

Embedded Real-Time CORBA Requirements for Software Defined Radios

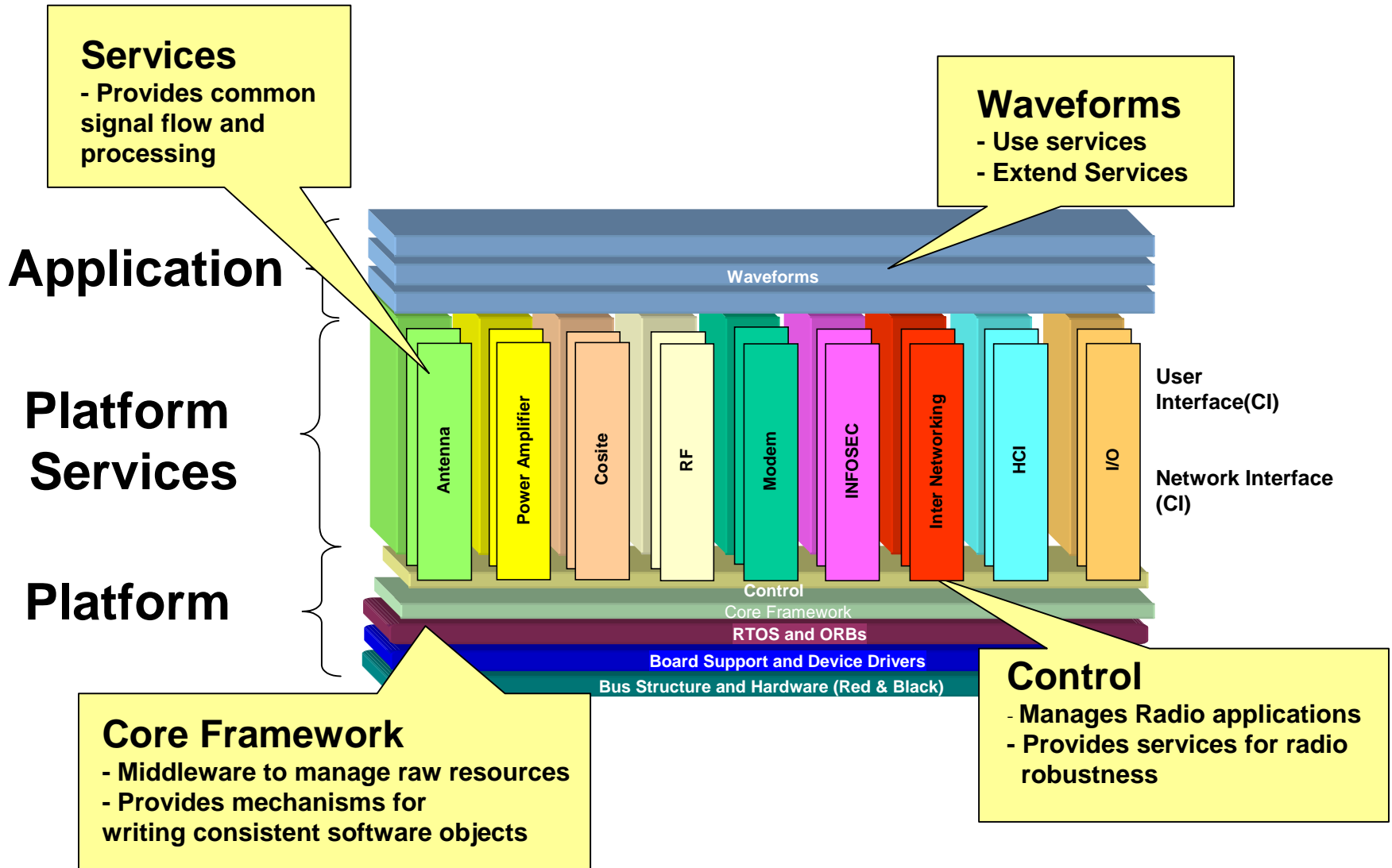
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- SDR Concepts
- CORBA/ORB applicability in SDRs
- Issues
- Uses/ Benefits
- ORB Requirements

