

OAV considerations

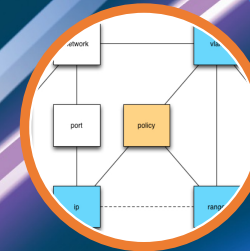
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WP6 T2

TNC19, Service orchestration architectures
and interfaces side meeting, Tallinn,
20.06.2019

Public

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PLAN & MODEL



VISUALIZE &
MONITOR



TROUBLESHOOT



REPORT



CONFIGURE &
DEPLOY

Key Drivers



Improving agility and responsiveness to demand



Monitoring, optimizing or securing the network more effectively



Lowering maintenance and service costs

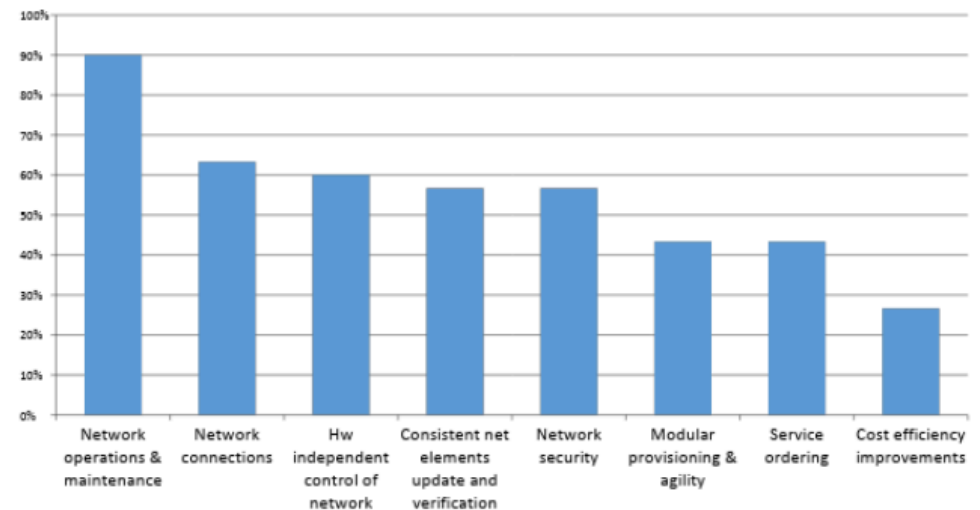


Simplifying the network

Survey Results

OAV Strategy Workshop 2019, 9/10 May

Service areas where OAV principles are expected to be applied in the next two years



