CASE STUDY: Web Services and Microservices Monitoring

SOMPO International Builds Business Platform Optimization with SOAP and REST Monitoring

Sompo International, a global provider of insurance and reinsurance, was new to middleware, but was not seeking a solely middleware-monitoring solution. Could Avada Software help?

It turns out, Avada Software could. "They took our Infrared360TM middleware monitoring product and used it in a different way," explained Peter D'Agosta, Co-founder and Managing Partner at Avada. "Almost everything we do is middleware, solving the middleware management challenge." Sompo, though, had a different, but related obstacle of monitoring web services. "Solving monitoring of web services was in our queue of enhancements," says D'Agosta. "Sompo moved it to the top of the list."

SOMPO'S CHALLENGE

Sompo is a Bermuda-based company originally known as Endurance, providing property and casualty insurance and reinsurance. Its success in the marketplace attracted the attention of Sompo Japan, that nation's second largest insurance firm, providing property, casualty, life insurances, and other financial services. In 2017 Sompo Japan acquired Endurance and the company was renamed Sompo International.

The marriage of the two companies was a good fit, as Endurance offered property, marine, and energy-related insurances as well as casualty, professional, and other specialty lines. In the months following the acquisition, the increase in global reach meant expanding systems. That task fell to a new department, Enterprise Architecture. Dmitriy Melikov is Assistant Vice President, Information Technology, for Sompo International, located in the corporation's

At a Glance

COMPANY

Sompo International Holdings Ltd. (Sompo International) is a global specialty provider of property and casualty insurance and reinsurance.

- **Number of employees: 3,000+**
- **Global Reach: 30+ countries**
- **Revenue: $8B**
- **Middleware Solutions: IBM MQ, IBM DataPower**

CHALLENGES

- **A merger/acquisition created the need for an enterprise integration platform.**
- **The SOMPO team needed insight into performance of SOAP-based traffic with web services via its middleware to prevent and identify issues before they negatively affected customers.**

SOLUTION

- **The secure, self-service interface of Avada's Infrared360™ offered Sompo International a single solution to monitor all queue managers across all platforms including SOAP and REST-based traffic.**
- **Infrared360's approach to monitoring without the need to capture or store customer data offered a simple approval process.**

office in Florham Park, New Jersey. "We were tasked with building an enterprise integration platform because we only had some point-to-point integrations at the time," Melikov says.

The integration required some form of middleware solution and after a rigorous evaluation process "we ended up selecting IBM," Melikov says. Even though the company did not require a large middleware footprint for its on-prem landscape, Sompo selected IBM Integration Bus, MQ and Data Power appliances for its message broker capabilities, which provided the best-fit functionality Sompo International required.

Once implemented, "everything worked fine," Melikov says. But while the middleware solution functioned as designed, the status of the web services required more transparency if Melikov's team wanted to head off issues before they become critical and affect their internal and international customers.

The Sompo International team launched another technology search for a monitoring solution, evaluated a few of them, and selected AVADA.

ADDRESSING SOAP

Unlike the majority of AVADA's customers for Infrared360, Sompo International was not seeking software to perform just IBM MQ monitoring. "We're not heavy users of MQ," Melikov says. Instead what it needed was a way to monitor SOAP-based traffic via its middleware to its webservices. "We needed a tool with the ability to send the specific SOAP payload or request to the web services and, based on the response that we get back, we would know that the services responded as requested."

> "You can't know if [a SOAP-based] service is working as expected just because the service is responding; the response may be invalid and hide issues with the services."

In SOMPO's case, the queries tap different web services in the SOMPO workflow. There are queries to ensure the claimant has a policy, another to validate the existence of a policy, another to confirm limits and coverages of the policy, and another to determine if there are any outstanding balances on the premium.

Sompo International is somewhat unique among AVADA's financial services clients in that most of its business is B2B. Sompo's challenge was equally unique when Melikov approached AVADA at an Industry Conference event. AVADA was giving attendees a product preview of its Infrared360 middleware monitoring solution and one, small piece caught Melikov's eye. His interest piqued when he saw their SOAP connector.

