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NUCLEUS RESEARCH

ROI GUIDEBOOK
STRATUS ZTC EDGE

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EXECUTIVE SUMMARY

Stratus provides the ztC Edge platform to address the challenges associated with traditional server and PC based architectures commonly utilized within automation. This edge computing platform is designed to be easily installed and maintained such that it relieves the demand on traditional IT and/or operations teams. This allows customers to maximize the value of their automation software and hardware for their organization and refocus their strategy on two key areas: (1) Allowing deployment of new software to support modernized reporting, analytics, visualization and control, and (2) Enabling a more proactive maintenance framework to reduce net downtime and simplify processes for the responsible teams. Essentially, customers were looking to modernize from legacy server-based and PC-based architectures to a platform that is more redundant, and requires less specialized expertise to manage and maintain.

237%
Average ROI

7.6 Months
Average payback period

8 - 12 Hours
Saved each month from avoided system maintenance and updates

$56,043
Average annual benefit of deployment

To better understand the benefits and costs associated with an investment in Stratus ztC Edge, Nucleus conducted an in-depth return on investment (ROI) assessment focused on the Stratus ztC Edge platform.

KEY FINDINGS

The following direct and indirect benefits represent those commonly experienced by the companies analyzed in this report. Other benefits experienced are discussed in-detail in the 'Analysis of Benefits' section.

DIRECT BENEFITS

Direct benefits include cost savings, cost avoidance, and changes that have a direct impact on a budget or profit and loss (P&L) statement:

- **Reduction in technology costs.** Customers were able to retire their legacy architecture, typically consisting of servers and PCs, where they ended up paying a fraction of the costs for greater performance and reliability with Stratus. Further, they were able to eliminate unnecessary application license costs by leveraging a redundant system that uses two unique servers to create a "single" system, and this built-in redundancy to reduce downtime and data loss.

INDIRECT BENEFITS

Indirect benefits include time savings from accelerated processes that can be quantified, but have an indirect impact on a budget or P&L:

- **Increased IT/OT productivity.** Deploying ztC Edge saved significant developer time and effort, and reduced system downtime to further enable greater productivity across IT and operations teams, including OT professionals in manufacturing environments. With a more performant but simpler to maintain architecture, the time spent and complexity of applying system updates is significantly decreased, saving between 8 and 15 hours, monthly, across the team. By reducing downtime (both unplanned and planned for regular system maintenance), it increases productivity for the entire site and enables future cost savings by reducing the task load to keep the architecture up and running. This unlocks productivity for value-add development across other business areas, and enables more proactive maintenance to address issues before they become critical problems.

STRATUS ZTC EDGE

Currently, the challenge of legacy client server and distributed architectures for the edge is becoming increasingly difficult as users look to maximize the value of their software and hardware for their organization. Further challenges surround deploying new software that supports modernized reporting, analytics, visualization and control while enabling a more proactive maintenance framework to reduce net downtime and simplify processes for the responsible teams. Additionally, many computing solutions lack the resources and capabilities to maintain reliable computing environments – especially in industrial or other demanding environments. Stratus saw the gap in performance and reliability, and developed ztC Edge, a zero-touch, virtualized, and self-protecting computing platform to eliminate the bottleneck within data flows. ztC Edge has virtualization and reliability built into the solution and is primarily designed for these demanding edge environments where uptime and real-time decision-making are critical. Stratus positions its ztC Edge platform as simple, protected, and autonomous – an architecture and design that is suited to edge

operating environments and the needs for low-touch maintenance and implementation by non-IT users.

