EDGE COMPUTING ADOPTION PATTERNS

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AGENDA

Defining Edge Computing

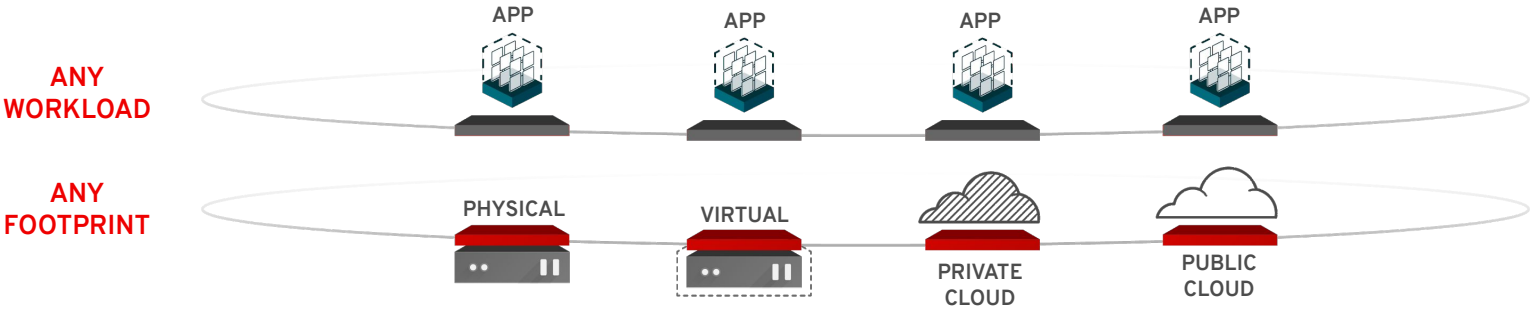
Key Drivers & Challenges

Adoption Patterns

Defining Edge Computing

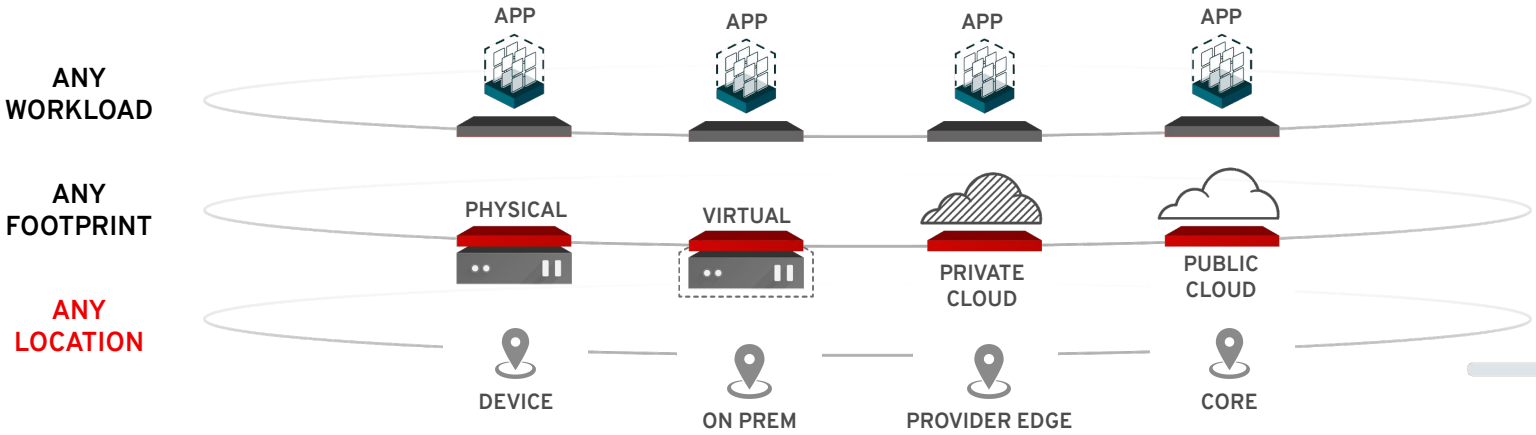
The Open Hybrid Cloud Vision

A consistent application platform and experience for:



The Vision with Edge

Edge is a deployment target of Open Hybrid Cloud.



What Is Edge Computing?

