CASE STUDY

Aruba Networks is a leading provider of next-generation network access solutions for the mobile enterprise. Its industry-leading Mobile Virtual Enterprise (MOVE) architecture unifies wired and wireless infrastructures into one seamless network access solution – for traveling business professionals, remote workers, corporate headquarters employees and guests.

THE CHALLENGE

Mobility controllers play a critical role in Aruba's customer networks. Aruba is committed to ensuring the highest standard of product performance, including the ability to identify and quickly resolve any performance issues, should they arise.

A critical element in understanding controllers' performance is the log data they produce. Each controller collects data about numerous variables, including wide-ranging information such as the software version it is running, how many users are supported, numbers of sessions, and the type of traffic passing through the controller. These and other critical pieces of information are gathered into a log file that can be uploaded via a "phone home" feature in the device. Customers with the controllers can have the log file uploaded automatically or manually on a regular basis. Or, they can upload the log file at the time they initiate a customer-support case.

The controllers have a number of dynamic settings that can be changed by users, and over the years Aruba has issued a long series of software releases. So, the number of variables in the configuration of any given controller is very high. Added to that, the profile of how the controller is used can vary not just from customer to customer, but among sites within a customer's campus or enterprise.

These log files, which form a storehouse of information about the performance of Aruba's controllers and how customers are using them, is very valuable. But finding the most valuable nuggets of that information is not always an easy task. That is because the log contains complex, multi-structured data. The log files come in various formats that do not lend themselves to manual access and analysis.

Aruba captures information from thousands of systems in the field. The data is in the form of a bundle with each bundle containing hundreds of files. A typical file called the tech support log can contain over 10,000 lines with 200+ sections in multiple formats.

This is why Aruba sought a new way to simplify the process of extracting valuable information from mountains of log data in ways that would produce useful insights in the shortest possible time.
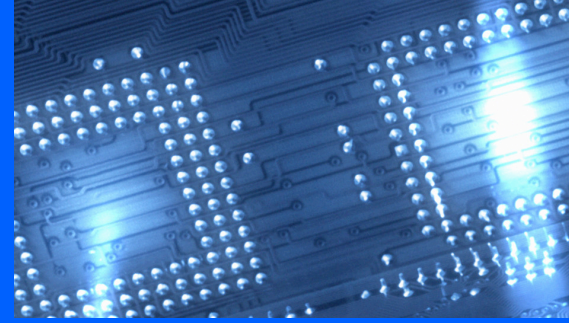
glass**beam**

THE GLASSBEAM SOLUTION

Aruba's situation is a good example of the type of application for which Glassbeam is perfectly suited – analyzing large amounts of semi/multi-structured machine data. Multi-structured data is information that can be of value to multiple business groups in a company

Asked by Aruba to help improve access to the machine data, Glassbeam developed a system that takes the uploaded log files, parses them for the values of greatest interest to Aruba, and prepares summary reports and dashboards. These reports are now being used by two groups within Aruba – customer support and product management. The underlying data is the same, but the reports and how they are used are different.

Customer Support

The Glassbeam reports form a repository of data that Aruba's customer support team can access as part of the process of pinpointing the source of a performance problem or customer complaint.

The process works like this: Log files from the controllers are uploaded directly to Glassbeam, and the Glassbeam application automatically prepares a HTML summary report that is made available to Aruba. If a customer identifies a possible performance issue, Aruba's customer support teams will use these reports in one of two general ways, according to Choh Kok, senior manager of Aruba's technical escalation team:

- Support analysts can gain a "thousand-foot view" of a controller's configuration and its health. The details contained in this report might steer the engineer toward previously known sources of problems.
- Support analysts also can use the output of the Glassbeam Rules and Alerts modules where "threshold events," or a set of pre-defined logic is defined to detect certain issues or conditions that engineers have seen before.

"Some of these problems we have seen before and we know how to fix them," Kok says. "Others inform our engineers on what the possibilities are, and help diagnose the problem."

Product management

The same store of log data forms the basis for reports used by Aruba's product management team, but its interests are different. "From my perspective, it's knowing my installed base better and getting visibility into what's happening with our controllers in the field," says Ash Chowdappa, senior director of product management. "We want to know information such as what versions of software our customers are running, what issues are they seeing, and how much capacity is being used."

