



Case Story | Bell Helicopter

Cutting through the code to meet export control regulations

When Bell Helicopter realized the scale required to develop an in-house role-based access control system to manage strict export regulations, the decision was made to look externally, and enlist a proven vendor solution.

Axiomatics served up what was needed; Attribute Based Access Control (ABAC) for sensitive and regulated data, throughout the entire enterprise. The scalable solution safeguards sensitive information, facilitates global collaboration, and enables Bell to meet export controls.

Background: Strict export controls equate to complex user permissions

The export laws that govern Bell Helicopter's environment are very strict in this highly regulated industry. In an IT environment this translates to only allowing users access to technical data if they meet specific criteria, such as nationality, physical location and country of origin. User permissions also depend on the classification of the data that is being accessed, and the availability of export authorizations allowing the user to access the data. Companies processing information subject to export controls therefore have to classify their sensitive data as mandated by regulations.

Thus, applicable access control policies must evaluate information about the user, in relation to the data and the context of the request. The complexities involved in this are extremely challenging. Any solution has to meet the dynamic nature of the access control requirements.

In brief

Company Overview

Bell Helicopter is the world's premier provider of vertical lift aircraft. They are headquartered in Fort Worth, Texas, and have additional plants in Amarillo, Texas and Mirabel, Canada. They also maintain key logistics supply and service centers in Europe, Canada, Singapore and the United States.

Requirements

24/7 dynamic product life cycle management authorization for export control compliance, based on the Attribute Based Access Control technology.

Typical attributes that need to be evaluated for every single access request include:

- User's nationality in relation to the classification of the individual data items, or assemblies that are being accessed
- The context of the access request, such as from where or at what time it is made. This needs to compare user characteristics with meta-data about the information assets, while considering the request context.

Solution

Next generation authorization for applications with the Axiomatics Policy Server, APS.

Technology

Attribute Based Access Control (ABAC)

The story: The Move to the Axiomatics Policy Server

The internal data architecture team at Bell, charged with controlling data access in line with export control regulations, has a purview across global regions for Bell Helicopter's enterprise and engineering software - and were charged with an initial internal data access control project that included custom-coding a complex role-based system. However, the project was mushrooming in size and workload – with over 10,000 lines of code and ongoing audit requirements. The complexity had become unmanageable, difficult to scale and inflexible. How could they accomplish this critical task with a solution that was smarter, faster and scalable? The research for a fine-grained solution and a proven vendor began.

“...the project was mushrooming in size and workload – with over 10,000 lines of code and ongoing audit requirements.”

Choosing standards-based Attribute Based Access Control

As the research unfolded, the team quickly identified the need for a more dynamic approach – one that could be provided by Attribute Based Access Control (ABAC). They knew this was the way to go. However, they also needed the support of a vendor that had a best-in-class ABAC product, and was committed to the standards-based language – eXtensible Access Control Markup Language (XACML) – used in ABAC.

XACML provides a way to write policies for access that includes multiple attributes and can be substantially compacted – for Bell Helicopter this meant a clean way to move beyond the legacy role-based system and custom coding in place.

Following a thorough review of vendors, Bell identified the Axiomatics Policy Server as the best-in-

class solution. Axiomatics long-term commitment to the XACML standard was considered very important. As an early adopter of ABAC, Bell was keen to put the Axiomatics Policy Server to the test, and it duly proved its value.

“Following a thorough review of vendors, Bell identified the Axiomatics Policy Server as the best-in-class solution.”

Using Next Gen Dynamic Authorization in Real-time.

The Bell development team used the Axiomatics Policy Server to develop policies and build a policy enforcement point for their internal application. This helped engineering, procurement and manufacturing prevent unauthorized access to sensitive information, and yet still collaborate to solve business problems. Throughout the process, key learnings guided the team as they worked through the integration of the Axiomatics Policy Server.

Involve people for the long-term. Defining access control policies was very complex – it needed to meet the needs of Bell's many compliance, collaboration and data-sharing requirements. The pilot uncovered an ad hoc process for managing and changing policies – that varied across departments and regions.

A Policy Working Group was assembled to oversee the process of creating, managing and implementing new policies. The group streamlined the process and made sure that the business rules matched the needs across departments and strict regulations. The Policy Working Group remains in place for ongoing diligence around policy creation,

