

Röchling Automotive



Stratus Avance software makes high availability and virtualization easy

Business situation

120 to 210 minutes is all the time Röchling Automotive is given to produce a complete set of door panels for a VW Touran, Tiguan, or Golf – which means extruding the plastic frames, installing components such as window lifters and loudspeakers, and completing the technical approval inspections. This is how Röchling produces door panels for around 2,000 vehicles per day at its Wolfsburg, Germany-based plant, which operates a three-shift system for round-the-clock production.

The VW plant next door no longer has a dedicated storage area for these types of components. The production quantities of Röchling's door panels are subject to a complex schedule, and the products always need to be assembled for immediate delivery.

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Atilla Güner
System Administrator
Röchling Automotive

QUICK FACTS

SOLUTION PROFILE

- Automatic high availability in excess of 99.99%; integrated virtualization for standard x86 servers
- Elimination of downtime and data loss thanks to round-the-clock monitoring, fault detection, and fault management
- Round-the-clock access to vital business solutions via a single management console
- Supports multiple Microsoft® Windows® and Linux® virtual machines (VMs)
- Lower costs and complexity than traditional and virtualized IT environments thanks to a solution that is easy to install, use, and maintain

PRODUCTS

- Stratus Avance® high-availability software
- Industry-standard x86 servers
- SAP® application software
- Oracle® database
- Automotive data exchange application

SERVICES

- Avance Software Support Services
- MTS Systemhaus

Uptime. All the time.





The entire plant's operability is dependent on IT availability.

As soon as a batch has been completed, the panels are loaded onto a truck, which takes them straight to the VW assembly lines. Not only does this type of production require highly accurate timing, the components also need to be supplied exactly according to the specified assembly sequences.

For each of the three vehicle types, this includes left and right doors, front and rear doors, as well as a wide range of color and feature variations. Because of the high diversity of parts this entails, it is impractical for Röchling Automotive to stockpile the finished products in advance. For delivery, the door panels need to be grouped exactly as specified so that the workers on the VW assembly lines can simply reach into the supplied Röchling container and grab the fitting component.

Röchling Automotive not only has to produce just-in-time but also just-in-sequence (JIS) – different types of components according to precisely specified supply sequences. At the VW plant, continuous production can only be maintained as long as the parts suppliers deliver their components as specified in production planning. Were Röchling Automotive to cause a line stop at VW, this would entail contractual penalties while also damaging the company's reputation.

Business objectives

What all this means for Röchling Automotive is that its IT processes in production control are absolutely crucial. The data flow needs to be

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uninterrupted throughout all areas of production – starting with the receipt of VW's orders via EDI (Electronic Data Interchange); forwarding job details to the shop floor; production line monitoring; component assembly in racks; transferring the completed products to the supply stations; and sending confirmation messages to the SAP system.

All parts, containers, and machines are labeled with barcodes, which are scanned at every possible point. This ensures that the system data corresponds to the physical components at all times.

The entire plant's operability is dependent on IT availability. “If there is an interruption, i.e., if the server breaks down or goes offline, we are practically running blind,” explains Atilla Güner, System Administrator for Röchling Automotive in Wolfsburg. “When that happens, all we can do is finish the current jobs printed out on the work sheets.” Even after a very brief interruption, the systems need to be manually reconciled very carefully to reflect all the activities that occurred during the downtime – a time-consuming and error-prone task.

But even without any server failures, system administration and error management are a precarious undertaking: Since the systems need to be available 24/7, the only available window for maintenance is during four hours on Sunday afternoons. All administrative tasks such as software maintenance and data cleansing need to be completed during this short time, which does not leave much room for solving any unanticipated faults or inconsistencies. “It is absolutely vital for business that our IT system is fully operational at all times,” says Güner.

Uptime. **All the time.**

Little Time for Database Reconciliation

In the past, Röchling Automotive maintained a standby system as backup for its IT environment. This consisted of a backup server that was switched on when the main server went down. The problem with this was that the backup system took too long to become fully functional, causing a major time lag between the fault and the resumption of work using the emergency system.

Because the database of the backup system was only updated at large intervals, faults would lead to considerable data loss. “It can take quite a long time to repair an Oracle database when the data needs to be reconciled from databases across multiple computers,” explains Güner. “Even if we were able to access incoming new data and continue production, the main database would still be out of sync with the individual sub-databases. In such cases, it would take a very long time to reconcile the data and ensure the production systems’ coherence.”