ztC Edge utilizes built-in virtualization in an O/S called Stratus Redundant Linux that can run up to four separate Windows or Linux VMs concurrently with different industrial control or IoT applications. The native ztC Edge Console streamlines the configuration and management of virtual machines. ztC Edge can operate as a single reliable node or fault tolerant redundant pair deploying workload migration, data replication, and redundant networking to ensure applications and data remain operational. The redundant nodes act as a single system, so if the system detects a failure within one node, it will proactively transition workloads from one node to another to maintain system stability. Furthering the reliability and functionality of ztC Edge, it can be monitored 24/7 through cloud-based system health monitoring and management services provided by Stratus. System logs can be sent to Stratus over a secure network enabling Stratus to analyze alerts and predict errors and failures ahead of time. In turn, this helps companies increase operating efficiencies, reduce IT burden, and lower overall downtime while using ztC Edge. The platform can be updated while the system is running to reduce planned downtime and further overall reliability and availability of the applications running on the platform. A REST API is also included with ztC Edge, allowing for streamlined integration of systems, data, and applications with common system management platforms.

ANALYSIS OF BENEFITS

Nucleus found that companies deploying the ztC Edge platform experienced a range of benefits across a number of different areas, primarily the time saved and increased productivity for team members responsible for managing the infrastructure. With Stratus, the ztC Edge platform is simple to manage unlike a traditional PC-based or server-centric architecture; this translates to time saved for administrators who no longer are required to spend hours each month applying updates and patches, troubleshooting, or configuring new functions. This allows organizations to focus their teams on other value-add tasks and proactive monitoring of their edge computing setups, instead of simply being reactive as issues continuously arise. This also allows teams to focus on longer-term, value-add initiatives without sacrificing network availability, performance, or security. Additionally, the short deployment time – between one and three weeks, on average, offers massive value compared to legacy systems that take months to go live. This one-to-three week timeline doesn't tell the complete story. The ztC Edge platform itself can be setup and live within an hour. The bulk of so-called "deployment time" was spent configuring and testing applications that were to run on the platform. It is also important to note that the implementation teams completed these deployments in the timeframe without dedicating

themselves 100 percent to that task; rather, they managed the deployment and setup while still carrying on existing IT/OT responsibilities. With a team dedicated entirely to the deployment, the system could reasonably be live with successfully configured applications inside of a week. Customers consistently cited this rapid and simplified deployment framework as central reasons to the platform value – it enables much greater time to value and more agility than previous setups.

The best business cases focus on two or three key benefits that can guide deployment and adoption efforts. To guide organizations in building their business cases, Nucleus has presented the primary benefits most commonly experienced by Stratus customers with guidance ranges based on what customers typically experience.

The customers with whom Nucleus conducted ROI assessments were moving from server-based and PC-based systems, seeking greater redundancy and more simplified management and maintenance processes. They were looking to decrease the system complexity for the teams responsible for maintaining them, and to enable more modern edge computing projects with a more performant and secure architecture.

INCREASED PRODUCTIVITY

8 - 15
Hours saved per month on system upkeep

A traditional server-centric or PC-centric computing architecture requires substantial training and expertise to configure and maintain. In many cases, dedicated teams were responsible for troubleshooting, patching, and maintaining legacy systems, as well as building out new capabilities and responding to internal requests for help and features. The most compelling aspect of Stratus' offering to the interviewed customers is the ease of setup and maintenance that the ztC Edge platform requires. Rather than necessitating specialized, dedicated teams, users could maintain the platform with non-technical training or ongoing investment. This frees the teams up for value-add work across other business areas rather than struggling to keep up with mounting requests to keep the legacy system from failing. With teams setting up more performant edge computing systems, a key goal was freeing up the teams to help leverage the faster data processing and improved performance with new value-add reports and metrics. Teams saved between 8 and 15 hours per month on system upkeep and maintenance. This translates to between one and two additional days saved per month that IT teams can rededicate to value-add development activities or serving other departments' needs. Over a year, this yields between 2 and 4 weeks in time savings for the organization, or approximately 10 percent of an FTE equivalent. One customer saw inbound requests to IT decrease by 90 percent after deploying the ztC Edge platform. Additionally, ztC Edge helped users automate processes reducing the overall complexity of the IT structure. The

reduction in complexity could carry over into enabling non-technical users to extract value from the solution. As processes become simpler, companies can deploy non-technical users and save money on a worker that may be less skilled but can still achieve a high level of functionality.

