PILOT'S GUIDE TO EDGE COMPUTING DEPLOYMENT
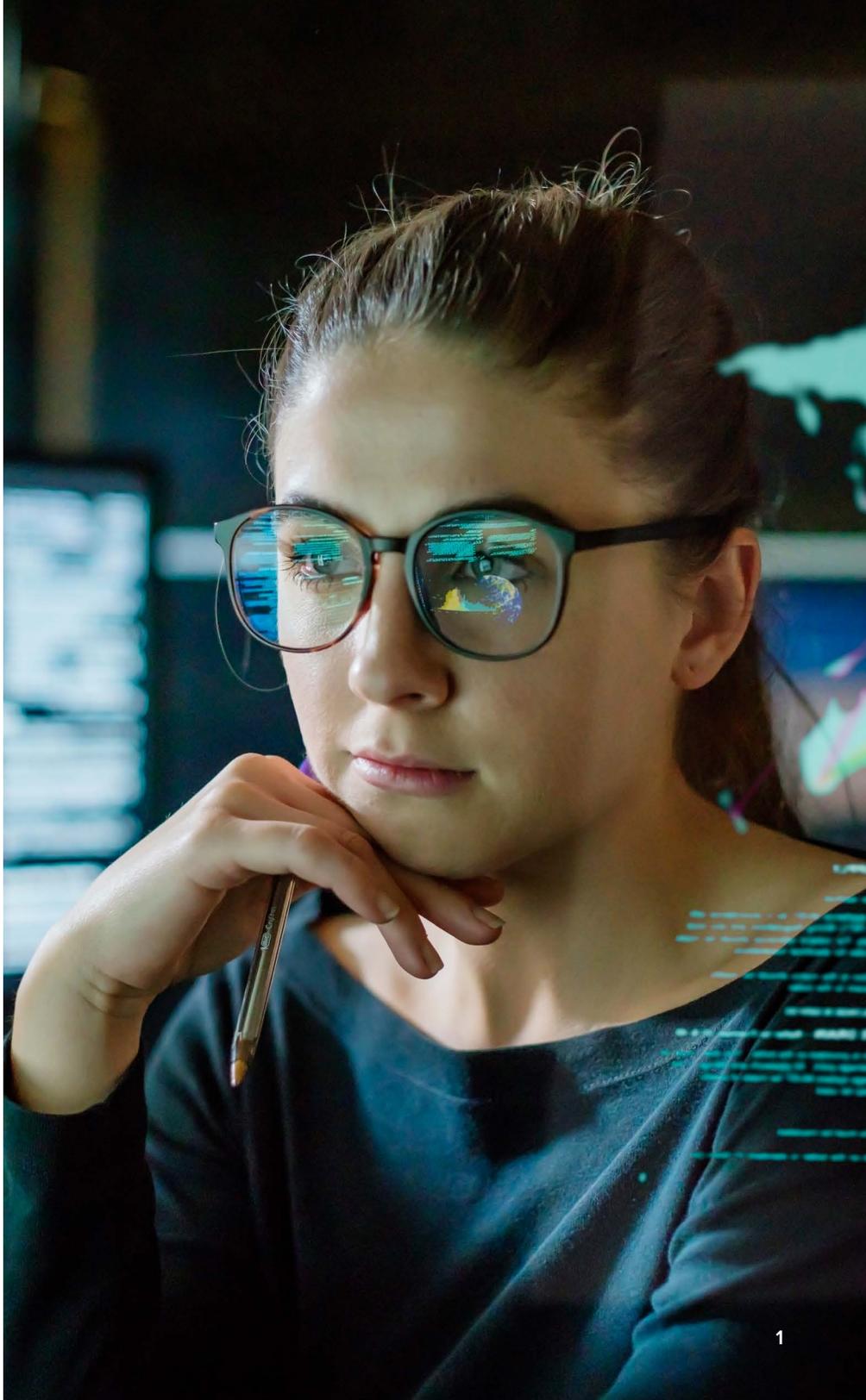
SCALE COMPUTING

SUCCESSFUL ORGANIZATIONS are increasingly differentiated by the scope and scale of their digital capacities. These include the ability to access information, improve business processes and provide customers with innovative experiences. Whether it's a retail brand deploying unified IT infrastructure to all its stores or a manufacturer connecting processes across and within many locations, businesses have embraced new solutions to achieve unprecedented levels of performance.

