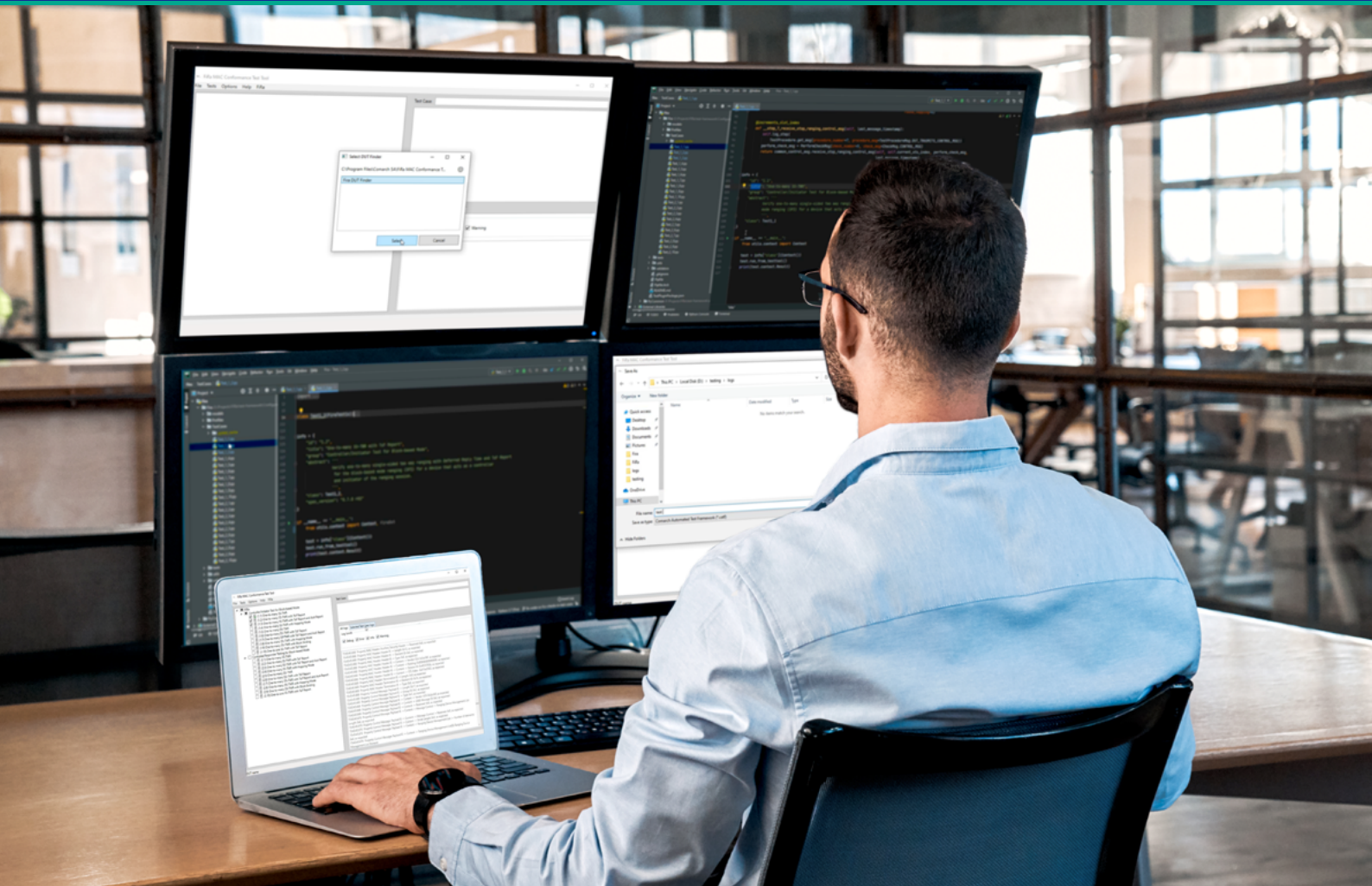


CASE STUDY

CREATION OF AN INNOVATIVE, MODULAR PRODUCT FOR CERTIFICATION PROCESS IMPROVEMENT COMARCH AUTOMATED TEST FRAMEWORK



1. PROJECT OVERVIEW

What was the project goal?

The development of **Comarch Automated Test Framework**, a product which consists of ready-made components of a technical solution that can be used in test tools in order to shorten the development time and ensure high stability, and maturity.

