

A holistic and demand-side view of “edge”

Jason Hoffman
President & CEO, MobileEdgeX
September 2019

MobileEdge 

Today

- A demand-side perspective on edge:
 - Who is it for?
 - What is the best experience for how it is consumed?
 - Why? Why now?
 - What are the common characteristics of all the use cases?
- What is the “edge” and how is it different from “cloud”? (a meta concept)
- What is occurring anyways and how do we take advantage of that?



GOVERNMENTS

Drive Revenue & Security



MOBILE NETWORKS

Provide Best/Better Service



DEVICE MAKERS

Build Next/Better Device



APP DEVELOPERS

Offer New Experiences

CLOUD PROVIDERS

Optimize Infrastructure Footprint



TECHNOLOGY PARTNERS

Offer New Capabilities

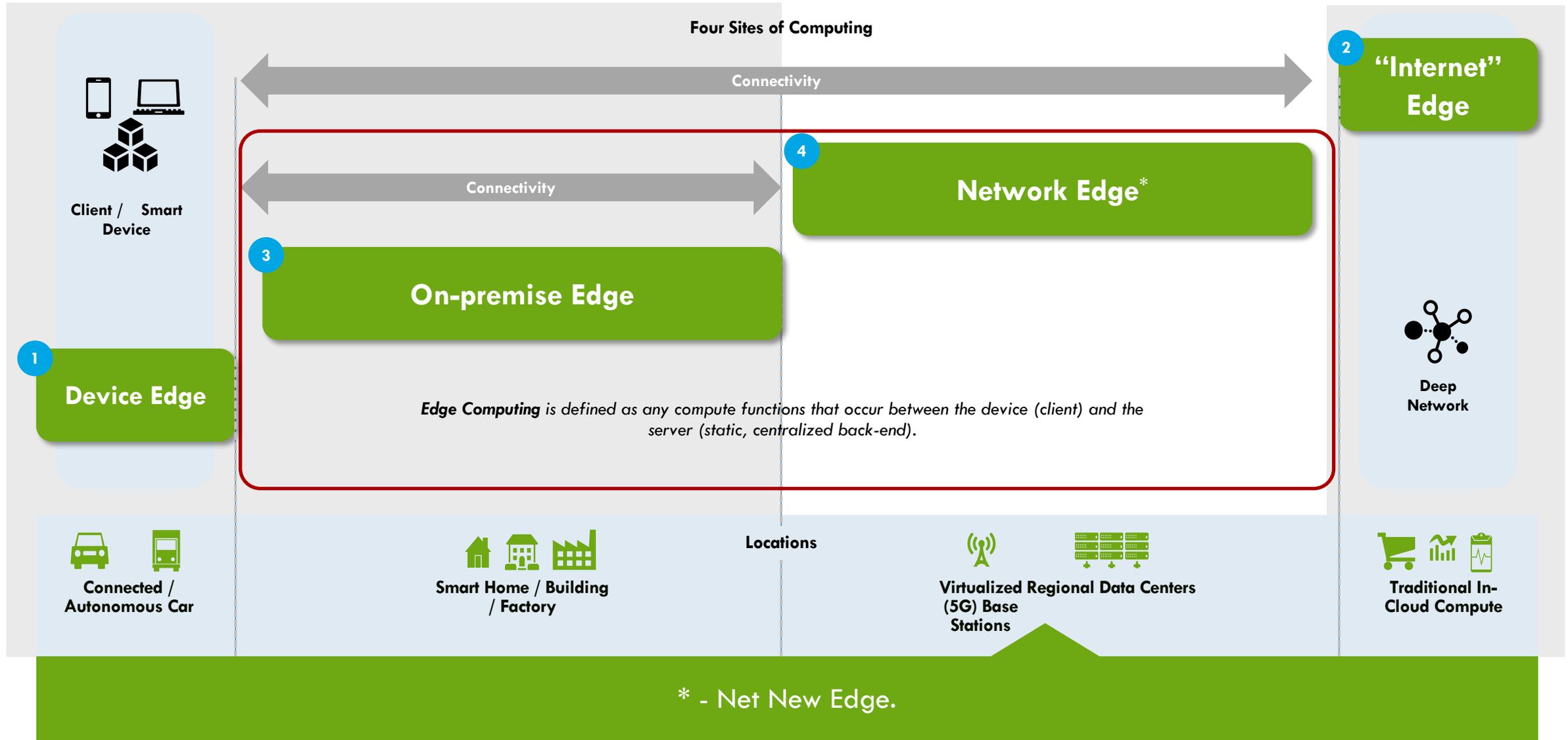
Meta

- “Clouds” are highly accessible, industrialized infrastructure
 - A highly available, redundant and modular setup with a determinable QoS, easily administered, scalable, and can be right-sized and geographically distributed without issue.
 - How do I physically and logically design a scalable, cost-effective datacenter independent of knowing what I’m going to run on it and still manage to run these unknown applications well?
- “Edge” fundamentally uses cloud architectures so what are the metadata differences in how the workloads are run?
 - Clouds exist in the 100s, Edge needs to exist in the 100,000s
 - Clouds give the impression of infinite resources and scale. Edges are finite in size and have a scarcity model.
 - Dynamic and distributed workload **mobility**
 - Devices and their applications trigger the consumption of the edge.
