Mobile Broadband Adoption Soars Worldwide but Lags in Less-Developed Countries

Mobile broadband is the fastest growing technology in history, according to a recent report by the United Nations Broadband Commission for Digital Development.

However, the study added, mobile broadband adoption is lagging considerably in countries with less developed economies.

State of Broadband 2013: Universalizing Broadband was the second annual report on global broadband adoption issued by the Broadband Commission, a joint initiative of the International Telecommunication Union (ITU) and the United Nations Educational, Scientific, and Cultural Organization (UNESCO).

The study found that mobile broadband subscriptions are growing 30 percent annually and predicted that, by the end of this year, they will represent three times as many connections as those for fixed broadband.

Singapore was the country with the greatest number of mobile broadband subscriptions per 100 people with 123.3 (including multiple connections for some individuals).

The countries with the highest levels of fixed-broadband penetration were

- Switzerland: 41.9 percent
- Netherlands: 39.4 percent
- Denmark: 38.2 percent
- France: 37.8 percent
- South Korea: 37.6 percent

The countries with the highest percentage of the population using the Internet were

- Iceland: 96.0 percent
- Norway: 95.0 percent
- Sweden: 94.0 percent
- Denmark: 93.0 percent
- Netherlands: 93.0 percent

In 71 countries, at least half the population is online.

“The new analysis in this year’s report shows progress in broadband availability, but we must not lose sight of those who are being left behind,” said ITU Secretary-General Hamadoun I. Touré, who is also the Broadband Commission’s co-vice chair. “While more and more people are coming online, over 90 percent of people in the world’s 49 least developed countries remain totally unconnected. The Internet—and particularly broadband Internet—has become a key tool for social and economic development, and needs to be prioritized, even in the world’s poorest nations.”

One of the Broadband Commission’s stated goals is achieving universal, affordable broadband access worldwide.

Proposal to Close the WHOIS System Draws Sharp Criticism

An Internet regulatory body’s plan to close the WHOIS system for domain-name registration records has generated controversy.

An expert working group of the Internet Corporation for Assigned Names and Numbers (ICANN)—which coordinates the domain-name system and Internet numbering system—proposes setting up an Aggregated Registration Data Service for storing domain-name records (www.icann.org/en/groups/other/gtld-directory-services/initial-report-24jun13-en.pdf).

Organizations and individuals wanting to access the information would have to convince ARDS that they need it for legitimate purposes.

The proposal’s list of permissible purposes includes law-enforcement investigations; domain-name research, sale, and purchase; regulatory enforcement; personal data protection; legal actions; and abuse mitigation.

Not included is use by journalists, who traditionally have utilized WHOIS as an investigative tool.

Currently, various registrars store domain-name registration data. Anyone can go

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Mobile broadband subscriptions per 100 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Singapore</td>
<td>123.3</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>113.1</td>
</tr>
<tr>
<td>3</td>
<td>Finland</td>
<td>106.5</td>
</tr>
<tr>
<td>4</td>
<td>South Korea</td>
<td>106.0</td>
</tr>
<tr>
<td>5</td>
<td>Sweden</td>
<td>101.3</td>
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<tr>
<td>6</td>
<td>Australia</td>
<td>96.2</td>
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<tr>
<td>7</td>
<td>Denmark</td>
<td>87.5</td>
</tr>
<tr>
<td>8</td>
<td>Norway</td>
<td>84.6</td>
</tr>
<tr>
<td>9</td>
<td>US</td>
<td>74.7</td>
</tr>
<tr>
<td>10</td>
<td>Hong Kong (China)</td>
<td>73.5</td>
</tr>
</tbody>
</table>

Source: United Nations Broadband Commission for Digital Development
to websites—such as http://who.is—to obtain this information.

The ICANN working group—along with other critics of today’s system—says WHOIS contains too much inaccurate data and violates the privacy of domain-name owners.

Opponents of the ARDS plan, including some security and technology experts, admit that the current system doesn’t work well but say closing it isn’t the answer. They argue that WHOIS is an integral part of the Internet to which people should have access and that no organization should have the power that would come with controlling it.

They also say the plan would make it difficult for agencies to get the information they need to combat phishers, spammers, and others who cause problems online.

In addition, opponents contend that closing the WHOIS system would violate the Internet’s openness, which is credited with driving considerable innovation.

However, the ARDS proposal received support from groups such as the Center for Democracy & Technology—an organization that advocates for free expression and privacy on the Internet. CDT has advocated allowing individuals, but not businesses, to opt out of making their registration data public.

