

Metal to Service Orchestration for Video Analytics and Location-Aware Services at the 5G Edge

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Kloudspot



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Robin.io Accelerates Deployment and Automates Lifecycle Management of Stateful, 4G/5G and Edge Applications on Kubernetes

- World's first deployment of cloud-native 5G Stack in production
- Trusted by F1000 companies for their mission critical Storage and Network applications





Headquartered in San Jose

Experienced team, with deep domain expertise who have built mission critical software used at the core of our economy today

Built highly differentiated technology with at least 2 years+ head start over competition

Marquee customers





















NOKIA



ALTIOSTAR

TELECOM INFRA PROJECT O-RAN OPEN RAN POLICY COALITION



















ROBIN







72+ patents (50+% awarded) in key areas, live production deployments







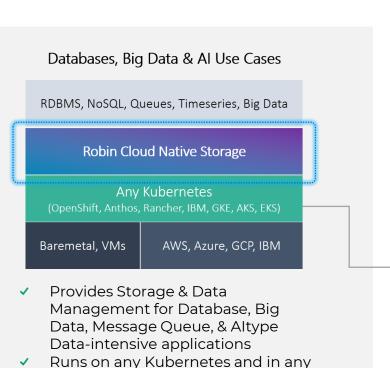








Robin.io Solution Offerings



on-premises or public-cloud

Zero-friction insertion

environments

Robin Cloud-Native
Platform (CNP)
(for 5G & Edge use cases)

Robin CloudNative Storage
(CNS)
(for any Stateful
Applications)

Robin MDCAP

(for Metal-to-Service Automation)

MOPs Manager
(Highly scalable actensible ADPs Management across 105 of thousands of Network Elements)

RAN-as-a-Service
(Deploy, Hex, Monitor, Scale, Upgrade)

RIC EMS

Bau N

Loge 2

Bau N

Loge 3

BareMetal-as-a-Service
(BoS, OS, FFGA, Robin KBS Install, Morritor, Upgrade)

10% of Robin Clusters

10% of Robin Clusters

5G & Edge Use Cases

RAN, Core, Edge, OSS, BSS

Robin Cloud Native Storage

Robin Cloud Native Platform (Open-source K8S Optimized for Carrier-grade Telco Apps

Baremetal, VMs AWS, Azure, GCP, IBM

- Carrier-grade Kubernetes for Network & Data-intensive applications
- Optimized to run RAN, Core, Edge applications

- Automate management of Baremetal Servers
- Metal-to-Service orchestration and automation



Challenges

Orchestration challenges

- Infrastructure Management
 - Baremetal server management
- Cluster Orchestration
 - Kubernetes Cluster management
- Network Function Management
 - Network Function Package (Helm Charts)
 - Network Function
 - Network Service

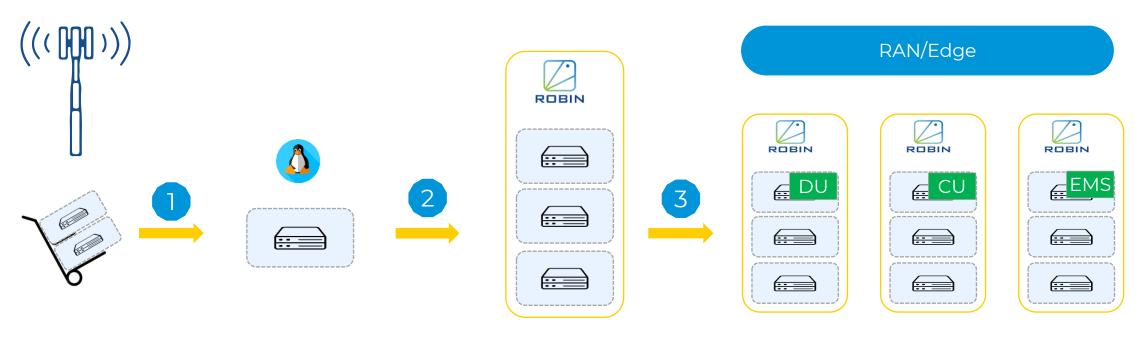
Edge Platform challenges

- Compute orchestration
- Network orchestration
- Storage orchestration
- Observability





Problem statement



Lots of problems ..

in different domains ..

across distributed sites ..

at scale



Platform (CNP)

