Nephio Project
MINUTES OF THE TECHNICAL STEERING COMMITTEE
July 20, 2023
10:00 am Pacific Time

Voting Representatives
Please add + after your name if you are attending
Google
-Kandan Kathirvel (Chair) (On PTO)

Wind River
-Seshu Kumar Mudiganti +

Nokia
-Timo Perala +
Wim Henderickx (Nokia) for Timo +

Deutsche Telekom
-Bernard Tsai

Vodafone
-Iain Wilkinson
-Riccardo Gasparetto Stori

Equinix
-Oleg Berzin

Intel
-Sundar Nadathur

TIM
-Fabrizio Moggio

Ericsson
-Ciaran Johnston +
-Peter Woerndle

Casa Systems
-Eric Gaudet

Mavenir
-Jane Shen

Bell Canada

-Daniel Bernier
-Marc-Alexandre Choquette

TELUS
-Sana Tariq +

Aarna Networks
-Sandeep Sharma

Orange
-Eric Debeau +

VMware
-Hunor Demeter: present
-Padma Sudarsan

Argela
-Erhan Lokman

Capgemini
-Sandip Sarkar
-Chandra

F5
-Sanju Abraham
-Ravi Ravindran

Kubermatic
-Sebastian Scheele +

Verizon
-Gene Bagwell

Attending
Please add yourself here if you are not a voting representative

Lucy Hyde (LF) +
Julian Suarez (LF) +
Sunny Cai (LF) +
Balaji Varadaraju
Charles Eckel
John Belamaric +
Alexis de Talhouet

Ranny Haiby
Vishwanath Jayaraman (Red Hat)
Tal Liron +
Liam Fallon +
Radoslaw Chmiel
Anh Thu Vo +
Stephen Wong +
Keguang He
Refael Hamo
Selcuk Duman
David Bainbridge (Ciena)
Wajeeha Hamid
Mike Woster
Vance Shipley (SigScale)
Olivier Smith (MATRIXX)
Borislav Glozman
Kaushik Bhandankar
Philippe Jeurissen
Senthil Kumar Ganesan
Subhash Kumar Singh
Byung Woo-Jun +
John Mechling
Phil Porras
Victor Morales (Samsung) +
Girish Kumar
Rahul Jadhav +(AccuKnox)
Raj Panchapakesan +
Shekhar C
Gaurav +
Kenny Paul +
Ganesh Chandrasekaran (Samsung)
Denys Aleksandrov
Akash Rajguru
Lain +
Oliver Smith
Rado Chmiel
Piotr Matysiak
Francesco Davide Lapenta
Fiachra Corcoran +
Sashikanth +
Nat Natraj +

Call to Order

Sana Tariq (ST)called the meeting to order at 10:04 am. Lucy Hyde (LH) and Julian Suarez (JS) assisted in recording the minutes. LH reviewed the antitrust policy notice.

SIG Updates:
1. SIG NetArch: Sana and Kaushik drafted recap of R1 and R2 requirements for SIG Automation/SIG Release. Developed multiple sessions and developing working session meetings; deciding schedule within SIG Arch slack. Will deliver product by end of July
2. John Belamaric SIG Automation: Quiet after R1 release; made a few updates/improvements (bug fixes); 1.1 release to address small glitches (currently using workarounds); working on documentation/tutorials
3. Stephen Wong: SIG Release: prow update this week; working on 1.1

Helm Support in Nephio:
Use of helm charts for deploying kubernetes workloads is ubiquitous in industry; supporting helm in nephio is critical to get early adoptions with real workloads; nephio must have flexibility to support current and future LCM tools; goal is to produce a framework how to enablehelm in nephio

Principles for Helm support:
  -Helm 3+ should only be supported and only expose a number of small parameters for the purposes of integrating to cluster envs, functional configuration, performance configuration
    helm charts should provide a JSON schema to contstrain and validate the structure and values
    any defined function within helm (grab from slide)

Manual converstion/translation
-no software support for helm is required in nephio
any helm package can be converted toa. kpt package no matter structure
takes signficant effort for helm charts
one time conversion
loss of LCM and other features

SDK for Conversion
-SDK can track changes to helm packages and apply them to kpt packages
common patterns in helm charts can be iteratively captured in SDK
likely to take significant effort to develop an SDK
helm charts will have to be formatted and linted prior to consumption by SDK
loss of LCM and other helm features for managing NFs

Integration Approaches
-intoduce concept of heterogeneity in technology choice into nephio
enables use of extensively deployed and tested workload
same deployment artefacts

Nephio Helm Package and Operation
-new operator in workload cluster built using Helm SDK

helm charts propagated using a helm CRD
requires non-trivial development in Nephio
tightly integrations helm into nephio workflow