SOAP—Simple Object Access Protocol—is one of the most mature technologies used today, more than twenty years old. It reliably enables communication between web services and is one of the fundamental protocols used to communicate with the growing

expansion of microservices, those small pieces of software that help organizations evolve their technology stack by enabling the reoccurring, rapid, and reliable delivery of large, complex applications.

The financial services industry has long embraced SOAP because it is a perfect medium for handling structured and hierarchical data.

The issue with SOAP is that its strength, the capability of handling large data volumes, also makes it a challenge to manage and monitor. A SOAP packet via middleware to a web service can be rejected, which is an issue that is relatively easily identified. But what if the webservice returns a response that is wrong or invalid?

In SOMPO's case, their middleware environment is relatively small. "They started with ten to twenty endpoints; they were up and running on our product in about an hour," D'Agosta says.

Monitoring of SOAP traffic "cannot be limited to knowing whether a service is up or down," says Melikov. There is a level of sophistication required. "You can't know if the service is working as expected just because the service is responding; the response may be invalid and hide issues with the services."

For example, it's not enough to query a claimant's account to confirm they have a policy, but it also must be confirmed that it's the right policy to match the circumstances of the claim. That requires teaching the Infrared360 system to recognize a valid response from just a response. "We know for sure that a specific policy exists and know what value we should get back," Melikov says. With Infrared360, SOMPO can search the web payload and identify the payload we should get back and the policy that should return, for example."

AVADA'S SOLUTION

Every SOAP message is different. For SOAP requests, your Web service or microservice may or may not give you a response, but what SOMPO needed to know was not only that it received the output from the web service, but that the output was valid.

SOAP payloads and responses are a little tricky in that monitoring needs to determine:

- Was the SOAP payload accepted or rejected?
- If rejected, was the SOAP payload properly formed?
- If the SOAP payload was accepted, was the web service output appropriate?

AVADA offered to adapt its Infrared360 SOAP service to meet Sompo's needs. Although simple to say, it required a lot of back-and-forth between Sompo International and AVADA's support and dev teams to identify key details. From nearly two decades of working with clients, the team at Avada knew there was potentially a minor landmine ahead. They needed to know how Sompo's data structures and their queries were formatted, and with other clients, Avada had seen some reluctance to share that. In the minds of some, data structure is akin to the keys to the data itself, but that's not the case.

The hesitation to share data structure rarely comes from the client's technical teams, but instead comes from corporate or legal. The Avada team has been in countless meetings where they had to impress upon the client that Infrared360 doesn't capture or store customer data. What is needed, however, is the data structure, so that a template can be used for the customer to determine the service type requested, which then lets the product inspect the portion of the template relevant to their monitoring needs.

Fortunately, this did not prove to be a serious hurdle for the Sompo International team, which provided sample/scrubbed SOAP payloads and responses for the AVADA team to study and dissect. AVADA reworked the user interface so that SOAP queries could be cut and pasted into the Infrared360 user interface screens. From there, Sompo could build its own business rules as to what constituted a successful payload and response.

For AVADA, it was a revelation in that its solution not only works for SOAP, but also for other protocols, including REST and JSON or even XML data structures. Furthermore, it demonstrated the expanded capability of Infrared360 to not only effectively monitor the middleware environment, but also traffic touchpoints, which in SOMPO's case were web services. "The same basic principle extends to microservices," says D'Agosta. Middleware, he explains, is about connecting disparate systems so they can talk to each other. But it is also the content of that conversation that is important.

THE AVADA ADVANTAGE

Web Services / Microservices Monitoring

AVADA's philosophy, "be flexible yet simple," extends not only to the many different middleware technologies, but also to specific forms of data traveling to and from touchpoints.

