Incubation Review

Incubation Criteria Met	BP Family	BP Species name?	BP Submitter?	Submission date?	Akraino release target?	Templates complete?	Presented to TSC for Review?	Target Industry/Segment	Scope and Plan (business driver/desired outcome)?	Scope and Plan (use case description)?	Prepared to commit lab resources to support collaborative development and validation (date estimate)?	Lab HW requirement estimate	Prepared to commit resources to each BP species?	2 Contributors different companies?	Akraino Charter and TSC TCD aligned?	Cross Project Dependencies (XPD) identified with upstream?	All Open source software?	Notes
EXAMPLE ROW	Family or Species?	My Blueprint Example	EXAMPLE: Bob Brown, ABC Inc. bbrown@abc.com	11/01/2018	R0	Use case check? Family check? Species check?	Yes	Telco? Enterprise? CSP?	MVP? Improved security? Reduced latency? Lower TCO?	5G base station? Smart City? Video surveilance?			Yes		Yes check, or No - provide feedback to contributor	In Process		
Yes	Family -- Network Cloud	SDN Enabled Broadband Access (SEBA)	Kandan Kathrival, AT&T	8/1/2018	R1	Yes	Yes	Telco	MVP	Virtual broadband access (XGS-PON - Higher bandwidth,	Yes. Lab already in place.		Yes	Cloudify, AT&T, Arm	Yes	ONF, TBD	OS - Ubuntu 16.x Docker 1.13.1 or above / K8 1.10.2 or above- Container Orchestration Under Cloud Orchestration - Airship v1.0 Open Network Operating System (ONOS) and XOS VOLTHA (Virtual Optical Line Terminal Hardware Abstraction – CORD project) Network Edge Mediator (NEM) ONAP and OSAM EMS/NMS Adapter	
Yes	Family -- Network Cloud	Serverless BP for Addition to Network Cloud Family	James Williams, AT&T	11/13/2018	R1	Yes	Yes	Telco	MVP	Serverless. Autonomous car. Provide FaaS. Can run on top of Unicycle	Yes. Lab already in place		Yes	AT&T, Cloudify	Yes	TBD	Code not contributed yet. AT&T intends to contribute the code to Akraino	APIs would be feature project. TBD
Yes	Family -- Network Cloud	Unicycle Blueprint (SR-IOV)	James Williams, AT&T	8/1/2018	R1	Yes	Yes	Telco, Enterprise	MVP	5G Core or vRAN (RIC)	Yes			Radysis, Netsia, ARM	Yes	ONF, ONAP, Docker, OS	Yes. k8s, Airship, ONOS, ONAP, Ubuntu, Calico	
Yes	Family -- Network Cloud	Rover Blueprint	James Williams, AT&T	8/1/2018	R2 most likely.	Yes	Yes	Telco, Enterprise	MVP	5G micro edge or customer premises deployment	Yes		Yes	Ericsson ARM, Juniper, Radysis, Dell, HPE, Intel	Yes	In Process	Yes	
Yes	IEC Family	IEC Type 1	Tina Tsou, Arm	11/29/2018	R1	Yes	Yes	Telco, Enterprise	MVP -- better latency, less network load	Telco/enterprise Edge cloud – for example, MEC or branc	Yes. Lab already in place.		Yes	Arm, Huawei, ENEA	Yes	K8s, knative, EdgeX, Contiv, Calico, OVS-k8s, NFD (open source container orch)	Yes. ARM have code to contribute.	Power <50W
Yes	IEC Family	IEC Type 2	Tina Tsou, Arm	11/29/2018	R1	Yes	Yes	Telco	MVP	Edge platform with limited resources, for example, SD-WA	Yes. Lab already in place.		Yes	Arm, Huawei, ENEA	Yes	K8s, knative, EdgeX, Contiv, Calico, OVS-k8s, NFD (open source container orch)	Yes. ARM have code to contribute.	
Yes	Network Cloud Family (Unicycle based)	Real Time Edge Media Processing	Prakash Siva, Radysis	11/29/2018	R1	Yes	Yes	Telco, Enterprise	MVP	Edge deployments at enterprises, entertainment venues, factory automation plants, public facilities where real time media processing required Edge media applications include multi-party conferencing, gaming, surveillance, IoT generated content, AR and VR applications Edge media applications requiring low latency and to overcome backhaul BW availability and costs being prohibitive Real time media analytics with AI and ML based applications for high value and media monetization applications	Yes. Based on unicycle. Where to deploy is TBD.		Yes.	Arm	Yes.	OVS-DPDK? Preliminary evaluation.	Yes.	Needs acceleration. Cyborg being evaluated for Openstack.
