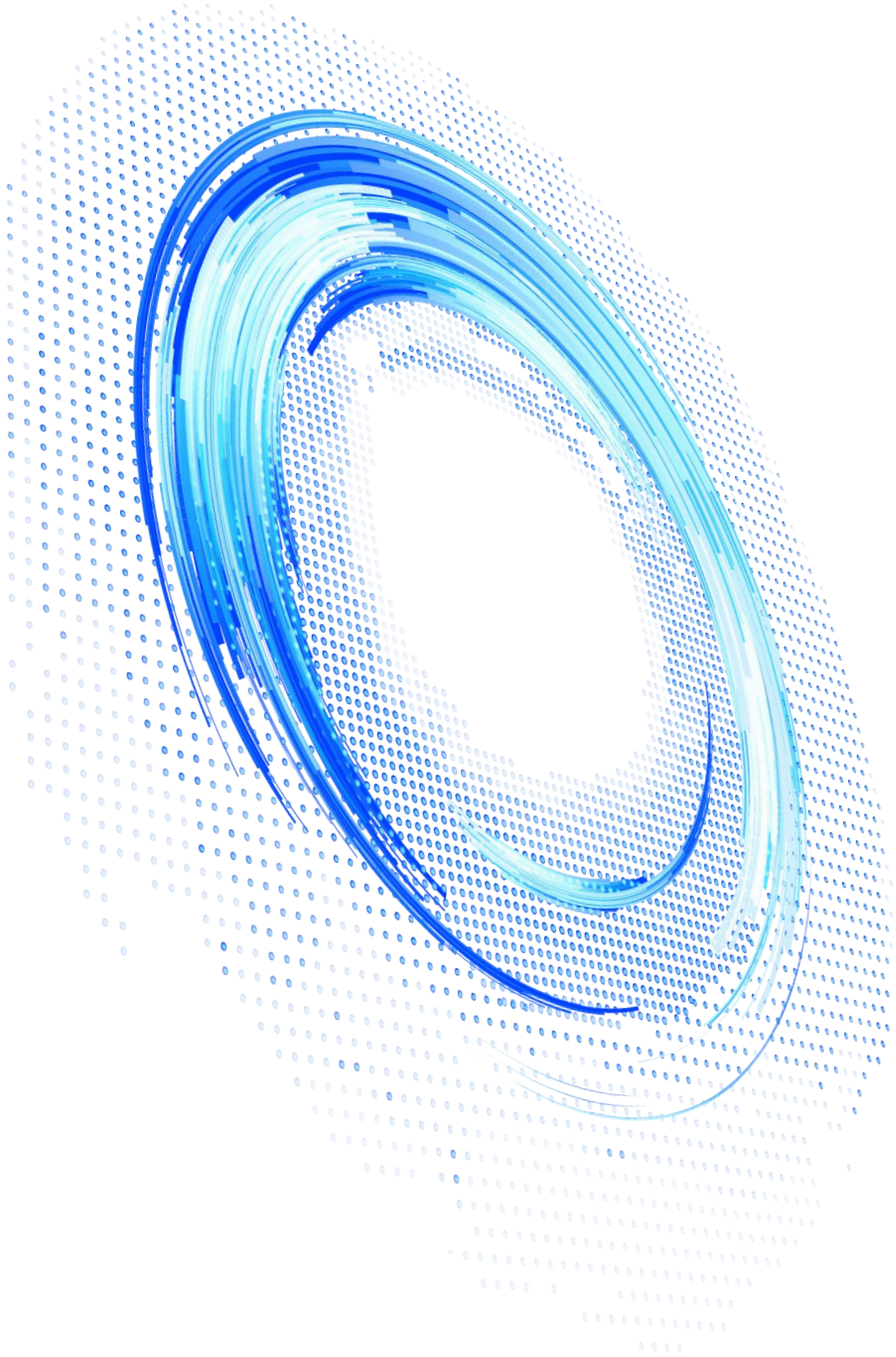

THE IMPACT OF 5G:

