

On-demand Infrastructure Services (IoD) Charter-Discussion BOF

OGF28

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Objectives

- **On-demand infrastructure resources and services provisioning** is a necessary component of building interoperable and dynamic Distributed Computing Infrastructures (DCI). Emerging Cloud Computing will require **network infrastructure provisioned on-demand**.

The expected outcome of the BoF would be establishing a working group in the OGF Infrastructure area that will work on the basic set of documents to ensure coordination and interoperability of the research and development in the On-demand Infrastructure Services provisioning.

The ISOD WG should also propose a **framework for providing consistent security services** for dynamically provisioned combined network and IT/applications

Current situation

- ITU-T Focus Group on Future Networks
 - Activity Started in June 09 (three meetings done already).
 - Network virtualization is one of the focus: “ Framework of Network virtualization” (www.itu.int/oth/T3A050000017/en)
- IRTF NVRG (Network Virtualization Research Group)
 - Newly Created; first VRG meeting at IETF-77 in Anaheim, USA (21-26/03/10)
 - 1. explain/define what we mean by network virtualization 2. explain what they're useful for 3. describe some challenges 4. list some milestones
 - Consider a whole system for virtualized networks and not only single components or a limited set of components;
 - Identifying architectural challenges resulting from virtual networks;
 - Recursive network management of virtual networks;
 - Emerging technological and implementation issues.
- OGF: NSI, NML, OCCI

BoF Scope

- The scope of the ISOD WG may include:
 - BCP/taxonomy Resource description from Infrastructure and service provider point of view
 - Defining architecture, LICL, extended UNI and ANI
 - Infrastructure virtualisation issues
 - Provisioned services lifecycle management
 - Requirements to On-demand Infrastructure Services provisioning
 - Use cases for On-demand Infrastructure Services provisioning
 - Security Framework for On-demand Infrastructure Services provisioning

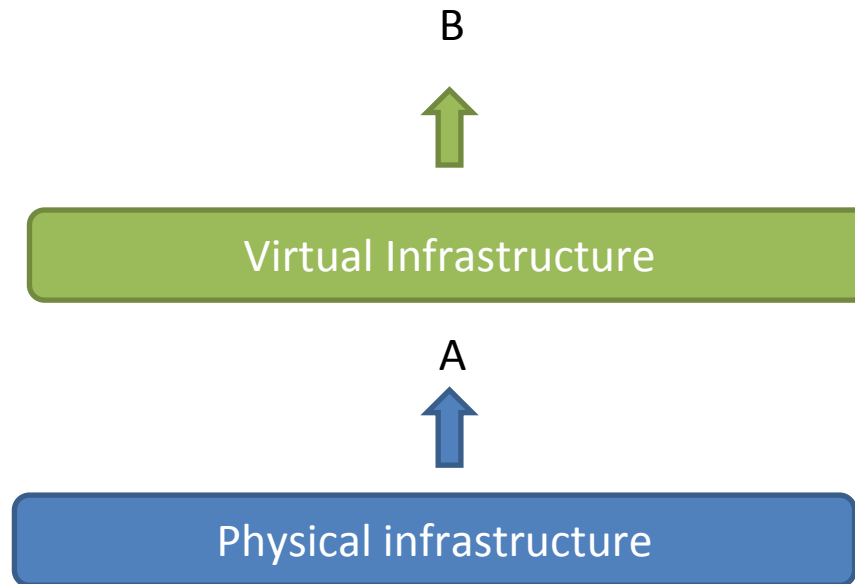
BoF Agenda

Session Focus: Standardisation issues in On-Demand Infrastructure Services provisioning

1. Use cases for on-demand infrastructure services provisioning and Logical infrastructure Description (Joan A. García-Espín and Jeroen van der Ham) - 15 min
2. Security services lifecycle in on-demand provisioned services With overview ITU-T/TMF/NIST/OpenGroup standardisation (Yuri Demchenko) - 15 min
3. Workshop outcome and related issues discussion - 15 min.
4. Prospective ISOD WG charter discussion (Yuri) - 45 min.

Virtualization of network with IT

- Model
 - Allocate resources including network and IT resources to Virtual Operators (VO) -A
 - Allocate resources within VO to users/aplications - B



Allocate resources within VO to users

- Set of resources available to VO
- Some permanent, some can be requested
 - Timeframes for getting resources
- Coordinate/schedule computing, storage, networking resources in VO
 - Hard problem limited by using VO
- Orchestrate resources

Problem decomposition

- Provider runs resource, delegates some to Virtual Organization
- Application uses resources from VO to setup its application in an optimal way (based on resources available to VO)
- Interface is a “virtual” (and probably abstract) resource service
 - Computing, storage, networking

Allocate resources including network resources to VO

- For network resource, need to define a way to allocate resource
 - How to request it
 - How to maintain it
- And a way to describe
 - From Infrastructure provider
 - For user(VO)
 - Should be usable by GMPLS (extended)

Resource
'Book'
definition

Resource
description

Resource
capabilities

Resource allocation

- Allocating resources is basically a authorization and delegation problem
- NSI deals with this at WS level for Net
- Grid capabilities deal with Compute and Storage

Resource integration/ instantiation

- G-Lambda Pilot
- Geni SLICEs
- Lambda Station and TeraPaths

- Interface between virtual resource and provider at instantiation time

Next steps

- Problems:
 - No standard interface from Physical Infrastructure providers and (virtual) Network operators to the Physical and virtual resources
 - Need of a common description framework for network and IT resources
 - need a full interoperability of network and IT resources
- Action Points for the chapter:
 - Define a taxonomy for the Resource description from Infrastructure and Network operator (maybe also service provider) point of view
 - Define the Infrastructure and network provider requirements and use cases
 - Define interface architecture
 - Define the granularity of Virtual resource description
 - Provisioned services lifecycle management
 - Define a Security Framework for the On-demand Infrastructure Services provisioning
 - Identify the scope of the other initiatives