

Edge Automation through ONAP

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Overview

Edge clouds are located at close proximity to end users. Typical deployment locations are within the access networks or at the boundary of access networks. In some deployments, they can be within the customer premises (e.g., home; enterprise; factory floor; vehicles including trains, planes, private cars). The core thrusts of edge clouds for applications are low latency, high bandwidth, and trusted computing and storage. Various edge cloud architectures have already emerged from different communities and potentially can be plugged into the ONAP architecture for service orchestration. The group analyzes the orchestration requirements of services over various edge clouds and how these requirements impact ONAP components in terms of data collection, processing, policy management, resource management, control loop models, security, as well as application & network function deployment and control.

[ONAPARC-63](#) - Getting issue details...

[STATUS](#)

Problem Statement : [Edge Architecture & Work Items](#)

- Edge Cloud Domain = collection of Edge Cloud Nodes in a Domain
- Where/What is Edge
 - See Figure 3 in [ATT-Edge_Compute_White_Paper_FINAL2.pdf](#)
 - Edge = vCPE at customer Premises
 - Edge = Cell Tower
 - ★ **Edge = Small Central Office (eg., CU for vRAN)**

Key Presentations:

- Overview, Relationship to Akraino/Other open source projects and Preliminary Dublin Planning:
 - ONAP Internal
 - Presentation to use case sub committee: (10/22/2018)
 - Presentation to arch sub committee: (10/23/2018)
 - ONAP External
 - Presentation to Akraino Technical Community: (10/25/2018)
 - Link: <https://wiki.onap.org/download/attachments/8225716/ONAP-edge-automation-update-arch-use-case-10-23-2018.pdf?api=v2>
- Presentation in Arch subcommittee meeting at Montreal:
 - Link: <https://wiki.onap.org/download/attachments/41422290/ONAP-edge-automation-F2F.pptx?version=1&modificationDate=1540934276000&api=v2>
- Presentation in Arch subcommittee (03/26/2019)
 - Link: https://wiki.onap.org/download/attachments/50202249/Management%20Orchestration_v6-arch-update-03-26-2019.pptx?api=v2
- Presentation in Arch Face to Face at ONS
 - Link: https://wiki.onap.org/download/attachments/28379482/Management%20Orchestration_v8-arch-update-04-02-2019.pptx?api=v2
 - Link: [Management Orchestration-DCAE-Platform Extension.pptx](#)
- Presentation in Arch subcommittee (04/16/2019)
 - Link: https://wiki.onap.org/download/attachments/28379482/Management%20Orchestration_v9-arch-update-04-16-09.pptx?api=v2
- Presentation in TSC (10/24/19)
 - Link: <https://wiki.onap.org/download/attachments/28379482/Edge-Coordinator-TSC-update-10-24-09.pptx?api=v2>

Key ONAP Project Impact:

- [K8S based Cloud region support \(Continue from R4\)](#)

Dublin Plan:

- Functional Requirements
 - [Fine Grain Placement Service \(F-GPS\) Edge Automation \(Dublin\)](#)
 - [Fine Grain Placement Service \(F-GPS\) Edge Automation \(Dublin\)](#)
[#AnalyticsasaServiceClosetoEdges](#)
 - [Fine Grain Placement Service \(F-GPS\) Edge Automation \(Dublin\)](#)
[#FineGrainedPlacementService\(F-GPS\)](#)
- Architecture Task Force
 - [Edge Automation through ONAP Arch. Task Force - Distributed Management \(ONAP etc.\) components](#)

Frankfurt Plan:

Architecture Task Force - [Edge Automation through ONAP Arch. Task Force - Distributed Management \(ONAP etc.\) components](#)

- <https://wiki.onap.org/download/attachments/28379482/ONAP%20Cloud%20Registry.pptx?api=v2>

Call Schedule:

- Time: **8:00am PT - 9:00am PT**
- Day: **Every Wednesday**
- Zoom: vmware.zoom.us/j/3055973130

List Subscription/Meeting Notification:

- <https://lists.onap.org/mailman/listinfo/onap-usecasesub>

WG Coordinators: [Ramki Krishnan](#)

Contributions

File	Modified
PDF File MEC_Apps_ONS2018_Rev1.1.pdf	Apr 02, 2018 by Prakash R.
Microsoft Word Document Edge Scoping-r3.docx	Apr 05, 2018 by Cagatay Buyukkoc
Multimedia File GMT20180406-170638_Ramki-Kris_1920x1080.mp4	Apr 06, 2018 by ramki krishnan
Microsoft Powerpoint Presentation Edge Automationissues.pptx	Apr 23, 2018 by Cagatay Buyukkoc
Microsoft Powerpoint Presentation ONAP-edge-automation-wg-usecase-update-04-30-2018.pptx	Apr 29, 2018 by ramki krishnan
Microsoft Powerpoint Presentation ONAP-edge-automation-wg-tsc-update-05-10-2018.pptx	May 09, 2018 by ramki krishnan
Microsoft Powerpoint Presentation ONAP_Edge_Automation 5G AR_VR Use Case v05.pptx	May 14, 2018 by Evgeniy Zhukov

Participants:

WG Coordinators: [Ramki Krishnan](#)

Name	Company	onap-usecasesub@
ramki krishnan	VMware	yes
Paul-André Raymond	B.Yond	
Raghu Ranganathan	Ciena	yes
Vimal Begwani	AT&T	
Srinivasa Addepalli	Intel	Yes

PDF File Edge-ONAP_Pva_10.pdf	May 29, 2018 by Pasi Vaananen
Microsoft Powerpoint Presentation ONAP-edge-automation-wg-arch-update-06-05-2018.pptx	Jun 04, 2018 by ramki krishnan
Microsoft Powerpoint Presentation DMaaP Edge.pptx	Jun 11, 2018 by sunil unnava
Microsoft Powerpoint Presentation ONAP-Edge-management-network-connectivity_v2.pptx	Jun 13, 2018 by Srinivasa Addepalli
Microsoft Powerpoint Presentation ONAP-mc-sdn-v3.pptx	Jul 17, 2018 by ramki krishnan
PDF File Edge Automation Potential Strategies for Deploying ONAP_v1.1.pdf	Aug 13, 2018 by Evgeniy Zhukov
PDF File Edge Automation Potential Strategies for Deploying ONAP_v1.7.pdf	Aug 27, 2018 by Evgeniy Zhukov
PDF File Edge Automation Potential Strategies for Deploying ONAP_v1.8.pdf	Sep 03, 2018 by Evgeniy Zhukov
Microsoft Powerpoint Presentation ONAP-Edge-ORANupdate-Sept2018.pptx	Sep 12, 2018 by Raghu Ranganathan
PDF File Edge_ONAP_WG_v7.pdf	Sep 26, 2018 by Srinivasa Addepalli
Microsoft Powerpoint Presentation ONAP-edge-proposal.pptx	Oct 10, 2018 by ramki krishnan
Microsoft Powerpoint Presentation ONAP-edge-proposal-v1.pptx	Oct 10, 2018 by ramki krishnan
Microsoft Powerpoint Presentation Edge_ONAP_WG_v7.pptx	Oct 21, 2018 by Srinivasa Addepalli
Microsoft Powerpoint Presentation ONAP-edge-proposal-v2.pptx	Oct 24, 2018 by ramki krishnan
PDF File ONAP-edge-automation-OSM-discussion-10-31-2018.pdf	Nov 07, 2018 by ramki krishnan
Microsoft Powerpoint Presentation ONAP-edge-automation-update-arch-10-29-2018-followup-11-07-2018.pptx	Nov 07, 2018 by ramki krishnan
Microsoft Powerpoint Presentation Distributed_analytics_v3.pptx	Nov 20, 2018 by ramki krishnan
Microsoft Powerpoint Presentation ONAP-Valet_edge_usecase.pptx	Nov 20, 2018 by ramki krishnan
Microsoft Powerpoint Presentation edge-cloud-info-model-notes.pptx	Dec 05, 2018 by Arun Gupta
Microsoft Powerpoint Presentation DCAE Platform Requirements.pptx	Jan 14, 2019 by ramki krishnan
Microsoft Powerpoint Presentation ONAP-DDF-Distributed-Analytics-framework-v1.pptx	Feb 08, 2019 by ramki krishnan
PDF File EOM overview for ONAP community.pdf	Feb 23, 2019 by ramki krishnan
Multimedia File zoom_1.mp4	Feb 23, 2019 by ramki krishnan
PDF File ONAP review - Cloudify Cloud Native approach.pdf	Mar 14, 2019 by ramki krishnan