The last mile doesn’t need a wire to be in the fast lane

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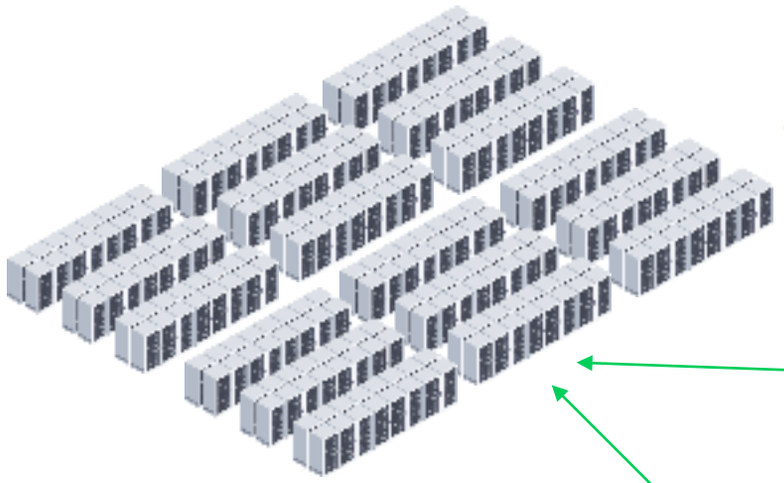
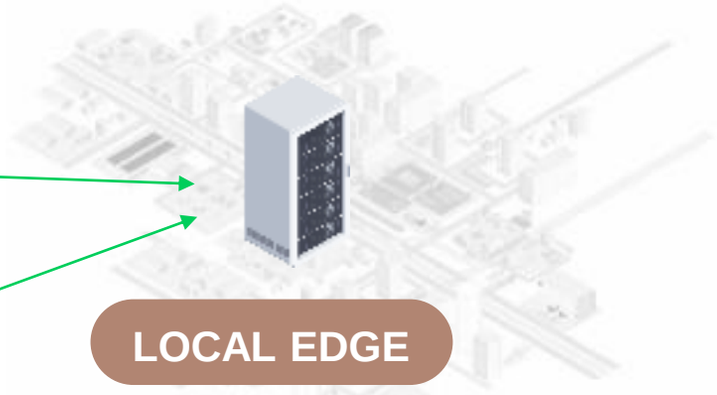
Our simplified view of Edge Architecture



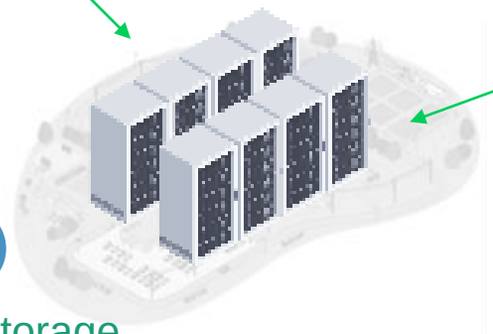
CENTRALIZED

Massive compute and storage
located in remote areas



LOCAL EDGE

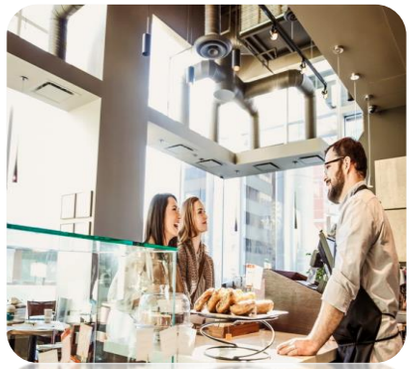
Compute and storage where data
is generated and consumed