- *"Since deploying ztC Edge, the service calls to the IT support desk have decreased by 90 percent. Before, since all different workstations were unique PCs, non-person specific accounts would lock out all users from the system if someone entered an incorrect password. The user would be locked out from all machines, and IT would need to come manually reset the system to solve the issue. With ztC Edge, this is no longer a problem, eliminating those costly interruptions to user workflows."*

ELIMINATED TECHNOLOGY COSTS

By moving onto the Stratus platform, customers were able to retire outdated server and PC based architectures; additionally, due to the virtualization capability on ztC Edge, customers were able to reduce the number of machines to manage and run applications on. Rather than maintain each individual PC, the customer can initialize between four and six virtual machines, depending on application size, on the ztC Edge platform while requiring just one application license for the platform itself, enabling a four to six times reduction in application licenses from the on-platform virtualization. This delivers significant cost savings in an enterprise environment with multiple applications being run on the architecture, and delivers further time savings since IT/OT teams are left with fewer PCs to configure and manage without sacrificing application capabilities or performance.

4 - 6x

Reduction in application licenses from on-platform virtualization

- *"We retired the servers and PCs that were previously used to support computing on-site. In addition to the annual savings in power costs (magnified by the fact that we don't need a separate server room to be kept cold), we see savings from application licenses as well."*

ELIMINATED OR REDUCED SYSTEM DOWNTIME

Deploying the ztC Edge platform allowed customers to reduce unplanned downtime. No customers reported additional unplanned downtime while using the platform. One was

experiencing five hours of downtime on average per month with its legacy architecture; this was unsustainable and costing thousands of dollars in setbacks each month. After switching to Stratus, it was able to eliminate all five hours of unplanned downtime and significantly reduce the amount of scheduled downtime for applying patches and updates. Prior to implementing ztC Edge, customers would need to update multiple systems during planned downtime. If troubleshooting were needed, there would be a range of issues with something different going wrong with each system leading to further downtime. All customers reported decreases to planned downtime from the ease of troubleshooting and applying updates and patches. This saved between 4 and 12 hours each month of system downtime. With time saved from avoided downtime, IT teams can focus on value-driven tasks that further computing and virtualization efficiency.

No unplanned downtime while using ztC Edge

- *"We were spending too much time maintaining our server-based architecture and still experiencing intermittent downtime that affected productivity of machinery on the floor. Since deploying ztC Edge, there has been no unplanned downtime or security incidents and IT staff is spending about 5 hours less each month that was spent applying updates and patches to the legacy system. Additionally, we eliminated an average of three hours of unplanned downtime each month."*

THREE-YEAR COST ANALYSIS

Nucleus analyzed the initial and ongoing costs of software, hardware, personnel, consulting, and training over a three-year period to quantify the return on investment which Stratus delivered to customers.

The cost of the ztC Edge units themselves is the core cost associated with ztC Edge deployments. Additionally, we consider the personnel responsible for installing and supporting the platform and the annual cost of licenses for applications run on the platform as cost areas. No specialized training was required, and additional professional services (beyond those already in use at the business) were not needed to support the deployments. As a result, the annual cost of ownership for the platform is substantially lower than a comparable server-based system which does require significant training and expertise to support, and in most cases, dedicated professional services to assist in the initial implementation and any significant re-architecting if new servers or PCs need to be added to the configuration. This contributed to the short payback period where the customers recovered the cost of their initial Stratus investment in 7.6 months, on average.

FINANCIAL SUMMARY

Nucleus found that the average return on investment (ROI) from a Stratus ztC Edge deployment was 237 percent, with a high of 382 percent and a low of 108 percent. ROI and all metrics were calculated over a three-year period, projecting costs and benefits forward on a straight-line basis for organizations that had not yet reached three years of deployment. The biggest factor affecting the ROI was the number of ztC Edge units installed and the personnel required to implement and maintain the platform on-site.

