**Ensemble Edge Cloud**

# Ensemble Cloudlet multi-node

All-in-one edge computing solution: automated, resilient, and engineered with built-in storage and networking

**Ensemble Cloudlet**

Workload evacuation

Core optimization

2-node cloud HA

Live migration

Distributed shared disk

## Benefits

- Forms multi-node clusters from x86 servers
- Zero-touch deployment of nodes and clouds
- Full cloud and file system resiliency with as few as two nodes
- Integrated shared, distributed storage
- API-driven
- Ubiquitous cloud-hosted orchestration that also orchestrates uCPE and vRouter sites
- Simple, cost-effective, high-availability
- True pay-as-you-grow infrastructure

## Overview

**Service providers and businesses need an easy-to-deploy, affordable edge cloud platform for running network services (NaaS), IT, and AI workloads.** The main challenge is to keeping start-up costs and rack space low at the beginning, while still allowing room to growth without adding complexity.

Our Ensemble Edge Cloud solution makes it happen — seamlessly and efficiently. Ensemble multi-node deployments turn base metal servers into a resilient, high-performance edge cloud. It enables you to scale capacity, increase availability and protect workloads from a cloud-hosted management platform. With automatic workload relocation, zero-touch provisioning and built-in orchestration, Ensemble ensures your services are resilient. It's a proven solution for delivering edge infrastructure that's scalable, secure and always available.

### Modular compute architecture

Cloudlet OS installs on bare-metal servers to create compact, high-performance compute nodes with integrated networking. By separating the control and data planes, it enhances both security and reliability. The platform is ideal for deploying distributed workloads at the edge, whether in enterprise environments, industrial sites or service provider infrastructure.

### Cloud-hosted orchestration

EdgeView, the cloud-based orchestration layer, manages Cloudlet nodes with full API support and secure remote access. It simplifies operations with zero-touch provisioning, intuitive dashboards and bulk Day-N tools, enabling faster rollout and greater visibility across distributed environments.

### Integrated storage, built for the future

Ensemble Cloudlet automatically creates logical shared storage across all nodes, providing high availability without added hardware. Its modular design supports both compact edge deployments and large-scale rollouts. With encrypted control, open APIs and seamless integration, it offers a resilient foundation for deploying advanced services in enterprise, cloud and network environments.

# Ensemble Cloudlet multi-node

### Start small, and grow

Ensemble provides full cloud and workload resiliency with as few as two nodes. This enables multi-node edge clouds to get started with the lowest cost. Dynamically add nodes as you need them.

### Distributed shared disk

During ZTP, Ensemble autonomously builds a distributed shared disk using storage from each node. Get the reliability of an external SAN array, without all the added cost and rack space.

### Live migration

Migrate workloads to new nodes without shutting them down. Ensemble's distributed shared disk and memory-state transfer minimize downtime during maintenance activities.

### Workload evacuation

Upon detecting a failed or powered-down node, Ensemble evacuates workloads and their stored data from the failed node to other nodes, eliminating the delay typically caused by for large block data transfers.
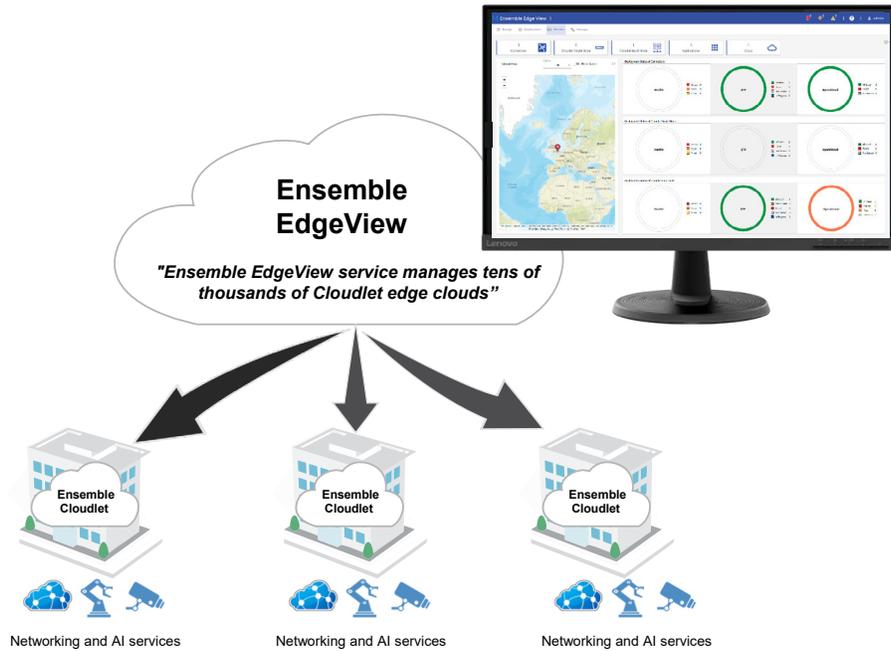
### AI workloads

