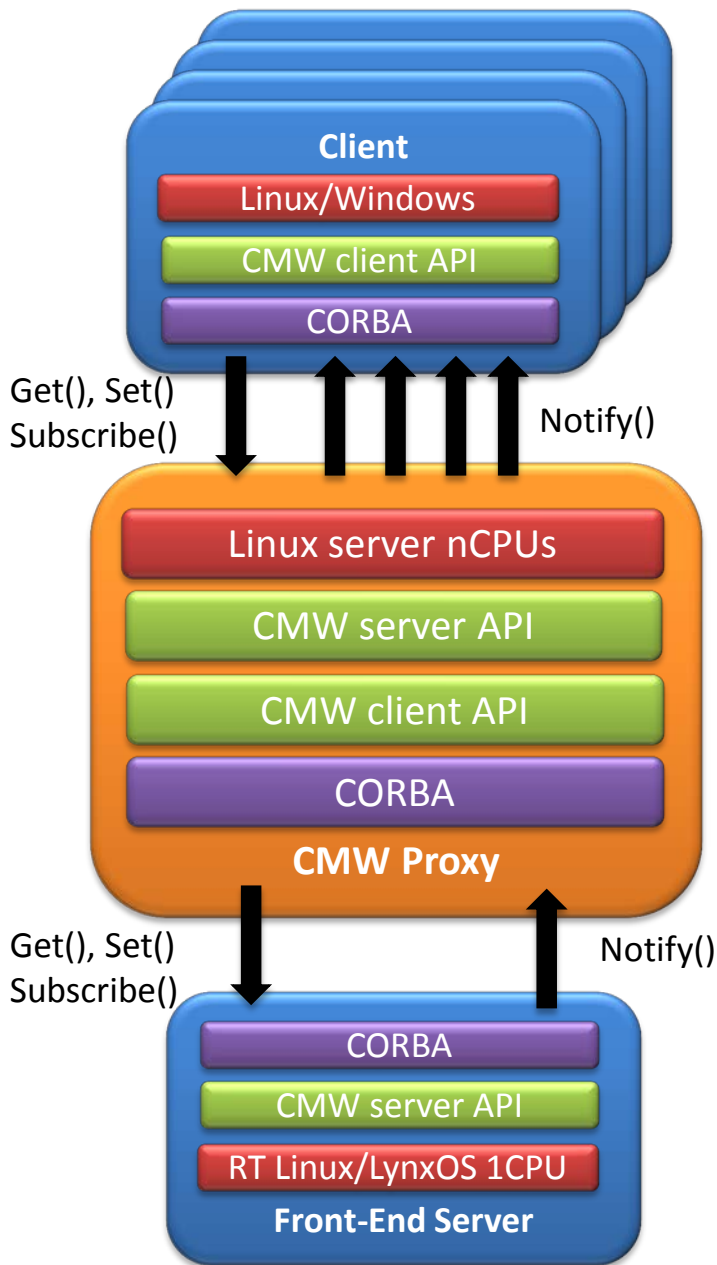


Performance Issue

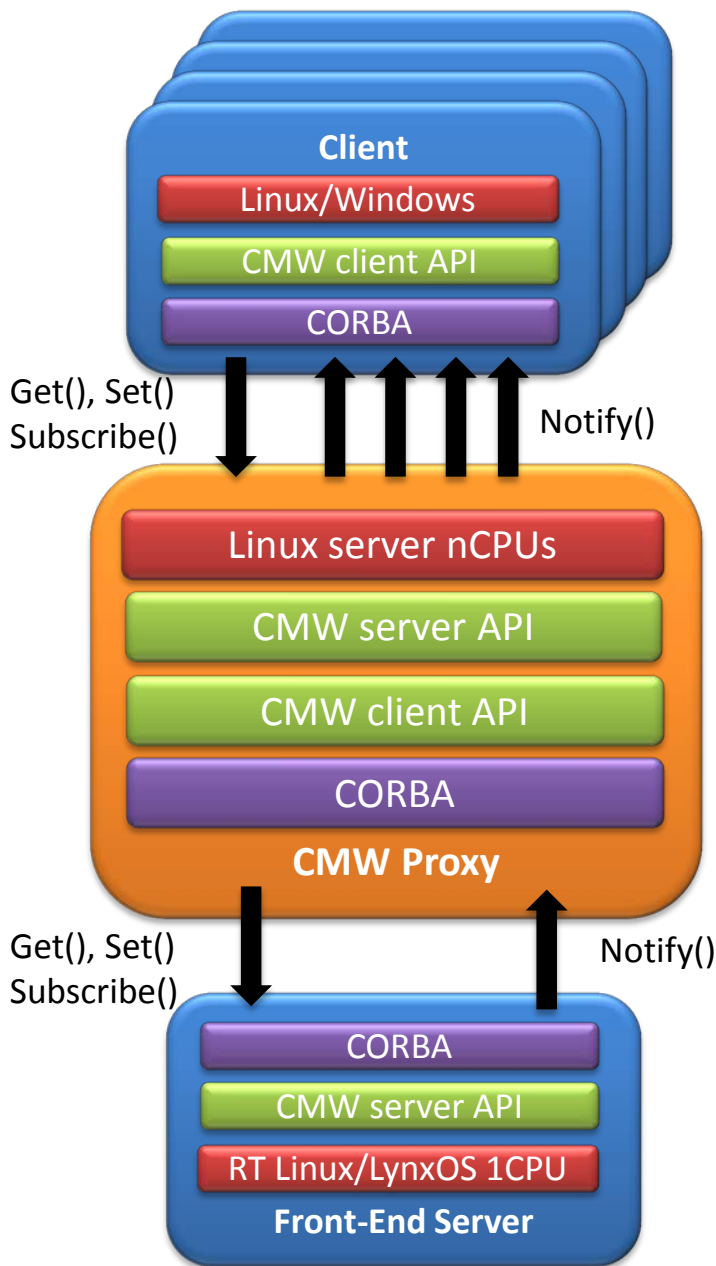
- **Overloaded servers**
 - High data demand from many apps.
 - Many TCP/IP client connections
 - Limited resources: CPU, memory
- **Poor performance of subscriptions**
 - Lack of non-blocking communication
 - Heavy serialization
 - N copies of same data
- **Not feasible to upgrade** front-end platform and/or CMW library
- **Blocking issue** for LHC operation
 - BCT, BPM, RF, Collimators, ...



Proxy Requirements

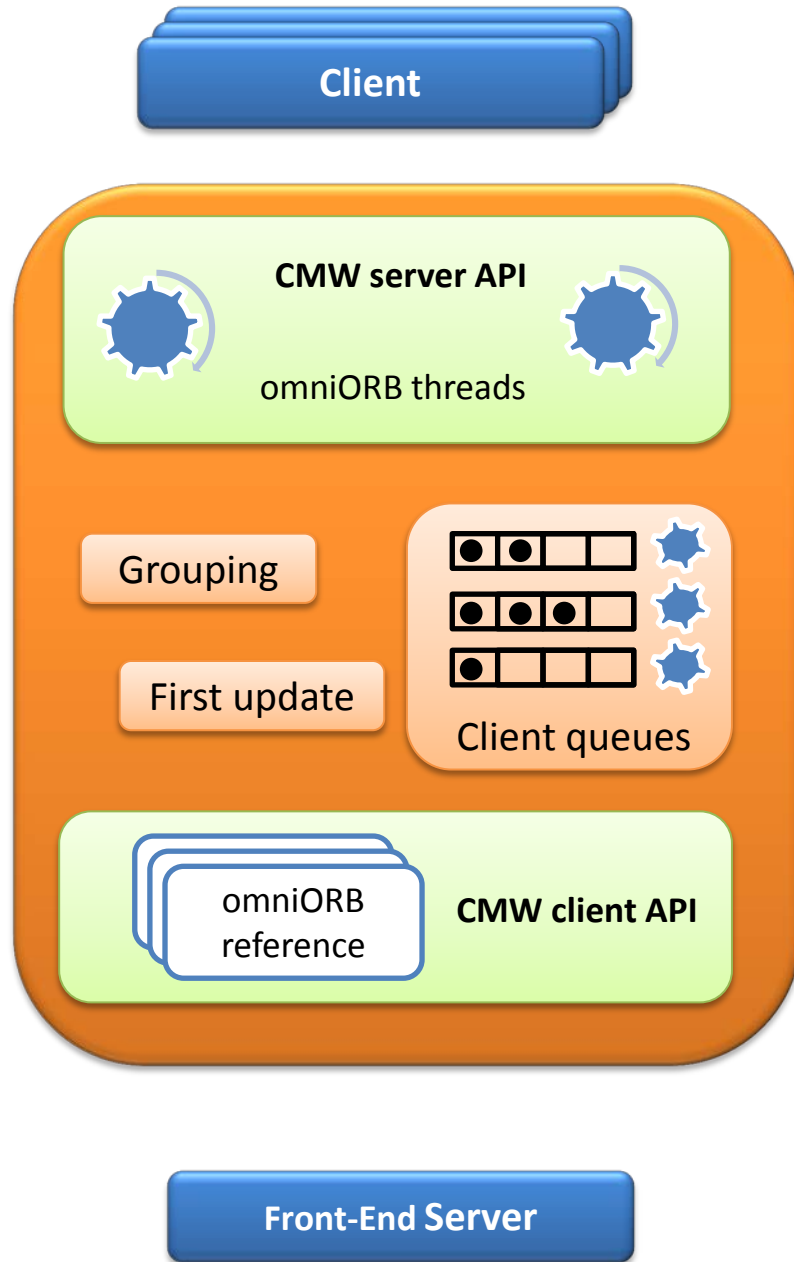


Proxy Requirements

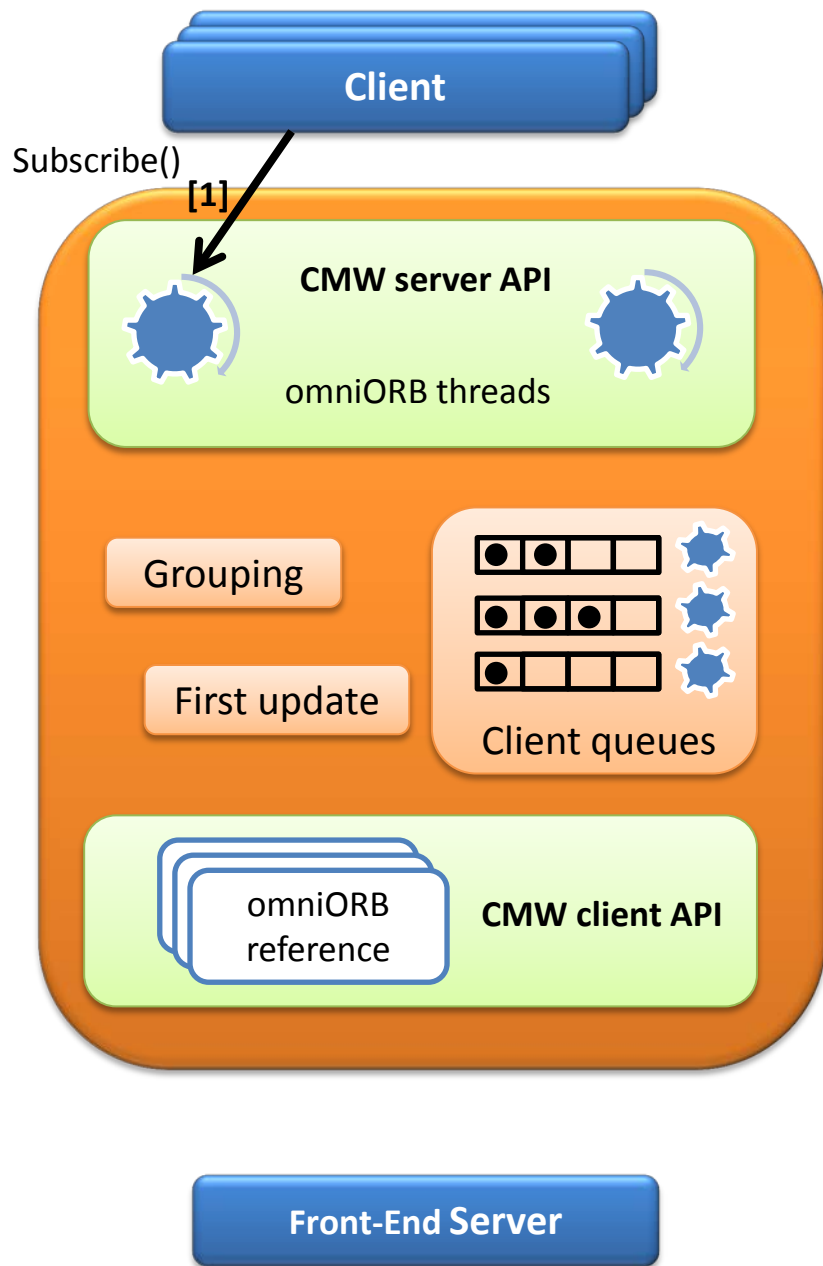


- **Full transparency** in p2p comm.
- Request interceptor => must have **good performance**
- **Grouping of subscriptions** and broadcasting of updates
- Async processing but **preserve ordering**
- Enhanced **runtime diagnostics**

