A regional-based project on OpenFlow

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Project overview

- SEROFON: advanced SERvices for OpenFlOw Networks
- Duration: 2 yy, started: 1st July 2010
- Total cost: 430.000 €
  - 310.000 € EU funding through European Regional Development Fund (ERDF)
- Partnership bw SME & research center:
  - **Win.net Srl (C):** local ISP in Trentino (North Italy)
  - **CREATE-NET**: expertise on control plane technologies deployed in both vendor- and EU-projects settings

General objectives

- Exploit Network Virtualization techniques to:
  - enable the entrance of new stakeholders in the TLC scenario (Virtual Networks Providers)
  - facilitate the testing of novel services or network management tools by testing them on a production network
- Leverage on the separation bw decision & dissemination plans in OF networks to propose more efficient network management mechanisms

A fact…

- OpenFlow and Network Virtualization are definitely a research field yet…
- however, we believe OpenFlow-based network virtualization is one of the most promising framework due to its:
  - open-approach in software-defined networking (lot of OSS tools maintained by the OF community)
  - availability on commercial devices thanks to on-going liasion with major vendors worldwide

Specific project challenges

- How to instantiate virtual topologies which are independent from the physical topology?
- How to guarantee a strict control of the performances on the VN (in term of bandwidth/ delay/jitter/…)?
- How to provide a clear/complete description of the instantiated VNs?
- How to improve Controller/FlowVisor robustness to failures or attacks?

SEROFON focus in 1st year:

- Investigating how tags/tunnels mechanisms can be leveraged to run *performance-guaranteed* VNs
- Improving controller (decision plane) robustness by distributing its operations in the network
- Performing a techno-economical analysis to identify the more promising application scenarios in such OF-based networks

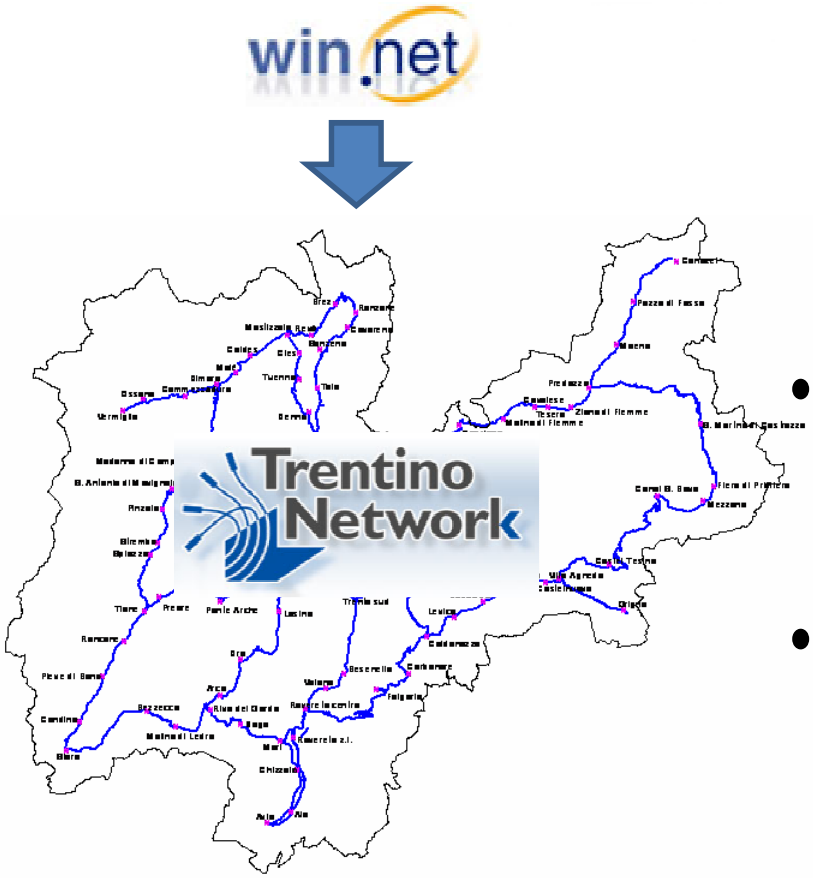
SEROFON testbed

- Current version based on Linux boxes running in a lab

- **Next:** going beyond the lab!
  - purchase a set of NetFPGA cards to enhance the testbed
  - on-going discussion with vendors to have at least few production-level devices in the testbed

  with the aim of creating **a city-level OpenFlow facility** where SEROFON outcomes are demonstrated

Current scenario in Trentino



- Win.net Srl is one of the customer of **Trentino Network** (TN-Net), a "municipal" operator acting as:
  - Dark-fiber/bandwidth wholesaler
  - Service Provider to PA users
- TN-Net is currently tendering for equipping an MPLS network composed of 92 PoP on 800km fiber
- Great interest in OpenFlow concept & applicability: the tender will ask for availability of OF support on vendors devices!

Thanks!

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