Techniques and Tools for the Management and Operation of NFV and SDN Networks

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Network of Resources

- Software Defined Networking (SDN)
  - Resource control
- Network Functions Virtualization (NFV)
  - Resource Lifecycle
  - Instantiation to destroy
- Service Function Chaining (SFC)
  - Resource chaining
Software-Defined Networking RFC 7426

- Application Plane
  - Network Service Abstraction Layer (NSAL)
    - Control Plane
      - Control Abstraction Layer (CAL)
    - Management Plane
      - Management Abstraction Layer (MAL)
- Forwarding Plane
- Operational Plane
  - Network Device
  - App
  - Service
  - CP Southbound Interface
  - MP Southbound Interface
Design, Modeling & Implementation

- **Design**
  - Operational parameters
  - Capabilities
  - Events

- **Model**
  - Model Transformation
  - Code stubs

- **Implement**
  - Executable code

- **Offline Phase**
  - Element Repository
  - CE Manager
  - FE Manager
  - Running Network
  - Control Interface
  - Management Interface

- **Online Phase**
  - User Interface
Domain Specification Language
Future Directions

- Abstractions models
  - Discuss a common set of abstraction models, e.g.
    * Hypervisors
    * Network Functions

- IETF/IRTF Applicability
  - SDN RG (follow-up of RFC 7426)
  - NFV RG (abstractions)
  - NM RG (e.g. autonomic aspects)
  - NWC RG (e.g. enhance RFC 7426)