2020-10-15 - CNTT Edge Work stream Working Session

Topic Leader(s)

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Topic Overview

Detailed Description: Brief update cover CNTT Edge. After reviewing the Reference Model, it was determined that the Reference Model met the Edge groups criteria in its current state. Proposals for changes to the CNTT reference architectures, both RA1 (OpenStack) and RA2 (Containers) can be found at CNTT Edge - RA01 (OpenStack) Architecture - Scenario. This will serve as the basis for the discussion for the planning for the upcoming work that needs to be incorporated into the next (Elbrus) release targeted for January.

Slides & Recording

CNTT Edge - RA01 (OpenStack) Architecture - Scenario

Minutes

Pankaj reviewed his outline and asked for comments. Beth: there are two types of edge that are quite different. The far edge has very different characteristics than the data center. Telco edge is more focused more on low latency than other use cases. O-RAN is a use case that is latency sensitive use case. SD WAN is a mixed use case, purpose-built edge or uCPE based software. The controllers are located in the core cloud. Time sync is important O-RAN, RAN video processing, UPF - User Plane Fn for packet routing, forwarding inspection, etc. and possibly other use cases. We have not spent time characterizing all the use cases yet. Use cases are a good way of mapping the Edge requirements, but we should not get bogged down in the details or create silos. We should create a set of profiles that abstract the use cases. We cannot proscribe the HW, but at the far edge is much more dependent on the HW. From an architecture view, we need to be able to support very distributed profiles.   We can simplify all the use cases with the profiles.

You need to think in terms of cores, not racks. HA at the edge at the minimum is two servers. There are situations where the Edge nodes are impermanent and the HA is achieved by an adjacent node picking up the workload. IoT is a good use case that fits this scenario. The control plane is centralized to a certain extent, but the edge nots have to have at least some autonomy to work independent of the control plane. Ildiko: Don't try to define the edge, but it is ALWAYS connected to some kind of centralized core. How much is controlled at the Edge and how much is controlled at the core. Many parameters to take into consideration.   Anyone that worked on Distributed Processing in the 1980's would recall that the nodes were considered from 3 limitations: Processing, storage, bandwidth. These now apply to edge nodes. Terminology is difficult, 3 years in and we still don't have a shared definition of the edge. The problem is that Edge is a super set of Cloud computing.   Telco Edge is both latency and network efficiency concerns. Trevor: What are we trying to solve for the CNTT workstream? Important question. We cannot boil the ocean.

Review of the chart that covers who owns what in the Edge. Workload distribution, hybrid model of HW and SW. How can you deliver an SLA in this model? Public and private cloud SLAs are very different. Telco SLAs need to be much higher per customer expectations. Cloud has the illusion of infinite resources, but when you scale you can use outside locations. There is always a cost for flexibility.

Multi-cloud is very important to the Edge use cases. There is always overhead in multiple cloud scenario.

Topic Areas

Cloud Infrastructure (CI) deployment environment

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Cloud Infrastructure (CI) hardware type

- Do we need to to have Hardware profile
    - No , and ODIM is not cover Hardware profile in terms of HW specs

Cloud Infrastructure (CI) hardware specifications

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Server capabilities (including OSTK Services)

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Network Function as a Service (NFaaS)

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Multi-Cloud Enabled Edge Architecture

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Others

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Action Items

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