Seshu Kumar Mudiganti	Huawei	
Vijay Venkatesh Kumar	AT&T	
Vara Prasad Talari	Nokia	
Cagatay Buyukoc	AT&T	
Alexander Vul	Intel	
Ulas Kozat	Huawei	
Gil Hellmann	Wind River	Yes
Lyndon Ong	Ciena	
Rittwik Jana	AT&T	
Ramu	Nokia	
John Quilty	Ericsson	
Karpura Suryadevara	Amdocs	
Dhruv Gupta	AT&T	yes
Sven van der Meer	Ericsson	
Prem Sankar Gopannan	Ericsson	
Evgeniy Zhukov	Netcracker	
Steve Baillargeon	Ericsson	
maoping zhang	ZTE	
Parviz Yegani	Huawei	
Pasi Vaananen	Red Hat	yes
Yang Xu	Huawei	
Remus Tan	Ciena	

Microsoft Powerpoint Presentation Management Orchestration_v8-arch-update-04-02-2019.pptx	Apr 02, 2019 by ramki krishnan
Microsoft Powerpoint Presentation Management Orchestration_v9-arch-update-04-16-09.pptx	Apr 17, 2019 by ramki krishnan
PDF File cloud-native-edge-mgmt.pdf	May 09, 2019 by ramki krishnan
PDF File CloudNativeNFVONAPOPNFVSDWAN.pdf	May 09, 2019 by Srinivasa Addepalli
Microsoft Powerpoint Presentation ONAP Orchestration - part1.pptx	May 17, 2019 by ramki krishnan
Multimedia File zoom_0.mp4	May 28, 2019 by ramki krishnan
Microsoft Powerpoint Presentation Management Orchestration-DCAE-Platform Extension.pptx	Jun 21, 2019 by Vijay Venkatesh Kumar
Microsoft Powerpoint Presentation ONAP Orchestration.pptx	Jun 25, 2019 by ramki krishnan
Microsoft Powerpoint Presentation Management Orchestration_v5-arch-update-06-25-09.pptx	Jun 25, 2019 by ramki krishnan
Microsoft Powerpoint Presentation Edge-automation-TSC-update-08-29-2019.pptx	Aug 28, 2019 by ramki krishnan
Microsoft Powerpoint Presentation Edge-Coordinator-TSC-update-10-24-09.pptx	Oct 22, 2019 by ramki krishnan
Microsoft Powerpoint Presentation ONAP Cloud Registry.pptx	Oct 22, 2019 by ramki krishnan

[Download All](#)

Child Pages

Links to Other ONAP work related to "Edge"

[OpenSource Access Manager \(OSAM\) Use Case](#) - context of "Edge Orchestration" for Fixed Access

[Use case proposal: 5G- RAN deployment, Slicing, SON](#) - context of "Edge Compute" for hosting CU function

Links to other Community Work

[OPNFV](#) - <https://wiki.opnfv.org/display/AUTO/Auto+Use+Cases> - "Service Provider's Management of Edge Cloud"

[AKRAINO](#) - <https://www.akraino.org/> - "Open source software stack to improve the state of edge cloud infrastructure"

[AKRAINO TECH DOC](#): <https://docs.google.com/document/d/1NDZWFPmUvE0BPwcsOYecNrwWNDnIFmkdP4jur5pE4oo/edit#>

[OSF EDGE COMPUTING GROUP](#) - <https://www.openstack.org/edge-computing/> - "Open source initiative to explore cloud edge computing related use cases and scenarios and work on addressing the requirements the group identifies."

Other Useful Links

"NGMN 5G RAN Whitepaper" https://www.ngmn.org/fileadmin/ngmn/content/downloads/Technical/2018/180226_NGMN_RANFSX_D1_V20_Final.pdf

Timo Perala	Nokia	yes
Ramesh Nagarajan	Accenture	
Jasmin Audet	Genicom	
Zhe Huang	AT&T	yes
Michela Bevilacqua	Ericsson	
Sergio Slobodrian	Ciena	yes
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Eric Multanen	Intel	
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Mathieu Duperre	Edgegap	

Xin Miao	Huawei	
Davide Cherubini	Vodafone	yes
Ravi Chunduru	Verizon	

all Notes

Date	Agenda	Notes
Apr 06, 2018	1. Permanent time for meetings: Mondays 9am est is proposed by multi parties 2. Review the Edge scoping doc/updates 3. Review the list of docs submitted 4. Open discussion for follow up topics with priorities 5. Clarify where/what is Edge (tentatively, a gold star has been awarded to one :-)..but, could be awarded to more! 6. ONAP specific aspects/scoping doc addressed this?	Zoom Recording: GMT20180406-170638_Ramki-Kris_1920x1080.mp4 Meeting Notes: 1. Meeting time consensus - 8:00am PT. Ramki to reach out to OOF team to change the time of OOF meetings. 2. Cagatay reviewed Edge Scoping-r3.docx. • Discuss where is "Edge" and relevant applications for with a app response time context • Gil Bullard brought up relevance to ONAP context, i.e. ONAP services to external party vs ONAP Multi-VIM driven management/optimization. Federated ONAP operations may be relevant here. ◦ The consensus is to discuss this after we agree on the use case scope. • Alexander Vul brought up the distinctions between user equipment vs customer premise equipment in mobile node like a car in the context where "Edge" might be. ◦ The demarcation between network provider and end user is left up to service provider. In the case of a car example, the demarc is the Mobile SIM (4G/5G etc.). • ramki krishnan brought up architecture vs use case distinction in the Applications and time scales section. ◦ The consensus was to move architecture details to a separate section. • ramki krishnan brought up need for additional examples other than RAN for item 2) "Near-real-time Apps" in the Applications and time scales section. ◦ The consensus for the team to provide input. • Created child page Edge Architecture & Work Items with some updated text. ◦ Team to review and provide comments. Agenda to be finalized 24 hrs. before each meeting. Folks are requested to review the contributions and come prepared with questions.