 - **Edge workloads have a highly precise and accurate GPS location.**
 - Edge workloads have an inherent understanding of economics and sovereignty.

“Edge” vs “Cloud”

Edge	Cloud
Hyper-distributed (1000's → 10,000's locations)	“Centralized” (10's locations)
Finite	“Infinite”
Federated	Proprietary
Declarative deployment	Imperative deployment

Complete Edge Landscape



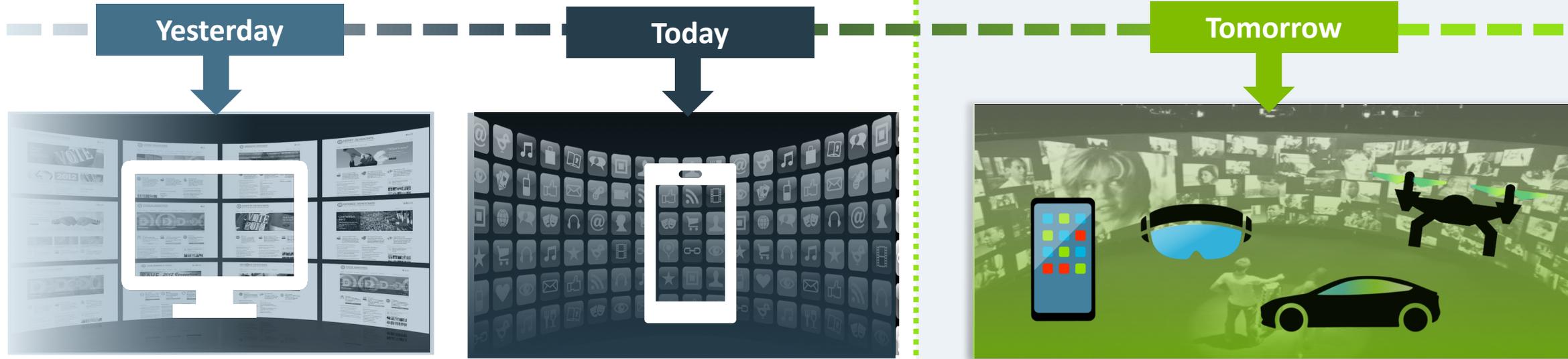
Edge Strengths and Weaknesses



Edge	Strengths	Weaknesses
Device Edge	Dedicated (unshared, always available), closest, bespoke and tailored design possible	Not shared so expensive with respect to component utilization; direct tradeoff between local power, device cost, form factor and battery life.
On-Premise Edge	Dedicated for use within the premises, next closest, deployment depends on owning entity as does deployed/planned capacity	Additional infrastructure, operations cost, no sharing, need for asset, roadmap, capability management
Network Edge	Shared, next closest, outsourcing of infrastructure, operations, no operational, asset capability asset management	Not yet broadly available, deployment dependent on telecom operator plans
Cloud Edge	Most capable, most innovating, existing	Furthest away (most variable distance based on access type, country), not physically present in all regulatory regions

Changing applications

Digital and Physical Immediacy



Yesterday



Device: PC
Interaction: Web based
Content: Primarily static

Today



Device: Smartphones/Tablets
Interaction: Web/App based
Content: Increasingly video

