http://www.5gex.eu

Virtualization and Control in Multi-Provider Environment: the 5G Exchange approach

Carlos J. Bernardos – Universidad Carlos III de Madrid (UC3M)

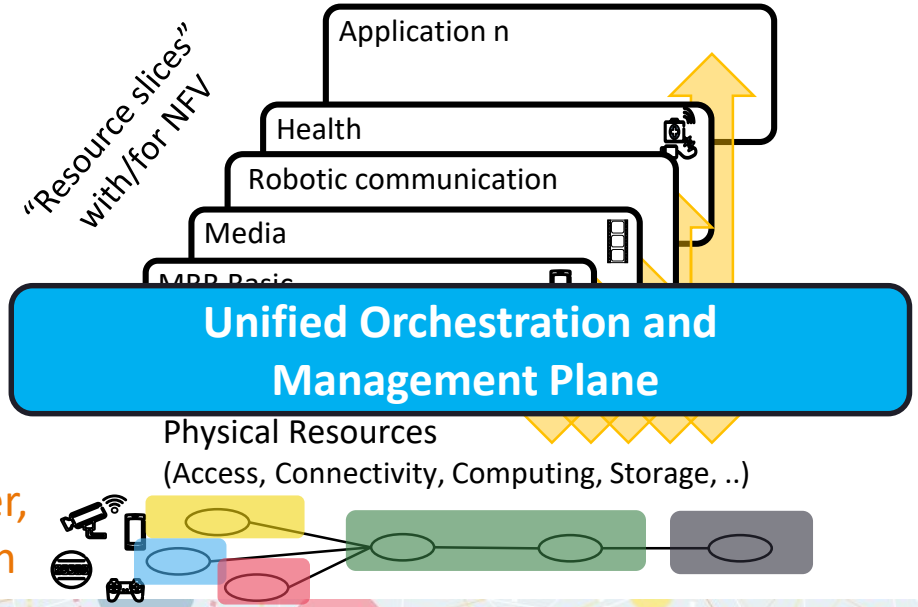
5G-Crosshaul and 5GEx: two key examples of network softwarization in H2020

Workshop on OpenDayLight and NFV/SDN Orchestration
October 19, 2016

Vision: One Stop Shop for End-to-end XaaS for Multiple Industries

From dedicated **physical networks with dedicated control and dedicated services and resources** for different applications…

…to a "network factory" where **resources and network functions are traded and provisioned:** new infrastructures and services are "manufactured by SW"



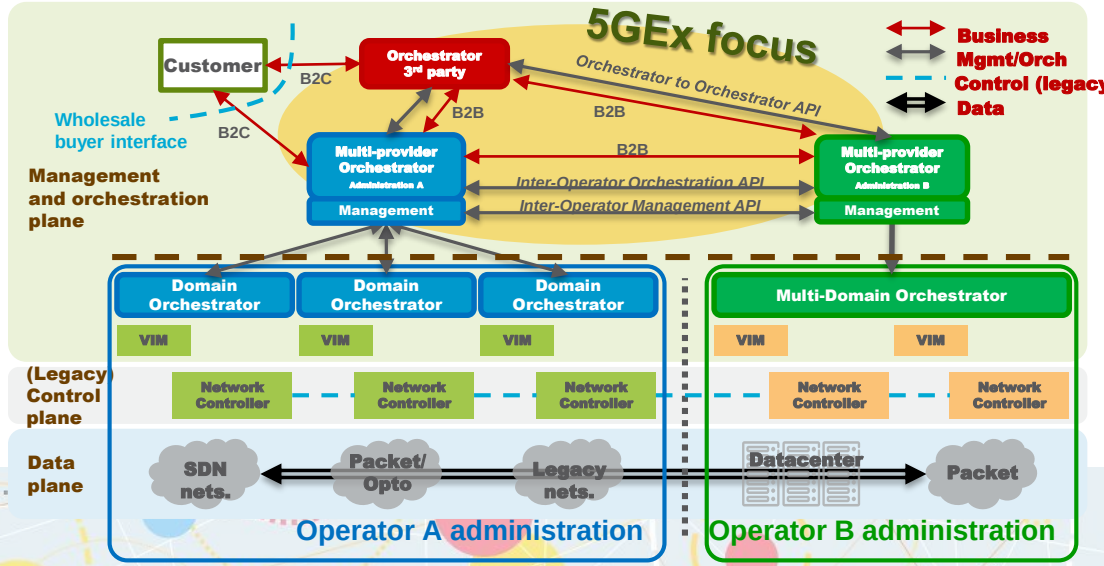
Motivations: why 5GEx?