Apr 09, 2018	1. Housekeeping: a. use case sub committee list subscription for addressing email distribution issues – use case sub committee link (https://lists.onap.org/mailman/listinfo/onap-usecasesub) b. target dates for input to use case/architecture sub-committee from a Casablanca perspective 2. Any additional contributions to discuss from the contributions section? a. Make progress on Edge Scope - child page.	ZOOM Recording: zoom_0.mp4 Meeting Notes: 1. Housekeeping a. Informed the team through email b. Target Dates: i. April 30th for Use Case sub committee update about functional requirements for Casablanca and beyond ii. May 15th for Architecture sub committee update about any changes to the functional/reference architecture for Casablanca and beyond 2. Contributions: a. Distinction between Akraino and this work - question from Margaret Chiosi i. Akraino is an integration project using an opinionated edge stack based on certain open source components. ii. This effort in ONAP would treat Akraino as another type of edge cloud and managed though ONAP Multi Cloud and other ONAP relevant components. b. Edge Architecture & Work Items discussion i. Priorities for Casablanca – initial thoughts captured in the Edge Architecture & Work Items wiki ii. Need to differentiate between 3rd party and operator provided applications – differentiate along real-time and non-real-time and application characteristics – input from Vimal iii. MEC_Apps_ONS2018_Rev1.1.pdf was briefly mentioned by Vimal Begwani as an example of a 3rd party edge app (e.g. pothole fixer app) including relevant MEC APIs; Follow up action: Request Prakash Ramchandran to present work in one of the call. c. Edge_ONAP_WG_v4.pdf (updated deck) from Srinivasa Addepalli i. Edge Deployment/Functional Architecture diagram (slide nos. 7,8, 9) provide initial context for this work. (what diagram to add in Edge Architecture & Work Items wiki?) ii. For scalability, there was a discussion about child ONAP with a subset of ONAP components. iii. Edge Requirements - initial thoughts in slides 4, 5 - Vimal Begwani, Cagatay Buyukkoc to review and expand.
Apr 16, 2018	1. Differentiate between 3rd party and operator provided applications – input from Vimal Begwani 2. Differentiate along real-time and non-real-time and application characteristics – input from Vimal Begwani 3. Edge Requirements - input from Vimal Begwani & Cagatay Buyukkoc 4. Complete discussion Edge_ONAP_WG_v4.pdf for Edge Architecture - Srinivasa Addepalli	Zoom Recording: zoom_0.mp4 Meeting Notes: What diagram to add in Edge Architecture & Work Items wiki? - item 2.C.I from last session - see gliffy diagram in Edge Architecture & Work Items page 1 and 2: Vimal provided review of table in Edge Architecture & Work Items page for application classification. 3: updated gliffy diagram to reflect input from Vimal's diagram 4: Clarified demarcation between Cloud Provider and ONAP offload in slides. Also, suggested we use gliffy in wiki as one diagram to work on.

Apr 23, 2018	Review updated Gliffy Arch diagram and Notes below gliffy (also, need to update gliffy with apps locations) Review Infrastructure Profile descriptions from Srinivasa Addepalli and Vimal Begwani TBD - Review of MEC_Apps_ONS2018_Rev1.1.pdf by Prakash Ramchandran	1) Reviewed gliffy, notes below gliffy, and, applications table ▪ Shekar Sundaramurthy: for minimum viable - could let it be decided at run time via OOF ▪ Yoav Kluger: 2 dimensions - (1) apps location based on requirements, and (2) onap functions closer to edge ▪ Vimal Begwani: apps = think as VNFC ▪ So, VNFC IaaS requirements from cloud provider Business Unit ▪ hence, one output of this work is to define additional IaaS from Cloud Provider for Edge deployment ▪ Alexander Vul - need to model Service Components in a way to allow for internal and external domain resources for IaaS ▪ Parviz Yegani - need to consider work as part of external api work...when API to external partners. ▪ Also, second output: onap-edge workload functions needed Yoav Kluger: why limit to 500ms/use case 1? ▪ Vimal Begwani: use case 2 relies on open CU-CP? ▪ Alexander Vul: need to consider this a multi-release project Yoav Kluger - for e2e requirements, need to consider using policies vs service design Parviz Yegani - for RT vs NRT: need tight coordination between domains? ▪ Vimal Begwani- SP determines choice of domain based on meeting various requirements Arash Hekmat • APIs imply going thru multi-cloud? (raghu clarified that the current multi-cloud work is to be the 'adapter' interface between onap components and rest of the world) • Edge-to-Edge? (raghu clarified that currently the thinking is it is sufficient via central onap) • DCAE hierarchy? (as vimal clarified, any cloud provider can be used to host onap components,...but, we didn't want to corrupt the diagram with too many repetitive details) 2) Srinivasa Addepalli reviewed Infrastructure Profiles in Edge Architecture & Work Items page ▪ reviewed "large" profile as example ▪ ramki krishnan ▪ OVS-dpdk? (srini clarified that profile example is specific to akraino.) ▪ DVR for VM<>container networking? for same VNF? (srini clarified that either can be relevant) ▪ Parviz Yegani - networking by onap? (raghu clarified - yes, sdn-c is responsible for endpoints within domain for underlay, but openstack/k8 responsible for sr-iov/ovs aspects. Also, ramki clarified need for intra- vs inter- cloud configuration) ▪ Tom Tofigh - UPF (5G) for forwarding pipeline. But, we don't have SSD or memory fabric to support certain services for UE. Tom gave example of 1 RU of ssd, 1RU of GPU, 1 RU of RAM, etc...and, the edge node is composed for use by UE. So, as example, ephemeral vs long lived storage, etc. offered as part of service using the edge compute node. ▪ Vimal Begwani - need to keep requirements general (vs akraino specific?)...so, different implementations can support it. 3) Cagatay Buyukkoc briefly reviewed Edge Automationissues.pptx - need to discuss more
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April 30th, 2018	Review updated Gliffy Arch diagram and Notes below gliffy (also, need to update gliffy with apps locations) Review Infrastructure Profile descriptions summarized Vimal Begwani Review of MEC_Apps_ONS2018_Rev1.1.pdf by Prakash Ramchandran / Prem Sankar Gopannan	Review of MEC_Apps_ONS2018_Rev1.1.pdf by Prakash Ramchandran / Prem Sankar Gopannan - The presentation explained different types of APIs - Admin and User APIs - from the perspective of cloud provider's internal operations. It remains to be seen if these would be used by a ONAP service provider - Also, it did not consider separation of a cloud provider from a ONAP service provider Reviewed Infrastructure Profile summary and Gliffy Diagram in Edge Architecture & Work Items - After the call, two "ONAP activity goals" were captured in the edge infrastructure profile summary and ONAP edge automation sections
May 7th, 2018	Hierarchical DCAE - Lusheng Ji, Vijay Venkatesh Kumar High level review of Multi-Cloud use cases - Edge Cloud Infrastructure Enablement in ONAP	- Reviewed status of work done - used Edge Architecture & Work Items to briefly review sections/content - Hierarchical DCAE - (link to ppt to be updated later) - Subset of components needed in an edge was discussed - Control agent (Consul) is used to tie parent/child instances - DMAAP bus allowed exchange of events/notifications/etc to parent Shekar Sundaramurthy - one ONAP instance? yes, assumed for this discussion Srinivasa Addepalli - additional "apps" could be non-onap, eg., Prometheus? yes, possible - Reviewed gliffy/arch - Explained ONAP-central <> ONAP-edge, ie., onap-edge instance shown in figure aligned with 'edge cloud' used in figure. Clarified that other edge domains can be with onap-edge as well if needed Yoav Kluger - would be useful to clarify with a simpler /higher level view showing additional onap-edge instances, etc. Also, maybe multiple views for different aspects. (To be followed up with Yoav for what is needed) (Post call notes) ramki krishnan attended OOM call on May 9th. Recommendation from OOM team is to consider separate ONAP-edge instances. So, included a new 'panel' with the feedback from OOM call in Edge Architecture & Work Items wiki page.
May 14th, 2018	1) Evgeniy Zhukov et al., Netcracker – AR/VR Use Case: - Inter edge cloud interface; - Exposure concept; and - Clear separation of Packet and Application processing on the same compute edge cloud resources. 2) Complete architecture discussion on single vs multiple ONAP instances, i.e. ONAP central vs ONAP edge.	1) Evgeniy Zhukov et al., Netcracker – AR/VR Use Case - Edge cloud as 'black box' with interfaces (UNI/NNI in DP, NBI in mgmt plane), with control plane having slice manager/controller /MEC-manager/etc.. - raghu/ clarified that CP's internal 'control/mgmt' plane is not discussed....although there are onap components which are not relevant for edge cloud provider - Tom Tofigh - functional arch has useful distinction between pack /app processing so can consider specifying acceleration in edge for compute-intensive/storage-intensive/memory-intensive....but, capture in ONAP's IaaS/PaaS API? object vs packet switching? Analytics on bigger address space? - animation to change network topology in order to support AR/VR meeting requirements, etc. - problem statement need clarity, ie., AR/VR app will make sure or Edge-domain provider or ONAP-provider? So, upcoming telecom model shown with 3 entities: Bus App / Slice Provider / Infra Provider - Parviz: who is responsible for AR SLA? ONAP needs to coordinate with Edge Provider? need to clarify relationship in context of our ONAP-SP <> Edge Cloud Provider - Tom: Slice app provider will manage the slice to meet SLA, etc.

