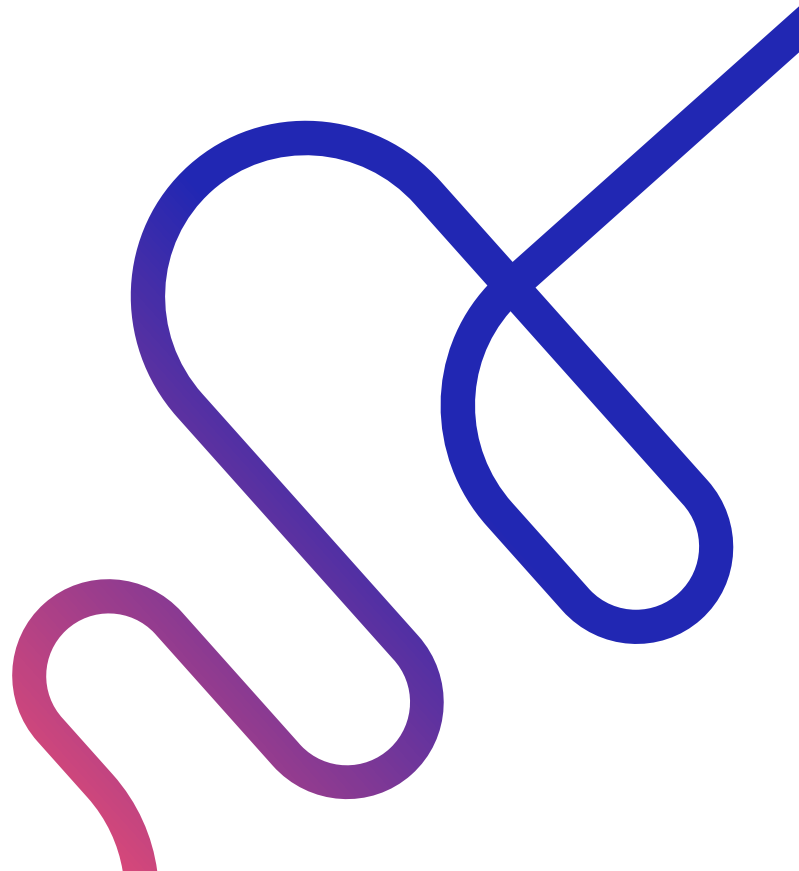avassa + SCALE COMPUTING

Fast-track container applications in diverse edge environments

01 // **Introduction**

Years ago, cloud computing changed our idea of digital agility. Organizations augmented or replaced traditional data centers with cloud environments. In turn, they enjoyed better access to the right amount of compute resources when they needed them, while saving time and money.

Designing a solution for scalable and cloud-like hosting of applications across edge infrastructure brings new requirements:

- The lifecycle of all software layers including the hypervisor, operating system, and container runtime must be automated to avoid costly and time-consuming manual tasks

- Monitoring and observability must happen across all layers and locations to provide an actionable view of the health of the system to avoid fragmented, context-less notifications that require manual investigation

- The combined solution must fit well with mainstream tooling across platform and application teams to avoid costly duplication of DevOps and operation stacks

The Avassa and Scale Computing partnership addresses the challenges of edge computing with a cloud operating model.

With containerization, edge applications can be deployed as a unit in a distributed manner without fundamentally reworking the underlying software architecture. Deploying containers at the edge correctly can accrue significant benefits in increased performance and lower costs in a competitive enterprise market.

avassa **+** SCALE COMPUTING

02 // **Avassa Platform**

The Avassa platform enables your team to orchestrate containerized application workloads using well-known tools and practices in environments with many locations and where location matters.

Avassa is an application management platform for distributed container applications.

The platform targets use cases where applications are deployed in many locations and where the user requires precise control of application versioning and placement.

The Avassa platform contains two software components: Control Tower and Edge Enforcer.

Together, they enable simple, efficient, and secure application orchestration using the same agile processes, methods and CI/CD pipelines as in the cloud environment.

CONTROL TOWER

The Control Tower provides central management of distributed edge resources and containerized applications through user interfaces and APIs. It is available as a service or installed in your private data center.

Self-organizing site management
Teams in charge of managing distributed compute resources use the Control Tower to:

- Perform administrative tasks on the distributed edge systems, including observing resource consumption for planning purposes and monitoring the health and resource consumption of the individual hosts
- Assemble sets of distributed hosts into sites to allow for granular resource assignments to application teams for application deployment purposes

Distributed application management
Teams in charge of managing containerized applications use the Control Tower to:

- Define applications in terms of constituent containers, and their respective resource needs
- Upload, deploy, and lifecycle containerized applications across distributed systems based on the matching of declarative deployment requirements on configured or operational characteristics of hosts
- Monitor the health and observe the behavior of containerized applications

avassa **+** SCALE
COMPUTING

EDGE ENFORCER

Edge Enforcer is a software agent installed in one or more Scale Computing HyperCore VMs in each edge site.