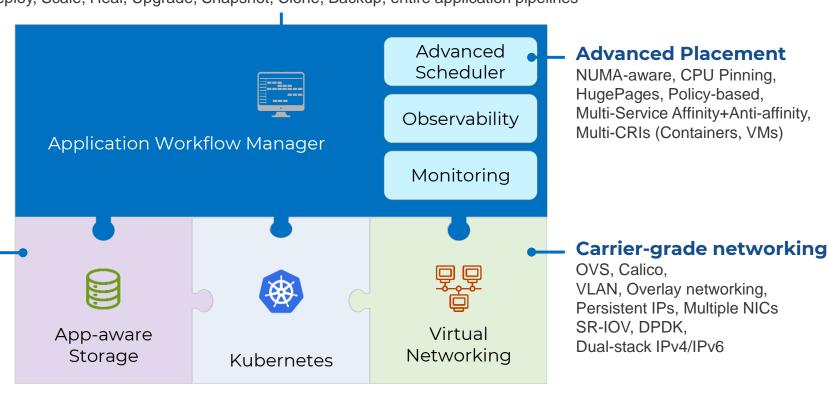




Robin cloud-native platform architecture

1-Click or API-driven end-to-end Automation

Deploy, Scale, Heal, Upgrade, Snapshot, Clone, Backup, entire application pipelines



Robin's built-in Application-Aware Storage

Snapshots, Clones, QoS, Replication, Backup, Data rebalancing, Tiering, Thin-provisioning, Encryption, Compression





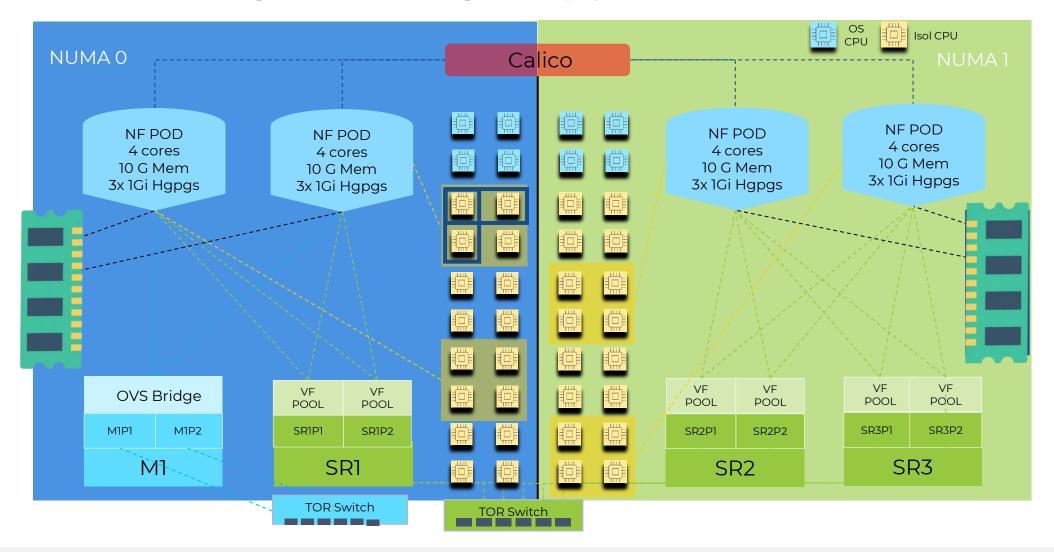




Works any where



Provisioning RAN/Edge Applications





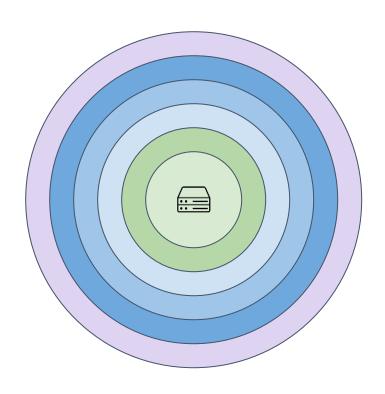
Orchestrator (MDCAP)





MDCAP - Bare metal server life cycle management

Bare metal server



Deployment

IPXE
Profiles
Firmware upgrades
[BIOS, BIMC, RAID, NIC, SSD, PPGA]
Storage partitions
RAID configure
Network configure
Install OS, Software