- Raghu: maybe good to bring it to 5G-use case calls? Ramki suggests this could be about 'application slice'. Parviz asks if ONAP arch needs to change even with MEC manager? maybe the key point is SLA for e2e and how onap is going to split between multiple domains like edge clouds, etc.

2) Complete architecture discussion on single vs multiple ONAP instances, i.e. ONAP central vs ONAP edge.

- triggered arch discussions on separate ONAP instance

- Srini: need to generalize term to 'automation offload platform'?

- yoav: need to understand whether 'separate onap instance', ie., may not want SO, etc.? may not want it to be 'MVP' since onap-central is MVP+.

- Gil Hellmann: minimum services/functionality at edge needed...vs using a term like MVP. maybe limited by power/space, etc. Also, even without onap functions, those edge nodes need connectivity.

- shankar Narayanan: MVP - similar classification of workflows needed? sequence diagram started...but, need to work on. map the workflows that are part of the functional deliverables in R1/R2 and mapping to the edge. Also, scope of edge to meet S3P, eg., violating /meeting?

- chaker: more than one central onap? eg., VF OpCos - given service context, there is one ONAP-central SP, with rest are 'cloud providers', etc. Need to add such an example diagram.

- Yoav: ONAP-edge need to talk to multiple onap-central....but, we need to start small. so, we don't restrict to 1:1 for onap-edge to onap-central. within same SP, there can be inventory-sync, etc. For casablanca, we may start with 1:1

- shankar N: sharing of inventory - depends on what workflow is partitioned between central/edge. This might drive how we scope MVP.

3) Finalize minimum viable needed ONAP edge for Casablanca

- ramki showed bullets in 'edge scoping' page

- raghu suggested using shankar's suggestion on workflows to decide additional components, eg., if needing state change, will be a request back to Cloud Provider or use a SDN-C for the 'slice' to change networking state, etc.

- Parviz: need closed loop? so, clamp, policy, etc.?

- need top down steps such as (a) what state changes, (b) what workflows, and, (c) what onap components.

- VNF —> VES Collector —> sub-function of DCAE, ie., look up policy and which topic, action on which topic, pre-configured rules.

- Parviz: IoT Hub? yes, architecture allows this. Also, app profiles includes cases when onap-managed or non-managed