Stratus Avance for high availability

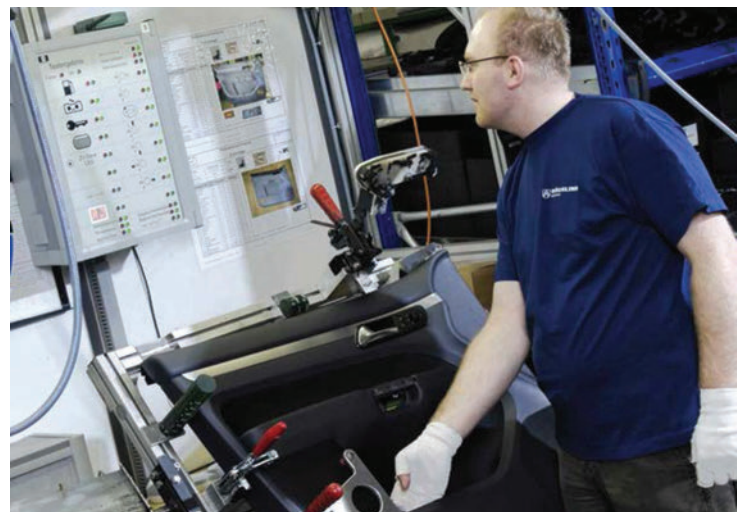
In mid-2010, Röchling Automotive overhauled its IT systems from the ground up and

replaced the existing backup configuration with a high-availability solution. Stratus Avance, a solution designed for virtualization and high availability, was implemented on two high-performance Hewlett-Packard server workstations by systems provider MTS (Brunswick, Germany). As Röchling’s implementation partner, MTS also migrated the legacy system and all its connected elements to the new system, and provided full-scale project support throughout – ranging from extensive consulting through to the final system inspection including all failover tests.

The two servers are set up in different locations with considerable physical distance between them, protecting the system against building emergencies and disasters. The Avance software dynamically synchronizes the two server workstations, which are identical in construction.

This means that the currently active system and the passive standby system are on the same level at all times, both in terms of application status and database updating.

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The two servers are linked through a dedicated connection, enabling them both to operate at maximum performance despite the ongoing synchronization.

When Avance detects a hardware fault, such as a defective memory module or hard disk, or even a system failure, the workload is automatically transferred to the other server system. Operation continues without any notable interruptions, and users typically do not notice that a fault has occurred. The administrator and the support partner (MTS) are automatically sent a fault notification message and can then address the issues at hand, while production continues without interruption. Avance virtualization permits the creation of separate virtual servers, in this case for the applications and for the database.

Thanks to this advanced server concept, Röchling Automotive is now able to protect its systems against unforeseen downtime and guarantee high availability at all times. “Once, we simply unplugged the power cable from the operational server, just to see how far we could push the system,” recounts Güner. “The shift to the other server was seamless and automatic. The second server took over all the processes, and the applications could be accessed even while the changeover was taking place. When we examined the database afterwards, there wasn’t a single error to be found.” Because

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Avance continuously synchronizes the databases and because both servers are exactly up to date with each other whenever a fault may occur, it does not take long at all for the two databases to be reconciled once the failed system has started up again. “It takes no longer than half an hour for the two servers and their databases to be completely in sync again,” states Güner. High availability is therefore restored to the overall system very quickly; this is important, as there is no other protection against failures while the second server is being repaired and started up again.

Business impact

Although the system consists of two separate physical machines, the user interface is for a single system only. This simplifies system administration considerably. “Avance has made it a lot easier to work with our system,” notes Güner. “The software provides an easy-to-use administration interface, both for managing availability and virtualization. Because of the concept’s simplicity, we can even manage the system remotely.”

For example, when there is a malfunction, I can use my computer at home to check what’s happening. Because the two systems completely mirror each other, nothing needs to be implemented physically or switched over manually. When there were malfunctions in the past, I’d always have to go to the plant in person; this would be inconvenient, but more importantly, it would also waste valuable time.” Especially for a plant that runs 24/7, remote administration is a great advantage and helps to ensure operational availability at all times.

The tight timeframe for weekly maintenance has also been resolved. On the one hand, overall system performance has been increased considerably thanks to the powerful 64-bit quad-core server machines and careful component matching, particularly of the hard drives. On the other hand, the simpler administration concept also speeds up the maintenance processes.

Naturally, Röchling Automotive also looked into other alternatives apart from Stratus Avance. A cluster system that had already been deployed at an earlier stage was ruled out due to the excessive amount of administration it required. Another solution, based on the VMware® virtualization system, similarly would have required a much higher level of administrative involvement. On top of that, both of these approaches would also have proven to be significantly more expensive.

“Both the cluster system and the VMware system would have required us to implement a separate SAN,” explains Güner. “In order to guarantee high availability, the SAN would also need to be mirrored, so in effect we would have had to implement two SANs. All in all, the

upgrade project would have cost more than twice as much. The advantage with Avance was that we could use the existing local RAID system.” With Stratus Avance, the project costs were significantly lower than with any of the alternatives.

In the end, Röchling Automotive received a powerful high-availability virtualization solution that is very easy to manage. “It’s exactly what we had been looking for,” concludes Güner.

About Stratus

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