the Availability Digest

Internet Disruptions
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An interruption of its Internet service can wreak havoc with a company. A recent survey by Spiceworks[1] focused on the impact that an internet-service disruption could have on an organization. The survey was sponsored by Dyn, a major DNS (Domain Name Services) provider that resolves URLs entered by users into IP addresses so that the web sites being referenced by the URLs can be accessed via the Internet.

The Dyn survey included over 200 IT decision makers in companies with over 1,000 employees in the U.S., Canada, and the U.K. that have external facing applications.

The Results of the Dyn Survey

Nearly all organizations (89%) experienced an Internet disruption in the last twelve months. The biggest cause was network outages. Also contributing were unplanned maintenance, hardware failure, and human error.

13% of the affected companies described the outage as 'crippling.' 22% said the outage was 'excruciating,' and 44% said the outage was 'painful.' This validates the importance for IT operations' ability to diagnose, troubleshoot, and solve these issues as quickly as possible.

On the average, it took a full business day to resolve the outage (7.4 hours for outages within the corporate network, 8.7 hours for outages outside of the corporate network).

The most cited result of Internet outages was frustration by end-users, management, and team members. Other impacts included employees having to work long hours, more helpdesk tickets, and more tension between IT and other departments.

The top impact is increased customer-support calls, followed by the cost and time of resources assigned to address the problem, reduced employee productivity, decreased customer satisfaction, loss of revenue, and exposure to security risks.

IT operations personnel expressed many concerns:

- information loss
- repeating incidents due to the lack of root cause analysis
- loss of revenue
- the time needed to recover
- loss of customer confidence

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[1] Internet Disruption Study, *Dyn*; January 2017.
http://hub.dyn.com/whitepapers-ebooks/internet-disruption-study

- breach of information

91% of the companies were concerned about experiencing a major internet disruption in the next six months. 10% were extremely concerned. 20% were very concerned. 27% were concerned. 34% were somewhat concerned.

All organizations are taking steps to protect their network and end-users against Internet volatility.

- 44% are monitoring network activity and identifying patterns.
- 44% are enforcing end-user policies.
- 42% are restricting user permissions and actions.
- 41% are improving network infrastructure.
- 40% are learning about new types of threats and risks.

The Dyn Outage

It is interesting that Dyn made this survey. Dyn itself was the cause of a massive Internet outage in October 2016.[2] As a Domain Name Services provider, Dyn resolves URLs entered by users into IP addresses so that the web sites being referenced by the URLs can be accessed via the Internet.

On the morning of October 21, 2016, Dyn was hit by a massive Distributed Denial of Service (DDoS) attack. This prevented access to several major websites, including NetFlix, Twitter, CNN, PayPal. Fox News, Amazon, and Github. It took Dyn over two hours to resolve the attack. However, the attack was launched twice more during the day. During each of the attacks, the affected websites were unavailable for access by anyone.

The Dyn DDoS attack was executed by the Mirai virus, malware that self-propagates through a myriad of unsecured IoT devices. According to Dyn, the DDoS attacks were coming from tens of millions of IP addresses at the same time.

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[2] U. S. Internet Traffic Comes to a Halt, *Availability Digest*; November 2016.
http://www.availabilitydigest.com/public_articles/1111/internet_outage.pdf