KEY FINANCIAL METRICS:

- The payback for a ztC Edge deployment ranged from 3.6 months to 1.2 years, with an average of 7.6 months.
- The annual total cost of ownership (TCO) of a deployment ranged from $7,181 to $14,423, with an average annual TCO of $10,812. Of this cost, the average Stratus cost is $5,700 annually, with the remaining difference spent on system configuration and maintenance. Customers cited the relative ease in setting up and maintaining the Stratus-based architecture compared to legacy PC- and server-based setups, so it would be reasonable to assume competing products and architectures would include substantially higher setup and maintenance costs.
- The annual benefit of a Stratus deployment ranged from $31,286 to $76,563, with an average of $56,043.

FINANCIAL METRICS	HIGH	LOW
ROI	382%	108%
Payback (months)	13.2	3.6
Annual benefit	$76,563	$31,286
Benefit to cost ratio	9.1:1	2:1
Annual TCO	$14,423	$7,181
Internal Rate of Return	374%	82%

CUSTOMER PROFILES

AUDITED ORGANIZATIONS

For this development of this ROI Guidebook, Nucleus spoke with several Stratus customers and conducted in-depth ROI assessments of customers willing to provide additional data These customers cut across a range of industries, including the following example profiles.

MINING AND MANUFACTURING COMPANY

The company is an enterprise-level mining and manufacturing company that produces a wide range of products for industrial needs, worker safety, US health care, and consumer goods. As the company continued to grow, the complexity and maintenance costs of an on-premises PC-based solution proved to be a time-consuming and costly project. The company decided it was time to consider alternative architectures to enable edge computing and compare the costs associated with deploying Stratus ztC Edge or traditional on-premises solutions.

After noticing another plant was deploying the ztC Edge solution with continued success, an internal Systems Integrator brought up the idea to upper-level management. The additional hardware and maintenance costs that would be required in the coming years to continue supporting the PC-based architecture made it an easy decision to move forward with ztC Edge. The implementation of ztC Edge was a simple process that took two weeks between a team of four people, and it only took four hours to set up all five virtual machines and the servers. Two team members support the solutions on an ongoing basis, but support is rarely required aside from patching/updating the system once per month. Before they had ztC Edge, team members had to troubleshoot twelve different computers, and if there were issues, there would often be a unique problem with each computer, leading to further downtime and complexity before resolving the issue. ztC Edge eliminated this roadblock as all updates were pushed to the virtual machines without error, and the twelve PCs were replaced with the single ztC Edge platform. In terms of security, the company noted that ztC Edge improved overall security as it was a server platform instead of Windows OS. ztC Edge has helped the company avoid on-premises data transfer, which improved security and helped avoid data loss.

The company highlighted the overall simplicity of the ztC Edge solution in terms of deployment, setup, and maintenance. The redundancy also proved to be a large factor in the decision-making process and how seamless it is to maintain a connection between two entities. The IT teams have control loops that configure steps for the team's strategies for future projects. Some of the team members were not experts in terms of IT, and ztC Edge could offer recommendations when working through setup processes, which helped non-

technical users complete tasks that would typically require a systems integrator. Another consideration for choosing ztC Edge was the favorable licensing for the applications that run on the ztC Edge. With the ztC Edge architecture including built-in virtualization, the company did not have to purchase duplicate software licensing, which meant the annual software costs were reduced. With the previous architecture, the company would need to pay for licenses on individual machines instead of having the licenses consolidated on one machine and shared among multiple virtual machines. Additionally, the IT teams no longer need to perform system updates on each physical machine. Two team members were tasked with 14 to 15 updates per month, and not all machines would take the patches correctly, which would necessitate an off-site expert coming on-location to help find a solution. Currently, system maintenance is down to once per month, and the number of calls to the IT support desk has reduced by 90 percent.

