



OPEN EDGE COMPUTING INITIATIVE SPRING ONLINE **WORKSHOP**

18 AND 19 MAY 2021

- DAY 2 -

OPEN EDGE COMPUTING INITIATIVE: KEY ACTIVITY AREAS

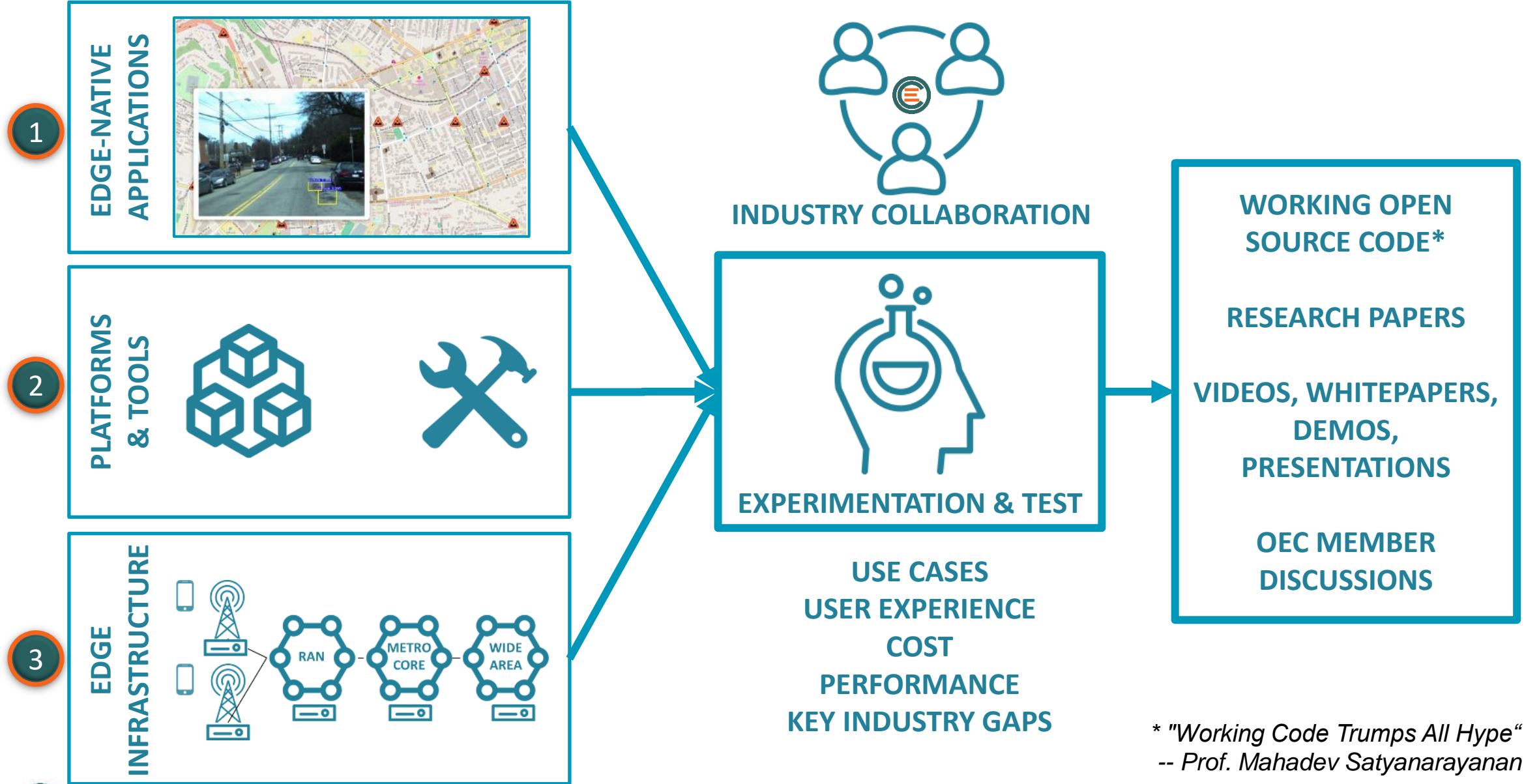
OEC Mission: ...is a collective effort for driving the business opportunities and technologies surrounding edge computing.