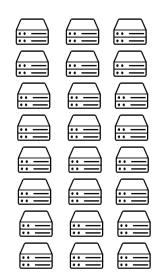
Upgrades

OS upgrade Driver upgrade Firmware upgrades Software upgrades

Monitoring

Health
Status
Metrics
Out-of-band
upgrade
reconciliation

10,000s of bare metal server



Admission Control

RBAC Quota Schedules Exclusivity

Policy and Fault Management

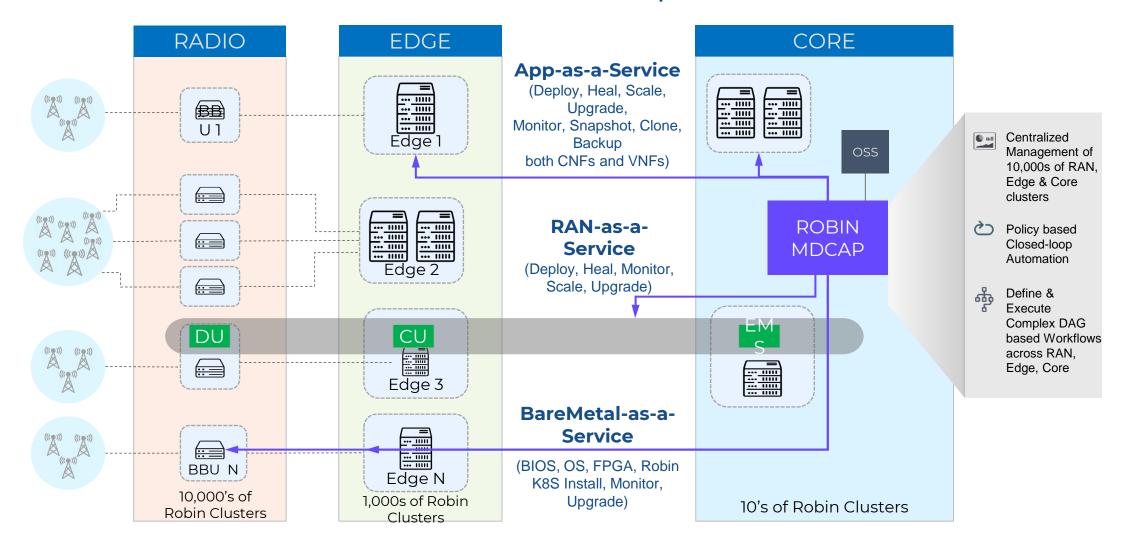
Upgrades
Server faults
Hardware
component faults