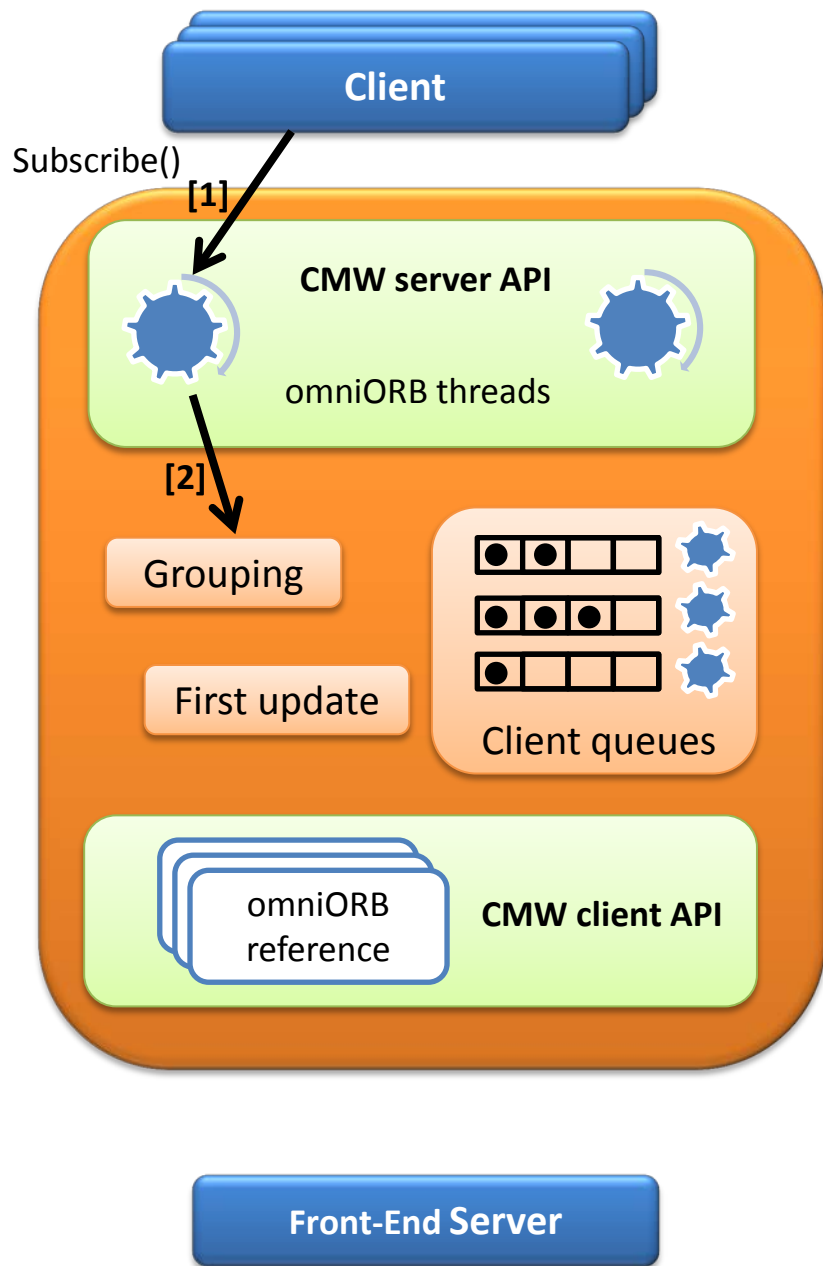
Proxy Architecture



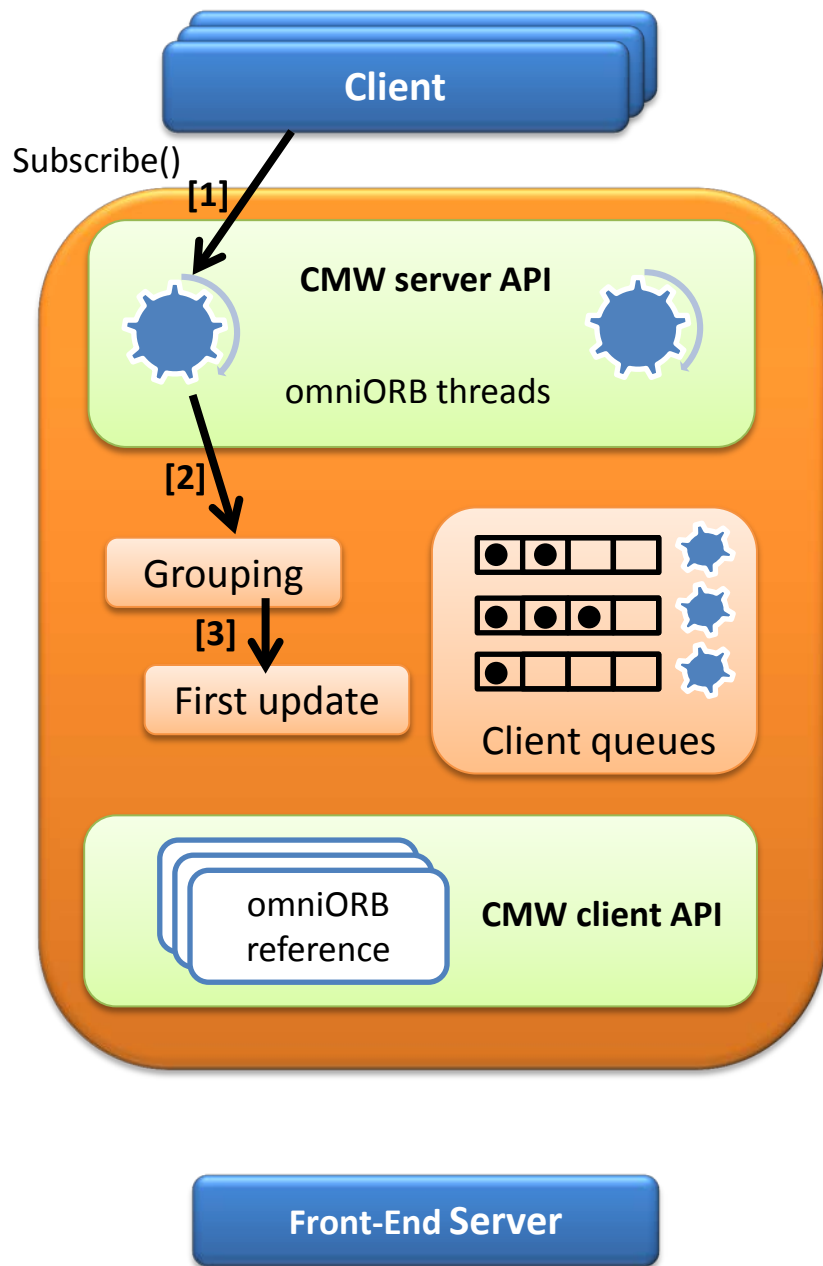
Proxy Architecture



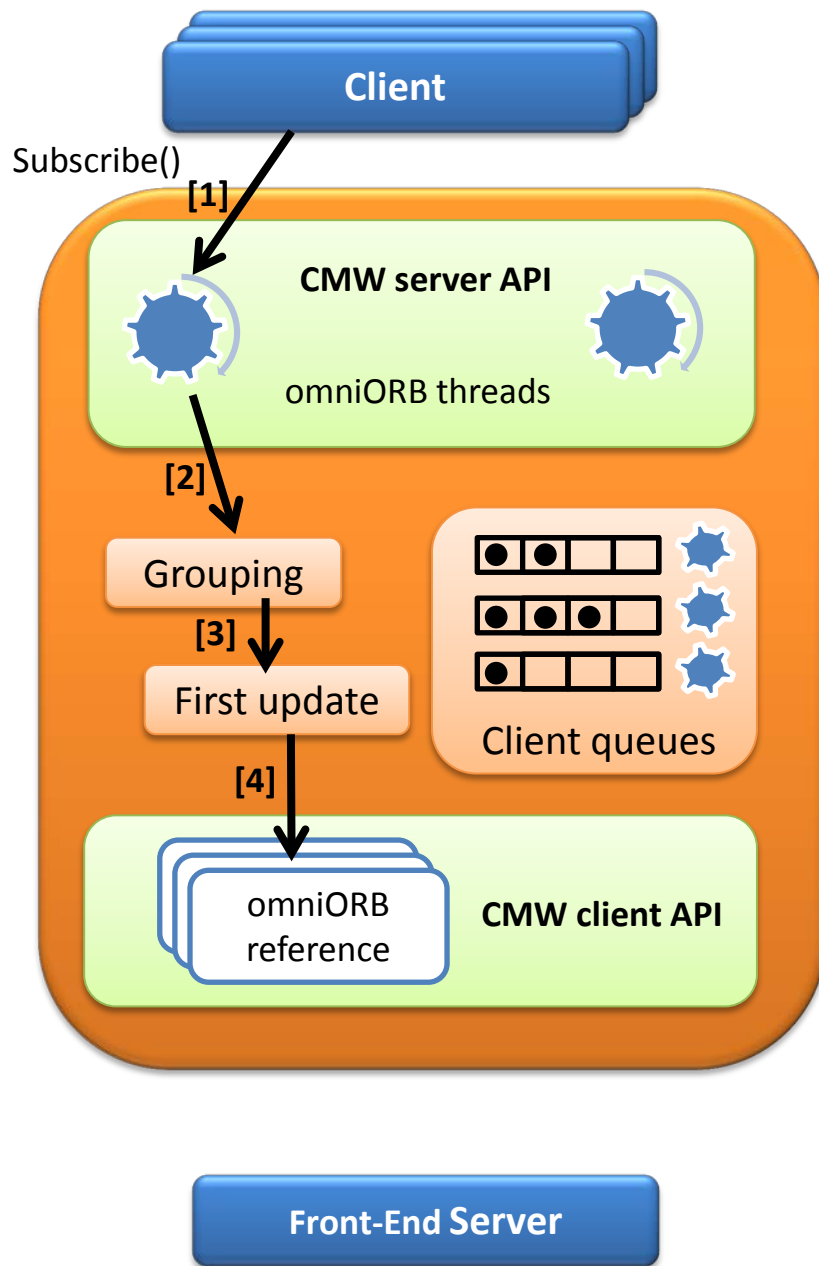
Proxy Architecture



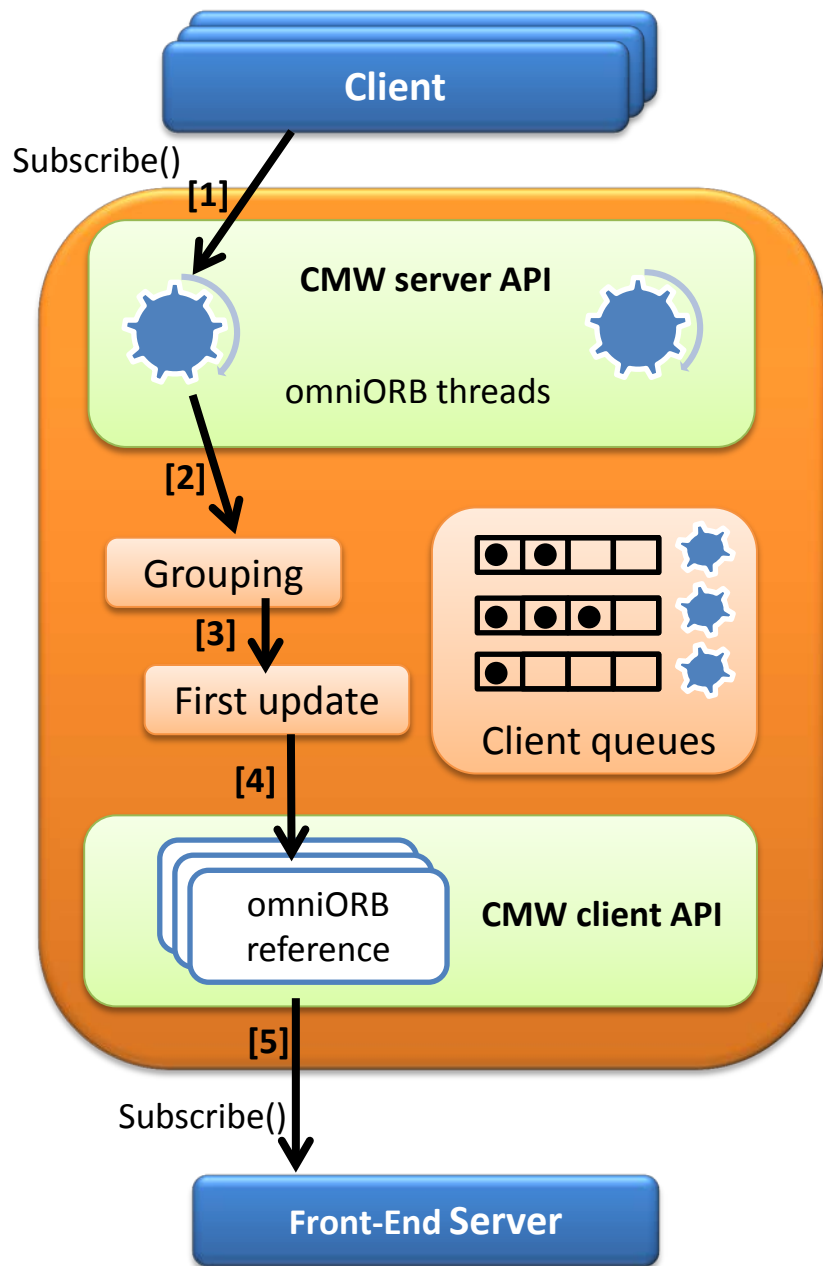
Proxy Architecture