SDR Reference Model



SDR Architecture Elements

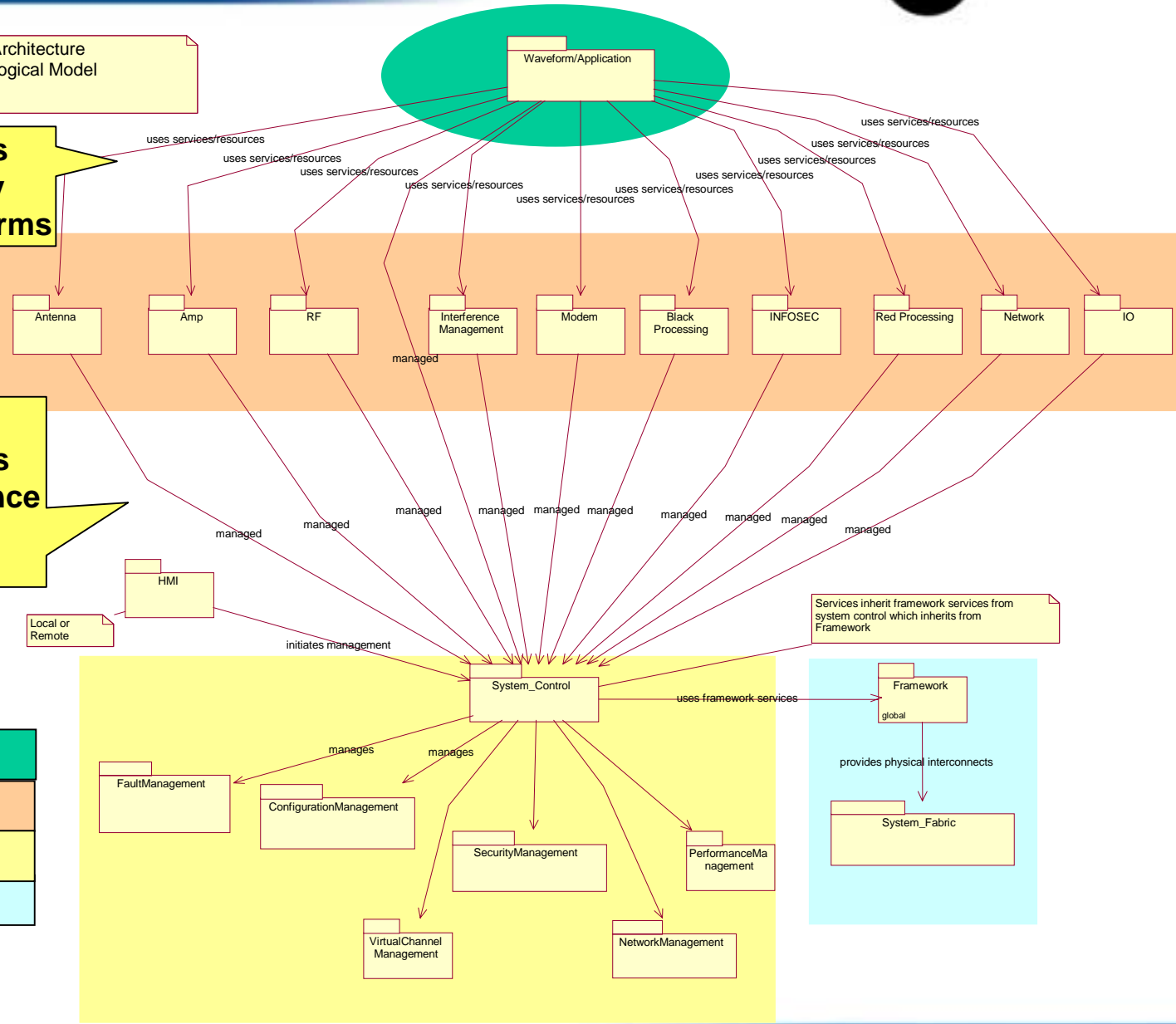


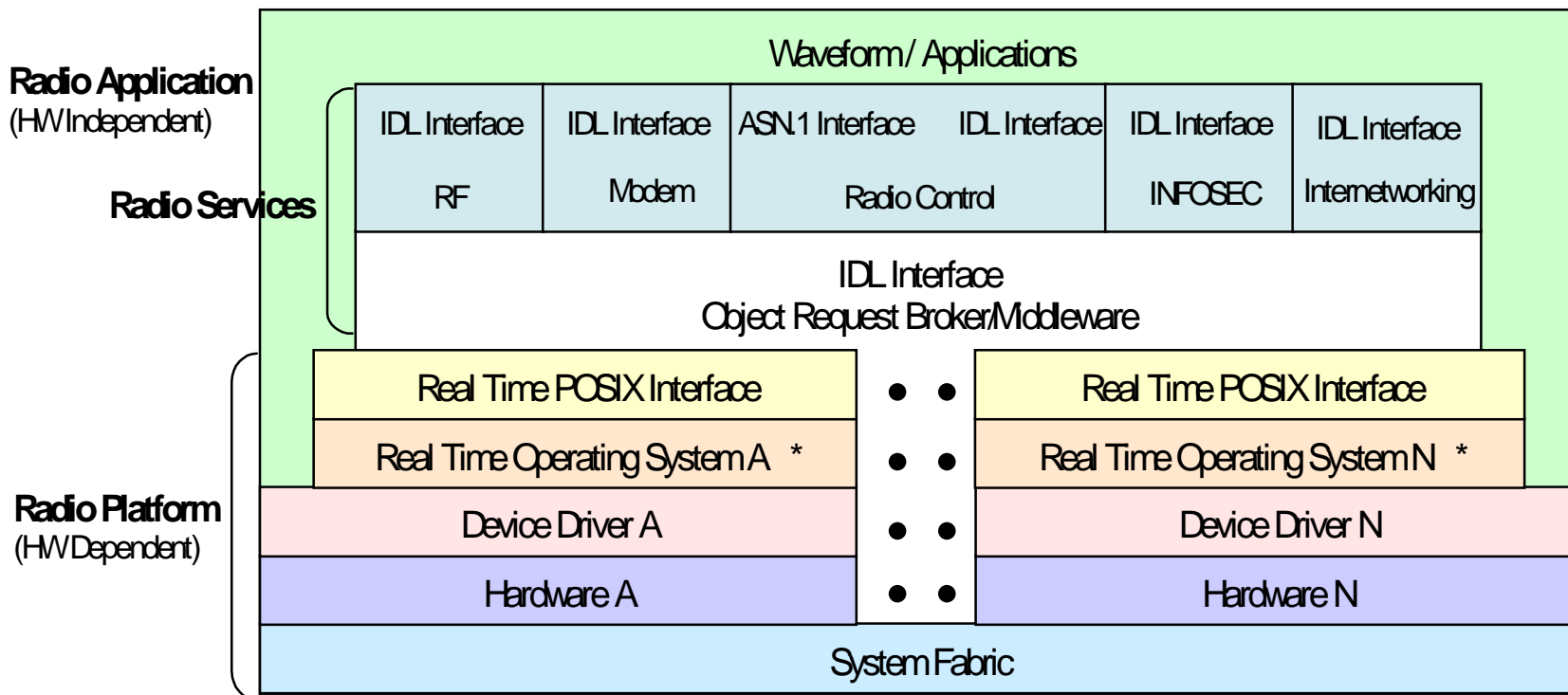
SDR Domain Architecture Components Logical Model

Service level APIs support 3rd party applications/waveforms

Multiple frameworks support independence of HW/SW

- Waveform/Applications
- Services Architecture
- Management Architecture
- Computational Architecture