To deliver on these promises, however, new technologies must overcome significant hurdles, such as large amounts of data, unreliable internet connectivity, latency, regulations and the lack of qualified IT staff. It's well known that cloud solutions alone cannot adequately address these challenges.

In this context, edge computing provides a powerful answer to meet the demands of the modern organizations seeking to grow and innovate into the future. This practical guide will help leaders and IT teams understand how to successfully deploy an edge solution.

What does an edge deployment look like? What do you need to do to get started? Let's find out.

Evolve Beyond the Status Quo

Considering an edge computing solution? If so, it's likely your company seeks to further leverage the benefits made possible by modern software applications. However, you also know that increasing architectural complexity places a huge burden on your IT teams. While they are busy maintaining legacy infrastructure, newer cloud-native and container-based workloads are continuously added.

So, when business units want to add a new application, IT push back may be substantial—no matter how much the new software might improve outcomes. This type of friction hinders many brands from moving forward to develop new digital capabilities.

Inevitably, your teams will want to continue to add software that improves business outcomes. How will you handle requests for additional applications in the future?

With only legacy and cloud solutions at your disposal, your IT teams will either remain overworked or business innovation will be delayed. Single server point solutions are not scalable, and the cloud can be costly and unreliable.

Sooner or later, you'll need to add more applications to continue to grow and innovate, but one-off fixes are unacceptable now. Edge computing lays the groundwork that enables you to develop at the speed and scale you desire without the restraints of cumbersome infrastructure

The first step to deploying an edge computing solution is a mindset change. The future growth of your company depends on a more versatile, scalable IT architecture that doesn't create more work for overstretched IT teams.

or the lack of qualified IT staff. Edge platform software packaged for uncontrolled, non-IT environments and centralized management make it easy to run applications anywhere while also reducing IT workload.

Huge value gains are made by edge solutions as they incorporate virtualization and, in some cases, convergence. For example, hyperconverged infrastructure (HCI) is an IT framework that combines storage, computing and networking into a single system to reduce data center complexity, increase scalability and reduce total cost of ownership (TCO). This means companies can further leverage their edge investment by running multiple applications and workloads on the same pool of resilient hardware.

Edge computing lays the groundwork that enables you to develop at the speed and scale you desire without the restraints of cumbersome infrastructure or the lack of qualified IT staff.

Physical Space & Equipment Requirements

Once you've decided to go with an edge solution, you need to decide where you will physically place appliances. Do you have extra space in your backroom office storage? Edge adopters must consider the size of the actual equipment and its requirements for power, access space, security, climate control, cabling, and so forth.

Smaller sized equipment gives you freedom to choose deployment locations and reduces the likelihood that appliance installation will disrupt other activities. Furthermore, lightweight and compact equipment is easier to secure. For example, ceiling mounted appliances can prevent tampering and help save floor or cabinet space. You should also look for equipment with less demanding cooling and power needs.

In some cases, environmentally hostile surroundings are unavoidable. Fluctuating temperatures, noise, poor ventilation, dust, moisture, and other ambient factors may be an everyday reality for locations such as distant retail outlets, industrial sites or even vessels at sea. For this reason, you'll want equipment rugged enough to work well at your edge locations.

COMPACT, HIGH PERFORMANCE EQUIPMENT

HE150

The Scale Computing HE150 appliance is designed for autonomously running applications at the edge, with a small, all-flash, NVMe storage-based compute appliance packaged on the Intel NUC that delivers simplicity, efficiency and enterprise-ready virtualization.

