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COMCON Control and Management of Coexisting Networks G-Lab – Phase II

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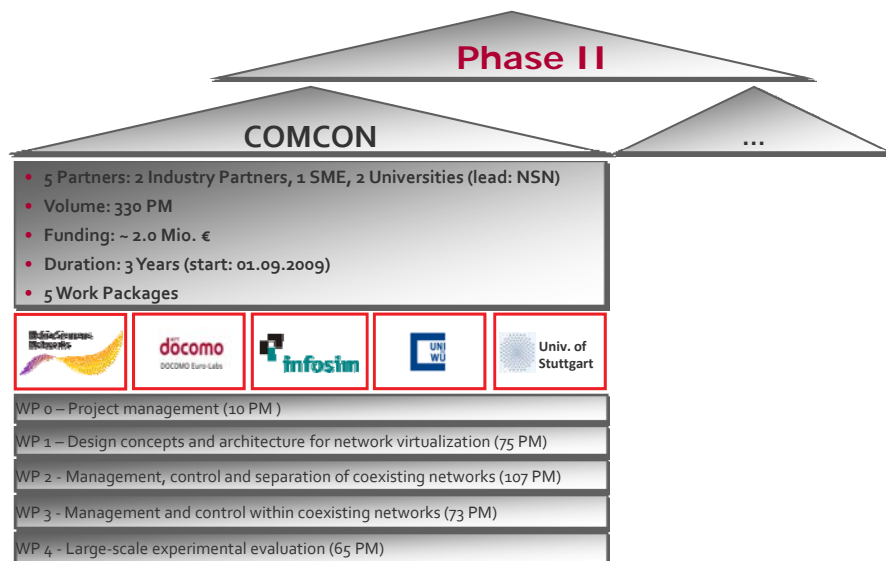
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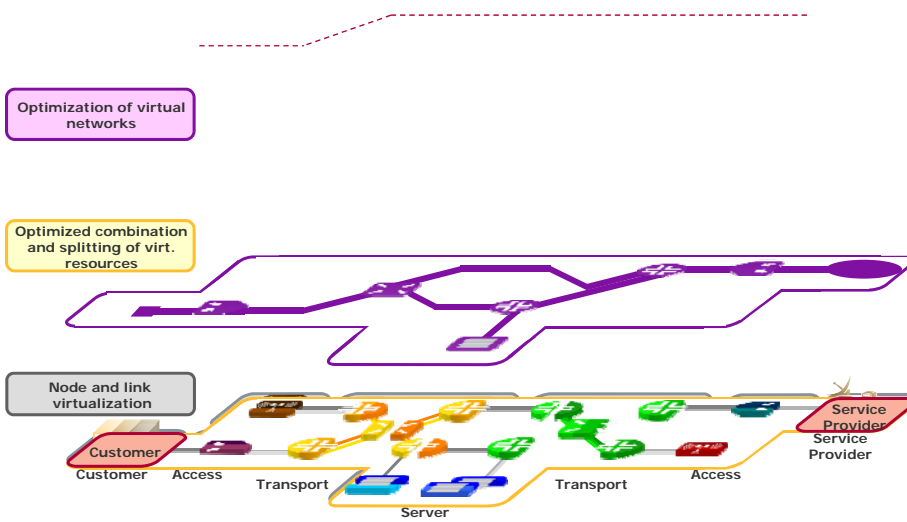
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COMCON – Project Structure



COMCON - Objective:
NW Virtualization - Partitioning and Aggregating Resources



NW Virtualization:
Three Building Blocks

Virtual Network Controller

- Middleware providing base network control functionality.
- Network services enabling service specific control of the network.

