Broaderbiz Inc.

BroaderBiz: End-to-end Service from Data Indexing to Building Dashboards

Client Company:
BroaderBiz Inc.

HQ Location:
Koto City, Tokyo

Industry: Integrator

Product:
Elasticsearch Kibana

Use Case:
Elastic Cloud Platinum

Subscriptions:
Elastic Observability

AI enabler and AI integrator BroaderBiz Inc. was responsible for the utilization of flow-of-people data and various other data in the "FY2021 Smart City Service Demonstration Project in the Nishi-Shinjuku Area Utilizing Advanced Technology including 5G," conducted by the Tokyo Metropolitan Government. BroaderBiz also developed the Area Management Dashboard, which accumulates, analyzes, and visualizes data such as the number of people who walked a footpath on a direction-specific basis and the number of people who stop and stand in place. By combining Elasticsearch and Kibana, BroaderBiz was able to achieve a seamless end-to-end process from data indexing to dashboard creation.

BroaderBiz Inc.

Founded in 2017 with the aim of promoting the spread of AI that could be useful to society, BroaderBiz's core members have over 20 years of experience implementing cutting-edge web technology in the business endeavors of major companies in Japan and around the world. BroaderBiz's role as an AI enabler and integrator that promotes AI utilization is at the core of its business.
https://broader.biz/

Promoting the Expansion of AI That Is Useful to Society Participating in a Smart City Demonstration Project and Visualizing the Results

BroaderBiz Inc. is an AI enabler and integrator that aims to promote the spread of AI that is useful to society. BroaderBiz provides the researchers, developers, service providers, manufacturers, and various other types of people and expertise required to build the platforms that society needs, in addition to bundling together technologies, services, and products. As part of those efforts, BroaderBiz has also participated in various demonstration test projects that strive to put AI to use in society and has a history of proven resultss in that area.

One demonstration test project in which BroaderBiz has participated is the "FY2021 Smart City Service Demonstration Project in the Nishi-Shinjuku Area Utilizing Advanced Technology including 5G," conducted by the Tokyo Metropolitan Government. The metropolitan government's initiatives include installing 5G antenna base stations and sensor-equipped Smart Poles in the Nishi-Shinjuku area. In this project, BroaderBiz was responsible for the utilization of flow-of-people data and various other types of data collected on-site. The aim of these initiatives is to establish the technologies and methods to provide easier-to-understand information to local visitors and data to local companies for use in making environmental improvements.

"Although there are some differences based on where they're installed, Smart Poles are equipped with temperature and humidity sensors, cameras, signage, and other features. To protect personal information, the camera footage is handled only in a closed network, and the output is flow-of-people data analyzed by AI. For each site, data on the number of people who walked a footpath on a direction-specific basis and the number of people who stopped and stood in place are calculated on a per-minute basis and transmitted to the system. BroaderBiz collects, aggregates, and analyzes this sort of data, and created the Area Management Dashboard to provide easy visualizations of overall trends," explained Makoto Aoki, CCO and Executive Managing Director of BroaderBiz.

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Combining Elasticsearch and Kibana for End-to-end Dashboard Development

Aoki says the visualization functionality was a particular area of focus for BroaderBiz.

"The purpose of flow-of-people data is to enable the company personnel responsible for buildings, areas, and event planning and management to utilize that data in their daily operations and activities. Visualization is the first step in that process, and we must enable tools to give realistic information to people engaged in business. Matters that are difficult to understand as a series of numbers can be visualized to make overall trends and changes clear at a glance, and in some cases you will realize things for the first time only when you are able to visualize the concept. It is these realizations that will help you think of ways to put the data to use in your business operations. For example, if you can monitor changes in flows of people based on the day of the week and time of day, or the impact of local events in the area or vicinity on flows of people, then you can make preparations in advance to enable smoother operations."

In this project, BroaderBiz developed a system wherein flow-of-people data processed on a closed network is transmitted to a BroaderBiz system for storage, analysis, visualization, and other processes. For that purpose, BroaderBiz selected Elasticsearch and Kibana. BroaderBiz had often used Elastic products in its past projects and had a wealth of experience with them.

"When I first heard about this project, I initially envisioned a slightly simpler system. However, when I considered all the project requirements, I realized it would take a lot of man-hours to create user management mechanisms and other components. We also wanted visualizations that go beyond simple graphs and present various data in a format that interrelates them to each other, and we wanted it to be easy to change how data are presented on a trial-and-error basis. Thus we decided Kibana was needed for its visualization capabilities, and Elasticsearch was the proper choice for data storage and analysis for its end-to-end functionality that links up with Kibana. With this combination, it is also easy to satisfy user management requirements," said Aoki.

