

FairMQ plugins

for integration
with external services

Dennis Klein, Alice Offline Week, 31.03.2017

Who am I ?

- Dennis Klein, 31
- Computer Scientist at GSI
- Since 2013: devop in HPC with focus on Configuration Management, Disk storage, Monitoring
- Since 2017: developer in Alfa Group with focus on FairMQ
- Interests: software engineering, distributed systems

FairMQ plugins

→ Integrate devices with *external* (network-accessible) services for

- Configuration (DDS, file, etcd, Zookeeper, LDAP, SQL db, ...)
- Command & Control (DDS, Alice ECS, CLI, ...)
- (Telemetry, Logging, ...)

Plugin mechanisms

A Statically linked for built-in plugins

B Dynamically loaded for optional plugins

implemented with Boost.DLL (version 1.61+)



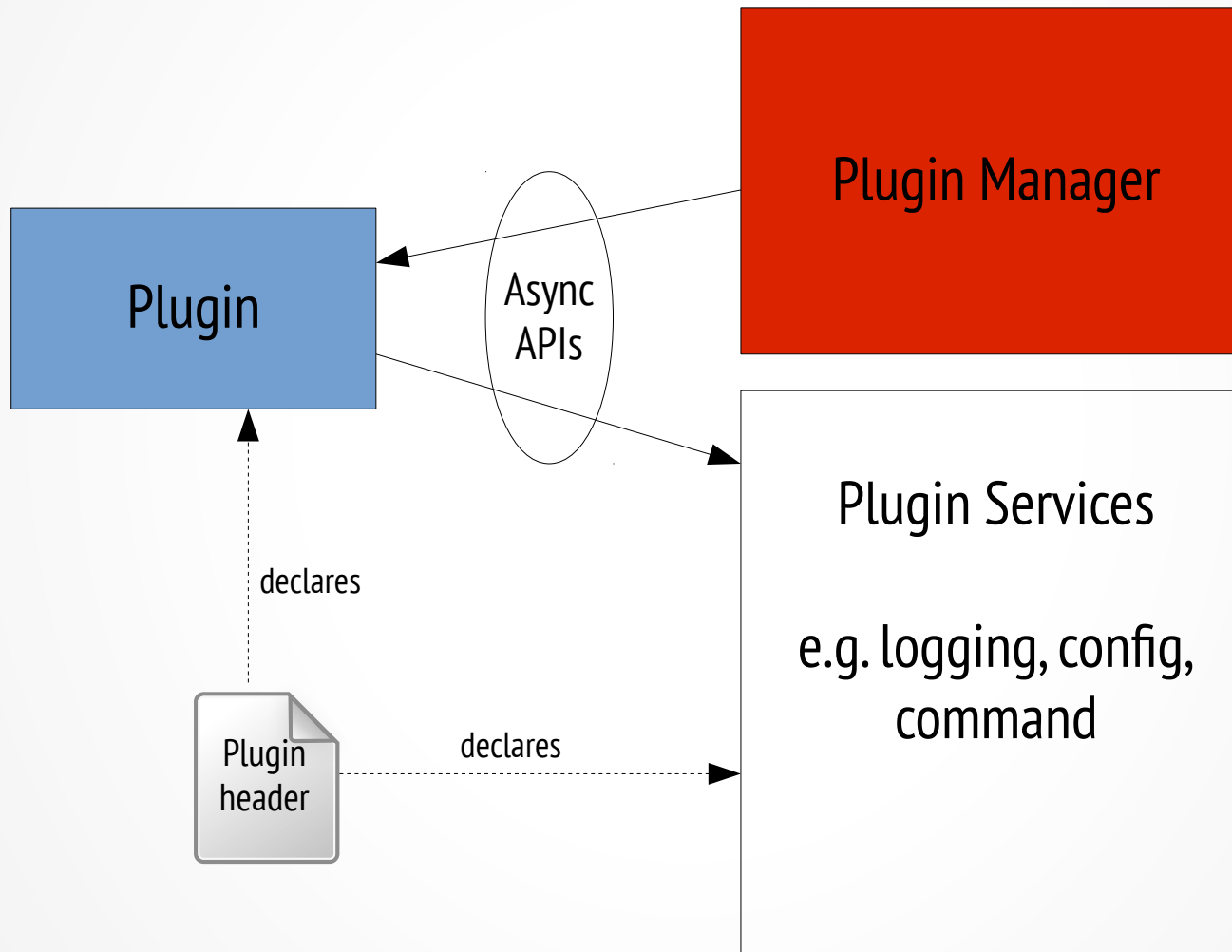
fairmq_plugin_config_dds.so

→ PluginManager collects shared objects from search path.