May 21st, 2018	1) Preparation for Chris Donley's OpenStack key note which includes few slides on ONAP Edge Cloud – plan to list participant company logos. Chris may use some slides from the latest TSC update deck - ONAP-edge-automation-wg-tsc-update-05-10-2018.pptx 2) Finalize minimum viable needed ONAP edge for Casablanca Please review the section on MVP Edge Architecture & Work Items#ONAPEdgeMVPforCasablanca	1) Ramki: Announced Preparation for Chris Donley's OpenStack key note which includes few slides on ONAP Edge Cloud; Interested Participants to send their company logos by tomorrow morning PST. 2) review MVP - Sekar: what is an 'instance'? confusion as to why call instance when subset of onap components • Sekar to make suggestions on alternative names - Pasi: time sensitive events then you have to place close enough, etc. As fyi, Akraino discussions had at least 4 presentations mentioning need for some components to be based on time sensitive event management. Now, we don't have VNFM, for example, to do LCM of VNFs. For example, failover management might need a closed loop. ▪ ramki clarified using app profile table about RT case avoiding onap component in the path. ▪ raghu clarified that option c in mvp includes policy/closed loop) - Pasi: closed loop requires VNFM/controller in edge domain (?) - Pasi: app profile table is missing even smaller timescales such as RAN fronthaul - Raghu: clarified that most of SLS for infra would be part of IaaS request, eg., link, server failure, etc. - Pasi: to put together slides for discussion be app profile and closed loop to decide on additional onap-edge components
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May 23	Arch Committee Discussion - Casablanca Architecture Planning Meeting ▪ edge cloud slot	Chris Donley used Edge Architecture & Work Items page to briefly update folks on state of work - app profiles, infra profiles, onap hierarchy, edge domain, etc.. Following were some discussion points: ▪ Gil Bullard: Should an edge cloud provider expose gory fabric details to ONAP-edge or ONAP-central? In other words, would ONAP's A&AI need to have an inventory...and why? ▪ raghu suggested that this depends on business relationship/trust as well as need. More likely if internal BU vs external Partner ▪ One need might be an IaaS slice(s) for 'onap SP' to manage infrastructure slice(s) as if they owned it ▪ Alternatively, simpler to request edge provider to handle details via a 'service' definition for the Service Component needed from the edge domain which will include Service Level Specification/Agreement (SLS/SLA) would be easier and consistent across both trusted/untrusted edge domains. ▪ Impact to ONAP work would be how detailed an object model for IaaS ▪ Parviz Yegani: Gliffy needs to be updated to clarify use of 'external api' to partners ▪ raghu: yes, action item from prior calls ▪ Prakash Ramchandran: highlighted the interactions with other work such as in openstack (eg., Pooling) and suggested that ONAP's IaaS/PaaS API work could take advantage of such work. ▪ Frank Zdarsky: suggested that IaaS/PaaS API is already available with many Cloud Providers. So, ONAP could just use them rather than try to create new. Chris Donley noted the plan for review during March 29th arch call. Related discussion during VNF onboarding slot when discussing 'external VNFM' ▪ Srinivasa Addepalli understood that an 'external VNFM' in an edge cloud provider could interface with onap-central if an 'external VNFM' supported ETSI SOL003. ▪ raghu suggested that the edge cloud provider might not allow exposure of their VNFM. Related discussion during OOM slot - federated vs distributed K8s cluster for geo redundancy ▪ federated view showed MEF 17 PoC example, ie., ONAP instances in different admin domains att/orange. Use of MEF reference point (eg., Interlude) for relevant APIs was mentioned. ▪ raghu clarified that edge automation effort is about onap instances owned by same admin ...albeit instances are hosted in different domains, ie., onap-central in SP domain vs onap-edge in edge CP domain. ▪ ramki clarified that onap-edge instance is dependent on onap-central in a hierarchy. (⚠ hopefully not missing any key comment - if anyone else remembers please comment)
May 29 (vs May 28 since Memorial Day Holiday in USA)	1. Pasi Vaananen - Edge-ONAP_Pva_10.pdf 2. Review Edge Architecture & Work Items#ONAPEdgeMVPforCasablanca	1. Pasi presented on relevant ONAP Edge Components. Provided insight on closed loop Fault Management as a key example of needing more ONAP services at the Edge 2. MVP options A/B/C captured some of Pasi's insights, eg., DCAE, closed loop/policy, resiliency, etc. But, the debate is what is appropriate Casablanca goal vs longer term goals. So, "key changes needed for Option B" had the enhancements to various ONAP services including aggregation of events/faults /metrics. Related Discussions - Reviewed updated gliffy for arch to ensure folks had consistent view of the problem statement, i.e., onap-central vs onap-edge for 'blue SP'. Also, edge CP domain is a black box from blue SP perspective.
June 4		Ramki reviewed option A/B/C for MVP

1. [ramki krishnan](#): Finalize MVP: [Edge Architecture & Work Items#ONAPEdgeMVPforCasablanca](#)
 - a. Key Changes needed for Option B - minimal needed?
 - b. for Casablanca? relevant steps in sequence diagram?
2. Capture/Resolve any outstanding questions on architecture and sequence gliffy diagrams
3. [Tom Tofigh](#) - may present on functional components for edge /CORD

Note: M1 deadline is June 28 - so 4 more calls in June

- [Release Planning \(legacy\)#CasablancaReleaseCalendar](#)
- Need to identify ONAP Projects and Work

- chaker: option A - no onap? context? used arch gliffy to clarify 'green CP' to do stuff without any 'blue onap' stuff

- dominic: what about other components needed by DCAE? depends on collecting/reporting state vs changing state

- vijay: helm vs blueprint (cloudily) approach to OOM deployment of edge dcae?

- chaker: edge cloud is where DCAE can run

- chaker: is this work about (a) automation of edge, or (b) using onap-edge in an edge domain?

- chaker: brainstorm in beijing a bit more on the problem

- chaker: onap today - 100 VMs. / yoav: with OOM, it is much leaner. / yoav: DCAE - "good number of VMs"....other element, can put in "1 VM".

- chaker: are we going to have onap in the edge, or use the edge as part of VIM / ramki: leverage edge CP functionality...but, also bring some onap components if value

- yoav: overloading this work with multiple problem statements, eg., distributing onap vs edge computing, etc.. In edge computing, micro services running in edge for which we want to use ONAP. But, distributing ONAP is a different problem.

- raghu: reset with background info - context >> multiple problem statements >> etc..

- raghu: use of 'multi-cloud adapter' is the plan / reviewed gliffy arch diagram / but, API will be 'intent' rather than internal CLI like imperative. However, we can go next step with having some onap-edge as in option B of MVP

- Bin Yang: are DMaaP and VES components in edge? yes...depends on app context....and, shown in sequence diagram where "edge CP" does analysis and provides summary info to onap-central when no onap-edge.

- ramki: reviewed different steps in sequence diagram...focusing on 'red text'.

- jack: which onap-central component is responsible for subscribing to topics? ramki gave example of correlation micro service using data and supplying to policy. micro service in onap do not talk to multi-cloud. Need to detail out interactions within ONAP-central. also, format translations between green and blue.

- Arash: are we using DMaaP? / raghu: option A - no edge onap, but with option B - dcae with dmaap/ves

- Arash: if no onap-edge, Control Loop in onap-central will run as today. No multi-cloud adapter involvement. /ramki: infra analytics example then multi-cloud comes to play.

- Arash: if onap-edge, what does onap-central see? external orch or analytics or controller, etc.? if external analytics then not discussed about rules and operations. if 'external controller' then current arch committee discussions currently is via sdn-c (if non onap) or via DMaaP (if onap-like)...but, not via multi-cloud adapter (action item: to discuss in arch calls)

- Arash: OOM - no runtime at this time. So, this will be huge expansion.

- Borislav: OOM is not designed to trigger upon service request. / raghu clarified that OOM is used when new edge domain. Also, sequence diagram for casablanca assumes that infra is set up for OOM to instantiate onap-edge

- Arash: need to capture interactions in more detail between edge DCAE and onap-central, eg., plugging in to central DMaaP or multi-cloud or sdn-c/app-c (also discussion with arch committee). / ramki clarified that any closed loop (critical stuff) is done by edge CP without ONAP.

