SEBA Automation and Management at Any Scale for Operators

Thomas (Tom) Moore
AT&T
SEBA Reference Model, with External BNG

- Infrastructure Orchestration (Day 0) – Build SEBA Edge Cloud Infra HW & SW
- Workload Orchestration (Day 1+) – Deploy & Upgrade SEBA Software
- Access Domain Mgmt (Day 1+) – Configure, Monitor & Troubleshoot Access Networks & Services
- LT: Line Termination, e.g. OLT
- NT: Network Termination, e.g. ONT
- ASG: Aggregation & Service Gateway
- BNG: Broadband Network Gateway
  - Layer 2/3 Gateway
- Metro Network - Internet, Video, VoIP
- Metro App Cloud hosts value-added applications (AR/VR, AI/ML, etc.)
SEBA Reference Model, with Converged BNG

- **vBNG**: virtual BNG under SEBA management and control
- SEBA can program ASG & vBNG to route App traffic to Edge App Clouds
- Edge App Clouds can provide lower latency for applications than Metro App Cloud
- Edge App Clouds may converge with SEBA Edge Cloud and share resources
SEBA at Small Scale

- Small number of SEBA Edge Clouds
  - And/or small Access networks
- A few techs orchestrate Infrastructure & Workload using manual tools & scripts
- A few techs connect more directly to few SEBA Edge Clouds for Day 1+
- OSS/BSS simplified or optional
- SEBA can include additional SW otherwise in OSS/BSS or Domain Management for -
  - GUIs for Configuration & Status
  - Security
  - Fault & Performance Management
  - Analytics & Logs
SEBA at Large Scale

- Large number of SEBA Edge Clouds
  - And/or large Access networks
  - And/or across multiple geo regions
- Automate OSS, BSS, and Domain Management to optimize tech & agent activities
- Automate Infrastructure Orchestration (Day 0) for many SEBA Edge Clouds
- Automate Workload Orchestration (Day 1+) for many SEBA Edge Clouds
- OSS/BSS and/or ONAP Automation
- Converged Access Domain Management
  - GUIs for Configuration & Status
  - Security
  - Fault & Performance Management
  - Analytics & Logs

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<table>
<thead>
<tr>
<th>Operator OSS &amp; BSS</th>
<th>Converged Access Domain Management (Day 1+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helm Charts &amp; SW</td>
<td>Workload Orchestration (Day 1+)</td>
</tr>
</tbody>
</table>

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- Metro Net
  - SEBA Edge Clouds
  - ASG & vBNG
    - LT
    - NT
  - Layer 2/3 gateway
  - Metro App Cloud
  - Edge App Cloud
  - ONAP Connect
  - K8s Charts & SW
  - AKraino Edge Stack
Infrastructure Orchestration – Akraino

- **SEBA for Akraino Telco Appliance BP Family**
  - Built from reusable components of the Akraino “Telco Appliance” blueprint (BP) family
  - Automated Continuous Deployment
    - pipeline testing of the full SW stack
  - Testing on multiple hardware platforms
    - Enables ongoing qualification & deployment of servers optimized for cost, space, power and environment
      - Chassis-based extended environmental range servers
      - Or commodity datacenter servers
  - **Open Compute Project (OCP) Telco Project Specs & Designs**
    - Integrated with Akraino Regional Controller for “zero touch” deployment of SEBA Edge Clouds

- **SEBA Workload Orchestration (Day 1+)**
- **Workload Orchestration (Day 1+)**
- **Helm Charts & SW**
Workload Orchestration - ONAP

ONAP Kubernetes (K8s) Based Cloud Region Support

Multi Cloud Service

Amazon EKS
Google Kubernetes Engine
Azure Kubernetes Service (AKS)

SEBA

Edge App Cloud

Helm Charts & SW Workload Orchestration (Day 1+)

(ARC) Infrastructure Orchestration (Day 0)

Container-as-a-Service (CaaS) Platforms – May serve as other SEBA Cloud Options
Additional Opportunities

• SEBA and COMAC Convergence
  • ASG and vBNG / Packet Gateway
  • Value-Added Application Hosting

• SEBA-as-a-Service
  • Multi-tenancy
    • Among multiple operators
    • Among different end users
      • Consumers
      • Enterprises
    • Value-Added Application Hosting (Gaming, CDN, IOT, AR/VR, AI/ML)

• Analytics-as-a-Service
  • Use spare SEBA cloud resources for enhanced analytics of cloud & access infrastructure
    • Cloud server health and performance analysis
    • Access network –
      • Optical transmission degradation analysis
      • FEC (Forward Error Correction) analysis
Thank You

Follow Up Links:

SEBA for Akraino Telco Appliance BP Family
Open Compute Project (OCP) Telco Project Specs & Designs
ONAP Kubernetes (K8s) Based Cloud Region Support