Akraino Technical Meetings Spring

IEC Type 4 AR/VR Blueprint

Link: https://wiki.akraino.org/pages/viewpage.action?pageId=6129521

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**Overview**

IEC Type 4 focuses on AR VR applications running on edge. In general, the architecture consists of three layers: Iaas(IEC), PaaS(Tars), SaaS(AR/VR Application).

**Use Cases**

There are multiple use cases for AR VR itemized below. For Release 4, we focus on building the infrastructure and virtual classroom application (Highlighted).

<table>
<thead>
<tr>
<th>Use Cases</th>
<th>Value Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation Guidance</td>
<td>Predict the next step for the operations (like assembling Lego blocks, cooking sandwiches, etc) and help people to achieve a goal.</td>
</tr>
<tr>
<td>Virtual Classroom</td>
<td>Simulating a virtual classroom, which improves online education experiences for the teachers and students.</td>
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<tr>
<td>Sports Live</td>
<td>Augment and simulate the sports live, which gives the audiences an amazing immersive watching experience.</td>
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<tr>
<td>Gaming</td>
<td>Augment and simulate the game scenario, let players enjoy an immersive game world.</td>
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Use case: Virtual Classroom

Virtual Classroom is a basic app that allows you to live a virtual reality experience simulating a classroom with teachers and students.

- In Teacher mode
  - You will see the classroom as a teacher’s view.
  - You can see some students are in the classroom and are listening to your presentation.

- In Student mode
  - You will see the classroom as a student’s view.
  - You can see the teacher and other students on the remote side.
Overall Architecture of IEC Type 4 AR/VR

The whole architecture, shown below, consists of three nodes: Jenkins Master, Tars Master, and Tars Agent with AR/VR BP and CVB.

- For the Jenkins Master, we deploy a Jenkins Master for our private lab for testing.
- For the Tars Master, we deploy a Tars Platform for serverless use case integration.
- For the Tars agent, we deploy the Virtual Classroom backend on this node and two front end client as Virtual Classroom teacher and student on KVM.
TARS is a high-performance microservice framework based on name service and Tars protocol, also integrated administration platform, and implemented hosting-service via flexible schedule. TARS adds support for ARM and multiple platforms, including macOS, Linux and Windows.

- For release 4, we update TARS to version 2.4.13 which supports multiple new features, such as API Gateway named TarsGateway that support to transfer HTTP protocol to TARS protocol.

- We provided a serial of TARS API to the Akraino API map. Including application management APIs and service management APIs.
A non-profit, microservices foundation under the Linux Foundation umbrella. Established on March 10, 2020

**TARS Foundation Is Not Only TARS, But A Microservices Ecosystem.**

A neutral home for open source **Microservices** projects that empower **any industry** to quickly turn ideas into applications at **scale**.

**TARS characteristics that solve microservices problems:**

- Agile Development with DevOps best practices
- Built-in comprehensive service governance
- Multiple languages supported
- High performance with Scalability
Summary of IEC Type 4 AR/VR Release 4

- Focus on building the infrastructure and virtual classroom application.
- Deploy in Parserlabs.
- Use Jenkins to make CI/CD available.
- Update TARS to the version 2.4.13 which supports multiple new features.
- Pass the security check and the validation lab check.
- Lynis log: https://nexus.akraino.org/content/sites/logs/parserlabs/r4/jobs/iec-type4/lynis.log
- Vuls log: https://nexus.akraino.org/content/sites/logs/parserlabs/r4/jobs/iec-type4/vuls.log
Planning for Release 5

- Deploy IEC Type 4 AR/VR on Kubernetes

- K8STARS is a convenient solution to run TARS services in kubernetes.
  - Maintain the native development capability of TARS.
  - Automatic registration and configuration deletion of name service for TARS.
  - Support smooth migration of original TARS services to K8S and other container platforms.
  - Non intrusive design, no coupling relationship with operating environment.

  - Service can be run as easy as one command like:
    - kubectl apply -f simpleserver.yaml
Thanks and Welcome to Join Us!

https://tarscloud.org

https://github.com/TarsCloud

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