Accelerate your workloads with server hardware acceleration options. Ensemble defines workload types that connect applications to hardware acceleration for AI and cryptographic workloads.

### Core optimization

Within a single node Ensemble can apply dedicated cores to specified workloads and allow other workloads to share cores. You can host more workloads per cloud without compromising performance.

*"Remove the cost and complexity from edge cloud deployments."*



Ensemble EdgeView deployment dashboard

# Ensemble Cloudlet multi-node

## Technical specifications

### Cloud infrastructure

- Minimal footprint hypervisor for single and multi-node clouds
- Hardware-agnostic
- Zero-touch deployment of clouds and nodes
- Dynamically add or remove nodes from the cloud
- Cloud-hosted orchestration service
- Automated buildout of cloud inter-node networking
- Distributed shared storage
- Minimal 2-node high availability
- User-defined core oversubscription policies

### User Interface

- Simple, clean, intuitive UI
- Open northbound APIs for automation
- Infrastructure dashboards
- Cloud services dashboards

### Virtual infrastructure

- Flexible image onboarding
- Service design
- Live service edits
- Cloud capacity and utilization reporting
- Full VM life cycle management

### Day-N management

- Bulk jobs for network-wide upgrades and configuration changes
- Fault isolation and event logs

- Inline upgrades and security patches
- Integrated fault management and event logs

### Integrated networking

- Hardware acceleration enablement for AI workloads
- Integrated virtualized routing with scalability to 400 Gbit/s
- IPv4/v6 support
- Native wireless 5G support

### Platform security

- Two-factor authentication
- Secure boot
- EAP-RADIUS authentication of IKEv2
- Local, LDAP and SAML management authentication
- TACACS+ and RADIUS node authentication
- Encrypted communication between nodes and management
- Role-based access control
- Auto-lockout on repeated login failures
- Multi-tenant management isolation
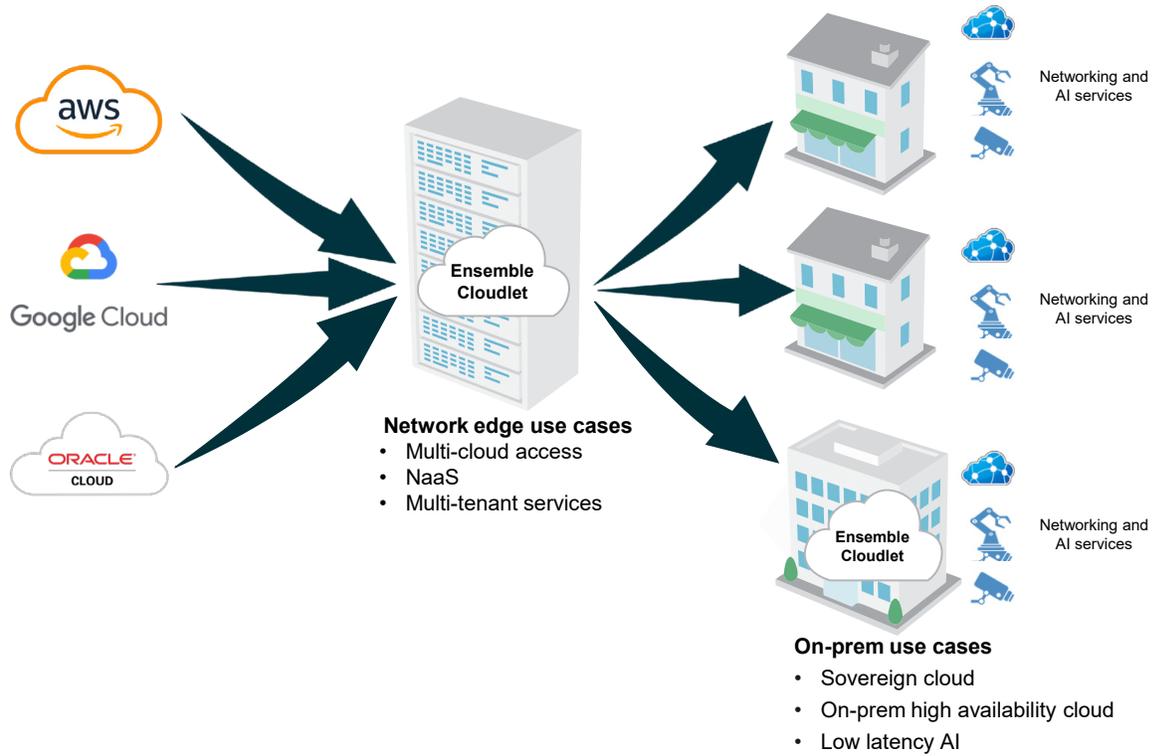
### High availability