Aoki began his career as a graphic designer before transitioning to the role of web engineer and eventually beginning to work with databases. He says he often begins by first considering the UI and then designing towards the back end. In this design and development work, Aoki said that the connections between Elastic products make the products easy for him to use.

"Combining Elasticsearch and Kibana enables us to achieve a seamless end-to-end process from data indexing to dashboard creation. In this case, as well, I found it easy to build using Elastic products.

> Combining Elasticsearch and Kibana enables us to achieve a seamless end-to-end process from data indexing to dashboard creation. With Kibana, it is easy to create effective and easy-to-read visualizations, and it was easy for us to make improvements while keeping track of user response. Moreover, it is easy, quick, and painless to deploy the Elastic Cloud. I was able to focus on the part that is my real job, handling data, so this was my ideal way of going about the process.
>
> *Makoto Aoki, CCO and Executive Managing Director of BroaderBiz, Inc.*

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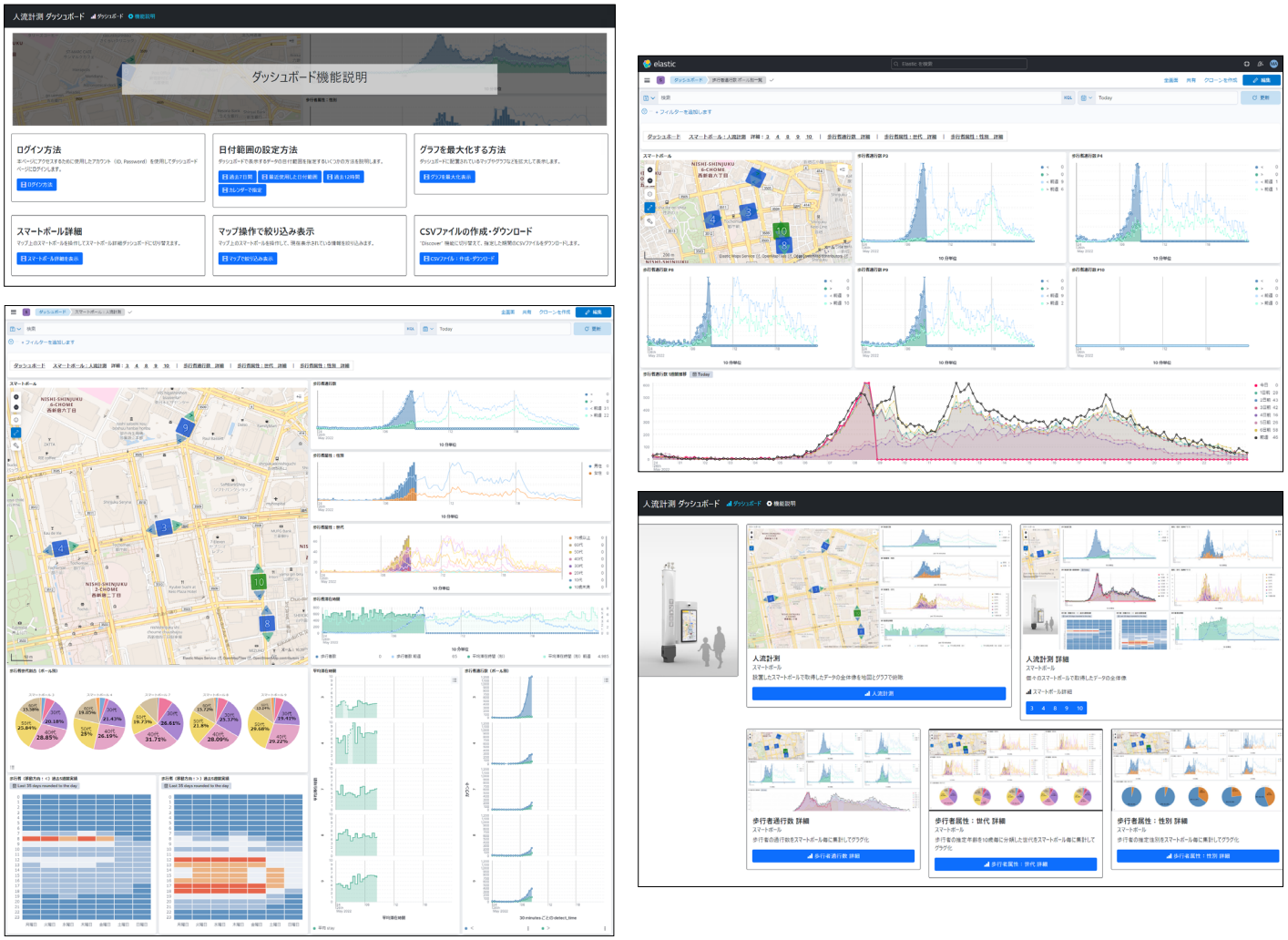

Examples of Area Management Dashboard screens achieved using Kibana

Most of my work was building dashboards while also setting up user roles and other similar tasks. With a standard RDB, the preliminary stages would likely have taken a lot of time and work."