"The same web-based platform, that for more than a decade has monitored middleware, can be extended to web services and microservices," says AVADA's D'Agosta. "Frankly, there is no limit."

For web services, those invisible-to-the-user web protocol applications, AVADA's Infrared360 not only can monitor the traffic flowing in and out, but also the integrity of that traffic. Some web services can represent thousands and thousands of lines of code or can be comprised of multiple modules or microservices. D'Agosta uses Infrared360 itself as an example. In Infrared360 there's a log-in service, a service that calls LDAP, a service that validates if the user is in the proper LDAP repository, and a service that maps the user to a specific group. While a group of microservices in this case comprise a web service, the microservice can function independently. "Sometimes you only want to know if a User is in the LDAP repository," D'Agosta says.

Not only do you want to know that the web service or microservice is responding, you want to know if it is responding properly. Are you getting the entire answer or only part of the answer?

While AVADA is not a custom code shop, customers can extend the capabilities of Infrared360 to create business rules to determine not only if a web service or microservice has responded but if that response is correct and properly formed. AVADA's solution does this without storing or retaining any customer data.

That includes SOAP or REST-based technologies that are critical to many web services by not only monitoring the flow of data but also, if required, the reliability of that data.

"It works for an individual microservice or a web service, including those comprised of individual microservices," D'Agosta says. "If we know the URL being called, we can monitor it." If an airline includes a car-rental service, the entire web service can be monitored. But if the airline wants to ensure the microservice that checks the inventory is correctly reporting that 'yes, there is indeed a car available,' Infrared360 can do that.

"Think of it like exits on a freeway, where packets of data are the vehicles, getting on and getting off," he says. "It's not enough to know the traffic is moving, but also it's the right traffic that's moving. The car may reach its destination, but if it has the wrong passenger/data, a monitoring solution should be able to detect that."

TRUE PARTNERS

Although AVADA is not a custom code shop, the Infrared360 middleware monitoring solution has multiple features that customers can exploit based on their own landscape and requirements. This was a situation where a potential customer identified a feature within Infrared360, in this case SOAP monitoring, and wondered if it could be more robust. For AVADA, it is a beefed-up feature that it now offers to other clients.

Melikov is impressed. "Infrared360 allows us to go deeply into specific platforms to achieve optimization, but at the same time it appears to be pretty flexible," he says. "It allows for very generic monitoring. It does not appear to be not so limited in scope to one specific platform or set of applications."

He also was pleased with AVADA's support and dev teams. "We worked with them on questions and challenges we encountered and, as a result, there were some changes to meet our specific needs," Melikov says. This has resulted in building new profiles as well as additional services and actions "based on our actions and what makes more sense of our issues and our problems."

The AVADA team was also very responsive, so much so that it took far less time to develop and roll out the SOAP monitoring solution than it did to get the internal reviews, approvals, and budgets, Melikov says.

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The knowledge transfer between AVADA and Sompo International was handled exceptionally well. It did not take long for the Sompo team to configure Infrared360 for monitoring, analytics, auditing, and alerts.

What Infrared360 has done for the Sompo team is made it far more efficient. The staff can do more and be more responsive to the business. The most important factor is that by solving the SOAP monitoring challenge, "it allows us to monitor and be proactive with more uptime and less downtime," Melikov explains.

The objective of any IT organization is to be aware of issues before your customer. "If something goes wrong, the price is very high," says Melikov. "It's always pretty bad when IT people find out about issues from the business side. You don't want your businesspeople calling to tell you something is not working."

SOMPO INTERNATIONAL

Dmitriy Melikov is Assistant Vice President, Integration Architect for Sompo International. A hands-on technical leader, Dmitriy now leads multiple enterprise integration projects at Sompo. In a technical career that's spanned more than 20 years, Dmitriy has been a hands-on leader working with cutting edge technology to establish and optimize Software Development Lifecycle processes, develop large system integration projects, and implement eCommerce systems and Web Portals.

For more information on Avada's Infrared360 or to arrange a demo

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