The HE150 can be deployed almost anywhere, without requiring a rack or server closet. The appliance takes up only the space needed to stack three smartphones, and it provides a fully functional, integrated platform for running applications with high availability clustering, rolling upgrades and integrated data protection. The extremely small form factor consumes low levels of power, offers easy installation and the ability to rapidly add devices.

HE500

The HE500 series is a set of right-sized HCI appliances that provide enterprise-class features to remote locations and boost edge computing capabilities with disaster recovery. HE500 series appliances are lightweight and fully capable of delivering maximum HCI functionality. The HE500 1U Rack dimensions are 1.7" (43 mm) H × 17.1" (434 mm) W × 19.6" (498 mm) D.

Shipping & Installation

Whether it's a dozen stores or hundreds of geo graphically distributed outlets, you need to get the edge appliances delivered to wherever your workload needs to run. Rather than ordering to a centralized distribution center and shipping yourself, it's better to have an edge provider that ships directly to each location. Once the equipment arrives, you want to get it up and running as soon as possible, including pre-configuration and staging.

When your local office, store, school, hotel, warehouse, or other distant site receives the appliance, there's a good chance you won't have IT expertise on site. Will you hire a third party integrator or local IT service to help with installation? And is the appliance software already bundled onto the device?

After unboxing, installation should be rapid and straightforward, with no need for advanced technical support or additional software to download.

EASY SHIPPING & INSTALLATION

Scale Computing ships edge appliances to any geographically distant location where you require advanced computing capability. The installation of our appliances is highly straightforward, with near plug-and-play ease of use.

Our HE500 series is pre-installed with Scale Computing's HyperCore Software, providing an intelligent and automated layer for straightforward functionality and the performance that meets modern edge computing requirements. High level technical expertise is not required for appliance start up and provisioning. In most instances, you can have your appliances up and running in under an hour. Additional systems and appliances are available for specific needs, such as large data storage, GPU offload, analytics and VDI.

Rapid Deployment & Scalability

Edge solution providers should design deployment to get users from unboxing to creating virtual machines (VMs) and deploying applications with the least amount of friction as possible. Other than any required racking and cabling on site, appliance setup should be as easy as following a few simple step-by-step directions, such as assigning IP addresses, entering a license code in a cloud based web console and letting appliances configure themselves.

Digital transformation is being driven by intelligent applications. When you want to take that next step and add that application into your tech stack, you want to be ready from the get go.

Inevitably, your dynamic edge environments will see new applications being deployed on a regular basis. With sensors, video and a variety of IoT demands, data volumes continue to expand exponentially. It's critical that your infrastructure is fully prepared to accommodate rapid growth and a variety of applications as needed.

A fully-integrated compute, storage, virtualization and disaster recovery edge environment can simultaneously run legacy and modern applications on the same infrastructure. There's no need to manage separate hardware and software components to support individual point solutions.

As demand to run applications in local, non-IT environments continues to grow, edge computing footprints can expand rapidly within and across thousands of sites if needed. A deployment of a couple of thousand nodes should be capable of growing effortlessly to tens of thousands of nodes without needing to re-architect anything.

The evolution and upgrade of the edge micro data center with new resources and applications should be as easy as the initial edge deployment. Proper planning for expansion of the edge environment will avoid expensive upgrades or the appearance of multiple, complex infrastructure silos to manage.

Most organizations likely employ a combination of on-premises data centers and cloud-based resources. Meanwhile, edge computing applications do the heavy lifting at the local processing level. This new topology circumvents latency and bandwidth limitations while also satisfying regulatory and autonomy issues. These are common drivers for on-premises infrastructure, especially as data generated locally becomes increasingly important.

RAPID CLUSTER DEPLOYMENT

Scale Computing's hyperconverged infrastructure (HCI) solution enables you to create or expand a cluster simply by registering them (including IP addresses and licensing) with Scale Computing's cloud-based fleet management. The best HCI solutions do not require any manual storage configuration.