Tomorrow



Device: Smartphone/Tablets, IoT, Next-gen
Interaction: AI-based, Natural Interface, Machine
Content: Video heavy, Interactive, Latency sensitive, High IO

Introducing an emerging class of applications
 π apps = PI = Pervasive & Immersive

Use Case Domains

MOBILE DATA THINNING



IOT SECURITY



MOBILE GAMING



NEW PERVASIVE & IMMERSIVE EXPERIENCES



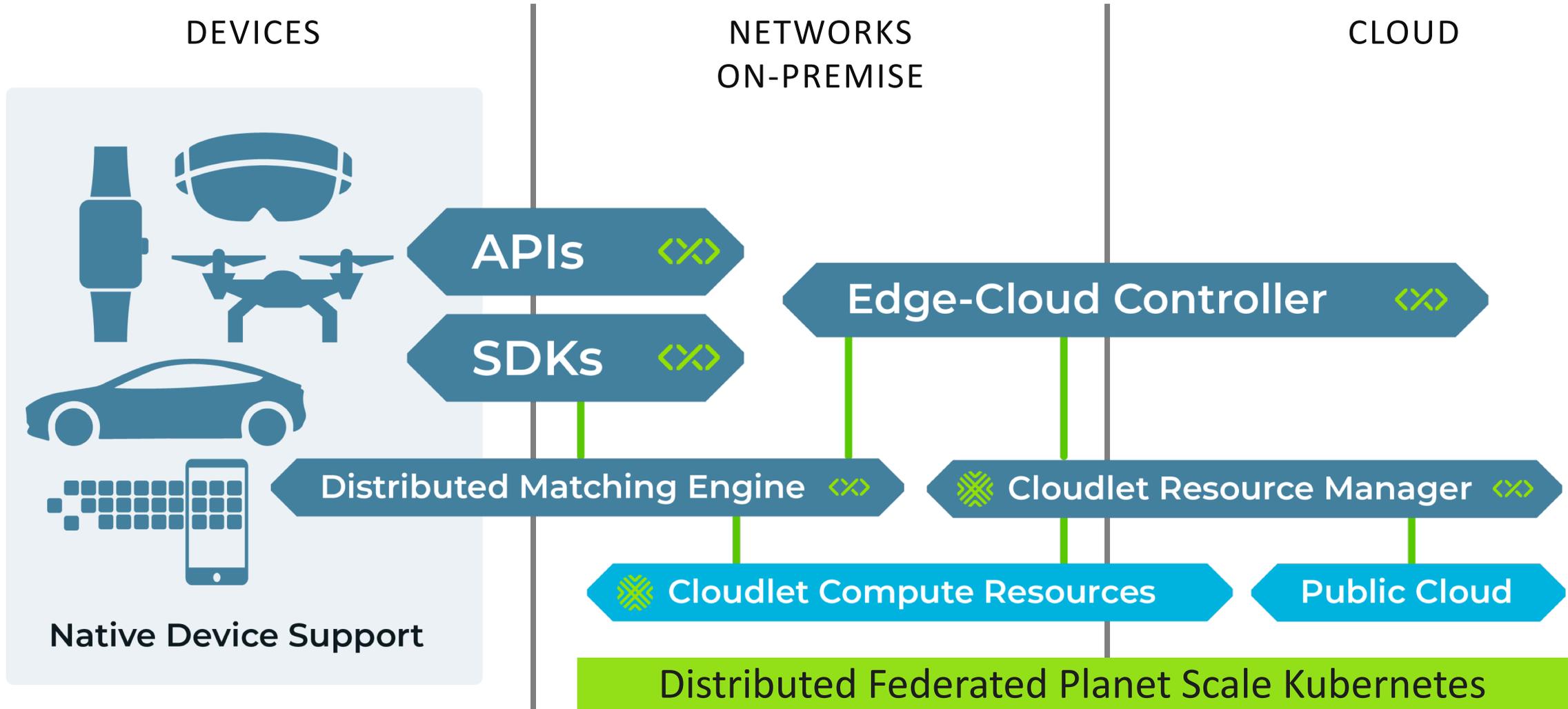
AUTONOMOUS



COMPLIANCE & PRIVACY



Architecture and Components



A Safer Edge with Trusted Users, Applications, and Network

EDGE NEEDS TO BE MORE SECURE AND PRIVACY AWARE THAN INTERNET