Edge sites can be any hosts where you want to run containerized applications, such as on-premises, co-located compute, or public clouds.

Edge Enforcer provides zero-touch host registration functions, local management, application placement and scheduling, and a local container registry. In addition, Edge Enforcer provides local APIs for secrets management and distributed event streaming for applications that require such services.
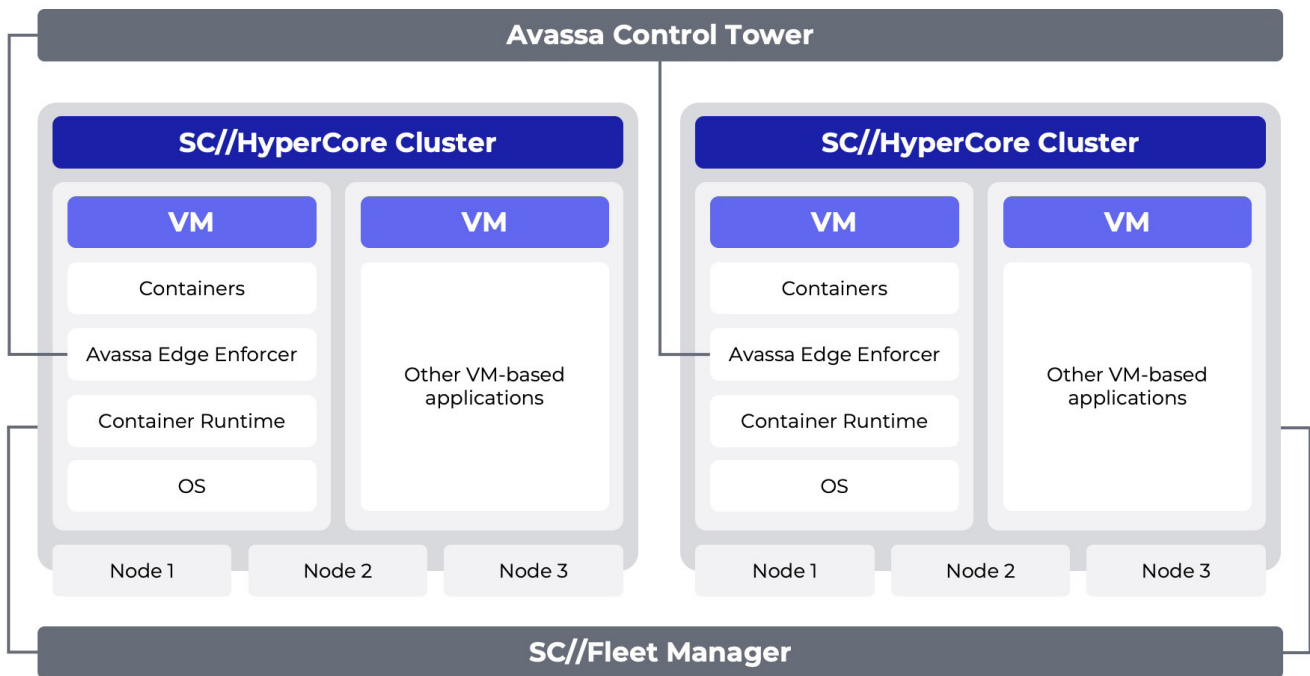
Scale Computing Platform is an edge-to-core infrastructure platform that combines everything you need: virtualization, servers, storage, and backup/disaster recovery with powerful fleet management.

Run your critical applications, including containers deployed and managed by Avassa, on a fully integrated platform for the easiest manageability and highest availability, wherever you need them.

Regardless of your hardware requirements, the same innovative software and intuitive user interface give you the power to run infrastructure efficiently both in the data center and at the edge.

Scale Computing Platform combines everything you need: virtualization, servers, storage, and backup/disaster recovery with powerful fleet management to deliver a single manageable solution at scale in the data center, in the branch office, and for distributed edge locations

SC//FLEET MANAGER

Scale Computing Fleet Manager consolidates real-time conditions for a fleet of clusters, including storage and compute resources, allowing IT leaders to quickly identify areas of concern using a single pane of glass to manage 1 - 50,000 clusters.

Customers can:

- View every cluster from a single pane of glass instead of navigating to individual cluster UIs

- Check connectivity and cluster health at a glance

- Drill down into a specific cluster to diagnose and fix any issues

For IT Managers with multiple clusters, the simplicity designed into this industry-leading platform reduces maintenance time by 50% or more.

avassa + SCALE

SC//HYPERCORE

Scale Computing HyperCore is the foundation of SC//Platform. It is the hypervisor for Scale Computing clusters and bundles various adapted open source and proprietary, intelligent software to create a simplified operating system.

