APPLIED RESEARCH CENTER FOR COMPUTER NETWORKS

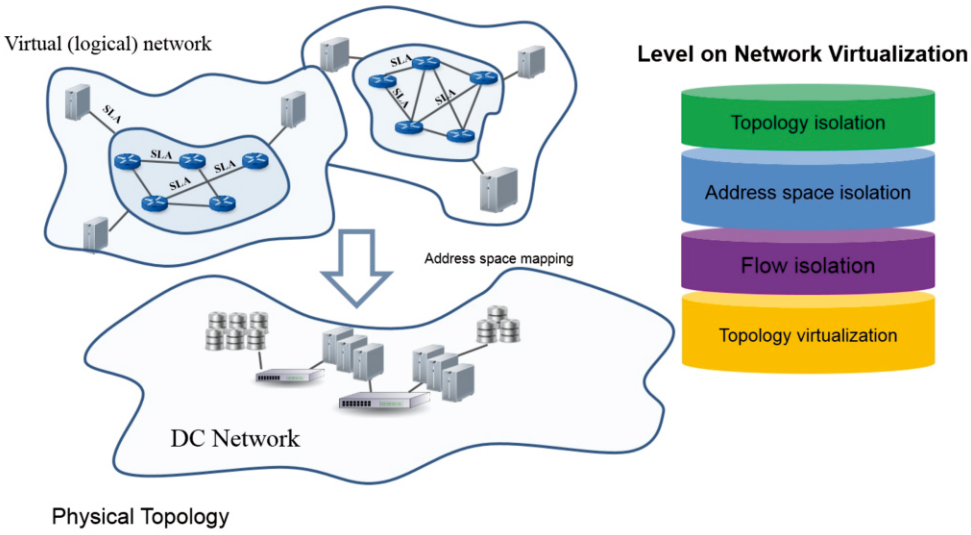
Self-Organizing Cloud (SOC)

Our vision

SOC is a platform for logical consolidation of DC's resources to unified virtualized infrastructure known as a cloud. This platform provides specialized services, such as: public cloud services, effective deployment models, logical consolidation of all DC resources (computational, storage, networking) into virtualized infrastructure under centralized control, IaaS and PaaS, network services dependent on the automatized infrastructure control.

Key features

- Resources virtualization: virtualization of computational, storage and networking resources, control of tenant virtual network topology.
- Services virtualization: virtual network service is the main abstraction of SOC and is an independent entity inside of tenant. Service is providing some set of logically related functions centered around service mission.
- Automatic deployment: the SOC platform allows load and installation proper software automatically on available hardware resources, check them for correspondence to the specifications, check for operability of servers, storages and networking hardware
- SOC allows specify the topology of tenants' virtual network by means of new mechanism of network resources virtualization and application of SDN key features inside of tenant's net and on the network physical level.
- By SOC it is possible to define SLA for all set of resources (computational, storage, networking) in tenats.
- Effective resource management algorithms: high effective algorithms for consistent planning all resource types with tenant SLA support were developed for SOC .
- OpenStack integration: in fact SOC is built on OpenStack basis and utilizing some of its moduless
- Effective network management: SOC uses capabilities and benefits of SDN approach to physical network control by means as OpenFlow as OpenVSwitch.



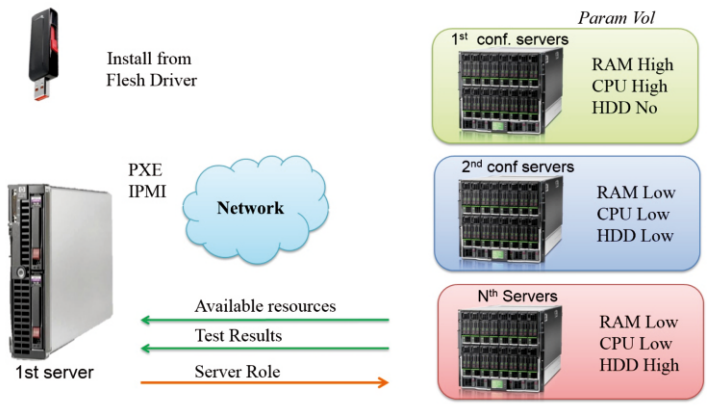
Use cases

- Private cloud: Resources virtualization and automatized control of computational and networking infrastructure of independent business units.
- Public cloud: Creation and support for public cloud capable of IaaS and PaaS provisioning.
- Hybrid Cloud: Integration of private cloud and public cloud by supplying unified virtualized network space and data security measures
- NFV platform: Cloud platform for creation of virtual network functions (VFN). Including the possibility for one tenant to provide VFN for another.

Benefits

SOC leverage will allow:

- to speed up cloud platform implementation and to reduce cost of ownership for cloud platform comparing to existing solutions;



- to increase resources utilization due to effective specialized algorithms of planning;
- to increase efficacy and quality of tenant requests due to unified planning of all resource types and SLA support and control;
- to decrease energy consumption in DC due to powering off or suspending of unnecessary equipment;
- to save OpenStack ecosystem advantages due to utilization of OpenStack-based products and services.

Applied Research Center for Computer Networks (ARCCN) - is a research project for the development of technologies and products for next-generation computer networks in Russia. ARCCN was established in February 2012.

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