With SC//Platform, there are no hypervisors to install or third-party management consoles to set up. For management, there is no client software to install. All you need is a web browser. With software already bundled onto the appliance, a Scale Computing system with any number of nodes can be racked, cabled and configured with live VMs and applications running in less than an hour.

Centralized Monitoring & Management

With computing infrastructure distributed at the edge, you might wonder how you will maintain it all. When problems arise, will you have to scramble IT teams to head out on site? And how will you monitor everything?

First, look for Zero-Touch Provisioning (ZTP). This device-configuration process can be operated automatically from a central web-based console. ZTP eliminates most of the burden on IT administrators when setting up, maintaining, or upgrading an edge system. Like a smartphone, once an edge device with ZTP is powered and connected, it reaches out autonomously to acquire the information it needs to remain functional.

As much as possible, physical interventions on site should be avoided. The system should be designed with the appropriate level of resiliency, including redundant data storage and compute resources. The platform should automatically handle both unplanned hardware failures and planned maintenance tasks, and maintain required application availability. In the case of hardware failures, remote monitoring should initiate deployment of replacement resources to automated provisioning at the remote sites.

Truly effective edge solutions mean management does not require specialized IT staff on site. This makes upgrades and infrastructure scaling non-disruptive, the foundation is self-healing, and IT specialists can manage an entire edge fleet seamlessly at scale. All of this logically follows the deployment of a unified platform at every location. Each location will have identical platform software and capabilities, identical mechanisms for deployment, and the ability to enhance and improve standardization through repetition. With this approach, even inexperienced staff can quickly become experts.

HIGH PERFORMANCE & POSITIVE ROI

Scale Computing Zero-Touch Provisioning means the edge system, and the devices attached to it, can be configured automatically. This almost completely avoids the need for hands-on intervention. At most, only minimal remote involvement by staff is required, without the need for IT experts on site.

ZTP has major implications for your edge computing investment, as ROI is largely achieved through an approach that provides automatic provisioning and configuration, as well as ongoing system monitoring from a central management center. As compute power and capability increases at the edge, there is no associated increase in IT staff costs.

Deployment at the Edge: Simple & Seamless

As software applications continue to provide companies with advanced possibilities for business growth and innovation, the infrastructure to run those applications will be critical. Current legacy and cloud solutions remain inadequate as they struggle to scale when adding new applications or handling major data growth. Organizations that adopt innovative edge computing solutions early on are positioning themselves for future success.

Solutions available today make edge implementation simple and seamless. The result means a full capacity to rapidly develop and distribute new technology without architectural complexity or IT staff limitations.

Edge Computing Transformation, Powered by Intel®

SC//Platform for edge computing is an Intel IoT RFP Ready Kit (Intel RRK). Intel RRKs are focused technology offerings that solve a class of market problems, have been deployed and tested in the field, and provide bundled hardware, software, and support. The technology is scalable and designed to grow with customer requirements—enabling accelerated development and time to market.

Intel delivers power-efficient performance and intelligence optimized for business. With vision technology and deep learning capabilities at the edge, your business can realize new use cases and faster response times. Our built-in baseline suite of security capabilities makes it easier to implement a consistent security model that helps protect against a wide range of threats.[1]

With broad connectivity support, Intel streamlines data sharing between devices and the cloud. Our specialized technologies for virtualization help you simplify your IT environment, increasing the efficiency and value of your technology investments. And because Intel products are designed for high reliability and a long lifetime, you can count on support for years to come.

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[1] No computer system can be absolutely secure.Check with your system manufacturer or retailer, or learn more at intel.com.

Set Up a Demo With an Edge Specialist

Scale Computing is leading the edge computing revolution with solutions
made to enhance the growth, versatility, and stability of the modern
digital organization. If you would like to see our edge computing solutions
in action, set up a live demo with one of our specialists.

SCHEDULE DEMO