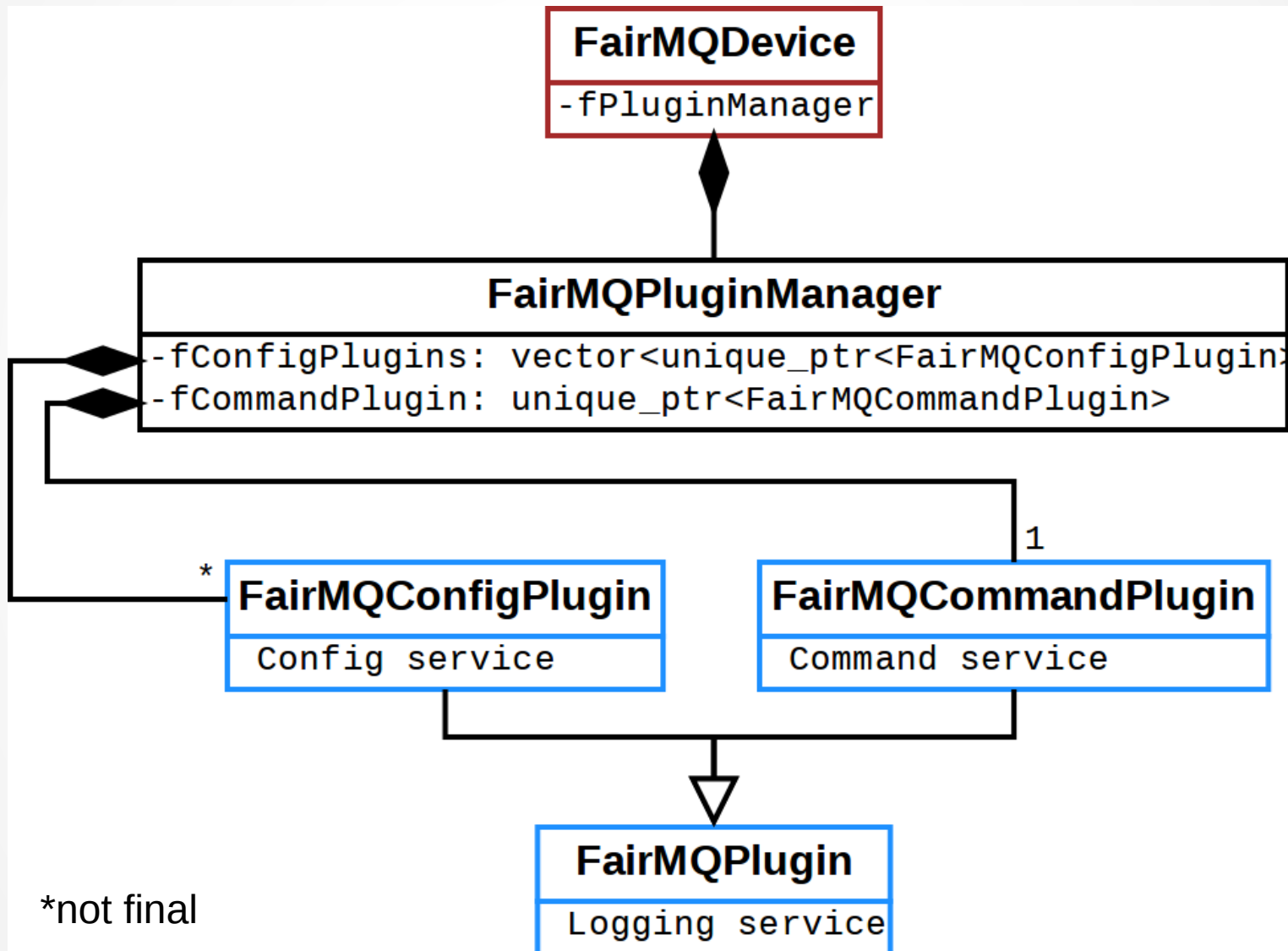
(**C** Each plugin in separate process, IPC to device)

→ As plugin developer, plugin code stays the same for all mechanisms!