4 stages of the network automation and orchestration process



NETWORK
CONFIGURATION AND
CHANGE MANAGEMENT



ORCHESTRATION



POLICY-BASED
AUTOMATION



INTENT-BASED
NETWORKING SYSTEMS

Survey Results

OAV Strategy Workshop 2019, 9/10 May

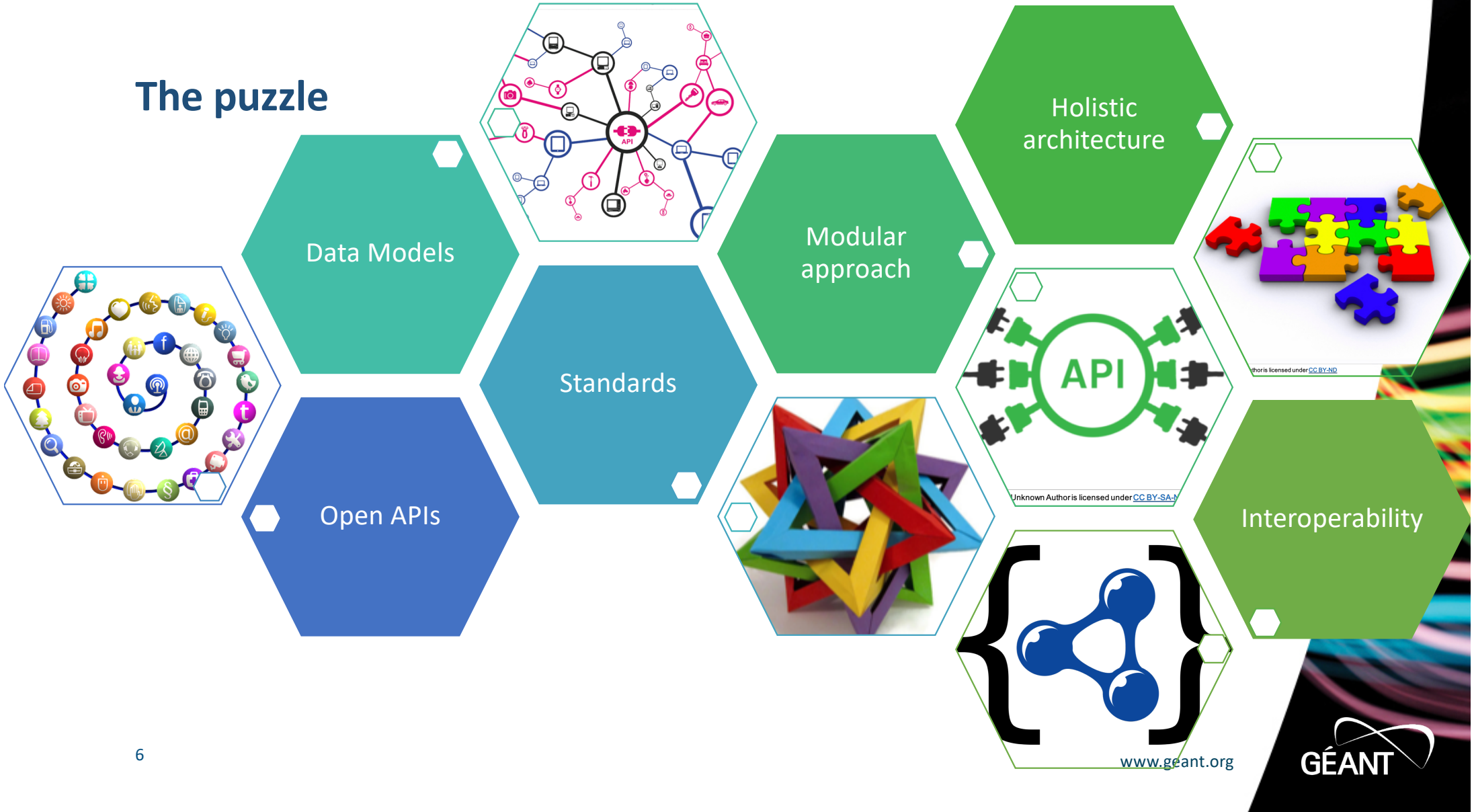
Do you face particular challenges in widening your orchestration, automation and virtualisation work?

YES – 70%

- lack of human resources (in particular developers / DevOps)
- various technical considerations (interworking and integration of different network components, equipment with no virtualization support)
- vendor support considerations.

4

The puzzle



GN3-4 Future Service Strategy Workshop

NREN consultation on Network and Cloud Service evolution in GN4-3

- Clearly showed that there is a diversity of perspectives
- NRENs are at varying stages of OAV concerning implementation / experience

There is a need for a strategy

- Where do we want to be in 4 years in the community?
- How do we want orchestration and automation to function at the beginning of GN5?

Requirements



Create dynamic network environments



To serve research communities with (IoT) applications and big data science solutions that require a mixture of diverse devices and services



Global interoperability



Need interoperable orchestrators/hierarchies, not just one hierarchy under one model



Allow for already existing NREN implementations/platforms

How can we automate and orchestrate virtual building blocks globally?



Facilitate automation and orchestration using virtualization

defining network service objects that always show the same behavior independent from underlying hardware implementation

objects can be abstracted and realized anywhere

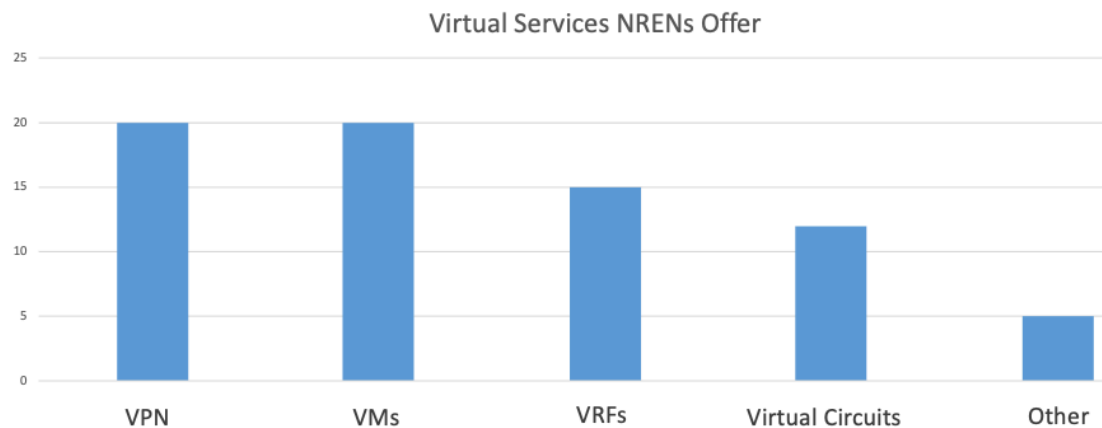


Software virtualization / normalization layer as the basis for automation and orchestration