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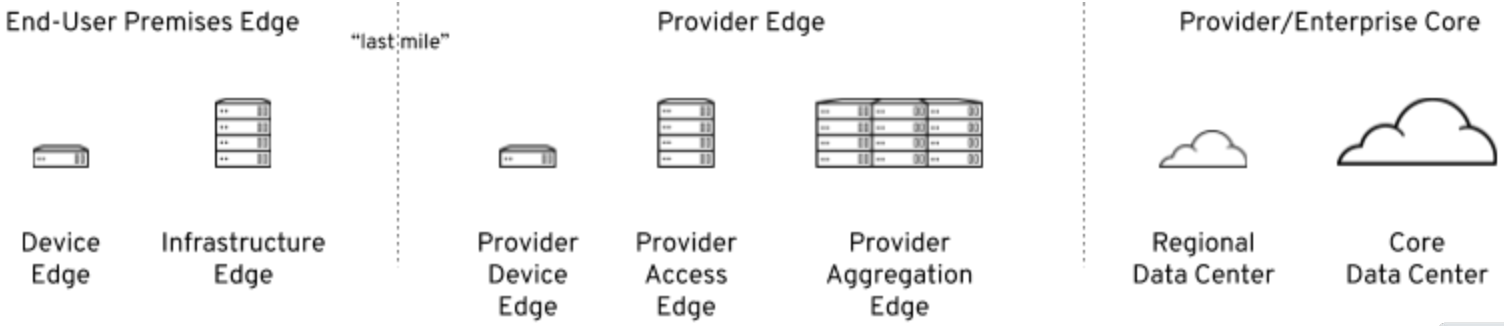
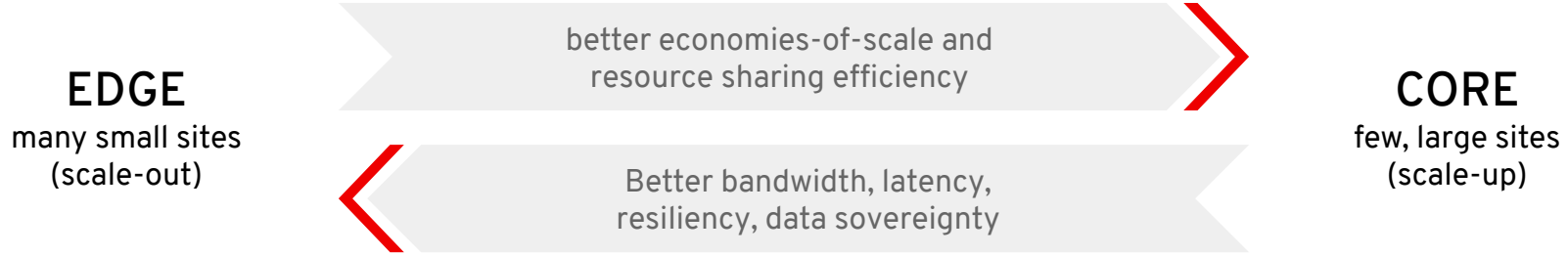
Definition

"Edge Computing refers to the concept of bringing computing services closer either to service consumers or data sources, giving companies the flexibility and simplicity of cloud computing for a distributed pool of resources across a large number of locations. "

Edge Tiers


End-User Premises Edge
"last mile"
Provider Edge
Provider/Enterprise Core
Device Edge
Infrastructure Edge
Provider Device Edge
Provider Access Edge
Provider Aggregation Edge
Regional Data Center
Core Data Center

Centralization vs. Distribution



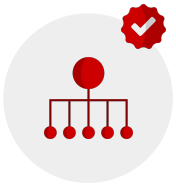
"Centralize where you can,
distribute where you must."

Key Drivers

Motivation

Latency

Place processing power closer to the data source



Bandwidth

Reduce the amount of traffic that needs to travel back to the data center core

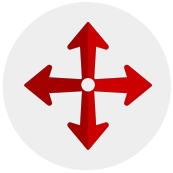
Resilience

Continuous operations of edge sites in event link drop

Regulations

Meet standards and compliance requirements

Challenges

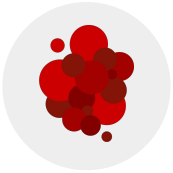


Scale

Architecture requires horizontal scale

Environmental

Potential inconsistent connectivity, dust, heat, and space constraints



Expertise

Limited to no IT expertise in remote sites

All while controlling **costs** to ensure budget goals are met.

Emerging Use Cases

Telecommunications

Manufacturing

Health - Life Science

Transportation

+

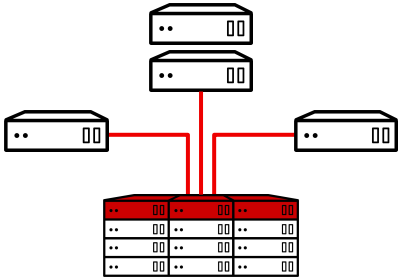
Retail, Public Sector, and others

Adoption Patterns

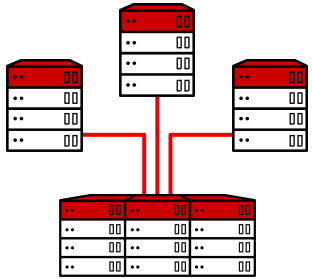
Deployment Configurations

There are three main deployment configurations.