Dashboard

Health
Audits
Alerts
Events
Reports
State Machine

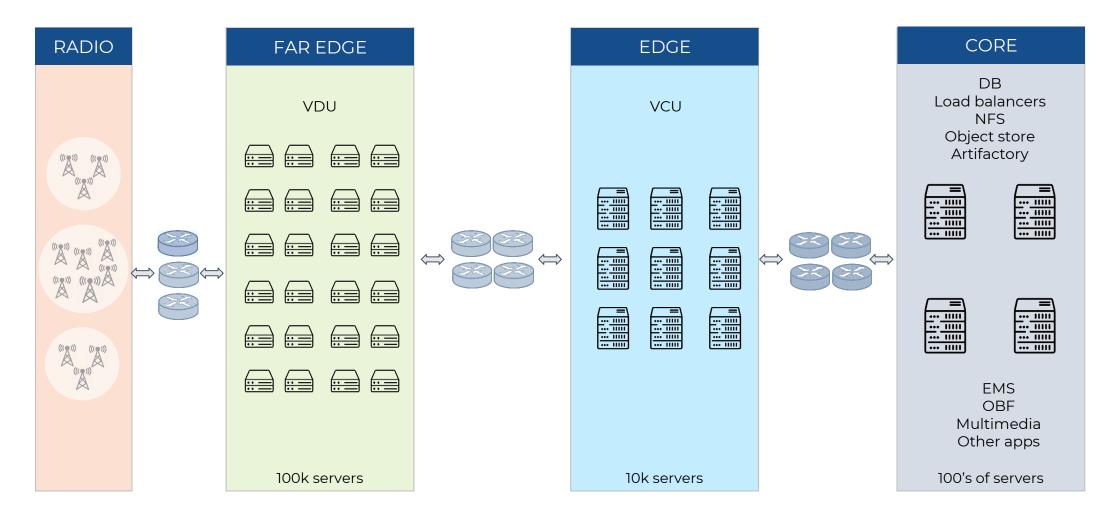


Robin's multi-cluster automation platform





5G Disaggregated Service Delivery





End-to-End Life Cycle Management

Network Service / Application Pipeline

Network Function / Application

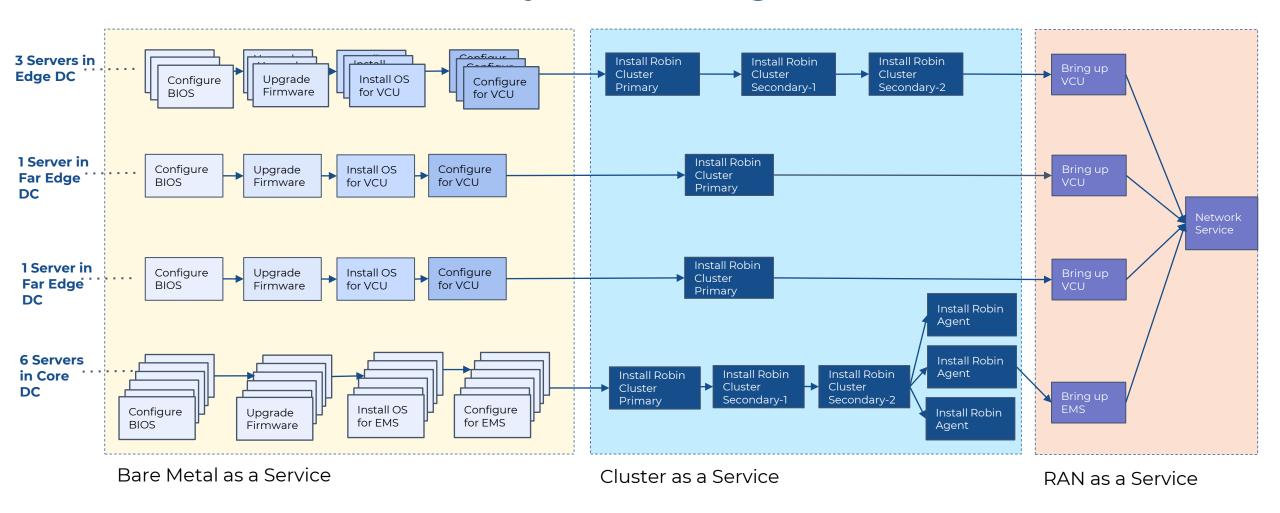
Clustering Layer

Physical Layer

Closed Loop Automation

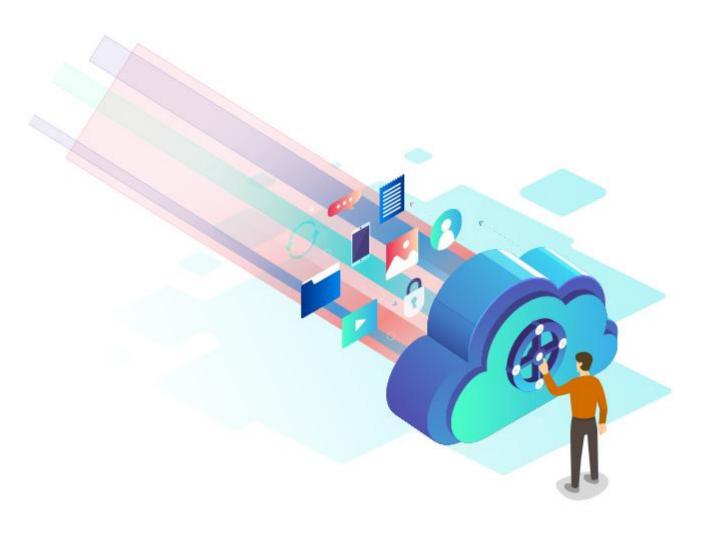