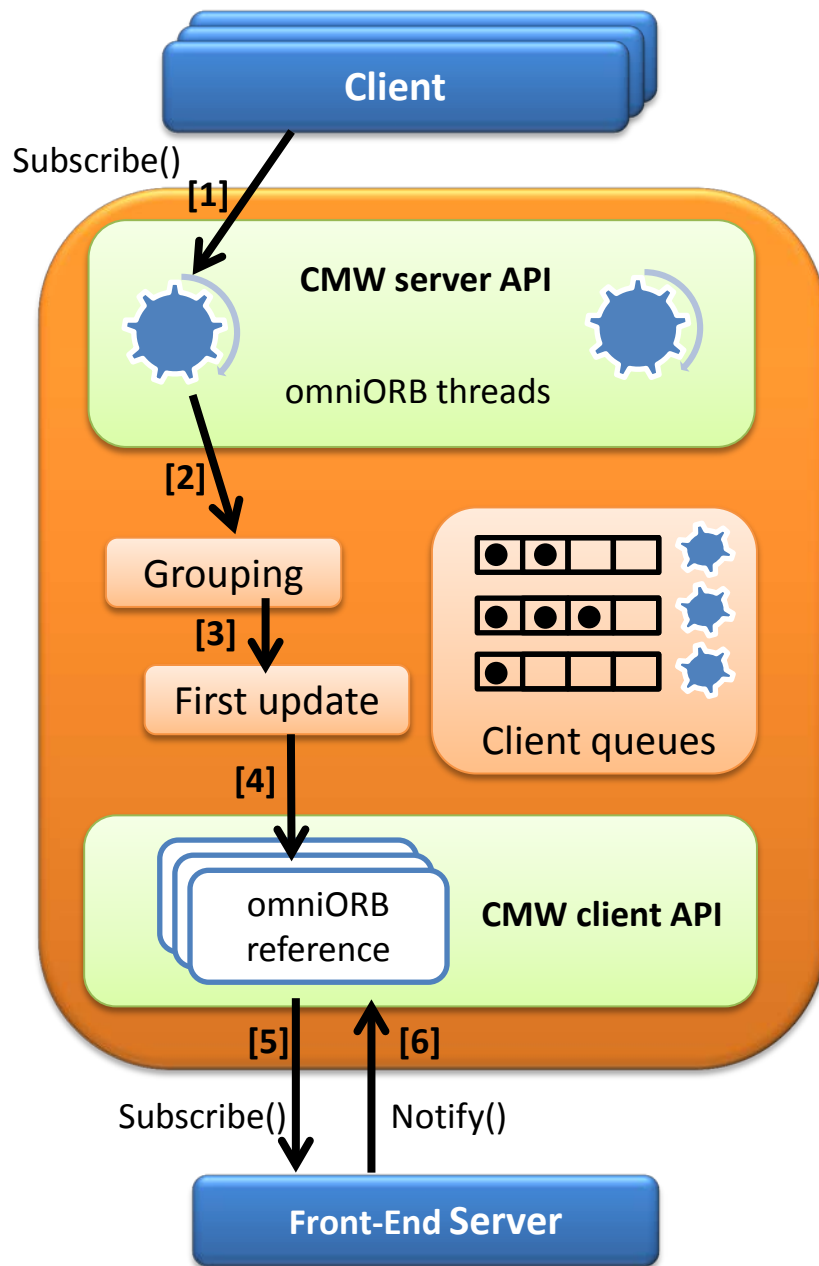
Proxy Architecture



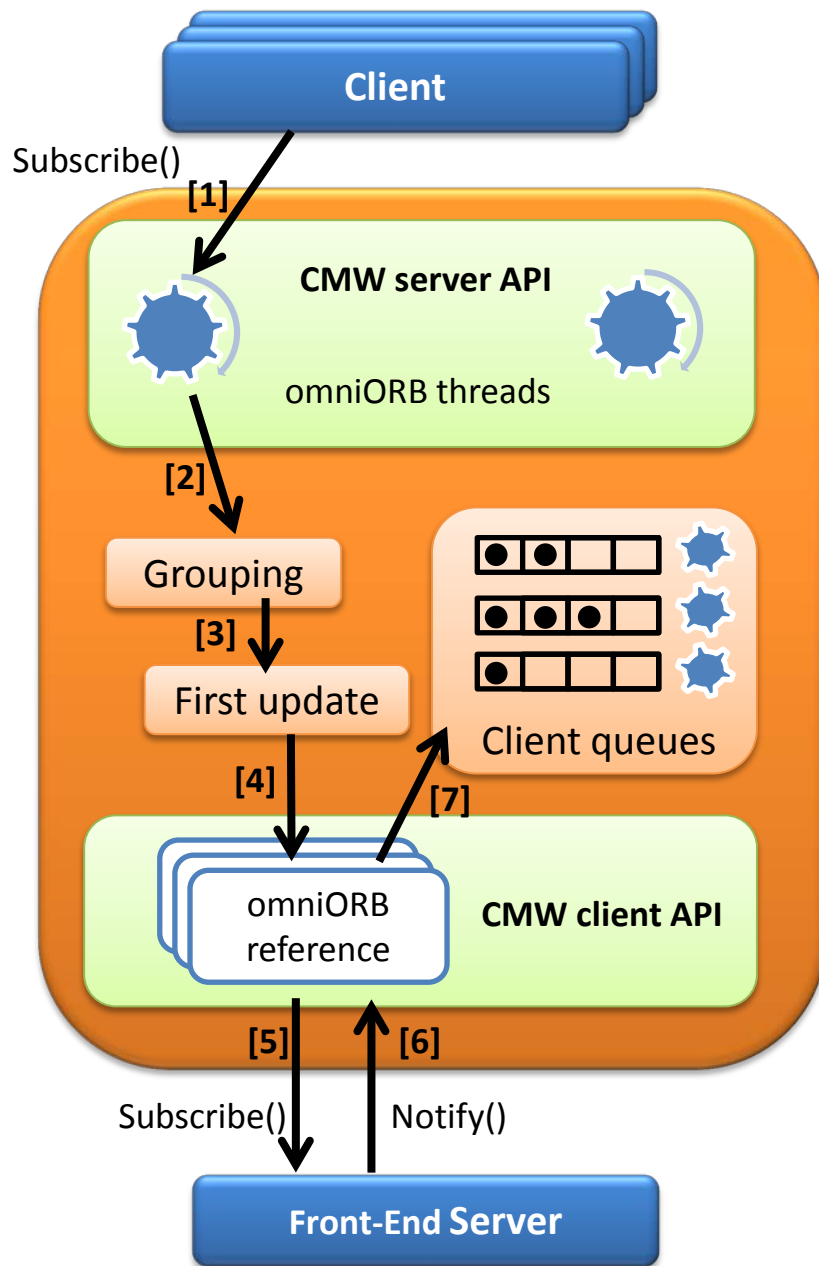
Proxy Architecture



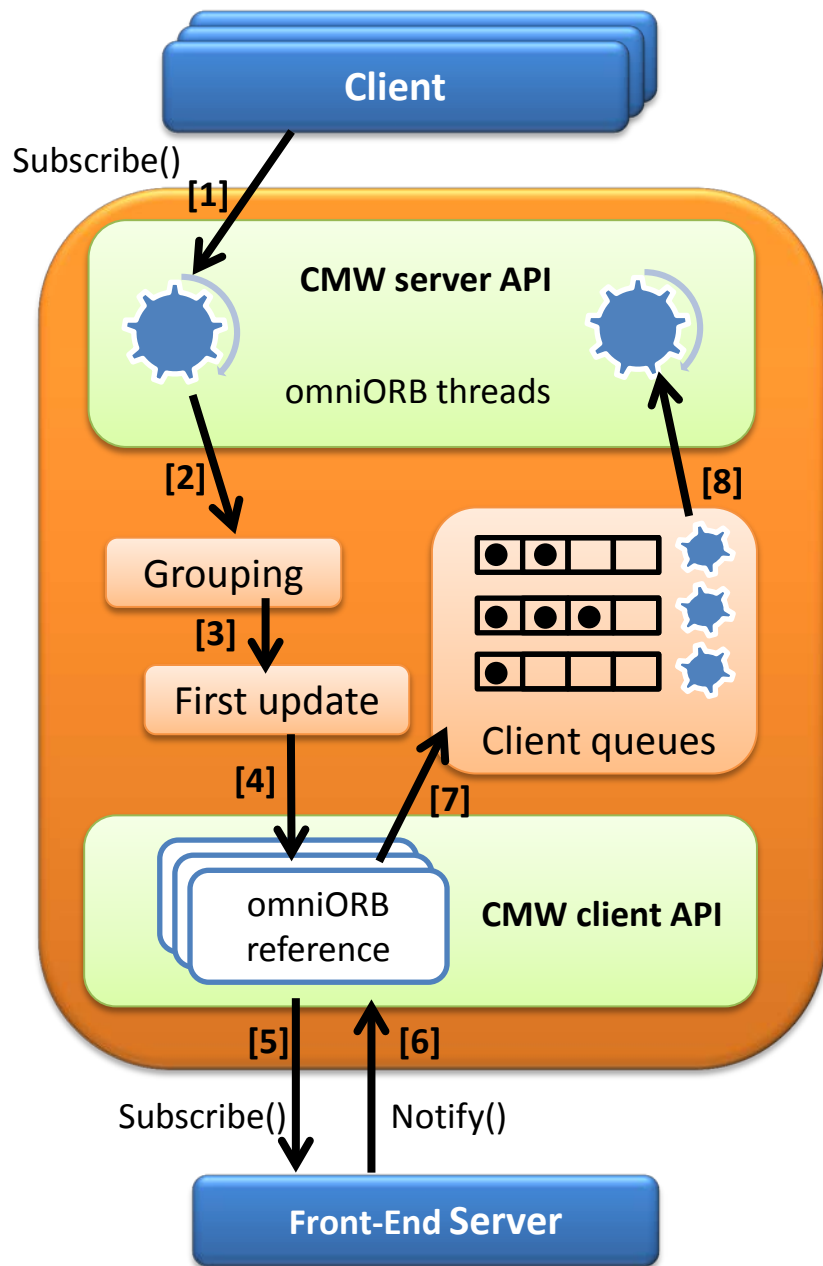
Proxy Architecture



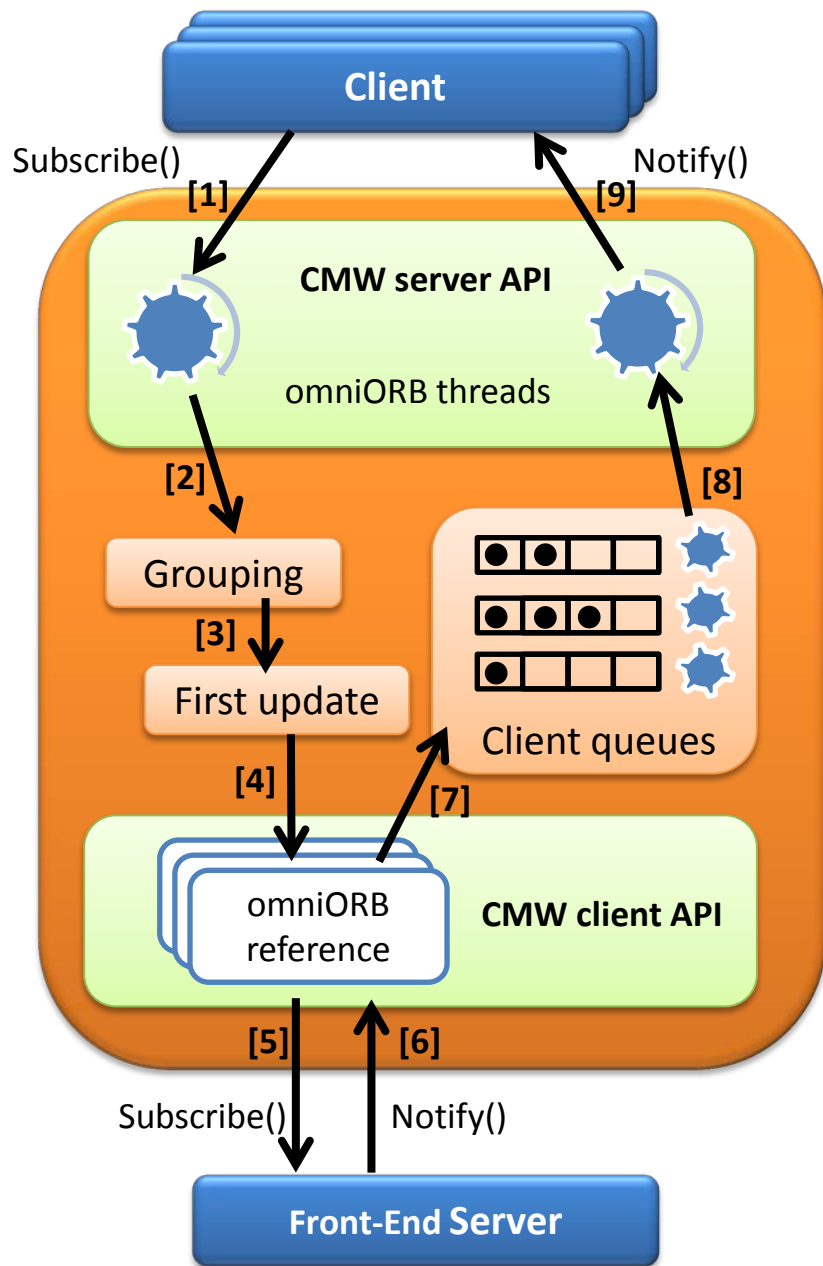
Proxy Architecture