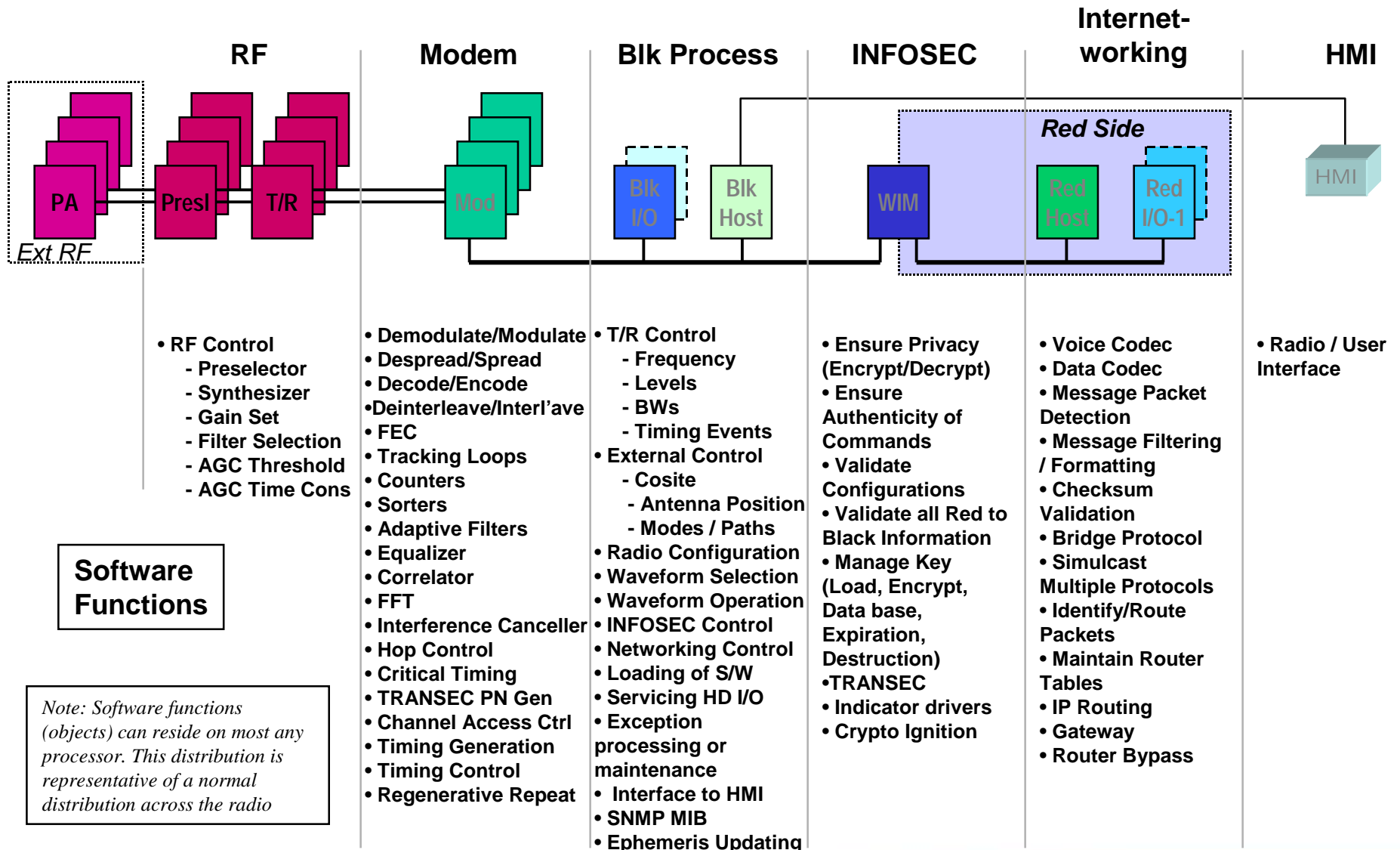




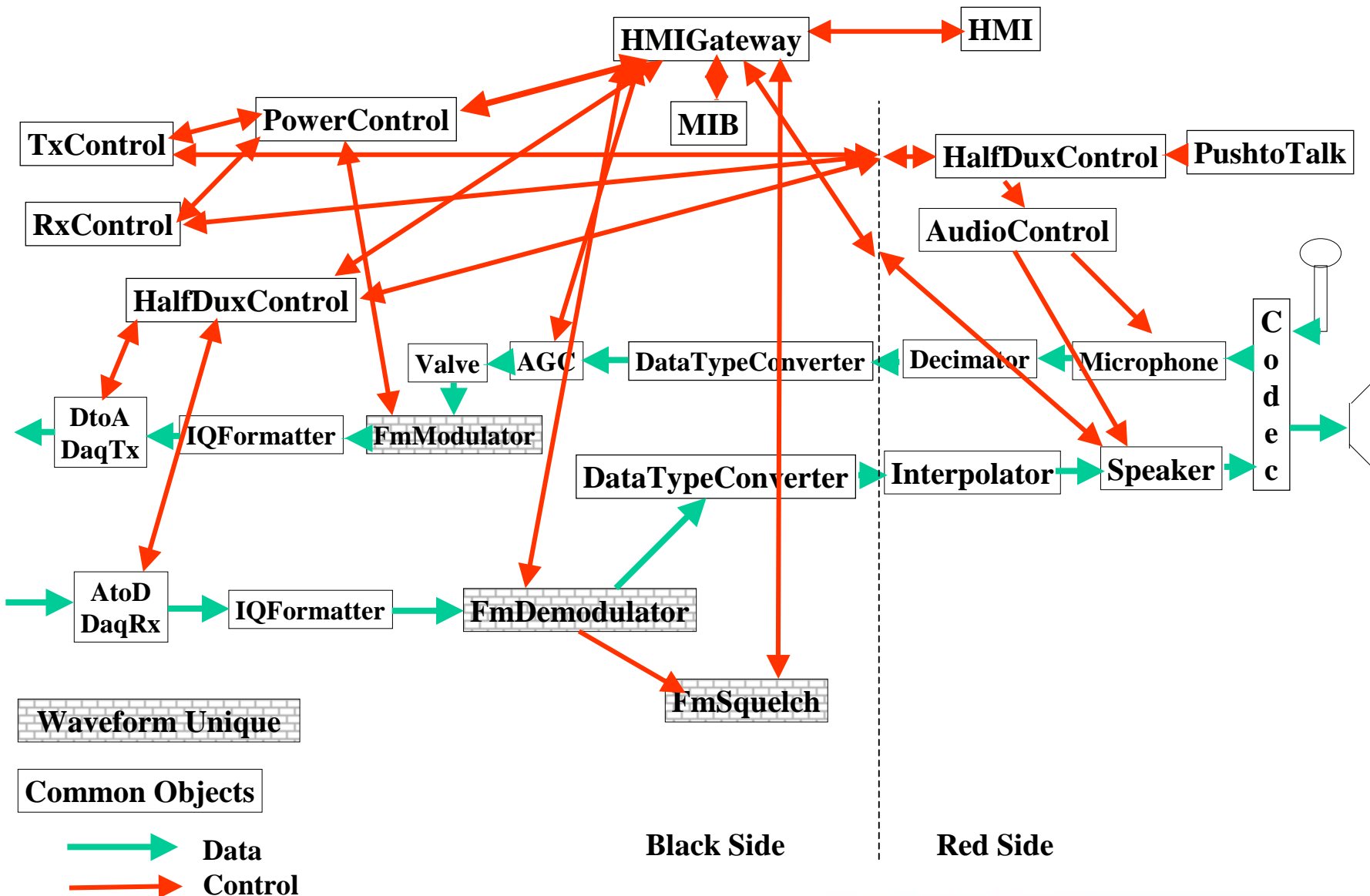
* A, N are used to indicate any number of heterogeneous OS's and processors may be used

