

Project name

VirtuWind

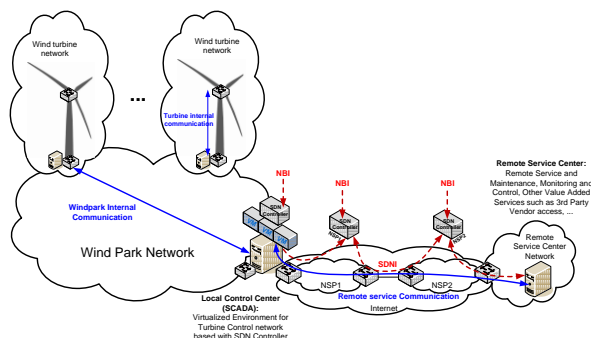
MAIN OBJECTIVES

The main aim of VirtuWind is to develop a SDN & NFV ecosystem for industrial domains, based on open, modular, and secure communication framework, leading to a prototype demonstration for intra-domain and inter-domain scenarios in real wind parks as a representative use case of industrial networks, and quantify the economic benefits of the solution. Following are the 5 key objectives of VirtuWind:

1. Realize industrial-grade QoS for intra-domain SDN solution.
2. Guarantee inter-domain QoS for SDN based multi-operator ecosystem.
3. Reduce time and cost for service provisioning and network maintenance.
4. Assure security-by-design for the SDN and NFV ecosystem.
5. Field trial of intra- and inter-domain SDN and NFV prototype.

USE CASES (or APPLICATIONS)

VirtuWind will adapt SDN as per requirements in industrial networks by developing novel SDN-based mechanisms to implement industrial-grade QoS and to reduce CAPEX and OPEX in Wind park control network. The envisioned solution is depicted in the following diagram:



The new concept for industrial networks will immensely benefit by transferring existing SDN concepts from other disciplines into the industrial networking domain.

TECHNICAL AND RESEARCH CHALLENGES

Translating VirtuWind's objectives and applying the concepts developed in the project to the domain of wind energy will address the following technical and research challenges:

- I. Programmable industrial networks via SDN.
- II. Multi-tenancy support via NFV as multiple stakeholders need different access profile.
- III. Techno-economic analysis for foreseen OPEX and CAPEX reduction.
- IV. Increase in service provisioning velocity.

EXPECTED IMPACT

VirtuWind will create industrial capability in Europe with major push towards the centre of competence for "QoS-enabled SDN/NFV". Due to such enhanced capabilities, it is possible to deploy different network services and applications very quickly as compared to the state of the art.

By addressing wind park use case for SDN/NFV in Energy domain and through decisive technical advances in the area of QoS, VirtuWind will boost the take-up of SDN and NFV approaches in the area of Critical Infrastructure and other disciplines with large scale deployments.

Project Coordinator:

Vivek Kulkarni, M.S., MBA
Siemens AG

Partners:

Technische Universität München,
Foundation for Research & Technology – Hellas,
King's College London,
Intracom S.A. Telecom Solutions,
WorldSensing,
Deutsche Telekom AG,
Intel Shannon Limited,
NEC Europe Ltd.

More information at:

<https://5g-ppp.eu/virtuwind/>, <http://www.virtuwind.eu/>

Contact

VirtuWind-Contact@5g-ppp.eu