provides options and flexibility

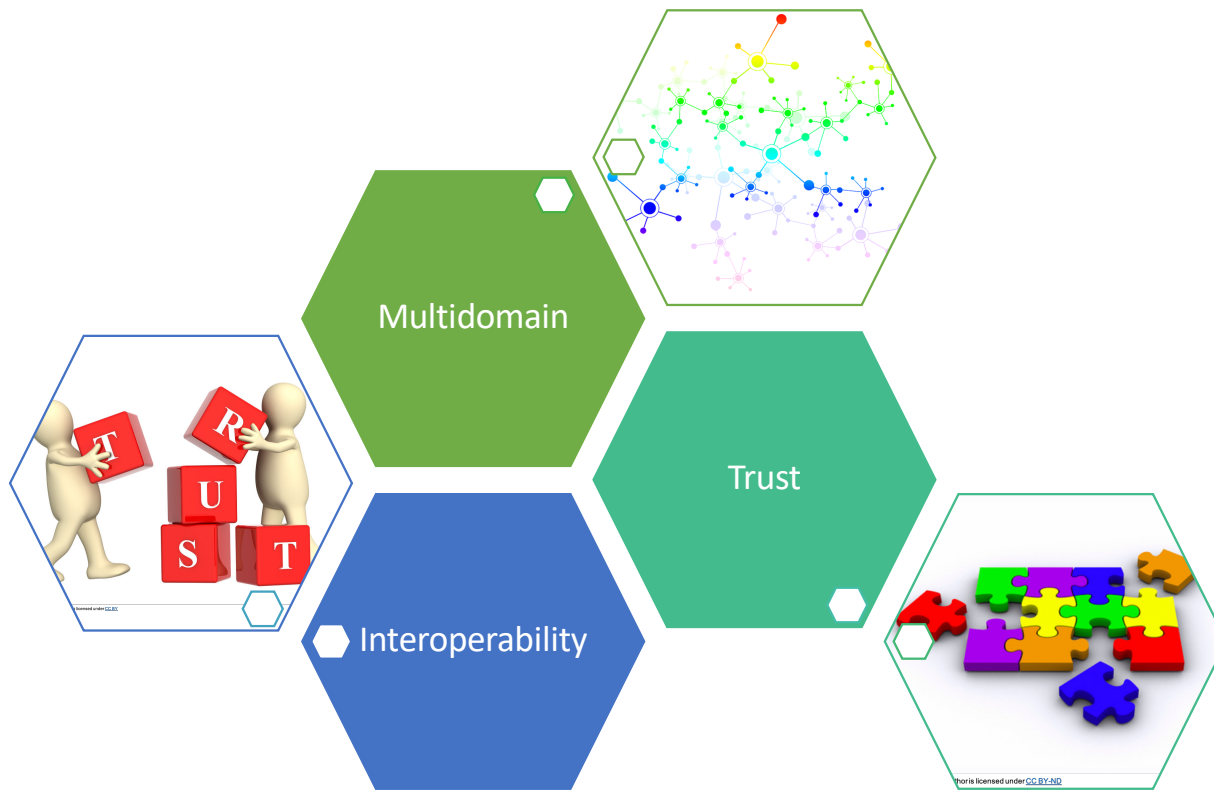
dealing with normalized virtual objects / building blocks that are predictable and deterministic

Virtual Services that NRENs Offer



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Towards multidomain solutions



Do NRENs plan to implement inter-domain OA?



Fairly even: having plans or not



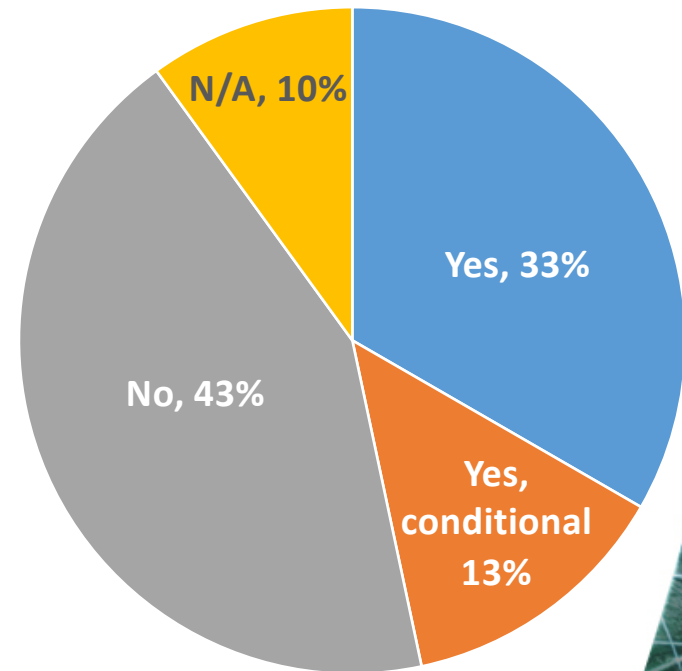
Own domain is addressed first, then inter-domain



Cloud access consistently mentioned (when specific, MD-VPN as conduit to Azure ExpressRoute)



DDoS mitigation and inter-domain circuits follow



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Do NRENs allow changes requested from external organisation?