REGIONAL EDGE

Large compute and storage
located in central or urban areas

Sample of Edge Compute Environments



Retail

Financial

Telco

Health Care

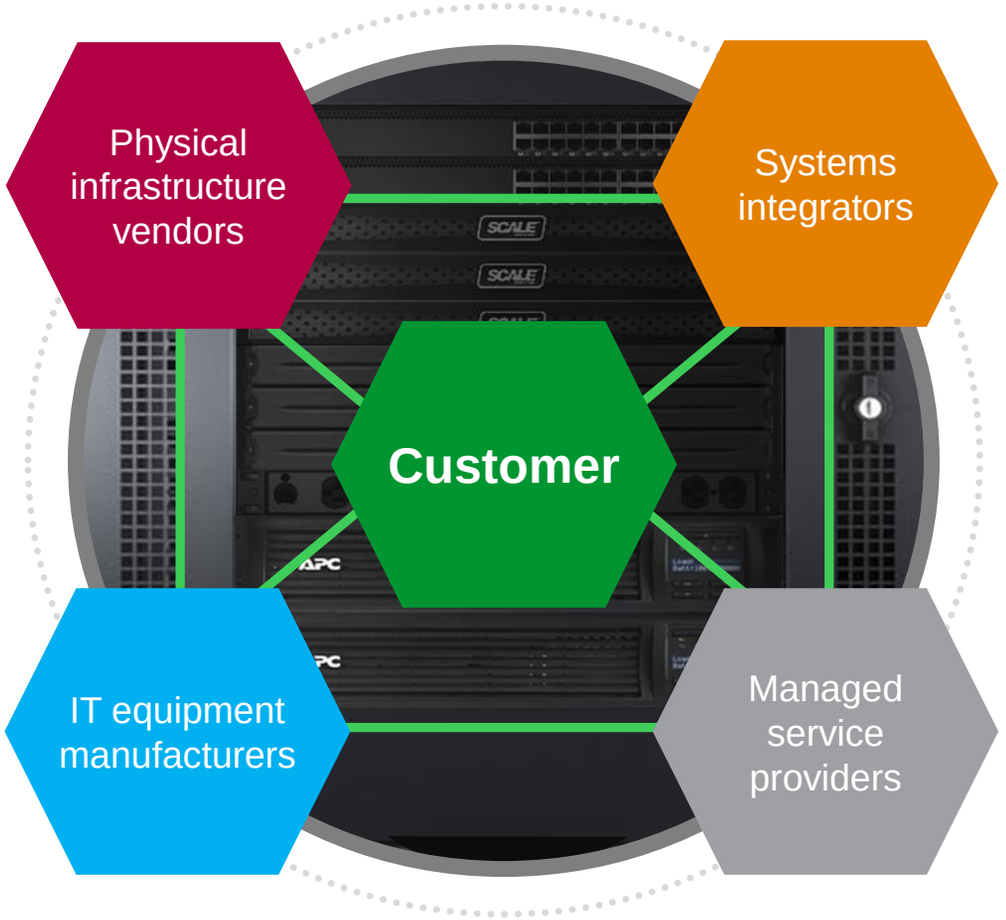
Government

Education

Challenges facing the Edge…

Edge Challenges

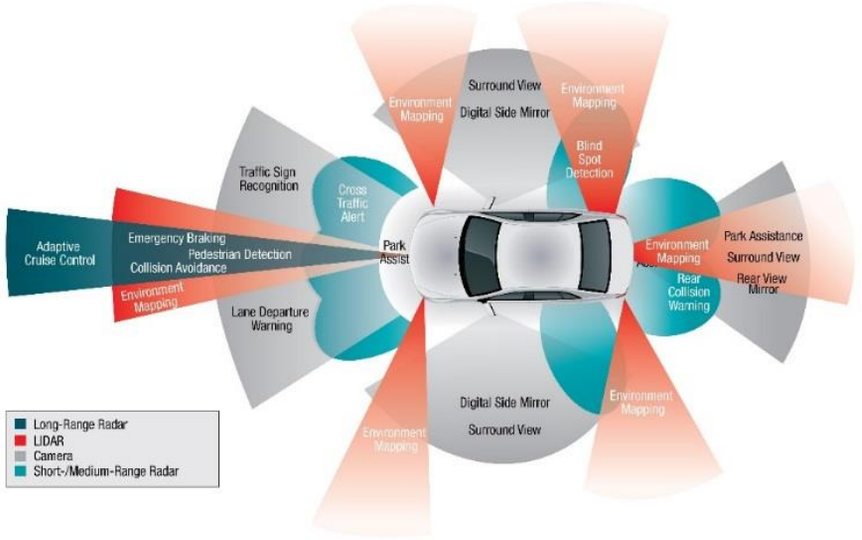
- Many sites
- Lack of onsite staff



The EDGE requires a different approach to the Design, Operation and Maintenance

Cars have forever been engineered for Human Drivers

BUT…Autonomous (Driverless) Cars require different approach to Design and Maintenance.



The Main Differentiator = ENRICHED SOFTWARE, OPERATION AND MAINTENANCE driven MOSTLY THROUGH SOFTWARE AND ANALYTICS

The Edge = Lights Out, Mission Critical Technology Space

Edge (at scale) Deployments requires a whole new Software, Service and Maintenance Strategy:

1. New SOFTWARE, SERVICE & MAINTENANCE standards
2. Cloud Connected Monitoring and Alarming
3. Automated Part Shipment, Service Dispatch, Scheduling and Invoice.

Smart Connect

Remote Monitoring

Mobile Insights

Edge Requirements from the Customer

Customer quote	Imperative to be managed
"We can't afford problems with the UPS. It drives our whole store service - if it's down, the whole store is down: workstations, cash registers. We're unable to sell and to fulfill prescriptions."	Edge has become part of the business value requiring it to be available (like a datacenter)
We need the network to be monitored, potential problems are identified before they result in downtime and things are troubleshot remotely as much as possible.	Unstaffed locations require low cost management and maintenance
They want the same brand and the types of service. They can't have multiple maintenance contracts, they need it to be standard across various regions.	Customers expect vendors to provide solutions not pieces and parts
We do proactive battery replacement based on age but the game-changer would be to prevent stuff before it happens.	In a connected world, data needs to generate value

How remote site management delivers on customer needs

Speed	• Fast initial set-up • Faster time to resolution
Agility	• Vendor neutral monitoring • Multiple management options (MSP NOC, Schneider Service Bureau) • Management across all IT environments (Local to enterprise)
Lower Cost	• Improved lifecycle management of IT infrastructure
Simplification	• RMM integrations • Centralized device management • Digital delivery of status notifications • Automated firmware updates

Conventional management tools are inadequate to address the challenges at the edge

I have so many edge sites and no onsite IT and facilities staff…

How do I know if I have a problem, before it's too late?

How do I monitor if I can't get enough IP addresses?

Who is accessing my equipment?

