Perspective on SDR Standards

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Background

- Leonardo has been involved in the SCA-based technologies and SDR products development since early 2000, both in national and international programs.

- Leonardo has developed SDR platforms and Waveforms based on the Software Communication Architecture

- Leonardo has implemented and used the ESSOR Architecture, which is based on the SCA

SCA Benefits

- Benefits in adopting the SCA-based techniques into the Software Defined Radio (SDR) devices are well recognized.

- Benefits are both for the customer and the radio provider

SCA Benefits: Provider

- Reuse of application software (waveforms), on top of different radio types

- Reuse of middleware software (SCA management) such as common interfaces for waveform instantiation, control and use

- Environment providing for common radio device internal control

- More portability of waveform application software across radio platforms, due to the basic set of rules defining the waveform component structure itself

- shorter time-to market, a better technology and product maturity, overall development optimization (e.g. in terms of number of SW implementations)

- cost reduction: this is actually a main factor characterizing also the Customer benefits!

SCA Benefits: Customer

- Using the same platform for different radio applications

- Availability of upgradeable and <u>flexible</u> solutions, supporting the rapid deployment of mission-ready systems.

- Longer products <u>lifespan</u>, easier and more efficient maintenance and operation

- Logistic improvement, thanks to system's <u>modularity</u> and standard interfaces.

- Availability of products that enable and enhance <u>Interoperability</u>

- <u>Enabling</u> of networking and cognitive solutions over SCA-based platforms

- <u>Growth</u> capability, allowing to implement future needs, requirements and even proprietary solutions on top of SCA platforms: waveforms, security algorithms, user applications etc., due to a common definition approach

The SCA versions evolution

- Investments have been done over the years on developing SCA based solutions.

- Mature developments were based mainly on 2.2.2 version

- The SCA 4.1 introduces enhancements, in addition to modularity and scalability, still reaching:
  - a close compatibility with the SCA 2.2.2 via the full configuration

Leonardo involvement in SCA

– Leonardo through the ESSOR Community <u>contributed to</u> the SCA

- Application Environment Profiles (AEPs)
- Interface Definition Language (IDL) (U)Lw profiles

– Leonardo and the <u>ESSOR</u> Community support and appreciates the SCA evolution through WInnF

- Backwards compatibility with SCA 2.2.2, enabling re-use of WF developments
- Integration of significant contributions from ESSOR
- Normative reference to WInnF "PIM IDL Profiles" standard

The approach to SCA

- SCA 2.2.2 is implemented on Leonardo land and naval platforms

- On the Leonardo avionic platform a SCA 4.1 lighter profile has been used for better adaptation to safety avionic requirements

Conclusions

- The SCA benefits are well recognized

- The SCA has been proven for several years and through several implementations on fielded radios

- The SCA 2.2.2 is the most implemented version of the standard

- The SCA 4.1 provides for even lighter profiles that can be looked after for specific environments

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