Why is it so important?

The certification process is a sophisticated mechanism requiring expertise in several specialized areas such as test specification creation, test case creation, and test tool development – standalone or in the cloud (not to mention test automation system development and pre-testing execution). **Certification organizations, especially when new technology is starting to be adopted, often lack experience in one or more of these fields. Thus, they need a solution that allows the test tool to be adapted to their specifications.**

What challenges of the certification process were addressed?

- The lack of any available test tool
- The presence of a test tool but without the rights to it
- Test hardcoded into the test tool (each change requiring a new version of a tool)
- Generating results in various formats
- High risk of human error during manual testings
- Long time required to implement a test tool
- Complicated and difficult certification process

What were the main success factors?

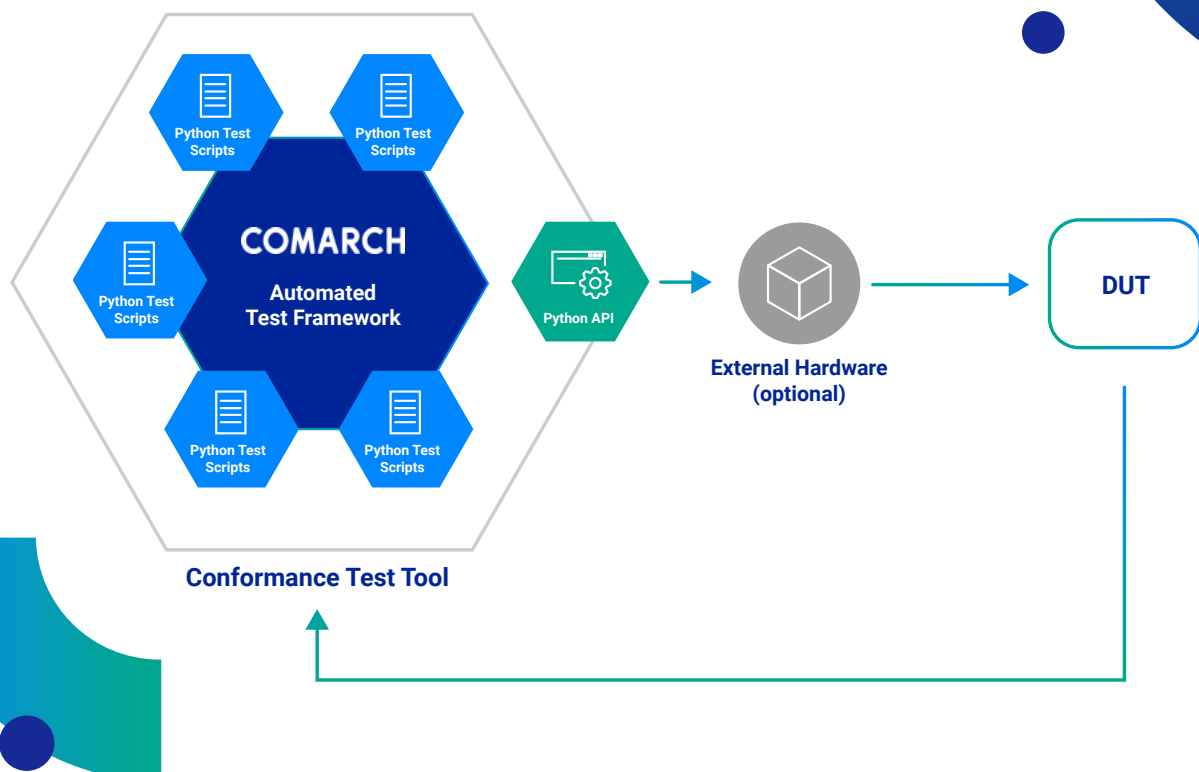
- Comarch's 14 years of cooperation with leading standardization organizations
- Experience in supporting certification bodies at each step of the creation of standardization programs
- A team of high-qualified technical specialists
- Acting both as a commercial partner and as a member of certification organizations

2. SOLUTION

Description

Comarch Automated Test Framework is Windows-based software developed in .Net C# that can work with Python test scripts via the Pythonnet package. Among many advantages there are displaying the UI to the end-user, providing command line interface, serving as 100% certification tool. The high flexibility of the CATF and the number of available features allow easy adaption and application of the solution.