FOOD AND BEVERAGE COMPANY

The company is an enterprise-level food and beverage company focused on producing nature-based ingredient solutions. The company works with food, beverage, and consumer products manufacturers worldwide to bring ingredient innovation to address consumers' and manufacturers' needs.

The company previously deployed a legacy server-based solution that required extensive maintenance and regular monitoring to ensure everything was operating correctly. The on-premises solution utilized Dell PowerEdge servers, but these servers would often go down and require an additional IT support team member to resolve the issue. The downtime associated with the Dell PowerEdge servers would usually cost the company significant time (typically between four and eight hours each month) and resources to resolve. Additionally, the servers could not do updates without a complete shutdown of the system, which required regular planned downtime to accommodate, increasing the total downtime and passing this cost onto the organization. The consistent IT intervention required for the Dell PowerEdge servers reached a point that was no longer feasible and forced the company to look for an alternative computing platform that would be simpler to maintain with a lower cost of ownership.

The systems integrator was the first to alert upper-level management that a change to the system architecture was required. The employee had not only read about ztC Edge but visited the official distributor in the company's area for a demonstration of ztC Edge performance and capabilities. After sharing the benefits of ztC Edge with the IT Site Manager, the company decided to move forward with the deployment. During the deployment, it only required one systems integrator to complete the entire implementation process over a two-week period. Once the implementation was complete, the company's ztC Edge deployment required one control engineer to check on the solution once a month,

apply any necessary patches or updates, and ensure all processes were running smoothly. Since April 2020, the company has experienced zero issues during the required downtime for updates and had the system up and running again by the next day. The Stratus ztC Edge platform proved to be a much easier alternative in terms of maintenance and monitoring costs, which translated to a 15 to 30 percent increase in overall productivity for IT teams as efforts could be focused on more value-add tasks rather than troubleshooting. The improvements to maintenance and monitoring mainly come from out-of-the-box virtualization capabilities that are handled before the platform is delivered to the customer. There was nothing for the IT team to setup other than integrating it with their current application ecosystem. As mentioned, the previous solution required constant IT intervention, but this issue was eliminated with ztC Edge as the IT support team member no longer needed to prepare the server. Altogether, ztC Edge helped the company improve performance, automate edge computing processes, and reduce downtime to increase overall IT productivity and lower costs.

ABOUT STRATUS

For leaders digitally transforming their operations in order to drive predictable, peak performance with minimal risk, Stratus ensures the continuous availability of business-critical applications by delivering zero-touch Edge Computing platforms that are simple to deploy and maintain, protected from interruptions and threats, and autonomous. For 40 years, we have provided reliable and redundant zero-touch computing, enabling global Fortune 500 companies and small-to-medium sized businesses to securely and remotely turn data into actionable intelligence at the Edge, cloud and data center – driving uptime and efficiency. For more information, please visit www.stratus.com.

THE ROI GUIDEBOOK METHODOLOGY

Based on the ROI assessments developed through Nucleus's in-depth interviews with Stratus customers, Nucleus has developed an ROI framework for organizations who are considering a Stratus investment. The framework can be used by potential and existing customers to understand the cost, benefit, and deployment factors that impact their potential return on investment. The Nucleus ROI Guidebook development process includes:

Technology review. Nucleus interviewed Stratus product managers and subject matter experts, and conducted a review of technical documents and data sheets to gather data on the Stratus ztC Edge platform.

Customer interviews. Nucleus analysts conducted in-depth interviews with organizations that were using Stratus to provide their edge computing platform, their decision and deployment processes, the costs incurred, and benefits achieved, and best practices learned from their deployments.

ROI assessments. Based on the data collected from customers, Nucleus completed an ROI assessment of each customer's deployment and validated that ROI audit with each customer's project team leadership.

Construction of aggregate ROI framework and analysis. Nucleus constructed a financial model based on its NASBA-registered ROI methodology, using the data from Nucleus's ROI business case assessments of the customers detailed. All financial metrics presented in this report are calculated based on standard NASBA accounting principles commonly used by certified finance professionals.