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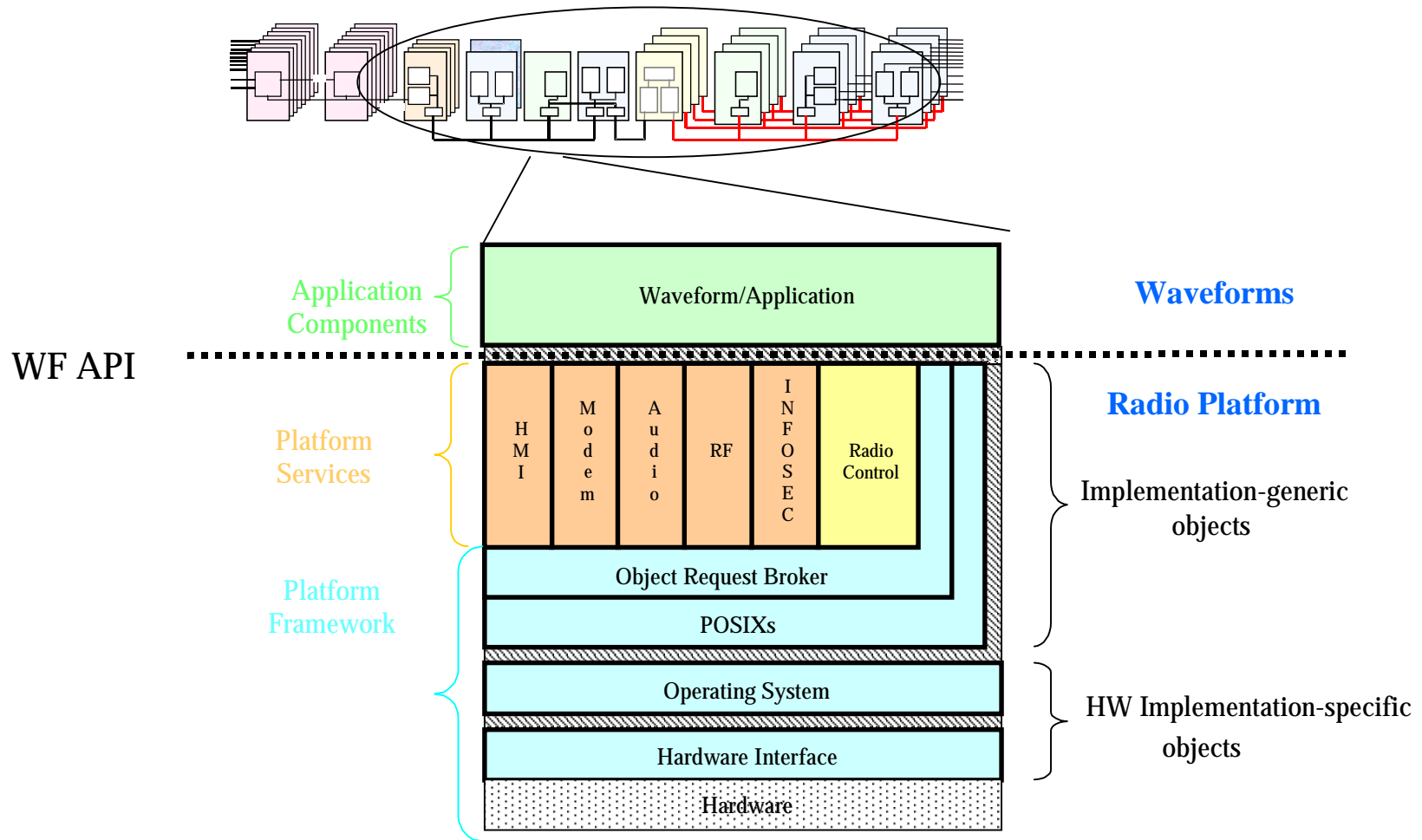
Heterogeneous Processors using Middleware to provide a Homogenous Software System



FM Waveform



Simplified Waveform Deployment



- Support software deployment in hard real-time system
- Real-time configuration across multiple CORBA capable processors executing a single or multiple radio application(s)
- Non-transactional and persistent data flow nature of waveform signal processing applications
- Co-location of Clients and Servers
- Portability to other ORB Environments

- Deployment
 - Supports configuration and reconfigurations
 - Supports downloading new software and functionality
 - Object distribution
- Development
 - Quick development of new applications
 - Reuse of waveform software from development environment to target with only recompilation.

- Multi-lingual support (e.g. ANSI C and C++ ...)
- Location Transparency overhead relief for co-located clients and servers
- High Availability and Fault Tolerance
- Deployment Architecture for Hard Real-Time systems
- Modular, micro-kernel architecture allows you to use only what you need (e.g. Pluggable protocols, threading models)
- Portable Object Adaptors (improves multi-vendor portability)
- Services
 - Naming
 - Telecom Log
 - Event
 - Security