Yes	Network Cloud	Akraino Network Cloud and TF Integration	Sukdev Kapur	9/1/2018	R1	Yes	Yes	Telco	Empower Edge sites with basic and advance networking features via single SDN controller.	Distributed Edge computing using TF distributed compute (Remote Compute) architecture Service Chaining at the Edge sites Unified SDN controller for VNFs, CNFs Fabric provisioning for SR-IOV workload Edge workload security TF support for Helm and Ansible base deployments	Currently running in a lab. Could run on AT*T lab.		Yes	Juniper, AT&T	Yes	Airship Armada, TF Helm, Openstack, k8s	Security benefits in commercial product. Not part of BP.	Airship, Helm and Ansible deployments. Smallest footprint could e 1VM. Scales to 1000s.
Yes	Edge Light and IoT Family (Eliot)	ELIoT 2: LW Edge	Wenjing Chu, Huawei	11/05/2018	R1	No	Yes	Telco	MVP		Yes		Yes	Arm, Huawei, Intel	Yes.	k8s, k8s ecosystem, TF, EdgeX, ONAP	Yes.	Release continuously deploys. There when you need it.
Yes	Edge Light and IoT Family (Eliot)	SD-WAN												Arm, Huawei, Intel, Juniper	Yes			
Yes	Kubernetes Native Infrastructure for Edge Family (KNI-E)	Provider Acess Edge	Frank Zdarsky, Red Hat	11/15/18	R1	Yes	Yes	Telco	MVP	Remote @ customer or public buildings	Yes. Lab in place.		Yes	Red Hat, Intel, Juniper	Yes	k8s, TF, Ceph, CRI-O, Kubvirt, Kubeflow, Prometheus, CentOS/CentOS-RT, Helm	Yes.	
Yes	Kubernetes Native Infrastructure for Edge Family (KNI-E)	Industrial Edge	Frank Zdarsky, Red Hat	11/1/18	R1	Yes	Yes	Edge	MVP				Yes	Red Hat, Intel	Yes.	k8s, TF, Ceph, CRI-O, Kubvirt, Kubeflow, Prometheus, might use Core OS	Yes.	
Yes	Micro Mec	Micro MEC Type1	Tapio Talligren, Gerald Windsor Nokia	12/1/2018	R2	Yes	Yes	Telco, Enterprise	MVP	SFF. Smart City use cases. 5G terminal. Fits in a container. "Ultra" far edge. Fixed installation as part of 5G NR base stations enables new services that leverage especially low latency, such as AR/VR As an extension of the previous, the “Smart City” deployments have additional functions such as weather stations, cameras, displays, or drone charging stations. The control software for these functions would run on the uMEC In an Industry 4.0 use case set, the uMEC is deployed as part of a 5G network and would provide a platform for running services for the factory floor In a train, the uMEC could collect and store surveillance camera data for later uploading	POC underway. No full fledged lab yet. Nokia lab available.		Resources not dedicated yet.	Nokia, Arm	Yes.	RedFish consideration. k8s. EdgeX, knative	Yes. LuxTurrim5G POC. All open.	Supports ETSI MEC. CRI-O container mgmt to support k8s and Docker. Go back and apply power footprints for each deriviative.
Yes	Micro Mec	Micro MEC Type 2	Tapio Talligren, Gerald Windsor Nokia	12/1/2018	R2	Yes	Yes	Telco, Enterprise	MVP	SFF. Smart City use cases. 5G terminal. Fits in a containe	POC underway. No full fledged lab yet. Nokia lab available		Yes.	Nokia, Arm				
Yes	Micro Mec	Micro MEC Type 3	Tapio Talligren, Gerald Windsor Nokia	12/1/2018	R2	Yes	Yes	Telco, Enterprise	MVP	A small far edge cloud could be deployed in a stadium, airport, or cell tower to support new workloads. Caching data, processing data, analyzing data in order to minimize network backhaul while maximizing the end user customer experience								
Yes	Radio Edge Cloud Family	Radio Edge Cloud	Tapio Talligren, Gerald Windsor Nokia	11/13/2018	R1	Yes	Yes	Telco	O-RAN Alliance is defining the Radio Intelligent Controller (RIC) and new interfaces towards the LTE/5G Radio Access Network (RAN). Especially, the RIC has the E2 interface towards the RAN Centralized Unit (CU), and the A1 interface towards an orchestration system such as ONAP. This allows for more intelligence in managing the radio resources.	RIC, vRAN aligned with O-RAN initiative. x86 and OCP. 5 servers. Has some EPICs defined under "As an Operator I want to..."	Yes. Labs currently being discussed with AT&T.		Yes. Discussions underway.	AT&T, Nokia, Intel?	Yes	O-RAN, Airship, Redfish, OCP, ONAP	Yes	Joint work around RIC near-RT. Goal is to add new interfaces. Can optimize and reconfigure network as needed to meet demand. This uses specialized hardware (could be deployed on very thin HW).