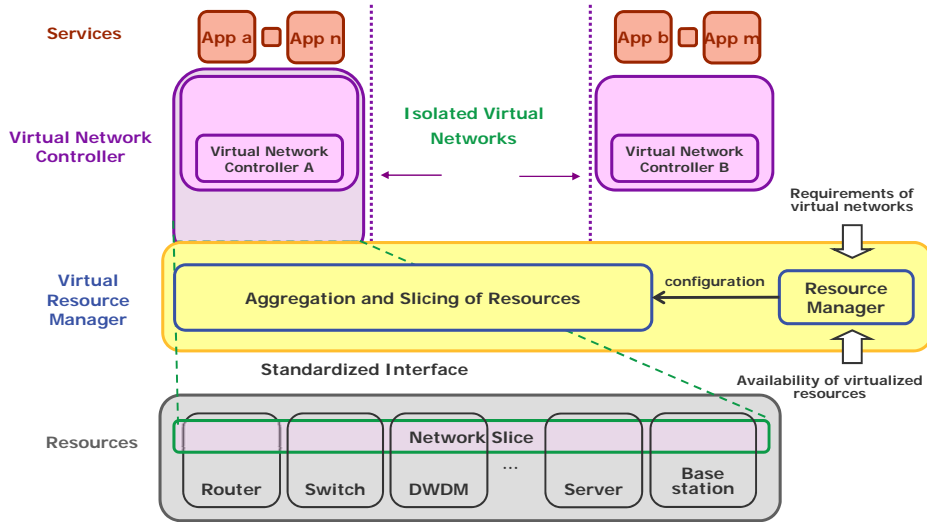
Virtual Resource Manager

- Aggregation and splitting of virtual resources.
- Forwarding and translation of control messages between controller and forwarding elements.
- Federation between different network domains.

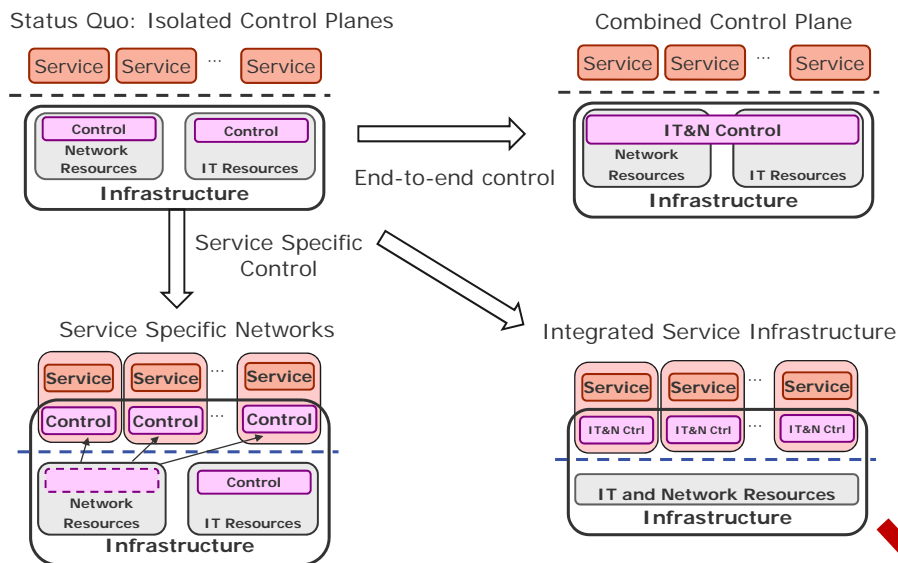
Resources

- Partitioning of raw resources (forwarding table, CPU, ...).
- Providing access to partitions of raw resources using a standardized interface.

Architecture

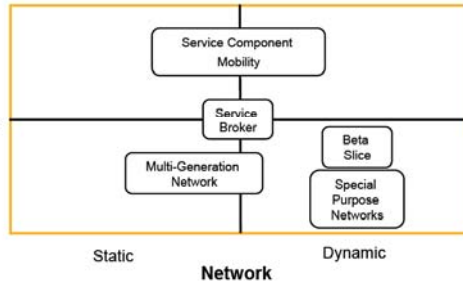


Motivation of Network Virtualization: Integrated Virtual Service Infrastructure



Use cases

Moving
Service
Fixed



Different dynamics for use cases:

