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## Criticality of Edge Computing for Digital Transformation

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### Keywords

Stratus Technologies, ARC Industry Forum, Workshop, Edge Computing, Digital Transformation, Pandemic, New Normal

### Overview

The workshop hosted by Stratus Technologies at the [ARC Industry Forum 2021](#) focused on rationalizing cost, payback, and criticality of edge computing for digital transformation initiatives.

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Jeffrey Young, Head of Business Development for the Americas, Stratus Technologies, gave an overview about digital transformation, introduced the speakers, and moderated the Q&A session.

Jeffrey discussed how digital transformation is now coming into sharp focus and companies are concentrating on business outcomes. Edge com-

puting is happening throughout the digital ecosystem in both discrete and continuous process applications. Edge computing is a distributed architecture that helps devices to connect with people by providing real-time analysis and educated decision making. Companies are leveraging edge computing on assets, machines, and production lines to improve plant reliability and overall equipment efficiency through applications like HMI/SCADA, machine analytics, and asset performance. Edge computing enables people to focus on production, and production-centric outcomes are creating the payback for digital transformation initiatives. Jeffrey explained how this is done while keeping remote operations in mind with distributed edge computing. Benefits of edge computing include decreased technology costs and increased IT/OT productivity. The metrics that Jeffrey presented as examples illustrate the value of edge computing, including 237 percent average ROI, 7.6 months payback, and \$50K+ average annual benefit.



## Market Trends Accelerating Digital Transformation

ARC's Craig Resnick said that without edge computing and digital transformation, companies will not have the flexibility and agility to maintain a competitive edge in the new normal. The pandemic forced organizations to restructure work processes through measures like remote operations and social spacing, and the subsequent problems of visibility and supply chain flexibility accelerated the demand for edge computing. The pandemic also fueled concerns about plant operations, maintenance, and fulfilling market demands.

During these tough times, operational resilience has become all-important. Operational resilience is about staying afloat, creating an infrastructure to survive another catastrophe and provide robust cybersecurity. Craig explained how an edge platform can help in these areas. Edge platforms can be deployed relatively easily and changes the way that work processes are handled and how information is gathered, stored, and executed because it is at the device level and maintains real-time status, providing operational visibility to remote workers. Companies and processes cannot be effective unless there is an edge strategy included as part of the digital transformation process in the new normal.

The audience asked the panel about their thoughts on how leaders are prioritizing digital transformation in 2021. According to Craig Resnick, the dividing line was March 2020. Before that, digital transformation was nice, but not mandatory. After March 2020, the focus shifted to operational resilience and that accelerated digital transformation programs, bringing edge devices to the forefront. Digital transformation moved from a long-term strategy to a short-term tactic.

Edge devices are one of the fastest growing areas of industrial automation and are used across industries, on both fixed assets and mobile devices. To work on an edge platform, IT programming skills are not always necessary, as those from the OT side can often support them as well. IT/OT convergence is one of the enablers of edge technology. Converged IT/OT architecture provides critical capability to manage assets both on premise and in the cloud. Companies have further accelerated their digital transformation journeys through IT/OT fusion.

According to Craig, digital transformation is a whole new way of doing business, supporting customers, leveraging the available services, and adapting to a changed business environment. Customer relationships have become more dynamic. It is important to understand where these changes and nuances are in the marketplace and how best to respond.

### **Edge Devices Bring Intelligence to the Cloud**

Streamline Innovations is a provider of advanced technologies for water and gas treatment and related processes for oil and gas, utilities, and other industrial applications. In a brief introduction to the company, Peter Photos spoke about Streamline's Valkyrie natural gas treatment units that remove H<sub>2</sub>S, purify CO<sub>2</sub> streams, and remove NH<sub>3</sub>, H<sub>2</sub>S, and CO<sub>2</sub> from water streams. Peter explained the Valkyrie process and the challenges of maintaining its two chemical reactions within tight tolerances. Much of this is done from locations where monitoring of flow rates and other variables must be done remotely. Elimination of unplanned downtime is crucial in these applications, and budget constraints also exist.

