

# IEC Type 4: AR/VR oriented Edge Stack for Integrated Edge Cloud (IEC) Blueprint Family

**Project Technical Lead:** Bart Dong . Elected and Approved 30 Apr 2020

Wenping Ying. Elected 5/7/2019. Stepped Down 11 Dec 2019

Project Manager: [Wenhui Zhang](#)

Link to process-SC review record [Graduation reviews](#)

## Blueprint species:

| Use Case Attributes           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Informational |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Type                          | New Blueprint for VR/AR on the Network Edge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
| Blueprint Family              | Integrated Edge Cloud (IEC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
| Use Case                      | Deployment of generic edge end and cloud environment for VR/AR cloud streaming                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |
| Blueprint proposed Name       | IEC Type 4: AR/VR oriented Internet Edge Stack for Integrated Edge Cloud (IEC) Blueprint Family                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |
| Initial POD Cost (capex)      | NVIDIA RTX GPUs, Chelsio T580-CR NICs, AMD Radeon.<br>less than \$120k (3 nodes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |               |
| Scale & Type                  | Generic blueprint PoC: <ul style="list-style-type: none"><li>One master node and up to 5 worker nodes with mixed Linux and optional Windows OS</li><li>Each worker node is x86/ARM server with nVidia RTX GPUs (Titan or GeForce TBD), AMD Radeon.</li></ul> Large scale deployment: <ul style="list-style-type: none"><li>Number of worker node servers, x86/ARM server or deep edge class, is site dependent (footprint)</li><li>vGPU and federation supported class, e.g. NVIDIA Tesla K80, AMD Radeon GPUs.</li><li>Chelsio T580-CR NIC</li></ul> |               |
| Applications                  | Generic blueprint POD: Small scale cloud AR/VR rendering farm with generic SO.<br>Production/commercial service: <ol style="list-style-type: none"><li>Consumer applications: High performance premium gaming, 3D/Light-field video for movies, live concerts, events, LBE, etc.</li><li>Enterprise applications: training/education, product design collaboration, manufacturing, maintenance, data analytical etc,</li></ol>                                                                                                                        |               |
| Power and memory restrictions | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Infrastructure orchestration</b> | Docker 18.09.4 or above (19.03 may be needed to run optional windows container with nVidia or AMD GPU support) and K8s 1.14.1 or above- Container Orchestration, VMWare or Openstack VM<br><br>OS - Ubuntu 18.04.2, windows server 2019<br><br>Under Cloud Orchestration - Airship v1.0 (TBD)                                                                                                                                             |  |
| <b>SDN</b>                          | Calico and K8s, or or SR-IOV, OVS-DPDK                                                                                                                                                                                                                                                                                                                                                                                                    |  |
| <b>Workload Type</b>                | VR and AR applications with split rendering runtime running inside Containers or VM                                                                                                                                                                                                                                                                                                                                                       |  |
| <b>Additional Details</b>           | The test configuration consists of 3 machines connected using Ethernet switch: a master and 2 worker nodes, each with TBD processor clocked at TBD GHz, with TBD GB of RAM and Ubuntu operating system for master, windows server 2019 or later for worker. MTU of 1450B is configured (to compensate for GTP tunnel header and to avoid fragmentation). Each windows server preconfigures with 2-3 VMs with fixed GPU allocation per VM. |  |

**Attachments:**



Akraino\_Blueprin...Type 4 BP v9.pdf



Akraino\_Blueprin...C Type 4 BP.pptx



ARVR.pdf.pdf

As per the Akraino Community process and directed by TSC, a blueprint which has only one nominee for Project Technical Lead (PTL) will be the elected lead once at least one committer seconds the nomination after the close of nominations. If there are two or more, an election will take place.

Self Nominations start 23 April and go through 29 April

| Committer                     | Committer Company | Committer Contact Info                                                           | Committer Bio | Committer Picture | Self Nominate for PTL (Y/N) |
|-------------------------------|-------------------|----------------------------------------------------------------------------------|---------------|-------------------|-----------------------------|
| <a href="#">Tina Tsou</a>     | Arm               |                                                                                  |               |                   |                             |
| <a href="#">Wenhui Zhang</a>  | PSU               |                                                                                  |               |                   | N                           |
| Wenping Ying                  | HTC               | <a href="mailto:wenping_ying@htc.com">wenping_ying@htc.com</a>                   |               |                   |                             |
| Ryan Anderson                 | IBM               | <a href="mailto:rranders@us.ibm.com">rranders@us.ibm.com</a>                     |               |                   |                             |
| Vikram Siwach                 | MobiledgeX        | <a href="mailto:vikram.siwach@mobiledegex.com">vikram.siwach@mobiledegex.com</a> |               |                   |                             |
| Kris Chaisanguanthum          | Visby             | <a href="mailto:chaisang@visby.io">chaisang@visby.io</a>                         |               |                   |                             |
| Guoxi Wang                    | UC Irvine         | <a href="mailto:guoxiw1@uci.edu">guoxiw1@uci.edu</a>                             |               |                   |                             |
| <a href="#">Trevor Tao</a>    | Arm               | <a href="mailto:trevor.tao@arm.com">trevor.tao@arm.com</a>                       |               |                   |                             |
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| <a href="#">xin qiu</a>       | Tencent           | <a href="mailto:robertqiu@tencent.com">robertqiu@tencent.com</a>                 |               |                   | Stepped down                |
| <a href="#">Sukhdev Kapur</a> | Juniper           | <a href="mailto:sukhdev@juniper.net">sukhdev@juniper.net</a>                     |               |                   |                             |
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| Bart Dong                     | Tencent           | <a href="mailto:bartdong@tencent.com">bartdong@tencent.com</a>                   |               |                   | Y                           |
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|                               |                   |                                                                                  |               |                   |                             |

| Contributor  | Contributor Company | Contributor Contact Info                         | Contributor Bio | Contributor Picture |
|--------------|---------------------|--------------------------------------------------|-----------------|---------------------|
| Jianqiang Li | GDCNI               | <a href="mailto:lijq@gdcni.cn">lijq@gdcni.cn</a> |                 |                     |

## Meeting Minutes:

June 6th: [June6th](#)

June 20th: [June20th](#)