- network topology
- service mobility

Cross-sectional use cases are service independent

- incorporated in service dependent use cases
- focus on network operation

Cross-Sectional Use Cases

Network Isolation, Resilience, Management, Monitoring, Energy Efficiency

Service component mobility

- service relocation and on demand extended network reach

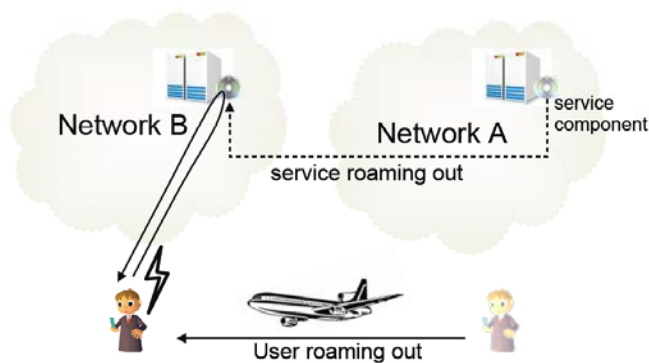
Beta slice

- increasing number of users and predetermined service

Service Broker

- interchangeable service and network based on user requests

Service Component Mobility

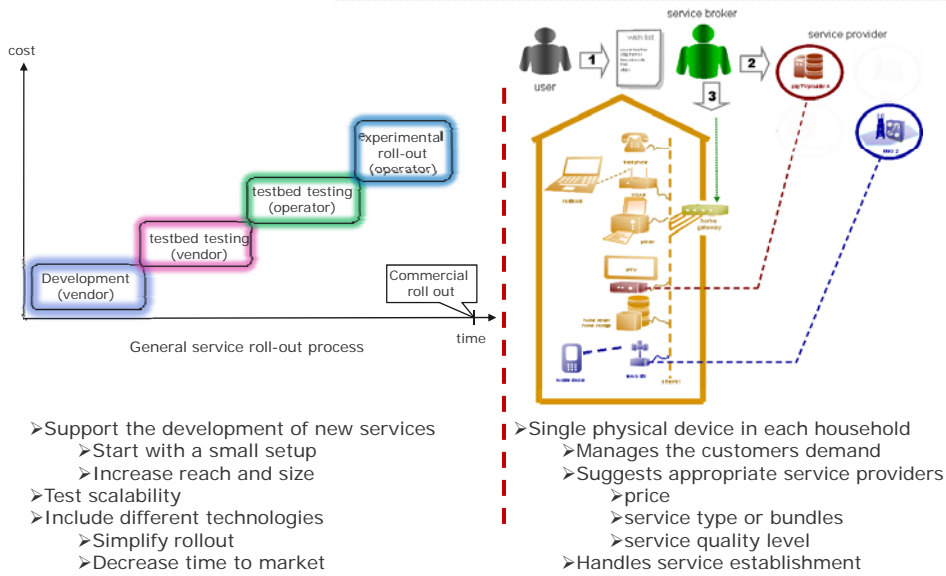


SCM Example

- Roaming users
- Access to real-time services
- Delay and bandwidth consumption

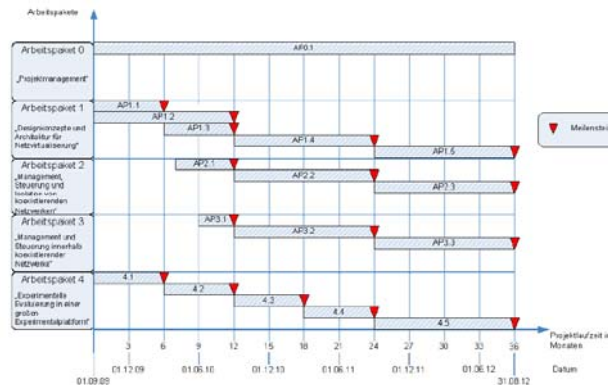
- Deliver quality services to roaming users
- Monitor quality of experience
- Proactively adapt delivered service
 - optimize network parameters
 - change network topology
 - relocate service closer to the user
- Increase customer retention

Beta Slice and Network Broker



Current and Future Work

- Specification of interfaces and protocols for building block interaction (mobile, fixed and IT networks)
- Monitor and Control for QoE aware networks
- Isolation of virtual networks on the same physical substrate
- Control plane for resource reservation in virtual networks



Mobile Adventure

Thank you

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