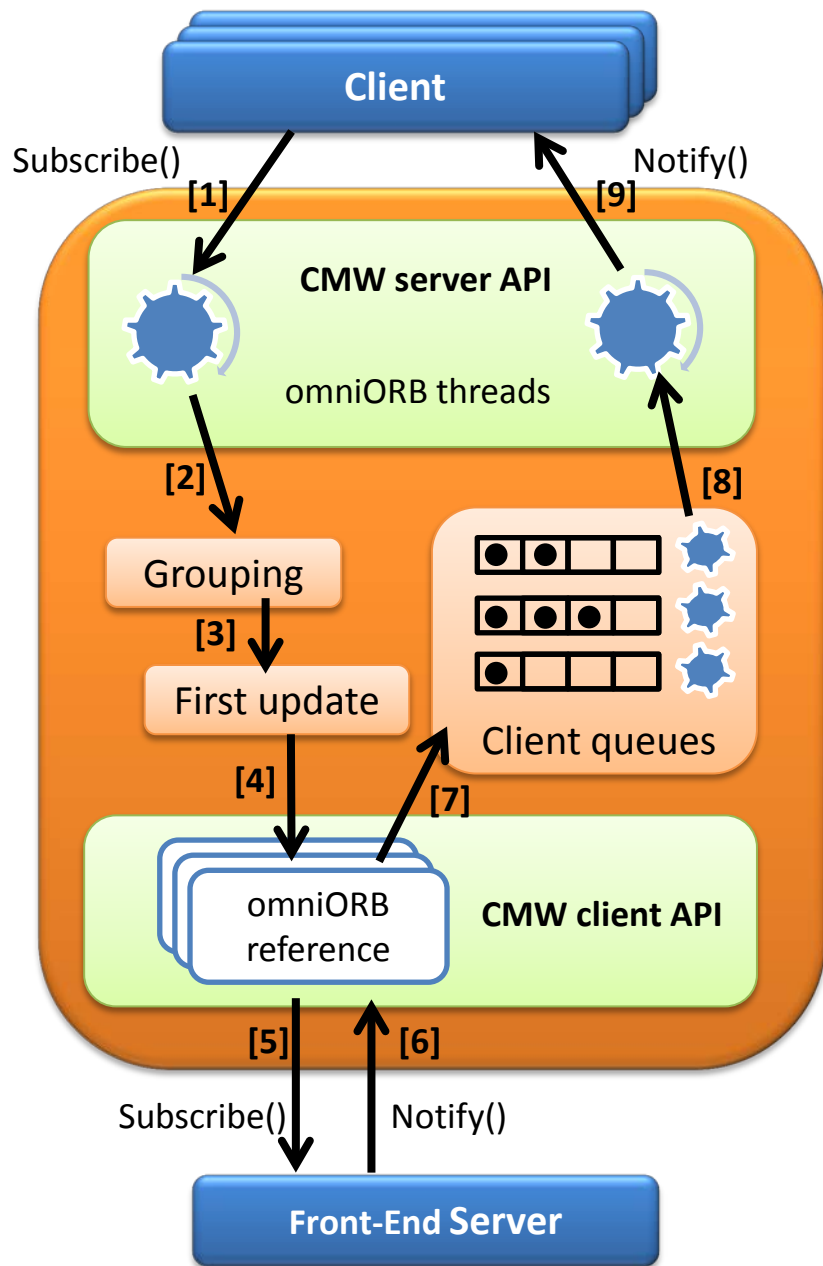
Proxy Architecture



Proxy Architecture



Proxy Architecture

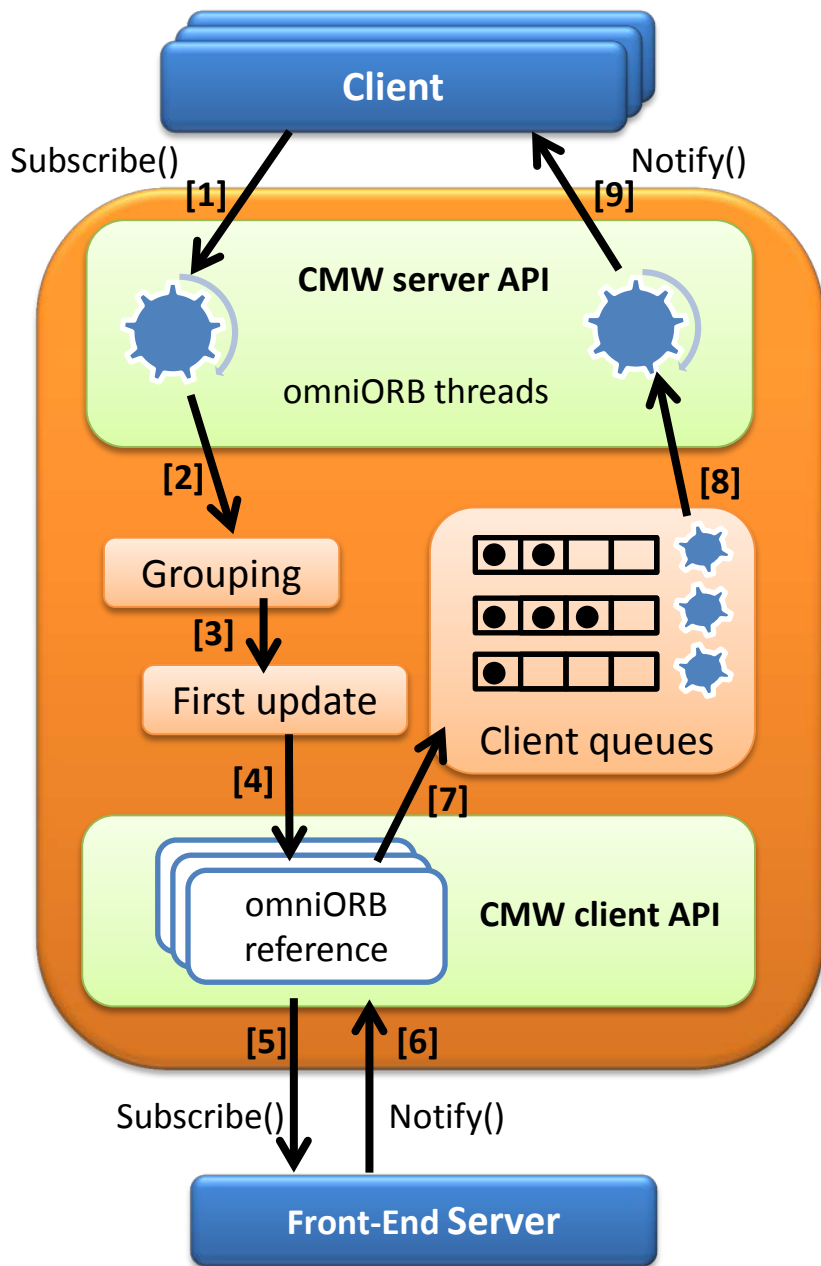


According to requirements:

- Full transparency
- Good performance
- Grouping of subscriptions
- Preserved ordering