- **Drive Cross-Operator Edge Alignment**
→ Agree and establish edge technology that enables a globally uniform mechanism to use Edge services (Edge Platform API's, Edge Interconnect, Edge Federation etc.)
- **Drive Edge Adoption**
→ Develop attractive edge applications and drive engagement with edge application developers
- **Tackle Key Technology Challenges**
→ Deliver prototype solutions for key technical edge challenges (hand-off, GPU sharing etc.).
Release solutions as open-source
- **Engagement and Alignment**
→ Cooperation with other edge related activities and initiatives (ETSI MEC, GSMA, Linux Foundation Edge, OpenStack etc.)
- **Living Edge Lab**
→ Provide and utilize an E2E testbed for edge applications and technologies

For further information

Twitter: @openedgecompute, Web: www.openedgecomputing.org

WHY A LIVING EDGE LAB? – A *PROVING GROUND* FOR THE *EDGE*



** "Working Code Trumps All Hype"*
-- Prof. Mahadev Satyanarayanan

LIVING EDGE LAB UPDATE

1 Edge-Native Apps

- **Paper:** Impact of Delay
- **OpenSource:** OpenScout
- **Project:** InterDigital + CMU Edge Gaming

2 Platforms/Tools

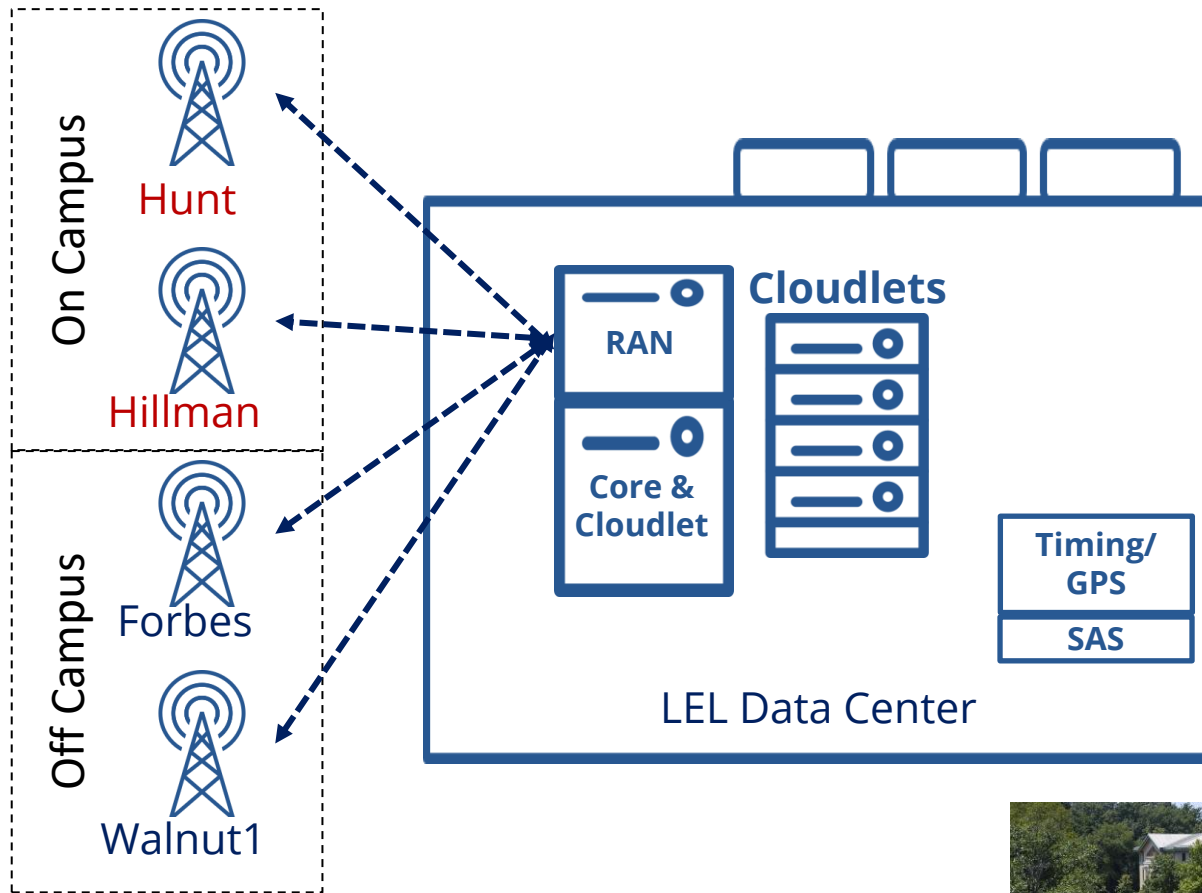
- **Paper:** Ajalon WCA Toolchain Integration
- **Paper:** Role of Edge Offload
- **POC:** Compute in Edge Storage

