EdgeGallery
Building OpenSource 5G MEC Eco-System

- Gaurav Agrawal
Industry Application Ecosystems with Unified Market and Shared Applications

Small-scale Application Ecosystems of Vendors and Carriers

- Manually integrated growth mode
- Focus on Few application types
- Hundreds of applications

- Difficulty in Replicating scenarios
- Fragmented market

Carrier A
Carrier B
Carrier C
Vendor A
Vendor B
Vendor C

- There is no unified platform for innovative achievements in the industry. Everything is reorganized from scratch, every year.
- No closed loop of business is formed, and projects are almost impossible to replicate.
- There is no drive for innovation, and the technology growth is slow.

Large-scale Ecosystems of Edge Computing Industry

- Unified integration
- Unified verification
- Unified market

Unified application market

Carrier A
Carrier B
Carrier C
Vendor A
Vendor B
Vendor C

- Self-reproduction growth mode
- Diversified application types
- Millions of applications

- New Ecosystem: Building Industry Application Ecosystems with Unified Market and Shared Applications
- The open and unified market, unified integration, and unified verification enable convenient circulation of an application across vendors and carriers, reduce application replication costs, and build a large-scale, self-growth, and diversified new ecosystem.
EdgeGallery: Open source, Developer Centric, 5G MEC Application Ecosystem

Apache 2.0

Positioning

- Build de facto standards for the 5G edge computing architecture and enable openness in the telecom field.
- Lower the threshold for bringing enterprise applications onboard, form a large scale, and build a B2B business ecosystem.

Value

5G Connection Capability
- make 5G accessible
- Interconnection with the 5G network: interconnected with 5G NEs to implement multi-dimensional dynamic traffic distribution.
- 5G capability invoking that complies with the ETSI standard: wireless information, location, terminal identity, and bandwidth management.
- Efficient network data plane: supports multiple network planes and latency-sensitive network (TSN).
- Built-in value-added network: integrates network capabilities such as DNS, FW, NAT, and LB.

Edge Native Platform Architecture
- make edge services trustworthy and manageable
- Open platform framework: plug-in framework, unified governance of applications, services, and APIs.
- Lightweight resource management: lightweight container/VM management, compatible with heterogeneous hardware accelerations.
- Full-stack security mechanism: multi-user security isolation, data security, application security, and network security.
- Highly reliable management and operation: MEC Mesh, blockchain ledger and self-service management.

Diversified and Open Edge Ecosystem
- easily bring applications onboard and make business replicable
- Simplified application development: Agent codeless integration, online IDE tool, online CI/CD, and ARM migration.
- Convenient application verification: online simulation sandbox and online community 5G trial network.
- Unified application portal: unified authentication and application sharing for application markets.
- Diversified ecosystem sharing: integration and interconnection with the public cloud, compatible with the commercial platform.
EdgeGallery Building Blocks

1. MEP: Autonomous, Rich in Platform & network capabilities, Support heterogeneous architecture

2. MECM: Application orchestration, Application LCM, FCAPS, Policy driven closed Loop

3. MEC Application Orchestration and Management (MEAO/M)

4. MEC Developer Platform: Provides Tool Chain, SDKs, APIs & Sandbox features for application development, packaging and testing.

Industry-friendly: model-driven, scenario-specific, and codeless/low-bit-rate applications - Resolve the problem of application replication.

Developer-friendly: full-journey design, development design, deployment, commissioning, and installation for developer experience-oriented applications - Resolve the problem of high development requirements.

Business-friendly: unified authentication, distributed federation, and integrated development and O&M of DevSecOps edge security - Resolve the issue of difficult commercial monetization.

Friendly deployment: Infrastructure independent, modular design, and on-demand deployment, meeting different application scenarios - Resolve diversified industry deployment issues.
Wizard-based Application Development, Test and Deployment

**Optimized app development and deployment process.**
- Provide an E2E tool chain for existing application integration and new application development scenarios.
- Provides 5G environment to meet different development and test requirements.

**App Verification/Certification tool chain**
- Provides an app test and certification platform for carrier partners to customize certification test cases.
- App certification reports are provided to verify the compliance between apps and carriers’ live network specifications.

**Deployment & Rollout**
- Provides the distributed federation capability of app repositories to implement interworking with third-party app repositories.
- Visualized deployment & commissioning of application to desired edge(s).
- Monitoring of deployed application(s)
EdgeGallery Community

25+ Participating companies

40+ Applications

<table>
<thead>
<tr>
<th>categorization</th>
<th>Quantity</th>
<th>Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2B enterprise</td>
<td>20+</td>
<td>Security, categorize, traffic, robot</td>
</tr>
<tr>
<td>B2C consumers</td>
<td>20+</td>
<td>Game, VR</td>
</tr>
</tbody>
</table>

Focus on five industry scenarios
- Smart campus
- Industrial manufacturing
- Transportation and logistics
- Gaming
- Security and others

EdgeGallery Contribution (200+Kloc)

- commits: 7572
- Authors: 111
- Project: 30
- PR: 2.9K
- Star: 527
- Fork: 397

![Graph showing lines of code over time]
Huawei, China Mobile, Tencent, and ARM have initiated the 5G MEC BP in Akraino.

The EdgeGallery is the upstream project of the BP.

The EdgeGallery is the only open source project that complies with the ETSI MEC architecture.

Compatible with ETSI API standards

Participate in ETSI Plugtest 2020

Work with CAICT to deploy EdgeGallery on the 5G trial network in Shenzhen.

Jointly incubate the 5G MEC application ecosystem.

Jointly recommend the 5G MEC application verification lab.

Cooperation on MEC cyber security topics.

EdgeGallery is an innovative platform for 5G NDA.

Reference implementation of the 5G DNA deterministic network capability.
EdgeGallery & Akraino Release Mapping

**EdgeGallery Release Plan**

**09/2020**

- **Blue Release**
  - Base Platform including:
    - Management & Orchestration
    - Developer Platform & App Store
    - Edge Platform enhancements including LB, DNS, Network Isolation

**12/2020**

- **Chocolate Release**
  - Application Test Platform (ATP)
  - Traffic Rule Management
  - Dynamic Orchestration (Partial)
  - Application heartbeat detection

**03/2020**

- **Dove Release**
  - Edge Autonomous with Edge Portal
  - VM based workload
  - Improved Image Management
  - Multi language SDK support
  - UPF integration framework

**Beyond**

- **Future**
  - AI Edge capabilities
  - 5G connection capabilities
  - MEC-CAPIF integration

**Akraino Release Plan**

**12/2020**

- **Release 4**
  - EALTEdge & ELIOT

**06/2021**

- **Release 5**
  - EALTEdge & ELIOT
Lets Build a unified 5G MEC industry platform!

Welcome to the EdgeGallery community.

Making EdgeGallery a de-facto 5G MEC Platform by collaborating with APP Vendors, Operators, SDOs, Open source communities globally.
Thank you.