Implementation: C++ & Boost libs

Proxy Architecture



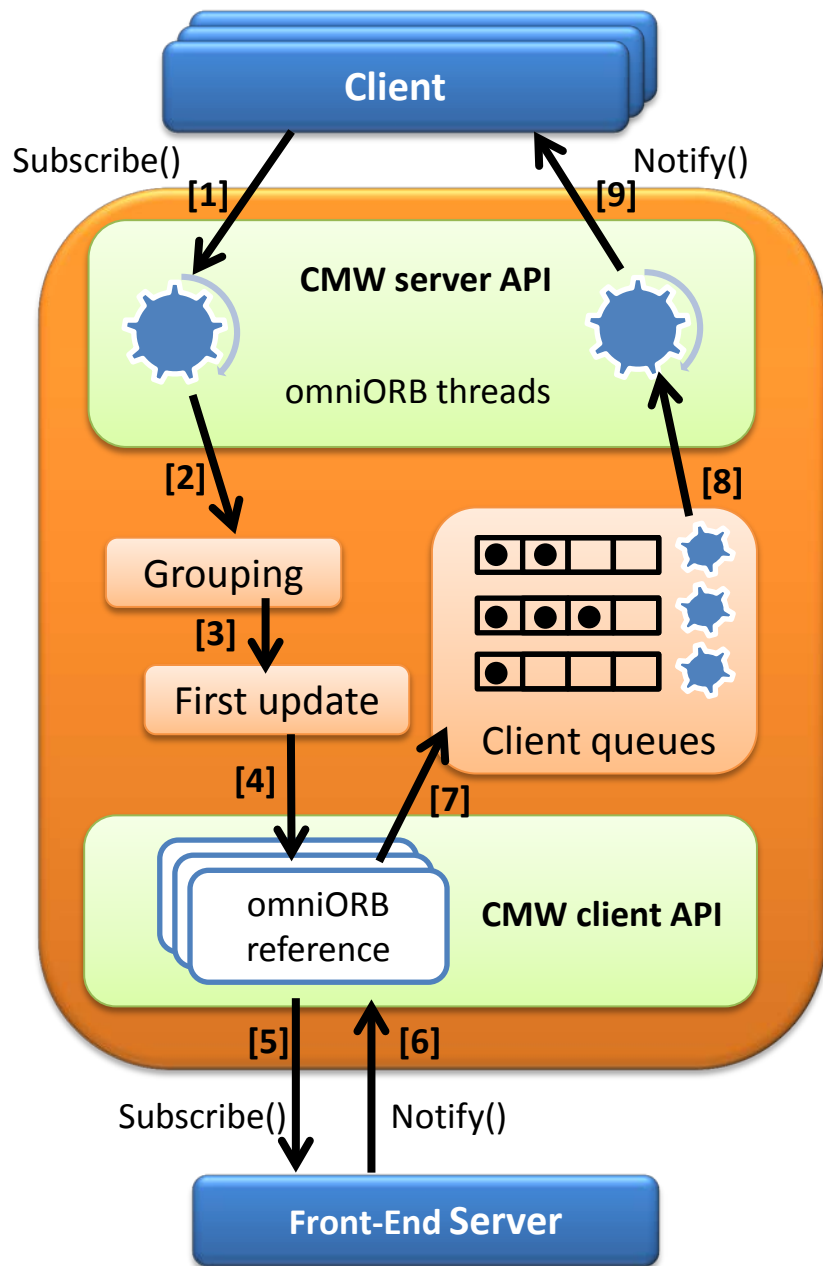
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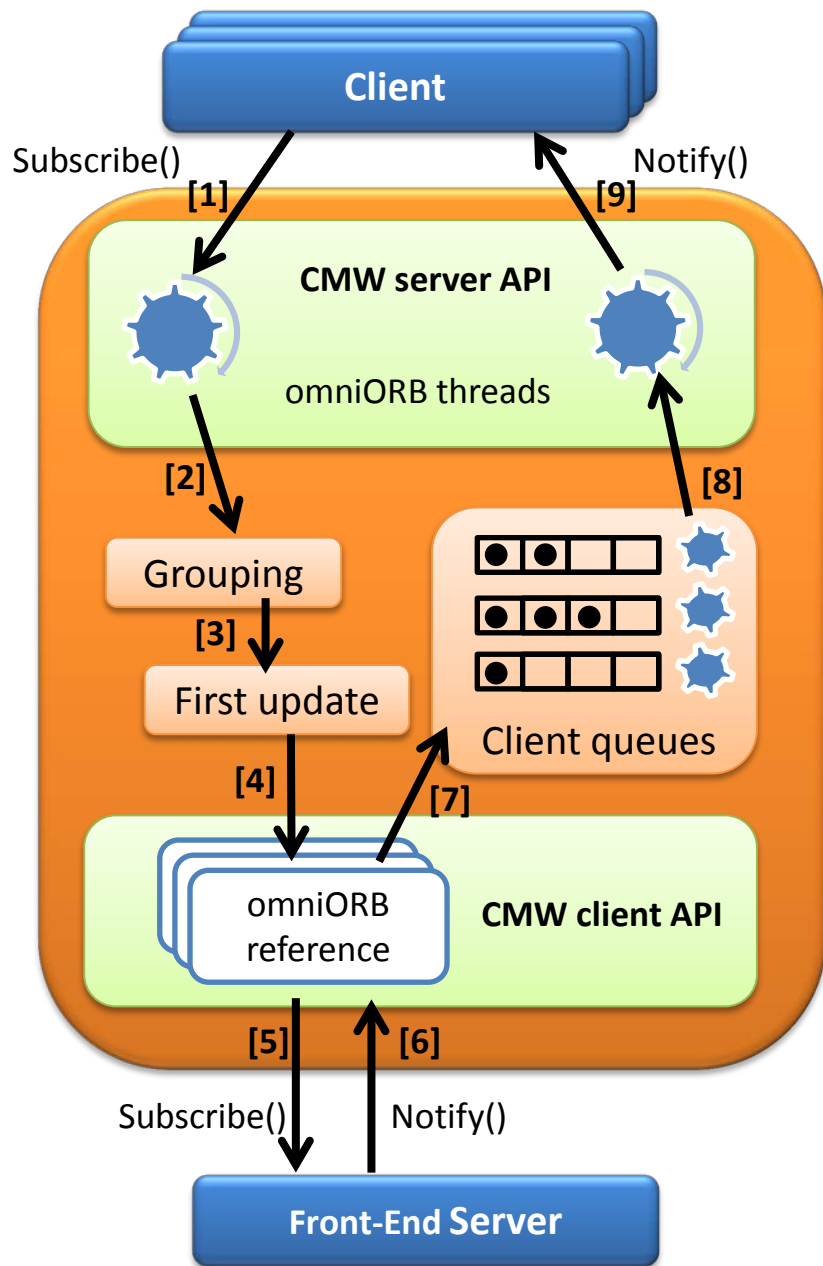
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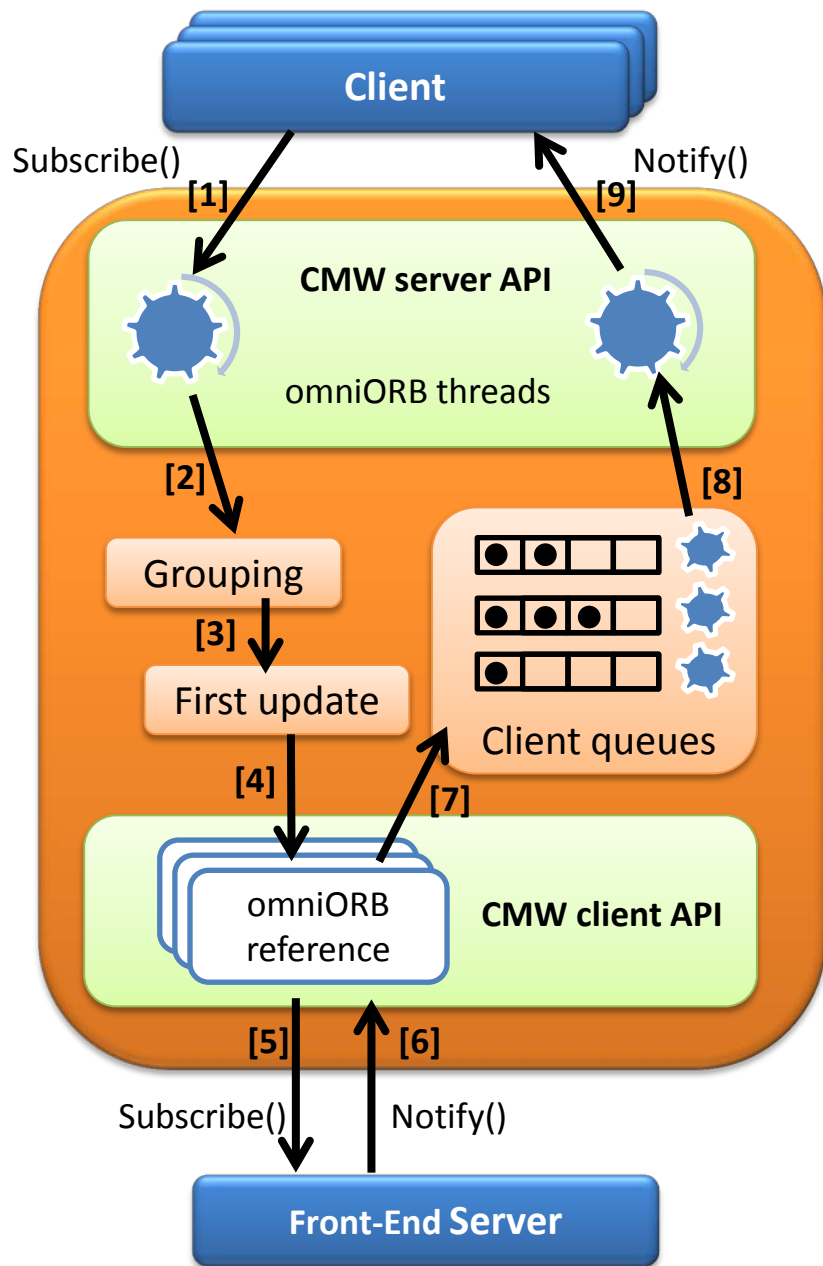


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Proxy Architecture



According to requirements:

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- Grouping of subscriptions ✓
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Implementation: C++ & Boost libs

Runtime Diagnostics

cmwAdmin (NOT LOGGED) - default.xml web configuration

File Edit View

RBA: no token Search: CMW-PROXY-

Not monitoring servers; click them to update 03:03:13 07/10/13

☒ Search result

CMW-PROXY-ADE.cs-ccr-cmw3	CMW-PROXY-BCTDC.cs-ccr-cmw4	CMW-PROXY-BCTF.cs-ccr-cmw4	CMW-PROXY-BETS.cs-ccr-cmw4	CMW-PROXY-BIS.cs-ccr-cmw4
CMW-PROXY-BLDM.cs-ccr-cmw4	CMW-PROXY-BPM.cs-ccr-cmw4	CMW-PROXY-BQ.cs-ccr-cmw4	CMW-PROXY-BRA.cs-ccr-cmw4	CMW-PROXY-BSRT.cs-ccr-cmw4
CMW-PROXY-BTV.cs-ccr-cmw4	CMW-PROXY-COLL-P3.cs-ccr-cmw5	CMW-PROXY-COLL-P7.cs-ccr-cmw5	CMW-PROXY-COLL.cs-ccr-cmw5	CMW-PROXY-CPS.cs-ccr-cmw3
CMW-PROXY-CTF-BPM.cs-ccr-cmw3	CMW-PROXY-CTF-RF.cs-ccr-cmw3	CMW-PROXY-CTF.cs-ccr-cmw3	CMW-PROXY-CTM.cs-ccr-cmw3	CMW-PROXY-DTM1.cs-ccr-aptst
CMW-PROXY-DTM2.cs-ccr-cmw5	CMW-PROXY-LEI.cs-ccr-cmw3	CMW-PROXY-LIN.cs-ccr-cmw3	CMW-PROXY-PSB.cs-ccr-cmw3	CMW-PROXY-RF-ACS.cs-ccr-cmw5
CMW-PROXY-RF-SETPOINTB1.cs-ccr-cmw5	CMW-PROXY-RF-SETPOINTB2.cs-ccr-cmw5	CMW-PROXY-TESTBED-X#4.cs-ccr-ctb04	CMW-PROXY-TESTBED.cs-ccr-ctb07	

Information State Configuration Clients Logging Device Access Map Routes

refresh 02:59:59 07/10/13

402. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078aa0). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43
 237. HANDLER: SX.WE-CTM#CCV1@cfv-ccr-ctmemm selector() onChange(false), KEY: SX.WE-CTM#CCV1##0 (CONNECTED, Updated: 2013.10.01 17:04:20)
 403. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f807802d180). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20
 404. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078dc0). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43
 238. HANDLER: SX.WWE-CTM#AQND@cfv-ccr-ctmemm selector(SPS.USER.SFTLONG2) onChange(false), KEY: SX.WWE-CTM#AQND#SPS.USER.SFTLONG2##0 (CON
 405. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f807802bdc0). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20
 406. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f81300b0a60). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43
 239. HANDLER: SX.WWE-CTM#CCV1@cfv-ccr-ctmemm selector() onChange(false), KEY: SX.WWE-CTM#CCV1##0 (CONNECTED, Updated: 2013.10.01 17:04:20)
 407. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f8078028780). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20
 408. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f813007f120). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43

NOTIFICATIONS:

1. Dispatcher: copera@cs-ccr-vcp.cern.ch/29389. Created: 2013.09.28 18:33:06. Last update: 2013.09.28 18:33:06. Notifications: 2. Queue size: 0
2. Dispatcher: copera@cs-ccr-vsftpro.cern.ch/32610. Created: 2013.10.07 03:05:05. Last update: 2013.10.07 03:05:05. Notifications: 2. Queue size: 0
3. Dispatcher: cpsop@cwo-ccc-b1lf.cern.ch/21831. Created: 2013.09.26 12:38:29. Last update: 2013.09.26 12:38:32. Notifications: 9. Queue size: 0
4. Dispatcher: cpsop@cwo-ccc-b2lf.cern.ch/14575. Created: 2013.09.26 14:55:30. Last update: 2013.09.26 16:04:07. Notifications: 15. Queue size: 0
5. Dispatcher: cpsop@cwo-ccc-b3lc.cern.ch/2336. Created: 2013.09.26 09:57:17. Last update: 2013.09.26 09:57:26. Notifications: 15. Queue size: 0
6. Dispatcher: cpsop@cwo-ccc-b4lc.cern.ch/12815. Created: 2013.09.02 16:43:03. Last update: 2013.09.02 16:43:06. Notifications: 9. Queue size: 0
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8. Dispatcher: cpsop@cwo-ccc-b4lf.cern.ch/17962. Created: 2013.09.26 14:32:21. Last update: 2013.09.26 14:32:24. Notifications: 9. Queue size: 0

03:07:34 - Server CMW-PROXY-CTM.cs-ccr-cmw3 is all fine (last update was 03:03:16 07/10/13)

