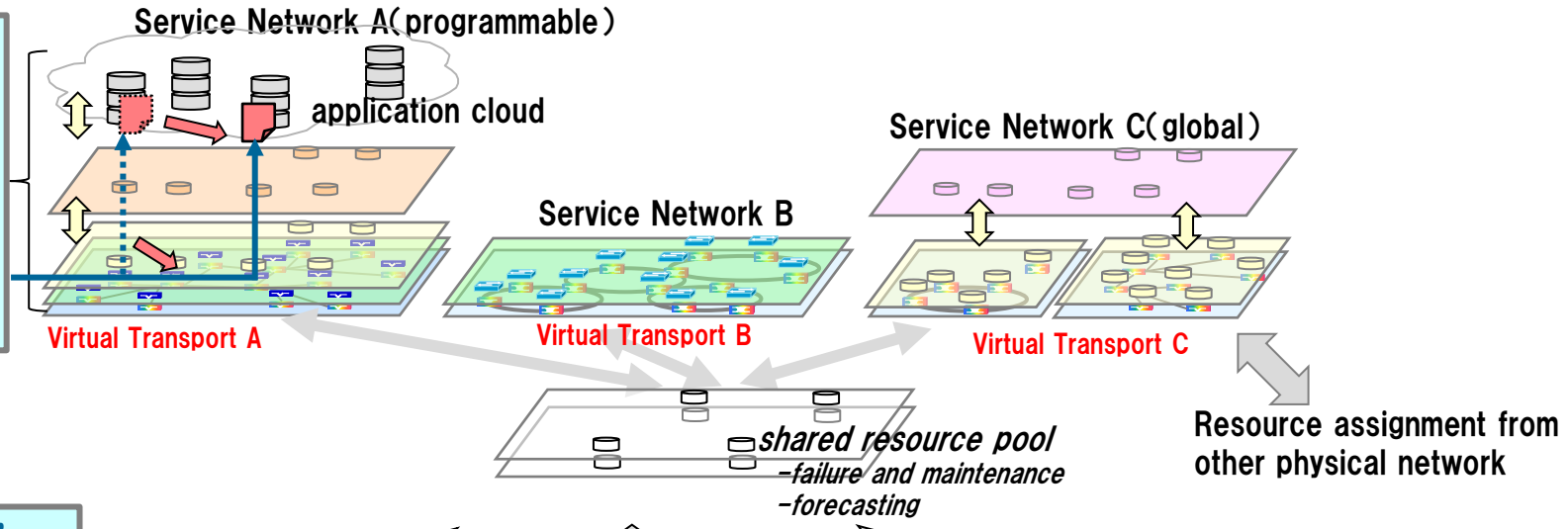
Concepts and Objectives of Flexible Virtualized Transport Networking

NTT

- For Promoted utilization of optical transport network, New service creation in cooperation with cloud computing, Simple network operation, High Availability
  - Controllability, Programmability from service functions or applications
  - Conformity, isolation, Function-extensibility to user operation environment
  - Shared resource pool commonly available to users
  - Dynamic resource allocation, Optimized reconfiguration against environmental change

Controllability and programmability

- Virtual control and management plane emulation
- Various abstraction of logical resource
- GUI・IF・API



Resource virtualization

- Shared physical resource pool and dynamic resource allocation
- Isolated logical resource monitoring and control
- Dynamic logical resource reconfiguration and optimization

