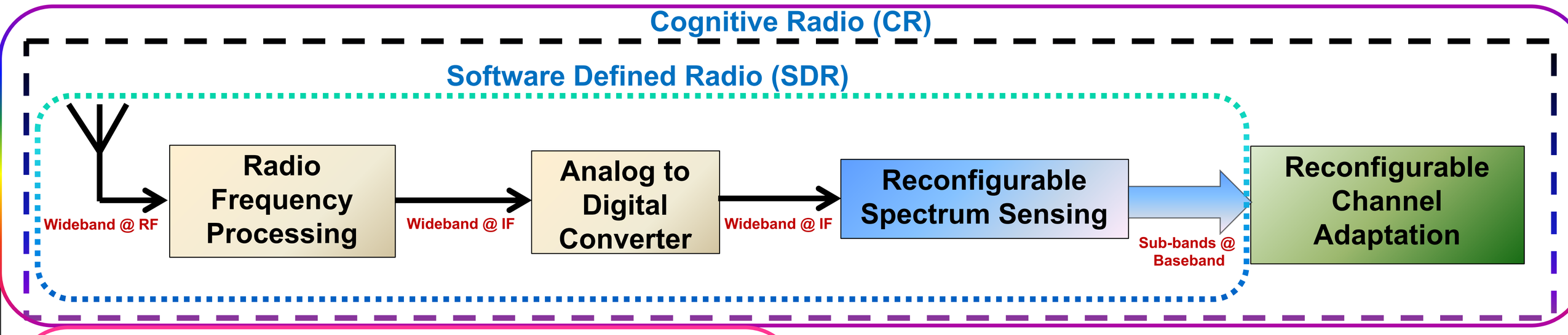
Reconfigurable Low Power Signal Processing Architectures for Multi-Standard Wireless Communication Systems

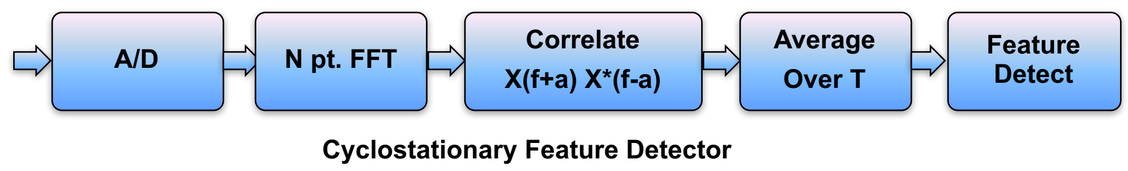


The **Cognitive Radio**, built on a **software-defined radio**, is an intelligent wireless communication system that is aware and adapt to statistical variations of its environment with two primary objectives in mind:

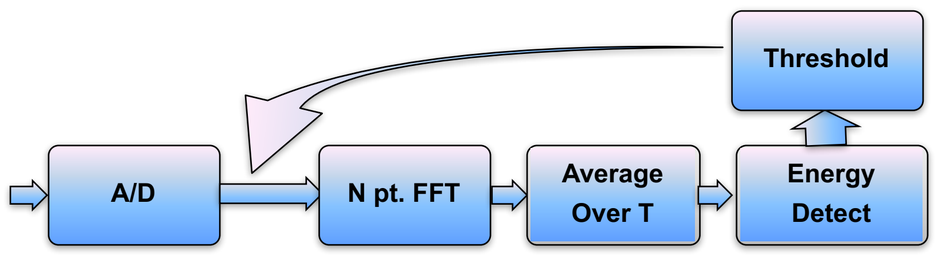
(1) Highly reliable communication whenever and wherever needed,

(2) Efficient utilization of the radio spectrum.