Runtime Diagnostics

cmwAdmin (NOT LOGGED) - default.xml web configuration

File Edit View

RBA: no token Search: CMW-PROXY-

Search by name

Not monitoring servers; click them to update 03:03:13 07/10/13

☒ Search result

CMW-PROXY-ADE.cs-ccr-cmw3	CMW-PROXY-BCTDC.cs-ccr-cmw4	CMW-PROXY-BCTF.cs-ccr-cmw4	CMW-PROXY-BETS.cs-ccr-cmw4	CMW-PROXY-BIS.cs-ccr-cmw4
CMW-PROXY-BLDM.cs-ccr-cmw4	CMW-PROXY-BPM.cs-ccr-cmw4	CMW-PROXY-BQ.cs-ccr-cmw4	CMW-PROXY-BRA.cs-ccr-cmw4	CMW-PROXY-BSRT.cs-ccr-cmw4
CMW-PROXY-BTV.cs-ccr-cmw4	CMW-PROXY-COLL-P3.cs-ccr-cmw5	CMW-PROXY-COLL-P7.cs-ccr-cmw5	CMW-PROXY-COLL.cs-ccr-cmw5	CMW-PROXY-CPS.cs-ccr-cmw3
CMW-PROXY-CTF-BPM.cs-ccr-cmw3	CMW-PROXY-CTF-RF.cs-ccr-cmw3	CMW-PROXY-CTF.cs-ccr-cmw3	CMW-PROXY-CTM.cs-ccr-cmw3	CMW-PROXY-DTM1.cs-ccr-aptst
CMW-PROXY-DTM2.cs-ccr-cmw5	CMW-PROXY-LEI.cs-ccr-cmw3	CMW-PROXY-LIN.cs-ccr-cmw3	CMW-PROXY-PSB.cs-ccr-cmw3	CMW-PROXY-RF-ACS.cs-ccr-cmw5
CMW-PROXY-RF-SETPOINTB1.cs-ccr-cmw5	CMW-PROXY-RF-SETPOINTB2.cs-ccr-cmw5	CMW-PROXY-TESTBED-X#4.cs-ccr-ctb04	CMW-PROXY-TESTBED.cs-ccr-ctb07	

Information State Configuration Clients Logging Device Access Map Routes

refresh 02:59:59 07/10/13

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 404. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078dc0). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43
 238. HANDLER: SX.WWE-CTM#AQND@cfv-ccr-ctmemm selector(SPS.USER.SFTLONG2) onChange(false), KEY: SX.WWE-CTM#AQND#SPS.USER.SFTLONG2#0 (CON
 405. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f807802bdc0). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20
 406. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f81300b0a60). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43
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2. Dispatcher: copera@cs-ccr-vstpro.cern.ch/32610. Created: 2013.10.07 03:05:05. Last update: 2013.10.07 03:05:05. Notifications: 2. Queue size: 0
3. Dispatcher: cpsop@cwo-ccc-b1lf.cern.ch/21831. Created: 2013.09.26 12:38:29. Last update: 2013.09.26 12:38:32. Notifications: 9. Queue size: 0
4. Dispatcher: cpsop@cwo-ccc-b2lf.cern.ch/14575. Created: 2013.09.26 14:55:30. Last update: 2013.09.26 16:04:07. Notifications: 15. Queue size: 0
5. Dispatcher: cpsop@cwo-ccc-b3lc.cern.ch/2336. Created: 2013.09.26 09:57:17. Last update: 2013.09.26 09:57:26. Notifications: 15. Queue size: 0
6. Dispatcher: cpsop@cwo-ccc-b4lc.cern.ch/12815. Created: 2013.09.02 16:43:03. Last update: 2013.09.02 16:43:06. Notifications: 9. Queue size: 0
7. Dispatcher: cpsop@cwo-ccc-b4lc.cern.ch/13662. Created: 2013.09.30 17:06:37. Last update: 2013.09.30 17:06:56. Notifications: 15. Queue size: 0
8. Dispatcher: cpsop@cwo-ccc-b4lf.cern.ch/17962. Created: 2013.09.26 14:32:21. Last update: 2013.09.26 14:32:24. Notifications: 9. Queue size: 0

03:07:34 - Server CMW-PROXY-CTM.cs-ccr-cmw3 is all fine (last update was 03:03:16 07/10/13)

Runtime Diagnostics

cmwAdmin (NOT LOGGED) - default.xml web configuration

File Edit View

RBA: no token Search: CMW-PROXY-

Search by name

Browse

Not monitoring servers; click them to update 03:03:13 07/10/13

☒ Search result

CMW-PROXY-ADE.cs-ccr-cmw3	CMW-PROXY-BCTDC.cs-ccr-cmw4	CMW-PROXY-BCTF.cs-ccr-cmw4	CMW-PROXY-BETS.cs-ccr-cmw4	CMW-PROXY-BIS.cs-ccr-cmw4
CMW-PROXY-BLDM.cs-ccr-cmw4	CMW-PROXY-BPM.cs-ccr-cmw4	CMW-PROXY-BQ.cs-ccr-cmw4	CMW-PROXY-BRA.cs-ccr-cmw4	CMW-PROXY-BSRT.cs-ccr-cmw4
CMW-PROXY-BTV.cs-ccr-cmw4	CMW-PROXY-COLL-P3.cs-ccr-cmw5	CMW-PROXY-COLL-P7.cs-ccr-cmw5	CMW-PROXY-COLL.cs-ccr-cmw5	CMW-PROXY-CPS.cs-ccr-cmw3
CMW-PROXY-CTF-BPM.cs-ccr-cmw3	CMW-PROXY-CTF-RF.cs-ccr-cmw3	CMW-PROXY-CTF.cs-ccr-cmw3	CMW-PROXY-CTM.cs-ccr-cmw3	CMW-PROXY-DTM1.cs-ccr-aptst
CMW-PROXY-DTM2.cs-ccr-cmw5	CMW-PROXY-LEI.cs-ccr-cmw3	CMW-PROXY-LIN.cs-ccr-cmw3	CMW-PROXY-PSB.cs-ccr-cmw3	CMW-PROXY-RF-ACS.cs-ccr-cmw5
CMW-PROXY-RF-SETPOINTB1.cs-ccr-cmw5	CMW-PROXY-RF-SETPOINTB2.cs-ccr-cmw5	CMW-PROXY-TESTBED-X#4.cs-ccr-ctb04	CMW-PROXY-TESTBED.cs-ccr-ctb07	

Information State Configuration Clients Logging Device Access Map Routes

refresh 02:59:59 07/10/13

402. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078aa0). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43

237. HANDLER: SX.WE-CTM#CCV1@cfv-ccr-ctmemm selector() onChange(false), KEY: SX.WE-CTM#CCV1##0 (CONNECTED, Updated: 2013.10.01 17:04:20)

403. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f807802d180). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20

404. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078dc0). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43

238. HANDLER: SX.WWE-CTM#AQND@cfv-ccr-ctmemm selector(SPS.USER.SFTLONG2) onChange(false), KEY: SX.WWE-CTM#AQND#SPS.USER.SFTLONG2#0 (CON

405. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f807802bdc0). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20

406. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f81300b0a60). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43

239. HANDLER: SX.WWE-CTM#CCV1@cfv-ccr-ctmemm selector() onChange(false), KEY: SX.WWE-CTM#CCV1##0 (CONNECTED, Updated: 2013.10.01 17:04:20)

407. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f8078028780). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20

408. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f813007f120). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43

NOTIFICATIONS:

1. Dispatcher: copera@cs-ccr-vcp.cern.ch/29389. Created: 2013.09.28 18:33:06. Last update: 2013.09.28 18:33:06. Notifications: 2. Queue size: 0

2. Dispatcher: copera@cs-ccr-vsftpro.cern.ch/32610. Created: 2013.10.07 03:05:05. Last update: 2013.10.07 03:05:05. Notifications: 2. Queue size: 0

3. Dispatcher: cpsop@cwo-ccc-b1lf.cern.ch/21831. Created: 2013.09.26 12:38:29. Last update: 2013.09.26 12:38:32. Notifications: 9. Queue size: 0

4. Dispatcher: cpsop@cwo-ccc-b2lf.cern.ch/14575. Created: 2013.09.26 14:55:30. Last update: 2013.09.26 16:04:07. Notifications: 15. Queue size: 0

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6. Dispatcher: cpsop@cwo-ccc-b4lc.cern.ch/12815. Created: 2013.09.02 16:43:03. Last update: 2013.09.02 16:43:06. Notifications: 9. Queue size: 0

7. Dispatcher: cpsop@cwo-ccc-b4lc.cern.ch/13662. Created: 2013.09.30 17:06:37. Last update: 2013.09.30 17:06:56. Notifications: 15. Queue size: 0

8. Dispatcher: cpsop@cwo-ccc-b4lf.cern.ch/17962. Created: 2013.09.26 14:32:21. Last update: 2013.09.26 14:32:24. Notifications: 9. Queue size: 0

03:07:34 - Server CMW-PROXY-CTM.cs-ccr-cmw3 is all fine (last update was 03:03:16 07/10/13)

Runtime Diagnostics

cmwAdmin (NOT LOGGED) - default.xml web configuration

File Edit View

RBA: no token Search: CMW-PROXY-

Search by name

Current status

Browse

Not monitoring servers; click them to update 03:03:13 07/10/13

☒ Search result

CMW-PROXY-ADE.cs-ccr-cmw3	CMW-PROXY-BCTDC.cs-ccr-cmw4	CMW-PROXY-BCTF.cs-ccr-cmw4	CMW-PROXY-BETS.cs-ccr-cmw4	CMW-PROXY-BLDM.cs-ccr-cmw4
CMW-PROXY-BLDM.cs-ccr-cmw4	CMW-PROXY-BPM.cs-ccr-cmw4	CMW-PROXY-BQ.cs-ccr-cmw4	CMW-PROXY-BRA.cs-ccr-cmw4	CMW-PROXY-BRTV.cs-ccr-cmw4
CMW-PROXY-BTV.cs-ccr-cmw4	CMW-PROXY-COLL-P3.cs-ccr-cmw5	CMW-PROXY-COLL-P7.cs-ccr-cmw5	CMW-PROXY-COLL.cs-ccr-cmw5	CMW-PROXY-CPS.cs-ccr-cmw3
CMW-PROXY-CTF-BPM.cs-ccr-cmw3	CMW-PROXY-CTF-RF.cs-ccr-cmw3	CMW-PROXY-CTF.cs-ccr-cmw3	CMW-PROXY-CTM.cs-ccr-cmw3	CMW-PROXY-DTM1.cs-ccr-aptst
CMW-PROXY-DTM2.cs-ccr-cmw5	CMW-PROXY-LEI.cs-ccr-cmw3	CMW-PROXY-LIN.cs-ccr-cmw3	CMW-PROXY-PSB.cs-ccr-cmw3	CMW-PROXY-RF-ACS.cs-ccr-cmw5
CMW-PROXY-RF-SETPOINTB1.cs-ccr-cmw5	CMW-PROXY-RF-SETPOINTB2.cs-ccr-cmw5	CMW-PROXY-TESTBED-X#4.cs-ccr-ctb04	CMW-PROXY-TESTBED.cs-ccr-ctb07	

Information State Configuration Clients Logging Device Access Map Routes

refresh 02:59:59 07/10/13

402. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078aa0). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43

237. HANDLER: SX.WE-CTM#CCV1@cfv-ccr-ctmemm selector() onChange(false), KEY: SX.WE-CTM#CCV1##0 (CONNECTED, Updated: 2013.10.01 17:04:20)

403. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f807802d180). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20

404. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078dc0). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43

238. HANDLER: SX.WWE-CTM#AQND@cfv-ccr-ctmemm selector(SPS.USER.SFTLONG2) onChange(false), KEY: SX.WWE-CTM#AQND#SPS.USER.SFTLONG2#0 (CON

405. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f807802bdc0). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20

406. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f81300b0a60). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43

239. HANDLER: SX.WWE-CTM#CCV1@cfv-ccr-ctmemm selector() onChange(false), KEY: SX.WWE-CTM#CCV1##0 (CONNECTED, Updated: 2013.10.01 17:04:20)

407. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f8078028780). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20

408. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f813007f120). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43

NOTIFICATIONS:

1. Dispatcher: copera@cs-ccr-vcp.cern.ch/29389. Created: 2013.09.28 18:33:06. Last update: 2013.09.28 18:33:06. Notifications: 2. Queue size: 0

2. Dispatcher: copera@cs-ccr-vsftpro.cern.ch/32610. Created: 2013.10.07 03:05:05. Last update: 2013.10.07 03:05:05. Notifications: 2. Queue size: 0

3. Dispatcher: cpsop@cwo-ccc-b1lf.cern.ch/21831. Created: 2013.09.26 12:38:29. Last update: 2013.09.26 12:38:32. Notifications: 9. Queue size: 0

4. Dispatcher: cpsop@cwo-ccc-b2lf.cern.ch/14575. Created: 2013.09.26 14:55:30. Last update: 2013.09.26 16:04:07. Notifications: 15. Queue size: 0

5. Dispatcher: cpsop@cwo-ccc-b3lc.cern.ch/2336. Created: 2013.09.26 09:57:17. Last update: 2013.09.26 09:57:26. Notifications: 15. Queue size: 0

6. Dispatcher: cpsop@cwo-ccc-b4lc.cern.ch/12815. Created: 2013.09.02 16:43:03. Last update: 2013.09.02 16:43:06. Notifications: 9. Queue size: 0

7. Dispatcher: cpsop@cwo-ccc-b4lc.cern.ch/13662. Created: 2013.09.30 17:06:37. Last update: 2013.09.30 17:06:56. Notifications: 15. Queue size: 0

8. Dispatcher: cpsop@cwo-ccc-b4lf.cern.ch/17962. Created: 2013.09.26 14:32:21. Last update: 2013.09.26 14:32:24. Notifications: 9. Queue size: 0

03:07:34 - Server CMW-PROXY-CTM.cs-ccr-cmw3 is all fine (last update was 03:03:16 07/10/13)

Runtime Diagnostics

The screenshot shows the 'cmwAdmin (NOT LOGGED) - default.xml web configuration' window. The interface includes a menu bar (File, Edit, View), a search bar, and a left sidebar with a tree view of components. The main area displays a table of components and their status.