Controllability and programmability from upper layers

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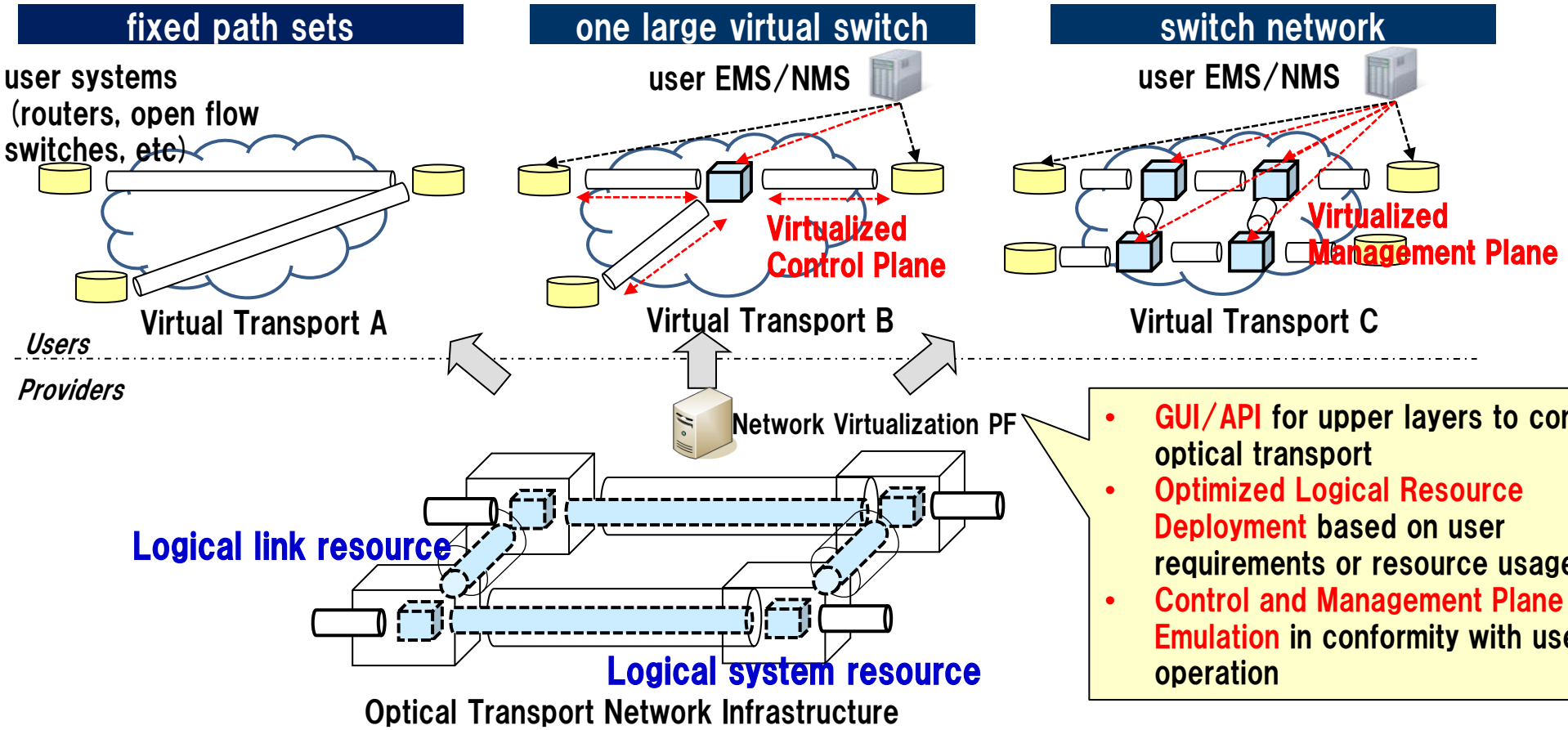
- Virtual transport network controlled by various services and applications with dynamic and on-demand operation mechanism, bandwidth change, topology reconfiguration, and etc.
  - Network virtual PF optimize and abstract logical resource
    for easy network control by hiding unnecessary controllability
  - Virtual C/M plane emulation for controlling transport network from upper layer
    for transport control by user software API
    for providing conformity with user network scheme and environment



- GUI/API for upper layers to control optical transport
- Optimized Logical Resource Deployment based on user requirements or resource usage
- Control and Management Plane Emulation in conformity with user operation

Resource Virtualization for Flexible Transport Network

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- Each system and media resource partitioned to generate shared resource pool, allocating each virtual element dynamically according to service demands or environmental change.
  - Right to use each virtualized networking element controlled
    for dynamic resource allocation among users and shared resource pool, maximized resource utilization
  - Platform architecture with physical network manager separated from each virtual network manager
    for centralized physical resource control to avoid confliction
    for abstraction of detail information, independent controllability and programmability from service applications