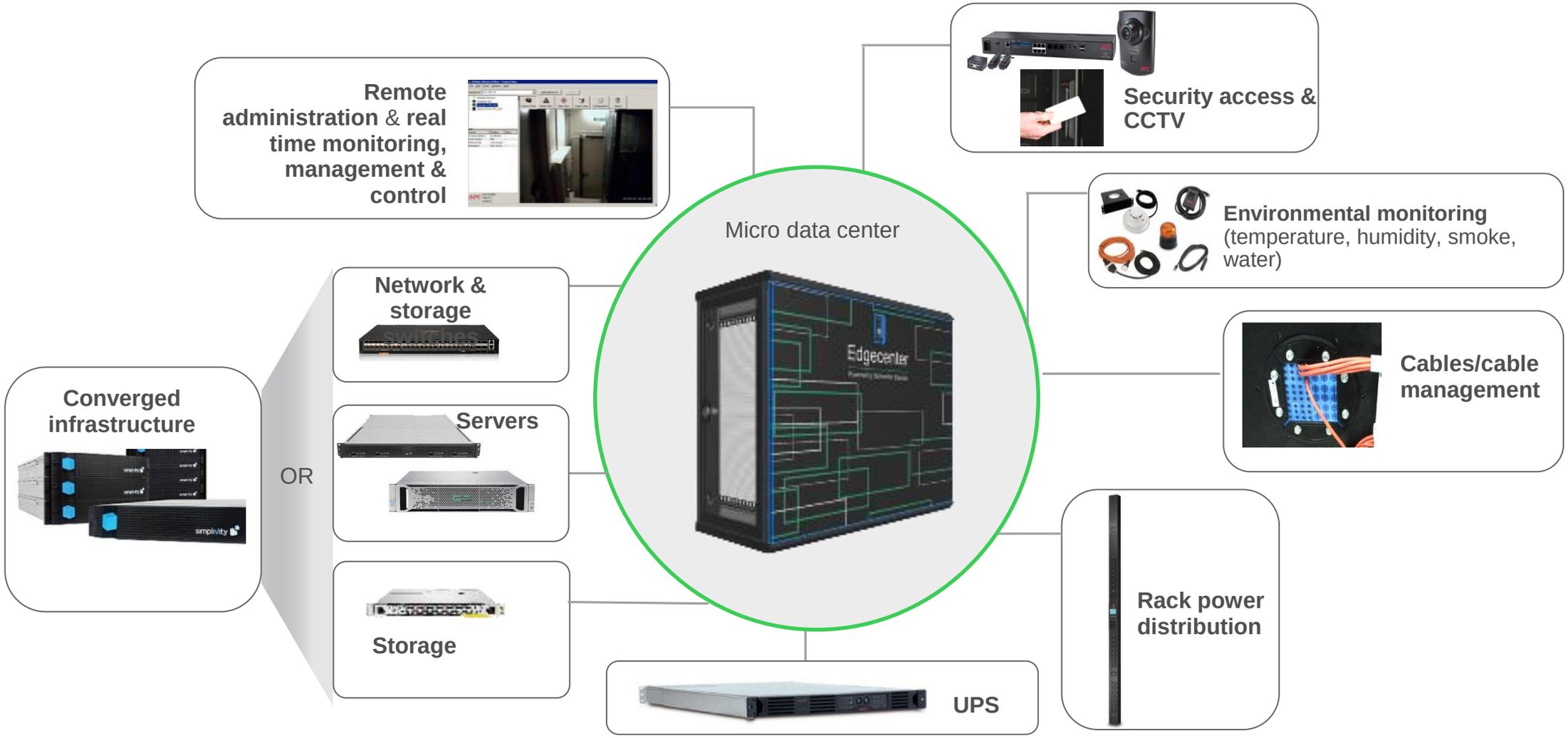
I get so many status alerts, how do I know what to act on?

How do I monitor and maintain the equipment?

The industry needs improvement in 3 key areas to make the edge resilient

1. An integrated ecosystem
2. Management tools
3. Analytics & AI to augment staff

Fully integrated micro data center



Cloud-based Management Tools improve Visibility

> *The biggest challenge is keeping everything good (normal operating status) because it's not just monitoring the alarm, the alerts, etc., it's resolving them.*
>
> Customer – 451 Research, 2017

Easy to get started

Access from anywhere, at anytime

Pay as you grow

Maintenance free

Up-to-date cyber security

Automatic software updates and backup

We believe there are the 4 key ingredients

1. A secure, scalable, robust **cloud architecture**
2. A **data lake** with massive amounts of normalized data
3. A talent pool of **subject matter experts** with deep knowledge of system behavior
4. Access to **machine learning** algorithm expertise

Key Takeaways: Edge Visibility & Transparency

- Remote Management and Control is essential to providing a cost-effective edge solution
- Cloud based solutions will increase visibility and reduce complexity
- Advanced Analytics and Artificial Intelligence will reduce cost and risk

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USA

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Q & A