Yes	Far Edge Cloud Family	Starling X Far Edge Distributed Cloud	Jim Einarsson, WRS	11/9/2018	R1	Yes	Yes	Telco, Enterprise	Enables new revenue opportunities for operators In addition, industrial automation use cases require similar topologies With many sub locations and far edge sites, remote deployment and management is critical to ensure day 2 operational costs are minimized. Small physical foot print and low physical security are constraints in these environments	A small far edge cloud could be deployed in a stadium, airport, or cell tower to support new workloads. Caching data, processing data, analyzing data in order to minimize network backhaul while maximizing the end user customer experience.	Yes. Four sub clouds two servers each for validation.		Yes	Windriver, Intel	Yes	Yes -- StarlingX, Kubernetes, ONAP, EdgeX, OCP, CentOS, Possibly TF or ODL	Yes	Targeting OCP HW platform -- hyperconverged.
Yes	TBD	Time Critical Edge Compute	Shane Dewing, Intel	11/30/2018	R1	Yes	Yes	Manufacturing, Industrial, IOT	Compute stack for real-time and functionally safe edge deployments	Carrier Edge. Provides a cloud-native SW stack for real-time or time sensistive applications at the Industrial edge, including the capability for a functionally safe hypervisor. Typical workloads include machine control (closed loop), machine vision inference using Intel OpenVino	Yes		Yes	Intel, HPE, Dell, Huawei	Yes.	ACRN, Zephyr, Kubernetes, Kata	Yes.	
Yes	Family -- Network Cloud	OVS-DPDK Unicycle (Dell)	Andrew Wilkinson, Ericsson	11/30/2018	R1	Yes	Yes	Telco		Carrier Edge. Network Cloud Unicycle derivative. 5G core or VRAN.	Yes. Will support Development CD lab. Cannot open it at this stage to unrestricted public. Verification with high throughput VNF		Yes. 2HC for 6mos for Airship. 1 HC for 6 months for Akraino.	Ericsson, Dell	Yes	k8s, Airship, possibly Openstack	Docker, Ubuntu, Openstack, k8s, OVS-DPDK, Airship, Redfish	
Yes	Connected Vehicle Family	Tecent Connected Vehicle Blueprint	Robert Qui, Tencent	3/15/2019	R2	Yes	Yes	All	MEC platform used for Connected Vehicle	MEC platform which can be used to connect vehicles, the general data flows are itemized below: 1) Grab the traffic/vehicle information 2) Dispatch the traffic/vehicle information to the corresponding edge process unit. Note well: The dispatch policy can be configurable. 3) Process the data in the Edge or Cloud and figure out the suggested action item for the vehicle driver 4) Send the suggested action items to the vehicle driver	There is a team, resources and lab in place.	A test and simulation lab will be provided in Tencent Cloud Silicon Valley.	There is a team, resources and lab in place.	Tencent, Arm, Intel, Nokia	The project will operate in a transparent, open, collaborative, and ethical manner at all the times	OpenStack, K8s, Docker, DPDK, OpenNESS, OVS et a	Yes, all open source	
Yes	IEC Family	IEC Type 4	wenping_ying@htc.com	4/16/2019	R2	Yes (Species)	Yes	Telco	VR/AR on the Network Edge	Use case description provided	Require community lab resource	Not completed - work in progress	HTC, IBM	HTC, ARM, ATT	Yes	Yes -- See presentation	Yes (with dependencies on MEC API framework EP)	VR/AR optional components are not all currently open source
Yes	API GW	API GW	thor.chin@inwinstack.com	4/25/2019	R2	Yes	Yes	Enterprise	Yes	Yes	May require community lab resource (VM)	1 node or 3 nodes for HA	Inwinstack	Inwinstack (additional TBD)	Yes	Kong	Yes	
Yes - once MobileEdgeX components open sourced and subject to TSC presentation	IEC	AI/ML and AR/VR applications at Edge	sukhdev@juniper.net Vikram.siwach@mobiledgex.com	4/24/2019	R2	Yes	Sch 5/9/19	Telco	Yes	Yes	Initially validate in MobileEdgeX labs Subsequent validation in community labs	1 Node	MobileEdgeX, JPR	MobileEdgeX, JPR	Yes	Yes - k8s, OS, TF	TF OpenSource MobileEdgeX Opensuoucing code by 30th Sept 2019	Subject to OpenSourcing of all components