- Workload evacuation protects against server failures
- Live migration of workloads
- VM snapshots
- Hybrid management paths simplify server replacement operations
- Link loss forwarding from node ports
- Support for redundant top-of-rack switches
- Dual-boot architecture ensures robust field upgrades

## Ordering information

| | Description | Part No. |
|---|---|---|
| **Multi-node Cloudlet options** | 16-core - Cloudlet 36-month subscription license bundle, includes cloud-hosted EdgeView management for one 16-core socket | ENS CLOUDLET-16C-SUBS-36M |
| | 24-core - Cloudlet 36-month subscription license bundle, includes cloud-hosted EdgeView management for one 24-core socket | ENS CLOUDLET-24C-SUBS-36M |
| | 28-core - Cloudlet 36-month subscription license bundle, includes cloud-hosted EdgeView management for one 28-core socket | ENS CLOUDLET-28C-SUBS-36M |
| | 32-core - Cloudlet 36-month subscription license bundle, includes cloud-hosted EdgeView management for one 32-core processor server | ENS CLOUDLET-32C-SUBS-36M |
| | 36-core - Cloudlet 36-month subscription license bundle, includes cloud-hosted EdgeView management for one 36-core socket | ENS CLOUDLET-36C-SUBS-36M |
| | 40-core - Cloudlet 36-month subscription license bundle, includes cloud-hosted EdgeView management for one 40-core socket | ENS CLOUDLET-40C-SUBS-36M |
| | 48-core - Cloudlet 36-month subscription license bundle, includes cloud-hosted EdgeView management for one 48-core socket | ENS CLOUDLET-48C-SUBS-36M |
| **EdgeView options** | Dedicated EdgeView instances | Contact Adtran |

# Ensemble Cloudlet multi-node

## Application diagram



**Ensemble Cloudlet**

**Network edge use cases**
- Multi-cloud access
- NaaS
- Multi-tenant services

**Ensemble Cloudlet**

Networking and AI services

**On-prem use cases**
- Sovereign cloud
- On-prem high availability cloud
- Low latency AI

## Ensemble solution stack

| Extend to | | | Adtran services |
|---|---|---|---|
| Authentication services | Ensemble EdgeView | Cloud-hosted service orchestration and cloud management | Software Assure |
| LDAP, SAML | Third-party applications | Networking, firewall, AI, security, IT, assurance | EdgeView SaaS |
| Automation and ops | Ensemble Cloudlet | Node cloud infrastructure and high-performance routing, with networking and AI accelerations for near-native performance | Professional services |
| Third-party orchestration and application controllers | Third-party compute | x86 server platforms with NIC support for major brand multi-100G NICs | |

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