2021-02-04 - Anuket: Defining Storage Requirements in RM

Topic Leader(s)

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Topic Overview

Storage is an important part of the Infrastructure for any Telecom environment. As the RM requirements mature, it is time to address the requirements in more detail. What types of storage are needed, block, object, hybrid, dynamic, static, etc. How is storage allocated and what are the best reference models for the use case.

Slides & Recording

Anuket_Storage_...equirements.pdf

Minutes

Beth: Storage has been tip toed around. Storage to support Telco workloads

Consideration for the Characteristics of HW

Spinning Disk vs Solid state

Persistent and Non persistent

Cache

RM and RA have glossed over

Mark Beierl https://wiki.anuket.io/display/PROJ/Storage+Performance+Guidelines

Telcos have relied on other in the past, should be part of Anuket - RM/RA.

Tomas Fredberg Another dimension - consumption model - how you use it (internal or external = over network interfaces)

Mark Beierl : one more dimension when it comes to networked storage: is the network architect-ed correctly so storage traffic does not impact data plane or control plane for workloads?

Beth Cohen Security dimension - Over use/subscription as well as permissions - Data type uses are different than other implementations

Beth Cohen Config - Back channel to manage the infrastructure

Pankaj Goyal : should we separate out the "virtual" from the "physical"? Beth Cohen Physical will have impact on and virtual.

Pankaj Goyal : Need to separate the two as they end up being managed separately

Al Morton : What telemetry do we need from storage elements? Utilization/occupation, in what units? What about health checks = errors?

Mark Beierl Base measurements would be read/write latency and IOPS (or bandwidth if you don't want to get into block sizes) - I'm not sure how fair into the details we want to go: does the architecture need to dive into details such as deduplication? Or is it just the performance difference between dedup on and off that is important?

Pankaj Goyal : Reference to the mapping, possible latency

Beth Cohen : Mapping hte blockes could be faster than mapping data

Tomas Fredberg sub millisecond access related to RAN

Beth Cohen Mark Beierl : Physical level monitoring doesnt belong in the RM, HW vendors need to provide

Tomas Fredberg : as long as SW can also report that confidence in HW is comprised

Mark Beierl : A standard API for all HW vendors to allow SW to see and report

Beth Cohen Edge makes need higher - harder to lay hands on HW by highly qualified personnell

Ildiko Vancsa : edge working group has CDN use cases, as for the rest of HW not that many (Gaming as an example). Block and Network

Mark Beierl : Also, is recovery a unit that needs to be measured: performance when a raid array (or virtual equivalent) needs to be rebuilt after failure?

Types Of Storage

Block, Object, Persistent-Ephemeral

Swift is a mishmash of storage/database

Container Storage - Anyone understand it? should we get expert to assist us.

Pankaj Goyal Lowest level is block

Gergely Csatari : yes but APIs consume it differently, not a block read

Beth Cohen Access is the critical part - How much is written, persistent, read-only Should be identified in the RM?

Gergely Csatari object store should be platform as a service to RM

Beth Cohen Edge - Will be disfferent type of telemetry

Regulatory issues for edge different from country to country

What about 5G - storage requirements different? Security aspects of the data on the edge.

Reverse CDN aspect potentially? Cameras used as detection devices.

Tomas Fredberg Much harder to define storage capacity for long term, Need higher levels of management

Gaming and content delivery are use cases that have to be considered. Level of consideration for RM?

Use cases specific to Telco

- 5G
- CNFs - Sessions state
- User data for any state
- Mass storage for VNFs, CNFs,
- licenses,
- "old versions",
- configurations (desired, current and "golden")
- Encryption/decryption keys

Need to address how to protect the integrity of data - how to protect?

Gergely Csatari Are there any opensource storage solutions allow encryption at the physical level?

Pankaj Goyal : I still feel that at the RM we need to disassociate ourselves from physical terms such as block, etc.

Recording

zoom_0.mp4

Action Items

- [ ] Need to find/Leverage an expert in Container storage
- [ ] Focus on Use cases - definition
- [ ] Answer for "Are there any opensource storage solutions allow encryption at the physical level?" question