PoC#1 Intelligent Network Slicing Life Cycle Management

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Outline

• General Information

• PoC Architecture

• Implementation Details

• Showcase
General information of the PoC project

• **ENI PoC Project#1**: Intelligent Network Slice Lifecycle Management
• **Timeline**: Approved in June 2018, Finalized in July 2019
• **Host/Team Leader**: [China Telecom]
• **Team members**: [Huawei, Intel, State Grid, China Electric Power Research Institute, DAHO Networks]
Introduction

This solution includes three subsystems:

- The underlying network provides isolation and independent control capabilities for the data plane and control plane of each slice.
- The slice controller automatically parses, calculates, configures, and delivers slice policies. Intent-based interface is provided for simplified slice creation.
- The intelligent module uses artificial intelligence models to perform real-time analysis, prediction, intelligent optimization of the network, and provides the network slice scaling policy.
Network Slice Creation and Deployment

1. Slice SLA Requirements
2. Requirement Conversion
3. Slice Resource Calculation and Parameters Generation
4. Auto Slice Deployment
5. SR-based Slice Instantiation

Slice Topology

1. Slice SLA Requirement:
   - Slice Type: eMBB
   - Policy: Hard Isolation
   - Access Point: NodeA & NodeB
   - Bandwidth: 10Gbps
   - Latency: 2ms
   - Reliability: 1:1/TN: 1/NULL

2. Requirements Conversion:
   - TN Slicing Model
   - Slice Management
   - FlexE Interface & SR
   - Control

3. Slice Resource Calculation and Parameters Generation
   - Auto select slicing tech.
   - FlexE IFS for hard isolation
   - SR for multiple slices topo

4. Auto Slice Deployment

Node-SID 101
Adj-SID 1001
Node-SID 102
Adj-SID 1001
Node-SID 103
Node-SID 104
Node-SID 105
Node-SID 106

Physical Network

Slice Topology
Demo for Traffic Prediction
Demo for Slice Manager
Showcase

The system has been showcased 4 times:

- ETSI ENI#7 Meeting, China Telecom Beijing Research Institute, Beijing, 19 September, 2018
- Network Intelligence Forum, China Telecom Beijing Research Institute, Beijing, 20 September, 2018
- GNTC 2018, Nanjing, 14-16, November, 2018
- ETSI ENI#9 Meeting, 10 April, 2019
We have successfully demonstrated the feasibility of using AI for network traffic prediction and decision making.

The system has demonstrated a solution realization of transport network slicing, providing network devices, network slice controller and AI module cooperation in network slicing management:

- Slice customization and isolation
- Intent-based slice creation
- Automatic slice creation and dynamic adjustment

Possible interfaces for network slice management have been implemented:

- It helps in transport network slice interface definition and standardization.
Thank you