

To Infinity and Beyond

Aerospace Industry Finds Resilience in the Cloud

Italian manufacturer UmbraGroup partners with IBM to ensure an always-on supply network for its global aerospace clients.

UmbraGroup is headquartered in Foligno, an ancient city tucked away at the edge of the Apennine mountains in central Italy, but its clients are all over the globe, in the air and even in space. The privately held company is a strategic supplier to aerospace companies including Boeing, Airbus, British Airways, Lufthansa, KLM, Lockheed Martin, Trumpf and Mori Seiki—all of whom depend on UmbraGroup's high-precision mechanical components to keep their aircraft in the air and their machinery running. The group's industrial and energy clients also depend on a steady supply of UmbraGroup's screws, bearings and electromechanical parts.

In today's operating environment of just-in-time supply chain management, these companies demand a lot of their suppliers. "For our customers, it's important for them to know that our business is always on and that we have a plan for any contingency," says Enrico Castiglionesi, UmbraGroup CIO. That's why the company turned to IBM, an internationally recognized IT partner, to ensure UmbraGroup's resiliency as a key supplier.

For small and midsize manufacturers such as UmbraGroup, IT is becoming more important in the design process and in the worldwide supply network. "Technology is present at every stage of the production cycle, monitoring quantities and costs of every operation and every item used or produced in our companies," says Castiglionesi.

The importance of resiliency for UmbraGroup took on added urgency as it began acquiring new operations, including two manufacturers in Germany and one in the United States. Castiglionesi and his colleagues completed a two-year consolidation of the group's Enterprise Resource Planning system in 2012, combining all four companies under one IT umbrella. Now, he and his colleagues have to ensure the worldwide availability of their systems across multiple time zones, well beyond their headquarters and main datacenter in Foligno. "If Foligno goes down, it's impossible for the other companies to work," says Castiglionesi.

In addition to the usual resiliency challenges, earthquakes are

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— Enrico Castiglionesi
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a fact of life in central Italy. Foligno, where UmbraGroup has its main datacenter, is only a few miles from the epicenter of a major earthquake in 1997. "We learned a lot after that one," Castiglionesi says. The biggest lesson was how much UmbraGroup needs to be sure that even an earthquake won't stop production and shipment to clients. "Our customers depend on us for parts, and they expect some visibility in our continuity planning," says Castiglionesi. "They want to see that we can continue to supply them in any condition."

Supply chains under scrutiny

UmbraGroup's customers are not alone in their concern about ensuring supply-chain resiliency—and not only for companies in earthquake zones. In the latest annual Supply Chain Resilience Survey by the Business Continuity Institute, three-quarters of respondents reported at least one instance of supply chain disruption in the previous year, most due to an unplanned IT or communications outage. "The dependence on technology to facilitate increasingly complex supply chain arrangements may produce a single point of failure, which may explain the results," according to the report.

Just-in-time supply chain management means that a sudden parts shortage can shut down or slow down entire industries. One in seven respondents reported annual productivity and other losses from supply chain disruptions of more than €1 million, but the

survey found at least one instance where the costs were in excess of €500 million.

Many large corporations are demanding that their suppliers comply with best practices for disaster recovery and business continuity by conducting joint exercises or alignment with an international standard, such as ISO 22301. More than a third of respondents require documentation of compliance from their suppliers. Almost half say that a business continuity plan is not enough; they require suppliers to have a full business continuity management program.

Securing systems in the cloud

For UmbraGroup, a unified ERP system reinforced the need for resiliency. “We knew we needed to put our ERP system in a disaster recovery environment with geographic redundancy,” says Castiglionesi. The first option UmbraGroup considered was to build everything in-house and lease space at a disaster recovery center in Germany. But this option proved to be too costly in several ways. “On-premise high availability needs a lot of hardware, software and staff working on it,” he says. He estimated it would take four or five people to properly update and maintain an in-house recovery solution—a considerable strain on UmbraGroup’s lean IT staff. “Also, we could not guarantee

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the quality of our recovery capabilities if we were leasing space and building in-house.

“I presented this issue to IBM staff, who offered a cloud-based solution needing no particular hardware, with quick and easy implementation,” says Castiglionesi. “We made a choice that it is better to be in the cloud.”

Partnering with IBM met all of UmbraGroup’s requirements: high availability of systems, no data loss, resumption in a matter of hours—not days or weeks—and a geo-redundant disaster recovery environment. IBM was able to take UmbraGroup’s requirements and find the right balance among performance, service levels and costs. An added bonus: UmbraGroup can continue to maintain a very lean IT environment, relative to the size of the group, the geographic spread of its business and the high expectations of the group’s global clients. With only a few peo-

ple in UmbraGroup’s IT function, Castiglionesi says, the decision to partner with IBM has “freed some resources because now our solution does not require any dedicated personnel.”

Compared with the resources necessary for an in-house solution, Castiglionesi appreciates the modular way IBM’s cloud offering is built and the pay-for-what-you-use pricing. The cloud offering relies on pre-configured hardware and dynamic provisioning to replicate everything to a remote datacenter, so the time to implement is minimal. “There was nothing special to be built by IBM or by UmbraGroup,” says Massimo Rossi, senior management consultant for IBM’s Global Technology Services. “We were able to customize our Disaster-Recovery-as-a-Service solution with a few simple steps and have the service up and running within a couple of weeks,” he adds.