- Today's environment:
  - **Market fragmented** today due to having multiple operators and service providers each with a footprint focused on a specific region
  - Significant and emerging 5G market and technology shift

- Consequences:
  - Infeasible to **deploy and offer cost-effective** infrastructure services spanning multiple countries/domains
  - Existing services and inter-operator collaboration tools are very limited
- Our goal/challenges:
  - Invent technical and business solutions to **5G autonomous orchestration** of services across **multi-domain and multi-technology** environments

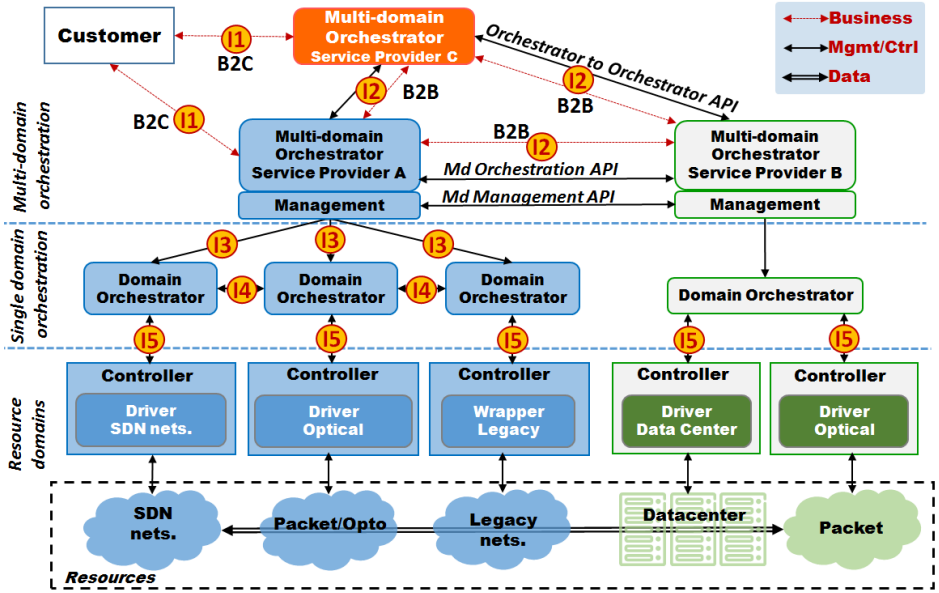
5GEx scope

- Design a cross domain orchestration system that provides wholesale XaaS services over multiple administrative and technology domains
- Define business and coordination models, trading mechanisms, charging schemes and value chains
- Build a working cross domain orchestration system and deploy a demonstrable prototype
- Experiment and validate cross domain orchestration prototype by implementing selected use cases on a multi site 5GEx sandbox
- Project timeframe
  - Oct 2015 – Apr 2018

