

## The Ubiquitous Internet

July 2009

In recent articles, we have talked about the fragility of the Internet and of cloud computing. Companies that depend upon either for critical services must really concern themselves with backup strategies.

Internet failures over wide areas have lasted for days.<sup>1</sup> Cable breaks caused by a range of factors, from construction equipment to ship's anchors, have taken down states and even countries. Power failures, routing errors, web-site hijacking, chewing rats, sunbursts (affecting satellite communications) and even vandalism have wreaked havoc with the Internet.

Cloud computing depends upon the availability of the Internet. It also depends upon the availability of the data centers providing the cloud services, whether they are compute hosting services or software-as-a-service (SaaS) applications. But data centers have been taken down for days by the failure of backup power systems, upgrades gone wrong, explosions, overloads, employee malfeasance, hackers, business failures, and even FBI confiscation.<sup>2</sup>

In the face of these horror stories, the Internet thrives. Pingdom ([www.pingdom.com](http://www.pingdom.com)) provides a service to monitor the availability and responsiveness of web sites (you can add your web site to the Pingdom list). Earlier this year, it published statistics gained from a variety of sources on just how much the Internet is currently used. Following are some of its observations.

### Internet 2008 in Numbers<sup>3</sup>

#### *Email*

- 1.3 billion email users.
- 210 billion emails sent per day.
- 70% of emails are spam.
- 53.8 trillion spam emails sent in 2008.

#### *Web Sites*

- 186 million web sites.
- 31.5 million web sites added in 2008.

---

<sup>1</sup> [The Fragile Internet](#), *Availability Digest*; May 2009

<sup>2</sup> [The Fragile Cloud](#), *Availability Digest*; June 2009.

<sup>3</sup> [Internet 2008 in numbers](#), *Pingdom*; January 22, 2009

## **Web Servers**

- 24.4% growth in Apache web sites.
- 13.7% growth in IIS web sites.
- 22.2% growth in Google GFE web sites.<sup>4</sup>
- 336.8% growth in Nginx web sites.
- 100.3% growth in Lighttpd web sites.
- 77.5 million .COM domain names.
- 11.8 million .NET domain names.
- 7.2 million .ORG domain names.
- 174 million domain names across all top-level domains.
- 19% increase in the number of domain names.

## **Internet Users**

- 1.46 billion total Internet users.
- 579 million Internet users in Asia.
- 385 million Internet users in Europe.
- 248 million Internet users in North America.
- 139 million Internet users in Latin America/Caribbean.
- 51 million Internet users in Africa.
- 42 million Internet users in the Middle East.
- 20 million Internet users in Oceania/Australia.

## **Blogs**

- 133 million blogs.
- 900,000 new blog posts per day.
- 329 million blog posts in 2008.

## **Images**

- 10 billion photos hosted by Facebook.
- 3 billion photos hosted by Flickr.
- 6.2 billion photos hosted by Photobucket.

## **Videos**

- 12.7 billion online videos viewed by North American Internet users per month.
- 87 online videos viewed per month per Internet user in the U.S.
- 34% increase in video viewing in the U.S. in 2008.
- 3.1 minutes is the average online video length.

## **Web Browsers**

- 69.8% are Internet Explorer.
- 20.7% are Firefox.
- 7.2% are Safari.
- 0.9% are Chrome.
- 0.7% are Opera.
- 0.5% are Netscape.

---

<sup>4</sup> GFE – Google Front End, a modification of Apache.

## **Malicious Software**

- 1 million computer viruses in April, 2008.
- 468% increase in malicious code.

Despite the frailties of the Internet, it has become a part of life to 20% of the 6.7 billion people that inhabit the earth today. To many, it is more than a part of life – it is a perceived necessity.

## **Social Networks**

The need for the Internet is getting further fueling from the rapid increase in social networking. As part of its monitoring services, Pingdom has reported on the availability of fifteen of the most popular social networks.<sup>5</sup>

Only five social networking sites achieved an availability of three nines or better (up 99.9% of the time, or down for no more than eight hours per year). They were Facebook, MySpace, Classmates.com, Xanga, and Imeem.

Friendster suffered one of the longest outages when it was down for 23 hours over a three-day period in November because of a data-center problem. One-third of the social networking sites suffered outages of over a day and a half in 2008. A good bit of this downtime was caused by overloading due to the rapid increase in the number of users.

Social-network downtime was most notable for Twitter, which seems to have exploded prior to the U.S. presidential elections and peaked with the untimely death of pop icon Michael Jackson. In 2008, Twitter suffered more downtime than any other social site monitored by Pingdom, though its performance improved during the second half of the year. For the year, it was down for 84 hours, achieving an uptime of barely 99%.<sup>6</sup>

Next behind Twitter was LinkedIn with 45.8 hours of downtime.

## **Summary**

The Internet provides important services but on a best-efforts basis. It makes no claim that it will reliably deliver messages. It just does the best that it can. However, given that, the Internet provides a high level of service – not telephone quality but more than sufficient for most of the tasks for which it is used.

There is a trend for companies to use the Internet for critical services, initially for email services but more and more for cloud computing. This should only be done with great caution and with contingency plans in place to account for the loss of Internet service or cloud data centers, perhaps for days.

A growing trend in Internet usage is social networking. Companies are beginning to look to social networking sites such as Twitter, Facebook, and LinkedIn to communicate with their customers. To interact with customers for marketing purposes is one thing. If social networks are to be used to communicate critical information such as actions to take in an emergency, this use should be approached with caution.

---

<sup>5</sup> Facebook, MySpace More Reliable Than Peers, *Information Week*; February 19, 2009.

<sup>6</sup> Study: Twitter's Uptime Horrible in 2008 but Improving, *PC World*; February 19, 2009.