Workflow driven life cycle management



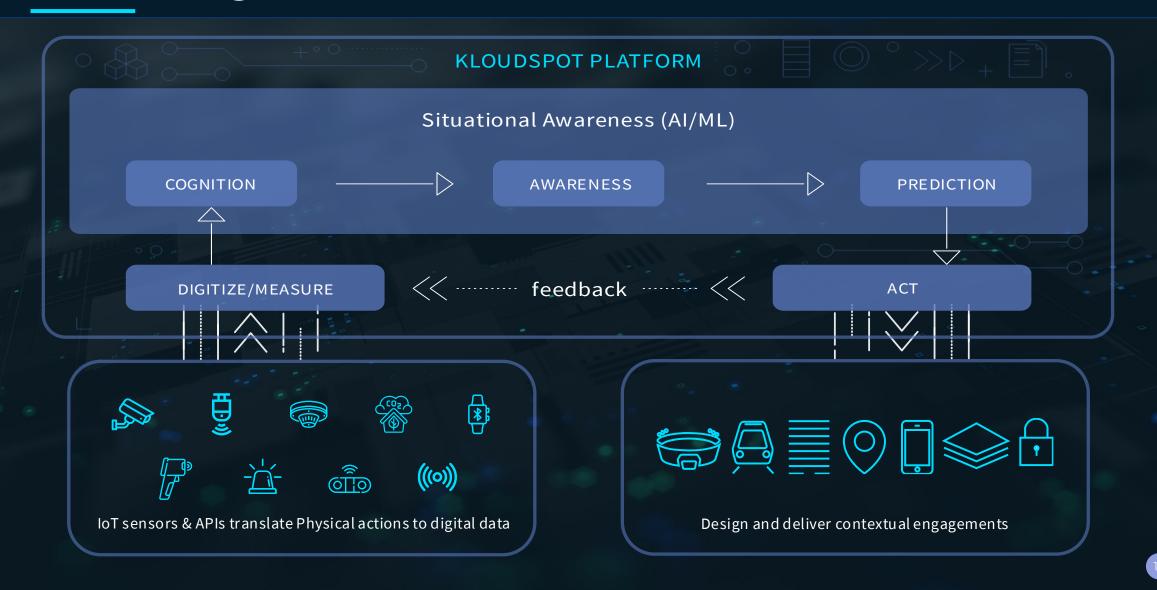


Edge Applications (Kloudspot)



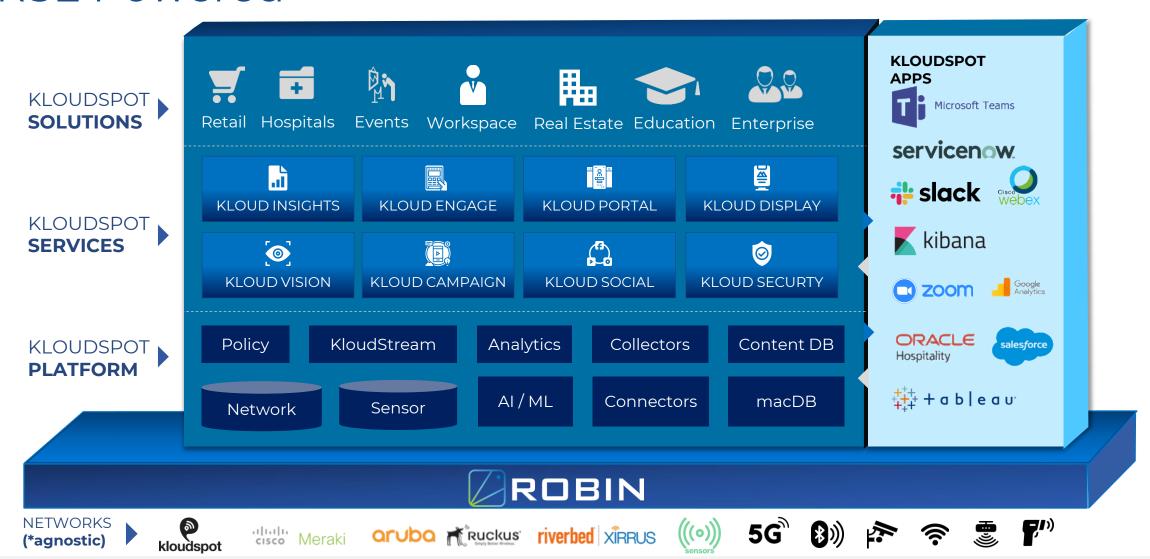
Kloudspot Situational Awareness and Intelligence Platform







RSE Powered





Modular Plug and Play System

Kloudspot combines the best of IoT, AI-based analytics, Engagement and security on a single platform. Kloudspot Platform enables businesses to deliver exceptional digital experiences with ease.