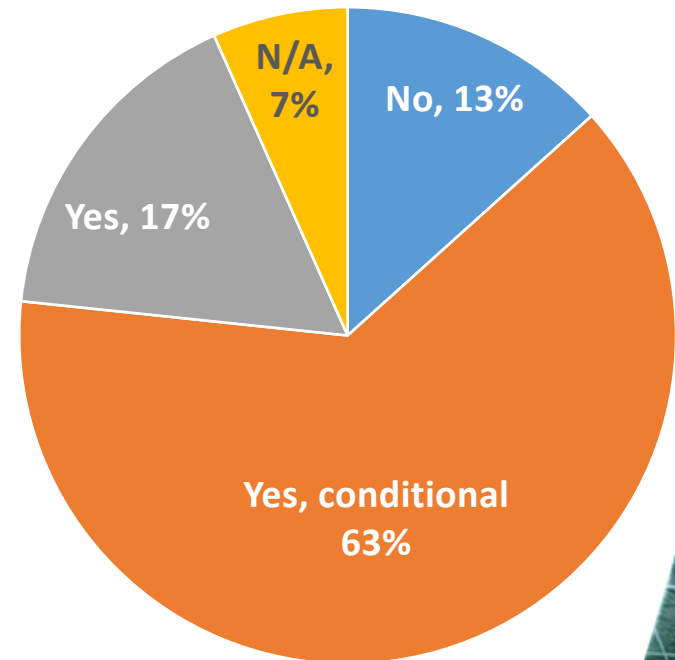
Wide majority (80%) would in principle accept changes initiating with an externally request



But most are dependent though that conditions (67%) are met

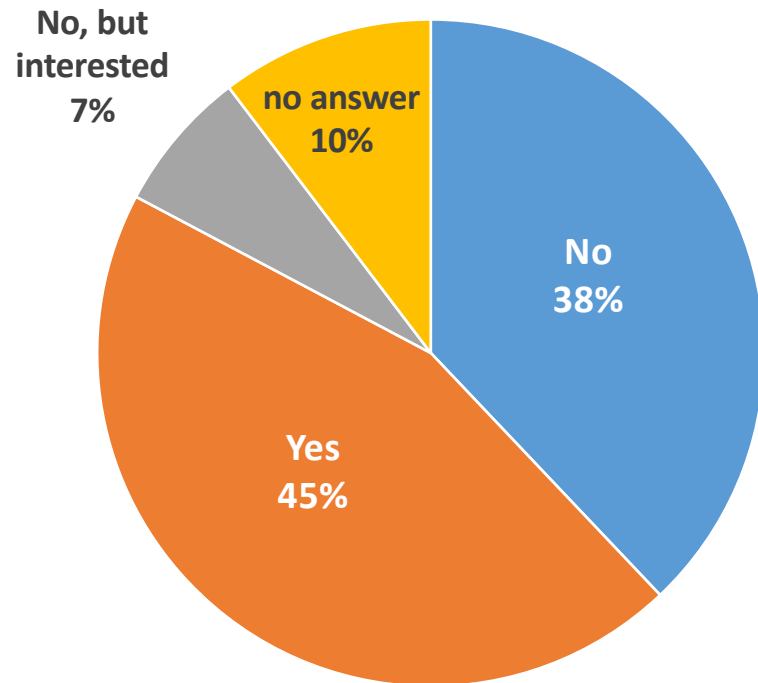


Conditions: processes, procedures and – importantly – AAI



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Possible participation in inter-domain pilots



About half the NRENs would consider taking part in an inter-domain pilot use case

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OAV Inter-domain Use Cases and Services



Most NRENs do not have inter-domain OA.



Most multi-domain use cases are between an NREN and the institutions



use cases mentioned: global connectivity to clouds, any direct access services, GNA, support for big science users/mirror sites



Thank you

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© GÉANT Association on behalf of the GN4 Phase 3 project (GN4-3).
The research leading to these results has received funding from
the European Union's Horizon 2020 research and innovation
programme under Grant Agreement No. 856726 (GN4-3).