Search by name: A blue callout points to the search bar containing the text 'CMW-PROXY-'. Below the search bar, a checkbox labeled 'Search result' is checked.

Current status: A blue callout points to the 'Status' column of the table. The table lists various components, with 'CMW-PROXY-CTM.cs-ccr-cmw3' highlighted in green, indicating it is online.

Browse: A blue callout points to the left sidebar, which shows a tree view of components. The 'FESA by accelerator' and 'GM by accelerator' sections are expanded.

1 grouped subscription with 2 distinct clients: A blue callout points to the 'Subscriptions' section of the table. It shows a list of subscriptions, including '402. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078aa0). Created: 2013.10.01 17:04:20' and '403. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f807802d180). Created: 2013.10.01 17:04:20'.

Information: A blue callout points to the 'Information' tab in the bottom section of the interface. The bottom section also includes tabs for 'State', 'Configuration', 'Clients', 'Logging', 'Device', 'Access Map', and 'Route'.

Status Bar: The bottom status bar indicates '03:07:34 - Server CMW-PROXY-CTM.cs-ccr-cmw3 is all fine (last update was 03:03:16 07/10/13)'.

Runtime Diagnostics

The screenshot shows the 'cmwAdmin (NOT LOGGED) - default.xml web configuration' window. The 'Search' field contains 'CMW-PROXY-'. The search results are displayed in a table with columns for server names and their status. The 'CMW-PROXY-CTM' server is highlighted in green. Below the table, there are tabs for 'Information', 'State', 'Configuration', 'Clients', 'Logging', 'Device', 'Access Map', and 'Route'. The 'Information' tab is selected, showing details for a subscription. The subscription details include a list of clients and their status. The 'Clients' tab is also visible, showing a list of clients and their status. The 'State' tab is selected, showing a list of subscriptions and their status. The 'Configuration' tab is also visible, showing a list of configurations and their status. The 'Logging' tab is also visible, showing a list of logs and their status. The 'Device' tab is also visible, showing a list of devices and their status. The 'Access Map' tab is also visible, showing a list of access maps and their status. The 'Route' tab is also visible, showing a list of routes and their status. The status bar at the bottom indicates '03:07:34 - Server CMW-PROXY-CTM.cs-ccr-cmw3 is all fine (last update was 03:03:16 07/10/13)'.

Search by name

Current status

Browse

1 grouped subscription with 2 distinct clients

Single client queue

Information State Configuration Clients Logging Device Access Map Route

refresh

402. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078aa0). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20.

237. HANDLER: SX.WE-CTM/CCV1@cfv-ccr-ctmemm selector() onChange(false), KEY: SX.WE-CTM#CCV1##0 (CONNECTED, Updated: 2013.10.01 17:04:20)

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238. HANDLER: SX.WWE-CTM/AQND@cfv-ccr-ctmemm selector(SPS.USER.SFTLONG2) onChange(false), KEY: SX.WWE-CTM#AQND#SPS.USER.SFTLONG2#0 (CONNECTED, Updated: 2013.10.01 17:04:20)

405. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f807802bdc0). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20.

406. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f8130078e00). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43.

239. HANDLER: SX.WWE-CTM/CCV1@cfv-ccr-ctmemm selector() onChange(false), KEY: SX.WWE-CTM#CCV1##0 (CONNECTED, Updated: 2013.10.01 17:04:20)

407. Subscription: spsop@cwo-ccc-a7lc.cern.ch/24222 listener(0x7f8078028780). Created: 2013.10.01 17:04:20. Last update: 2013.10.01 17:04:20.

408. Subscription: scettour@CWE-513-VMW098/5508 listener(0x7f813007f120). Created: 2013.10.02 11:22:43. Last update: 2013.10.02 11:22:43.

NOTIFICATIONS:

1. Dispatcher: copera@cs-ccr-vcp.cern.ch/29389. Created: 2013.09.28 18:33:06. Last update: 2013.09.28 18:33:06. Notifications: 2. Queue size: 0

2. Dispatcher: copera@cs-ccr-vstpro.cern.ch/32610. Created: 2013.10.07 03:05:05. Last update: 2013.10.07 03:05:05. Notifications: 2. Queue size: 0

3. Dispatcher: cpsop@cwo-ccc-b1lf.cern.ch/21831. Created: 2013.09.26 12:38:29. Last update: 2013.09.26 12:38:32. Notifications: 9. Queue size: 0

4. Dispatcher: cpsop@cwo-ccc-b2lf.cern.ch/14575. Created: 2013.09.26 14:55:30. Last update: 2013.09.26 14:55:30. Notifications: 15. Queue size: 0

5. Dispatcher: cpsop@cwo-ccc-b3lc.cern.ch/2336. Created: 2013.09.26 09:57:17. Last update: 2013.09.26 09:57:26. Notifications: 15. Queue size: 0

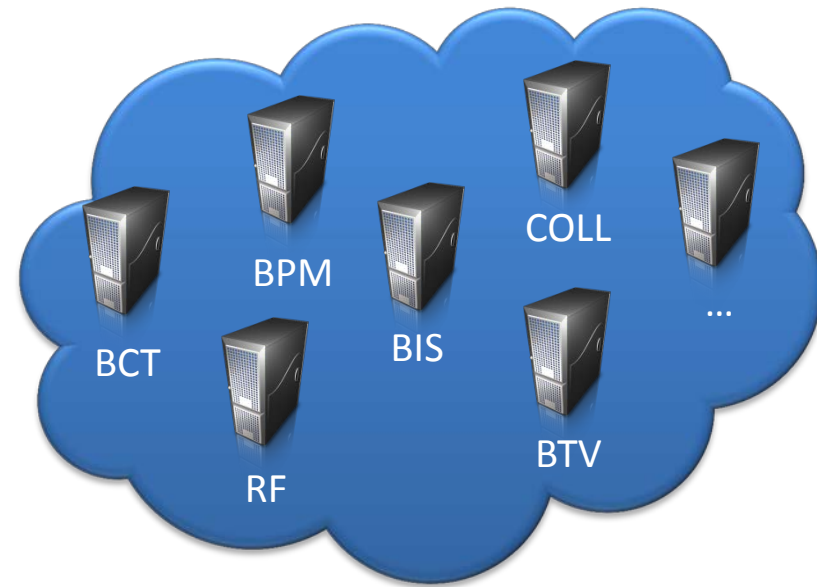
6. Dispatcher: cpsop@cwo-ccc-b4lc.cern.ch/12015. Created: 2013.09.26 16:43:03. Last update: 2013.09.26 16:43:03. Notifications: 9. Queue size: 0

7. Dispatcher: cpsop@cwo-ccc-b4lc.cern.ch/13662. Created: 2013.09.30 17:06:37. Last update: 2013.09.30 17:06:56. Notifications: 15. Queue size: 0

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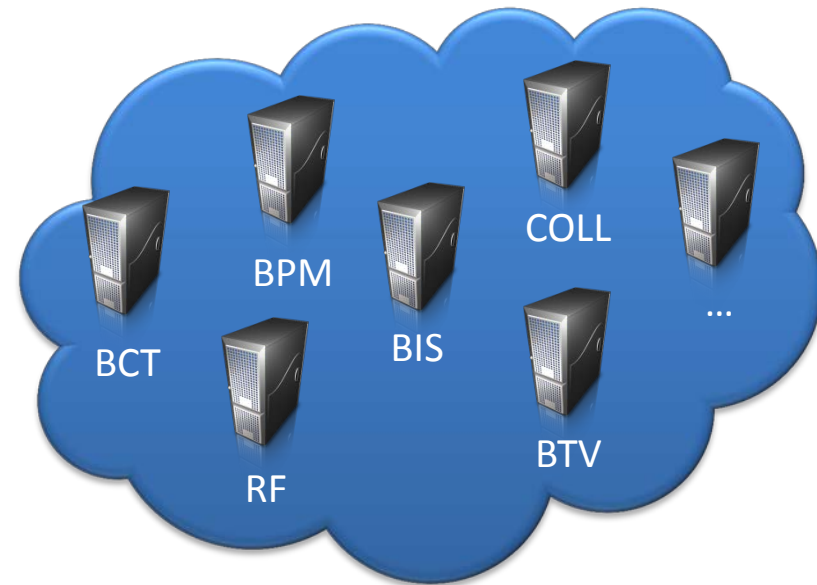
03:07:34 - Server CMW-PROXY-CTM.cs-ccr-cmw3 is all fine (last update was 03:03:16 07/10/13)

Deployment Today



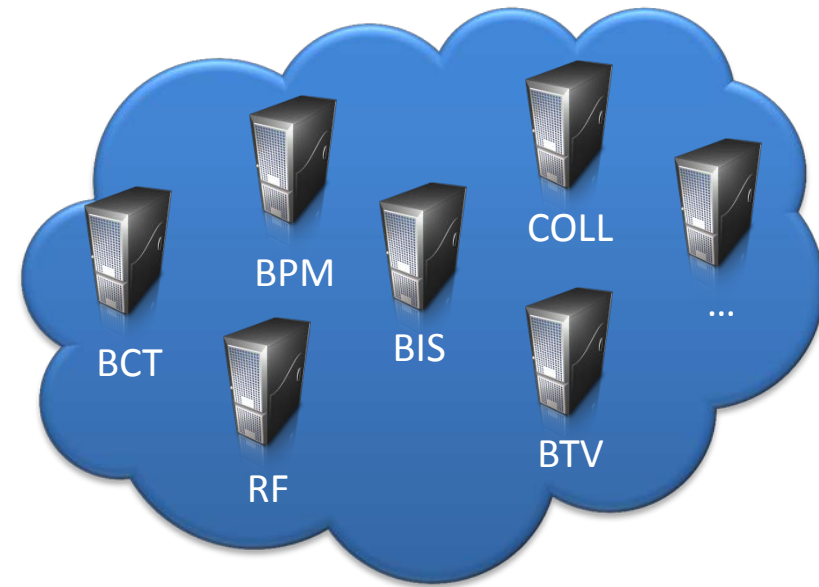
Deployment Today

- 26 **production** Proxies, 2 test
- Linux servers, **multicore** machines
- Independent, **manageable** entities
- **Monitored** by DIAMON



Deployment Today

- 26 **production** Proxies, 2 test
- Linux servers, **multicore** machines
- Independent, **manageable** entities
- **Monitored** by DIAMON



Overall result:

- ✓ Equipment data was delivered to **all interested applications**
- ✓ Front-end servers were operating in **stable & constant conditions**

Future Plans for Proxy

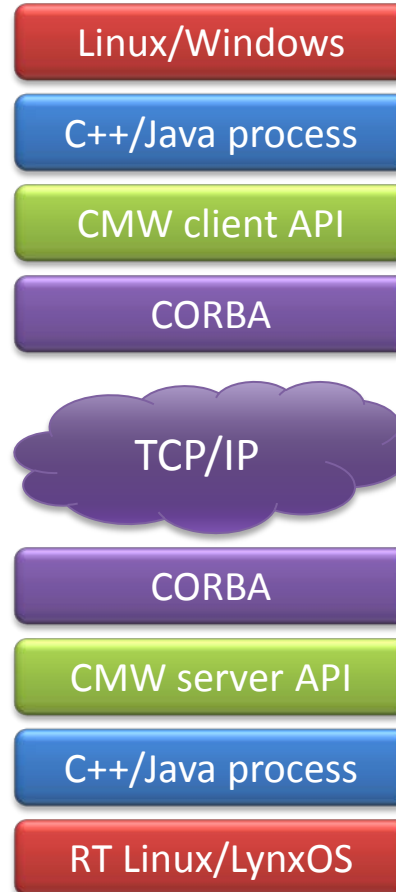


Future Plans for Proxy

- **Follow major CMW upgrade**
 - Integrate with **CMW-RDA3**
 - **ZeroMQ** replaces CORBA
- **Improve Proxy performance**
 - Avoid data copies & serializaton
 - Less custom logic
- **New CMW-RDA3**
 - Beta release v. 0.4.0
 - Release **v. 1.0.0 begin. 2014**
 - Scalability tests in Oct 2014
 - **Open-source: LGPL**
 - Interest from: GSI & LBL
 - Knowledge exchange with TANGO