Flux:
  -leverage flux helm controller
  leverage HelmReleases CRD to specify workload definitions
  leverage and integrate flux toolchain into the nephio workflow
  less nephio development with same/similar outcomes
  work with Flux community on CRD specifications as they evolve

Tal Liron: need to figure out as a community how to approach at a high level; do we want to support multiple development workflows for NFs or do we want to ramp to provide a ladder for vendors to get a kubernetes based operator approach? many technical places in between can use operator SDK to take a helm chart and turn into operator- but would it be a fully fledged operator for the our purposes? there are many technical quetsions but want to understand how the TSC and SIG1/2 thinks we should approach this- make it a first class citizen in terms of suppoot?

John Belamaric: several priorities to balance; adhere to certain set of principles. e.g. automation depends on southbound APIs that are stable etc. need things to be machine manageable; on o ther hand; need these things to enable us to perform at scale and need consistency across nephio to manage at high scale. it is unrealistic for everyone to convert; several strategies- a ladder approach, or marketplace to allow the tooling to support different mechanisms and the value of mechanisms prove itself. if we can figure out a way for everything to coeexist, it's worth vendors taking energy to move from helm to different mechanism because it would reduce support. Won't be successful if we draw a firm line on what is allowed/disallowed. need to demonstrate why put effort into converting.

Sana: want simplicity in deploying to cloud; freedom of choice, documentation, open APIs will streamline these efforts. Biggybacking off John B. the flexibility and ability to use certain open APIs and certain models and tools. With this, each servive provider is making its own architecture, that freedom of choice, the good documentation, open APIs will assist in the continuation of streamlining - recap, need simplicity and choices at service provider level to simplify/unify process for all NFs
Ciaran: do not disagree, certain amount of investment in helm charts in general but can be challenging; should have principles for helm chart and follow design rules. Having this structure and set of principles as well need to follow very good design roles otherwise you are just moving the problem around. You're just bringing in a new set of capabilities and a new set of tools. And you're still going to have badly written helm charts or that is badly written. Thats the kind of pragmatic proposal that I'm trying to bring here is that there is a need to support that. There's a whole bunch of other packaging formats. If you go to any of that sort of the big developer conferences, you can see lots of different people coming up with various different packaging formats and tooling around, simplifying and and managing the deployment of applications in Kubernetes.
Sebastian: I think it's roughly, 50 50 to split 50 likes to the operators. 50 are really staying on, because I think there's a lot of knowledge required to really build these and operators. even if you're looking into the operator. Hub there are so many that developed operators. So I think the answer to say, operators of

all the pro problems is absolutely not correct. I think we need to find a way how things are can coexist instead of like forcing everyone the building operators, because this was heavily limiting the yeah amount of applications which are possible, and also on the other side. the complexity. what you need to first invest to to get things running.

Ciaran: Yeah, I think that was a good point. So I, trying to think it was running at the same point as well, where if you just transition everybody over to a new way of working without fundamentally addressing the design principles and and making sure that things are very well developed then. And you're going to hit the sand problems again.

Wim: I I kind of at the similar remark or in the discussion, because I think at the end of the day. It's not so much about home versus operators. I think it's more about the design that sits behind the automation framework right? It shows that there is a lack of knowledge or principles that are defined to make that work right, and I am of the opinion that whether you use health or an operator at the end of the day, it's not, doesn't really matter at this stage. It's about who does what and and who is responsible for what. So what I see in a lot of cases in our helm charts. I even I'm talking about. Not here personally is that there's a lot of I. We try to do everything infra networking. Everything is clipped together.

John: The problem we have that we're trying to solve is that many helm charts as they're written today. They're trying to take into account, especially when they come from a package software vendor like as as opposed to like an internal home chart that somebody builds in their environment and It can't make a lot of assumptions. If it's if you're you giving it to you to different customers. You can't make a lot of assumptions. So you have to make a bunch of optionality. The workload author that you've so segregated the the owners of that information. That's really what we're trying to do here we're trying to expand that concept, to to build a set of principles such that those sort of claims and resolutions of those claims can happen beforehand.

Ciaran: For next steps. I mean, I didn't hear anybody in principle pushing back on progressing with looking at some ways of at least running a proof of concept around showing how charts being deployed using that field alongside other work codes.

Ravi: I just had a couple of comments in the sense that I think in a slide. One thing that I that I I see missing is probably you can capture something around requirements in the sense that.

Ciaran: I think we proposed that we would have another session on this in the Sig one working group for meeting next week. I think we're hoping to hold that on Tuesday at 8 Pm.