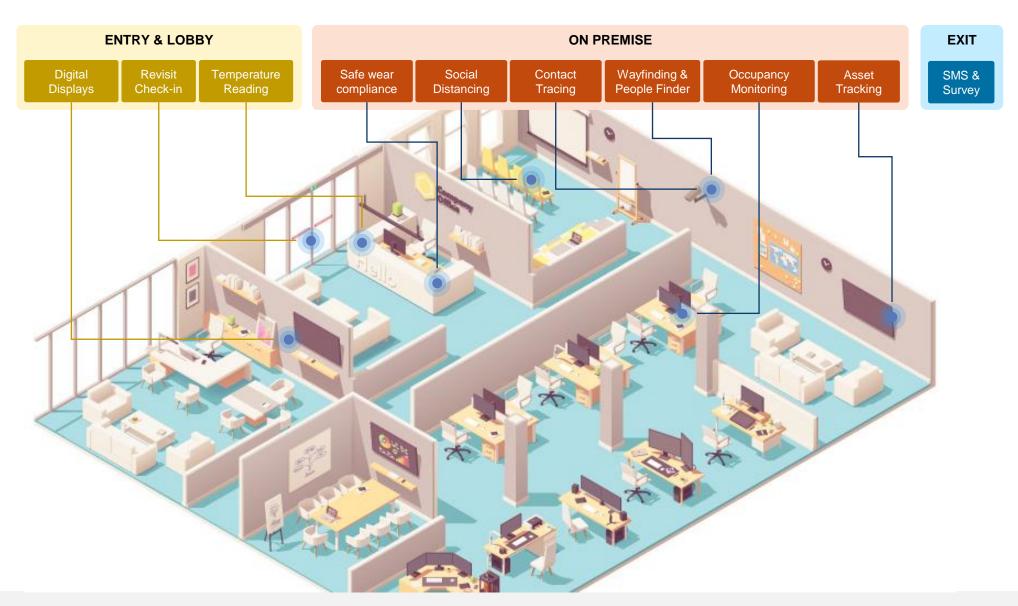






Workplace







Connected Solutions for the built environments



MOVEMENT & BEHAVIOR MONITORING

Capacity, density, Footfall, Dwell time Situational Awareness



INSIGHTS FOR ENERGY & RESOURCE OPTIMIZATION

HVAC, lighting etc.,



ENGAGEMENT

Remotely managed Digital Displays Software (indoor and outdoor).,



HEALTH & SAFETY

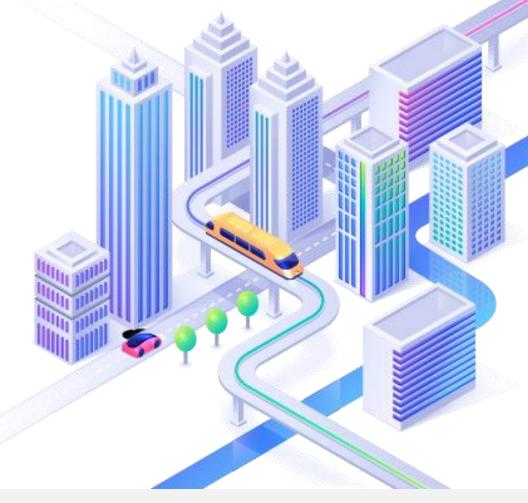
Mask and temperature scanning, Social distancing, density monitoring



PERIMETER SECURITY

Asset Tracking, Presence Detection (Vehicle, people)







Hybrid Office

Safe Re-opening: Intelligent Workspace

NECIS

NEC Networks and Systems Integration Corp.

Enabling a distributed and remote workforce

Sparking innovation and collaboration in a hybrid workspace

The Challenge

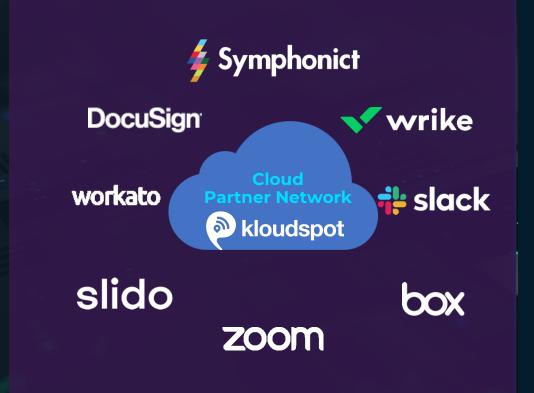
Enable a safe 'return to office' hybrid strategy, assure employee health and safety, and drive productivity and innovation.

The Kloudspot Solution

Data-driven, real-time heatmaps, contact tracing and location based social distancing, combined with WiFi, camera and sensor data and easy integration with enterprise business applications. Visitor Management and frictionless employee on-boarding and booking for remote and physical worker force enablement.