		- ramki: extend DMaaP across WAN? / arash: may not make sense. So, how do those events make to onap-central. / Borisalv: http/rest interface. - chaker: each edge cloud has a 'collector' in onap-central? / Bin Yang: VES in onap-central is similar to current Release A and B. So, better to consider an edge VES/DMaaP? - chaker: extending onap to many edge cloud might be difficult. would be better to let edge cloud to provide summary events to onap-central. / (aside: raghu pointed out term issue - edge cloud vs edge domain) - Dominic: Dmaap has existing capability to either have edge processing or sent to central. / need to discuss. / Chaker: may not be possible to install DMaaP components in edge. / Dominic: consider when possible to have in edge - chaker: if extending DMaaP interface - so, deploy DMaaP client to collect triggers/events, then DMaaP adapter is certified in every cloud like AWS/Azure. / Jack: anything that uses API has to run in any cloud since http-based API.
June 11	1. Communication options across ONAP Central <-> ONAP Edge and/or Edge Cloud - Srinivasa Addepalli to present 2. DMaaP role in Edge Deployments - sunil unnava to present	
June 18	Beijing ▪ Casablanca Release Developers Forum Session Proposals / See Edge Automation related slides ▪ reviewed Edge Architecture & Work Items for background information and getting feedback on problem statements ▪ reviewed Edge Scoping MVP for Casablanca - ONAP Enhancements	

June 25	Requesting the PTLs and/or key folks from Infrastructure Modelling, OOF, SO, A&AI, Multi-Cloud, DCAE to join the Edge Automation MVP for Casablanca discussion. Edge Automation MVP Link: https://wiki.onap.org/display/DW/Edge+Scoping+MVP+for+Casablanca+-+ONAP+Enhancements	Cloud Region vs Physical DC location info granularity for homing - Shankaranarayanan Puzhavakath Narayanan discussed HAS in Edge Orchestration and for OOF to know PDC info for homing - terminology alert: ONAP used 'cloud region' for a openstack instance (or a given control plane), ie., should be PDC in figure. But, figure has cloud region = 1 or more PDCs. Need to refine terms - slide shows 3 cloud regions for 3 different like openstack/vmware/other. - If we want to align terms to Public cloud, then region as a geographic location such as US East (Northern Virginia)....with Availability Zones within regions, etc. - A&AI impacts? maybe keep current terms. But, either look to tweak or MC will do mapping as needed. - homing choice - depends on information available such as utilization in a PDC so as to optimize selection across Cloud Regions. - So, casablanca plan for internal-private cloud is to have detailed view of Cloud Region (type) / PDC / (Utilization + capabilities + etc.). But, model can be pruned to hide details when we transition to having edge cloud orchestrator Terms: - as fyi, public cloud provider resources can be a <Region, AZ /Interconnect location> - eg., AWS: <US east (N. Virginia), us-east-1a> - eg., GCP: <europe-west2 (UK), Ihr-zone1-4> <table border="1"> <thead> <tr> <th>Term</th><th>ONAP - current model</th><th>tuple of form</th></tr> </thead> <tbody> <tr> <td>Cloud Region</td><td>cloud region = Openstack region, ie., a PDC.</td><td> <Cloud Controller, (list of 1 or more PDCs)> or <Cloud Domain name, (list of 1 or more PDCs)> Note: list of 1 or more PDCs optional for internal vs public? </td></tr> <tr> <td>Availability Zone</td><td>none?</td><td> <Cloud Controller, AZ, (list of 1 or more PDCs)> or <Cloud Domain name, AZ, (list of 1 or more PDCs)> Note: list of 1 or more PDCs optional for internal vs public? </td></tr> <tr> <td></td><td></td><td></td></tr> </tbody> </table>	Term	ONAP - current model	tuple of form	Cloud Region	cloud region = Openstack region, ie., a PDC.	<Cloud Controller, (list of 1 or more PDCs)> or <Cloud Domain name, (list of 1 or more PDCs)> Note: list of 1 or more PDCs optional for internal vs public?	Availability Zone	none?	<Cloud Controller, AZ, (list of 1 or more PDCs)> or <Cloud Domain name, AZ, (list of 1 or more PDCs)> Note: list of 1 or more PDCs optional for internal vs public?			
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July 2	Casablanca MVP Deep Dive (https://wiki.onap.org/display/DW/Edge+Scoping+MVP+for+Casablanca+-+ONAP+Enhancements) - OOF <-> MC interaction on “Cloud-agnostic Placement /Networking & Homing Policies” Anything else?	(draft notes - to be cleaned up) Ramki reviewed policy example. Some Qs discussed - MC interpreting policy for private vs public ..or, OOF? - cost info? via API for public...but, via policy for private. MC to fetch cost policy - cloud vendor? not needed since 'cloud agnostic'. for example, a certain parameter like 'min guarantee' can be true/false and the MC can decide choice of cloud region that can support, etc. So, depending on hard vs soft constraint, the choice can be met. But, need both HW capabilities, eg., SR-IOV flavor, and also capacity details before deciding. - reservation? present in OOF, e.g., SDN-C reserved network, etc....but, not used in ONAP - OOF to use returned cost values? R2 didn't have a need. Need to enhance algorithm to factor in cost												

July 9	Casablanca MVP deep dive Edge Scoping MVP for Casablanca - ONAP Enhancements#ONAPEnhancements-Cloud-agnosticPlacement/Networking&HomingPolicies(Phase1-CasablancaMVP,Phase2-StretchGoal)	
July 16th and July 23rd	Meetings Cancelled – Casablanca MVP Deep Dive Discussion with Relevant PTLs for R2 planning	
July 30th	■ Casablanca MVP deep dive on "Cloud Agnostic Placement /Networking Policies" for R3 Milestone - OOF Policies, OOF <-> MC API, SO <-> MC interaction ○ OOF Policies/OOF <-> MC API - Matti Hiltunen, Shankar anarayanan Puzhavakath Narayanan, @Ramki Krishnan ○ Multi Cloud - Bin Yang, Sudhakar Reddy ○ SO <-> MC interaction - Marcus Williams ○ Workflow Link: Edge Scoping MVP for Casablanca - ONAP Enhancements#ONAPEnhancements-Cloud-agnosticPlacement/Networking&HomingPolicies (Phase1-CasablancaMVP,Phase2-StretchGoal) ○ Target Objective: API definition and putting together Integration Test Plan ■ Aggregation service and HPA & infrastructure telemetry update - @Addepalli, Srinivasa R ■ Other Casablanca Stretch Goal discussion (if time permits)	
August 6th	Casablanca MVP discussion contd.	
August 13th	Casablanca MVP discussion contd.	
August 20	■ MEC discussion	■ MEC -as application aware ■ view as a management workload, eg., part of ONAP. In other words, not part of connectivity service chain ■ view as a function for collecting/analyzing/etc. One such example is DCAE for implementation to do collecting /analyzing/etc...and expose context APIs to analytics apps ■ analytics apps - as consumers - can be either internal or external (from 3rd party) ■ can be per edge domain for real-time cases. But, could be regional for non-real time ■ MEC services defined so far (ETSI): Location API, Radio info API, Bandwidth API ■ 'platform' = having access to info, e.g., data plane object of radio link ■ MEC infra mgr? this will be no different from any controller (additional notes to be updated later)
Aug 27		
Sept 5	1. Support for K8S (Kubernetes) based Cloud regions (Srini) 2. Edge Automation Potential Strategies for Deploying ONAP_v1.8.pdf (Evegeny/Manoj)	1. K8s based Cloud Regions 2. MEC arch ...and overlap with ONAP functional components
Sept 12	O-RAN update - ONAP-Edge-ORANupdate-Sept2018.pptx Edge Automation Potential Strategies for Deploying ONAP_v1.8.pdf	