Architecture



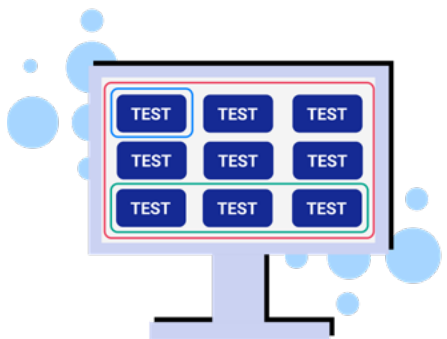
Main features of CATF



- Displays UI to the end-user with all functionalities needed to execute testing (configure, perform tests, present results)



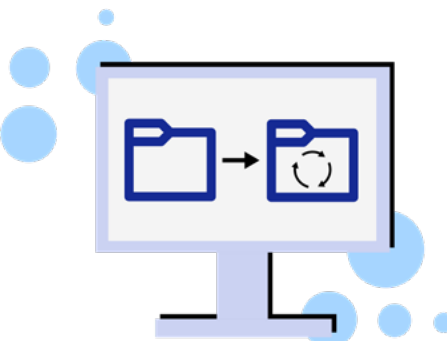
- Provides console access in order to run tests automatically (for example, in nightly builds)



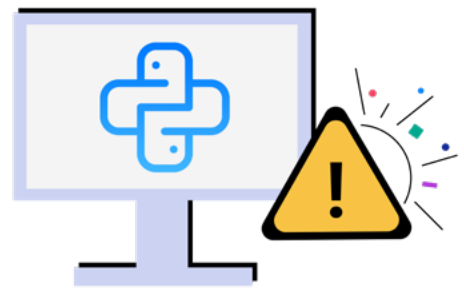
- Allows the user to run single tests, groups of selected tests and all tests



- Collects network packets



- Guarantees that none of the input file is changed by verifying input file signatures



- Test cases can be modified or even added (Python scripts) by the end-users (in such cases, the final report will include a warning describing test script modifications)



- Generates a zip file of the test report, signed with a secure digital key



3. BENEFITS

For certification alliances



Easier, faster and more reliable certification of devices



Significant reduction of time to market for products



Constant support for users via support package



Competitive advantage by early access to the test tool

For authorized test labs



Becoming one of the first authorized labs for a given standard



Gaining knowledge from the early stage of a given certification process



Readiness for on-site assessment while becoming an authorized lab for the standard



Support from the test tool vendor

4. IMPLEMENTATIONS

For Fira™ Consortium

MAC Conformance Test Tool

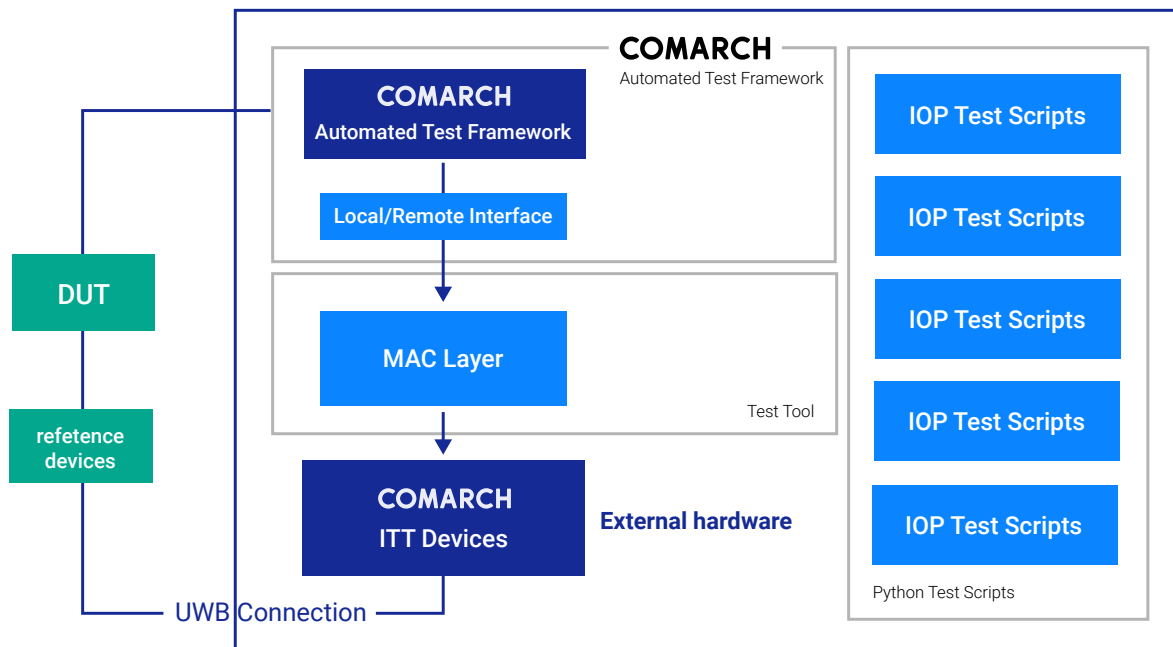
Comarch has created MAC Conformance Test Tool, allowing FiRa Consortium to launch a certification program which ensures that devices conform to test specification IEEE 802.15.4z. MCTT uses [Comarch Automated Test Framework](#) as the main component of the solution. Comarch is also responsible for MCTT distribution to FiRa members, and support in services related to pre-certification. It is composed of three parts:

- **Software** (built on top of [Comarch Automated Test Framework](#), our own product)
- **Hardware** (built on Qorvo modules with dedicated firmware to fulfill FiRa UWB requirements)
- **Python test scripts** (implemented for the purpose of the certification program)



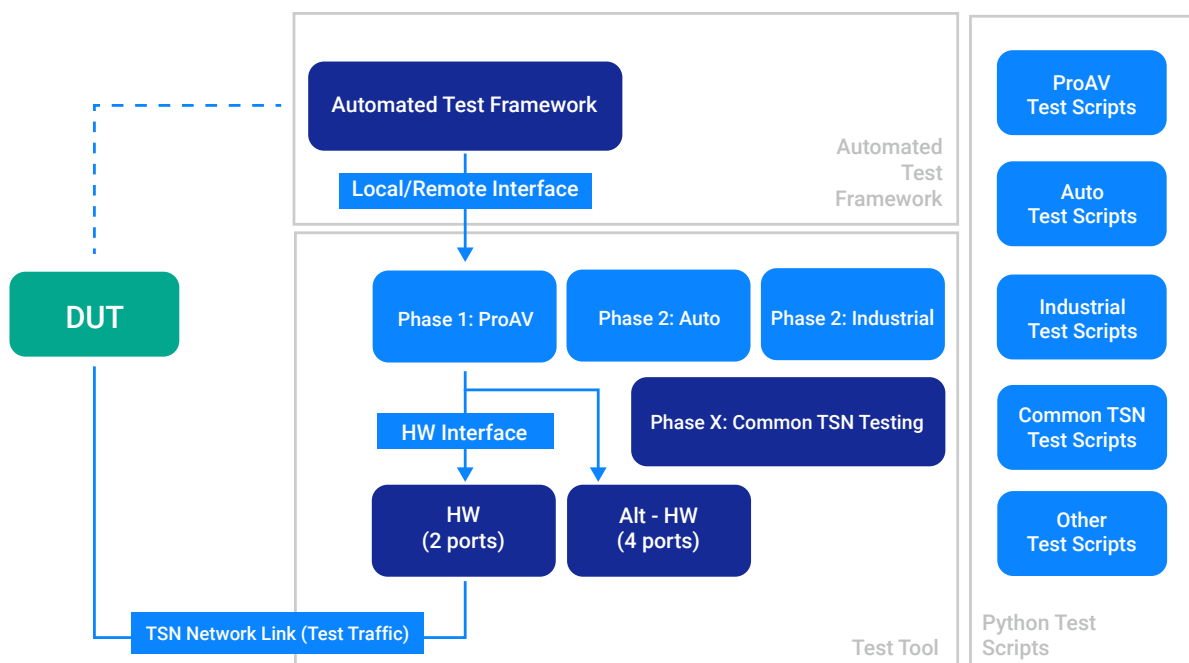
Interoperability Test Tool

Comarch has also created Interoperability Test Tool allowing FiRa members to perform IOP tests against DUT. It is worth to mention that one part of this solution is a device called ITT Device. This device is able to capture some of the UWB messages sent by the DUT and the reference device(s) so it can make an accurate judgment about whether or not the DUT meets the expected results of each test case.