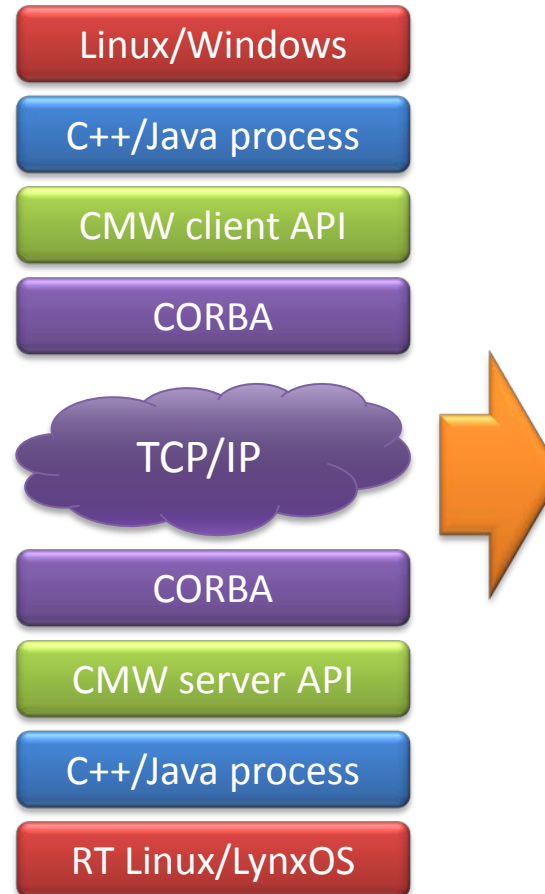
Future Plans for Proxy

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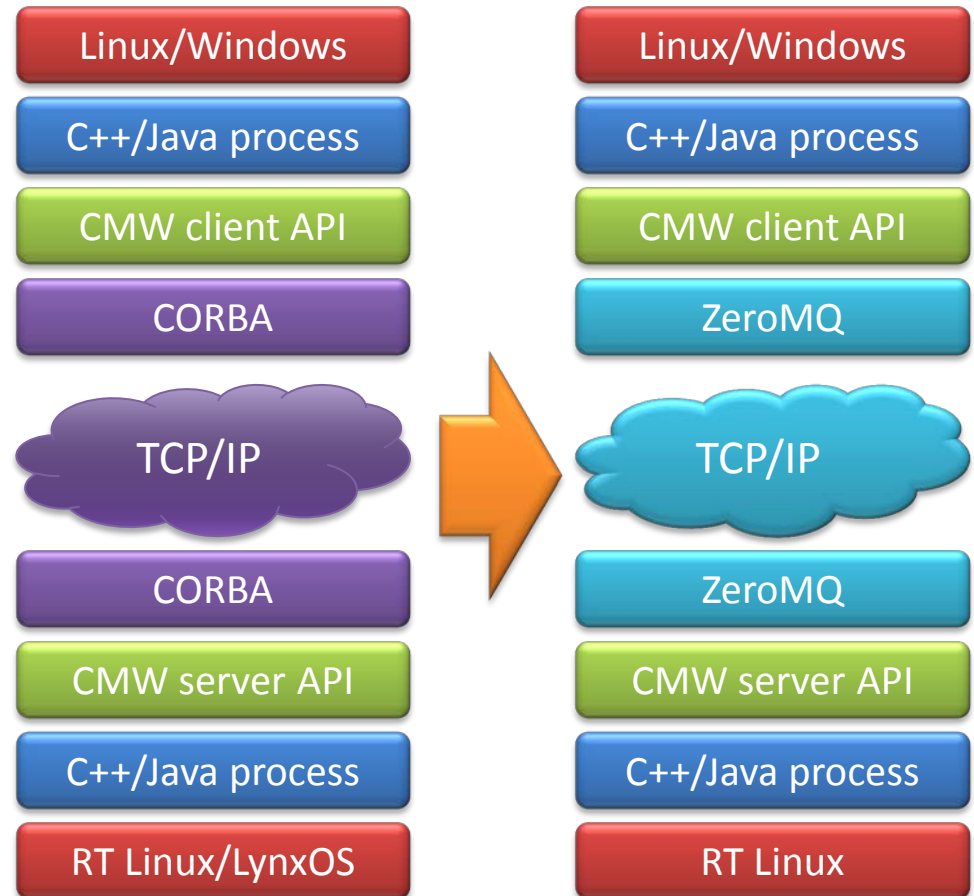
Future Plans for Proxy

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Future Plans for Proxy

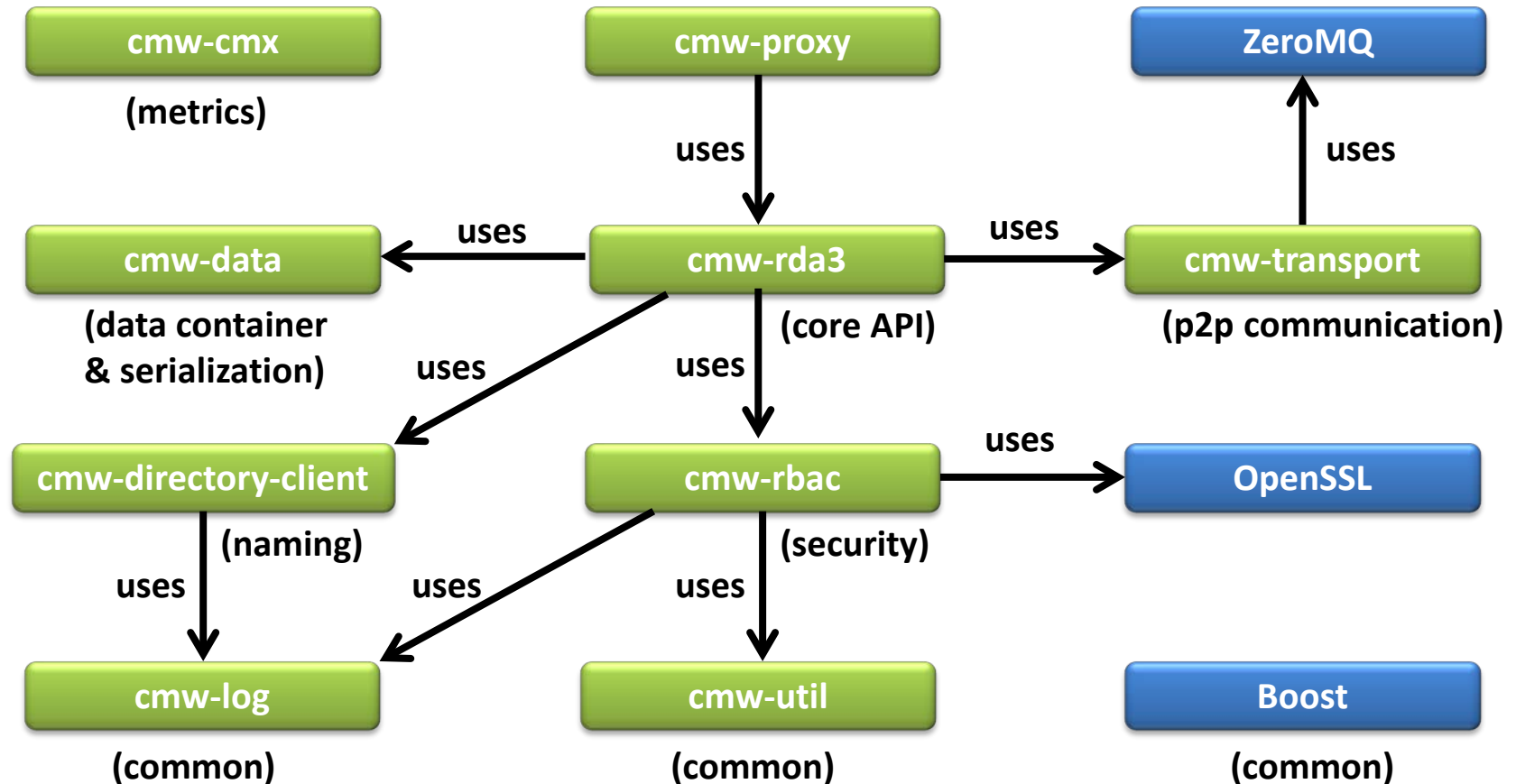
- **Follow major CMW upgrade**
 - Integrate with **CMW-RDA3**
 - **ZeroMQ** replaces CORBA
- **Improve Proxy performance**
 - Avoid data copies & serializaton
 - Less custom logic
- **New CMW-RDA3**
 - Beta release v. 0.4.0
 - Release **v. 1.0.0 begin. 2014**
 - Scalability tests in Oct 2014
 - **Open-source: LGPL**
 - Interest from: GSI & LBL
 - Knowledge exchange with TANGO



New CMW: **open-source** approach & **component** architecture

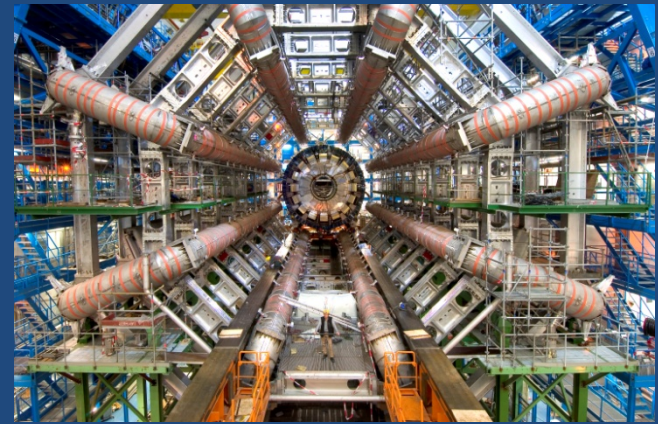


New CMW: open-source approach & component architecture

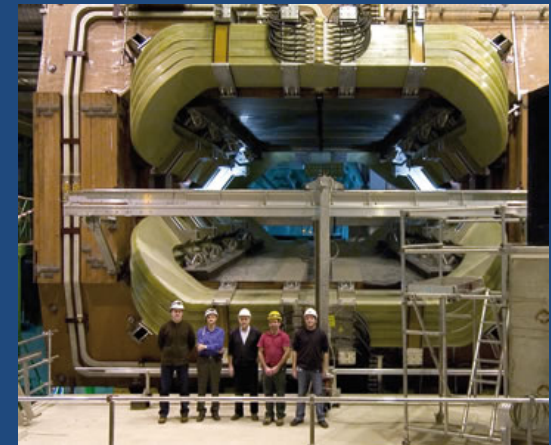
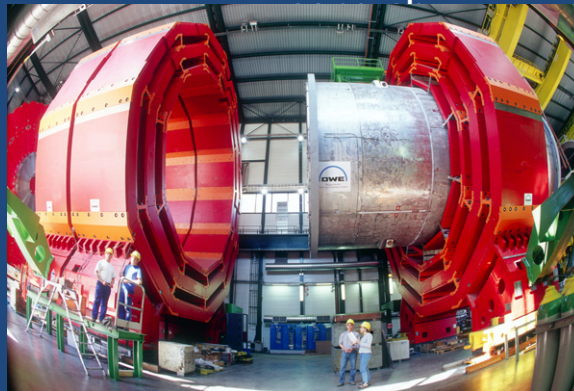
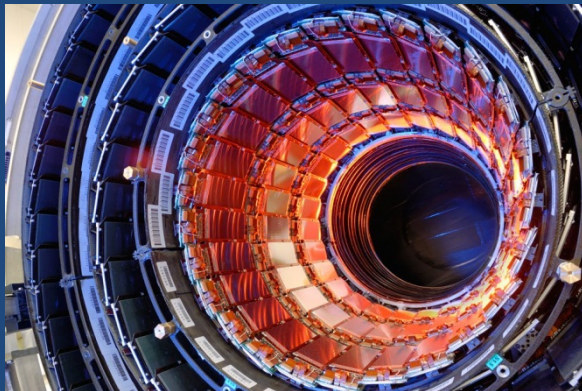


Contact

- CMW project: cmw-info@cern.ch
- Design & architecture: <http://tiny.cc/CMW-RDA3>
- Soon, public website: <http://cern.ch/cmw>
- Wojciech.Sliwinski@cern.ch



European Organization for Particle Physics
Take part!



Additional slides ...



CMW in the Controls System

