

Capacity to handle over 30 million visits per day, in pursuit of "a web site that never goes down"

The Japan Meteorological Agency (JMA) web site offers information on typhoons, earthquakes, tsunamis, floods, volcanic activities and all other natural disasters. Since such information is closely related to people's lives and safety, it is imperative for JMA to construct a web site that never goes down. With the help of "Smart Content Delivery," the site is now enabled to handle huge traffic, which can exceed 30 million visits per day during the typhoon season.

Traffic surges once a disaster happens. A system that can cope with an unexpected burst of traffic was imperative.



Meteorological information is attracting great public attention as newspapers and TV news shows have been reporting topics on abnormal weather almost everyday over the past few years and as major disasters like the Niigata Chuetsu Earthquake in 2004 hit Japan recently. The JMA web site plays a significant role for Japanese people because it provides information on a cool summer, mild winter, continuous rain, drought, heavy snowfall, etc., which is highly relevant to their everyday lives. The site serves as an important information source for citizens to obtain real-time information in the event of a disaster. It was imperative for JMA to ensure that its web server would never go down due to potential heavy traffic at the time of disaster.

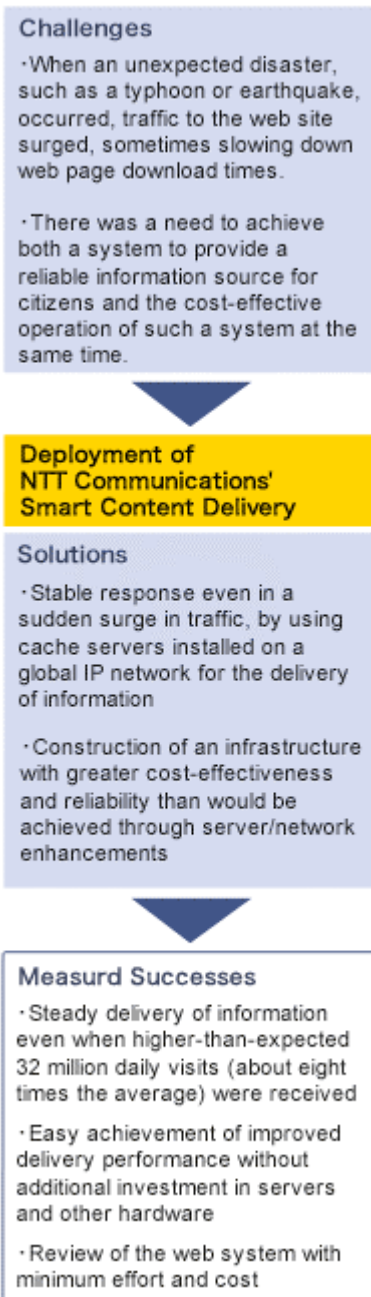
JMA had been implementing step-by-step measures (e.g. increasing the server capacity) against traffic congestion since 2003. However, in 2004, a year when Japan was suffered from an unusual number of typhoons, JMA came to a decision to deploy "Smart Content Delivery

(SCD)," NTT Communications' Content Delivery Service, as a fundamental remedy against the traffic congestion problem.

Among as many as 10 typhoons that hit Japan this year was Typhoon No. 6, which made landfall and moved across the Shikoku and Kinki regions in June, causing heavy rainfalls, high winds and landslides in many parts of the country. On June 21, when the typhoon approached Shikoku, the number of visitors to the JMA web site began increasing exponentially and even made the web site inaccessible temporarily. Even after the typhoon had gone, complaints about inability to access the site and slow response from the server continued for a while.

There was an urgent need to solve the problem because it was directly related to the safety of people's lives. The JMA Director-General was aware of this and prompted his organization to implement remedies in time for the next typhoon. Considering the limits of what they could do internally, JMA decided to ask reliable external experts to propose solutions.

SCD proved its capacity by handling over 30 million visits without problems.



In August, JMA put a contract to supply a solution to this problem out to tender, and among the companies that submitted proposals, NTT Communications won the tender with its Smart Content Delivery (SCD). SCD is a system in which a cache server is installed between the origin web server and the users of the web site so that content is delivered from the cache server. Since the cache server handles access from users, the load on the origin server can be minimized. In addition, load balancing is used during peak traffic times, thereby almost fully

preventing the site from going down and always ensuring users fast response from the server.

In 2004, Typhoon No. 6 and many other typhoons that made landfall on Japan increased public anxiety about weather. However, with SCD deployed in place, the JMA web site continued operating steadily as usual, without slowing down, to provide typhoon and other meteorological information, even in the face of Typhoon No. 16, during which 21 million daily visits (about five times the number during Typhoon No. 6) were recorded, and Typhoon No. 23, during which astonishing 32 million daily visits were achieved. SCD is unlike the approach that tries to cope with unpredictable traffic bursts in the event of a disaster by increasing the server capacity, which would lead to web site operation with uncertainty about how much enhancement should be enough. With its ability to deliver information from multiple cache servers connected to NTT Communications' network, SCD satisfied JMA's requirements.

Toward remaining a reliable web site for citizens

In short, the major requirement for the JMA web site was to be "a reliable site for citizens." In particular, in the event of a typhoon, whose path and speed are hard to predict, the web site serves as an important information source in which the latest developments are available ahead of other sources. Posting accurate information should be a prerequisite to a reliable public information source, but what is more fundamental is ensuring accessibility to the site. Therefore, the steady delivery of information was given the first priority. In addition, excessive capital investment had to be avoided because the site operation was supported by tax money. This means that what was as essential as steady operation was constructing a cost-effective system. With no need for additional investment in servers and other hardware, SCD successfully met these two requirements and was valued highly as having helped the JMA web site win public trust.

Even now, JMA pursues further improvement of its web site, with a plan to upgrade the quality of content, including providing images instead of text-only information before. Although JMA used to be reluctant to post heavy content, the proliferation of broadband connections has made it easy to transfer such content. However, growth in the volume of data being transferred will certainly lead to heavier loads on the server. JMA is considering ways to effectively use SCD in these next phases.

Benefits for the customer

Ability to steadily distribute information even in the event of unpredictable traffic bursts
Improvement in delivery performance without the need for additional hardware investment
Review of the web system at minimum cost

**Stable operation of a reliable web site with ensured accessibility
Construction of a web site that never goes down**

Benefits for end users

Real-time acquisition of information in the event of emergency
Comfortable browsing environment with quick response from the server

**Reduction of frustration on slow response in a comfortable web environment
Improved reliability of the site**

Japan Meteorological Agency(JMA) Web site
<http://www.jma.go.jp/>