Device edge

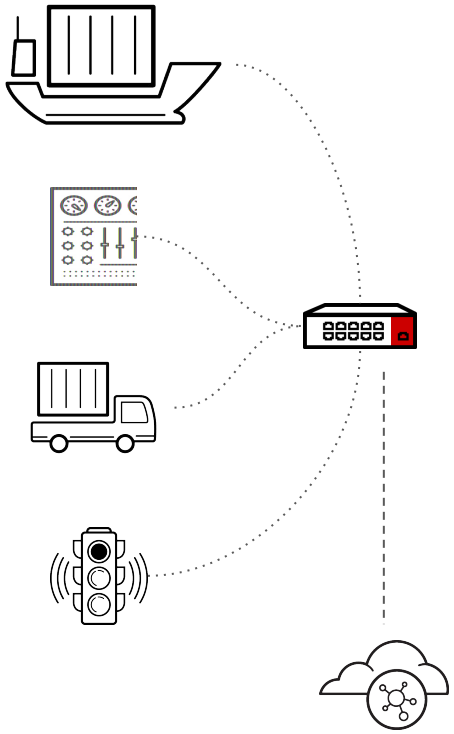


Distributed nodes



Standalone cluster(s)

Device Edge



- Located at customer premises
- Connected to downstream devices
- Offline capabilities

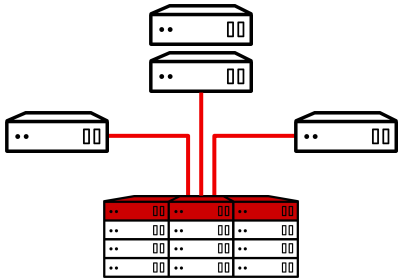
Benefits

- Reduce data velocity/volume
- ML/Analytics at Edge

Complications

- Lack of standardization
- Adverse environment

Distributed Nodes



- Single cluster deployment
- Primary site has shared control plane (and resource nodes)
- Remote sites have only resource nodes

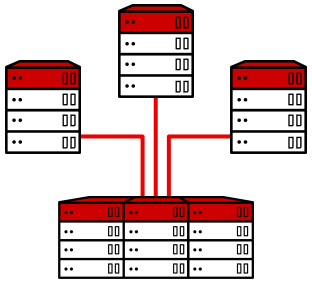
Benefits

- Smaller footprint at the remote sites
- Faster to scale to new location (resource scale out)
- Easier operational management (single cluster, single config)

Complications

- Control plane is still a single point of failure
- Network drop affects management of workloads

Standalone Cluster(s)



- Multi-cluster deployment
- Each site has its own standalone deployment
- Complete cluster at each site (control + resource)

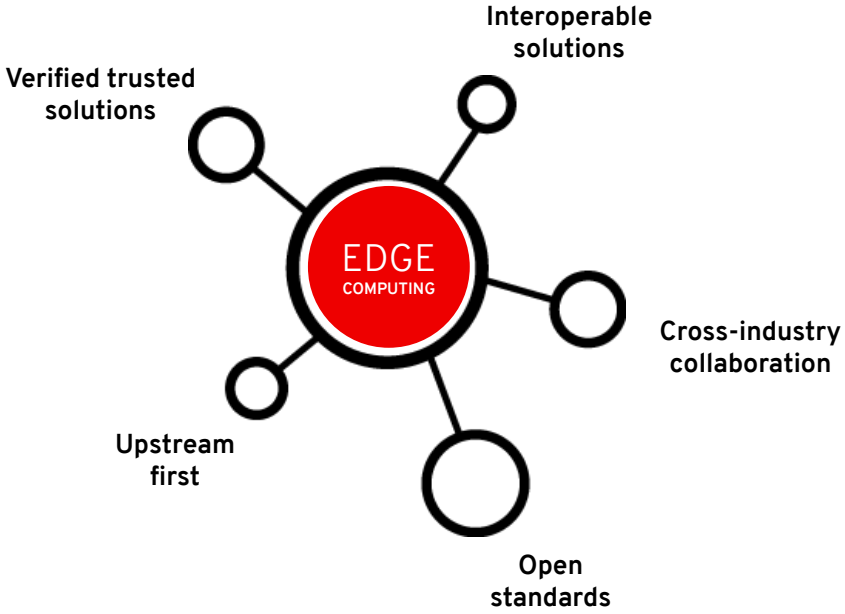
Benefits

- Full isolation (in case of disaster)
- High redundancy and availability
- Very low impact in case of network drop out

Complications

- Bigger hardware footprint (need for control plane)
- More complex management (versioning)

Edge & Open Source



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