Spectrum Sensing Architectures

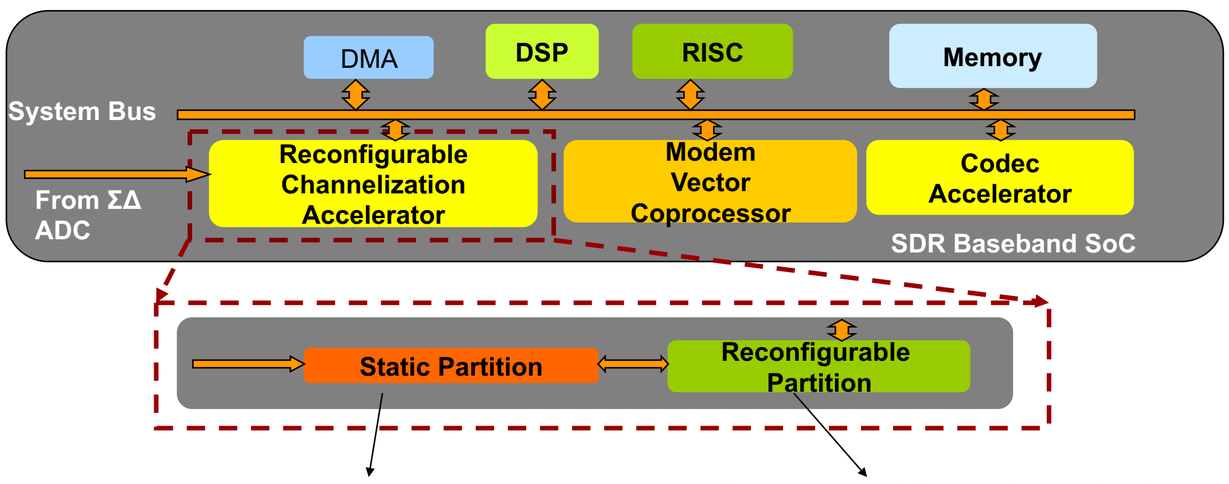


Cyclostationary Feature Detector



Energy Detector

Standard Agnostic Channelization Accelerators



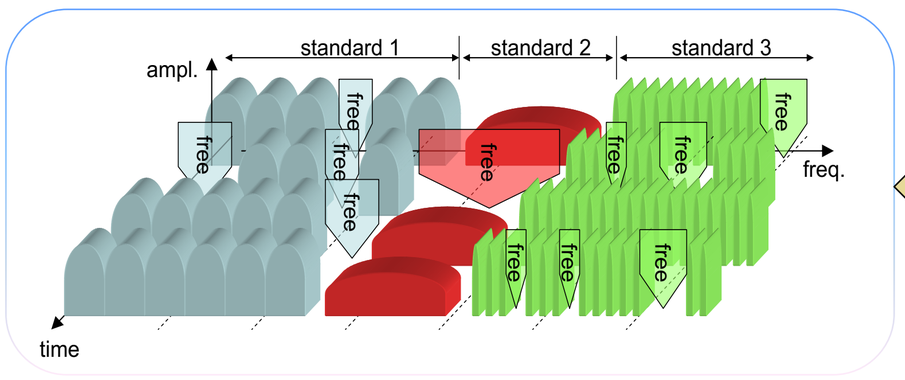
Reused by all standards with minimum reconfigurability

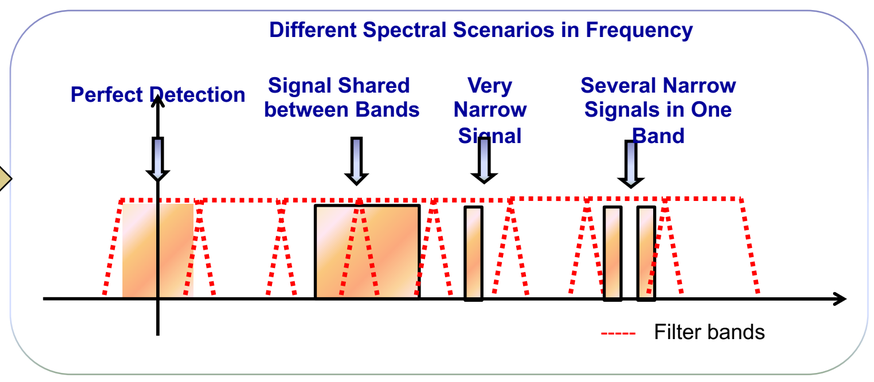
Reconfigured for each standard

Objectives

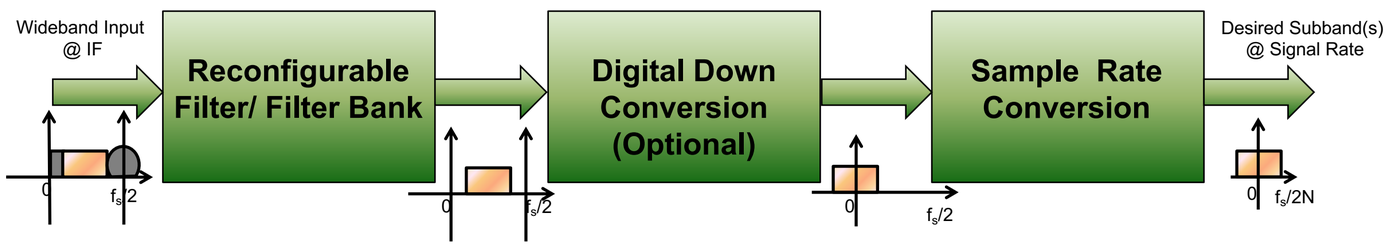
To implement low power and reconfigurable signal processing architectures for

- spectrum sensing,
- standard agnostic channelization accelerators,
- channel adaptation.





Channel Adaptation Architectures



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