Community Meeting
Customization and Deployment Stories.
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GS Lab | GAVS in Product Engineering

- **18+** Years in business
- **400+** Products/Platforms engineered
- **200+** Active customers across globe
- **4000+** Technologists
- **5** Development centers at major IT hubs in India along with numerous customer locations globally

recognized across 11 categories
## What we do?

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<thead>
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<th>Digital Product Engineering</th>
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<tr>
<td>Technology Consulting</td>
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<td>AI-led Infrastructure Management</td>
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<td>Legacy Product Modernization</td>
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### Industries we cater to

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<th>Hi-tech</th>
<th>Telecom</th>
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<td>Healthcare</td>
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<td>AdTech</td>
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<td>Retail</td>
<td>BFSI</td>
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Aether History
Aether: Design Principals. Adoption support.

Architectural paradigms
- 3gpp
- Infrastructure agnostic – Bare metal, VM, Container, k8s etc.
- Continuous testing with industry standard tools, and 10 + RAN manufacturers.
- Performance and scale guidelines from beginning.

Deployment agility
- Flexibility – From end to end infrastructure, to individual components acceptance.
- Data plane accelerators - AF_Packet, DPDK, FPGA.
CUPS Gateway
Deployment model – Bare metal and VM

Customer profile: MNO

Use case: Deployment for IoT and fixed wireless UEs in field.

Key constraints: 3gpp compliance. Performance. Scale.

Deployment:

Compliant 4G LTE infrastructure.

Private deployment model - Baremetal + VM combination.

DPDK based user plane.

Deployment Automation - Terraform, Ansible.
Distributed deployment
Deployment model – Globally distributed CUPS. Public + Private.

Customer profile: ONF Community and research partners

Use case: Globally distributed deployment in CUPS architecture.
Deployment model – Globally distributed CUPS. Public + Private.

- Complete 4G LTE infrastructure with ONF OMEC platform.
- Control plane at GCP (HSS, MME, SPGW-C, Monitoring)
- User plane SPWG-U at partner edge sites.
- Hybrid deployment model – Public. Private. BareMetal. VM.
SGW-C

Integrating open source component with commercial infrastructure
Deployment model – SGW-C only.

**Customer profile:** MVNO

**Use case:** Integration of SGW-C with existing infrastructure.

**Key constraints:** 3GPP compliance. Interoperability with third party MME, SGW-U and PGW.
Deployment model – SGW-C only.

- Only selective component out of overall infrastructure
- Private cloud. VM Based.
- Customization for infrastructure specific provisioning, logging and monitoring.
MNO – MVNO Integration
Deployment model – P-LTE - MNO Integration

**Customer profile:** Network provider to remote industry

**Use case:** Private network deployment for large field industry in remote areas. Integration with MNO for backbone services.

**Key constraints:** MME. PGW. HSS from MNO.
Deployment model – P-LTE - MNO Integration

- **Base authentication from MNO.**
- **Traffic diversion from remote.**
- **HSS integration with MNO.**

**MNO**
- eNB
- MME
- SGW
- DNS
- Other core infra

**MVNO**
- HSS/HLRXius
- PGW
- DNS
- IMS and other apps

**Routing infra**

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Private-LTE/5G
Cloud Native Custom Infrastructure
Deployment model – Custom CUPS and platform integration

Customer profile: Private-4G/5G provider

Use case: Edge deployment of 4G/5G Gateways(S/PGW, UPF) and MME. API integration with customer orchestration platform in public cloud.

Key constraints: API Integration. Provisioning through platform. Integration with Radio units.
Deployment model – Custom CUPS and platform integration

- **eNB**
  - 4G Core
  - Local traffic routing

- **gNB**

- **Edge cloud**
  - Aether API Integration
  - Control traffic
  - Policies

- **Central cloud**
  - Customer platform. Provisioning.
  - AWS/EKS
  - 5G core

- **Network integration**
  - Only selective component out of overall infrastructure.
  - Integration with customer 4G/5G components. API integration with the customer Private network platform.
Private-LTE/5G

Hybrid (Edge cloud + public cloud)
Deployment model – Distributed edge with public cloud provider

**Customer profile:** Connectivity service provider.

**Use case:** Distributed CUPS with end-to-end public cloud infrastructure.

**Key constraints:** API Integration. High scalable architecture. Cloud provider’s edge deployment.
Deployment model – Distributed edge with public cloud provider

- End to end Kubernetes based deployment. Open-source tools.
- API integration with customer platform.
- 400 eNB support. 30K UEs. High speed data plane.
- UPF deployment with Anthos SR-IOV plugin.
Closing Notes

Other Success Stories

Community and partner support

- GS Lab as research partner with ONF.
- Partner to accelerate and smoothen the open-source adoption and success.

ONF:

- Sustainability.
- Power optimization.
- All dimensional scale.
- R-17. URLLC.
- NB-IoT. Online billing.
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