3 Edge Infrastructure

- **Project:** CBRS Private Network Upgrade
- **Project:** Azure Stack GPU Research
- **Platform:** ARM Server
- **Platform :** AWS Snow Ball Edge
- *Added to existing platforms:*
 - *Azure Stack*
 - *w/MobileEdgeX*
 - *Verizon Envrnmt*
 - *BareMetal*

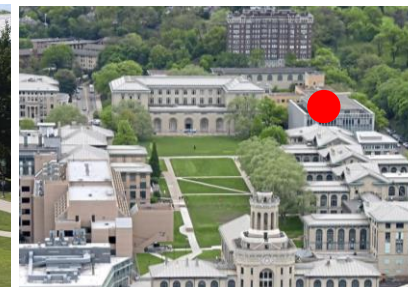
The Living Edge Lab Continues to Grow as an Environment for Diverse Edge Research and Industry Engagement

LEL CBRS PRIVATE NETWORK



Enable Low-Latency Mobile Networking for Edge Applications

Campus Open Spaces



Urban Retail and Recreation Spaces



Cell Site

WORKSTREAM AND OTHER ACTIVITIES UPDATE

Completed/Ongoing

- Interconnect Workstream (Interdigital/Vodafone/VaporIO)
 - Finished Phase 1 w/[Whitepaper](#), [Workstream Report](#) and [Presentation](#)
 - Opensourcing tools as a “quickstart”
 - Will define Phase 2 when CBRS network is running
- Edge Gaming, Compute in Edge Storage, Azure Research, ARM Server, CBRS Upgrade

Forming/Launching

- End-to-End Application Orchestration (Facebook/ARM)
- Converged Networks (Cablelabs)
- Data Management at the Edge (Seagate)
- EdgeVDI for Content Creation Apps (VMware)

