A map information system is an essential tool for service quality improvement

The mobile communication giant, NTT DOCOMO, employed Google Maps API for Business for their in-house area information management system in March 2012.

The most important service quality in the cellular phone service is, as a matter of course, maintaining connection. A map information system is an important tool for their personnel to identify the location of a base station that covers the service area most effectively and support subscribers who want to enquire about the service area at a DoCoMo shop.

In 2007, NTT DOCOMO decided to integrate regional companies in eight regions across Japan into a single company system (present organization) by July 2008. Before then, each regional company built its own area management system and used various map data products, including ones supplied in the form of a package or supplied on-line.

"Merging into a single company was the start of the integration of diverse area information management systems" explained Yoshiaki Uehara, section chief of network information systems, Information Systems Department.

Unprecedented request from management that revealed their shortcomings

The Great East Japan Earthquake struck on March 11, 2011. The Information Systems Department led by Uehara was ordered to put out the recovery area map immediately by the management.

"This was an unprecedented request," he said. The instruction by management was to show out-of-service areas. Normally, they show coverage areas of the service area map to appeal their high-quality service. He added: "The recovery area map means out-of-service areas, and so showing it could reveal our shortcomings. Disclosing the negative information was a truly unprecedented event."

Showing out-of-service areas accurately could help recovery from the disaster even if there was negative effect on the company. Under a catastrophic national emergency, the management put considerations of corporate profit to one side. They made a decisive and noble decision.

"In addition to this, we received another request from the management - to create the map as soon as possible," he added. The Information Systems Department staff, including Uehara, created the map utilizing the existing system and data as much as possible and completed the map in few days. It was officially named the Recovery Area Map and released on March 20. Soon after, they received a huge number of comments from users through Twitter and other means.

"Among them, we found a lot of comments saying, 'Why don't you make a map using..."
Google Maps? At that time, five years from its release, Google Maps had advanced remarkably, becoming the de facto standard in the map information system. Compared to Google Maps, our Recovery Area Map was not user friendly,” Uehara reflected.

**System development was completed in four months - far shorter than the estimated development period of at least one year.**

In September 2011, they were instructed to make the system construction more efficient to reduce costs from the management.

Uehara thinks back: "Comments from users on Twitter set the stage. We started considering replacing our existing area map information system with Google Maps API for Business to respond to the request by the management.”

Development started in November, and replacement of the Recovery Area Map was completed by the following month. At the beginning of March 2012, four months after the start of development, the switchover of the entire area information management system to Google Maps API for Business was completed.

“To build a map data system with a huge volume of data would normally take almost six months for the addition of the lowest-level functions alone. Reconstruction from scratch, like this time, takes at least one year. One of the biggest advantages of Google Maps API for Business is that the development period was shortened by almost two thirds,” Uehara explains.

When NTT DOCOMO was introducing Google Maps API for Business, a web-based service, into the area information management system, the security was a challenge, as might be expected.

"The area information management system is used in various in-house terminals. Among them, some are separated from outside for security reasons. To cover all terminals, we provided a proxy server for secure terminals. To operate Google Maps API for Business, JavaScript API is more operable, but some terminals are not compatible with JavaScript API. Although the operability of Google is no higher, Google is compatible with Static Maps API, which activates applications without JavaScript, eventually enabling operation of such terminals. Google's preparations for compatibility are reliable," he added as a benefit of Google.

**Reducing map data procurement costs by 90%**

There was another reason that NTT DOCOMO chose Google Maps API for Business. To maintain operation even when a disaster such as the 2011 earthquake occurs, servers storing data have to be distributed all over the world. This is the viewpoint of BCP through a cloud-type service.

Uehara asserted: “The role of the cellular phone communication operator is connected to the lives and safety of victims of a disaster. It has a social obligation never to shutdown the system whatever happens.”

NTT DOCOMO was able to reduce costs needed for map data procurement by at least 90% through the introduction of Google Maps API for Business. In addition, they will improve development efficiency by using API.

"The biggest benefit gained by switching to Google Maps, which is familiar to general users, is increased usability," Uehara explains with a sense of satisfaction.

NTT DOCOMO has been improving their area information system, for example through the addition of Street View, since converting to Google Maps API for Business.

Uehara further comments, "I'm hoping Google Maps API for Business includes 3D information in future. This is because radio wave mapping involves the concept of height. I'm sure Google will do it."