Custom-built utilizing the KVM architecture to integrate with the Scale Computing Reliable Independent Block Engine (SCRIBE) storage layer directly, SC//HyperCore makes virtualization and software automation look easy—and it is.

- Identify, reduce, and correct problems in real time

- Achieve results easier and faster, even when local IT staff are scarce

No matter what hardware configuration your customers choose, it is the same innovative software and simple user interface powering their infrastructure. SC//HyperCore makes it easier for IT to manage and for customers to afford.

avassa **+** SCALE
COMPUTING

04 // **Better Together**

Avassa manages containerized applications, and is deployed onto physical or virtual hardware on a running operating system with a container runtime already installed. This can be automated and simplified by SC//HyperCore. Scale Computing HyperCore first deploys the Avassa Edge Enforcer as a container with details to connect it back to the Avassa Control Tower, which gets instructions for what container applications should be running on the VM.

Simply - Avassa's Control Tower manages the applications running on top of Scale Computing VMs.

SC//HyperCore Cluster

VM	VM
Containers	
Avassa Edge Enforcer	Other VM-based applications
Container Runtime	
OS	

| Node 1 | Node 2 | Node 3 |
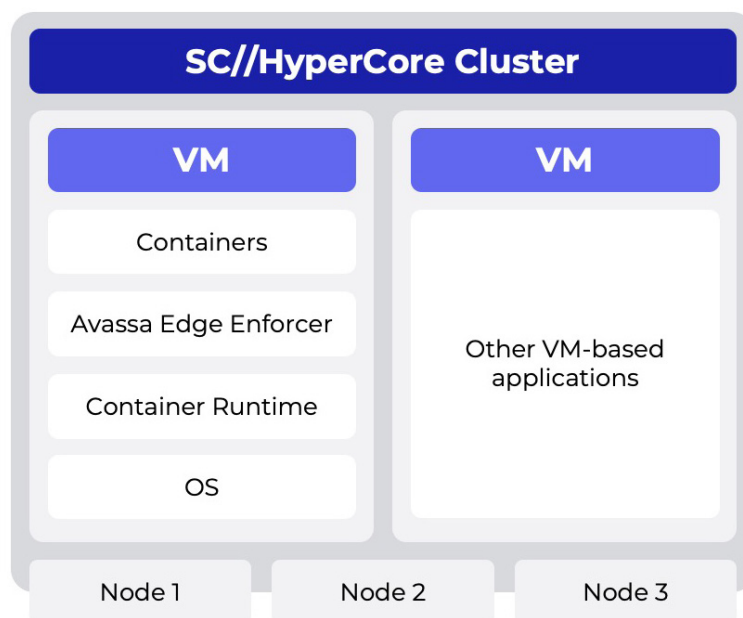
The Edge Enforcers in each edge site run VMs on a Scale Computing cluster with their agent + Container Runtime

Scale Computing provides local high availability (including data persistence) at the edge and allows you to manage the hardware and underlying OS, the virtual machine OS, and container runtime. Back up your applications and data, run multiple applications on the same device, and legacy VMs along with your containerized applications.

Using Avassa and Scale Computing, you can dynamically deploy, update, and monitor applications in containerized environments using targeted deployments, health and behavior observability, and complete lifecycle management.

avassa + SCALE COMPUTING

The Avassa Platform:
https://avassa.io/platform/

Avassa Docs:
https://docs.avassa.io/

Edge and cloud orchestration - same same but different?
https://avassa.io/articles/edge-and-cloud-orchestration-same-same-but-different-part-1-of-2/:
https://avassa.io/articles/edge-and-cloud-orchestration-same-same-but-different-part-2-of-2/

The second application challenge for distributed edge clouds:
https://avassa.io/articles/the-second-application-challenge-for-distributed-edge-clouds/

SC//Platform:
https://www.scalecomputing.com/sc-platform

SC//Fleet Manager:
https://www.scalecomputing.com/sc-fleet-manager

SC//HyperCore:
https://www.scalecomputing.com/sc-hypercore

Installation guide:
https://scalecomputing.my.salesforce.com/sfc/p/#700000008AKW/a/0g0000005ht3/
un4M21hHYWBOyuJI2JaSKCZMrOgMnr5OnX8r8u2GZM8

White paper:
https://www.scalecomputing.com/resources/the-sc-platform-difference

White paper:
https://www.scalecomputing.com/resources/sc-hypercore-scribe-theory-of-operations

avassa + SCALE COMPUTING

Learn more at www.avassa.io.

Avassa
+46-734 02 16 81
info@avassa.io
www.avassa.io

Scale Computing
877-722-5359
info@scalecomputing.com
www.scalecomputing.com