The Internetâ€™s Design Flaws

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Article published on May 18th 2012 | Computer

While there is no doubt the Internet is extremely useful, it is far from perfect. In fact, some of its flaws can be incredibly frustrating and limiting, especially if you work in IT. Whether you are a database developer or involved in web development, knowing how to negotiate the Internetâ€™s design quirks can save you a huge amount of time.

Outdated protocols are a particular problem online, as they can inadvertently cause security risks. Cyber attacks can affect everyone on every level, from phishing scams to hacks on government databases; ensuring protocols are up to date is an essential step you can take to improve security.

Bill Hancock, the chief security officer of Savvis, the worldâ€™s largest web hosting company, stated that the company gets attacked up to 400 times each day. Outdated protocols are one reason Hancock gives for these attacks.

Protocols such as TCPIP were developed at the start of the 1970s and as such are unable to defend against recently-developed security threats. The upshot of this is that security attacks will continue until the protocols are improved and brought up to date.

Another problem with the Internetâ€™s design is that IP addresses are in short supply. Everything on the Internet requires an IP address, which acts in a similar way to a phone number. But experts are now saying that the existing IP address space is close to reaching its limit.

The reason for this shortage is that the Internet is currently built around the Internet Protocol addressing scheme (IPv4), which has around four billion addressesâ€™ worth of space, while its successor, IPv6, has trillions.

As people in IT jobs have discovered, while the existing IPv4 provided an ample enough IPs in the Internetâ€™s infancy in the 1970s, today, with the Internet being more ubiquitous and growth exploding in India and China, four billion IP addresses simply arenâ€™t enough.

A couple of solutions have been mooted by IT developers to overcome this problem. One is to switch to IPv6, which has a slow uptake at present because businesses do not see it as particularly immediate â€“ this is because it will take a few years to implement properly.

Another option is to change how IP addresses are used, so that each device does not receive its own one. Internet Service Providers (ISPs) have also discovered a way to use fewer IP addresses for entry-level Web users â€“ those who just want to browse and use certain services, rather than more advanced features like creating their own websites or sharing files.

The issue here is that the Internet would no longer be the democratic area it is now, where everyone can do as much as anyone else.

Flaws in network design are another problem with the Internet, and yet, unlike some others, these can be eradicated by the user. One of the biggest problems is when a company implements their network security but then forget all about it under the assumption that itâ€™s been done and thatâ€™s the end of it.

The fact is, that security threats are constantly changing and updating, so defences have to be maintained pretty much constantly to stand a chance of fending off attack.

While thereâ€™s no particularly obvious or easy answer to this, if the Internet was to be redesigned in the future, one current flaw to address would be easier ways to deal with security threats.

Network design flaws are particularly dangerous. Although most people are aware of the importance of having anti-virus software on their computers, the fact is that such software will be of no use to protecting a network that has design flaws.

For instance, network designs that predate security problems will be useless against modern attacks. Should the Internet be redesigned at any point, focusing in on network design security should be a prime consideration.

Whether you work in IT or not, it is important to learn about the Internetâ€™s shortcomings â€“ a good knowledge of these can help you avoid numerous potential pitfalls.

Article Source:
http://www.articleside.com/computer-articles/the-internet-s-design-flaws.htm - Article Side

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Article Keywords:
Internet, design, IT jobs, IT developers

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