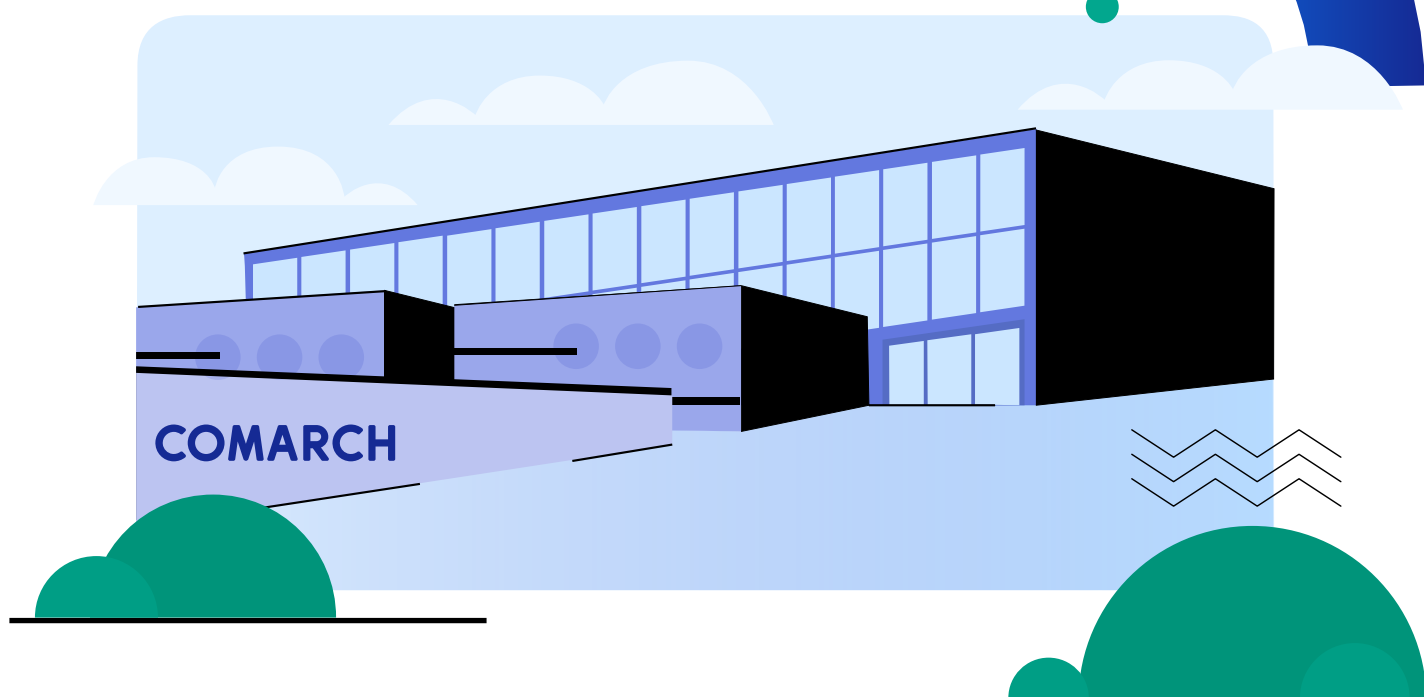
For AVNU Alliance TSN Test Tool

In 2020, Comarch began to support AVNU Alliance, and created the AVNU TSN Test Tool. The scope of work alongside for the development of the test tool application included the creation of test scripts that allow certification of time-sensitive network devices. From the beginning, Comarch decided to develop the tool in a very generic way so it could be used in the future as a core component for the extension of TSN Test Tool provided by Comarch, and as a ready product for other certification alliances.



5. ABOUT COMARCH

Comarch (headquartered in Kraków) is a leading global IT company with a portfolio of thousands of complex and successful IT projects and implementations of software development for more than 40,000 companies worldwide. We have wide knowledge of IT systems and solutions including cloud services, IoT ecosystems and embedded software. Comarch has been a reliable partner for global IT standards organizations since 2007, and has created at least couple of certification tools. Over the years, we've worked with various organizations and gained knowledge and expertise in how to support certification bodies at each step of the creation of certification programs, and we know how to aid their members in technology adoption.



To learn more about Comarch Automated Test Framework
and our services for certification bodies:

[Contact us](#)

or

[Visit our website](#)