Peter cited the example of a project in Pecos, Texas, comprised of 3 units 8 miles apart. Stratus connected the TropOS network across the three units and created a remote-control room. The project mission was to do this with 3 full-time equivalents (FTEs), keep maintenance to a minimum, and support offsite. Streamline selected the Stratus ztC edge computing platform for its redundant processing and high uptime. The ztC virtual machine also allows for replicating units and packs significant computing power.

Peter discussed how he and his team made their unit smart and eliminated unplanned downtime. With intelligence embedded at the PLC, Stratus cloud computing platform, and cloud database, the solution provides a tightly integrated solution. Quantifiable benefits include:

- Smart Amine plant operations now managed by AI with 24x7 control room monitoring. While daytime operations have workers on site, nighttime operations are managed via the remote-control room with operators on call.
- 66 percent reduction in labor costs in 2 full-time equivalents (FTEs).
- 99.5 percent uptime.

When asked about recommendations to integrate similar technologies, Peter responded that the future is to “Go edge or die.” Advice to end users:

- Must have the required computing power.
- Don’t be afraid to segregate walls. Instead of having a single fit-for-purpose device, you can bifurcate (e.g., Wi-Fi/modem from the computer).
- With modern SCADA systems such as Inductive Automation’s Ignition software, there’s no end to what you could incorporate into the HMI.

Peter concluded by highlighting the features of the Valkyrie Intelligence platform that can be developed for any process. It is a standalone box powered by Stratus, SEEQ, and Ignition that can be integrated into existing units and used for turnkey projects. It is about taking the technology available off the shelf, putting it into boxes, and making it modular.

## Digital Transformation Journey

Next, Jessica Spurlock of Rubberlite spoke about the company’s digital transformation journey. Rubberlite is a privately held company, started in 1986 and located in Huntington, West Virginia. It has 1600+ customers globally for various applications across different industry verticals. The company’s business models revolve around two key operation centers that account for 50 percent of the company’s revenue stream: converted cellular rubber and plastics and custom engineered polyurethane foams. As a value add to either operating center, the company began manufacturing composite systems and textile coatings.

The polyurethane foams division was chosen as the beta site for digital transformation, becoming a blueprint for the rest of the organization due to its higher level of sophistication and operating discipline. Every organization faces challenges on the digital transformation journey. According to Jessica, these include:

- Islands of information that impact outcome.
- Ad hoc data collection that is disjointed and cumbersome.
- No standardization.
- Reactive execution style.
- Resistance to change.

Jessica elaborated on the architecture and benefits. It was found that virtualization was the optimum approach and the Stratus server running on the edge helped processes to become better, faster, safer, and more cost-effective. When asked about her recommendations for success in digital transformation, Jessica responded that focusing first on an area that is most ready for it is important. It's less of a shock to the organization if the technologies and processes are already in place. That way you can get the most benefits and derive the most value. Future proof the design as much as you can.

### Selections from Q&A Session

*How has the integration between on-prem and cloud impacted the organization?*

**Peter of Streamline:** It has been great. At the local level, 20 KPIs are calculated in real time, and from that interface we can look at all 19 units holistically.

*How has this new technology architecture helped Rubberlite become more proactive?*

**Jessica of Rubberlite:** It has made us more sophisticated in the way we operate. This project enabled us to transition most of our datapoints into real-time trimline on monitors and allowed us to correlate events.

*What should leadership be thinking about IT/OT convergence?*

**Craig of ARC:** Take a cultural approach, not technology. Technology can't get you anywhere unless you get both the IT and OT sides on board and establish a "what's in it for them" mentality. Get collective input, so there's a sense of ownership and they embrace the challenge.

### Recommendations

The workshop hosted by Stratus Technologies provided insights into the criticality of edge computing in the *new normal*. The pandemic has accelerated digital transformation initiatives and companies that are adaptive and have

operational resilience will surge ahead of those who have not. The entire session can be viewed here: <https://player.vimeo.com/video/511017621>.

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