The data gives Chowdappa and his team valuable, fact-based insight to help guide decisions on important questions such as:

- Have customers been upgrading to the latest software version, and have they been experiencing any problems after doing so?
- Was the most recent upgrade worth the effort, judging from customer adoption patterns?

glassbeam
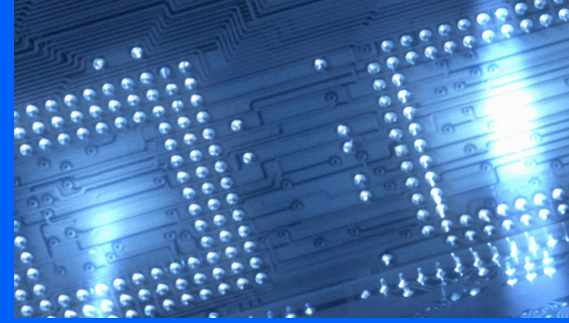
- Do opportunities exist for migrating customers to a more recent release?
- Do the way customers use specific features suggest there are better ways to consolidate features into groups?
- If we end support for a particular software release, how many customers will be affected?
- Are there patterns in crashes or other performance problems that suggest we need to get out in front of the issue and alert customers proactively?

For product management, the Glassbeam solution provides a critical advantage – a base of factual data to guide decision-making. "What we've done in the past is anecdotally ask customers what their experience has been," Chowdappa says. "It's mostly been 'guesstimates' as opposed to any sort of accurate numbers or reports."

By providing clear visibility into how customers are using Aruba's products, he adds, Glassbeam applications "help us make decisions in a calm and collected manner with proper data. When you have visibility, you can make more informed decisions, which takes the emotion out of the equation."

The Glassbeam Difference

Gleaning meaningful insights from log data is a complex task, Chowdappa notes, because the data is unstructured, and each customer's reporting format is proprietary. So, there is no off-the-shelf product that can match Glassbeam's capabilities. "We looked around, and what we realized is that there was nothing available," he says. "The only other way to get this information is to go hire a team of engineers to parse all the customer data. At this point, I have no way to get this information other than from Glassbeam. They have the ability to parse the unstructured data, create all the relationships, build a powerful user interface and present really well-organized reports."

"One of the major advantages of Glassbeam," Kok says, "is that we can define logic that helps us to detect some issue or lesson we had learned from cases our engineers had worked on before. So, it reduces the time it takes to resolve a problem, either reported again by the same customer or by a different customer."

"It's a matter of efficiency," he adds. "We can do this analysis manually, but that would require more time to come to the same conclusion. Plus, we can do things like pattern-matching and advanced analytics based on the data we have."

The Impact

For the customer support team, the Glassbeam application produces:
- Faster diagnosis of the problem leading to significant productivity gains
- Pattern detection not previously recognized
- The ability to search large amounts of log data and find the "needle in a haystack"

Kok says that in some cases, the time to isolate the source of a problem is reduced by two-thirds. The strength of Glassbeam, Kok says, is twofold: "It extracts all the information from unstructured data
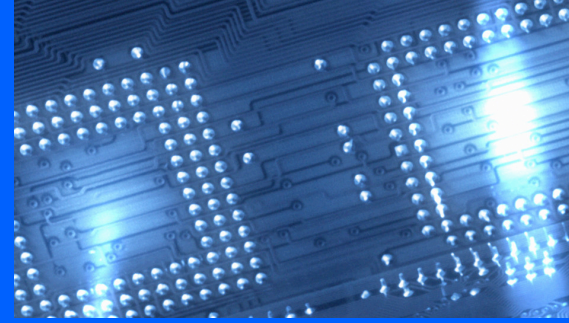
glassbeam

and presents it in a well-formatted report; and it allows us to define logic to detect lessons learned and known issues.”

For product management, the benefit of using the Glassbeam application is gaining fact-based visibility into how customers are using Aruba's products.

“It's great to have an infrastructure that appears to be operating efficiently, but if you really don't know how well it is working, and how end-users are perceiving performance, then you are lacking critical visibility; you are assuming everything is working fine when in reality it may not,” Chowdappa says. “You need to be able to proactively understand, measure and manage the performance and resolve issues before they become problems.”

For Aruba's product management, Chowdappa says Glassbeam “helps us proactively anticipate problems and understand the installed base, so that we are not flying blind. We use all that information to take the emotion out of our decisions and make objective recommendations for the business.”

About Glassbeam

Glassbeam Inc. is a Big Data applications company specializing in multi-structured machine data analytics for device manufacturers and their users. Glassbeam's pre-packaged Big Data applications for customer support, product development and sales leverage the company's breakthrough Semiotic Parsing Language (SPL) that can quickly extract strategic intelligence from complex operational data contained in multi-structure machine data.
To learn more visit http://www.glassbeam.com.

About Aruba Networks

Aruba Networks is a leading provider of next-generation network access solutions for the mobile enterprise. The company's Mobile Virtual Enterprise (MOVE) architecture unifies wired and wireless network infrastructures into one seamless access solution for corporate headquarters, mobile business professionals, remote workers and guests. This unified approach to access networks dramatically improves productivity

and lowers capital and operational costs.
To learn more visit http://www.arubanetworks.com.

###

![glassbeam](glassbeam logo)