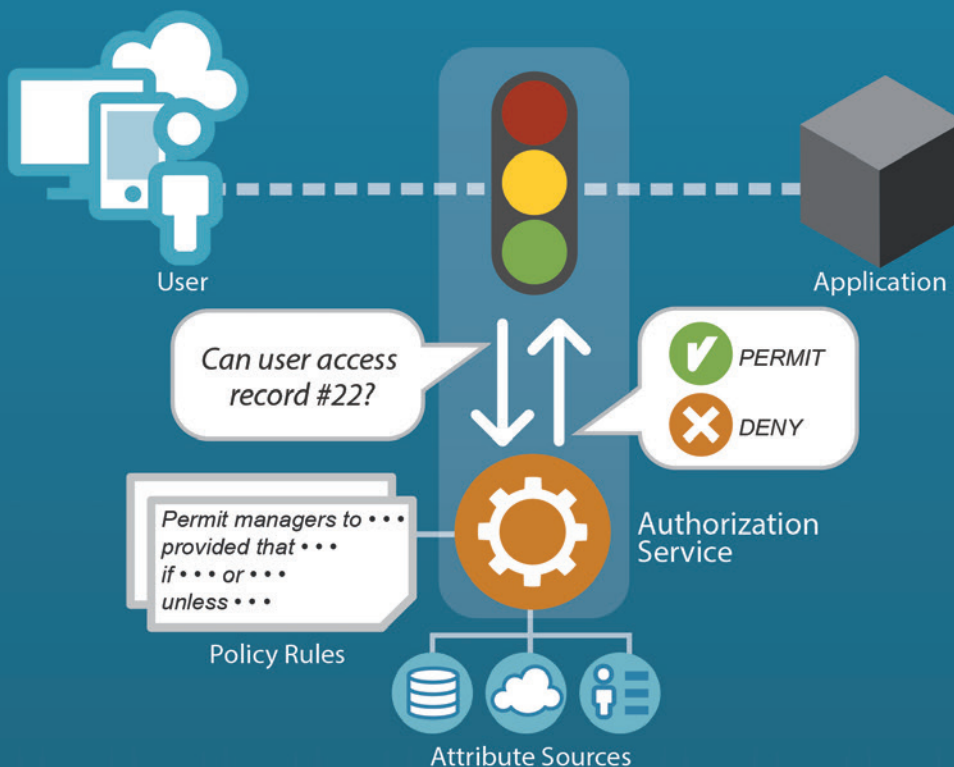
“This helped engineering, procurement and manufacturing lock down unauthorized access to sensitive information, and yet still collaborate to solve business problems.”

Technology:

What is Attribute Based Access Control?

Attribute Based Access Control (ABAC) is the next generation in information security. It governs who can access what information based on regulations and an organization's policies. Unlike first generation authorization models, such as Role Based Access Control (RBAC), there are no limitations to the number of factors that can be used to determine access to information. This includes times of day, location, device in use, role of user, and action(s) permitted.

This makes Attribute Based Access control ideal for organizations operating in highly regulated industries, with complex infrastructures, mobile workforces, and multi-device access requirements.





editing and deployment, and to ensure cross-departmental involvement at each step.

Create common data vocabulary. The ABAC deployment connected systems that had not been previously communicated. During the testing phase, Bell found that the quality of the data being returned through ABAC was greatly affected by varied data vocabulary and constraints across systems. The teams were required to rethink data inputs – such as part numbers – that would work across character limits, regions and departments with different goals.

Policies should map across departments. In writing policies with common vocabulary and neutral language, Bell reduced the ongoing “Engineering v. Manufacturing” issues related to access control, and ensured that the needs of each line of business were accounted for. With the Policy Working Group at the center of these efforts, the teams began to speak a common data language and understand concerns across the entire business.

Axiomatics Value and Benefits

Priority one for Bell Helicopter was finding a partner that was well-versed in XACML and true to the standard. Axiomatics proved its commitment to this standards-based approach. In addition, the best-in-class nature of the product has provided the stability that is essential at a defense manufacturer like Bell, as the company deploys many large systems that must work together. The Axiomatics Policy Server has integrated smoothly with these systems.

Reliability of the system is equally important. An ABAC deployment becomes an integral part of the business operation, so downtime can impact productivity. On this point, Axiomatics also stands out, “We’ve required 24x7 operation of the services it provides, and it’s been providing that without incident for years.” said Greg Heartsfield.

Business Benefits

Bell Helicopter’s adoption of ABAC through the Axiomatics Policy Server provided several key benefits, beyond enabling them to meet export control regulations.

Improved speed to market, improving profitability and introducing time and cost savings.

Virtual elimination of data exposure in the procurement process. “We don’t store the sensitive data anywhere that it could be exposed,” says Heartsfield. The Policy Information Point within the ABAC system ensures the decision process remains external to the massive manufacturing systems – which is a key benefit of using XACML-based ABAC.

Stability of systems, as the teams have not had to make any live changes for export or IP controls – meaning no downtime, and an increase in productivity – and ultimately bottom line improvement.

Help teams stay focused on their core job roles. The ABAC deployment solved a very complex ongoing issue that affected teams outside of the core development team and application development teams –meaning manufacturing teams can stay focused on what they do best, knowing access control is in place and scalable.

“We’ve required 24x7 operation of the services it provides, and it’s been providing that without incident for years.”

Greg Heartsfield, Bell Helicopter

Increased trust among application development teams. The performance and reliability of the ABAC implementation has allowed teams to feel comfortable relying on this service in the critical paths of their code, knowing that it will be online, responsive, and give accurate decisions when called upon.

Conclusion and Next Steps

Bell Helicopter continues to make ABAC deployment a priority, and is using the Axiomatics Policy Server on several new systems. The team is also looking at fine-grained data control implemented with ABAC – to ensure that databases are governed with a similar set of policies and processes, using the Axiomatics Data Access Filter.

Axiomatics is the world's leading independent provider of dynamic authorization solutions. We enable organizations with highly sensitive, business-critical information to safeguard and centrally manage user access through externalized, context- and policy-based authorization solutions for applications and databases that work within and across enterprises.



AXIOMATICS AB

info@axiomatics.com

www.axiomatics.com