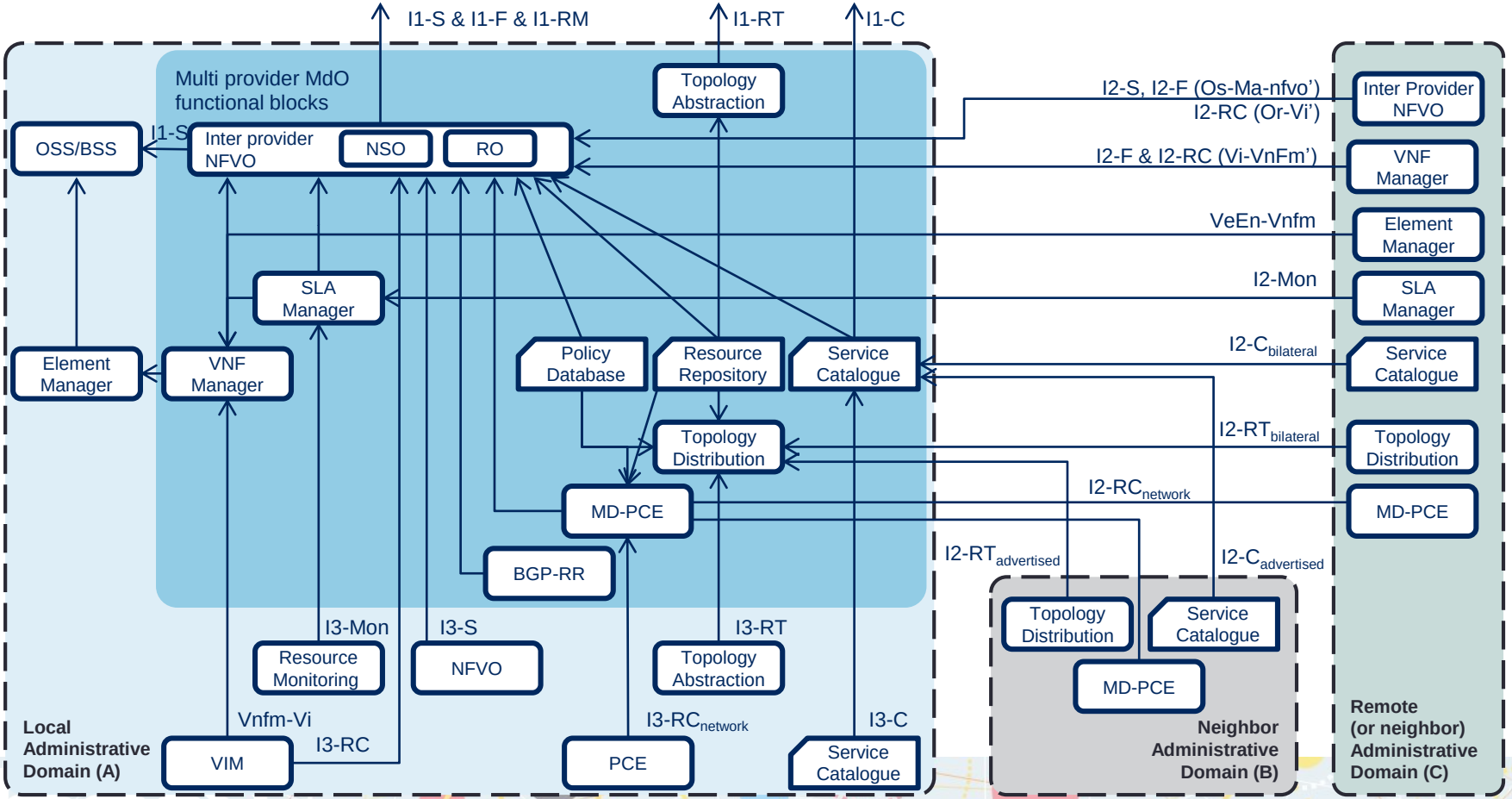


Architecture: key messages

- Multi Provider Orchestration in three stages
  1. Providers **advertise basic inter provider topology** and optionally service catalogue information to all or to a predefined group of providers
  2. Providers exchange information on a bilateral basis in a **consumer - provider** relation
  3. **Network Service (slice) orchestration** process (involving domain orchestrators)
- Separation of resource and service orchestration

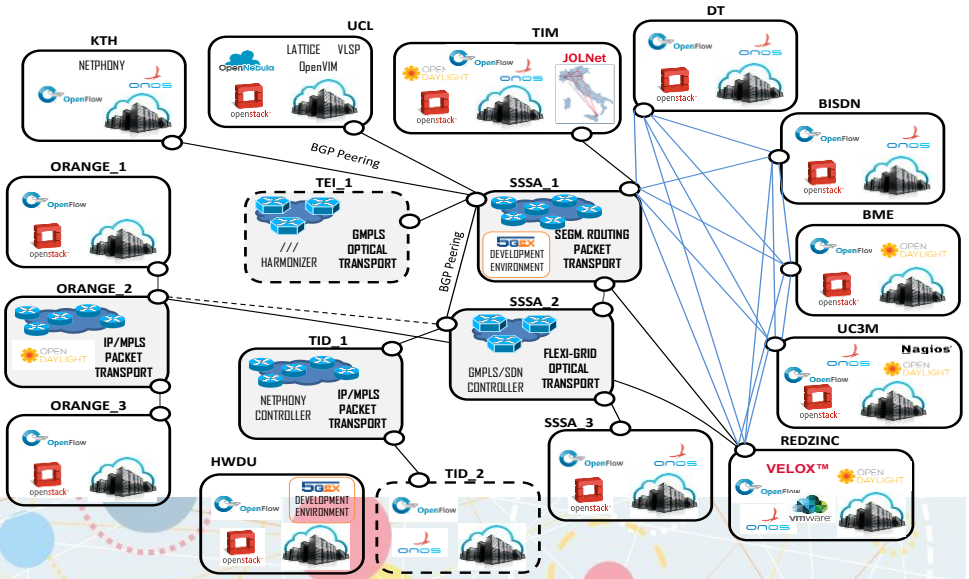


5GEx architecture (a bit more detailed view)



Prototype and Sandbox

- Prototype
  - To demonstrate key features of multi provider orchestration and its added value
  - Bottom-up prototype design based on existing components
- Sandbox
  - Goal twofold
    - Build realistic and secure environment for testing and rolling out innovative services
      - Also open to other interested parties
    - Sandbox to host 5GEx orchestration prototype
  - Sandbox Architecture
    - Internet connectivity structure is followed
    - DCs connected as stub networks
    - Interconnected ONF SDN islands



Summary

- 5GEx is an innovation project on cross domain orchestration between multiple administrative and technology domain
- We are building on MANO components and data models
  - NSO, RO
- PoC Prototype and Sandbox for verification and demonstrations
- More information available on http://www.5gex.eu/
- Any feedback on 5GEx is most welcome!

This work is partially supported by 5G-PPP 5GEx, an innovation action project partially funded by the European Community under the H2020 Program (grant agreement no. 671636). The views expressed here are those of the authors only. The European Commission is not liable for any use that may be made of the information in this presentation.

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WHAT
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WHY