Castiglionesi’s team worked with IBM to start work at UmbraGroup in phases. The first phase: securing a backup solution for disaster recovery while minimizing risks. “We spent three or four days to configure our machines internally and start with replication,” says Castiglionesi. “The first consolidation was very fast, and the dashboard is very simple to use.” The almost instant implementation reduces risk from a business perspective. “Our data are now secured in the cloud without negatively affecting any of the processes nor employees’ activities,” he says. IBM can guarantee the level of service and, going forward, IBM will be responsible for dynamic provisioning, updates and upgrades, reducing future risks for UmbraGroup.

Enterprise resiliency

Now that UmbraGroup has a disaster recovery solution in place, Castiglionesi and IBM are moving on to the next phase: a more comprehensive resiliency framework for the entire group. “Resiliency as a service means ensuring continuity—not only of the technology but the entire organization and all procedures,” says Rossi.

IBM and UmbraGroup are designing a continuity plan that defines all the procedures and dependencies in operations as well as technology. “We are trying to make this risk more and more automatic from a technology perspective,” he says. IBM and UmbraGroup are working through every process to make sure that no step is dependent on a single individual. “The objective is to have a failover plan that covers all operations in case of emergency—a plan that can reduce dependencies or identify a way to work around them if necessary,” Rossi says.

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**— Massimo Rossi
Senior Management Consultant,
IBM Global Technology Services**

Q&A

With Man Bui, Global Disaster Recovery-as-a-Service Expert, IBM

Are large global organizations demanding more visibility from their suppliers when it comes to resiliency?

Yes, because of both regulations as well as sound governance of the business itself. If a business model relies heavily on tight integration with suppliers, the board of directors is more likely to ask for visibility in the company's ability to maintain its supply flow—particularly when there is any kind of disruption that would directly impact the ability to stock shelves and deliver goods to consumers. The degree of visibility that companies demand of their suppliers depends on how real-time their own business model is.

Supply chains are a lot more far-flung today than they were 20 years ago. Large companies are sourcing from wherever they see an advantage. That is good for their cost, but it requires that they have visibility into their suppliers' abilities. To reduce carrying cost and inventory risk, more and more products are being built to order with fast fulfillment time. That's great as long as everything is working smoothly. But if you're down for a day, the impact can now cascade throughout the entire chain—from order to delivery.

One thing that has changed dramatically is the frequency of information around the supply chain. A daily update of production status used to be sufficient. But now, as everybody in the supply chain becomes more real-time, there is a commensurate demand for real-time information about where components are located, the status of each production step and where everything is in the process. Then, that real-time data can be used to proactively respond to variances and abnormalities: which parts are depleting, from which suppliers, through which shippers, on which routes, in which warehouses, administered by which processes, systems, data and people?

With that growing need for minute-by-minute supply chain visibility, what sort of resiliency planning and practice would you recommend to minimize disruptions and downtime?

First, make sure that you have a backup system. Make sure that your in-house IT infrastructure has spare capacity, so that if a particular server goes down, there is another one immediately available to take over. But that's just a component-failure kind of resiliency. If you have a wide-scale incident such as your entire IT system goes

down or your entire facility has gone dark because of a power outage or a major incident, then you need a second site.

Our customers are still worrying about the 10-year flood or the 20-year earthquake. But now we're seeing that our customers are worrying more about things that may happen on a daily basis such as a virus or a cyber attack that could bring down their IT infrastructure. When this happens, they may need to run entire applications from a second site.

How can smaller companies afford this type of resiliency program?

Disaster recovery traditionally has been more affordable for larger companies. They have the budget, they have the IT people to put something together, they have the scale to make it worth the investment. Smaller businesses tried to be as resilient as they could. They might be able to afford to have some extra servers sitting around for backup. They might pick one guy and say, "By the way, in your spare time, you are now our disaster recovery expert." A rigorous, regularly updated, frequently tested disaster recovery program was often beyond a small business's resource and expertise.

But the economics of disaster recovery has really changed over the last five years. Now, small companies can use cloud-based disaster recovery solutions for resiliency capabilities matching those of their supply chain partners. If a small company thinks that going to the cloud is expensive, then a lot of them are finding out that hiring extra staff to watch over their resiliency and recovery posture turns out to be even more costly. You need to find a second site, buy the extra equipment, pay for extra software licenses. All of that becomes an ongoing cost. And if the business grows in size and complexity, recovery capacity must grow with it.

It's a lot easier for a cloud provider such as IBM to fire up that additional capacity on a pay-per-use basis. And the confidence level of that recovery being successful is much greater with a provider that does it as a business than somebody who does it in his or her spare time.

The future of most specialty manufacturers such as UmbraGroup will be defined by new technologies that are driving a dynamic change in the production environment. At the same time, the customers that depend on these small and midsize producers require them to demonstrate world-class, enterprise-level resiliency. In the age of global sourcing and just-in-time inventory management, much of the responsibility rests with the producer; it must be able

to keep its systems up and running, to operate in sync with branch offices and divisions around the world, and to connect with its clients, its providers and the after-market network.

For UmbraGroup, partnering with an internationally recognized service provider such as IBM means it can give its customers the assurance they demand and concentrate on what it does best: supplying the high-precision parts that keep its clients flying safely.



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