ICANN hasn’t provided a timetable as to when it will decide on the ARDS proposal.

Hackers Hit Adobe, Steal 38 Million Users’ Information

Adobe Systems says a recent data breach affected 38 million active users of its software, not the 3 million the company initially reported.

The hackers stole encrypted credit card records and user information.

Adobe reset the passwords for all hacked accounts. It then contacted the users, urging them to choose new passwords to use in the future. The company said it has seen no evidence of unauthorized activity on any affected accounts.

The hackers obtained source code for some Adobe products, including Acrobat and Reader, used to create, manipulate, print, manage, and view PDF files; the ColdFusion Web-application development platform; and the Photoshop graphics-editing program.

Security experts say possession of the source code could enable hackers to launch highly effective attacks against the applications and their users.

According to experts, the intruders also stole 130 million passcodes used over the years by Adobe customers, including government agencies and big companies.
Researchers: Flaw Could Undermine Bitcoin System

The bitcoin system has a problem that could let relatively few people gain control of the virtual currency, according to Cornell University computer scientists.

Associate professor Emin Gün Sirer and postdoctoral fellow Ittay Eyal say the flaw lies in the way bitcoins are created.

The increasingly popular system, started in 2009 and overseen by the Bitcoin Project, provides a distributed, peer-to-peer infrastructure that, unlike countries' official currencies, works without a central bank or other overall authority.

About 11.9 million bitcoins, worth approximately $2.5 billion, are currently in circulation.

Bitcoin uses individuals and groups—called miners—to track and verify all network transactions. Those transactions shown to be legitimate are added to the public ledger, called a block chain, which confirms them to the rest of the network.

As part of the verification process, miners compete to solve a complex mathematics puzzle using their computers. The person who solves a puzzle first receives bitcoins. The system is designed to create competition that leads to the limited and even distribution of the currency.

However, according to the Cornell researchers, people they call selfish miners could use the system to gain an advantage over other participants and acquire large numbers of bitcoins.

That is because although puzzle solutions are kept in the publicly available block chain, they aren't openly publicized.

Thus, if individuals find the answer to a problem but don't announce it, they could start on the next puzzle and let others continue to try to work on the previous, already solved one.

Groups of miners could collaborate and combine their resources to solve puzzles quickly, thereby increasing their chances of acquiring new bitcoins. A big group could thus own a large number of bitcoins and thereby affect the currency's value by releasing or withholding bitcoins from the system.

They would, in essence, act like the central authority that the bitcoin system seeks to avoid.

Sirer and Eyal say there are already groups of miners big enough to implement the selfish-miner scheme, although the researchers admit they haven't seen evidence that this is occurring.

In a recent blog, Bitcoin Foundation chief scientist Gavin Andresen praised the increased research into the bitcoin system. However, he expressed concern that the Cornell study hasn't been peer reviewed and wrote, "I believe the paper's assertion of a fundamental flaw is based on some oversimplified assumptions about how the bitcoin-mining market works."

New Programming Language Designed for Less-than-Perfect Computing

University of Washington computer scientists have developed a computing language that enables machines to save energy by not trying to correct all errors in all applications.

The Enerj language lets unimportant mistakes occur occasionally but works to prevent major problems.

Traditionally, computers have been designed to be highly accurate and reliable. To do so, however, they must use large amounts of energy.

This wasn't a major issue early in computing history, when processors had fewer transistors and didn't consume so much power.

Now, though, complex processors contain many transistors and burn large amounts of energy, which could be costly in huge datacenters and quickly use up all the power in mobile devices' batteries.

The University of Washington researchers built Enerj as a two-part system: one that works with tasks that require great accuracy such as encryption, and one that handles processes that can function with small errors such as the playing of movies or speech recognition.

This approach lets computing systems focus the energy required for accuracy only on critical applications that must be highly precise to succeed. Not doing so for less-important applications saves power.

Utilizing Enerj, programmers could indicate in their code whether information must be processed precisely or could tolerate some errors. This would enable the computer to determine how to handle various datasets.

In simulations, Enerj has typically reduced energy usage by 10 to 50 percent. The researchers contend they will be able cut power consumption in some cases by 90 percent.

They say Enerj would function best with energy-saving CPU designs and are working with Microsoft Research to design such processors.

Enerj is a Java extension, but, the researchers note, its approach could work with most languages with data types the programmer declares explicitly.

Adobe reportedly used reversible encryption, rather than one-way cryptographic hashing, to encode the passwords. If crackers figure out the encryption keys used, they could see the passwords in plaintext, which could help them break other passwords in the future.