Shelved

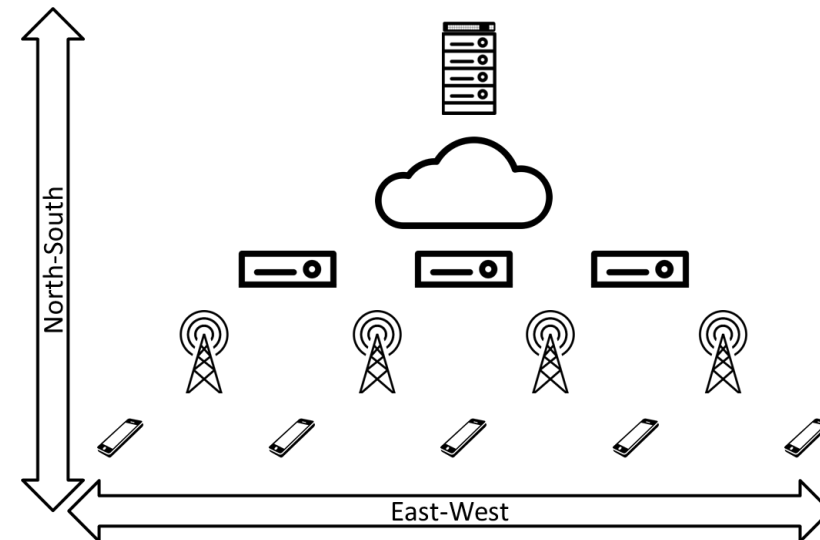
- 5G mmWave Edge Native Apps

Members welcome to propose and participate in workstreams

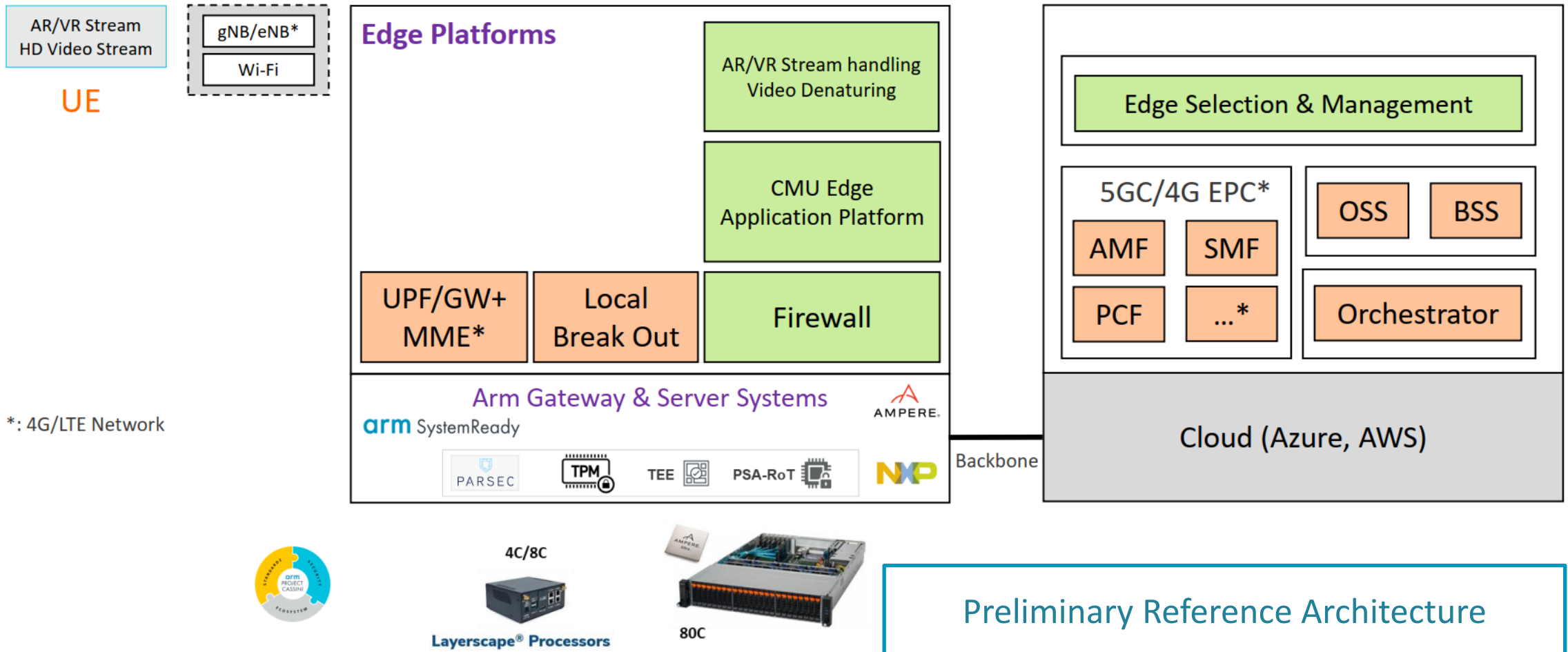
EDGE APPLICATION ORCHESTRATION WORKSTREAM (WIP)

- Orchestration Evaluation Criteria:
 - North-South and East-West Orchestration
 - Best of Cloud-Native and Edge-Native
 - Heterogeneous, secure and end-to-end
 - Compute, memory, storage and network-aware
 - Optimize for application experience
 - Application-driven: AR/VR, Video Analytics
- Use real, available open systems:
 - Orch: Adam, EMCO, Kubedge, Bumblebee, etc.
 - Network: Magma, ORAN, etc.
 - Cluster: Kubernetes, Twine, etc.
 - Security: Parsec, etc.
 - Applications: Oculus and LEL edge-native apps
- Approach:
 - Evaluate solution options
 - Prototype in LEL
 - Publish and opensource/upstream
- Expected Results:
 - Key learnings for application-driven edge orchestration
 - Reference implementation and open code

Hands-on Edge Application Orchestration Evaluation



HETEROGENEOUS OPEN ARCHITECTURE



Preliminary Reference Architecture

THANK YOU!

LEL CBRS PRIVATE NETWORK