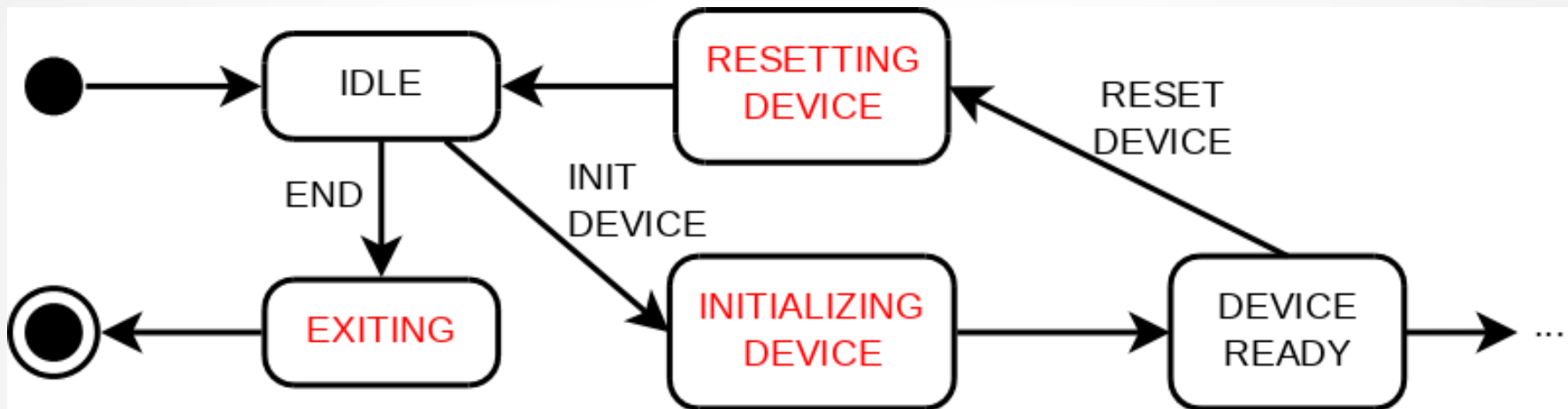
Integration - APIs



Integration - Ownership



Integration - Lifecycle



Device State	Plugin Notifications
INITIALIZING DEVICE	(INIT×P,RUN×P)
RESETTING DEVICE	()
EXITING	(SHUTDOWN×P)

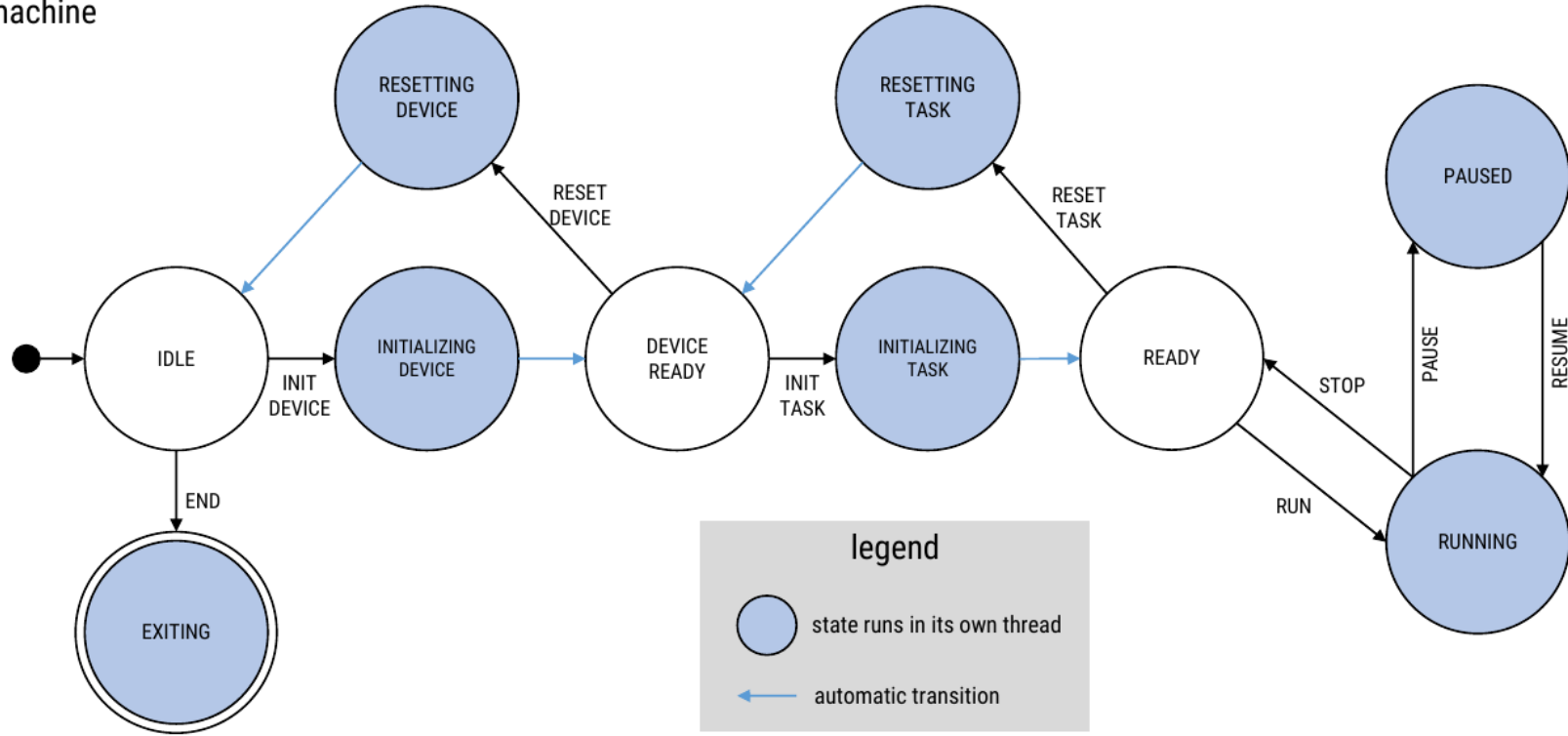
Before first INIT and after SHUTDOWN PluginServices are not available !

Conclusion

- ETA → end of Q2 2017
- Presented at O2 CWG10
- Feedback and requirements welcome
- Thank you!

Backup - FairMQ Device State Machine

main state machine



orthogonal state machine