Sept 19	Dublin release planning Edge - focus? End User Group call?	MEC APIs? ▪ focus on exposing network and end point state (eg., location) to MEC platforms ▪ not worry about applications themselves since can be proprietary Focus? ▪ Margaret suggested intent based approach and letting edge domain doing most detailed work ▪ we have not focused on how the edge domain is realized ▪ used sequence diagram in Edge Architecture & Work Items to clarify the alignment with margaret's opinions ▪ grey boxed region: intent request to edge domain and edge domain decides placement, etc. ▪ closed loop at infra level is done by edge domain....but, closed loop at service level can be done by onap-central /edge components ▪ 3rd party apps? onap managed or onap un-managed ▪ maybe focus on what onap is responsible whether network app or mec app ▪ (fyi - mec app = 3rd party apps like AR/VR/video cdn, etc. per ETSI definition) ▪ today, onap focuses on 'connectivity' services. but, future, can be any service, eg., cdn or video or super-disco ▪ edge domain can receive requests from multiple 'client systems' ▪ so, not require that all requests to edge domain go through onap-central when not onap-managed ▪ arash - cautioned about the depth of service model design, eg., video delivery service, which onap is not currently focused on ▪ Hosting end user MEC Apps in ONAP should be clearly presented to EUAG for a decision. This is not ONAP's business today. ▪ manoj: exposing network state/context API to MEC Apps ▪ sequence diagram includes 'context API' that onap-central exposes ▪ but, there are multiple aspects, eg., network workload <to> MEC App, network workload <to> onap-central, etc. End User Group? ▪ need to prepare slides to explain what Dublin release can include and get feedback
Sept 26	MEC orchestration and ONAP role for Dublin & Beyond - Srinivasa Addepalli Edge_ONAP_WG_v4.pdf (v7 used in call - to be posted soon)	Discussed APP Provider > ONAP > Edge ▪ Context is when ONAP is doing LCM of apps on behalf of the APP Provider ▪ ONAP sets up both network, eg., UPF in edge, and the association with MEC Apps per policies...but, not participating in the LCM of the MEC App ▪ Possible Gaps in various ONAP Projects ▪ Manoj to provide a presentation on ongoing external API work to see what is useful in this discussion ▪ ONAP <> NEF Manager? ▪ AF interaction in onap slicing controller ▪ ONAP <> MEC Platform Manager? Arash - need to ask TSC and End User Advisory Group (EUAG) about expanding ONAP scope ▪ VNF is about 'network' function...and, not 'app function' ▪ purpose of app-c was for L4-L7. so, can include 'apps' that are not necessarily limited to network related. ▪ need more clarity on what is the set of 'apps' that an app-c is limited to

Oct 3	Discuss items for Dublin Release Used Sequence diagram in Edge Architecture & Work Items	Edge Cloud Domain/Provider - typically, ONAP > EP-ID > Region-AZ - for eg. ONAP > EP-ID = AWS > Region-AZ/Availability Sets = USeast-1 vs USeast-2 - Assume Edge Provider = 1 or more Control Plane (eg., Openstack, K8s) Instances. Note that we already have distinction between Edge Provider's Orchestration/Control vs Infrastructure Control Plane like openstack or k8s in the gliffy diagrams Reviewed and Updated Sequence Diagram in Edge Architecture & Work Items - App Provider > onap-managed vs onap-unmanaged - Tweaked terms, eg., ONAP-edge Workloads - Steps for (1) getting infrastructure, (2) deploying workloads, and (3) getting context info were reviewed for gaps/missing steps. - Few items being addressed in casablanca....and, JIRA links included - Need to decide for Dublin release - IaaS/PaaS APIs and Context APIs? - Edge Cloud Provider Orchestrator in Dublin? - onap-managed cases only? - etc... Continue discussion for the next few weeks to finalize input for Dublin Release (Target November?)
Oct. 10	Dublin discussion	
Oct. 17	Dublin discussion	
Oct. 24	Dublin discussion	
Future Calls	Potential Topics - Casablanca Stretch Goal Discussion - Dublin Release Discussion	
Fri. 02 /08 /2019	- Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Edge+Automation+through+ONAP+-+Distributed+Management+%28ONAP+etc.%29+components#EdgeAutomationthroughONAP-DistributedManagement(ONAPetc.)components-Assumptions - Make progress on architecture – @Mike Elliott & @Addepalli, Srinivasa R to lead the discussion	- Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Edge+Automation+through+ONAP+-+Distributed+Management+%28ONAP+etc.%29+components#EdgeAutomationthroughONAP-DistributedManagement(ONAPetc.)components-ArchitecturalOptions: - Discussion Kickoff on Various Architectural Options – led by @Addepalli, Srinivasa R https://wiki.onap.org/download/attachments/28379482/ONAP-DDF-Distributed-Analytics-framework-v1.pptx?api=v2 - Arch. Options & Edge Cloud OOM demo – led by @Mike Elliott - Part of session Video Recording: https://wiki.onap.org/download/attachments/28379482/zoom_0.mp4?api=v2 - ACHARYA, SHRIKANT sa8763@att.com / Vijay Venkatesh Kumar to capture requirements on dynamic re-configuration and site-level HA
Wed. 02/13 /2019 & 02 /14 /2019	- Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Edge+Automation+through+ONAP+-+Distributed+Management+%28ONAP+etc.%29+components#EdgeAutomationthroughONAP-DistributedManagement(ONAPetc.)components-Assumptions - DMaaP Edge Deployment - presentation by Dominic Lunanuova - Team Discussion	Presentation by Dominic - DMaaP Edge Deployment https://wiki.onap.org/download/attachments/54723584/DMaaP%20Edge%20-%20Dublin.pptx?version=1&modificationDate=1550585453000&api=v2