Yes	Integrated Cloud Native NFV and Appliation Family	Multi-server cloud native	srinivasa.r.addepalli@intel.com	6/4/2019	R2	Yes	sch 6/8/19	Telco Enterprise	Tes	Yes	Intel intends to initially utilize OPNFV community lab	Depending on usecase either 1, 2 or 4 servers	Verizon, Intel, MobileEdgeX, Aarna Networks, Vmware	Verizon, Intel, MobileEdgeX, Aarna Networks, Vmware	Yes	Yes - multiple - see proposal sllides	Vmware provided networking components not yet open source - in process Alternatives included for R2 otherwise	
TBD, See orange items needing attention	Needs a (new or existing) Family	5G MEC slice system (current very broad - needs to be more specific BP(s))	allenwchen@tencent.com	17/6/2019	R4 due to opensource dates	Yes	No - Te Be Scheduled	Telco Enterprise	Yes	Yes Cloud Gaming, HS Video Streaming support at edge	Yes	To Be Defined	Tencent, Intel and Arm	Tencent, Intel, ARM and future China mobile	Yes	Yes - multiple - see proposal sllides	Not all components are opensource at this time. Target date Q2 2020 to opensource all SW	
Yes subject to items in orange	ELIOT	A-IOT in smart office	herbertzhao@tencent.com	17/6/2019	R3	Yes	No - Te Be Scheduled	Enterprise	Yes	Yes Smart office Humanization of working space Improve application utilization	Yes`	To Be Defined	Tencent, Huawei	Tencent, Huawei	Yes	Yes - multiple - see proposal sllides	Yes	A-IoT = Artificial Inteligence in IoT
Yes subject to open sourcing note in R3	The AI Edge	The AI Edge	zhanghechun@baidu.com	9/10/2019	R3	Yes	Yes 8/6/19	Enterprise	Yes	Safety, security, and surveillance	To Be Confirmed	Yes	Baidu, Arm, Intel, Pens State University	Baidu, Arm, Intel, Pens State University	Yes	Yes - multiple - see proposal sllides	Majority yes however Cluster controller is not - Will be open sourced by Dec 31st	
Yes	IEC	SmartNIC for Integrated Edge Cloud	jiaxuan@chinamobile.com	2/19/2020	R3	To Be updated	Yes 02/11/20	Telco Enterprise	Yes	Yes	Yes	Yes	Broadcom, Arm, Bytedance	Bytedance, Broadcom, Chinamobile, Arm, Mellanox	Yes	Yes - see project proposal	Yes	
Yes - subject to non Open Source components being made available	The AI Edge	RoboTaxi	zhanghechun@baidu.com	10/8/2019	R3	Yes	Yes 02/06/20	Telco Enterprise	Yes	Yes	Yes	Yes	Baidu, Intel, Arm	Baidu, Intel, Arm	Yes	Yes - see project proposal	90% currently open source Some AI perception SW in vehicle/roadside compute is proprietary	
Yes	5G MEC/Slice system	Enterprise Applications on Light weight 5G Telco Edge	khemendra.kumar13@gmail.com	3/16/2020	R3	Yes	3/18/2020	Telco Enterprise	Yes	Yes	Yes	Yes	Huawei	Huawei, China Mobile, Tencent, ARM	Yes	Yes - see project proposal	Yes	
Yes (to confirm UNH will and can install NVIDIA GPU in existing Thunder X2 pod)	IEC	IEC Type 3: Android cloud native applications on Arm servers in edge	jiaxuan@chinamobile.com	2/20/2020	R3	Yes	To Be Presented 3/26/2020	Telco Enterprise	Yes	Yes	No (Community lab only)	Yes	Yes, NVIDIA	ByteDance, China Mobile, Arm	Yes	Yes - see project proposal	Yes	
	ICN	Private LTE/5G ICN	akapadia@aarnanetworks.com															
Webank lab TBD otherwise Yes	The AI Edge Blueprint Family	Federated ML application at edge	siyanghan@webank.com	3/23/2020	TBD	Yes	4/9/2020	Enterprise	Yes	Yes	Community lab (TBD in webank but not finalized)	Yes	Yes, Webank, Inwinstack, Baisu, Arm	Webank, Inwinstack, Baisu, Arm	Yes	Yes - see project proposal	Yes w/ manual deployment; Application on client TBD	

TSC Technical Document

Incubation Phase Critiera: Project has resources; Project in early stages of development; Outcome is MVP (demonstrating value and gathering feedback); Not for Production

CURREN TCD LANGUAGE: Artifacts expected for Incubation Review: Name of the project is appropriate (no trademark issues etc.); Proposed repository name is all lower-case without any special characters
Project contact name, company and email are defined and documented

Simplified concepts/definitions:
Blueprint simplified -- "declarative configuration of an edge cloud stack"
BP Family simplified -- constant technical attributes supporting a common POD, ie "deploying kubernetes undercloud", ie RHEL or Ubuntu doe snot derail family, ATT Network Cloud is a BP family for telco VNFs
POD -- Point of Delivery (see Technical Document for description)