Trusted User

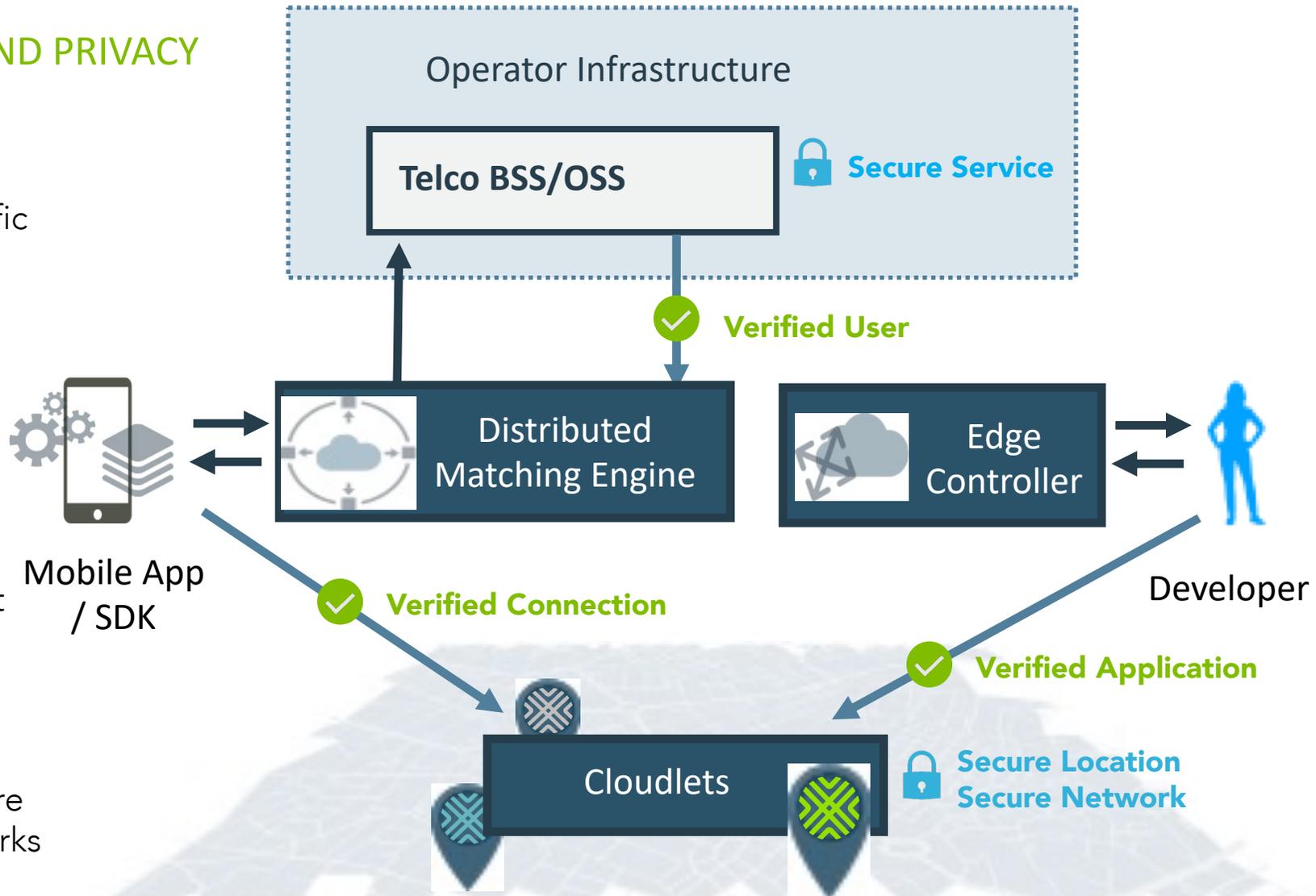
Innovative integration with operator specific OSS/BSS systems and using the cellular control plane to validate user identity and location to prevent "Spoofing"

Trusted Applications

Edge-Cloud control plane manages the application placement to appropriate edge location while controlling the access to that application so users always connect to "Correct" application instance and there is no "Masquerading/Phishing"

Trusted Network

The mobile network and edge infrastructure is physically more secure than other networks



Thank You!

< Mobileedge >