The Impact

Fast migration to a distributed, connected and hybrid work model that ensures employee health and safety.







Hybrid Office Safe Re-opening: Intelligent Workspace

"Post-COVID, we will have a new workstyle globally. A best-of-breed environment with multiple cloud services, like Symphonict, is a mandatory. Kloudspot's location-based data analytics can reach into an organization's Wi-Fi, camera and senor data to monitor everything from people density and air quality to humidity and CO2. Kloudspot can collect and handle all of this data, analyze it, find the insights and automatically trigger responses for what to do next, in business or in life."

Osamu Kikuchi

Head Of Business Development, NECIS







Space Utilization and Facilities Planning Intelligent Office

Freedom Financial Network

A digital Transformation Strategy for Financial Services

Location based analytics saved \$20 million in space and facilities costs.

The Challenge

Greater expense control, increase employee SAT scores and enable a safe 'back to office' strategy.

The Kloudspot Solution

Foot-fall and capacity analytics; device location services; digital signage and connected cameras for physical security monitoring.

The Impact

\$20 million facilities savings; 13% increased employee SAT scores. Expected ROI 3-4x.







Leveraging Data to Drive Business Value Intelligent Theme Park

DXB Entertainments PJSC Dubai Parks and Resorts

Dubai Parks and Resorts is the region's leading integrated theme park destination spread over 30.6 million square feet of land.

The Challenge

Track and understand visitor behavior patterns to drive revenue and delight park guests.

The Kloudspot Solution

Delivered full visibility and data analytics with geospatial location, foot-fall measurement, queue tracking, and context and proximity information.

The Impact

Increased ticket sales, multi-venue visits, event attendance and guest satisfaction.



Situation Aware Platform for Business Transformation

Guest WIFI for Dubai Parks and Resorts

Record Behavior Engage and Analyze Anticipate Top Line Identify Visitor Needs Growth Convert to Visitors Behavior Customer Profile Visitor



Leveraging Data to Drive Business Value Intelligent Theme Park



"Customer footfall analytics allows us to make informed decisions about operational management. By understanding and tracking each step of the guest journey we can be responsive to the needs of our customers, continuously improve our offering and deliver best-inclass guest experiences."

Group ICT DirectorDXB Entertainments





The Connected Citizen Experience Intelligent City

City of Erie, PA

IoT Breakthrough Smart City Innovation 2020 Award Winner

How the fourth largest city in PA used Kloudspot to fuel city revenues, equalize Wi-Fi access for citizens and small businesses and helped communities bounce back in the era of COVID.

The Challenge

Connect, empower and engage citizens, monetize investment and stimulate economic recovery.

The Kloudspot Solution

WiFi, digital signage and a customized portal enabled realtime citizen engagement and safety, drove sales for local businesses and delivered ad revenue to offset investments.

The Impact

Reduced traffic congestion, equalized access to technology and stimulated economic development. Replicable model to capitalize on the \$189.5B TAM*

*IDC



The Connected Citizen Experience Intelligent City

"With Kloudspot, we can do much more than deliver Wi-Fi services and traditional digital advertising programs. We can localize news and weather, which are both monetizable for ad revenue. We can serve real-time offers from nearby businesses. We can link to the city's website and enable everything from safety alerts to payment for city services such as waste and recycling. All of this will pay back the tech investment and create revenue streams for the city itself."

Ed Olsen

VP of Outcome-Based Funding, Quantela Inc.







Kloud Portal



Authentication page



Welcome page







Created a call-to-action via user push notifications:

- Download Petco app
- Real-time in-store specials & promotions





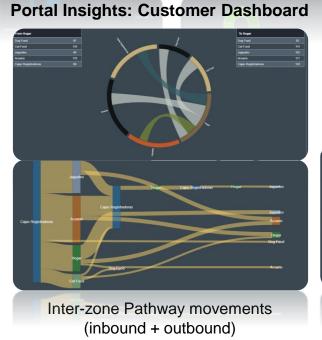




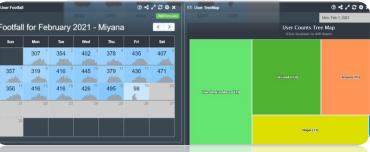


KloudInsight's









Customer Dwell Times, Footfall, & Capacity
Counts by Zone

Customize Data points through Kloudlet's and Kloudspot's robust rules engine









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