Amidst High Praise from Users, Streamlined Development Enables Focus on Primary Objectives

Additionally, rather than being an on-premises environment, this system is deployed on the Elastic Cloud. BroaderBiz said that one major reason for switching was the time-consuming security setup under their existing subscription. The use of Elastic Cloud streamlined development.

"We initially planned for an on-premises system and tentatively deployed to a docker server we managed. However, a subscription with sophisticated security was very expensive, so we changed over to Elastic Cloud instead. Other benefits are how quick deployment is with Elastic Cloud and the fact that it can be used immediately. Thanks to this, not much time was taken up by environment building, configuration, or other non-core tasks, so we could focus on the core task of data-handling instead. This was close to our ideal way of going about the process."

On Elastic Cloud, they used the latest versions of Elastic products that were provided by default. Since they were newer than the versions Aoki had previously used, this also provided an opportunity to use new features.

"In terms of our current project, the improvements to user management features were helpful, and since we are handling coordinate data for Smart Pole installation locations, the advances in map-related functionality have been incredibly useful," said Aoki.

He said that this enabled them to focus on the most important aspects, plus the high quality of dashboards with Kibana's flexible visualization capabilities were also well-received. End-users also praised the "intuitive" presentations of the collected data. Overall, Aoki assessed the service as follows:

"With Kibana, it is easy to create effective and easy-to-read visualizations, and it was easy for us to make improvements while keeping track of user response. Although the Tokyo Metropolitan Government's demonstration project is over, we of course plan to submit proposals for the next one, should it happen. We are also currently in contact with building management companies and others in Nishi-Shinjuku with which we have relationships, and we hope to further develop our results from this project in the future. Many approaches are possible, such as analysis that incorporates sensor data other than flow-of-people data, or looking into the connection between flows of people and signage displayed on Smart Poles."

High Hopes for Advice on Data Management, Etc., via Elastic

BroaderBiz was also able to obtain some new expertise through this project. One such example is experience using Elastic Cloud. Aoki appreciates that Elastic Cloud is flexible and can be used with Amazon Web Services, Microsoft Azure, or Google Cloud.

"Given that Elastic Cloud offers choices for deployment destinations, it can support customers who want to specify particular cloud platforms, making it easy to use for future proposals. Another thing that I realized when using the service during this project is that deployment is fast and easy. I think these characteristics make the service a perfect fit for the fast pace of projects these days."

Aoki also says that Elastic's support features may also be needed someday, even if he didn't have an opportunity to use them in this particular project.

"For example, with a larger system, there could possibly be a project involving data lifecycle management that takes into account the costs of cold data. In cases like this, it would be useful to have access to data management experts who can provide advice," said Aoki.

Aoki added that for UI matters, it would be even more helpful if the tools offered certain innovations.

"For example, in our current Smart Pole project, it could be possible to offer a single-function UI restricted specifically to signage. With this sort of UI, it is necessary for pedestrians to understand the signage within one or two seconds when passing by, so it is very different from a desktop UI that you stare at for a prolonged period. Even for the same data source, the type of UI that's appropriate will change dramatically depending on how it is to be used, so these days it is often necessary to customize. If some of these customizations were offered along with the products themselves such that users could select them based on their intended use, it would really improve user-friendliness even further."

Contact
Email: elastic-japan@elastic.co

Elastic is a full-text search engine provider and developer of the Elastic Stack (the Elasticsearch, Kibana, Beats, and Logstash product families). It provides both on-premises and SaaS services for real-time processing of large volumes of data for search, logs, security, analysis, and other use cases. Elastic's community has grown in size to over 100,000 members. Elastic Stack is used by companies and organizations throughout the world including Cisco, eBay, Goldman Sachs, Microsoft, the Mayo Clinic, NASA, the New York Times, Wikipedia, and Verizon for mission-critical systems. Elastic was founded in 2012 as a "distributed" company whose employees are located all over the world. Visit elastic.co/ for more information.

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