Wed. 02/20 /2019 & Fri. 02/22 /2019	- Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Edge+Automation+through+ONAP+-+Distributed+Management+%28ONAP+etc.%29+components#EdgeAutomationthroughONAP-DistributedManagement(ONAPetc.)components-Assumptions - Make progress on architectural options – ACHARYA, SHRIKANT sa8763@att.com to lead the discussion	AT&T EOM Slides - https://wiki.onap.org/download/attachments/28379482/EOM%20overview%20for%20ONAP%20community.pdf?api=v2 Meeting Recordings: 1) 02/20 - https://wiki.onap.org/download/attachments/28379482/zoom_1.mp4?api=v2 2) 02/22 - https://wiki.onap.org/download/attachments/28379482/zoom_0.mp4?api=v2
Wed. 02/27 /2019	- Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Distributed+Management+%28ONAP+etc.%29+components - Mapping the Narrowed-down Solution Options to Requirements -- https://wiki.onap.org/display/DW/Edge+Automation+through+ONAP+-+Distributed+Management+%28ONAP+etc.%29+components#EdgeAutomationthroughONAP-DistributedManagement(ONAPetc.)components-RequirementsandNarrowed-downSolutionOptionsMapping - Cloud Native K8S Ecosystem (which includes current OOM helm charts) Mapping (Option 3) - @ Mike Elliott - continue the discussion from 02/27 - Extending DCAE Orchestration (OOM-Tosca) - Option 2 - @ACHARYA, SHRIKANT to lead the discussion - time permits	Next Steps: - Fix onboarding aspects in option 3 - Mike Elliott - Existing App Instantiation/Configuration options captured in requirements - Option 1: - Instantiation with all config in place for Apps - Corresponding VNF instances are also known - Option 2: - Create the Apps initially - Configuration is done later based on VNF association - Option 3: - Instantiate/Configure the apps on demand along with VNFs - Add, if any, additional requirements for App Instantiation /Configuration - Chaker Al-Hakim
Wed. 03/06 /2019	- Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Distributed+Management+%28ONAP+etc.%29+components - Mapping the Narrowed-down Solution Options to Requirements -- https://wiki.onap.org/display/DW/Edge+Automation+through+ONAP+-+Distributed+Management+%28ONAP+etc.%29+components#EdgeAutomationthroughONAP-DistributedManagement(ONAPetc.)components-RequirementsandNarrowed-downSolutionOptionsMapping - Cloud Native K8S Ecosystem (which includes current OOM helm charts) Mapping (Option 3) - @ Mike Elliott - continue the discussion from 02/27	Feedback on option 3 - No. 13 - Do we need Policy? - Or simplify workflow using Configmap? – - Platform components are UP - Per edge cloud region K8S config information - A&AI? - - Deployment is central to edge ... spinning - Edge monitoring from central (global visibility) – K8S custom metrics - No. 8 approach 2 - K8S operators CRDs – example needed - No. 13 - Do we need Policy? - Or simplify workflow using Configmap? – - Central Components - Sequence of options needed – SDC/SO before ...
03/13 /2019	Agenda for Wednesday (03/13) meeting: - Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Distributed+Management+%28ONAP+etc.%29+components - Mapping the Narrowed-down Solution Options to Requirements -- https://wiki.onap.org/display/DW/Edge+Automation+through+ONAP+-+Distributed+Management+%28ONAP+etc.%29+components#EdgeAutomationthroughONAP-DistributedManagement(ONAPetc.)components-RequirementsandNarrowed-downSolutionOptionsMapping - Cloudify Community changes towards Option 2 - Cloudify Team to present	Cloudify presentation notes - inter site HA new capability - Advanced capability exposure in cloudify - similar to open source such as MongoDB - hardened version of HA available in premium addition and not community edition Other discussion - EOM (option 2) - Typically Onboard mgmt. applications using EOM dashboard - Some applications such as DCAE, have dependency

05/08 /2019	Agenda for Wednesday (05/08) meeting: - Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Distributed+Management+%28ONAP+etc.%29+components - Distributed Config Mgmt. using K8S Operators/CRDs - @Addepalli, Srinivasa R, @Ramki Krishnan - Maintaining external/edge cloud k8s configuration at ONAP central - @VENKATESH KUMAR, VIJAY, John Lucas	Recording: - Link: https://wiki.onap.org/download/attachments/28379482/zoom_0.mp4?api=v2 Meeting Summary: - Distributed Config Mgmt. using K8S Operators/CRDs - @Addepalli, Srinivasa R, @Ramki Krishnan - Summary: - It was recognized that this proposal is applicable for managed workloads besides management workloads - It was recognized that this proposal can bring value outside of ONAP - Slides: https://wiki.onap.org/download/attachments/28379482/cloud-native-edge-mgmt.pdf?api=v2 - K8S Cloud Region Support - Srinivasa Addepalli - Maintaining external/edge cloud k8s configuration at ONAP central was also discussed - Currently using MongoDB for K8S cloud region meta data store due to data size challenges in A&AI - This problem is very likely to occur for other cloud region types once certificate store is enabled - Plan to discuss further with A&AI team - Slides: https://wiki.onap.org/download/attachments/28379482/CloudNativeNFVONAPOPNFVSDWAN.pdf?api=v2 - Related discussions - Leverage K8S cloud region support work for management orch.
05/16 /2019	Agenda for Wednesday (05/16) meeting: - Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Distributed+Management+%28ONAP+etc.%29+components - Finalized requirements: Edge Automation through ONAP Arch. Task Force - Distributed Management (ONAP etc.) components#DistributedManagement (ONAPetc.)components-ConsensusonRequirements (Arch.subcommitteepresentation/discussion-04/16/2019) - Cloud Native K8s Approach for requirement realization - Mike Elliott to lead - Maintaining external/edge cloud k8s configuration at ONAP central - @VENKATESH KUMAR, VIJAY, John Lucas	Recording: https://VMware.zoom.us/recording/share/vJFWlbfngdW_yM6dFxtA2_vCYp7yoW6K_uCc8SokgCqwlumekTziMw?startTime=1557932931000 Meeting Summary: - Presentation by Mike "ONAP and ONAP Edge Orchestration Cloud Native Proposal for Management Workloads" - Meeting 1 - Slides: https://wiki.onap.org/download/attachments/28379482/ONAP%20Orchestration%20-%20part1.pptx?api=v2 - Similarity with Cloud Native Managed Applications and opportunity for synergizing with "K8S Cloud Region Support" for managed workloads appreciated - Geo-redundancy best practices with Cloud Native - use geo distributed databases such as Cassandra (follow up in Architecture sub committee) - Questions to be addressed in follow up meetings: - How will this proposal address backward compatibility?
05/23 /2019	- Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Distributed+Management+%28ONAP+etc.%29+components - Link to finalized requirements: Edge Automation through ONAP Arch. Task Force - Distributed Management (ONAP etc.) components#DistributedManagement (ONAPetc.)components-ConsensusonRequirements (Arch.subcommitteepresentation/discussion-04/16/2019) - Cloud Native K8s Approach for requirement realization - Mike Elliott to lead (continuation from last meeting)	Meeting Summary: - Convergence on using K8s ETCD (part of Central K8s cloud) for storing per Cloud Region access information - This will be managed through K8s CRDs as part of OOM project - This can be easily consumed by other ONAP microservices in the Central K8s cloud or other K8s clouds through a watch mechanism - This is a good step towards a central consolidated view of all resources which is a key requirement
06/21 /2019	- Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Distributed+Management+%28ONAP+etc.%29+components - Frankfurt Plan	Zoom Recording Link: https://VMware.zoom.us/recording/share/3vJpWdU9rSsaAx6IKENP29JVJNMCieYtMaYrfxbyLtE Distribute Management (ONAP etc.) components Task Force: https://wiki.onap.org/display/DW/Distributed+Management+%28ONAP+etc.%29+components

07/31 /2019	Agenda for Wednesday (07/29) meeting: • Presentation on ONAP <-> Akraino collaboration - @Addepalli, Srinivasa R ◦ ONAP orchestration for K8s managed workloads ◦ Istio Security value additions for ONAP Central/Edge management workloads (can be potentially useful for managed workloads also)	Presentation Link: • Multi Cluster Orchestration (ONAP4K8s) Zoom Recording Link: https://VMware.zoom.us/recording/share/3ny37ELByFIRmuVEOmAqev-YIJ-deWQ17-XxJEm4vjuwlumekTziMw
08/15 /2019	Agenda for Wednesday (08/14) meeting: • Discussion on "Distributed Analytics as a Service" - Frankfurt plan etc. - @Addepalli, Srinivasa R	Slides & recording of the session • Slides: https://wiki.onap.org/download/attachments/60889658/Distributed_analytics_v5.pptx?api=v2 • Recording: https://vmware.zoom.us/recording/detail?meeting_id=%2BhWNly2VQ8ClxYJzDkGUiG%3D%3D